Dragonframe User Guide

For Mac

Welcome

Dragonframe is a stop-motion solution created by professional animators—for professional animators. It's designed to complement how the pros animate. We hope this manual helps you get up to speed with Dragonframe quickly.

The chapters in this guide give you the information you need to know to get proficient with Dragonframe:

"Big Picture" on page 1 helps you get started with Dragonframe.

"User Interface" on page 15 gives a tour of Dragonframe's features.

"Camera Connections" on page 47 helps you connect cameras to Dragonframe.

"Cinematography Tools" on page 61 and "Animation Tools" on page 89 give details on Dragonframe's main workspaces.

"Using the Timeline" on page 115 explains how to use the timeline in the Animation window to edit frames.

"Alternative Shooting Techniques (Non Stop Motion)" on page 129 explains how to use Dragonframe for time-lapse.

"Managing Your Projects and Files" on page 133 shows how to use Dragonframe to organize and manage your project.

"Adding and Editing an Audio Clip" on page 145 and "Reading Dialogue Tracks" on page 155 explain how to add an audip clip and create a track reading.

"Using the X-Sheet" on page 171 explains our virtual exposure sheet.

"Automate Lighting with DMX" on page 191 describes how to use DMX to automate lights.

"Adding Input and Output Triggers" on page 215 has an overview of using Dragonframe to trigger events.

"Motion Control" on page 223 helps you integrate your rig with the Arc Motion Control workspace or helps you use other motion control rigs.

"Shooting in 3D" on page 273 explains how to connect Dragonframe to a stereo slider, set up 3D exposures, and review your 3D sequence.

"Exporting Your Take" on page 291 explains how to access your files for post-production.

"Preferences" on page 303 explains all of Dragonframe's preferences and settings.

Dragonframe User Guide

New Features for this Version

Dragonframe 3.6 includes new camera support, an image sequence import feature, and many performance and stability improvements.

New Features and Improvements

- New camera connectivity code uses direct USB/PTP communication to increase compatibility and stability.

- Image sequence import for creating an animation from a sequence of images shot outside of Dragonframe.

Support for new camera models:

- Canon EOS 1200D/EOS Rebel T5/EOS Kiss X70
- Canon EOS 7D Mark II
- Nikon D3200
- Nikon D3300
- Nikon D750
- Blackmagic Production Camera at 4K resolution

See also:
"Importing Images" on page 138.

Table of Contents

Maps

Chapter 1: Big Picture

This chapter will help you get started using Dragonframe. It includes an overview of how Dragonframe works, gets you acquainted with its main workspaces, and helps you quickly connect cameras to your computer. Finally, it explains some important Dragonframe concepts, like the takes and exposures that enable you to do more complex effects, as well as how to use Dragonframe to work with RAW and HDR files.

This chapter includes the following sections:

"How Dragonframe Works" on page 1.
"Powerful Tools" on page 3.
"Quick User Interface Overview" on page 4.
"Activating Your Software" on page 6.
"Quick Set-Up Guide for Supported Video and Still Cameras" on page 9.
"Passes, Takes and Exposures Explained" on page 10.
"RAW File Workflow" on page 13.
"HDR (High Dynamic Range) Workflow" on page 14.

See also:
Dragonframe tutorials:
http://www.dragonframe.com/tutorials.php

Dragonframe camera setup troubleshooting page:
http://www.dragonframe.com/camera_setup_troubleshooting.php

How Dragonframe Works

When shooting animation, Dragonframe will create two separate image sequences in tandem. The first is a series of low-res frames derived from a live video source for use in refining animation. The second is from a high-quality capture source, such as RAW files from a DSLR, for finished frames. These image sequences are kept in perfect tandem during shooting and editing within Dragonframe.

This process takes particular advantage of the new DSLR Live View capabilities. Dragonframe switches the DSLR from a video assist mode to a full-fledged high-quality capture mode every time you shoot a frame.

Basic Overview of DSLR Shooting

1. The animator compares the live video with stored video assist frames taken from the video source. Because the video assist is live, they can make changes and test them immediately.

2. When the animator is ready to capture the new frame, they press **SHOOT**.

3. Dragonframe grabs a video assist frame from the video source and stores it on disk and in RAM, ready for playback.

4. Immediately after capturing the video assist frame, Dragonframe switches the camera into full-quality mode and captures a high resolution still. Dragonframe also immediately downloads this high-quality image to disk.

Dragonframe names and numbers both the feed frames and high-quality captures with the scene and take info for your shot.

• Find your feed frames within your Scene folder: in the folder called **PROJECT NAME_TAKE NAME_FEED.**

• Find your high-quality capture frames within your Scene folder: in the green frame folder.

See also:
"Finding Your Source Files" on page 292.

Other Configurations:

There are other configurations for shooting with Dragonframe, such as:

• Shooting DV or HD video only.

• Using a DSLR with a separate video feed (DSLR with no Live View).

• Using a film camera with a separate video feed source.

• Shooting with a DSLR and foregoing the live video.

By leveraging the instant feedback of live video assist and the beautiful image quality from digital still capture, Dragonframe can help you move quickly while producing feature-film-quality results.

See also:
"Camera Connections" on page 47.

Powerful Tools

Dragonframe brings together a powerful set of stop motion tools into one production-savvy application.

Animation Tool

Using a live video source, Dragonframe shows the animator a preview of the frame they are preparing to shoot and the frame's relationship with previously captured frames. The animator can compare this frame to the last frames by stepping one frame at a time, using full-speed playback or using the onionskin feature.

See also:
"Animation Workspace Overview" on page 15.

High-Quality Image Capture Tool

Whether you are shooting with HD video or a digital still camera, Dragonframe carefully captures the highest-quality images possible. These high-quality frames can come from a different source than the video assist. Dragonframe stores the high-quality frames on disk as soon as you shoot them.

When storing images from your camera, Dragonframe does not reprocess them. Dragonframe delivers RAW files and other formats straight from your DSLR to a folder without ever hiding them from you.

If you are shooting HD or SD video as your final capture, your images can be made from a series of averaged video frames. This process reduces noise and video artifacts.

Cinematography Tool

Our Cinematography workspace is your starting point for adjusting your camera's settings and comparing test shots. You can set up masking and broadcast-safe guides simultaneously. Dragonframe gives you histograms and a digital densitometer to evaluate image quality and consistency between scenes and takes.

See also:
"Cinematography Tools" on page 61.

Production Tool

Dragonframe is a production-savvy system with features that help you manage your production.

- Dragonframe uses the same naming hierarchy used on live-actions sets around the world.

- Each Dragonframe project folder is easily to navigate—even during shooting.

- Our frame sequences are a snap to load into compositing software.

- Multiple passes and extra exposures are organized simply for stereo (3D) shooting, clean passes and other post effects.

- Every frame shot with Dragonframe is easily searchable by scene, take and exposure name.

- Our movie export produces movies in a variety of standard video formats, including QuickTime movies, h.264/aac mp4 files, and Windows AVI and WMV.

See also:

"Exporting Your Take" on page 291.

"Available Movie Formats" on page 298.

"Finding Your Source Files" on page 292.

"Passes, Takes and Exposures Explained" on page 10.

"Creating a Movie of Your Take" on page 296.

Quick User Interface Overview

The core of Dragonframe's user interface revolves around the two key artistic practices involved in shooting stop motion: animation and cinematography. From there our platform branches out into the DMX

workspace, audio and dialogue editing, the Arc motion control inter-
face, and the keypad.
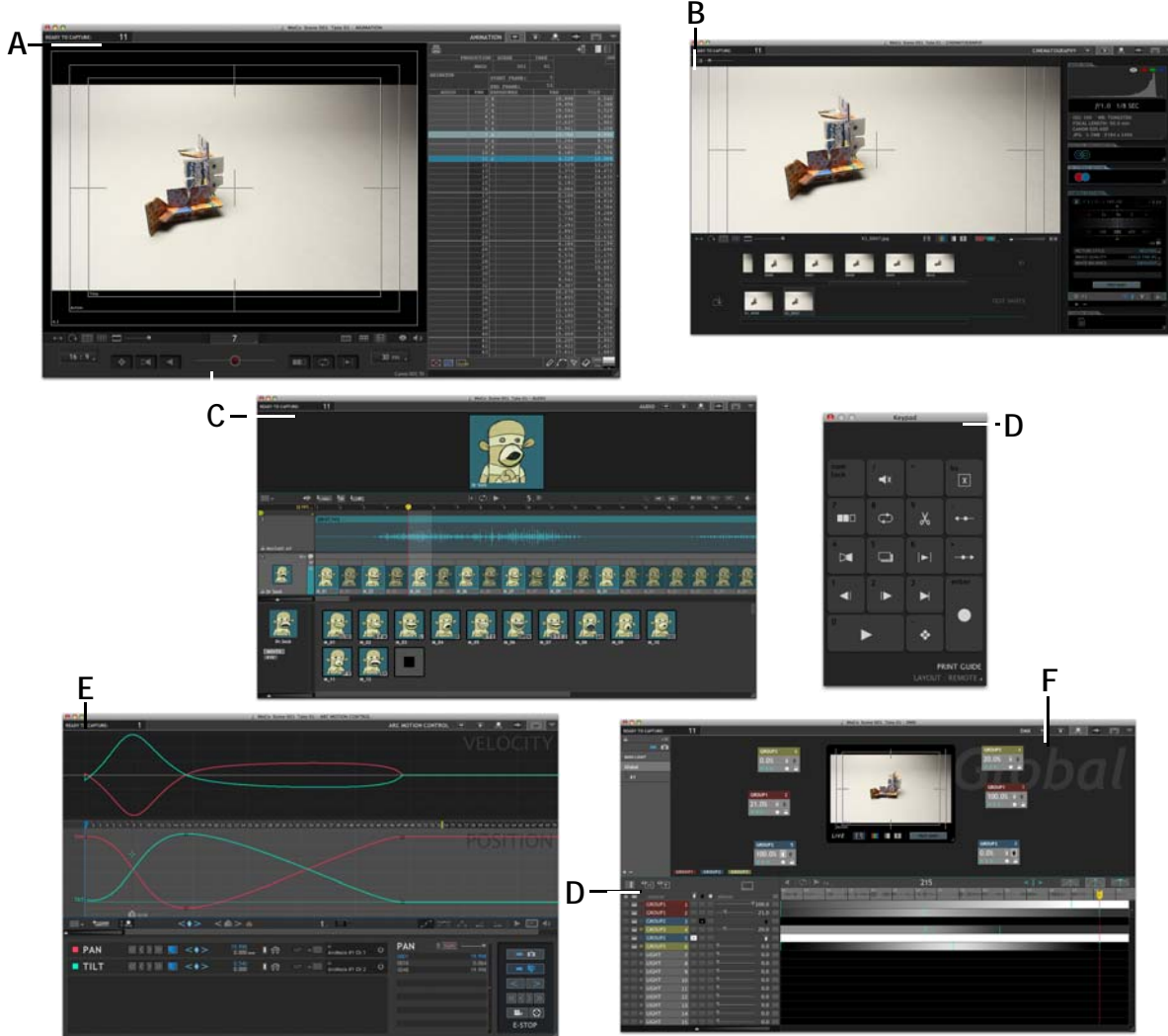
A. Animation workspace with X-Sheet. *B.* Cinematography workspace. *C.* Audio workspace.
D. Keypad. *E.* Arc Motion Control Workspace. *F.* DMX Workspace.

See also:
"Animation Workspace Overview" on page 15.

"Cinematography Workspace Overview" on page 22.

"X-Sheet Overview" on page 25.

"Dragonframe Keypad Overview" on page 29.

"Audio Workspace Overview" on page 27.

"DMX Workspace Overview" on page 24.

 "Motion Control Workspace Overview" on page 28.

Dragonframe tutorials:
http://www.dragonframe.com/tutorials.php

Activating Your Software

Once you download a copy of Dragonframe, you'll need to activate the copy to use it. When you start up the program for the first time, the Dragonframe --Activation dialog appears. From there, you can activate a trial version, a full version, or a floating license.

Activating a Trial License

To activate the trial version, make sure **ACTIVATE TRIAL MODE** is selected, and click **ACTIVATE**.

NOTE: You must have an Internet connection to activate a trial license.

Activating a Full License

To activate a full version of the software, or to upgrade from a previous version:

1. Enter your full serial number from the invoice you received via e-mail:

INVOICE

DZED Systems LLC
530 W. Ojai Ave, Suite 202
Ojai, California, 93023
United States
CALL US: +1.800.530.9124
Fax: +1.877.302.6704
purchase@dragonframe.com

Date: 01-01-2011 10:25
Order id: #12345
Order status: Complete
Payment method:
Credit Card
Delivery method:
USPS Priority Mail

Email: janedoe@fakemail.com
Company: Doe Motion

Billing address

First name:	Jane
Last name:	Doe
Address:	316 Cross Wy
City:	New York
State:	NY
Country:	United States
Zip/Postal code:	10001
Phone:	

Shipping address

First name:	Jane
Last name:	Doe
Address:	316 Cross Wy
City:	New York
State:	NY
Country:	United States
Zip/Postal code:	10001
Phone:	

Products ordered

SKU	Product	Item price	Quantity	Total
DF3	Dragonframe 3 + Controller SN: D3R01-XXXXX-XXXXX-XXXXX-XXXXX	US$295.00	1	US$295.00

Subtotal: US$295.00
Shipping cost: US$5.95

Total: US$300.95

Thank you for your purchase!

DZed Systems, LLC Invoice with serial number marked.

2. (Optional) Enter the serial number from the 2.x version of Dragonframe you purchased to upgrade to 3.x.

3. Enter a name you want associated with the license in the **REGISTERED TO** field. It must be at least three characters.

4. (Optional) Enter your email address. You will be added to the Dragonframe customer database. Entering your email will:

- Allow you to look up your serial number if you lose it (or have us look it up for you).

- Provide DZed Systems to get in touch with you if you submit a problem report.

- Notify you about critical updates and major releases to Dragonframe (maximum 1-2 emails a year).

Floating License Manager

Dragonframe can provide you with a floating license manager if you are an institution (typically a school or a large company) that holds multiple Dragonframe licenses. The floating license manager is a program that must run a local server within your institution that can serve licenses to Dragonframe client applications.

Contact customer support to request a floating license manager.

See also:
Our contact page:
http://www.dragonframe.com/contact.php

Transferring a License

To transfer your license to another machine:

1. Click **HELP|DEACTIVATE LICENSE…** to deactivate it on your current machine.

2. Open Dragonframe on your other machine.

3. Select **HELP|ENTER LICENSE…** Dragonframe opens the license dialog.

4. Enter your full serial number.

5. Enter a name you want associated with the license in the **REGISTERED TO** field. It must be at least three characters.

6. Click **ACTIVATE**. Dragonframe activates your license on the other machine.

NOTE: If the machine that was activated is no longer working, send in a support request. Make sure to include your serial number.
http://www.dragonframe.com/tt/ticket.php

Quick Set-Up Guide for Supported Video and Still Cameras

This section explains how to connect video and capture sources.

1. Configure the camera's settings to work with Dragonframe.

   Check our camera web page for a list of supported cameras and specific set-up guides:
   http://www.dragonframe.com/camera.php

2. Connect the camera(s) to the computer according to the manufacturer's directions.

   • Digital still cameras generally connect via USB.

   • DV and HDV sources generally connect via Firewire.

   • HDMI sources generally connect via an HDMI cable, using a video card such as the Blackmagic Intensity:
   http://www.blackmagic-design.com/products/intensity/

3. Turn off other camera software.

   Make sure no other software has detected your camera and started up. Quit any software that wants to connect to the camera.

4. Open Dragonframe.

   Dragonframe should auto-detect the camera and send a live video signal (if available) into the Animation workspace. Click **CAPTURE|VIDEO SOURCE** and **CAPTURE|CAPTURE SOURCE** to check the status of camera connections.

5. Remember the keystroke **COMMAND R**. It resets connections to cameras.

   Or, select **CAPTURE|RESET/REFRESH CONNECTIONS**.

   If you are connecting a camera to a computer while Dragonframe is already running, press **COMMAND R** to activate a connection to Dragonframe.

NOTE: If you run into trouble with your camera setup or operation, go to our camera setup troubleshooting page:
http://www.dragonframe.com/camera_setup_troubleshooting.php

If you are using a DSLR, go directly to the Cinematography workspace to adjust all of your exposure-related settings, including image quality and white balance.

See also:
"Camera Connections" on page 47.
"Connecting an Unsupported Camera to Dragonframe" on page 53.

Passes, Takes and Exposures Explained

Effects shots can take many forms, such as clean passes, plate shots and matte passes. In this section, we cover how Dragonframe can make the multi-pass process simple and organized.

Dragonframe creates effects passes in two specific ways:

1. *Straight Pass:* Shooting a continuous series of frames before or after other passes are complete.

To set up a straight pass in Dragonframe, create a new take within your scene.

2. *Sub-Frame Pass:* Capturing two or more images for each frame in time. In Dragonframe, this is called an exposure. Each take may contain up to twelve exposures.

To set up a sub-frame pass in Dragonframe, create a new exposure from the Camera Control in the Cinematography workspace.

As you read the examples of these passes that follow, keep Dragonframe's folder and frame hierarchy in mind.

- A Dragonframe project is known as a scene (gray folder). Here, the scene is named "Sample".

- A scene folder holds takes (red folders).

- Take folders hold exposures (green folders).
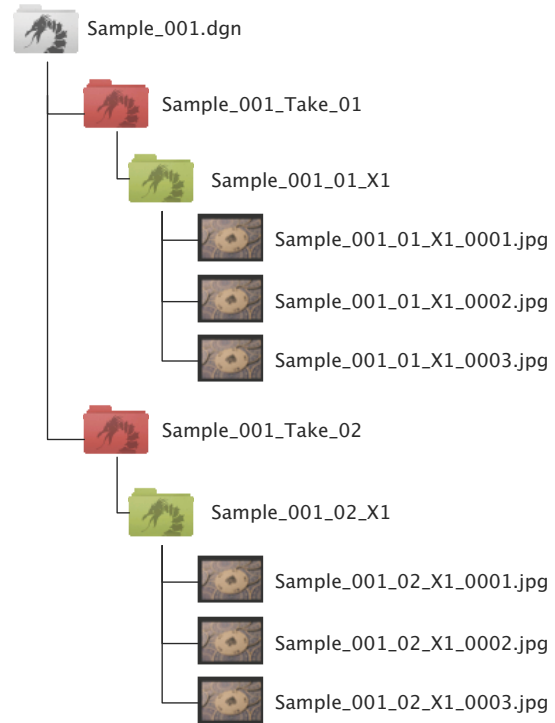
See also:
"Creating a New Take" on page 137.
"Multiple Passes and Exposures" on page 78.
"Finding Your Source Files" on page 292.

Straight Pass

A straight pass is a separate sequence that is usually the length of the main beauty pass and is shot straight through from frame 001 to the end.

A common use for a straight pass is the clean pass or clean plate. There are times when the rigging in a shot is tough to hide. You may choose to mask out the rigging in post-production. After you are done with your main take, remove the characters and objects that were animated and shoot a new take of the set. Now you have a clean version of your shot to mask over the rigs.

Shooting your animation on green screen for a main take and shooting a separate background to composite the animation into is an example of using two straight passes.

The simplest way to create a new straight pass is to add a new take to the scene you are working in. This will keep all of the scene information from the previous take and set you to frame one. Or, create a new scene file for the extra passes. You can import scene settings from a previous scene if necessary.

See also:
"Creating a New Take" on page 137.
"Creating a New Scene" on page 133.
"Importing Scene Settings" on page 140.
"Using Chroma Key" on page 107.

Sub-Frame Pass

The sub-frame pass refers to secondary frames taken while animating. Because stop motion animation is most likely non-repeatable, some passes need to be generated on a frame-by-frame basis. Mattes, stereo pairs, and special lighting passes are all examples of sub-frame passes.

To create a sub-frame pass, add an Exposure from the Camera Control pane within the Cinematography workspace.

A common example of a sub-frame pass is the front light/backlight pass. The front light frames are the images you see (beauty pass), while the backlight frames are used to generate a matte for compositing. In the film days, this would be called a checkerboard matte because the beauty and matte pass were shot on a single strip of film. The film would look like alternating dark and light squares. The passes would be separated through the use of an optical printer. In Dragonframe, the exposures are separated and organized as you shoot.

Here is an example of a checkerboard-style matte using a green screen card instead of a backlight. By placing the card behind your subject during a second exposure, you can create a matte pass as you shoot.

1. Shoot the beauty shot: FRAME 001, EXPOSURE 1.

2. Place a green screen card behind your subject. Shoot the second exposure of frame 001 to create a matte frame: FRAME 001, EXPOSURE 2.

3. Shoot the second beauty shot: FRAME 002, EXPOSURE 1. When you step through your animation, you will only see the beauty pass.

4. Repeat this process until you're done with the scene.

Dragonframe automatically places the beauty and matte exposures into separate folders, ready for post-processing.

See also:
"Multiple Passes and Exposures" on page 78.
"Using Chroma Key" on page 107.

RAW File Workflow

With the development of the RAW file, digital still cameras are now rivaling the tonal fidelity and flexibility of 35mm film.

Working with RAW Files in Dragonframe

Most digital still cameras give you the choice of shooting RAW with an 8-bit file (.jpg, .tiff) or RAW only.

- If you choose to shoot RAW with .jpg or .tiff, Dragonframe will download both the RAW and the 8-bit files into the same exposure folder with matching names. The Cinematography workspace will display only the 8-bit file for evaluation and high-res playback in the Animation workspace.

- If you shoot RAW only, Dragonframe will download the RAW files into the proper exposure folder. Each RAW file has an embedded .jpg file. Dragonframe will use the embedded .jpg for display in the Cinematography workspace and for high-res playback in the Animation workspace.

Final Raw Processing

Dragonframe names all of your RAW files with the specific scene, take and frame numbers from your animation. The RAW frame sequence is ready for import into your post-production pipeline.

If you need a quick way to convert your cameras native RAW files into Adobe's DNG file format, we suggest using Adobe's free DNG converter: http://www.adobe.com/products/dng/

Dragonframe doesn't reprocess RAW files. We suggest programs like Adobe's After Effects to process and resize your RAW files.

After Effects CS4 can easily recognize many RAW formats and import them as an image sequence straight from your Dragonframe exposure folder (green folder).

See also:

HDR (High Dynamic Range) Workflow

Create HDR images by combining images with different exposure levels. First, use Dragonframe's multi-exposure system to create two or more frame sequences with varying exposure levels. Then, import the frame sequences into an HDR-creation application or batch-process them in Adobe Photoshop.

See also:

Chapter 2: User Interface

Dragonframe's workspaces, tools, and hardware have been designed with you in mind. We've not only taken our team's experience with animation, but worked with top animators for their feedback. We hope the result is a usable and beautiful interface.

This chapter includes the following sections:

See also:
Dragonframe tutorials:

http://www.dragonframe.com/tutorials.php

Animation Workspace Overview

The Animation workspace is the central location for all your animation features and tools. It opens when you open Dragonframe.

The Animation workspace:

•   Displays the Live View.

•   Plays back video assist frames for testing and reviewing animation.

•   Controls animation aids such as onionskin and drawing tools.

•   Displays the frame counter and capture counter.

•   Contains the timeline for frame editing and viewing track readings.

•   Contains the Nav-Line for navigation and playback.

Animation Workspace Map
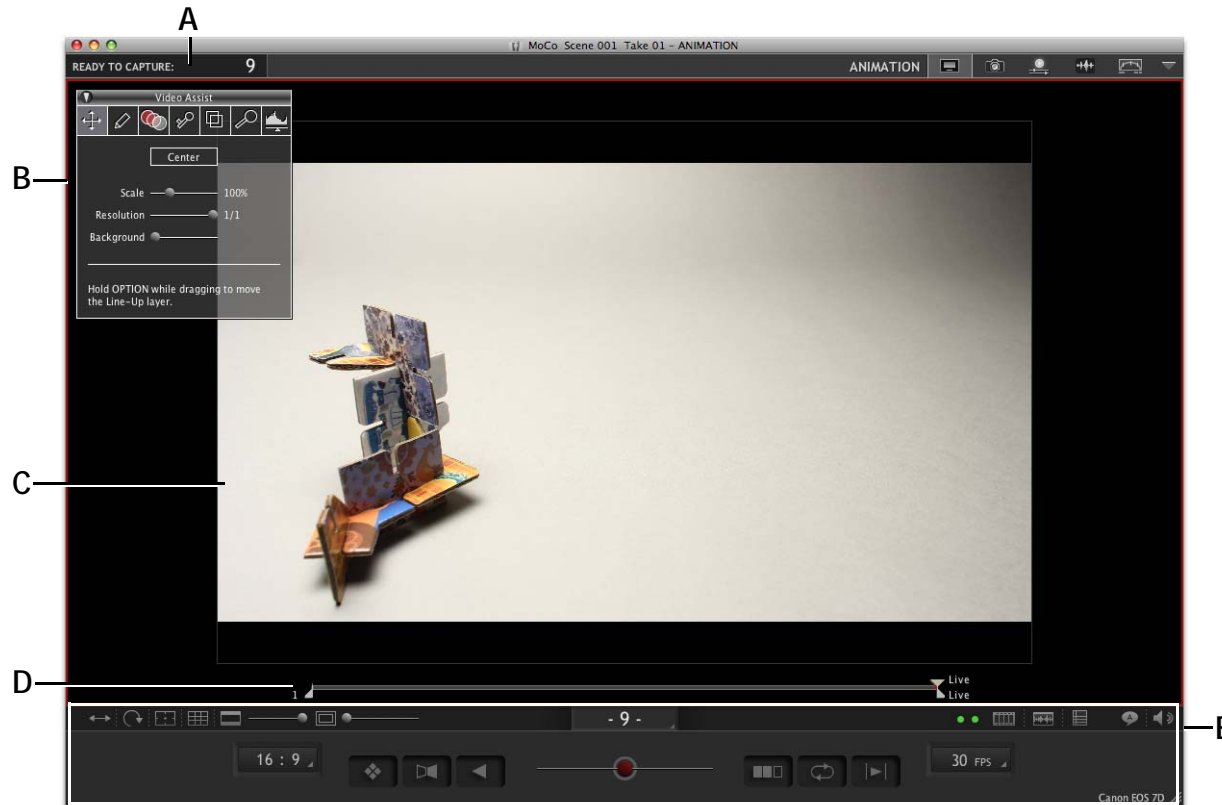
A. *Capture Counter: Shows which full-res frame you're ready to capture.*

B. *Animation Palette: Shows tools, including Move, Draw, Onionskin, Chroma Key and Lineup Layer.*

C. *View Pane: Shows a video assist or a high-res preview still. A red line around the frame (shown) indicates that you're looking at the Live View. A blue line means Live View has stopped.*

D. *Nav-Line: See a visual representation of your frame sequence. Use it to select frames for playback, to edit frames, or work with very large scenes.*

E. *Animation Tools: Work with the View pane image and playback.*

Frame Counters Overview

- The capture counter tells you which high-res frame you're about to capture.

- The frame counter tells you which frame you're currently viewing in the Animation workspace.
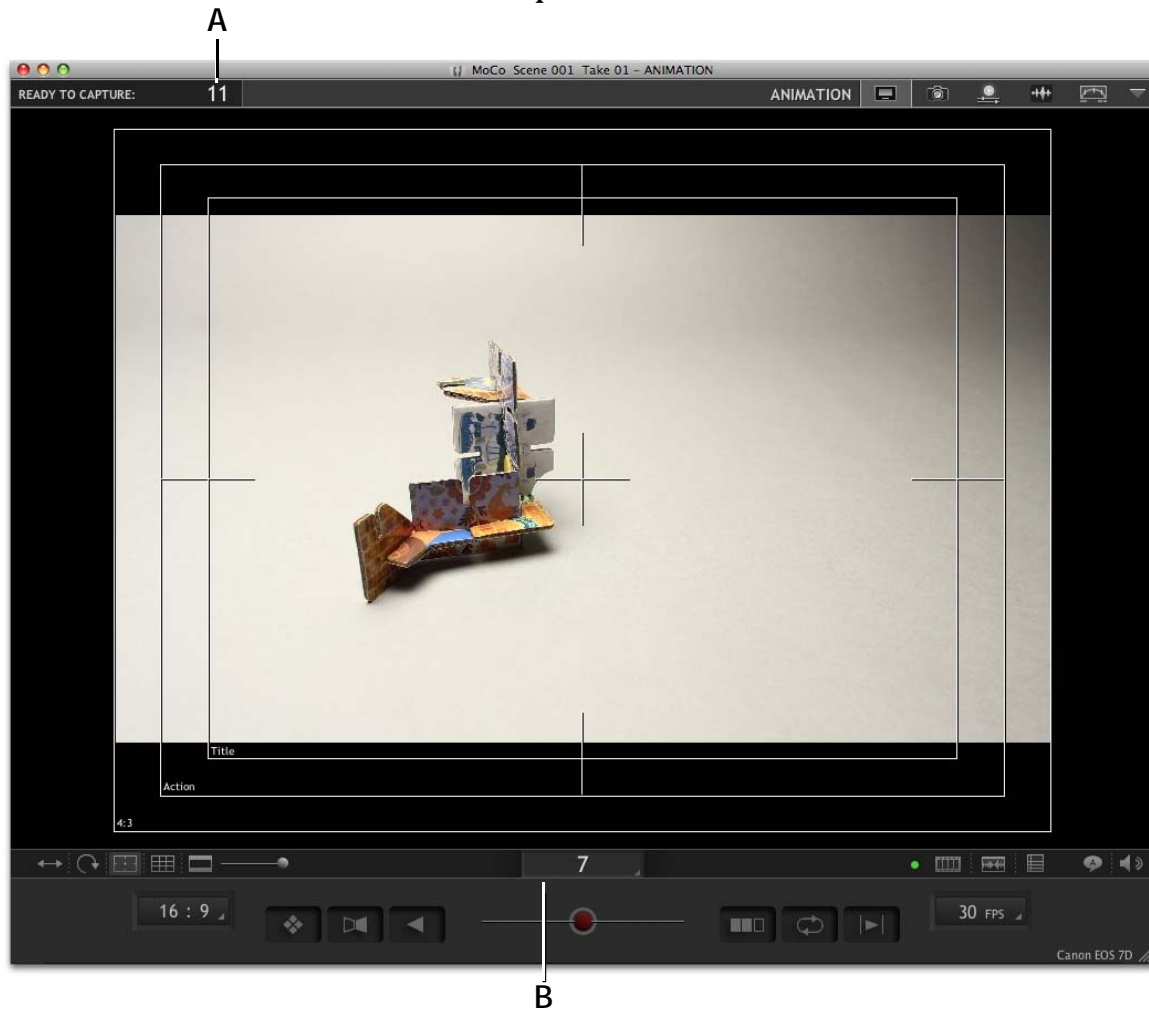
A. *The capture counter: Tells you which high-res frame you're about to capture.*
B. *The frame counter: Tells you which frame you're currently viewing in the Animation workspace.*

As you use Dragonframe, other features will correspond to either the capture source or the video assist. Keeping the two straight will help you use Dragonframe.

The Capture Counter

The counter at the top of the workspace is the capture counter (A.). It shows the frame you are about to capture. The frame in this counter will match the information in the X-Sheet. For example, if the X-Sheet

shows that you've captured 20 full-res stills, the capture counter will read 21.

See also:
"How Dragonframe Works" on page 1.
"X-Sheet Overview" on page 25.

The Frame Counter

The frame counter (B.) displays the frame number for the image currently in the Animation workspace. As you step though or play your animation, this counter tracks with the corresponding images.

When you step forward onto the Live View frame, the frame counter will display the frame number for this yet-to-be-captured image. At that point, the frame counter's number will match the number in the capture counter.

When you're viewing the Live View, white dashes appear on either side of the frame number.

When you're viewing a frame you've already captured, the number is white.

When you've moved past the Live View, the number is gray. The options for stepping past the Live View are in Preferences.

Click the frame counter to open its drop-down menu:

From there change how Dragonframe displays the frame numbers.

See also:
"How Dragonframe Works" on page 1.
"General Preferences" on page 304.

Animation Tools Overview

The tools at the bottom of the Animation workspace help you animate, control your image, and manage playback.

NOTE: Many of the most frequently used Animation tools (such as loop, onion-skin, and end in black) are keys on the Dragonframe Controller that came with your software.

The map that follows gives a visual overview of all the tools.

See also:

Animation Tools Map

A. *Mirror: Mirrors image.*

B. *Rotate: Flips image 180 degrees.*

C. *Broadcast-safe: Toggles a TV-safe overlay.*

D. *Grid: Overlays a grid on the View pane.*

E. *Aspect Ratio: Adjusts the opacity of the aspect ratio mask.*

F. *Mask Push-In: Adjusts push-in mask on all sides of the image.*

G. *Frame Counter: Shows the live feed (dashes) or a previous frame (number only).*

H. *Loop: Loops playback. Press ALT LOOP to turn on ping-pong playback, moving forward, then reversing through the frame sequence.*

I. *Green Light: Confirms that the hardware required for shooting, such as the DDMX-S2 or the IOTA, are connected correctly.*

J. *Timeline: Open the timeline for frame editing.*

K. *Audio Timeline: Open the Audio timeline.*

L. *X-Sheet Button: Opens the X-Sheet alongside the Animation workspace.*

M. *Playback Speed.*

N. *Heads-Up-Display: Open the audio Heads-Up Display to see face cues and phonetic cues while animating.*

O. *Volume.*

P. *Aspect Ratio: Sets the aspect ratio mask.*

Q. *High-Res Preview: Use high-res stills for preview.*

R. *Auto-Toggle: Continuously toggles the Live View with the selected frame.*

S. *Reverse: Reverses play.*

T. *Onionskin Opacity Slider: Adjusts onionskin opacity.*
Center: Clean Live View.
Right: Live View with last frame.
Left: Live View with any frame.

U. *Black: Adds black frames to the end of playback.*

V. *Short Play: Includes only the last twelve frames for playback, or the number you choose.*

W. *Camera: Names the connected camera.*

Animation Palette Overview

The Animation palette appears any time you move the mouse over the View pane, and disappears again when you move it over the rest of your computer screen. It contains seven tools:

• Video Assist,

• Draw,

• Onionskin,

• Chroma Key,

• Line-up Layer,

• Live View Magnification and

• Video Assist Levels.

Click and drag the title bar to move the Animation palette anywhere in the View pane.

See also:
"Using the Video Assist Tool" on page 112.
"Drawing on the View Pane" on page 108.
"Using Onionskin" on page 100.
"Using Chroma Key" on page 107.
"Adding a Line-Up Layer (Movie or Still)" on page 104.
"Punch-in with Live View Magnification" on page 112.
"Adjusting Video Assist Levels" on page 113.

Animation Timeline Overview

The Animation timeline shows you thumbnails of your frames. From the timeline you can edit your frames, retrieve frames from the delete bin, or view audio information.

• Click ▓▓▓▓ to open the timeline.

• Click ▓▓▓▓ to open the audio timeline.

See also:
"Using the Timeline" on page 115.
"Timeline Map" on page 116.

Cinematography Workspace Overview

The Cinematography workspace provides a place to set up the composition and exposure of your scene. Use the Cinematography workspace to adjust camera settings, take test shots, preview 3D images, set up exposures with different camera settings, or test lighting.

The Cinematography workspace should be your first stop before animating. From there make sure your lighting, camera settings, and image quality are right. Once you start shooting, return to the Cinematography workspace during the shoot to check your captured frames.

Click 📷 (at the top of the window) to open the Cinematography workspace.

The map that follows shows the different parts of the workspace.

See also:
"Cinematography Tools" on page 61.
"Reviewing 3D Images" on page 281.
Dragonframe tutorials:
http://www.dragonframe/tutorials.php

Cinematography Workspace Map

A. *View Pane: View the selected frame, test shot, exposure, or the Live View.*

B. *Background Color: Adjust the background to help you see image edges.*

C. *Image Tools: Rotate the image and add masks or overlays to it.*

D. *Exposure Images Tray: View image thumbnails from the exposure, in this case, **LEFT**. Click a thumbnail to view the image in the View pane.*

E. *Import Test Shots: Import any image into the Test Shot Tray.*

F. *Test Shot Tray: View test shots. Click a thumbnail to view the image in the View pane. Or, drag and drop images from the Exposure Images tray here. 3D test shots look like stacked images.*

G. *Image Info: View RGB values and image information.*

H. *Digital Densitometer: View relative light values.*

I. *3D Stereo Review: Take 3D test shots and adjust 3D settings.*

J. *Camera Control: Adjust and lock camera settings.*

K. *Test Shot: Take mono test shots with current camera settings.*

L. *Exposures: Add exposures and adjust and lock camera settings for each exposure.*

M. *Camera Notes: Add notes about the current setup.*

N. *Cinematography Viewing Modes: See the Live View, view the image in color or gray-scale, see clip info or 3D composites, and adjust image size.*

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DMX Workspace Overview

Use the DMX workspace to set up an animated lighting program for your scene. Connecting DMX-enabled tools to Dragonframe, like the DDMX-S2 or IOTA Controller and a dimmer pack, allows you to automate lighting or turn off work lights automatically.

Click ⬜ at the top of the Dragonframe window to open the DMX Workspace:
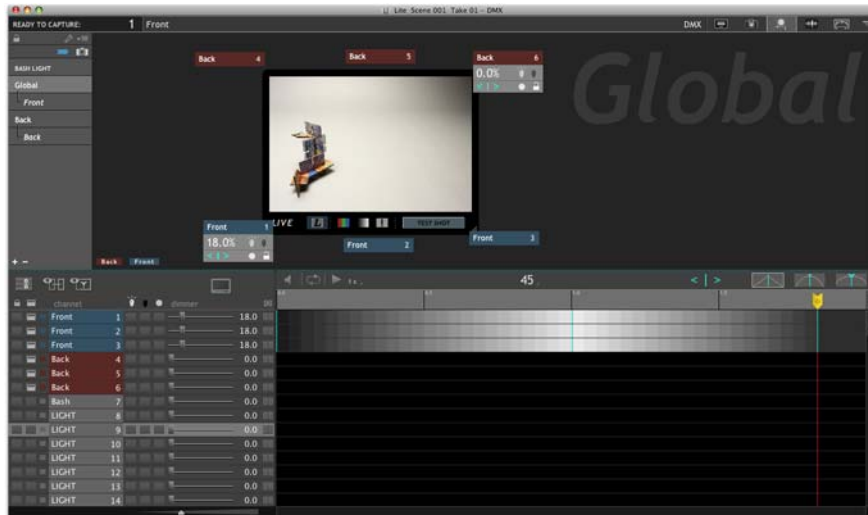
See also:

"Automate Lighting with DMX" on page 191.

"DMX Workspace Map" on page 192.

Dragonframe tutorials:

http://www.dragonframe/tutorials.php

X-Sheet Overview

The X-Sheet is an editable exposure sheet based on the production information for your scene.

- Click ▤ in the Animation tools to dock the X-Sheet alongside the Animation workspace.
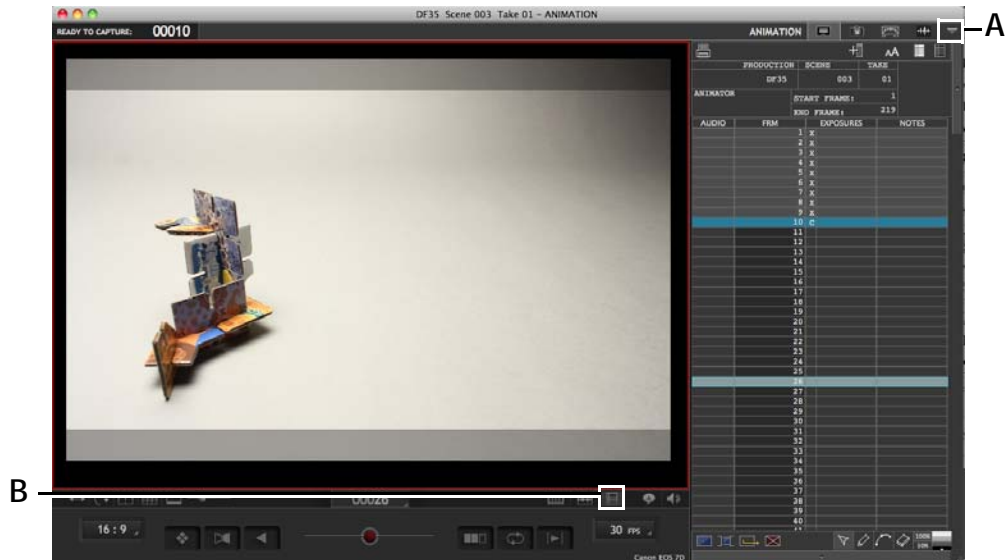
A. Workspace menu button. Click to open the X-Sheet up independently. *B.* X-Sheet button in Animation tools. Click to dock the X-Sheet within the Animation window.

- Or, click the workspace menu button, then select x-sheet to open the X-Sheet on its own.

As you create your scene, Dragonframe updates the X-Sheet dynami-
cally. Open the X-Sheet and edit it, changing the scene length, editing
frames, and adding reminders for a particular frame. Draw on the X-
Sheet, or view dialogue waveforms and track readings. Or, print your X-
Sheet for a hard copy of your scene.

See also:
"Using the X-Sheet" on page 171.
"X-Sheet Map" on page 172.
Dragonframe tutorials:
http://www.dragonframe/tutorials.php

Audio Workspace Overview

The audio workspace helps you load an audio clip, edit it, and set up track readings. Use face sets to animate eyes and mouths, add dialogue cues and phonetics, and export your track reading and a preview of the face set animation.

Click ![icon] at the top of the Dragonframe window to open the Audio workspace:

See also:

"Audio Workspace Map" on page 147.

"Adding and Editing an Audio Clip" on page 145.

"Reading Dialogue Tracks" on page 155.

"Viewing Audio Information in the X-Sheet" on page 184.

"Viewing the Track Reading in the X-Sheet or Timeline" on page 167.

"Using the Timeline" on page 115.

Dragonframe tutorials:

http://www.dragonframe/tutorials.php

Motion Control Workspace Overview

Use the Arc motion control workspace to program complex, multi-axis camera moves directly within Dragonframe. Click ⬛ at the top of the Dragonframe window to open the Arc Motion Control Workspace:

See also:

"Using the Arc Motion Control Workspace" on page 223.

"Arc Motion Control Workspace Map" on page 228.

Dragonframe tutorials:

http://www.dragonframe/tutorials.php

Dragonframe Keypad Overview

Most copies of Dragonframe include a remote keypad, the Dragonframe keypad, with a long USB cable. The keypad makes it easy to move away from your computer and still control Dragonframe.

NOTE: Install Dragonframe before plugging in the Dragonframe keypad. Otherwise your computer will prompt you to identify the "keyboard". If you get that prompt, close it. After you install Dragonframe, it will recognize the keypad automatically.

A visual map follows showing how the Dragonframe keypad's commands relate to the Animation tools.

NOTE: The keypad on the next page is the Dragonframe keypad included with your copy of Dragonframe. If you use the keypad included on the right side of your Mac or PC keyboard, the placement of the MUTE, DELETE and ONIONSKIN keys will vary slightly, but they'll work the same way.

See also:
"Keypad Controls" on page 89.
"Keypad Window Overview" on page 31.
Dragonframe tutorials:
http://www.dragonframe/tutorials.php

Dragonframe Keypad Map
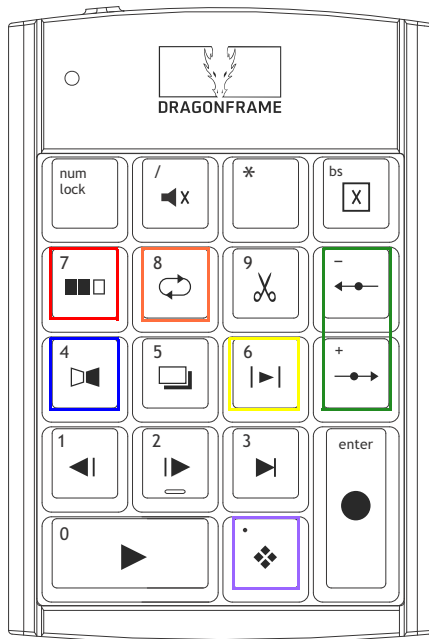
◀ˣ **MUTE** (/) .... Turns audio playback off.

☒ **DELETE** (bs)..Deletes the last frame shot.

■■□ **BLACK** (7) .... Cuts to black at the end of playback.

↻ **LOOP** (8) .... Loops the frame sequence.

✂ **CUT BACK** (9)..Eliminates a selected group of recently shot frames.

▷◀ **AUTO-TOGGLE** (4) .... Toggles the Live View at an adjustable rate.

▭ **LIVE TOGGLE** (5) ....Toggles the Live View each time you press the key.

|►| **SHORT PLAY** (6) ....Plays a selected number of previously shot frames.

•→ **ONIONSKIN** (+, -) ....Dissolves the Live View over shot frames.

◀||▶ **STEP** (1, 2) .... Steps frame-by-frame through the sequence.

▶| **LIVE** (3) .... Jumps to the Live View frame in the sequence.

▶ **PLAY** (0) ....Plays the sequence at full speed.

❖ **HIGH-RES** (.) .... Switches from video assist frames to high-res proxies.

● **SHOOT** (enter) ....Captures a frame.

The Animation tools (below) serve as a dashboard, indicating what playback modes are active, if the Onionskin slider is adjusted, and what frame you're on.

Keypad Window Overview

The keypad window is a learning aid. Keep it open when first getting acquainted with Dragonframe to help you learn the keypresses for your Dragonframe keypad, or for the keypad on your Mac or Windows keyboard.

To open the keypad window, click **WINDOW|SHOW KEYPAD**.

*Keypad Window. Click **LAYOUT** to change how the keypad looks.*

Once you open the window, you can change the layout of the keypad by clicking **LAYOUT** in the bottom right corner. Change the layout in the following ways:

Select:	To:
MAC KEYPAD	Lay out the keypad like the one on a Mac keyboard.

Select:	To:
PC KEYPAD	Lay out the keypad like the one on a Windows keyboard.
REMOTE KEYPAD	Lay out the keypad like the one included with Dragonframe.
DISPLAY ICONS	Show only the icons describing each keypress on the keypad window.
DISPLAY TEXT	Show the text describing each keypress on the keypad window.
TOP DISPLAY ON	Display the text and icon describing each keypress at the top of the window each time you roll over a key.
TOP DISPLAY OFF	Do not display text and icons at the top of the window.
NORMAL SIZE	Display a larger keypad.
SMALL SIZE	Display a smaller keypad.

Using Workspaces

Dragonframe's main tools each appear in a workspace, a window that you can arrange easily. The main workspaces appear as tabs in the upper right corner of the program:
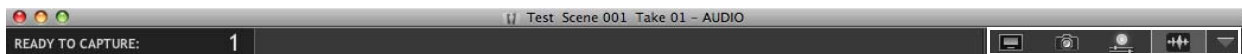
Animation, Cinematography, DMX, Audio tabs, and the workspace drop-down menu.

- To open additional tabs, click the drop-down menu to open additional tabs, such as the Arc Motion Control workspace or the full-size X-Sheet.

- To close a tab, **CTRL**-click it and select **CLOSE WORKSPACE**.

- To open a workspace in a new window, **CTRL**-click it and select **DETACH WORKSPACE**. Or, drag the tab away from the menu bar.

- To reattach a workspace, drag it back to the menu bar in the main window.

NOTE: Click the X-Sheet icon in the Animation tools to dock the X-Sheet within the Animation workspace.

See also:
"Animation Tools Overview" on page 18.
"Using the X-Sheet" on page 171.

Menu Overview

The tables that follow give more information about each of Dragonframe's menus.

Dragonframe Menu

Select this menu item:	To:	See also:
ABOUT DRAGONFRAME	View dialog with version information.	N/A
PREFERENCES…	Open Preferences. There you can adjust settings for your entire project.	"Configuring Preferences" on page 303.
SERVICES	Access Mac OS services.	N/A
HIDE DRAGONFRAME	Minimize the program.	N/A
HIDE OTHERS	Minimize any other programs' workspaces.	N/A
SHOW ALL	Show any other programs' workspaces.	N/A
QUIT DRAGONFRAME	Exit the program.	N/A

File Menu

Select this menu item:	To:	See also:
NEW TAKE...	Open the New Take dialog.	"Creating a New Take" on page 137.
NEW SCENE...	Open the New Scene dialog.	"Creating a New Scene" on page 133.
OPEN SCENE...	Open the Open Scene dialog.	"Opening a Previously-Shot Scene" on page 135.
OPEN RECENT >	Select from a list of recently opened files.	N/A
DUPLICATE SCENE...	Save the current scene as a new scene.	"Duplicating Your Scene" on page 136.
SAVE SCENE SETTINGS	Save TAKE.XML to make sure any important changes you've made to the scene will be saved.	N/A
CONFORM CURRENT TAKE	Conform edits for the take. This makes Dragonframe place frame order numbering on your source files to reflect edits such as deletes and cutbacks.	"Conforming Timeline Edits" on page 126.
CONFORM ALL TAKES	Conform edits for all takes. This makes Dragonframe place frame order numbering on your source files to reflect edits such as deletes and cutbacks.	"Conforming Timeline Edits" on page 126.
SWITCH TAKE>	View a drop-down list of takes associated with the scene you're working on.	"Switching Takes" on page 137.
MANAGE TAKES...	Open the Manage Takes dialog, where you can duplicate or rename a take.	"Managing Takes" on page 138.
LOAD LINE-UP IMAGE...	Load a still image into the current scene.	"Adding a Line-Up Layer (Movie or Still)" on page 104.
LOAD LINE-UP MOVIE...	Load a Dragonframe scene or a QuickTime movie as a roto-layer.	"Adding a Line-Up Layer (Movie or Still)" on page 104.

Select this menu item:	To:	See also:
IMPORT>	Import dialogue cues, camera moves, exposures, drawings from another scene, the phonetics from scrubbed audio, or X-Sheet information.	"Importing Scene Settings" on page 140. "Importing X-Sheet Data" on page 182.
EXPORT MOVIE...	Create a movie of your take.	"Creating a Movie of Your Take" on page 296.
EXPORT IMAGE SEQUENCE...	Export an image sequence with attributes you choose (instead of accessing your files directly).	"Exporting Image Sequences" on page 301.
EXPORT STEREO (3D) MOVIE...	Export stereo images for preview.	"Exporting Stereo Sequences to QuickTime" on page 290.
EXPORT STILL IMAGE...	Export the image you're viewing in the Cinematography workspace.	"Exporting the Cinematography View" on page 69.
EXPORT X-SHEET	Export the X-Sheet to a CSV file.	"Exporting the X-Sheet as a CSV" on page 186.
PRINT...	Print a copy of the X-Sheet.	"Printing the X-Sheet" on page 185.

Edit Menu

Select this menu item:	To:	See also:
UNDO	Undo actions: capturing a frame, deleting, cutting back, or editing.	N/A
REDO	Cancel any action you undid.	N/A
CUT	Cut the selected frames.	• "Cutting, Copying or Pasting Frames with the Timeline" on page 120. • "Cutting or Copying from the X-Sheet" on page 175.
COPY	Copy the selected frames.	• "Cutting, Copying or Pasting Frames with the Timeline" on page 120. • "Cutting or Copying from the X-Sheet" on page 175.
PASTE...	Paste the selected frames.	• "Cutting, Copying or Pasting Frames with the Timeline" on page 120. • "Pasting Frames from the X-Sheet" on page 175.
DELETE	Delete the selected frames.	• "Deleting Frames from the Timeline" on page 122. • "Deleting Frames from the X-Sheet" on page 180.
SELECT ALL	In the DMX workspace, select all the keyframes if you have a keyframe selected. Otherwise, select all of the channels.	"Selecting Keyframes" on page 199.

Select this menu item:	To:	See also:
PASTE INSERT	Insert frames.	"Cutting, Copying or Pasting Frames with the Timeline" on page 120.
PASTE OVERWRITE	Replace frames.	• "Cutting, Copying or Pasting Frames with the Timeline" on page 120. • "Pasting Frames from the X-Sheet" on page 175.
PASTE REVERSE	Insert frames in reverse order.	• "Cutting, Copying or Pasting Frames with the Timeline" on page 120. • "Pasting Frames from the X-Sheet" on page 175.
PASTE REVERSE OVERWRITE	Replace frames with frames in reverse order.	• "Cutting, Copying or Pasting Frames with the Timeline" on page 120. • "Pasting Frames from the X-Sheet" on page 175.
HIDE FRAMES	Hide frames from the timeline or X-Sheet without deleting them.	• "Hiding Frames with the Timeline" on page 120. • "Hiding a Frame in the X-Sheet" on page 177.
UNHIDE FRAMES	Unhide hidden frames.	• "Un-hide Hidden Frames from the Timeline" on page 121. • "Unhide Hidden Frames from the X-Sheet" on page 179.

Select this menu item:	To:	See also:
HOLD FRAME...	Repeat a frame, as if you were to copy and paste it multiple times.	• "Holding Frames with the Timeline" on page 119. • "Holding a Frame in the X-Sheet" on page 176.
RESHOOT FRAMES	Reshoot the selected frames.	• "Reshooting Frames from the Timeline" on page 122. • "Reshooting a Frame Sequence from the X-Sheet" on page 180.
INSERT CAMERA	Move the camera to insert new frames.	• "Inserting the Camera" on page 123. • "Reshooting a Frame Sequence from the X-Sheet" on page 180.
RETURN CAMERA TO END	Move the camera back to the end of the frame sequence once you've finished adding new frames.	• "Inserting the Camera" on page 123. • "Reshooting a Frame Sequence from the X-Sheet" on page 180.
MARK IN	Set the in point for playback.	• "Cinematography Workspace Overview" on page 22. • "Play Section with the Nav-Line" on page 94.
MARK OUT	Set the out point for playback.	• "Cinematography Workspace Overview" on page 22. • "Play Section with the Nav-Line" on page 94.

Select this menu item:	To:	See also:
GO TO IN POINT	View the in point's frame in the View pane.	"Cinematography Workspace Overview" on page 22.
GO TO OUT POINT	View the out point's frame in the View pane.	"Cinematography Workspace Overview" on page 22.
SHOW DELETE BIN	Show or hide the the delete bin for the timeline.	"Restoring Frames from the Delete Bin" on page 124.

View Menu

Select this menu item:	To:	See also:
SIZE >	Select from a drop-down list of image sizes.	N/A
ORIENTATION >	Select from a drop-down list of orientations.	N/A
GRID>	Overlay a grid on the View pane.	"Adding a Grid Overlay" on page 64.
COMPOSITION GUIDES…	Open the Composition Guides dialog, where you can adjust the broadcast-safe overlay, the Aspect Ratio Mask, and the mask push-in.	"Adjusting Composition Guides from the Dialog" on page 61. "Composition Guides" on page 61.
AUXILIARY MONITOR>	Display a full screen view of the Live View or play-back on another monitor	"Using an Auxiliary Monitor" on page 95.

Scene Menu

Select this menu item:	To:	See also:
GENERAL...	Adjust scene settings.	"Configuring Scene Settings" on page 312.
CONNECTIONS...	Connect supported hardware, like the DDMX-S2 or a stereo slider, to Dragonframe.	"Connecting DMX to Dragonframe" on page 193. "Connecting to the DESC through Dragonframe's Connections Tab" on page 265. "Connecting to a 3D Slider" on page 273. "Connecting Dragonframe to Moco Hardware" on page 226.
TRIGGERS...	Work with electrical inputs or outputs.	"Adding Input and Output Triggers" on page 215.

Capture Menu

Select this menu item:	To:	See also:
SHOOT SINGLE FRAME	Shoot a frame with your capture source.	"Keypad Controls" on page 89.
SHOOT X FRAMES	Shoot two or more frames with your capture source.	"Shoot Multiple" on page 95.
SHOOT MULTIPLE AS VIRTUAL HOLDS	Hold frames to create the effect of SHOOT MULTIPLE.	"Capture Options for Shooting on Twos" on page 96.
SHOOT MULTIPLE FRAMES...	Shoot more than one frame in a row.	"Shoot Multiple" on page 95.
TIME-LAPSE...	Shoot a time-lapse sequence.	"Time-Lapse" on page 129.
SHOOT PREVIEW IMAGE	Capture a pesudo Live View image from a still camera.	"Shooting Without a Video Assist" on page 57.

Select this menu item:	To:	See also:
CUT BACK…	Jump to a frame and, if you wish, delete the intervening frames.	"Cut Back Key" on page 91.
VIDEO SOURCE >	Select your video source.	• "How Dragonframe Works" on page 1. • "Camera Connections" on page 47.
CAPTURE SOURCE >	Select your capture source.	• "How Dragonframe Works" on page 1. • "Camera Connections" on page 47.
VIDEO SETTINGS…	Open the Video tab of the Settings dialog.	"Video Settings" on page 313.
PAUSE CAMERA	Pause your camera's Live View to avoid overheating.	N/A
RESET/REFRESH CONNECTIONS	Reset connections to cameras.	"Switching Video or Capture Sources" on page 58.
SHOOT MOVE MODE	Have Dragonframe move the motors to the next position right after you shoot.	"Shoot Move and Move Shoot Modes" on page 241.
MOVE SHOOT MODE	Have Dragonframe move the motors to the next position before you shoot.	"Shoot Move and Move Shoot Modes" on page 241.
BACKLASH ROLLBACK	Perform a backlash rollback with motion control.	"Adding an Axis" on page 229.

Playback Menu

Select this menu item:	To:	See also:
FPS >	Select from a drop-down list of frame rates.	"Playback Speed" on page 94.
PLAY TO BLACK	Add black frames to the end of playback.	"Black (End in Black) Key" on page 93.
LOOP	Loop playback.	"Loop Key/Ping-Pong" on page 92.
SHORT PLAY	Play back only some of the frames from a sequence.	"Short Play Key" on page 92.
REVERSE	Play the sequence backwards.	N/A
TOGGLE >	Toggle the last frame and the Live View.	"Auto-Toggle Key" on page 91.
EXPOSURES: AUTO, X1, etc.	Switch which exposure you'll view during playback. Usually, you'll view the exposure that you're ready to capture, or the AUTO option. You can switch to other exposures and view those instead.	N/A
MONO	Play back images normally.	"Playing Back Stereo Sequences in Dragonframe" on page 289.
3D ANAGLYPH COLOR	Play back frame sequence using anaglyph images, in color.	"Playing Back Stereo Sequences in Dragonframe" on page 289.
3D ANAGLYPH B/W	Play back frame sequence using anaglyph images, in black and white.	"Playing Back Stereo Sequences in Dragonframe" on page 289.
3D TRANSPARENT COLOR	Play back frame sequence using transparent 3D images, in color.	"Playing Back Stereo Sequences in Dragonframe" on page 289.
3D TRANSPARENT B/W	Play back frame sequence using transparent 3D images, in black and white.	"Playing Back Stereo Sequences in Dragonframe" on page 289.

Window Menu

Select this menu item:	To:	See also:
MINIMIZE ALL	Minimize all of Dragonframe's workspaces.	N/A
SHOW/HIDE CINEMATOGRAPHY	Open the Cinematography workspace, or close it if it's already open.	• "Cinematography Workspace Overview" on page 22. • "Cinematography Tools" on page 61.
SHOW/HIDE X-SHEET	Open the X-Sheet in its own window, or close it if it's already open.	• "X-Sheet Overview" on page 25. • "Using the X-Sheet" on page 171.
SHOW/HIDE DMX	Open the DMX workspace, or close it if it's already open.	• "DMX Workspace Overview" on page 24. • "Automate Lighting with DMX" on page 191.
SHOW/HIDE AUDIO	Open the Audio workspace, or close it if it's already open.	• "Adding and Editing an Audio Clip" on page 145. • "Reading Dialogue Tracks" on page 155.
SHOW/HIDE ARC MOTION CONTROL	Open the motion control workspace, or close it if it's already open.	• "Motion Control Workspace Overview" on page 28. • "Motion Control" on page 223.
SHOW/HIDE KEYPAD	Open the practice keypad, or close it if it's already open.	"Keypad Window Overview" on page 31.
SHOW/HIDE MOTION CONTROL LOG	Open the Motion Control log, or close it if it's already open.	"Using External Moco Systems with Dragonframe" on page 255.
ANIMATION [PROJECT NAME]	Open or close the Animation workspace.	• "Animation Workspace Overview" on page 15. • "Animation Tools" on page 89.

Help Menu

Select this menu item:	To:	See also:
USER GUIDE...	Open the current version of this User Guide	N/A
WEB SITE SUPPORT	Open an Internet browser and link to Dragonframe's support web site.	N/A
REPORT AN ISSUE...	Open a support ticket, notifying us of problems with Dragonframe. You'll have the option of taking screenshots of the problem and sending the **TAKE.XML** metadata file to help us solve the problem. The Dragonframe team addresses each ticket and posts updates on the Help Ticket site. Every ticket is assigned a number so you can track its resolution.	N/A
CAMERA TEST...	Run a test of your camera to help us assist you with connection problems.	N/A
INSTALL FTDI SERIAL DRIVERS (DDMX-S2/ IOTA/DMC)	Install drivers so Dragonframe can work with the DDMX-S2 box, the IOTA stereo slider, and the DMC-16.	"Connecting to a 3D Slider" on page 273. "Automate Lighting with DMX" on page 191. "Connecting Dragonframe to Moco Hardware" on page 226. "Real-time Motion Control with the DMC-16" on page 250.
UPDATE DMC FIRMWARE	Update the firmware for the DMC-16	"Real-time Motion Control with the DMC-16" on page 250.

Select this menu item:	To:	See also:
ACTIVATE LICENSE	Enter a license key if you've just switched from a trial version of Dragon-frame to the full version.	"Transferring a License" on page 8.
DEACTIVATE LICENSE	Deactivate Dragonframe on one computer to allow you to transfer it to another one.	"Transferring a License" on page 8.

Chapter 3: Camera Connections

Dragonframe generally uses two image sources while shooting.

1. A capture camera shooting high-quality images. These frames make up your final animation. For example, you might use:

   - A supported DSLR camera.
   - A digital video camera.
   - An HD video camera.
   - A film camera.
   - An unsupported camera.

2. A live video source, letting you step to the Live View from the captured frames, and giving you access to a variety of Dragonframe's animation tools. For example, you might use:

   - The Live View on your digital still camera.
   - A video feed from your digital still camera.
   - A digital video camera.
   - A lipstick camera or spy cam set up through your capture camera's viewfinder.
   - An analog video source connected to your computer through an AV/DV bridge.

Dragonframe doesn't have to control both sources for you to use the program. For example, you might want to use Dragonframe as a feed-only frame grabber: using a digital video camera to preview your animation, but a film camera to capture your full-res images. Or, you might work without a video source, using the still images captured from your cameras to preview frames.

This chapter reviews how to connect different camera types to Dragonframe. It contains the following sections:

"Connecting HD Video Cameras with HDMI" on page 52.

"Connecting HD Video Cameras with HDV" on page 52.

"Connecting an Unsupported Camera to Dragonframe" on page 53.

"Shooting Without a Video Assist" on page 57.

"Switching Video or Capture Sources" on page 58.

See also:
"Camera Options" on page 48.

The camera page on our website:
 http://www.dragonframe.com/camera.php

The camera setup troubleshooting page on our website:
http://www.dragonframe.com/camera_setup_troubleshooting.php

"How Dragonframe Works" on page 1.

"Quick Set-Up Guide for Supported Video and Still Cameras" on page 9.

Camera Options

The sections that follow give tips for different camera configurations you might use with Dragonframe. Each one also explains how that particular configuration works with Dragonframe.

See also:
The camera page on our website:
http://www.dragonframe.com/camera.php

The camera setup troubleshooting page on our website:
http://www.dragonframe.com/camera_setup_troubleshooting.php

"Finding Your Source Files" on page 292.

"How Dragonframe Works" on page 1.

"Quick Set-Up Guide for Supported Video and Still Cameras" on page 9.

DSLR with Live View

This is the optimum configuration for Dragonframe. Both the video assist for previewing animation and the high-res capture frames, which can include RAW, are pulled from the same DSLR. When you connect your camera to your computer, Dragonframe will automatically detect that you have a DSLR with Live View and set up the sources accordingly.

See also:
"Connecting DSLRs with Live View" on page 50.

DSLR with a Separate Video Source

Many people set up their preview frames from a separate DV or HD camera while shooting high-res frames from a DSLR. Some people set up spy cams that look through the DSLR's viewfinder. Or, you can set up a DV camera close to your DSLR. Check your animation with the video assist; Dragonframe grabs the high-res frames from the DSLR.

"Connecting DSLRs without Live View" on page 50.

Video Only

If you are shooting with video only, Dragonframe will extract a video assist and capture frames from the same video signal. When you shoot, Dragonframe grabs a low-res preview image for frame flipping. It also generates a high quality still from the video stream and saves it in the captured frames folder.

See also:
"Connecting Digital Video Cameras" on page 51.
"Connecting HD Video Cameras with HDMI" on page 52.
"Connecting HD Video Cameras with HDV" on page 52.

Motion Picture Film and a Video Source

Dragonframe works very well for film. Set up Dragonframe with a video signal from the film camera's video assist. You will need to convert the analog signal to DV. If you do not have video assist, set up a DV camera alongside the film camera. Whether you use video assist or not, you will need to trigger the film frames from a separate control.

See also:
"Connecting Digital Video Cameras" on page 51.
"Using External Moco Systems with Dragonframe" on page 255.

An Unsupported Camera

If Dragonframe does not currently support your camera, you can still use the software. Set up folder watching so Dragonframe can look for the frames your camera captures in the folder where they're stored.

Or, if your camera doesn't work with folder watching, you might connect your camera to Dragonframe via the DDMX-S2, and use the DDMX-S2's switch/relay output to trigger the camera.

See also:
"Connecting an Unsupported Camera to Dragonframe" on page 53.

"Adding a Switch/Relay Output Trigger" on page 216.

Digital Camera without Live View and without Live Video

If you're unable to work with a video feed for some reason (your camera doesn't support Live View, and you don't have a digital video camera), you can use Dragonframe to shoot "preview" frames that substitute for a Live View.

See also:
"Shooting Without a Video Assist" on page 57.

Connecting DSLRs with Live View

To connect to DSLRs with a Live View output:

1. Check our website's camera page for individual setup instructions: http://www.dragonframe.com/camera.php
   Scroll down the list of supported cameras and find your camera. Click **DETAILS** to view setup instructions.

2. Set the camera's shooting mode to **MANUAL.**

3. Turn on the camera and connect it to your computer with a USB cable.

4. Open Dragonframe.

Dragonframe should connect to the camera and show the Live View in the Animation workspace.

5. Use the Camera Control pane in the Cinematography workspace to set the camera's exposure, white balance and image size.

See also:
The camera setup troubleshooting page on our website:
http://www.dragonframe.com/camera_setup_troubleshooting.php
"Connecting HD Video Cameras with HDMI" on page 52.
"Adjusting and Locking Camera Settings" on page 76.

Connecting DSLRs without Live View

If your DSLR does not have Live View, connect it to Dragonframe in this way:

1. Check our website's camera page for individual setup instructions:
    http://www.dragonframe.com/camera.php
    Scroll down the list of supported cameras and find your camera.
    Click DETAILS to view setup instructions.

2. Set the camera's shooting mode to MANUAL.

3. Turn on the camera and connect it to your computer with a USB cable.

4. Open Dragonframe.

Dragonframe should connect to the camera.

5. Select CAPTURE|CAPTURE SOURCE to make sure your camera is selected.
    Or, check that your camera's name appears in the bottom right corner of the Animation workspace.

6. Use the Camera Control pane in the Cinematography workspace to set the camera's exposure, white balance and image size.

7. Choose a video source:

    • Use a video source for the video assist frames.

    • Shoot with the DSLR only.

See also:
The camera setup troubleshooting page on our website:
http://www.dragonframe.com/camera_setup_troubleshooting.php

"Connecting Digital Video Cameras" on page 51.

"Connecting HD Video Cameras with HDMI" on page 52.

"Shooting Without a Video Assist" on page 57.

"Adjusting and Locking Camera Settings" on page 76.

Connecting Digital Video Cameras

1. Turn on the DV camera and connect it to your computer with a Firewire cable.

2. Open Dragonframe.

Dragonframe should connect to the DV source and show the Live View in the Animation workspace.

See also:
The camera page on our website:
http://www.dragonframe.com/camera.php

The camera setup troubleshooting page on our website:
http://www.dragonframe.com/camera_setup_troubleshooting.php

Connecting HD Video Cameras with HDMI

HDMI is an un-compressed video format for delivering high-definition video to your computer. To use HDMI video with Dragonframe, you must have an HDMI conversion card like the one from Blackmagic Design:
http://www.blackmagic-design.com/products/intensity/

1. Install the HDMI conversion card into your computer according to the manufacturer's instructions.

2. Connect your camera to the card with an HDMI cable.

3. Open Dragonframe.

Dragonframe should connect to the HDMI source and show the Live View in the Animation workspace.

See also:
The camera page on our website:
http://www.dragonframe.com/camera.php

The camera setup troubleshooting page on our website:
http://www.dragonframe.com/camera_setup_troubleshooting.php

Connecting HD Video Cameras with HDV

HDV is a compressed video format for delivering high-definition video over Firewire to your computer. If you have an HDV camera that you want to use with Dragonframe on your Mac, you must have Final Cut Pro *or*
Compressor with ProApps QuickTime Codecs.

After verifying that your Mac will support HDV, connect the camera to your computer:

1. Turn on the HD camera and connect it to your computer with a Firewire cable.

2. Open Dragonframe.

Dragonframe should connect to the HD source and show the Live View in the Animation workspace.

See also:
The camera page on our website:
http://www.dragonframe.com/camera.php

The camera setup troubleshooting page on our website:
http://www.dragonframe.com/camera_setup_troubleshooting.php

The Final Cut Pro page in the Mac App Store:
http://itunes.apple.com/us/app/final-cut-pro/id424389933

The Compressor page in the Mac App Store:
http://itunes.apple.com/us/app/compressor/id424390742

The ProApps QuickTime Codecs page:

http://support.apple.com/kb/DL1396

Connecting an Unsupported Camera to Dragonframe

Even if Dragonframe doesn't support your camera, you can still use the program. Dragonframe can detect images downloaded from your camera through folder watching. Folder watching also lets you shoot stills directly from Dragonframe, making the integration as seamless as possible. Unfortunately, folder watching cannot integrate with some Dragonframe features, such as camera settings.

NOTE: If your camera doesn't work with folder watching, you might connect your camera to Dragonframe via the DDMX-S2, and use the DDMX-S2's switch/relay output to trigger the camera. See "Using an External Relay Switch or a Logic Output to Automate a Bash Light" on page 220.

To set up Dragonframe's folder watching for an unsupported camera, you'll:

1. Connect your camera(s) physically to your computer.
   "Connect Your Camera(s) to Your Computer" on page 54.

2. Check settings in your camera's capture utility.
   "Check Your Capture Utility's Settings" on page 54.

3. Make sure Dragonframe knows which capture utility you're using.
   "Check the Capture Utility Selected in Dragonframe" on page 55.

4. (Optional) Tell Dragonframe which keystroke your capture utility uses so Dragonframe can control your camera.
   "Set Up Dragonframe's Keystroke" on page 55.

5. Tell Dragonframe where your capture utility downloads your pictures.
   "Select Which Folder Dragonframe Will Watch" on page 56.

6. (Optional) Tell Dragonframe how many images to expect from your camera for every shot.
   "Set Up the Image Count" on page 57.

7. Verify your folder watching setup.
   "Test Folder Watching" on page 57.

Connect Your Camera(s) to Your Computer

1. Install and open a capture utility that works with your camera, such as Olympus Studio 2.
   A capture utility controls the camera on your computer, so you can shoot stills by pressing a key on the keyboard, adjust settings on your screen, and download images from the camera onto your computer.

2. Connect your capture camera to your computer.

3. Plug your camera into its power source (or fully charge its battery).

4. Turn your camera on.

5. Set the camera to **CAPTURE** mode (not **PLAY**).

6. (Optional) Connect a video source.

Check Your Capture Utility's Settings

1. Start your camera's capture utility if it doesn't start automatically.
   Open up the portion of the program that remotely controls your camera.

2. Check which keypress you'd use to take a picture.
   For example, for Canon cameras working with the Canon EOS Utility, you press **SPACEBAR**.

3. Set the folder where you want your stills to download on your computer. This is the folder Dragonframe will "watch".
   Keep the default (usually your **PICTURES** folder) or set up a new folder. Make a note of the location.

Select Capture and Video Sources in Dragonframe

1. Open Dragonframe.

2. Select **CAPTURE|CAPTURE SOURCE|FOLDER WATCH**.

3. Check that your video source is connected:

   - If you will use stills from this camera as a video source, select **CAPTURE|VIDEO SOURCE|FOLDER WATCHING**.

   - If you are using a supported video source, Dragonframe will automatically detect and connect to your video source.

   - If you will work without a video source, see "Shooting Without a Video Assist" on page 57..

Check the Capture Utility Selected in Dragonframe

1. From Dragonframe, open the Cinematography workspace. The Camera Control pane displays details about your camera's connection to Dragonframe:
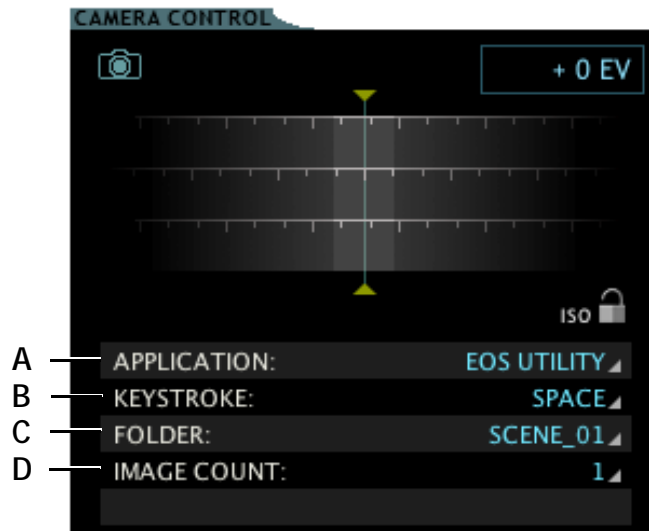
A. *Application: Shows which camera utility Dragonframe will use to communicate with your camera.*

B. *Keystroke: The key your utility uses to capture an image. Here, the key is* **SPACE**.

C. *Folder: Shows where Dragonframe will look for pictures downloaded from your camera. This is the folder being "watched."*

D. *Image Count: How many images your camera will download for each capture. For example, if you will download both a JPEG and a RAW image, set* **IMAGE COUNT** *to* **2**.

2. (Optional) Change the capture utility **APPLICATION** (A.) if it's incorrect.

Set Up Dragonframe's Keystroke

In the Cinematography workspace's Camera Control pane, you can set up the **KEYSTROKE** to take pictures without having to switch back and forth between the capture utility and Dragonframe:

1. Compare the **KEYSTROKE** displayed with the one you noted in "Check Your Capture Utility's Settings" on page 54.

2. If they don't match, click the keystroke (here, **SPACE**) and select **SET…** The Keystroke dialog appears:
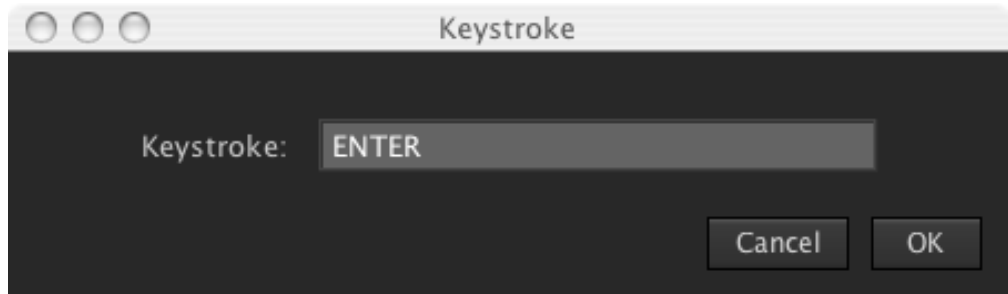
3. Press the key that your camera utility uses. Here, the keystroke is **ENTER**.

   Dragonframe displays the keypress in the dialog. Now, when you press **SHOOT**, or take a test shot, Dragonframe will have your picture utility capture a still.

NOTE: If you wish to use your camera utility to capture stills, you don't have to set up the keystroke. Dragonframe will automatically detect any stills you capture using the utility and display them.

Select Which Folder Dragonframe Will Watch

From Dragonframe's Cinematography workspace, select the **FOLDER** where your utility will download pictures.
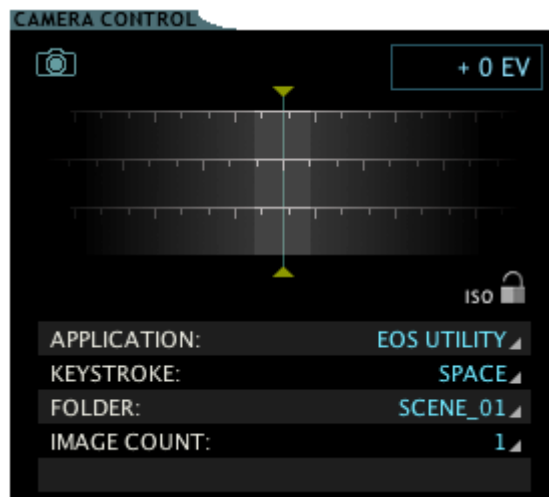
1. Click the currently selected folder (above it's called **SCENE_01**) and click **BROWSE…** Dragonframe opens the Open dialog.

2. Navigate to the folder where the utility will download your stills and click **CHOOSE**. This is the folder you noted in "Check Your Capture Utility's Settings" on page 54.

Set Up the Image Count

From Dragonframe's Cinematography workspace, set the number of images to download with **IMAGE COUNT**.

*   If you will only download one image from your camera, keep the **IMAGE COUNT** at **1**.

*   If you will download two images, (for example, a RAW with .jpg), set it to **2**.

Test Folder Watching

To check that the integration with your camera utility is working:

*   From Dragonframe's Cinematography workspace, press **TEST SHOT** to take a test shot.

*   Or, if you didn't set up a **KEYSTROKE**, take a test shot in your camera utility.

Dragonframe detects the still in the folder you're watching and displays it as a thumbnail in the test shot tray at the bottom of the Cinematography workspace.

See also:
The camera page on our website:
 http://www.dragonframe.com/camera.php
The camera setup troubleshooting page on our website:
http://www.dragonframe.com/camera_setup_troubleshooting.php
"Camera Options" on page 48.

Shooting Without a Video Assist

Dragonframe will work without a video feed, using stills from your capture source as preview images. Using Dragonframe this way, however, means that you won't get automatic "updates" when you change something on your set.

To work without a video source:

1. Connect your still camera to your computer.

2. Close any associated programs that open with your camera (for example, iPhoto).

3. Open Dragonframe. Create a new scene, or open one you've already worked on.

The Animation workspace opens.

4. Select **CAPTURE|VIDEO SOURCE|[YOUR CAMERA NAME] (STILLS)**. Dragonframe configures itself to work with only a capture camera, and displays this message:

5. Click **OK** to close the message.

6. Set up your first shot. When you're ready, press **LIVE** to shoot a preview image.

7. Press **SHOOT** to shoot a capture image.

NOTE: You can configure your Mac's Image Capture Preferences to not open photo software automatically when you connect a camera. Open the Image Capture application, go to its Preferences, and select **NO APPLICATION** to open when a camera is connected.

See also:
"Creating a New Scene" on page 133.

Switching Video or Capture Sources

If you decide to change the camera you're using to capture full-res stills, or you forgot to connect your video camera to your computer before opening Dragonframe, you can select a new source. To select a video or capture sources:

• Press **COMMAND R** to reset the connections to any cameras you've connected to your computer.

• Select **CAPTURE|VIDEO SOURCE|**your video source's name.

- Select **CAPTURE|CAPTURE SOURCE**|your camera's name.

- Or switch video sources from the Scene Settings dialog:

  a. From the Scene menu, click **SETTINGS|VIDEO**. The Camera Settings window appears.
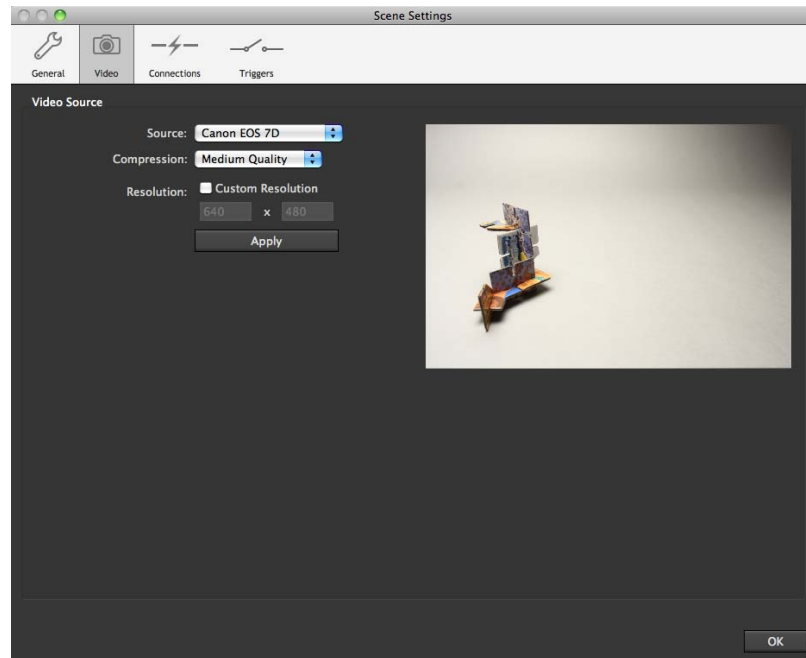
  b. Select the new video source from the **SOURCE** drop-down list. The settings for the source appear.

  c. Adjust the settings if you wish, and close video Settings.

NOTE: Dragonframe detects video sources and cameras automatically. If the source doesn't appear in the drop-down list, there is either a problem with its connection to your computer, or Dragonframe does not support it.

See also:
The camera page on our website:
 http://www.dragonframe.com/camera.php

The camera setup troubleshooting page on our website:
http://www.dragonframe.com/camera_setup_troubleshooting.php

Chapter 4: Cinematography Tools

The Cinematography workspace gives you access to a variety of tools, from basic composition guides and exposure settings to planing multi-layered effect sequences.

This chapter includes the following sections:

"Composition Guides" on page 61.
"Image Controls" on page 66.
"Multiple Passes and Exposures" on page 78.
"Tricks of the Trade" on page 84.
"Special Keys and Contextual Menus for the Cinematography Work-space" on page 85.

See also:
"Cinematography Workspace Overview" on page 22.
Dragonframe tutorials:
http://www.dragonframe.com/tutorials.php

Composition Guides

Dragonframe includes four different types of masks and overlays to aid composition:

• An aspect ratio mask,

• A broadcast-safe overlay,

• A grid overlay, and

• A mask push-in for the aspect ratio mask and broadcast-safe overlay.

Adjusting Composition Guides from the Dialog

Adjust the broadcast-safe guide, aspect ratio mask, and mask push-in all at once from the Composition Guides Menu.

Select **VIEW|COMPOSITION GUIDES** to open the dialog:
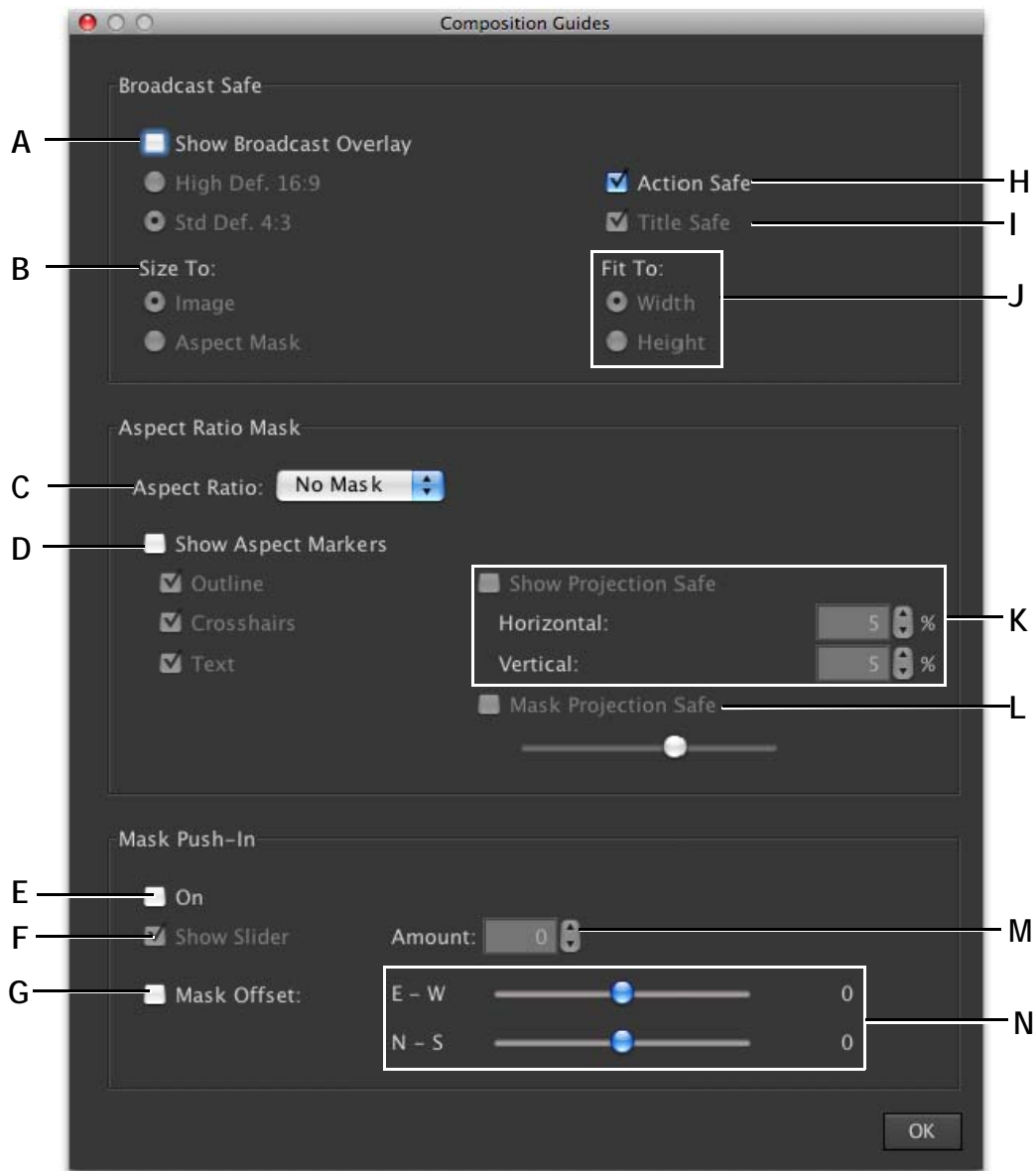
A. Turn on the TV-safe overlay. Use the radio buttons to select the overlay's size.

B. Choose how to size the overlay.

C. Select the ratio for the mask.

D. Show or hide the aspect markers.

E. Turn on the mask push-in.

F. Select whether the push-in slider appears in the Animation workspace.

G. Mask Offset: Adjust how the push-in mask is aligned within the image. This way, you could leave all of your extra space on one side of the image.

H. Include action-safe boundary.

I. Include title-safe boundary.

J. Fit the overlay to the width or height of the image.

K. Show or hide the projection-safe guide, a customizable alternative to standard broadcast-safe values.

L. Set projection-safe guides as a percentage of the image width or height.

M. Choose how much to push in the mask.

N. Adjust the pushed-in image offset horizontally or vertically.

Adding an Aspect Ratio Mask

The aspect ratio button places masks over the Live View in the Animation or Cinematography workspaces to help you see how an image might look cropped. By default, the Live View has no mask selected.

To use the aspect ratio cropping aid:

1. From the Animation tools, click the aspect mask selection button to view the drop-down list of mask options.

2. Select an aspect ratio or create a custom ratio.

3. Adjust the opacity of the mask with the mask opacity slider on the left side of the Animation tools:

Customize your mask from **VIEW|COMPOSITION GUIDES**.

NOTE: The aspect ratio mask is a framing guide that does not crop your saved frames. You can choose to crop based on the aspect mask during a QuickTime or image sequence export.

See also:
"Creating a Movie of Your Take" on page 296.
"Exporting Image Sequences" on page 301.

Adding a Broadcast-Safe Overlay

Use a broadcast-safe overlay as a guide for TV-safe zones. The overlays are not composited onto your final image.

1. Click the broadcast-safe icon on the left side of the Animation tools.

2. Select the type and sizing of broadcast-safe from **VIEW|COMPOSITION GUIDES**.

NOTE: Click the broadcast-safe icon to show or hide the broadcast-safe overlay.

Broadcast-Safe Options
- Aspect Ratios: **4:3** or **16:9**

- Areas: **ACTION SAFE** or **TITLE SAFE**.

- Sized to:

  Width or height of the entire image.

  Width or height of the aspect mask.

See also:
"[Adjusting Composition Guides from the Dialog](#)" on page 61.

Adding a Grid Overlay

Use the Grid Overlay for general composition concerns and other line-up needs.

Click the Grid icon on the left side of the Animation tools to add a grid:

Select **VIEW|GRID LINES** to adjust the grid's sizing (to the aspect mask or to the image), the number of horizontal and vertical lines, the grid's opacity and it's value.

Pushing In the Broadcast-Safe Overlay and Aspect Ratio Mask

The mask push-in masks a margin. It's useful for post zooms and repositioning for 3D stereo plates.

To push in the overlay:

1. Select **VIEW|COMPOSITION GUIDES**. The Composition Guides dialog appears:
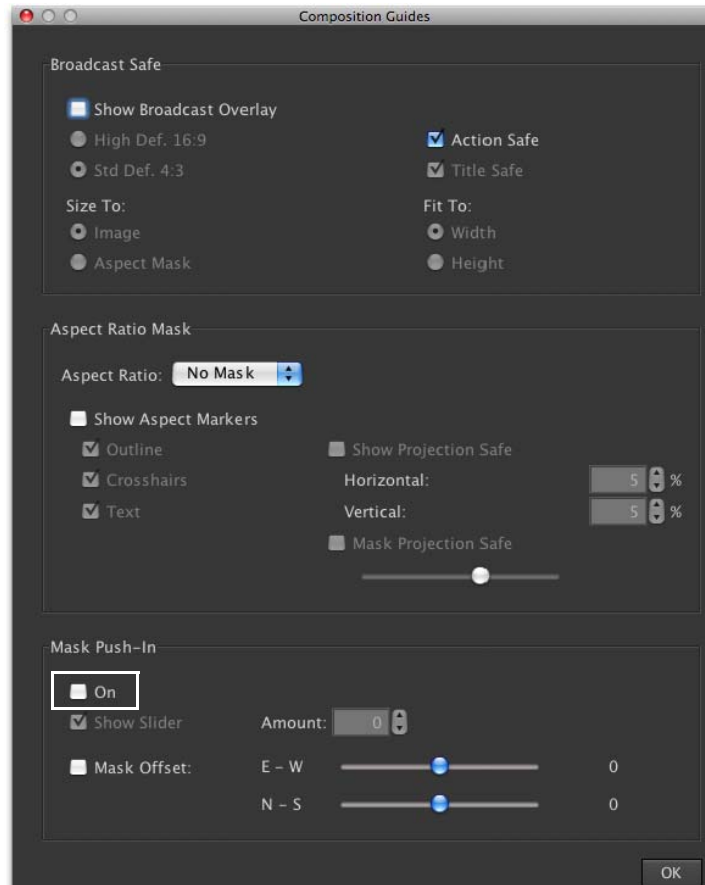
On check box for mask push-in.

2. Click **ON**. A new slider appears in the Animation tools:

3. Move the slider to the right to push in the overlay.

See also:
"Using a Push-In Mask for 3D" on page 281.

Image Controls

Working with Test Shots

As you set up the look of your shot, the Dragonframe test shot system is ideal for storing and evaluating images along the way. Here are the key features:

- Shoot and save test shots that do not interfere with your animation.

- Evaluate composition and exposure.

- Compare current images with frames from previously shot scenes or takes.

Take mono test shots using the button on the bottom of the Camera Control pane. Take 3D test shots with the button in the 3D Stereo Review pane. A thumbnail of the test shot appears in the test shot tray:
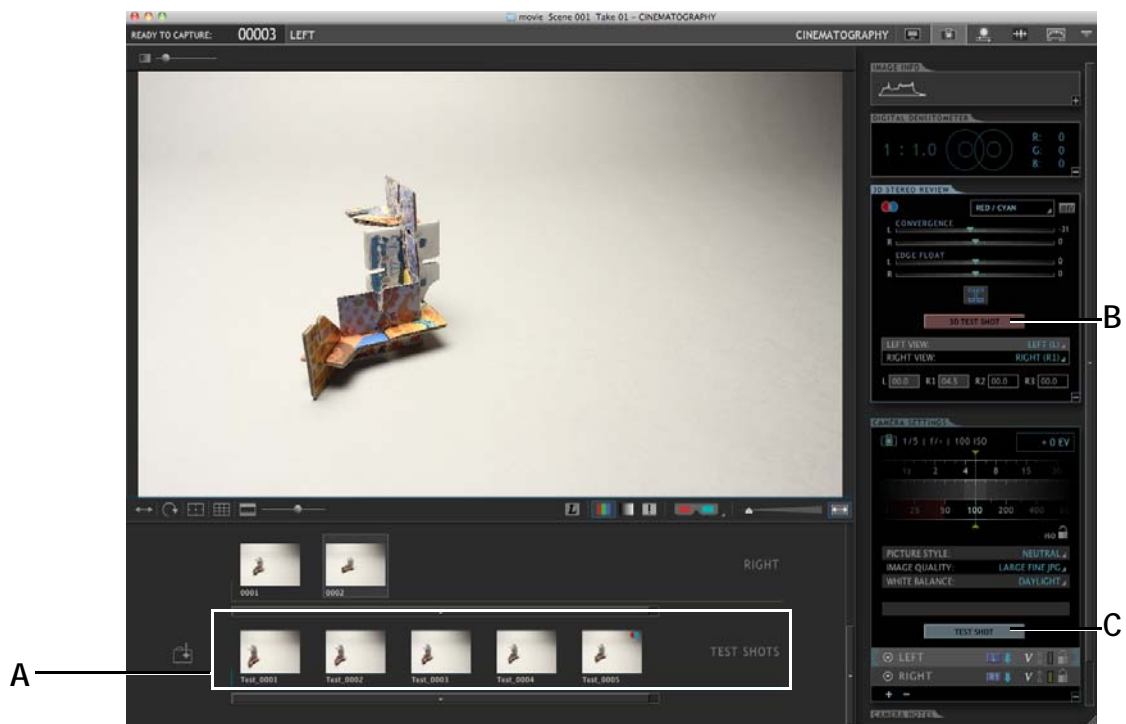
A. Test Shot Image tray. A stereo image pair appears with a stereo icon on it. *B. 3D Test Shot button.* *C. Test Shot button.*

See also:
"Taking 3D Test Shots and 3D Images" on page 282.

Importing Images into the Test Shot Tray

Import images into the Cinematography workspace as test shots. You might want to import images from other sources (such as .jpg or RAW), frames from other scenes, or test shots from other takes. Importing test shots gives you the ability to ensure consistency throughout your project.

To import an image into the test shots folder:

1. Click ⬚ (located on the bottom left of the Cinematography workspace). The Load Image dialog appears.

2. Navigate to the image you want to import and click **LOAD IMAGE INTO TEST SHOTS FOLDER.**

The new image appears as a thumbnail in the test shots tray. Click the thumbnail to view it full-size in the View pane.

NOTE: You can import .jpg, .jpeg, .tif, .png, .gif, and any RAW format, such as .cr2, .crw, .nef, .nrw, .orf, or .dng.

See also:
"Finding Your Source Files" on page 292.

Dragging and Dropping Exposures into the Test Shot Image Tray

To bring a frame from your take folder into the test shot folder, drag and drop it from the exposure tray into the test shot tray. This will make a duplicate.

Renaming or Deleting Test Shots

*   To rename a test shot, **CTRL**-click on the image and select **RENAME...** The Rename Test Shot window appears. Enter the new name, then click **OK**.

*   To delete a test shot, **CTRL**-click on the image and select **DELETE**. Dragonframe deletes the image.

Changing Test Shot Image Orientation

Rotate or mirror test shot images right from the image tray. **CTRL**-click the image and select **ROTATE 180** or **MIRROR**.

Finding Test Shot Source Files

To find out where a test shot is saved, **CTRL**-click on the image, and select **REVEAL IN FINDER**. Dragonframe opens the Finder to the folder where the image is saved.

Opening Test Shot Files in Another Application

You may want to work with a test shot in a graphics program in tandem with Dragonframe. Once you choose which application to use for your images, you can open them up directly from the Cinematography work-space.

To open files in another application for the first time, you must set up Preferences:

1. Click **DRAGONFRAME|PREFERENCES…**, then click the **ADVANCED** tab. Dragonframe opens Advanced Preferences.

2. Choose the program you want to use for each image type.
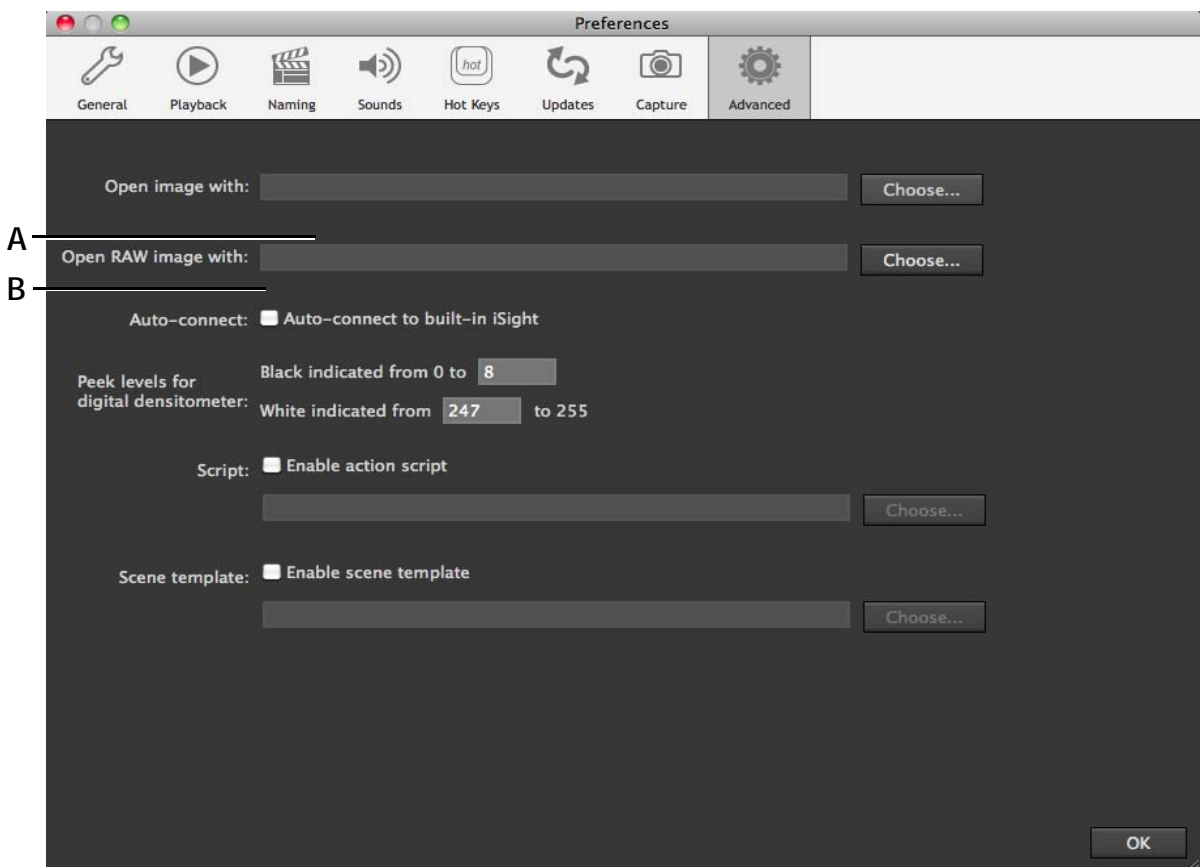
A. Click to select an application to use for all images. B. Click to select an application to use for RAW images.

3. Close Preferences to save changes.

To open an image in another application once Preferences are set:

1. Open the Cinematography workspace.

2. Select an image:

- Double-click the image you want to work with.

- Or, **CTRL**-click the image, and select **OPEN IN APPLICATION**.

Dragonframe opens the image in the application you set.

Exporting the Cinematography View

Export the image you're looking at in the Cinematography workspace to save the specific view of the image, such as cropping, a mask push-in, or an anaglyph.

To export an image:

1. Open the Cinematography workspace.

2. Find the image you want to export in the Test Shot image tray or the Exposure Image Tray, and select it. The image appears in the View pane.

3. (Optional) Edit the image as needed, for example cropping it, viewing it as an anaglyph, or viewing clip information.

4. **CTRL**-click on the View pane and select **EXPORT STILL IMAGE...** The Export Still Image dialog opens.
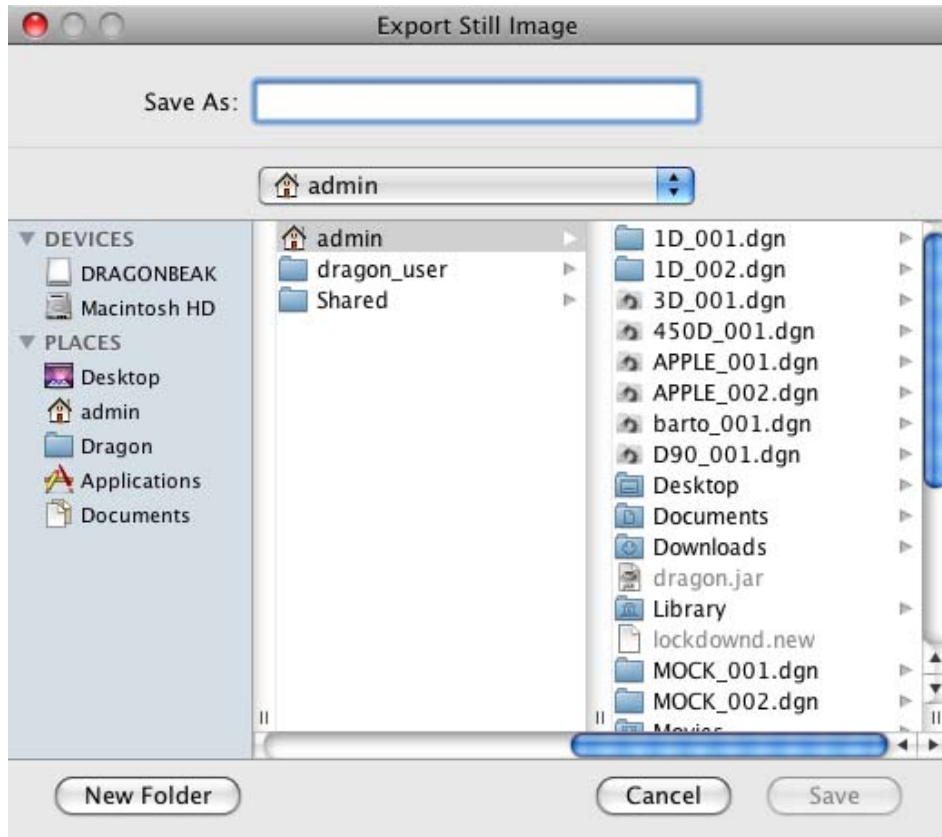
5. Name the file, select where to save it, and click **SAVE**. Dragonframe exports the image.

Viewing Modes for Captured Frames

Use the Viewing Modes in the Cinematography workspace to evaluate your images, and adjust camera settings. The table that follows gives more information about each mode.

Use this mode:	To:
L	See the Live View in the View pane of the Cinematography workspace. The Live View will appear in the View pane until you: • Shoot a new frame or test shot. • Select an existing test shot or exposure thumbnail. • Activate the Animation workspace.

Use this mode:	To:
[color bar icon]	View the current image in color.
[gray-scale icon]	View the current image in gray-scale.
[clip icon]	View where you will lose (clip) color information because it exceeds the limits of the RGB color space.
[3D glasses icon]	View the current image in 3D. • Click to view a color anaglyph. • Click the arrow to select the type of anaglyph or transparency to view.
[slider icon]	Resize the captured frame or Live View. Slide to the right for a one-to-one pixel ratio with your screen (capture frames only).
[fit icon]	Fit the image in the View pane.

See also:
"Reviewing 3D Images and Test Shots" on page 283.

Cinematography Image Presentation Modes

Press **F** to toggle through the image presentation modes. The default mode shows all of the cinematography tools.

- Press **F** once to hide most of the tools and increase the image viewing area.

- Press **F** again to remove the remaining tools and increase the image viewing area even more.

- Press **F** once more to return to the default mode.

This helps you view large images and present test shots.

Focus Magnification During Live View

On Canon and Nikon DSLRs with Live View, Dragonframe's Cinematography workspace provides Live View magnification for focus check.

Your Live View image will have a white rectangle on it, representing the focus area. It will also have focus check buttons below the image:
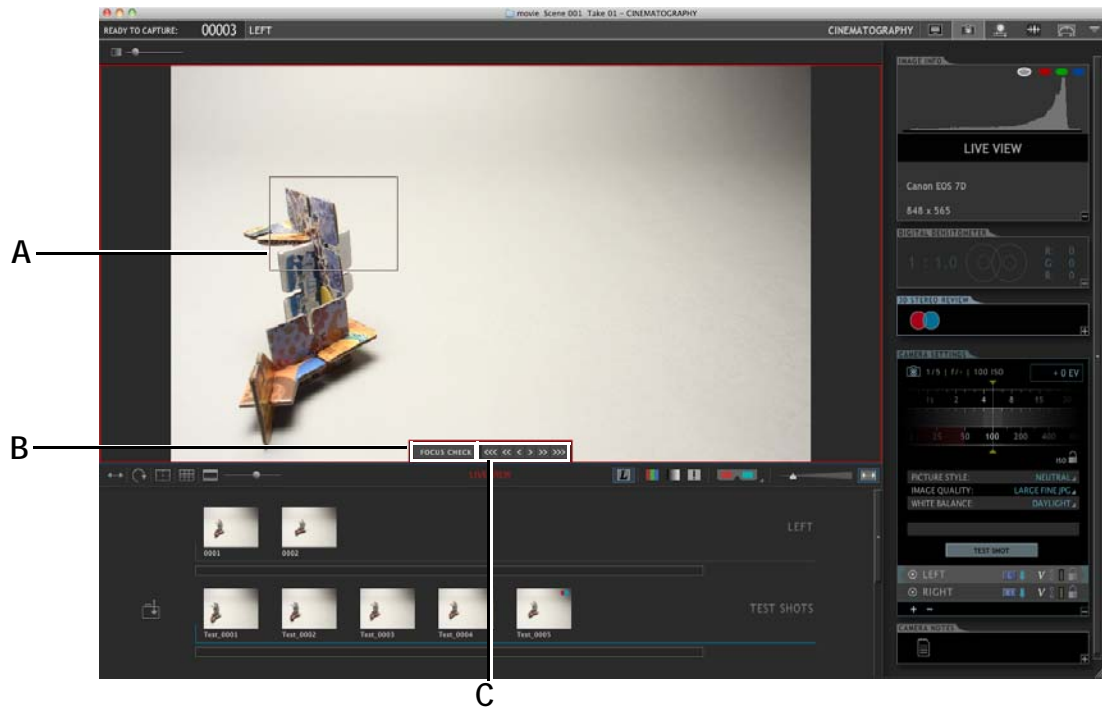
A. *Focus area.* **B.** *Focus check: Move in or out of the magnified view.* **C.** *Focus arrows: Adjust focus with digital lenses*

To work with the focus area:

1. Click and drag the focus area (A.) to any part of the image.

2. Magnify the focus area:

   • Click within the rectangle to magnify that portion of the Live View. Click anywhere within the image to revert to the full image view. Or,

   • Select and de-select **FOCUS CHECK** (B.) to move in or out of the magnified view.

3. If you have a digital lens, control focus with the focus arrows ().

Viewing Image Information

The Image Info pane in the Cinematography workspace contains a histogram of the selected image or Live View. The histogram looks at 8-bit data. For RAW files, the histogram views an 8-bit proxy.

A. Histogram of the image or Live View. *B.* Channel Selection: Choose all, red, green, or blue. *C.* Picture Meta Data: Info about the image. *D.* Minimize or maximize the Image Info pane.

Reading Pixel Values with the Digital Densitometer

You can compare the values of light and dark areas in any image using the digital densitometer. The densitometer shows you relative pixel values of two sample areas. The scale we use is reminiscent of the Ansel Adams zone system, but should not be confused with light readings—the values represent final image densities. The densitometer also gives you a ratio of the two areas.

To compare two sample areas using the densitometer:

1.   Select an image to use with the densitometer.

2.   Click the Digital Densitometer to activate it:

In the View pane, two sample circles appear, along with a scale of gray values.
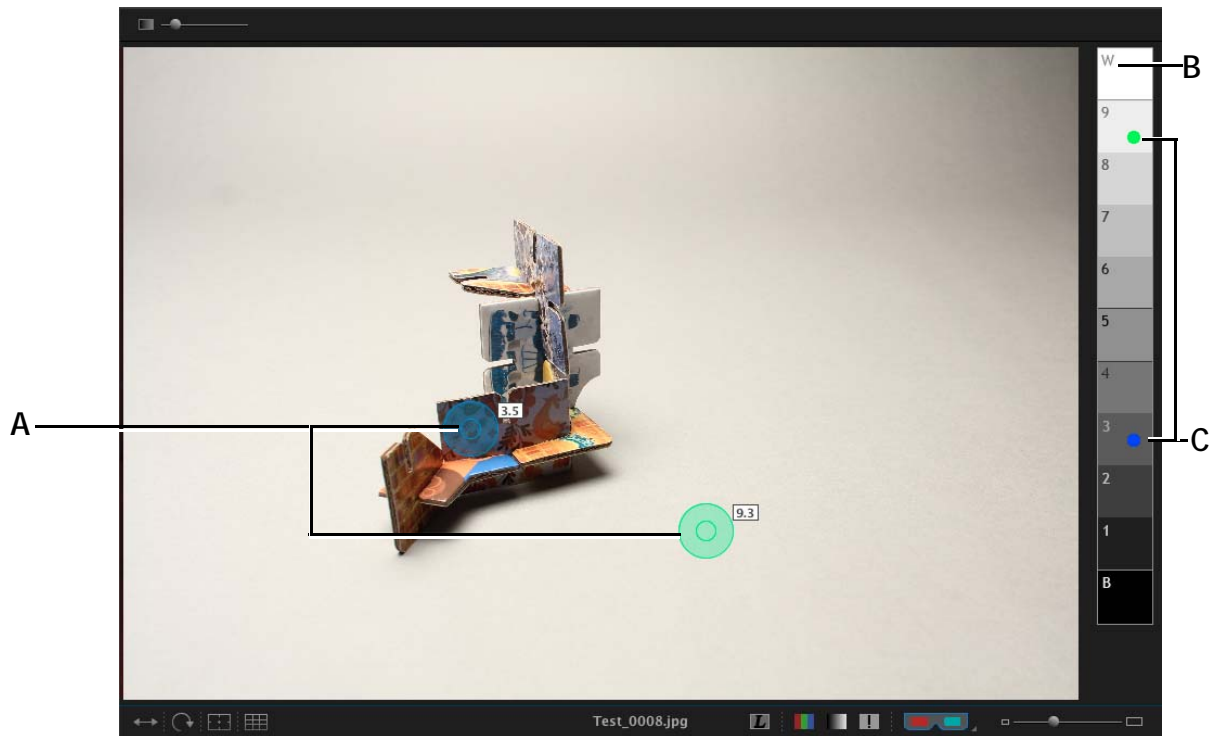
A. Move the blue and green circles into two different areas on the test shot to compare the pixel values. Click the center of the circle to sample only the values in the center.

B. By default, W represents 248-255 in the RGB color value, and B represents 0-7 in the RGB color value. Set these pure white and pure black reference points in Preferences, based on an estimated viewing gamma.

C. Two dots appear on the scale alongside the image. The green dot corresponds with the light value for the green circle, and the blue dot for the blue circle.

As you move and adjust the sampling circles, the information in the Densitometer changes:
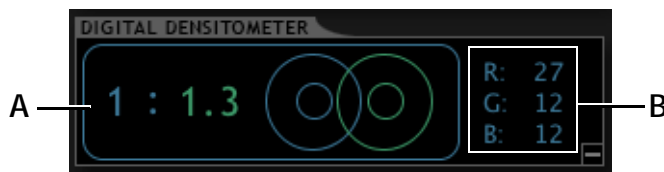
A. Records the ratio of the darker light value to the lighter light value. **B.** Shows the RGB values of the pixel currently selected by the cursor when you place it over the image.

3. Adjust your lighting and camera settings as needed.

See also:
"Advanced Preferences" on page 311.

Viewing Stereo Images

Take 3D test shots, review stereo images and refine interocular settings from the 3D Stereo Review pane. By default, this pane is minimized; click the arrow in the lower right corner to maximize it.
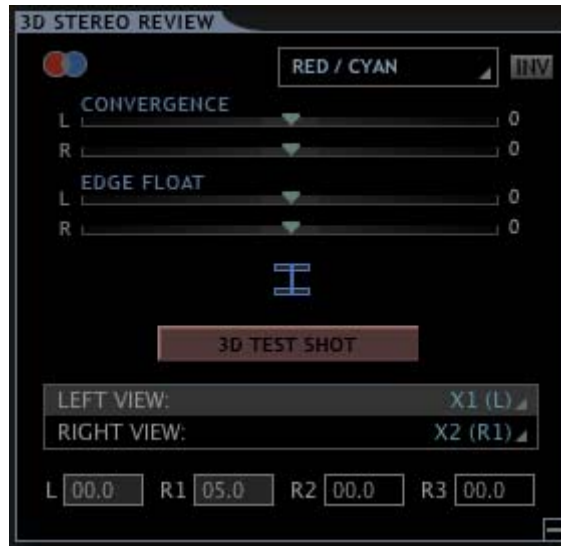
See also:

"Reviewing 3D Images and Test Shots" on page 283.

"Refining 3D Settings from the Cinematography Workspace" on page 283.

Adjusting and Locking Camera Settings

Adjust the camera settings from the Camera Control pane in the Cinematography workspace. Camera Control is a visual interface that directly controls your digital still camera.
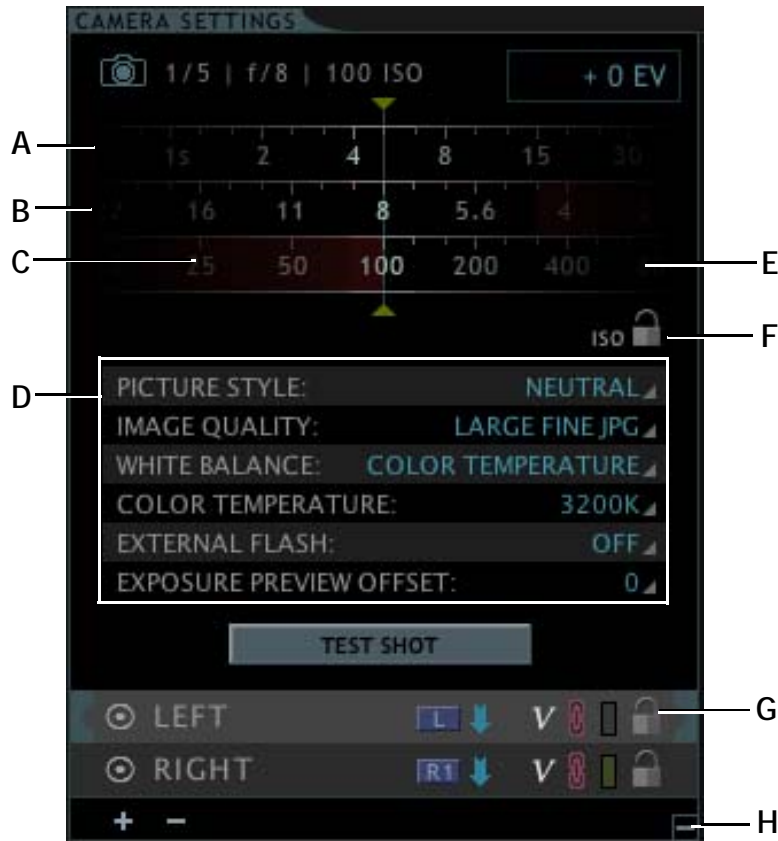
A. *Adjust the shutter speed.*

B. *Adjust the aperture.*

C. *Red, un-selectable areas indicate settings not supported by your camera.*

D. *Adjust other camera settings. The settings here are specific to your camera.*

E. *Adjust the ISO.*

F. *Lock only the ISO setting. This applies only to the current exposure.*

G. *Lock all settings for the exposure.*

H. *Minimize the Camera Control pane.*

An additional feature of the Camera Control pane, the DF slider, is available for digital lenses only. Use the DF slider to adjust depth of field while keeping the same exposure value. When you move the two rings with the slider, their values move in opposition. In other words, the shutter speed increases while the aperture decreases, and vice-versa. That way, the DF slider keeps the exposure value steady while depth of field changes.

Click the line between the aperture and shutter speed to activate the DF slider. The line changes to green circles to indicate that the two settings are moving together:
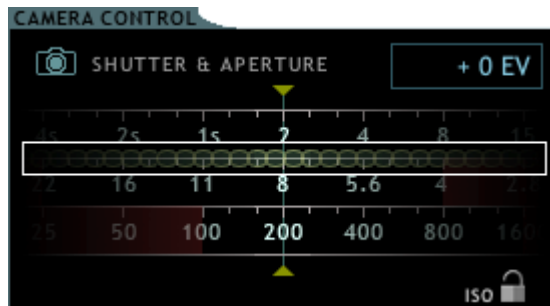
DF Slider.

Adjusting Exposure Preview Offset

Exposure preview offset is available only for Canon DSLR cameras. Adjust the Live View shutter speed relative to the high-resolution capture shutter speed. It's helpful for manual aperture lenses.

Adding Camera Notes

Record who the camera operator for a particular scene is, as well as any notes about the scene's cinematography.

•   Click the **CAMERA OPERATOR** field to open the Camera Operator dialog. Enter the name of the camera operator, then click **OK**.

•   Click the **NOTES** field to open the Camera Notes dialog. Enter any relevant notes for the scene, then click **OK**.

Portrait versus Landscape Orientation

You can change the orientation of your scene to portrait from landscape. This may be useful for still photography.

Select **VIEW|ORIENTATION|PORTRAIT** to change orientation. All of the frames in your scene will change to portrait orientation.

Multiple Passes and Exposures

Add or edit multiple passes, called "exposures" in Dragonframe, from the Camera Control pane in the Cinematography workspace. Here, you can associate camera settings with each exposure.

If you're filming multiple passes for your scene (for example, one pass with a front light and the other with a backlight), you can have camera settings associated with each pass. For example, if you want to have the first exposure with a higher shutter speed than the second, set the desired shutter speed for each pass. Then, as you're filming, Dragonframe will automatically adjust the shutter speed as it takes each exposure.

Once you create your exposure, you can view it in the X-Sheet. There you can see how the exposures relate to the other elements of your scene, such as phonetic symbols or waveforms.

NOTE: If you want to create a second pass of an entire sequence of frames, (for example, a clean pass to create mattes) create a new take.

See also:
Dragonframe tutorials:
http://www.dragonframe.com/tutorials.php

"Reading the X-Sheet" on page 173.

"Shooting in 3D" on page 273.

"Creating Custom Lighting Programs per Exposure" on page 206.

"Passes, Takes and Exposures Explained" on page 10.

"X-Sheet Overview" on page 25.

"Creating a New Take" on page 137.

Adding Multiple Exposures

To create multiple exposures with customized camera settings:

1. Set up your first exposure and lock it from the Camera Control pane.

2. (Optional) Lock the ISO settings. Doing so locks ISO for the exposure. That way, you can adjust other settings without worrying about accidentally changing ISO.

3. Click + **(ADD EXPOSURE)**.

Add exposure (+) button.

Dragonframe adds a new exposure. By default, it will be named **X2**:

A. *Enable or disable the exposure.*	**E.** *Enable or disable the video assist capture.*
B. *Exposure name. Double-click to edit.*	**F.** *Link the exposure to other exposures.*
C. *3D slider position. Toggle through 3D slider positions for the exposure.*	**G.** *Change the color associated with the exposure.*
	H. *Lock or unlock all settings for the exposure.*
D. *Auto-capture arrow. Enable or disable auto-capture.*	**I.** *Add an exposure.*
	J. *Delete the selected exposure.*

4. Adjust any camera settings for the new exposure that you want to differ from the default exposure.

5. (Optional) Click 🔓 (H.) to lock the camera settings for the new exposure.

6. (Optional) Click the 3D slider icon (C.) to toggle through available slider positions for the exposure.

7. (Optional) De-select the blue auto-capture arrow (D.) for Dragonframe to stop capturing the exposure automatically, without you having to press **SHOOT**.

8. (Optional) Click the link to link the exposure to other exposures. When you change settings in one exposure, the settings for all exposures linked to it will change, too.

9. (Optional) Click **V** (E.) to have Dragonframe save the video assist frames from that exposure.

10. (Optional) Click the rectangle (F.) to change the exposure's cue color. The color will appear at the top of the Animation workspace when it's time to capture the exposure.

11. (Optional) Create any additional exposures (I.), adjusting the settings for each one.

- To copy settings from an exposure, drag and drop it onto the new exposure. The new exposure must be unlocked:

Dragging the Left exposure onto the Right.

NOTE: When you create multiple exposures, Dragonframe copies each new exposure's settings from the currently selected exposure.

Once you create multiple exposures, you will need to adjust the size of the View pane to see all exposure image trays in the Cinematography workspace:
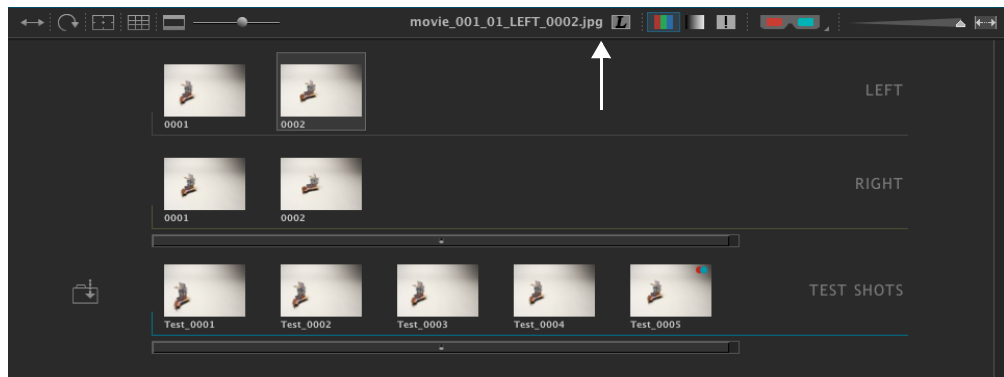
Dragging the edge of the Exposure Image tray to view multiple exposures.

See also:
"Manual vs. Automatic Captures" on page 82.
"Adjusting and Locking Camera Settings" on page 76.
"Linking Exposures" on page 81.
"Finding Your Source Files" on page 292.
"Setting Up Exposures for 3D Shooting" on page 280.

Linking Exposures

You can group exposures, or "link" them. If you change the settings in one exposure, the settings for any exposures linked to it would change too. For example, when setting up stereo pairs, you could easily keep the settings the same for the left and right exposures.

To link exposures together:

1. Create the exposures you need:
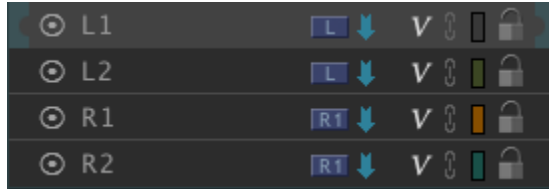
2. Click ⬍ next to the exposure you want to link. A drop-down menu appears:

3. Select the exposure to link to. Dragonframe links them, and turns the link icon red:

Any other linked groups you make will have a unique link color, so it's easy to tell different groups apart.

4. Adjust camera settings for one of the exposures you linked. Dragonframe will automatically adjust the settings in the exposures linked to it.

NOTE: Dragonframe will only copy *camera settings*—those settings found on your camera (such as aperture, shutter speed, white balance, etc). It will not copy exposure settings, such 3D slider positions or auto-capture settings.

Manual vs. Automatic Captures

When you create multiple exposures, Dragonframe will capture each one automatically by default. In other words, you'll press **SHOOT** only once to capture both your exposures. Dragonframe will capture the first exposure, adjust camera settings, then capture the second exposure without you having to press any more keys.

This also makes it possible for you to create multiple exposures for time-lapse, or when shooting left and right views for 3D stereo.

There are other ways to set auto-capture for your shoot:

* Keep the second exposure's capture manual, so that you have time to animate in between exposures.

* Add a capture delay before capturing a second exposure to give you a few seconds to change lighting, for example.

Automatic capture is controlled by the blue arrows in the Camera Control pane:
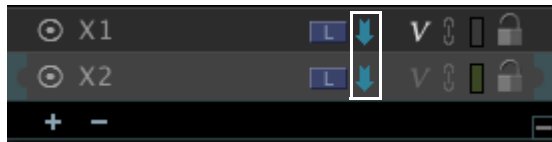
Auto-capture arrows.

By default, all exposures have auto-capture turned on. Click the arrow to turn auto-capture off.

When choosing between a manual or an automatic capture, keep these points in mind:

* De-selecting auto-capture for the default exposure (here, **x1**) won't change the way single shots work. However, if you deselect auto-capture, you will not be able to shoot a time-lapse sequence or shoot multiple frames with one keystroke.

* If auto-capture is off for additional exposures (here, **x2**), you must press **SHOOT** again to capture the exposure. You may want to do this if you need to animate between exposure 1 and exposure 2. However, if you keep auto-capture off for additional exposures, you will not be able to shoot a time-lapse sequence or shoot multiple frames with one keystroke.

Besides choosing to automate captures, you can also add a capture delay of up to one minute before Dragonframe auto-captures an exposure. To add a capture delay:

1. **CTRL**-click on the arrow of the desired exposure. A drop-down list appears.

2. Select a delay. Dragonframe displays it in the Camera Control pane:
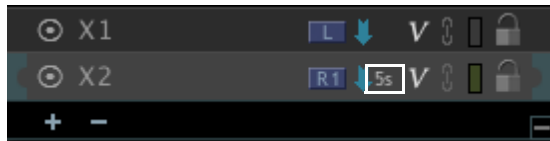
Exposure with a delay of five seconds.

Deleting Multiple Exposures

To delete an exposure:

1. Select the exposure you want to delete.

2. Click - (delete). Dragonframe deletes the selected exposure.

NOTE: The exposure you select cannot have any frames in it. If it has frames in it, you must disable it to stop shooting the exposure.

See also:
"Disabling an Exposure", below.

Disabling an Exposure

To disable an exposure, de-select the radio buttons in the Camera Control pane:
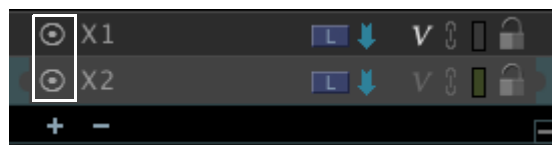
Both exposures enabled.

NOTE: You can't disable the default exposure for the scene.

Viewing Multiple Exposures in the X-Sheet

Any exposures you create appear in the X-Sheet, alongside all the information about your scene:

X-Sheet. Each exposure gets its own column. **X** *marks already-captured frames.* **C** *marks the exposure to be captured next.*

Tricks of the Trade

A few tricks can help you light your shot perfectly, while still letting you to use a work light or have your computer screen close to your set.

Adding a Capture Delay

The capture delay gives you time before your shot to turn off a bash light. It adds a delay between the video assist capture and the high-res capture. That way, the work light can illuminate your video assist frame without interfering with the high-res capture.

1. Click **DRAGONFRAME|PREFERENCES** to open Preferences.

2. Click **ADVANCED**.

3. Select the number of seconds you want to delay each high-res shot when you press **ENTER**.

NOTE: Automate a bash light with the DDMX-S2 and a dimmer pack, or using the DDMX-S2's output terminals. See "Automating a Bash Light" on

NOTE: If you want to add a capture delay before *both* the video assist and high-res captures, add a capture delay to your exposure. For example, you might use this if you want to quickly change lighting in between two exposures, but you don't want to press **SHOOT** for each exposure. See "Manual vs. Automatic Captures" on page 82.

Black-Out Mode

If the light from your computer screen is affecting the lighting for your shot, you can have Dragonframe black out the screen during a capture. To black out the screen:

1. Press **DRAGONFRAME|PREFERENCES** to open Preferences.

2. Click **CAPTURE**.

3. Check the box labeled **BLACK OUT SCREEN DURING CAPTURE**. When the box is checked, the screen will momentarily go black when you capture a frame.

Special Keys and Contextual Menus for the Cinematography Workspace

Use the keypresses and menus in this section to access all of the work-space's tools.

Cinematography Keypresses

Press:	To	See this section for more information:
F	Toggle the view of the workspace between normal, expanded, and full.	"Cinematography Image Presentation Modes" on page 71.
UP	Move up one exposure.	n/a
DOWN	Move down one exposure.	n/a
Step keys	Step through the frames.	n/a
CTRL STEP	Step back or forward 12 frames.	n/a
'(single quote)	Shoot test shot.	"Working with Test Shots" on page 66.
3	Switch to the Live View in the Cinematography workspace.	"Cinematography Workspace Map" on page 23.

Cinematography View Pane Contextual Menus

Select:	To:	See this section for more information:
EXPORT STILL IMAGE	Export the image you're looking at in the Cinematography workspace.	"Exporting the Cinematography View" on page 69.

Exposure and Test Shot Image Tray Contextual Menus

Select:	To:	See this section for more information:
OPEN RAW IN APPLICATION	Open the RAW image in the photo-editing software you chose in Advanced Preferences.	"Advanced Preferences" on page 311.
OPEN IN APPLICATION	Open the image in the photo-editing software you chose in Advanced Preferences.	"Advanced Preferences" on page 311.

Select:	To:	See this section for more information:
REVEAL IN FINDER	Show where the image is stored on your hard drive.	"Finding Your Source Files" on page 292.
USE AS LINE-UP LAYER	Use the selected image as a line-up layer.	"Adding a Line-Up Layer (Movie or Still)" on page 104.

Chapter 5: Animation Tools

This chapter includes the following sections:

See also:

Dragonframe tutorials:

http://www.dragonframe.com/tutorials.php

Keypad Controls

The keypad controls on your included Dragonframe keypad keep the most important animation tools at your fingertips.

Step, Play and Shoot Keys

With only the **STEP**, **PLAY** and **SHOOT** keys, you could animate a scene.
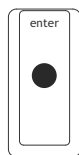
Press **SHOOT** to capture a frame.

Use the **STEP** keys to move through your frames.

Press **PLAY** to play back the frames you've shot.

Stepping with Holds

If some of your frames are "holds", you can vary how you step through frames.

If shoot multiple as virtual holds is not checked:

To:	Press:
Step through each frame including holds,	The **STEP** keys.
Step through frames without including holds,	**COMMAND STEP.**

If shoot multiple as virtual holds is checked:

To:	Press:
Step through frames without including holds,	The **STEP** keys.
Step through each frame including holds,	**COMMAND STEP.**

See also:
"Shoot Multiple" on page 95.
shoot multiple as virtual holds
"Holding Frames with the Timeline" on page 119.

Live Key

Press **LIVE** to go to the Live View frame.

Live Toggle Key

Press **LIVE TOGGLE** to toggle between live and captured frames; release the button to move back.

Auto-Toggle Key

Press **AUTO-TOGGLE** to turn auto-toggle on and off**.**

To:	Press:
Change the toggling speed,	• **AUTO-TOGGLE**, then the **STEP** keys. • Click **PLAYBACK|TOGGLE [SPEED]**
Auto-toggle between the last frame shot and the Live View,	Press **LIVE**, then **AUTO-TOGGLE.**
Auto-toggle between a frame you choose and the Live View,	Step to the desired frame and press **AUTO-TOGGLE.**

Delete Key

To delete the frame (with all exposures in the frame), double-press **DELETE** on the Dragonframe keypad.

NOTE: To replace just one exposure in a frame, you can reshoot it from the X-Sheet.

See also:
"Deleting Frames from the X-Sheet" on page 180.
"Cut Back Key" on page 91.
"Reshooting a Frame Sequence from the X-Sheet" on page 180.
"Finding Your Source Files" on page 292.

Cut Back Key

Use **CUT BACK** to eliminate a group of recently shot frames. You might cut back to a point before the animation went awry.

To cut back to an earlier frame:

1. Press **CUT BACK**. Dragonframe opens the Cut Back dialog.

2. Enter the number of the frame you want to cut back to.

3. (Optional) Un-check **DELETE INTERMEDIATE FRAMES** if you only want to move back to an earlier point in the sequence.

4. Click **OK**. Dragonframe jumps to the frame you specified, and, if selected, deletes the intermediate frames.

NOTE: Deleted frames go in the backup folder.

See also:
"Delete Key" on page 91.
"Deleting Frames from the Timeline" on page 122.
"Deleting Frames from the X-Sheet" on page 180.
"Restoring Frames from the Delete Bin" on page 124.
"Reshooting a Frame Sequence from the X-Sheet" on page 180.
"Finding Your Source Files" on page 292.

Loop Key/Ping-Pong

Press **LOOP** to loop the entire frame sequence.

Press and hold **LOOP** to turn on ping-pong playback: playing to the end of the sequence, then reversing through it. Press and hold **LOOP** again to return to regular looping.

NOTE: When ping-pong playback is on, all other playback options will continue functioning normally. For example, if you have both ping-pong and short play selected, Dragonframe will ping-pong through the last twelve frames.

NOTE: Add a loop hold, where Dragonframe pauses for a set time on the Live View, from the Playback Preferences.

See also:
"Playback Preferences" on page 305.

Short Play Key

Press **SHORT PLAY** to play back only some of the frames you've shot. By default, Dragonframe will play only the last twelve frames.

NOTE: Press and hold **SHORT PLAY** to change the number of frames for playback. Or, set it in Playback Preferences.

See also:
"Playback Preferences" on page 305.

Black (End in Black) Key

Press **BLACK** to add one second of black frames at the end of playback or during looping.

Or, press and hold **BLACK** to add one second of the live frame during looping.

NOTE: Change the timing for the Black key in Playback Preferences.

See also:
"Playback Preferences" on page 305.

High-Res Key

By default, Dragonframe uses video assist frames for playback in the Animation workspace. To play back the final capture frames, press **HIGH-RES**. This will play back proxy frames taken from your full-resolution captures. Switch back and forth between video assist frames and full-res frames at any time.

Onionskin Keys

To overlay frames from the same scene over each other, use the Onion-skin opacity keys.

Press **ONIONSKIN RIGHT** to begin onion-skinning the last frame over the Live View.

Step to any frame, then press **ONIONSKIN LEFT** to begin onion-skinning that frame over the Live View.

See also:
"Using Onionskin" on page 100.

Mute Key

Press **MUTE** to turn off sound.

3-Step (Optional Hot Key)

To always step through the last three frames when stepping forward or back, turn on 3-step.

By default, 3-step isn't assigned a hot-key. Assign one by selecting **PREFERENCES|HOT KEYS**.

- Once you've assigned the hot key, press it to activate 3-step.

- By default, press it again to toggle through the speed that Dragon-frame will play the three frames. Or, change the speed you'll step with in General Preferences.

- Once 3-step is activated, press the **STEP** keys to 3-step forward or backward through the last three frames in the sequence.

See also:
"General Preferences" on page 304.
"Programming Hot Keys" on page 307.

Playback Options

Adjust the way your sequence plays back in Dragonframe, change the playback speed, or choose a section of your frames to play.

See also:
"Playing Back Stereo Sequences in Dragonframe" on page 289.

Playback Speed

Adjust the playback speed from the Animation tools.

1. Click **24 FPS** to view a drop-down list of speeds.

2. Select a frame speed or create a custom speed.

Play Section with the Nav-Line

Choose which frames to include in playback with the Nav-Line.

1. Use the in and out points to define which frames you want to include in playback:

   - Step through the frames, then press **I** to set the in point and **O** to set the out point. Or,

   - Move the in and out points on the Nav-Line.

A. *In point.* ***B.*** *Out point.*

2. Press **PLAY** to start playback for the section you chose.

NOTE: You can set the out point as far as your scene end frame (set the scene end frame in the X-Sheet.) This allows you to move past what you've shot to play back a line-up layer or audio file.

See also:
"Cinematography Workspace Overview" on page 22.
"Using the Timeline for Playback" on page 117.
"Adding a Line-Up Layer (Movie or Still)" on page 104.
"Setting Scene Length and Starting Frame" on page 174.
"Loading Audio Files" on page 148.
Dragonframe tutorials:
http://www.dragonframe.com/tutorials.php

Using an Auxiliary Monitor

Use the an auxiliary monitor to display a full screen view of the Live View or playback on another monitor. You can:

- Start an auxiliary monitor by clicking **VIEW|AUXILIARY MONITOR>MONITOR #**
  Select **MONITOR 1** to open it on your computer, or **MONITOR 2** to open it on a second monitor.

- Turn the auxiliary monitor off by clicking **VIEW|AUXILIARY MONITOR>OFF**.

- Change the size of the display by clicking **VIEW|AUXILIARY MONITOR>FULL SCREEN**.
  Check the box to display the auxiliary monitor at the largest possible size for your screen. Uncheck it to display it at 100%.

- Show (or hide) any overlays, such as the grid or broadcast-safe overlays by clicking **VIEW|AUXILIARY MONITOR>SHOW OVERLAYS**.

Shoot Multiple

Shoot multiple frames in a row with the Shoot Multiple Frames dialog.

To shoot multiple frames:

1. Open the Cinematography workspace. Verify that auto-capture is on for all of your exposures, even if you only have one. That means that Dragonframe will capture all frames and exposures automatically,

instead of waiting for you to press **SHOOT** for each one. The arrows next to each arrow should be blue:
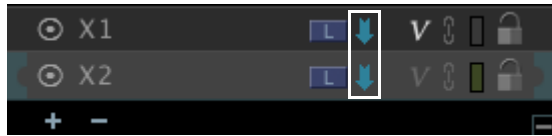
Auto-capture on for both exposures.

CAUTION: If auto-capture is not enabled for all exposures, Shoot Multiple will not work.

2. (Optional) Select **CAPTURE|SHOOT MULTPLES AS VIRTUAL HOLDS** if you want Dragonframe to shoot the first shot and then create a hold for all subsequent shots, instead of taking unique images.

3. Choose how many frames to capture at once:

- To capture from two, three or up to ten frames, press **COMMAND 2**, **COMMAND 3**...**COMMAND 0.** Dragonframe captures the frames from the Shoot Multiple dialog. Click **X** to stop capture.

- To capture more than four multiple frames:
  Press and hold **SHOOT**. The Shoot Multiple dialog appears.
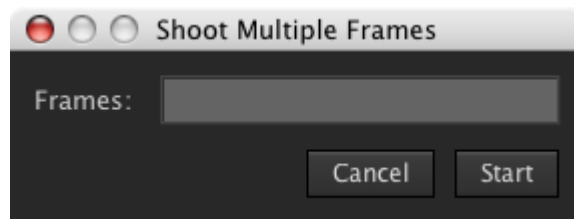
  Enter the number of frames you want to shoot and click **OK**. Dragonframe opens a progress dialog and shoots the number of frames you specified.
  (Optional) Click **X** in the progress dialog to stop shooting.

NOTE: If you have multiple exposures set up, Dragonframe will shoot all of them as one "frame". For example, if you have three exposures, and press **COMMAND 4** to capture four "frames", Dragonframe will take a total of twelve shots: three exposures, four times.

See also:
"Manual vs. Automatic Captures" on page 82.

Capture Options for Shooting on Twos

When you shoot on twos, there are two different ways you can capture frames.

- The default option is to actually trigger the camera twice. You may want to shoot this way if you have any motion control or lighting programs.

- Alternatively, you may want to capture a single frame and have Dragonframe hold that frame. To shoot this way, select **CAPTURE|SHOOT MULTIPLES AS VIRTUAL HOLDS**. This saves time and is a great way to work if you don't have lighting or motion control programs.

The sections that follow describe how to shoot on twos using the default option.

Occasional Twos

There are times when an animator may want to shift between single frame animation and shooting on twos during the same take. We call this "occasional twos".

Occasional twos can be achieved in three ways:

- Simply shoot the extra frames with the **SHOOT** button.

- Press **COMMAND 2** on the keyboard to capture two frames.

- Assign **SHOOT 2** as a hot key on the Dragonframe keypad.

See also:
"Programming Hot Keys" on page 307.
"Shoot Multiple" on page 95.

Consistent Twos

If you plan to shoot on twos only, you have a few different options depending on your editorial needs:

- Assign **SHOOT 2** as a hot key on the Dragonframe keypad and never shoot singles.

NOTE: You can check **SHOOT MULTIPLE AS VIRTUAL HOLDS** to have Dragonframe create holds for the second frame, instead of shooting two frames. If you do choose this option, make sure that your DMX or motion control programs are set up for twos as well.

- Use half-speed playback. Set your playback FPS rate (for example, 12 FPS, 15 FPS) and shoot single frames only. The playback will be correct for a twos effect.

> If you need to edit your animation in a 24 or 30 FPS time line, double the frames in post.
> If you are just showing work on the web, you can leave your final movie at the lower frame rate. This will save download time and bandwidth.

See also:
"Shoot Multiple" on page 95.

"Stepping with Holds" on page 90.

X-Sheet Options for Shooting Consistent Twos

Use the X-Sheet to number your scene using just odd or even frames if you are syncing dialogue or audio that is running in a single frame time line (for example, 24 or 30 FPS). This way, the frame numbers in your scene will match those in the editing room. In this mode the X-Sheet will display only the odd or even frame numbers depending on your preference.

To number your frames using odd or even numbering:
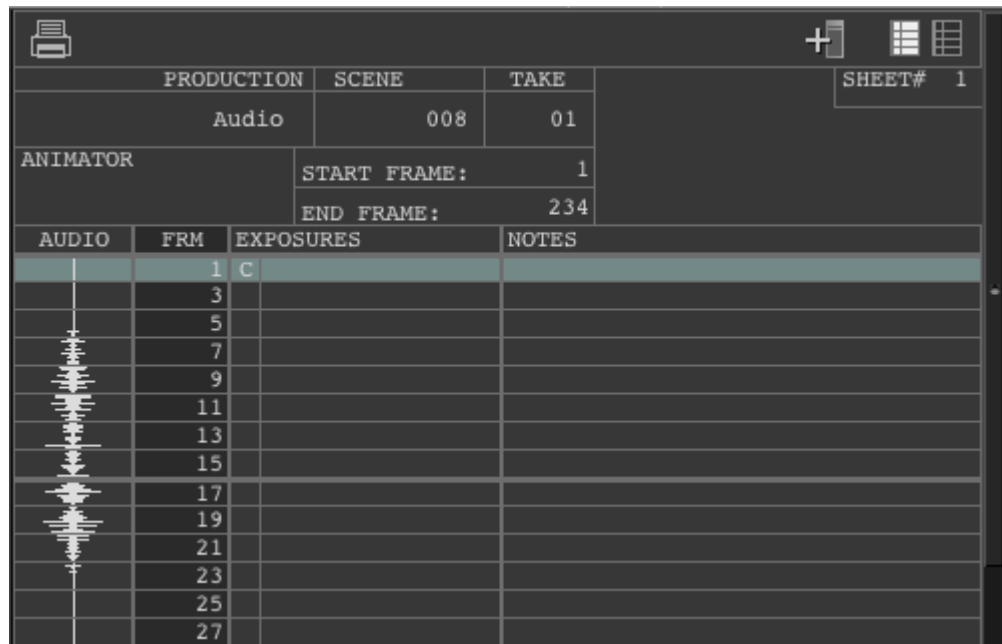
1. Click **SCENE|SETTINGS…** The General Settings dialog appears:
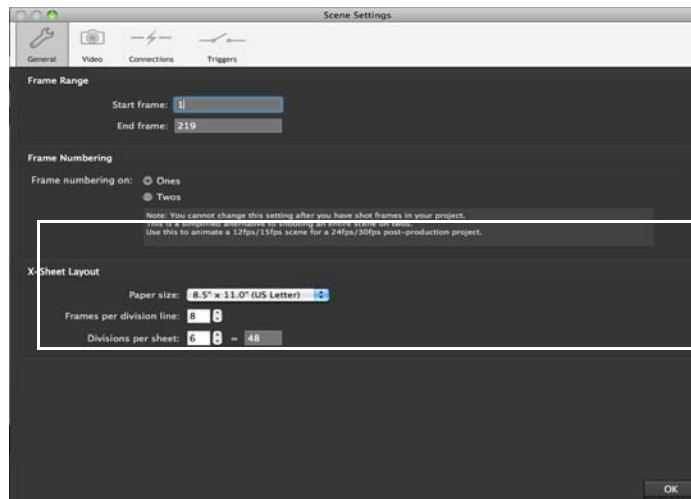
Frame Numbering options in General Settings.

2. Select **FRAME NUMBERING ON TWOS** to number the sequence by twos in the X-Sheet.

When you have frame numbering on twos selected, your X-Sheet might look like this:

X-Sheet with frame numbering on twos.

Shoot Order

When you have multiple exposures set up, such as for a front light shooting on twos, or shooting multiple frames in a row, you can change the shoot order for the sequence.

The normal shooting order is to capture all exposures for a frame, and then move on to the next frame.
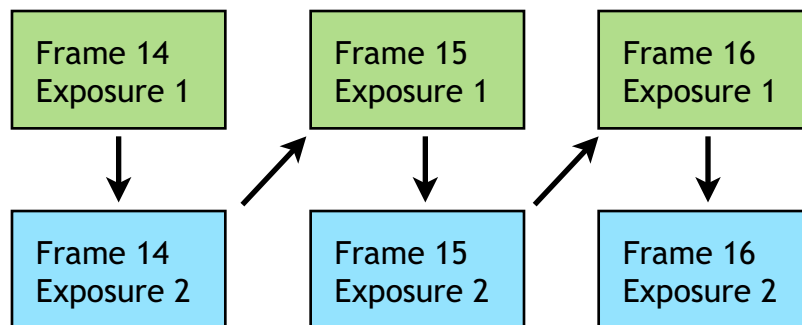
Shoot all exposures in the frame, then move on to the next frame.

You may find situations where you want to change the shoot order. Instead of the default, you would shoot the first exposure for two or more frames, then move on to the second exposure:
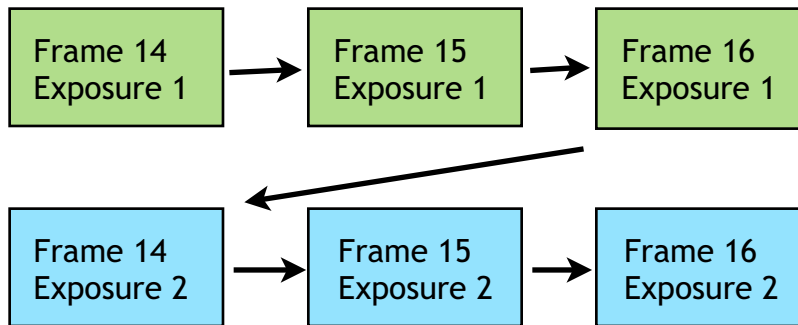
Shoot the first exposure for all frames, then move on to the next exposure.

To change the shoot order from its default:

1. Select **DRAGONFRAME|PREFERENCES**, then click **CAPTURE.**

2. Select **SHOOT FIRST EXPOSURE FOR ALL FRAMES, THEN MOVE ON TO NEXT EXPOSURE**.

See also:
"Capture Preferences" on page 309.
"Passes, Takes and Exposures Explained" on page 10.
"Multiple Passes and Exposures" on page 78.

Using Onionskin

The Onionskin opacity slider adds an onionskin layer of a previous frame over the Live View. You can adjust how translucent that layer appears, or select which frame you choose to layer, as shown in the following image.

A. Step to any frame, then move the slider left to onionskin that frame over the Live View.
B. Move the slider right to onionskin the last frame over the Live View.

There's also an Onionskin tool in the Animation palette that gives you additional control over onionskin opacity. Move the mouse over the View pane for access to the palette.
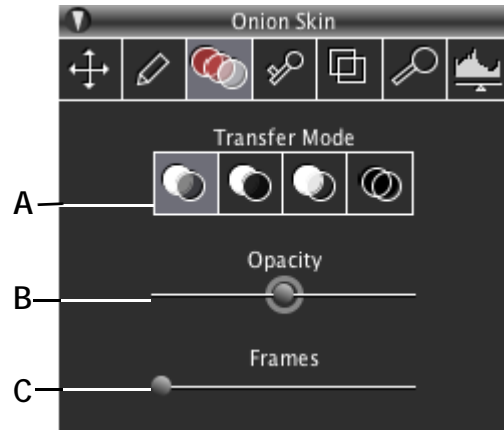
A. *Transfer Mode: Highlight various properties of the onion-skinned layer.* **B.** *Opacity Slider: Works in the same way as the opacity slider in the Animation tools. See above.* **C.** *Frame Slider: Move the slider right to onionskin more than one frame at once.*

Finally, press **ONIONSKIN LEFT** or **ONIONSKIN RIGHT** on your Dragonframe keypad to adjust opacity by small increments.

See also:

"Onionskin Keys" on page 93.

"Dissolving the Last Frame Over the Live View" on page 101.

"Dissolving the Last Few Frames Over the Live View" on page 102.

"Dissolving the Live View Over Any Other Frame" on page 102.

"Other Modes: Lights Prominent, Darks Prominent, Difference" on page 102.

Dissolving the Last Frame Over the Live View

To view the last frame onion-skinned over the Live View:

1. Press **LIVE** to move to the live shot.

2. Press **ONIONSKIN RIGHT** on your Dragonframe keypad to move the slider in small increments. Or, click and drag the opacity slider to the right from the Animation workspace or Animation palette.

As the slider moves to the right, the previous frame appears in increasing clarity. When the slider is all the way to the right, you will only see the previous frame; the Live View will be obscured.

Dissolving the Last Few Frames Over the Live View

To onionskin multiple frames over the Live View:

1. Press **LIVE** to move to the Live View.

2. Select the Onionskin tool in the Animation palette.

3. Press **ONIONSKIN RIGHT** on your Dragonframe keypad to move the slider in small increments. Or, click and drag the opacity slider to the right from the Animation workspace or Animation palette.

4. Click and drag the frames slider in the Animation palette to the right. When it's all the way to the right, it will layer five frames over the Live View.

Dissolving the Live View Over Any Other Frame

To onionskin any frame over the Live View:

1. Step through the frames until you find the frame you want to layer with the Live View.

2. Press **ONIONSKIN LEFT** on your Dragonframe keypad to move the slider in small increments. Or, click and drag the opacity slider to the left from the Animation workspace or Animation palette.

As the slider moves to the left, the frame you've selected appears with increasing clarity, while the Live View fades. When the slider is all the way to the left, you will only see the frame you've selected; the Live View will be obscured.

Other Modes: Lights Prominent, Darks Prominent, Difference

If you want to make some features in the onionskin layer easier to see, use the Onionskin transfer modes.

This mode:	Highlights this information:
	The dark values in the image. This would be useful if you were animating a black line drawing on a white piece of paper. Instead of seeing the white of the paper equally prominent as the black lines, making **DARKS PROMINENT** would draw more attention to the black lines you were animating.

This mode:	Highlights this information:
	The light values in the image. This might be useful if you were animating a bright object on a dark set. Rather than viewing the darks and lights as equally prominent, **LIGHTS PROMINENT** would draw more attention to the light areas you were animating.
	What has changed between the current frame and the Live View. Any changes will appear as white in a black background. For example, imagine your last frame looked like the picture below: If you then moved the ball slightly to the right, you could see how much it had changed using Onionskin. With Onionskin on, layering the last frame over the Live View, and with **DIFFERENCE** selected, you'd see: You can see white anywhere the ball has moved, giving you greater precision when lining up your next shot.

Using Roto Layers

Adding a Line-Up Layer (Movie or Still)

Use the Line-up Layer tool to load an image, a movie, or an entire Dragonframe scene as a layer in your project. For example, to animate one scene's action in several takes, use a line-up layer to make sure each take lines up with the other takes from the scene. The Line-up Layer tool is available from the Animation palette.

The image below points out the key features of the Line-up Layer:
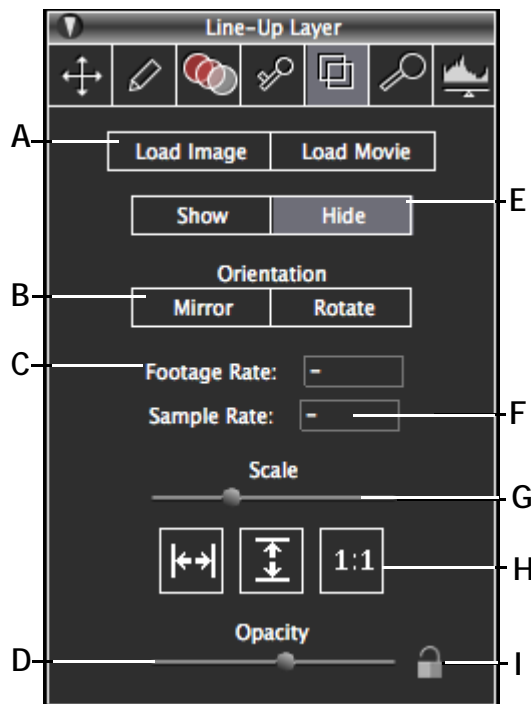
A. *Load Line-up Image/Movie: Load a single image, a series of images, or a movie into the current take. You can import a variety of movie formats: QuickTime (.mov), .mp4, .m4v, and Windows .avi and .wmv.*

B. *Orientation: Rotate or mirror the Line-up Layer's orientation.*

C. *Footage Rate: How fast the source movie should be played back. It defaults to the actual FPS of the source movie.*

D. *Opacity Slider: Adjust the opacity of the imported images.*

E. *Show/Hide: Show or hide the imported image. Or, press L to toggle opacity.*

F. *Sample Rate: How many samples (frames) Dragonframe extracts per second from the line-up layer.*

G. *Scale Slider: Incrementally adjust the size of the imported images.*

H. *Scale buttons: Adjust the size of the imported images to fit-to-width, fit-to-height, or to appear at the imported image's actual resolution.*

I. *Lock: Lock the Line-up Layer from edits. You can hide or show the layer when its locked, but you can not edit it or unload it.*

To load a line-up layer:

1. Select the Line-up Layer tool ▣ from the Animation palette.

2. Select a file from the Finder:

   - To load a single image, click **LOAD IMAGE** (A.). Dragonframe opens the Open dialog.
     Navigate to the image you want to load, and click **OK**. Dragonframe loads the image into the top layer of every frame in your scene.

   - To load an entire take of a scene into the take you're working on, click **LOAD MOVIE** (A.). Dragonframe opens the Open dialog. Navigate to the Dragonframe scene you want to load, and click **OK**. Then, select the take and exposure to open. Dragonframe loads the frames you selected into the current take as line-up layers.

   - To load a movie, click **LOAD MOVIE** (A.). Dragonframe opens the Open dialog.
     Navigate to the movie you want to load, and click **OK**.

3. (Optional) Adjust the footage rate (C.) and sample rate (F.) for the Line-up movie. By default, Dragonframe will match the lineup layer with your project *in time*, (with the footage rate at its original rate, and the sample rate at the FPS for your Dragonframe project).

4. (Optional) Adjust the scale of the images you've imported (G.). By default, Dragonframe loads the image to fit to the current width of the View pane.

   - Use the Scale slider to incrementally adjust the scale of the imported images. Press **SHIFT** while dragging the slider to fine-tune.

   - Use the Scale buttons to automatically adjust the scale of the imported images.

5. (Optional) Adjust the opacity of the line-up layer with the Opacity slider in the Animation palette (D.) or in the Animation tools.

6. (Optional) For movies, adjust the sync position by sliding the line-up layer in the timeline.

NOTE: You can use one of your existing frames as a line-up layer by **CTRL**-clicking it in the Timeline or Cinematography window and select **USE AS LINE-UP LAYER**.

NOTE: To move past what you've shot to play back a line-up layer, move the out point on the Nav-Line to the end of the scene instead of the Live position.

NOTE: The Line-up Layer tool is only designed as an animation tool; it's not a post-production tool. Line-up Layer only layers images for the video assist. It does not produce composite images or layer images in your final, full-res capture images. Open your Dragonframe images in post-production software to create composite images.

NOTE: You can position the line-up layer using the Video Assist tool by dragging while holding **OPT**.

See also:
"Adjusting the Line-up Layer from the Timeline" on page 117.

"Play Section with the Nav-Line" on page 94.

"Passes, Takes and Exposures Explained" on page 10.

"Using Chroma Key" on page 107.

"Using the Video Assist Tool" on page 112.

"Exporting Your Take" on page 291.

"Available Movie Formats" on page 298.

Understanding Footage Rate and Sample Rate

You can achieve a variety of effects by adjusting the footage rate for the Line-up Movie. Here are a few of examples of how changing that rate affects your project.

NOTE: In general, you leave the sample rate at its default, which is the FPS rate for your Dragonframe project.

Example One: Everything Matches

- Your project is at 24 FPS.

- You load a reference movie that was shot at 24 FPS.

Assuming you want the reference movie to line up frame-to-frame *and* in time with your project, there is nothing to change. Dragonframe will default the footage rate and sample rate to 24 FPS.

Example Two: Match a reference movie "in time"

- Your project is at 24 FPS.

- You load a reference movie that was shot at 30 FPS.

In this case, you want your animation to match the reference movie *in time*. This would mean that after 5 seconds of animation, you would have stepped through 5 seconds of the reference movie. By default, Dragonframe keeps the footage rate at the original rate of your reference movie, and samples the frames at the sample rate of 24 FPS.

In other words, in this example you *still* wouldn't have to change the settings. Dragonframe sets them by default at:

Footage rate: 30 FPS (default, determined from reference movie).

Sample rate: 24 FPS (default, from your scene).

Example Three: Match a reference movie "frame to frame"

• Your project is at 24 FPS.

• You have a reference movie shot at 30 FPS.

In this case, you want your animation to match the reference movie FRAME TO FRAME. You want to have one frame of your animation for every frame in the source movie. This will have the effect of slowing down the source movie (to play a 30 FPS movie at 24 FPS).

You'll need to adjust your settings as follows:

Footage rate: 24 FPS (changed to match the sample project).

Sample rate: 24 FPS (default, from your scene).

Using Chroma Key

Use the Chroma Key tool to pull a rough key from either your loaded line-up layer or your current video assist frames.

To use Chroma Key:

1. Load a line-up layer.

2. Select Chroma Key ![icon] from the Animation palette. Dragonframe changes your cursor to the Chroma Key tool.
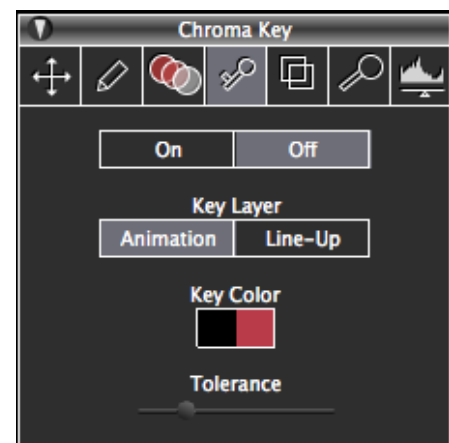
3. Select which layer you want to use as the key layer--the Animation, or the Line-up layer.

4. Click a color on the screen.

5. Drag the Tolerance slider to specify the range of the color to key out.

NOTE: The Chroma Key tool is only designed as an animation tool; it's not a post-production tool. Dragonframe does not export composited sequences.

See also:
"Adding a Line-Up Layer (Movie or Still)" on page 104.

Drawing on the View Pane

Move the mouse over the View pane for the access to the Animation palette's Draw tool.

The Draw palette has cursors for drawing freehand, lines, polylines, and shapes. It also features various hash marks, an eraser, and an increment editor that allows you to plot moves along a line.

The image below gives more information about the Draw palette's tools.
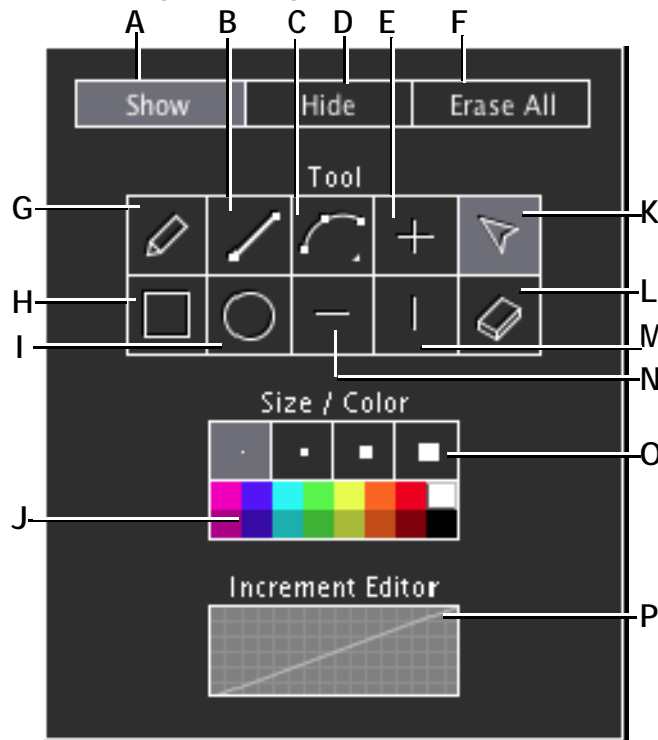
A. *Show the drawing.*

B. *Draw a straight line.*

C. *Draw a smooth polyline. Click and hold to draw a straight polyline.*

D. *Hide the drawing.*

E. *Add a cross-hatch mark.*

F. *Erase the drawing.*

G. *Draw freehand.*

H. *Draw a rectangle.*

I. *Draw a circle.*

J. *Select a line color.*

K. *Select an object.*

L. *Use the eraser.*

M. *Draw a vertical hatch mark.*

N. *Draw a horizontal hatch mark.*

O. *Select the line thickness.*

P. *Create increments along a line or curve.*

NOTE: You can import any drawings you make into other scenes.

NOTE: Hide drawings during playback from Playback Preferences.

See also:
"Importing Scene Settings" on page 140.
"Playback Preferences" on page 305.

Drawing a Smooth or Straight Polyline

1. Select the polyline tool.

    • Click the tool for the smooth polyline.

    • Click and hold the tool, then select the straight polyline.

2. Click the View pane to start the polyline.

3. Move the cursor and click the View pane to add more points.

4. Double-click on the final point to end the line, or press **ESC** to end the line.

Manipulating Objects

Once you draw a line or polygon on the View pane, you can adjust it with its handles.
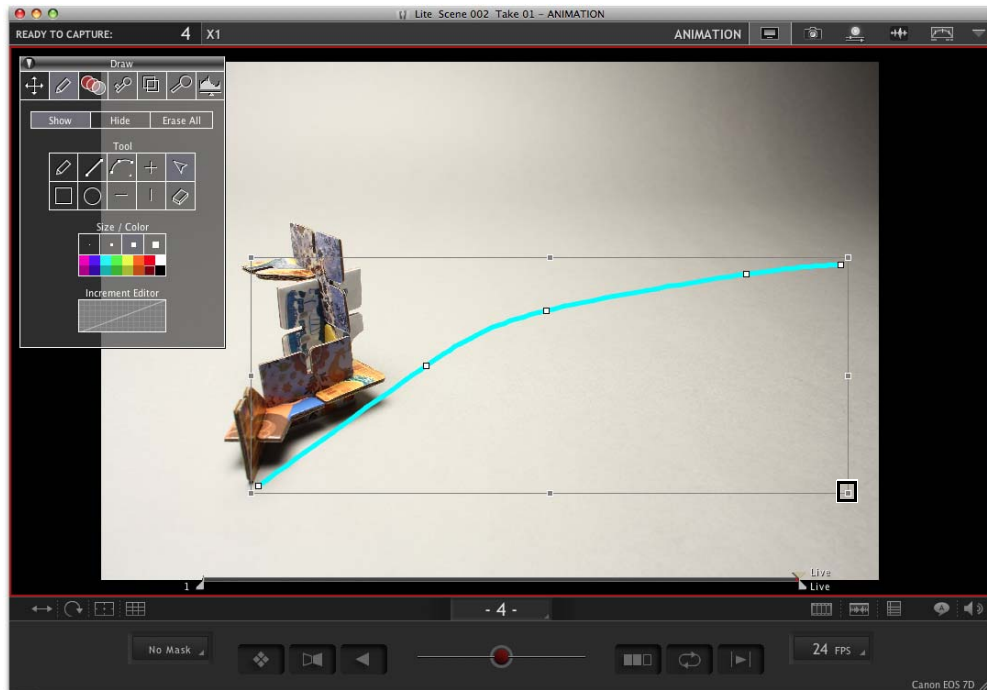
Drawing object handle.

*   Move the cursor over the handle to resize the shape.

*   Move the cursor close to the handle (but outside the drawing object) to rotate the shape.

Duplicating or Deleting Objects

*   To duplicate items, select one or more objects and press **COMMAND D**.

*   To delete objects, select one or more objects and press **DELETE.**

Draw Tool Keyboard Shortcuts

You can draw more precisely by using some standard keyboard shortcuts.

- **OPT** constrains the drawing around a center point. Use it when drawing or resizing. For example, if you click **OPT** while drawing a circle, the circle would expand from a center point, rather than from the side.

- **SHIFT** constrains the drawing to its original proportions, or constrains the drawing to standard angles. Press and hold **SHIFT** when drawing, resizing or rotating the drawing.

Using the Increment Editor

The increment editor shows movement along a path in time. Draw over the View pane, and add increments to the drawing; then adjust how quickly a playhead will move through the increments.

To use the increment editor:

1. Draw a shape on the View pane. You can use the line, multi-part line, square or circle tool.

2. Select the shape.

3. Click **INCREMENT EDITOR**. The increment editor opens:

A. *Position over time graph. Double-click the line to add a handle.*

B. *Increments field: Enter the number of increments.*

C. *Shape selection: Choose a green circle or blue diamond to show movement.*

D. *Shape size.*

E. *Reverse play.*

F. *Play.*

G. *Loop playback.*

H. *Increment mark selection: Choose whether the tick marks will follow the curve (default) or will always be horizontal, vertical, or diagonal.*

I. *Bezier curve handle: Click and drag to change the curve of the graph.*

J. *Handle: Click and drag to move the graph. Double-click to remove a handle.*

K. *Reset: Restore position curve to original position.*

4. Enter the number of one-frame increments and press **ENTER**.

The increments appear along the object.

5. (Optional) Adjust the position graph as needed.

6. (Optional) Change the type of tick mark used for the increment.

7. (Optional) Adjust the size or shape of the shape.

8. Press < or >. Dragonframe starts moving the shape along the curve.

Click **OK** when you're done viewing the movement along the curve.

Using the Video Assist Tool

Use the Video Assist tool to reposition or customize the image in the View pane.When the Video Assist tool is open in the palette, you can use the cursor to move the View pane image.
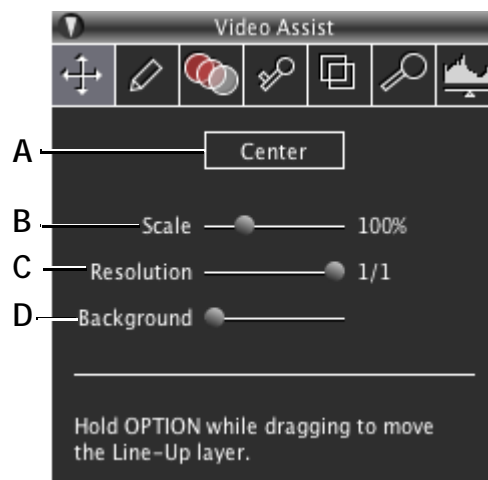
A. Center: Move the image back to the center of the View pane.

B. Scale: Change the scale of the image.

C. Resolution: Change the image resolution.

D. Background: Change the background color from black to white.

Punch-in with Live View Magnification

If you have a Canon or Nikon DSLR, you can use Dragonframe's Live View Magnification to zoom in on a portion of your Live View.

To use Live View Magnification, move the mouse over the View pane for access to the Animation palette's tool:
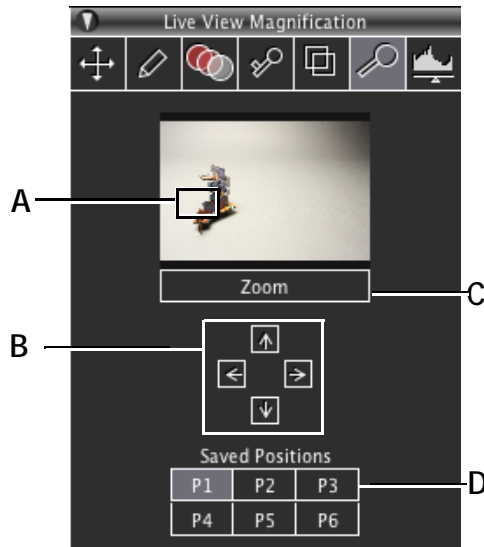
A. *Focus area: select where in the Live View you will zoom in.*

B. *Position arrows: Move the focus area.*

C. *Zoom into the Live View.*

D. *Position numbers: Save a focus area to return to. To save it, move the focus area, then press and hold the position number button (**P1, P2***, etc).*

NOTE: When you use Live View magnification, your preview frames will show the magnification, but your high-res frames will not.

Adjusting Video Assist Levels

Adjust the Live View's brightness, contrast, and gamma levels with the Video Assist Levels tool in the palette. This basically works like the levels adjustment in Adobe Photoshop.

When working with video assist levels, keep in mind that:

• These levels only affect the video assist.

• The level changes are an effect on top of the image. The original video assist image remains unchanged.

To adjust video levels, move the cursor over the View pane, then select ![icon] from the palette.

A. *Mid-tone Level Slider.*

B. *Mid-tone Level Field.*

C. *Low Input Level Slider.*

D. *Low Input Level Field.*

E. *Low Output Level Slider.*

F. *Low Output Level Field.*

G. *Cinematography check box: Apply video level adjustment to the Cinematography workspace.*

H. *Revert: Discard changes and go back to default levels.*

I. *High Input Level Slider.*

J. *High Input Level Field.*

K. *High Output Level Slider.*

L. *High Output Level Field.*

M. *Stack: Combine multiple consecutive video assist images in order to boost brightness. Useful for very low-light situations. (Does not affect final captures).*

- Adjust the levels using the sliders.

- Use the mid-tone slider and field to adjust gamma levels. This adjusts the brightness of mid-tones without losing too much contrast.

NOTE: If you're using a manual aperture lens on a Canon body, first try to adjust Live View exposure using the Exposure Preview Offset feature in the Cinematography workspace.

See also:
"Adjusting Exposure Preview Offset" on page 77.
"Automating a Bash Light" on page 204.
"Adding a Capture Delay" on page 84.

Chapter 6: Using the Timeline

Use the timeline for managing playback of frames, for frame editing, and for viewing frames along with the audio track reading.

The timeline opens in the Animation workspace. Press ▦ to open it.

Press the timeline button to open the timeline.

The next page gives an overview of the timeline's features. This chapter contains these sections:

"Using the Timeline for Playback" on page 117.
"Adjusting the Line-up Layer from the Timeline" on page 117.
"Frame Editing with the Timeline" on page 118.
"Contextual Menus and Keystrokes for the Timeline" on page 126.

See also:
"Animation Timeline Overview" on page 21.
"Playback Options" on page 94.
"Reading the X-Sheet" on page 173.
"Frame Editing From the X-Sheet" on page 175.
"Viewing the Track Reading in the X-Sheet or Timeline" on page 167.
"Reading Dialogue Tracks" on page 155.
Dragonframe tutorials:
http://www.dragonframe.com/tutorials.php

Timeline Map
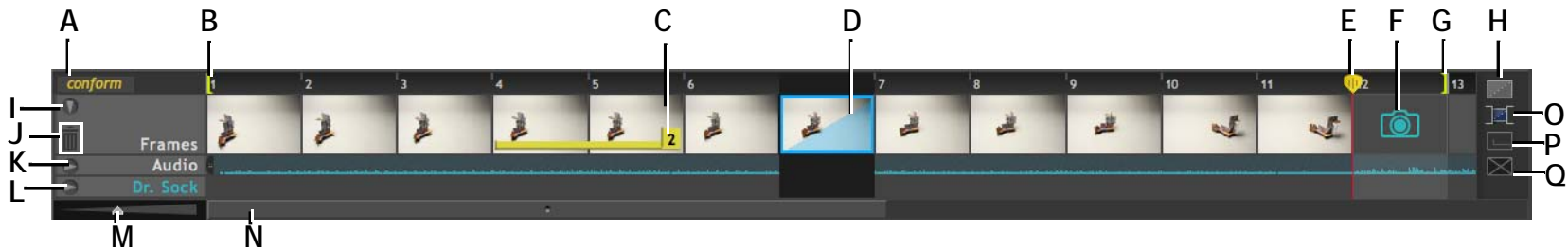
A. *Conform: Render all of the virtual edits in the source files.*

B. *In point: Start playback here.*

C. *Held Frames: Repeat one frame. It's a quick way of copying frames and pasting them.*

D. *Hidden Frames: These frames won't appear in playback, but they have not been deleted until you conform them. You can hide or show these hidden frames in the timeline.*

E. *playhead. Move through the timeline.*

F. *Camera: See which frame will be captured next. Move the camera earlier in the sequence to reshoot frames.*

G. *Out Point: End playback here.*

H. *Hide Button: Hide the selected frame, or reveal the hidden frame.*

I. *Minimize: Minimize or maximize the row.*

J. *Trash Can: Show or hide the delete bin.*

K. *Audio: View the waveform, if one is loaded.*

L. *Face Sets: View phonetic information, face set names, or dialogue cues.*

M. *Scale: Adjust the scale of the timeline.*

N. *Scroll bar.*

O. *Show/Hide Hidden button: Show or hide hidden frames in the timeline.*

P. *Hold Button: Hold the selected frame.*

Q. *Delete Button: Delete the selected frame and move it to the delete bin.*

Using the Timeline for Playback

Use the timeline to select the playback area so you can see exactly which frames will be included.

To set the playback area:

- Step through the frames, then press **I** to set the in point (B.) and **O** to set the out point (G.).

- Or, use the mouse to click and drag the in and out points.

Press **PLAY** to start playback.

See also:
"Playback Options" on page 94.
"Loop Key/Ping-Pong" on page 92.
"Short Play Key" on page 92.
"Black (End in Black) Key" on page 93.
"High-Res Key" on page 93.
"Playback Preferences" on page 305.

Adjusting the Line-up Layer from the Timeline

If you add a Line-up layer movie to your project, you can adjust how it syncs. To work with the Line-up Layer in the timeline:

1. Add a Line-up Layer movie from the Animation palette.

2. Open the timeline. The Line-up layer appears above the frames:
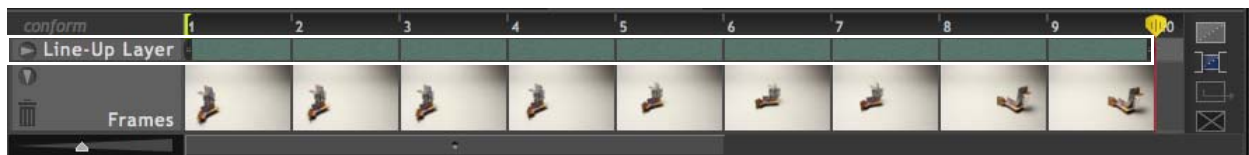
Line-up Layer in the timeline.

3. Click and drag the Line-up layer to adjust how it syncs with your frames.

See also:
"Adding a Line-Up Layer (Movie or Still)" on page 104.
"Available Movie Formats" on page 298.

Frame Editing with the Timeline

Use the timeline to edit your frame sequence. You can cut, copy, and paste frames, add holds, hide or delete frames, or retrieve frames from the delete bin.

NOTE: The timeline shows a thumbnail for the first exposure of a frame. Selecting one frame (one thumbnail) selects *all* the exposures for the frame. This is true for all frame editing, such as deleting, cutting, or reshooting frames. You can reshoot individual exposures with the X-Sheet.

See also:
"[Reshooting a Frame Sequence from the X-Sheet](#)" on page 180.

Moving Frames in the Timeline

Click and drag frames to move them to new locations in the frame sequence. This is a quick, visual way to replace frames or insert frames. You can move one frame at a time, or move a section of frames.

There are two ways to move frames. One moves just the frames you selected, the other selects and moves frames from your selection to the end of the sequence.

- Select the frame(s) you want to move, then click and drag them *up*. This will move just the frame(s) you selected.

  If you move them in between two frames, Dragonframe shows a yellow "insert" marker between the frames:
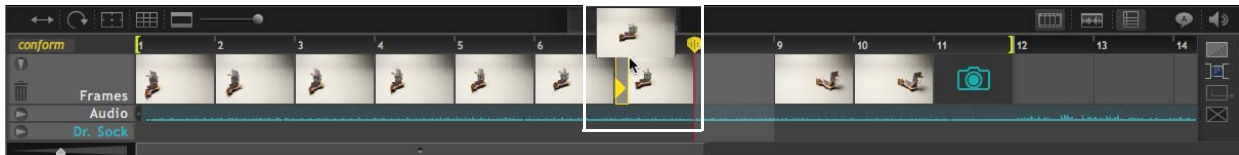
*Dragging **up** moves just the frame(s) you selected. Here you'll insert the frame at yellow insert marker.*

If you move them over another frame, Dragonframe shows a red "delete" marker over the frame(s) you'll replace:
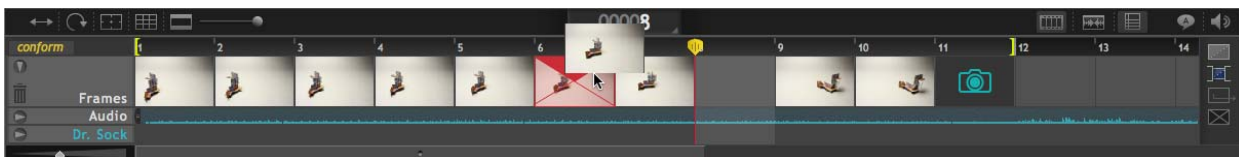
*Dragging **up** moves just the frame(s) you selected. Here you'll overwrite the frame marked with red X.*

- Select a frame, then move it *sideways,* left or right. Dragonframe selects the frames to the beginning (left) or end (right) of the sequence and moves them. It shows where the frames will be inserted or replaced just as before:
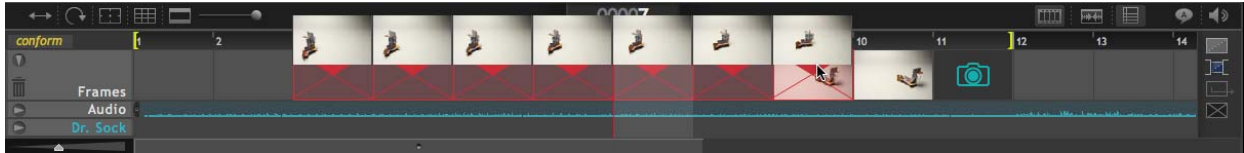
*Dragging **to the left** selects all the frames to the beginning of the sequence. Here, you'll move the beginning of the sequence over one frame.*

To paste frames in reverse order, cut or copy them, then paste them with the keyboard.

See also:
"Cutting, Copying or Pasting Frames with the Timeline" on page 120.

Holding Frames with the Timeline

When you hold frames, you repeat them. It's like copying and pasting one frame multiple times.

To hold a frame:

1. Select the frame you wish to hold.

2. Choose which frames to hold:

   - Click ⌞⌟: A dialog appears. Enter how long to hold the frame and click **OK**.

   - Move the mouse to the right edge of the selected frame and click and drag the cursor over for the number of frames you wish to hold.
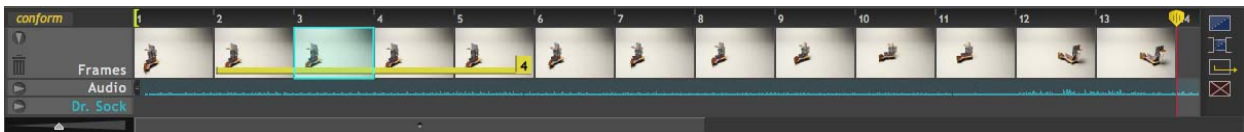
Frame 2 held for four frames.

To remove the held frames:

- Use the mouse:

   a. Move the cursor over the right edge of the last frame held.

b. Click and drag the cursor to the left. Dragonframe moves the marked area until it reaches the original frame. The hold marker disappears.

- Delete the frames. See "Deleting Frames from the Timeline", below.

- Use ⬜➜:

a. Select one of the held frames.

b. Click ⬜➜. A dialog appears. Enter **0** and click **OK**.

NOTE: When you shoot multiple frames, you can have Dragonframe hold the first frame as many times as you need by checking **CAPTURE|SHOOT MULTIPLE AS VIRTUAL HOLDS.**

See also:
"Holding a Frame in the X-Sheet" on page 176.
"Shoot Multiple" on page 95.

Cutting, Copying or Pasting Frames with the Timeline

You can cut, copy and paste selected frames to edit the frame sequence.

- Use standard keyboard commands (such as **COMMAND V**) to cut, copy and paste frames.

- Select a frame, then **CTRL**-click and select edit commands from the contextual menu.

NOTE: When you paste frames, you can choose four paste options:

- Insert frames,
- Overwrite frames,
- Insert frames in reverse order, and
- Overwrite frames in reverse order.

See also:
"Cutting or Copying from the X-Sheet" on page 175.
"Pasting Frames from the X-Sheet" on page 175.

Hiding Frames with the Timeline

Hide a frame to leave it out of the thumbnails and playback without having to completely delete it.

To hide frames:

1.   Select the frame(s) you want to hide:
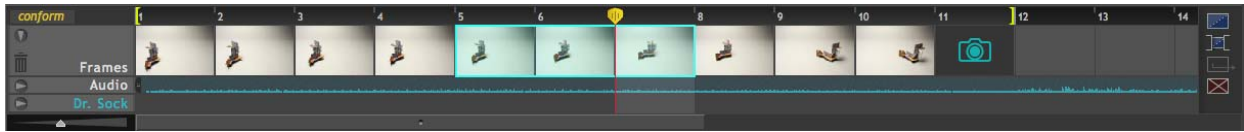
Frames 5-7 selected; camera ready to shoot frame 11.

2.   Click ![icon]. Dragonframe hides the frames. They show in the timeline as shaded frames, with no frame numbers or audio track:
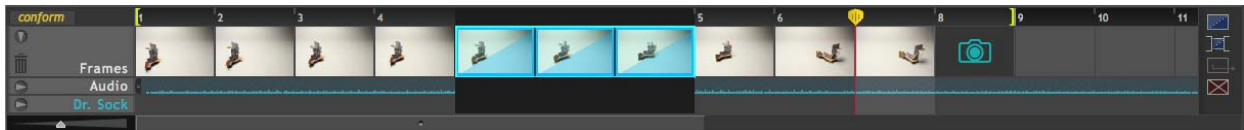
Shaded thumbnails for hidden frames 9-11. Camera is now ready to shoot frame 8 since three frames of the sequence are hidden.

Or, press and hold **OPT** while selecting the frames to hide them.

See also:
"Hiding a Frame in the X-Sheet" on page 177.

Options for Viewing Hidden Frames in the Timeline

Once you've hidden frames, you can toggle whether hidden frames are shown or hidden in the Timeline. By default, hidden frames will show up in-line.
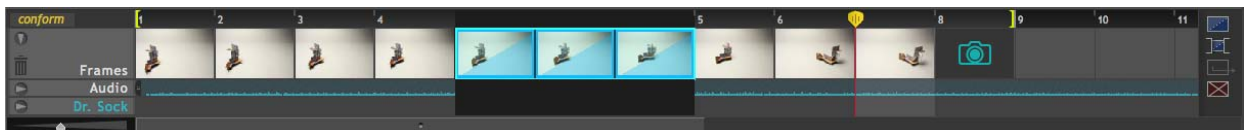
To show or hide hidden frames in the timeline:

•   Press ![icon] to hide hidden frames. Dragonframe displays a marker where the hidden frames would go:
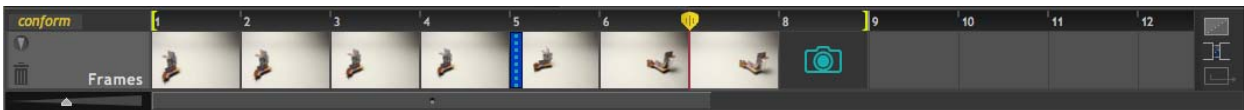
•   Press ![icon] to show hidden frames.

•   Press **H** to toggle back and forth.

Un-hide Hidden Frames from the Timeline

To re-display frames that you hid:

1. Select the hidden frame thumbnails or markers.

2. Click [icon]. Dragonframe restores the hidden frames.

See also:
"Unhide Hidden Frames from the X-Sheet" on page 179.

Deleting Frames from the Timeline

To delete frames from the timeline:

1. Select the frames you want to delete. The frame thumbnails you select have a cyan outline.

2. Press [icon], or **CTRL**-click and select **DELETE**. Dragonframe deletes the selected rows, including all exposures, and places the files in the delete bin.

NOTE: To replace just one exposure in a frame, you can reshoot it from the X-Sheet.

See also:
"Delete Key" on page 91.
"Cut Back Key" on page 91.
"Reshooting a Frame Sequence from the X-Sheet" on page 180.
"Finding Your Source Files" on page 292.
"Deleting Frames from the X-Sheet" on page 180.
"Restoring Frames from the Delete Bin" on page 124.

Reshooting Frames from the Timeline

Reshoot frames in two ways:

• Delete one or more frames, then reshoot them. Dragonframe moves the camera back to the end of the sequence when you've replaced the deleted frames.

• Insert the camera into the frame sequence, then continue shooting from there. You can manually move the camera when you've finished adding frames.

NOTE: Reshooting from the timeline will replace all exposures of each frame. The only way to reshoot a single exposure is from the X-Sheet.

See also:
"Reshooting a Frame Sequence from the X-Sheet" on page 180.

Replacing Frames (Reshooting)

- To reshoot a single frame:

  a. Click and drag the camera to the frame you want to reshoot. Dragonframe places a red delete marker over the frame to be reshot:
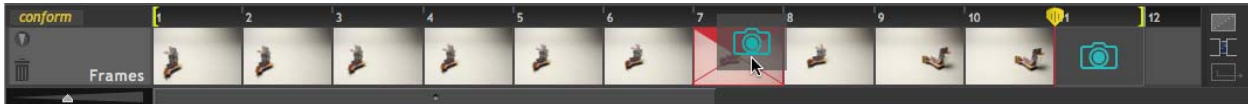
  b. Drop the camera on the frame. Dragonframe replaces the frame with the camera.
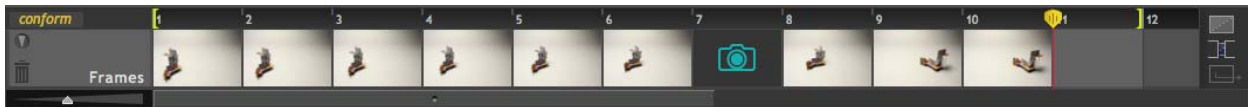
  c. Press **SHOOT**. Dragonframe shoots the frame, then moves the camera back to the end of the sequence.

- Reshoot a section of frames.

  a. Select the frames you want to replace.

  b. **CTRL**-click, and select **RESHOOT FRAMES**. Dragonframe deletes the frames, then moves the camera to the first deleted frame:

  c. Reshoot the sequence. When you've replaced each deleted frame, Dragonframe moves the camera back to the end of the sequence.

Inserting the Camera

If you want to add frames to the middle of a frame sequence, insert the camera:

- Move the camera with your mouse:

  a. Click and drag the camera in-between two frames. Dragonframe places a yellow insert marker in between the frames:
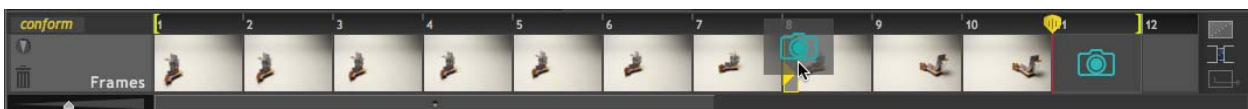
Drop the camera at the marker.

b. Press **SHOOT** to add frames.

c. Click and drag the camera back to the end of the sequence when you're done.

- **CTRL**-click to insert the camera:

a. Select a frame.

b. **CTRL**-click, then select **INSERT CAMERA**. Dragonframe inserts the camera before the selected frame.

c. Press **SHOOT** to add frames.

d. **CTRL**-click, then select **RETURN CAMERA TO END**.

Restoring Frames from the Delete Bin

When you delete frames from the timeline, Dragonframe moves them to the Delete Bin. You can restore them by moving them out of the bin. Using the timeline, you can also choose where the deleted frames will go in the frame sequence.

To restore deleted frames:

1. Click 🗑 or press **COMMAND OPT B.** Dragonframe opens the delete bin:
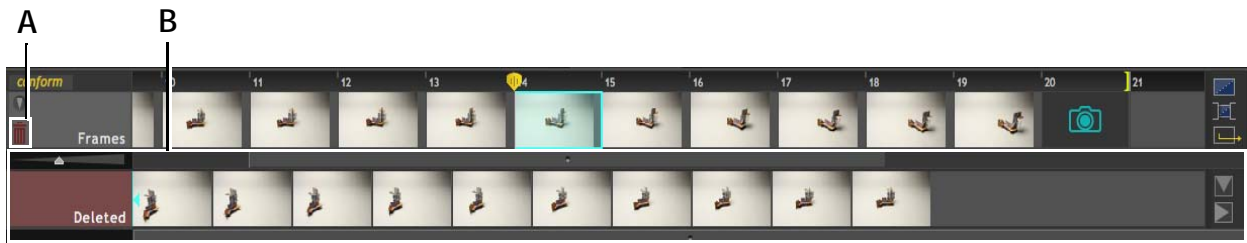
A. *Delete Bin button.* **B.** *Delete bin.*

3. Restore the frames:

- Click and drag a deleted frame back into the timeline. Just as with moving any frame, Dragonframe shows you whether it will insert or overwrite with the frame using the red and yellow markers.

- Move the playhead in the timeline to the place you want to insert or overwrite frames.

  Select a deleted frame, then click ▶ (insert) or ▼ (overwrite). Dragonframe inserts the deleted frame, or overwrites the frame after the playhead.

CAUTION: Dragonframe shows only a thumbnail of the first exposure of a frame in the delete bin. It will not tell you if any exposures for that frame are missing. To see the source files for the frames, **CTRL**-click, then select **REVEAL IN FINDER**.

See also:
"Moving Frames in the Timeline" on page 118.

Navigating the Delete Bin

Once you've deleted several frames from the scene, or done a lot of editing in the timeline, it may be hard to figure out where the deleted frames came from originally. Dragonframe uses cyan markers on the frames in the timeline and delete bin to help you figure out where the frames came from.

Keep a few principles in mind as you navigate through the frames in the delete bin:

- All of the frames in the delete bin are placed in the order they were shot.

- When you select a frame in the delete bin, Dragonframe will mark two frames in the timeline: the frames shot before and after the selected frame:
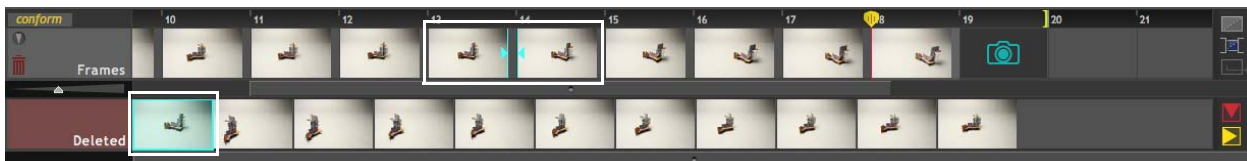
Deleted frame selected; timeline shows two frames marked. Frame 13 was shot before the deleted frame, frame 14 shot after it.

- If you select a frame in the timeline, Dragonframe will mark the frames in the delete bin that were shot before and after that frame.

One frame in the timeline selected. Dragonframe has marked two deleted frames; the selected frame was shot in between the marked frames.

- To view the source files for any deleted frame, **CTRL**-click and select **REVEAL IN FINDER**.

Conforming Timeline Edits

Dragonframe is designed to give you access to the high-res frames at any time without having to perform an export. However, when you use the timeline, many of the edits you perform are "virtual". For example, if you hide frames, Dragonframe removes them from the timeline without doing anything to your source files.

Any edits you make with the timeline that are not reflected in the source files are not "conformed" to disk. To make the edits in the timeline be reflected in the source files, you must conform them.

CAUTION: Once you conform edits, you cannot undo them.

When you make virtual edits in the timeline, Dragonframe highlights the conform button in the timeline to alert you.

Edited timeline with conform button highlighted.

Press **CONFORM** to render all of the virtual edits in the source files. Dragonframe will:

• Delete any hidden frames.

• Permanently renumber "held" frames. This will remove the hold marker from the frames.

• Renumber the sequence permanently if you've moved, deleted, copied, or cut any frames.

• Move all deleted frames to the delete bin.

After you conform your edits, all special markings (like held or hidden frames) will disappear:
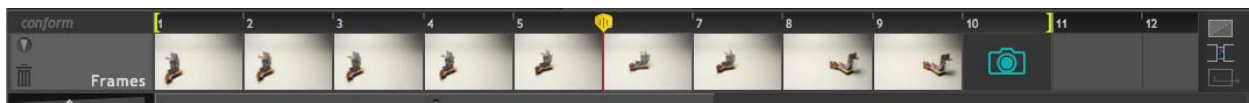
Contextual Menus and Keystrokes for the Timeline

Use the following keystrokes and menus to access all the available timeline tools:

Contextual Menu for the Timeline

CTRL-click over any frame thumbnail to see the timeline's contextual menu:

Menu item:	See this section for more information:
CUT	"Cutting, Copying or Pasting Frames with the Timeline" on page 120.
COPY	"Cutting, Copying or Pasting Frames with the Timeline" on page 120.
PASTE INSERT	"Cutting, Copying or Pasting Frames with the Timeline" on page 120.
PASTE OVERWRITE	"Cutting, Copying or Pasting Frames with the Timeline" on page 120.
PASTE REVERSE OVERWRITE	"Cutting, Copying or Pasting Frames with the Timeline" on page 120.
DELETE	"Deleting Frames from the Timeline" on page 122.
HIDE FRAMES	"Hiding Frames with the Timeline" on page 120.
UNHIDE FRAMES	"Un-hide Hidden Frames from the Timeline" on page 121.
HOLD FRAMES…	"Holding Frames with the Timeline" on page 119.
RESHOOT FRAMES	"Replacing Frames (Reshooting)" on page 123.
INSERT CAMERA	"Inserting the Camera" on page 123.
RETURN CAMERA TO END	"Inserting the Camera" on page 123.
REVEAL IN FINDER	"Restoring Frames from the Delete Bin" on page 124.
USE AS LINE-UP LAYER	"Adding a Line-Up Layer (Movie or Still)" on page 104.

Contextual Menu for the Delete Bin

Menu item:	See this section for more information:
INSERT DELETED FRAMES AT PLAYHEAD	"Restoring Frames from the Delete Bin" on page 124.
OVERWRITE DELETED FRAMES AT PLAYHEAD	"Restoring Frames from the Delete Bin" on page 124.
REVEAL IN FINDER	"Navigating the Delete Bin" on page 125.

Chapter 7: Alternative Shooting Techniques (Non Stop Motion)

Dragonframe is primarily designed for stop motion animation, and its default settings cater to that type of shooting. However, many users adapt it to other uses. Here are some recommendations for other types of shooting:

"Time-Lapse", below.
"Pixilation" on page 131.
"Traditional 2D Animation" on page 131.

Time-Lapse

You can use Dragonframe to set up and capture a time-lapse sequence.

To set up a time-lapse:

1. (For still cameras only) Select **CAPTURE│[YOUR CAMERA NAME] STILLS.** This changes your video source to avoid using your camera's Live View.

CAUTION: Keeping Live View on for your time lapse will may overheat your camera. This makes it more prone to capture errors.

2. Open the Cinematography workspace. In the Camera Control pane, verify that auto-capture is on for all of your exposures. That means that Dragonframe will capture all frames and exposures automatically, instead of you having to press **SHOOT** for each one. The arrows next to each arrow should be blue:
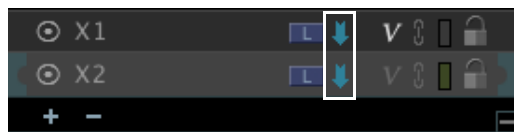
Auto-capture on for both exposures.

CAUTION: If auto-capture is not enabled for all exposures, time-lapse will not work.

3. Select **CAPTURE|TIME-LAPSE**. The Time-lapse dialog appears.
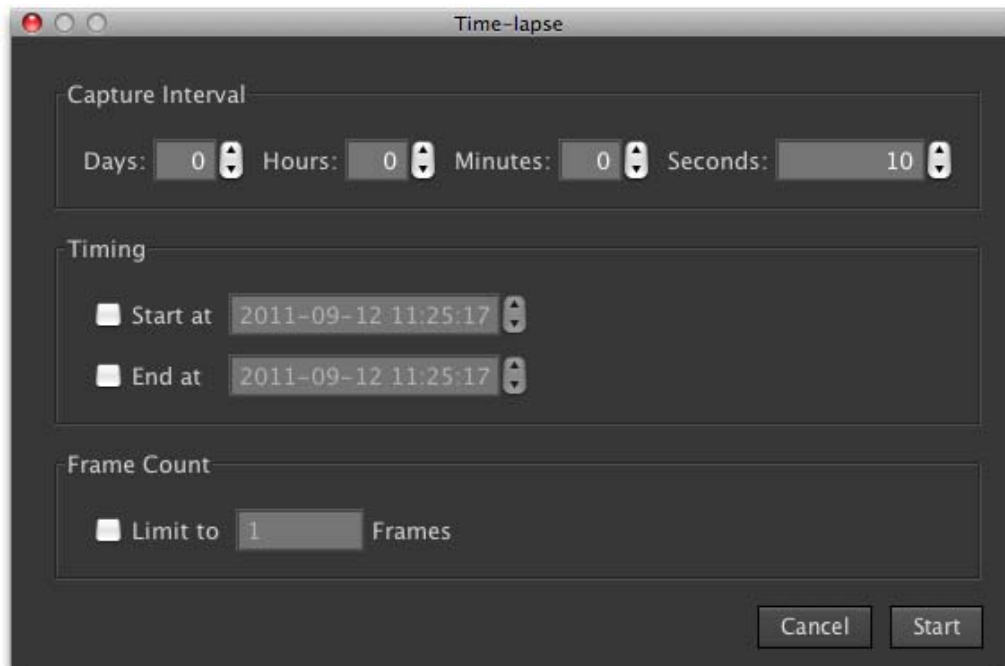
4. Enter the capture interval you want to use. The default is 10 seconds. For example, if you want to capture a frame every hour, enter **1** in the **HOURS** field.

CAUTION: The time-lapse interval must be greater than the time it takes for Dragonframe to shoot a frame with your camera and download it to your computer. For example, if Dragonframe takes three seconds to download an image from your camera, don't set the interval to one second—Dragonframe can't download the frames quickly enough. How quickly Dragonframe downloads the image depends on your setup, but it probably can't shoot one frame per second.

5. (Optional) Set a **START** and **STOP** time.

6. (Optional) Set up a frame number limit:

   a. Check **LIMIT TO _____ FRAMES** to end the time-lapse after Dragonframe captures a certain number of frames.

   b. Enter the number of frames you want the time-lapse limited to. The default is **1**.

6. Click **OK**. The Time-lapse dialog appears. Dragonframe automatically captures the shots you set up, and shows the progress you've made in the dialog. Click **X** if you want to stop the time-lapse sequence.

Pixilation

Pixilation is similar to stop motion, but with live objects (such as people) instead of inanimate objects. Here are a few guidelines to keep in mind:

- It is crucial to understand that your video assist (the Live View you see from your camera) and you final high-resolution images are not the same thing, and are captured sequentially, one right after the other.

  Press the high-res key on the keypad (shown at right) to only view high-res images in the Animation workspace.Viewing only high-res images will avoid error when working with moving objects, since Dragonframe will display only the high-res image.

(Optional) Open Preferences, then click the **CAPTURE** tab, you can set three options that may help shooting live objects.

- Set the Capture Delay to **0.0 SECONDS**. This will tell Dragonframe to capture the frame as quickly as possible after you press **SHOOT**.

- Set the Capture Review time to **2.0 SECONDS**. This way you can see your high resolution image immediately after Dragonframe captures it.

- Select **CAPTURE TONE**. Dragonframe will play a sound when the camera's shutter is open.

See also:
"How Dragonframe Works" on page 1.
"Basic Overview of DSLR Shooting" on page 2.
"Capture Preferences" on page 309.

Traditional 2D Animation

Dragonframe can make a great tool for traditional, hand-drawn 2D animation. Use a few settings to aid your 2D project:

- In the X-Sheet, click ⊣ and choose **FILE #**. This will show the unique file number for every image you capture, even if you copy, cut or paste images.

- From Preferences, select the **GENERAL** tab. Then select **DISABLE CONFORM OPTIONS**. This will prevent Dragonframe from conforming your edits, which would overwrite your original file numbers.

Chapter 8: Managing Your Projects and Files

The Dragonframe file structure is clear, simple, and easy to navigate. This section explains how to create new scenes, takes, and manage them.

CAUTION: Dragonframe relies on the naming structure of your scene and take folders to locate your files. If you need to rename a scene or take, you *must* do it by duplicating your scene, or by renaming the take through the Managing Takes dialog. Dragonframe will not be able to open a project that has been renamed elsewhere.

The sections that follow will help you work with your projects.

"Creating a New Scene" on page 133.
"Opening a Previously-Shot Scene" on page 135.
"Duplicating Your Scene" on page 136.
"Creating a New Take" on page 137.
"Switching Takes" on page 137.
"Managing Takes" on page 138.
"Importing Scene Settings" on page 140.
"Using a Scene Template" on page 141.

See also:
"Finding Your Source Files" on page 292.
Dragonframe tutorials:
http://www.dragonframe.com/tutorials.php

Creating a New Scene

When you open Dragonframe, the splash screen opens. From there, you can create a new scene or open an old scene.

To create a new scene:

1. Click **NEW SCENE**. The New Scene dialog appears:
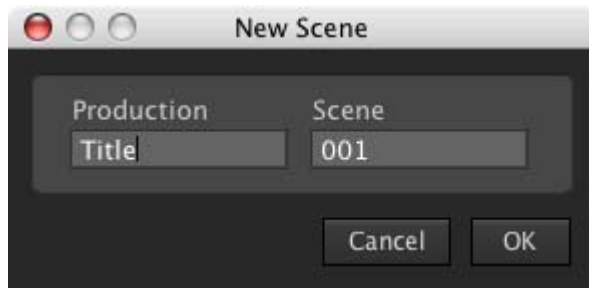
2. Enter a production name or number, up to five characters.

3. Enter a scene name or number, up to three characters.

4. Click **OK**. The New Scene Chooser dialog opens.

5. Navigate to the folder on your hard drive where you'd like to save Dragonframe projects.

6. Click **SAVE**. The Animation workspace opens with the scene you just created.

If you have a supported video source connected, the feed will open in the View pane automatically. If no supported video source is connected, the View pane will read **NO VIDEO SOURCE**.

CAUTION: Dragonframe relies on the naming structure of your scene and take folders to locate your files. If you need to rename a scene, you *must* do it from within Dragonframe by duplicating your scene and renaming that. Dragonframe will not be able to open a scene that has been renamed elsewhere.

See also:
"Duplicating Your Scene" on page 136.
 "Quick Set-Up Guide for Supported Video and Still Cameras" on page 9.
"Camera Connections" on page 47.
"Finding Your Source Files" on page 292.
The camera page on our website:
http://www.dragonframe.com/camera.php

Simplifying Scene Names

By default, the New Scene dialog prompts you to name both your production and scene. However, you can change the naming convention to

be simpler from Naming Preferences. If you change that preference, the New Scene dialog will only include the **SCENE** field.

The file name of your project will depend on which naming convention you chose.

- Generally, your project will be saved with the default file convention **PRODUCTION NAME_SCENE NAME.DGN.** For example, the name could be **TITLE_001.DGN**.

- If you choose the Scene/Take convention from Naming Preferences, the project will be saved with the file convention **SCENE NAME.DGN**. For example, the name could be **TITLE.DGN**.

See also:
"Naming Preferences" on page 306.

Changing Scene Name Length

Change how long your production and scene names can be from Naming Preferences.

See also:
"Naming Preferences" on page 306.

Changing Take Names

When you create a new scene, Dragonframe automatically names the new take **TAKE 001**. Select **FILE|MANAGE TAKES…** to change take names.

CAUTION:Dragonframe relies on the naming structure of your scene and take folders to locate your files. If you need to rename a take, you *must* do it as described above. Dragonframe will not be able to open a take that has been renamed through your computer's file system.

See also:
"Managing Takes" on page 138.

Opening a Previously-Shot Scene

Once you've created a scene, you can always open it back up to continue work.

To open a scene:

1. Select **FILE|OPEN SCENE**. The Open Scene dialog opens.

2. Navigate to the folder where you store your scene files, and select the scene you want to open. Use the slider button below the preview image that appears to scroll through the scene's frames, to help ensure that you're opening the correct scene.
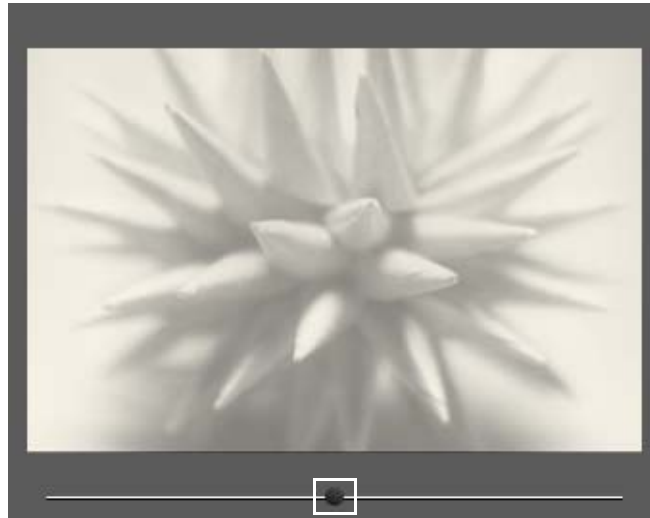
Preview image with slider button.

3. Click **OK**. The Open Take dialog opens, along with a preview image of the highlighted take. Use the slider button to scroll through the frames as before.

4. Select a take that you've already created, or create a new take.

Dragonframe opens the Animation workspace with the scene you selected.

NOTE: Change the length of the production, scene and take names from Naming Preferences.

See also:
"Naming Preferences" on page 306.

Duplicating Your Scene

You may want to make a copy of your scene, or rename a scene. To do so, duplicate your scene:

1. Select **FILE|DUPLICATE SCENE**. The New Scene dialog appears.

2. Enter a name for the duplicated scene, then click **OK**. Dragonframe opens the Save Scene As dialog.

3. Navigate to the place where you want to save the file, then click **OK**.

A progress bar appears. Dragonframe duplicates the scene.

CAUTION: Duplicating your scene is the only way to rename a scene. Dragonframe relies on the naming structure of your scene and take folders to locate your files. If you rename a scene through your computer's file structure Dragonframe will not be able to open it.

See also:
"Creating a New Scene" on page 133.

Creating a New Take

Create a new take of a scene at any time. A new take keeps all of the important information from your previous take.

To create a new take:

1. Select **FILE|NEW TAKE**. The New Take dialog opens.

2. Enter the take number, or any name you choose.

3. Click **OK**.

Dragonframe creates a new take within the Scene folder and opens the Animation workspace. Since you're starting a new take of the same scene, the Capture and frame counters will indicate that you're ready to capture the first frame.

NOTE: Change the length of the production, scene and take names from Naming Preferences.

See also:
"Passes, Takes and Exposures Explained" on page 10.
"Finding Your Source Files" on page 292.
"Naming Preferences" on page 306.

Switching Takes

To open a different take of the scene you're shooting, select **FILE|SWITCH TAKES** and select the take. Dragonframe closes the take you were working on and loads the take you selected.

Managing Takes

Copy, rename, and delete your scene's takes from the Manage Takes dialog. The dialog shows you all of the current takes, and also displays a preview alongside that enables you to scroll through the frames in each take:
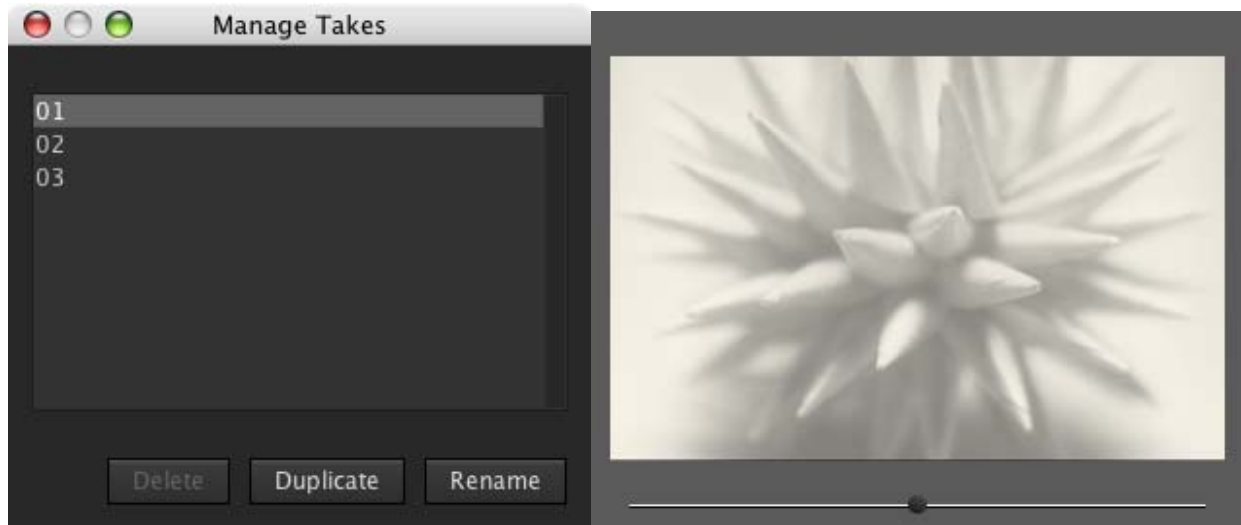
- To delete a take, select the take and click **DELETE**. You can't delete the first take of any scene.

- To copy a take, select the take and click **DUPLICATE**. Dragonframe creates a new take based on the one you copied.

- To rename a take, select the take and click **RENAME**. Dragonframe opens the Rename Take dialog.
  Rename the take, and click **OK**.

CAUTION: Dragonframe relies on the naming structure of your scene and take folders to locate your files. If you need to rename a take, you *must* do it as described above. Dragonframe will not be able to open a take that has been renamed through your computer's file system.

Importing Images

You can import existing images into a Dragonframe take. This may be useful if you have already shot images in the field without the use of Dragonframe.

NOTE: Dragonframe is intended to capture scenes of animation, which are put together in post-production software. Do not use Dragonframe as video

editing software, stitching together thousands of images into a single long animation.

To import images:

1. Select **FILE|IMPORT|IMAGE SEQUENCE**. Dragonframe opens the Import Image Sequence dialog.

A   B
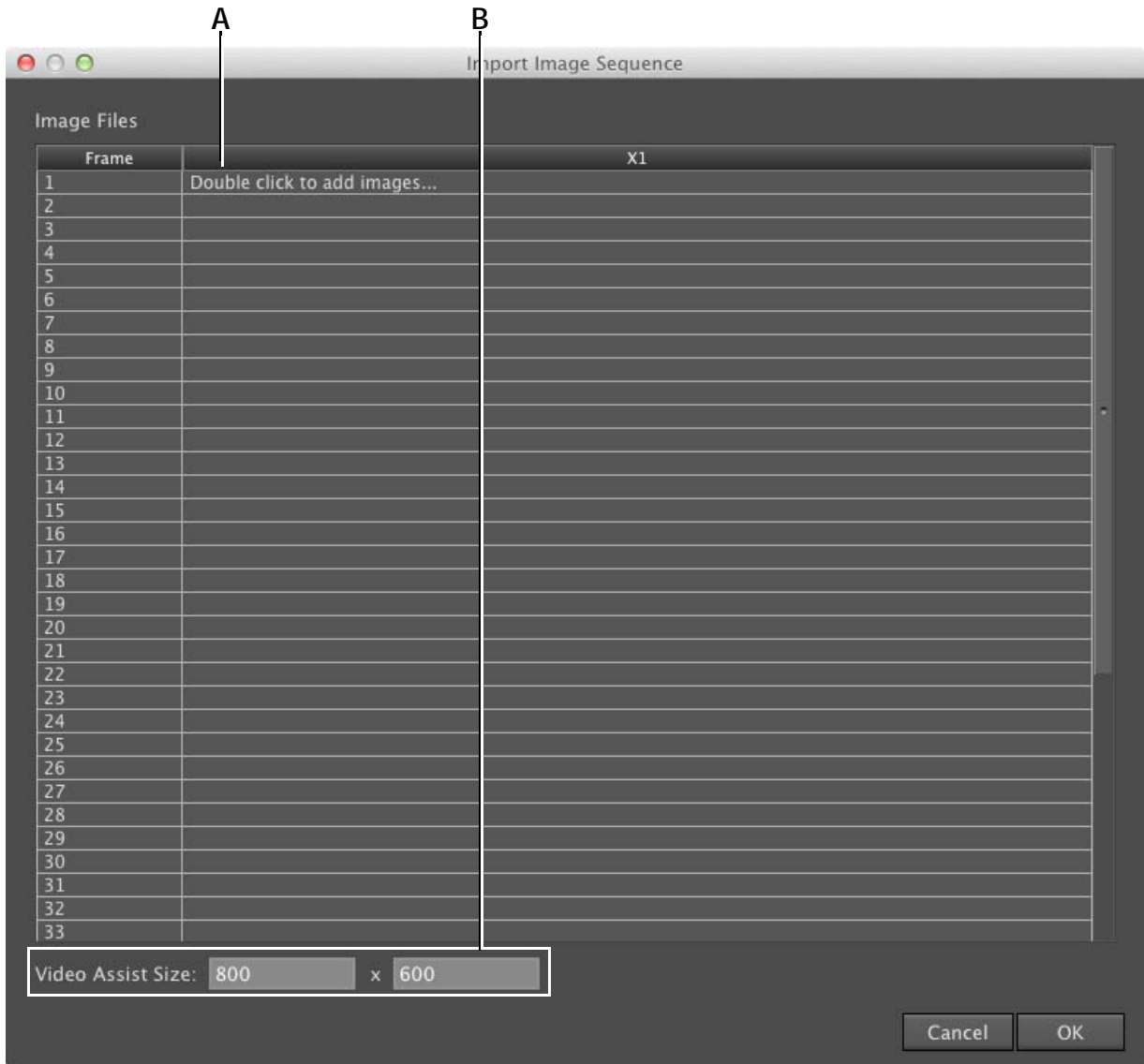
A. *Exposure column.* **B.** *Video Assist Size.*

3. Double-click the exposure column (A.). Dragonframe opens the file dialog. Select the files you want to add and click **OPEN**. Dragonframe adds the file names to the table.

4. (Optional) Drag and drop the image names to reorder the image files.

5. Set the Video Assist Size (B.). If you have a camera set up, Dragon-
frame will use the video assist dimensions from it.

NOTE: Do not use dimensions greater than 1024 x 1024. The video assist won't
play properly if the dimensions are larger.

6. Click **OK** to import the image sequence.

Importing Scene Settings

You can import exposures, camera moves, dialogue cues, DMX key-
frames, the drawing layer, and notes from other scenes into the scene
you're working on.

By default, each new take you create has the same settings as the scene
it was created within.

To import settings:

1. Select **FILE|IMPORT>|SCENE SETTINGS**. Dragonframe opens the
Import Scene dialog.

2. Select the scene you want to import settings from. Click **IMPORT
SCENE**. Dragonframe opens the Open Take dialog.

3. Select the take you want to use and click **OPEN TAKE**. Dragonframe opens the Import Scene Settings dialog. By default, all the settings for the scene are selected.
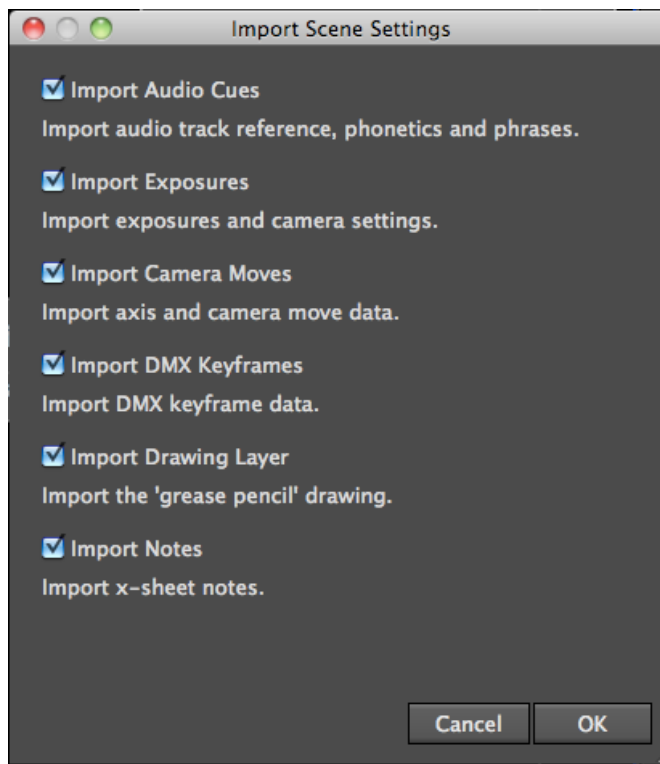
4. (Optional) Un-check any settings you do not want to import.

5. Click **OK** to import the settings.

Using a Scene Template

You can set up a template for your scene that includes elements like composition guides or track reading character setup. When you create a new scene, all of the meta data for the scene will come from the template. This is a more comprehensive alternative to importing scene settings.

The scene's meta data is stored in a file called **TAKE.XML**. You'll use **TAKE.XML** as the template for new scenes.

NOTE: If you do not want *all* of the meta data (such as drawings, DMX settings, track readings) from the template to appear in the new scene, import its settings instead.

To set up a template and use it to create new scenes:

1. Set up the skeleton scene in Dragonframe.

2. Find **TAKE.XML** and copy it to a new location. You may also want to rename it to make it easier to find.

3. Open Preferences, then select **ADVANCED**. Advanced Preferences appears:
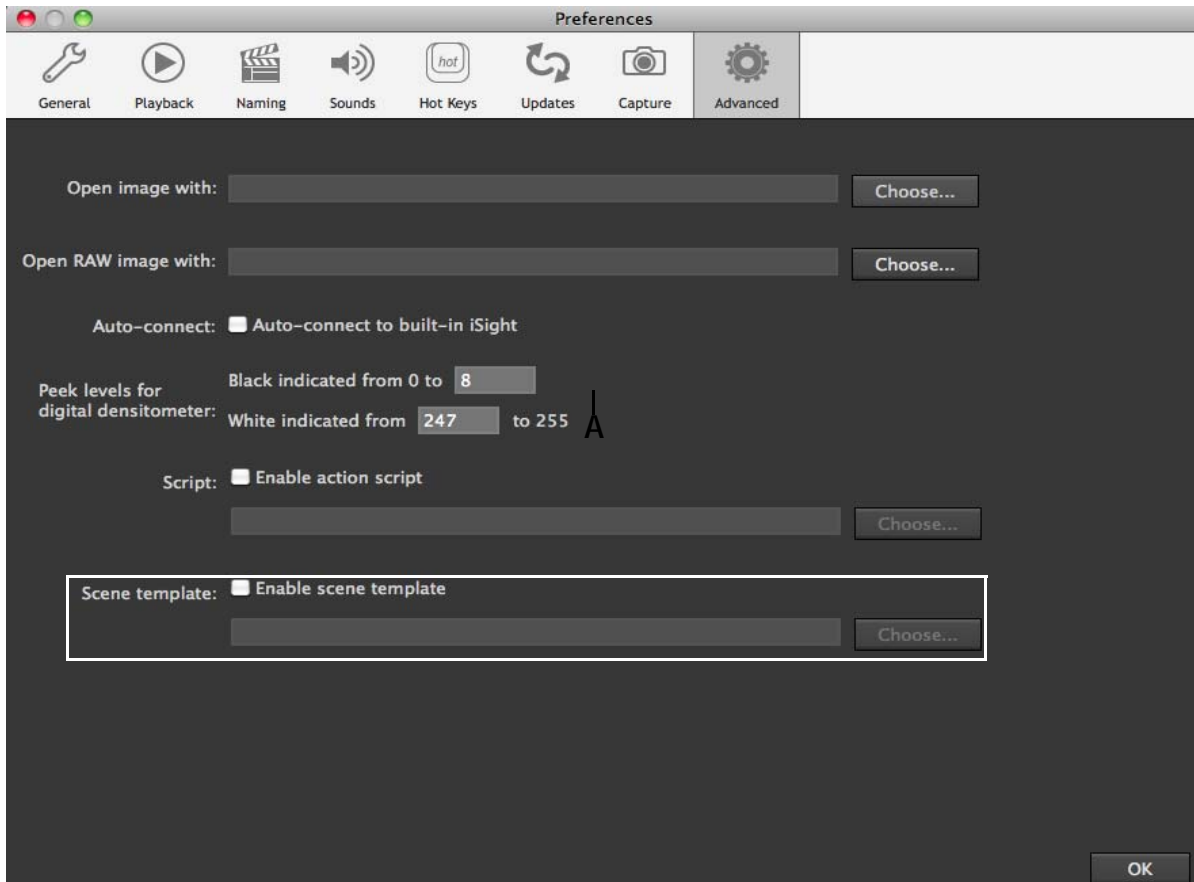
Scene template preferences.

4. Click **ENABLE SCENE TEMPLATE**, then navigate to the **TAKE.XML** file you saved in step 2. Click **OK**.

Dragonframe loads the template for the new scene. The meta data (such as composition guides, masks, drawings, DMX settings, or track reading mouth sets) appears.

NOTE: To keep from applying the scene template to some scenes, uncheck **ENABLE SCENE TEMPLATE**.

See also:
"Finding Your Source Files" on page 292.

"Advanced Preferences" on page 311.

Dragonframe User Guide

Chapter 9: Adding and Editing an Audio Clip

Dragonframe provides you with an Audio workspace to load an audio clip and do basic edits. You can select a portion of an audio clip and discard the parts you don't need, or change where the track starts or ends.

NOTE: You can only load one clip into Dragonframe at a time. Use audio editing software to mix your audio clip before working with it in Dragonframe.

Audio editing takes place in the playback portion of the workspace:
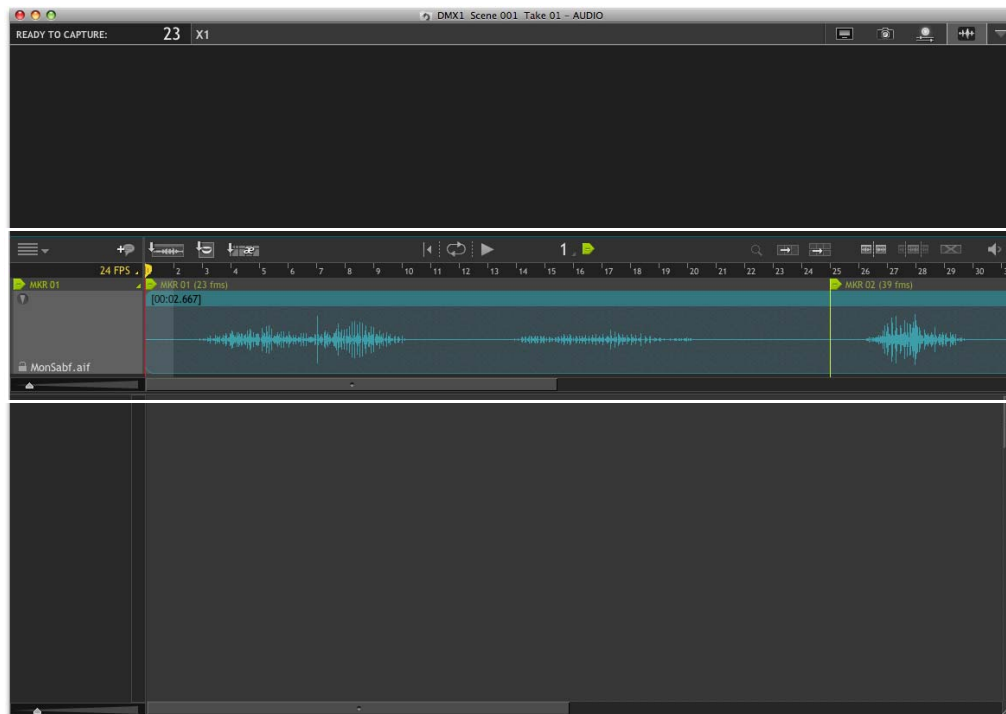
Playback portion of Audio workspace, where you can load, edit, and mark the audio clip.

The audio map on page 147 gives an overview of the playback portion of the workspace, as well as the track reading tools.

This chapter includes the following sections:

"Editing the Audio Clip" on page 149.

"Exporting an Edited Audio Track" on page 152.

"Contextual Menus and Keystrokes for the Audio Workspace" on page 152.

See also:

"Reading Dialogue Tracks" on page 155.

"Viewing the Track Reading in the X-Sheet or Timeline" on page 167.

"Using the Timeline" on page 115.

"Viewing Audio Information in the X-Sheet" on page 184.

Dragonframe tutorials:

http://www.dragonframe.com/tutorials.php

Audio Workspace Map

A. *Character Preview area: View how the face cues will look during playback.*

B. *Audio tools: Use the drop-down menu to add characters or an audio . Play back or loop the clip, mark the clip, select a row or all rows, and split or delete sections of the clip.*

C. *Waveform: Select parts of the audio clip, or move the playhead.*

D. *Character: Add face cues, phonetics, or dialogue for the characters.*

E. *View the face set for the currently selected character.*

Loading Audio Files

Add a new audio clip to your scene from the Audio workspace. To import an audio track:

- Click ![icon]. Navigate to the audio track, and click **OK**.

- Click ![icon] ▾, then select **IMPORT AUDIO**. Navigate to the audio track, and click **OK.**

NOTE: Dragonframe accepts most standard audio formats, or even pull audio from a movie file, including .wav, .au, .aiff, .aif, .mp3, .m4a, .aac, .mov, .mp4, .m4v, .avi, and .wmv.

Dragonframe loads the audio file. The clip appears in the playback area of the workspace:
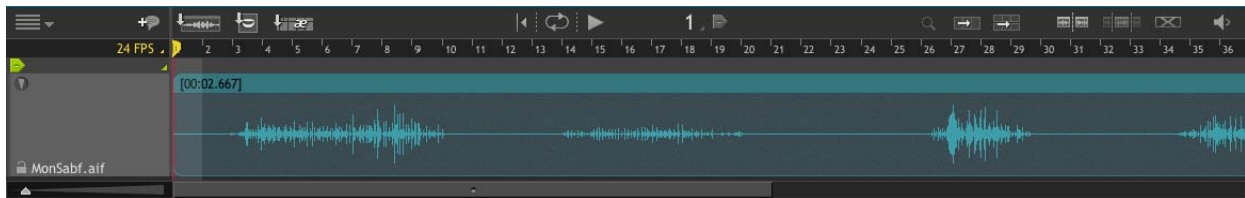
See also:
"Setting Scene Length and Starting Frame" on page 174.

Scrubbing the Audio Track

Once the audio clip is loaded, you can to move through it.

- Drag the mouse through the playhead area.

- Use the arrow keys on the keyboard to step through the clip frame-by-frame.

- Press the spacebar to play the audio clip.

See also:
"Contextual Menus and Keystrokes for the Audio Workspace" on page 152.

Playing Back the Audio Track

While scrubbing audio, you may want to play back all of the audio clip you've loaded, a short section of it, or play back one frame at a time to help you add audio cues and prepare to animate to the clip.

NOTE: Press ⟳ to loop playback.

Playing Back All of the Audio Clip

To play back the entire clip, press the spacebar.

Playing Back a Section of the Clip

To play back a section of the clip:

- Move the playhead to where you want to start, and press the space-bar. The clip will play back from that point to the end.

- Select a portion of the waveform, and press the spacebar.

Playing the Clip One Frame at a Time

- Press the arrow keys on the keyboard to step through the audio clip one frame at a time.

- Click the frame number above the portion of the clip you want to play. Dragonframe plays that frame's audio. Press and hold to loop the audio.

See also:
"Contextual Menus and Keystrokes for the Audio Workspace" on page 152.

Editing the Audio Clip

Once you've loaded an audio clip, you may want to edit it, either deleting unnecessary sections, marking sections of the clip, or splitting the clip into different pieces.

NOTE: Undo any edits by pressing **COMMAND Z**.

Selecting the Audio Clip

You can select all of a clip or part of one:

- Click the dark turquoise bar over the waveform to select the entire clip. The clip turns blue:
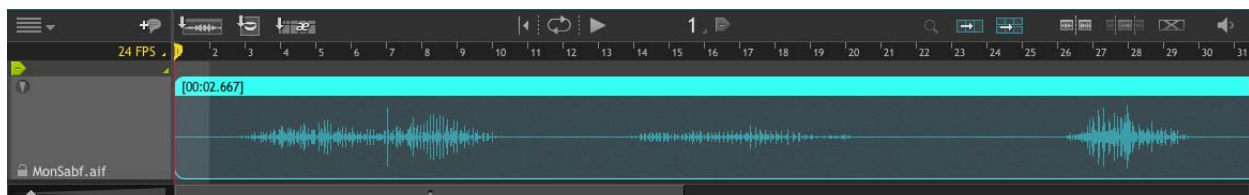
Select a portion of the clip:

- Click in the waveform and drag the mouse. Or,

- Step the playhead to the in point, and press **I**. Then move the play-head to the out point, and press **O**.

The selected section turns turquoise:
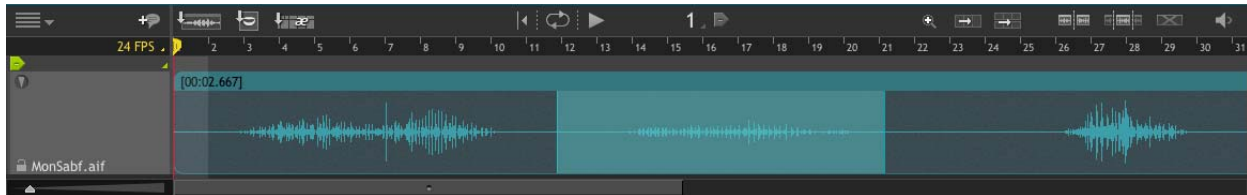
Click outside of the selection to remove it.

Splitting a Clip into Sections

You may wish to split an audio clip into sections, perhaps to have one portion play for one part of a scene, and then another portion to play later in the scene. To split an audio clip, you can:

- Move the playhead to where you want to split the audio. Press ⊞⊞. Dragonframe splits the clip into two parts on either side of the play-head. Or,

- Select the part of the clip you want to split and click ⊞⊞. Dragon-frame detaches the selected portion from the rest of the clip.

See also:
"[Selecting the Audio Clip](#)" on page 149.

Nudging the Audio Clip

By default, Dragonframe aligns the beginning of the audio clip with the first frame. However, you may want the audio clip to start before or after the first frame, or at some other point. Offsetting the audio clip lets you adjust the start time of the clip to the nearest thousandth of a sec-ond. If you've already started entering audio cues for the clip you want to offset, you can offset the cues with the clip.

You can offset the clip in a few ways:

- Move the selected clip with the mouse.

- Press **SHIFT**, then move the clip with the mouse. The clip snaps to the nearest frame.

- Press **SHIFT**, then the **STEP** keys to move the clip back or forward without the cues.

- Click [icon] to select audio cues and the clip together and move them in tandem.

- **CTRL**-click the waveform, then select **NUDGE AUDIO**. From the dialog you can move the audio forward or backward by whatever frames/seconds you need.

See also:
"Selecting the Audio Clip" on page 149.

"Contextual Menus and Keystrokes for the Audio Workspace" on page 152.

"Selecting Cues" on page 163.

Cropping the Audio Clip

To crop the audio clip to a selection:

1. Select the portion of the clip you want to keep.

2. Click [icon]. Dragonframe deletes the sections before and after the selection. It also moves the edited clip so it starts at frame 1.

See also:
"Selecting the Audio Clip" on page 149.

Deleting Some or All of the Audio Clip

To delete a portion of the audio clip:

1. Select the portion of the clip you want to delete.

2. Click [icon]. Dragonframe splits the clip.

3. Click above the split clip to select it:
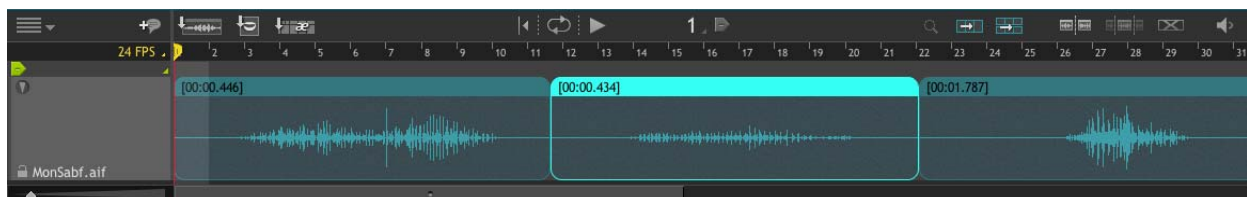
4. Press **DELETE**.

See also:
"Selecting the Audio Clip" on page 149.
"Contextual Menus and Keystrokes for the Audio Workspace" on
page 152.

Exporting an Edited Audio Track

You can export an edited track to use in other scenes. This creates a new
audio file that incorporates the edits you've made.

To export a clip:

1. Edit the audio as needed.

2. Click ☰▾, then select **EXPORT AUDIO EDIT.** An export audio edit
   dialog appears.

3. Navigate to where you want to save the file, and press **SAVE**. Dragon-
   frame saves the file.

Contextual Menus and Keystrokes for the Audio Workspace

Use the keystrokes and contextual menus listed below to quickly access
all of the Audio tools.

Keystrokes for the Audio Workspace

Press:	To	See this section for more information:
SPACE	Play or pause the audio track.	"Playing Back the Audio Track" on page 148.
DELETE/BACKSPACE	Delete selected clip or cues.	"Deleting Some or All of the Audio Clip" on page 151.
UP	Navigate up to the next track or character.	"Scrubbing the Audio Track" on page 148.
DOWN	Navigate down to the next track or character.	"Scrubbing the Audio Track" on page 148.
LEFT	Scrub the previous frame.	"Playing Back the Audio Track" on page 148.
RIGHT	Scrub the next frame.	"Playing Back the Audio Track" on page 148.
SHIFT LEFT	Nudge the selected items back one frame.	"Nudging the Audio Clip" on page 150.
SHIFT RIGHT	Nudge the selected items forward one frame.	"Nudging the Audio Clip" on page 150.
CTRL LEFT	Move to previous marker.	"Navigating Through Markers" on page 166.
CTRL RIGHT	Move to next marker.	"Navigating Through Markers" on page 166.
COMMAND A	Select the entire clip and all cuess.	"Selecting the Audio Clip" on page 149.
HOME	Move to the start of the audio track.	"Scrubbing the Audio Track" on page 148.
END	Move to the end of the audio track.	"Scrubbing the Audio Track" on page 148.

Press:	To	See this section for more information:
PAGE UP	Move backwards in the timeline by one page.	"Scrubbing the Audio Track" on page 148.
PAGE DOWN	Move forward in the timeline by one page.	"Scrubbing the Audio Track" on page 148.

Contextual Menus for the Audio Timeline

Menu Item:	To:	See this section for more information:
NUDGE AUDIO	Move the audio clip over by a few seconds, a frame, or another measurement.	"Nudging the Audio Clip" on page 150.

Chapter 10: Reading Dialogue Tracks

Besides editing an audio clip, you can use Dragonframe's Audio workspace to for track reading, adding face sets, phonetic symbols, and dialogue cues. You can mark the track reading into different sections (such as scene 1 or scene 2), export all or part of the track reading to other scenes, and export a preview QuickTime of the characters "talking."

The audio workspace map on page 147 gives an overview of the playback and track reading tools in the Audio workspace.

This chapter includes the following sections:

See also:
Dragonframe tutorials:
http://www.dragonframe.com/tutorials.php

Setting Up Face Sets in Photoshop Layers

Set up your face sets in Photoshop (PSD) files that follow the conventions for our Audio workspace. When Dragonframe imports the files, it will organize each face cue, and, if you set it up, add things like phonetic cues and hot keys.

Dragonframe uses Photoshop layer groups to organize the shapes.

- Set up each shape with its own layer.

- Size all shapes 200 x 200 or 300 x 300. Any other size will get cropped and scaled when Dragonframe loads it.

- Use **RGB** for the Image Mode.

Creating Mouth Shapes

To create a set of mouth shapes:

1. Create a group called **MOUTH**.

2. Add a layer to this group for every mouth shape.

Creating Eye Shapes

1. Create a group called **EYE**.

2. Add a layer to this group for every eye shape.

NOTE: When you create a layer with a name beginning with **EYE**, Dragonframe always layers the **MOUTH** shapes over it.

Creating the Background Layer

You can also have a background layer that provides a common background for all shapes.

- Name the layer **BG** or **BACKGROUND**.

- Create the layer at the top level (not within a group).

If the background layer exists, all other shapes will be composited on top of it.

Mouth and Eye Shape Naming Conventions

Name each layer so Dragonframe can recognize your shapes and display them properly.

CAUTION:Each layer must have a unique name. For example, if you name an eye layer **CLOSED** and a mouth layer **CLOSED**, Dragonframe will not recognize that they are two separate shapes.

In addition to the shape name, you can specify a shape sound and a hot key within the layer name.

Add a period (.) in between the layer name, the sound name, and the hot key.

The table below gives examples of how you might name your layers:

This Layer Name:	Is named:	Has this Sound:	And this Hot key:
A1	A1.	None.	None.
A1.AH	A1.	Ah	None.
A1.AH.A	A1	Ah	**A**
A1..A	A1	None.	**A**

Here's a Photoshop file set up for a character called Dr. S. Monkey:
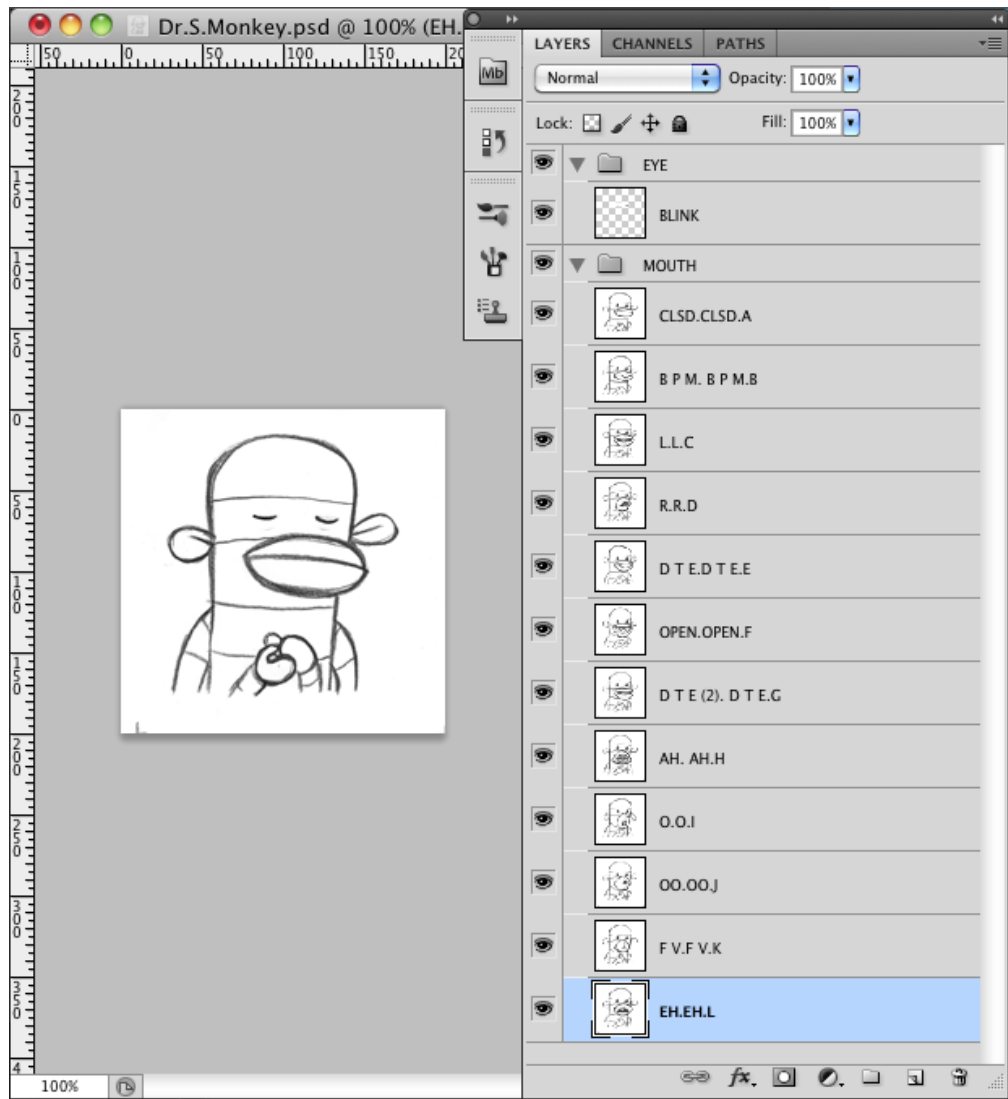
The face set shown in this manual comes with your copy of Dragon-frame. Access it here:
<INSTALLATION FOLDER>/RESOURCES/FACE SETS.

Loading Face Sets

Once you've set up the face sets in Photoshop, you're ready to load them into Dragonframe.

To load face sets:

1.   Open Dragonframe and the Audio workspace.

2.   Import the face set:

- Click ⬒. Or,

- Click ☰ ▾, then select **IMPORT FACE SET.**

3. The Import Face Set dialog opens. Navigate to the saved .psd file and click **IMPORT FACE SET**. Dragonframe confirms it loaded the face set.

Work with the face sets by setting up your characters. See "Setting Up Characters", below.

Managing Face Sets

You can see which face sets you have loaded, and reload them or delete them from the scene.

To manage face sets:

Click ☰ ▾, then select **MANAGE FACE SETS.** The Manage Face Sets dialog appears:
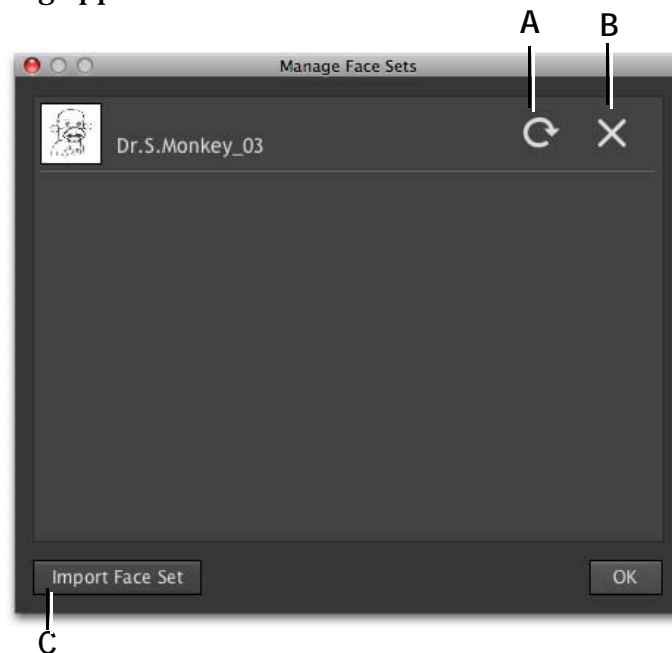
A. Reload: Reload the face set from disk. B. Remove the face set. C. Import: Import a new face set.

Setting Up Characters

Create separate track reads for each character in your scene, including face sets, phonetic symbols, and dialogue cues. Export your results to a track reading preview.

To create a new character:

1. Add the character:

    *   Click 🗩.

    *   Click ≣ ▾, then select **ADD CHARACTER.** In this example, we'll create a character named Dr. S. Monkey.

    The character dialog opens.

2. Name the character, then press **OK**. Dragonframe creates a new character row. If you have face sets loaded, it automatically loads the first face in the face set:
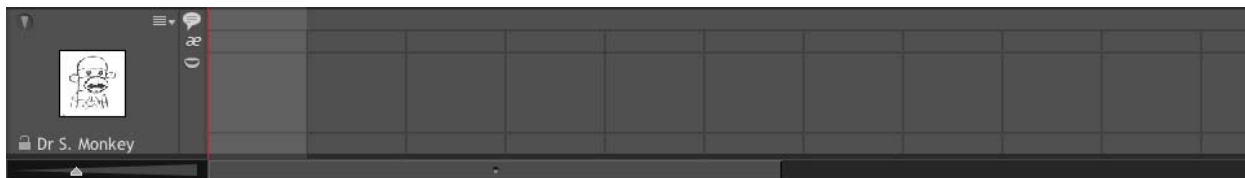
Click the face or in the character row to display the entire face set.

Adding Face Cues to the Track Reading

Once you load face sets and add the characters you need to the scene, you are ready to add the cues to the track reading.

The Audio workspace looks like this when you're ready to start adding face cues:
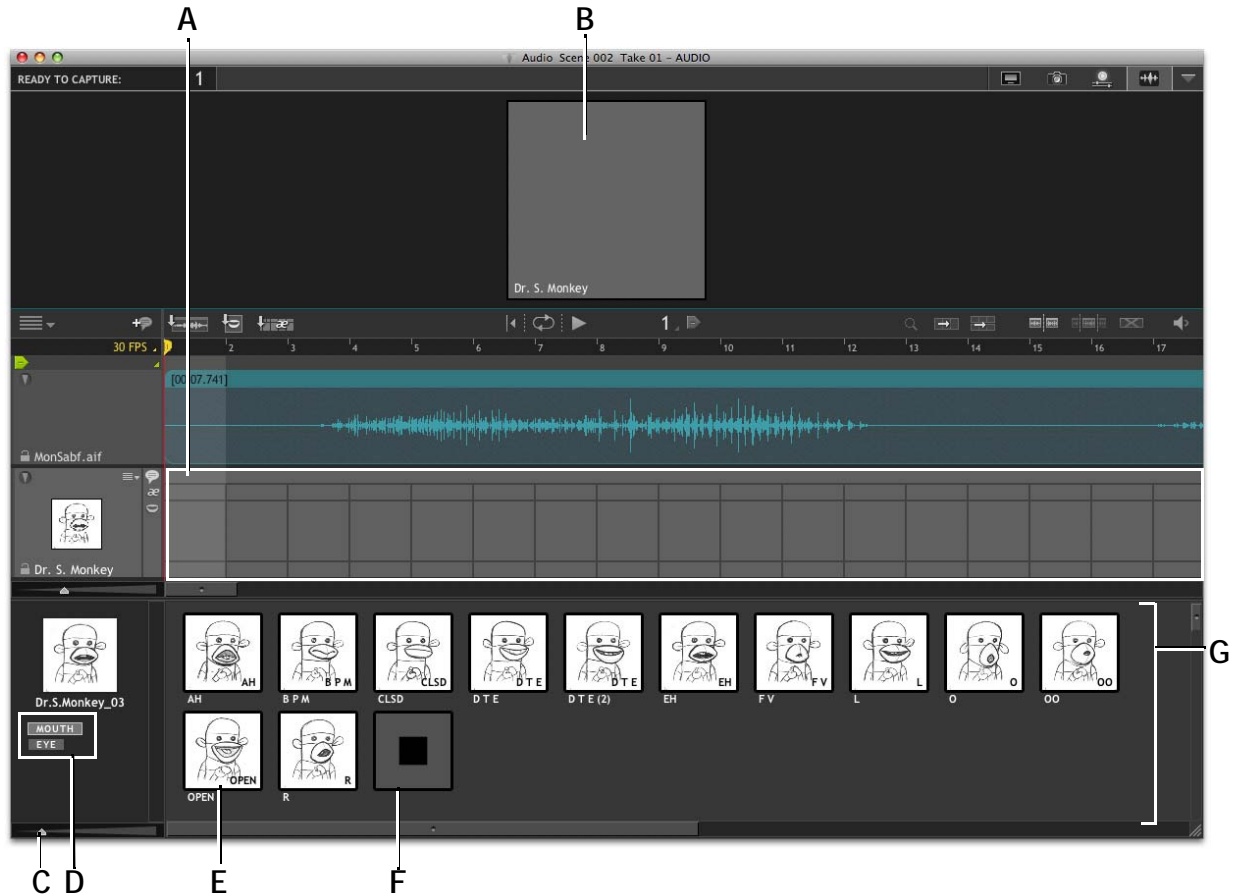
A. *Character row: The track reading (faces, phonetics, etc) will all appear here.*

B. *Track Reading Preview area: See enlarged face cues while adding them, and during playback.*

C. *Resize: Adjust the size of the face set.*

D. *Sets: Select the group for the face set. Here, there are **MOUTH** and **EYE** groups, and **MOUTH** is displayed.*

E. *Mouth cue: Shows the mouth shape and the shape sound set up in the Photoshop file. Click and drag*

the mouth shapes to rearrange them. Or, **CTRL**-click in the mouth shape area and select **CLEAN UP SHAPES** to arrange them.

F. *Stop Cue: Add when the character leaves the scene.*

G. *Face Set Area: View all the face shapes in the set. Move the face shapes around if needed, or **CTRL**-click in the area to snap shapes back into rows.*

Adding Mouth Cues

To add mouth cues:

1. Step to the frame you'll begin with.

2. Click a mouth shape from the face set. Dragonframe adds the mouth shape to that frame and the frames that follow:

A. *Show/Hide Faces: Display or hide the face cues.*

B. *Menu: Edit the character by showing or hiding phonetics, dialogue, mouths or eyes; removing or renaming the character; or clearing the track.*

C. *Phonetic/Dialogue Rows.*

D. *Lock: Lock the character's track reading for editing.*

E. *Resize: Resize the timeline and the character row.*

F. *Minimize Faces: Expand to show mouth and eye shapes, or only show mouth and eye names.*

3. Step to the frame where the character's face changes next.

4. Select a second face shape from the face set.

Adding Eye Cues

If your Photoshop file has eye and mouth layers (or other additional layers), you can add those as well.

To layer an eye shape on top of the mouth set:

1. In the character row, click ≡ (B.), then select **EYES**. Dragonframe shows the eye row.

2. Navigate to the frame you'll edit.

3. Add the mouth shape to the frame as described above.

4. In the face set area, click **EYES**:

A. *Face set with "Eye" group selected.* B. *Stop cue.*

3. Select the eye cue you need. Dragonframe layers the eye set over the mouth set.

4. (Optional) To remove the eye layer from subsequent frames, click the **STOP** cue.

Selecting Cues

You can select individual rows of cues, or select the audio track and all cues at once. This makes it easy to move cues to the right frame, or to move the audio track and cues together.

- To select all or part of one row:

  a. Select the cell where you want to begin the selection:
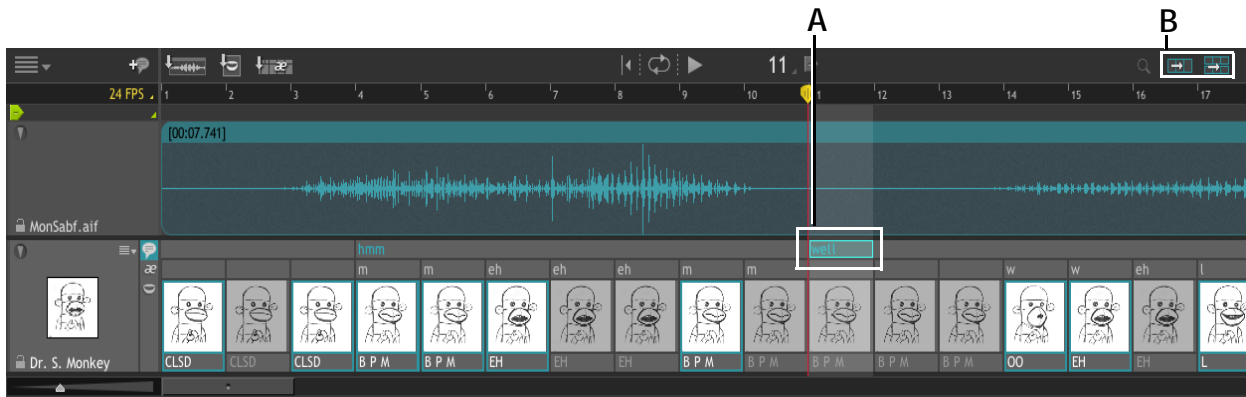
A. *Track reading with one word of dialogue selected.* **B.** *Select buttons.*

  b. Click ▣ (B.). Dragonframe selects the selected cell, and all of the frames that follow.
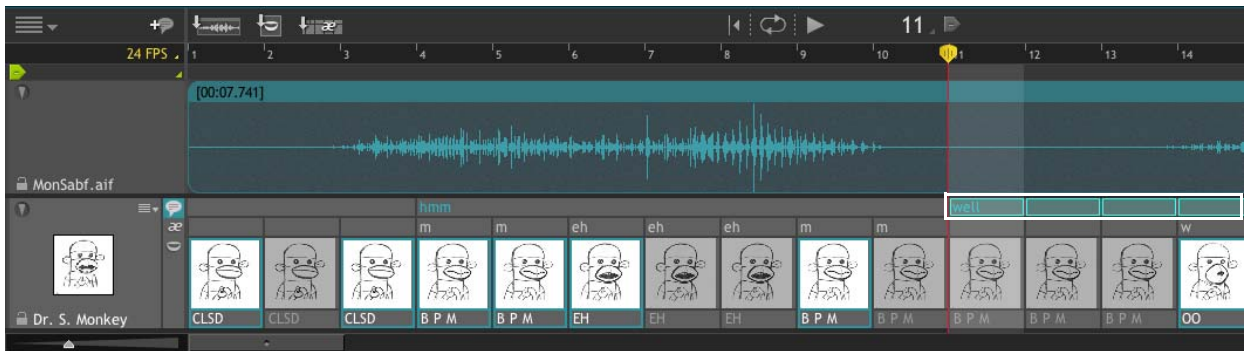
Dialogue row selected from original cell.

- To select all cues:

  a. Select the cell where you want to begin the selection.

b. Click (B.). Dragonframe selects the selected cell, all of the cues that follow, and the audio clip:

See also:
"Nudging the Audio Clip" on page 150.

Track Reading Preview Area

As you add face cues to the character, they appear above the audio clip, in the preview area:
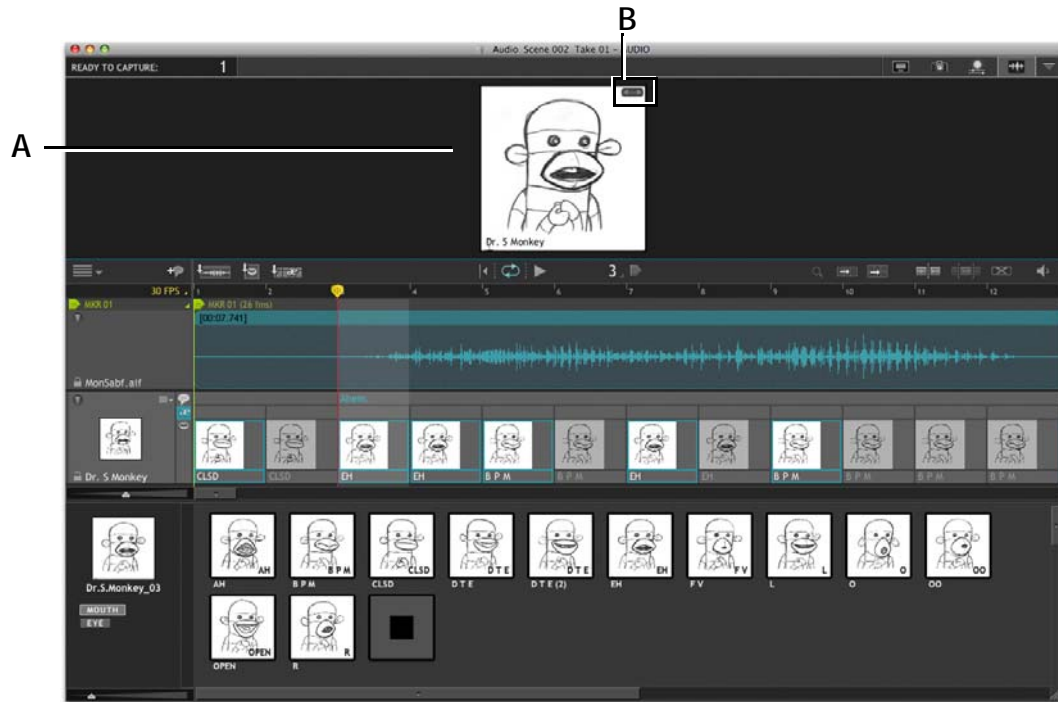
A. *Preview area.* **B.** *Flip: Move the mouse over the character's image to display the flip button. Click it to flip the image left to right. If there are two characters, using* **FLIP** *can make them "face" each other.*

See also:
"Exporting a Track Reading Preview" on page 168.

Adding Phonetics and Dialogue Cues

Add phonetics and dialogue above the face set in the character row:
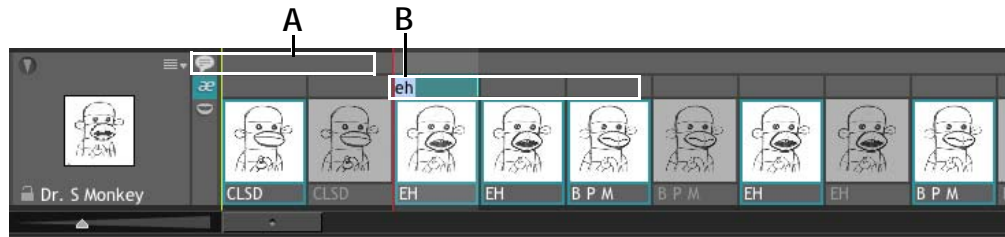
A. *Dialogue row.* **B.** *Phonetics Row with one cell selected.*

To add phonetics:

1. Double-click the first cell where you need to add the phonetics.

2. Type the phonetic cue, then use the arrow key to move to the next cell.

3. Type the phonetic cue, then move the next cell.

4. Continue until you've added all the cues.

Adding Dialogue Cues

To add dialogue cues:

1. Double-click the first cell where you need to add a dialogue cue.

2. Type the dialogue for that character. You can type the entire section of dialogue for the scene with only one cell selected:

3. Click outside of the row. Dragonframe automatically moves each word to a separate cell:

4. Click and drag each word to the appropriate place alongside the audio clip.

NOTE: Adjust the scale of the audio clip and character to make it easier to drag the dialogue cues.

Marking the Track Reading

You can place markers throughout the track reading for easier navigation, or to section the reading into scenes. When you import the reading, you can select which marked sections to import.

Use the marker tools in the workspace to add and manage markers:
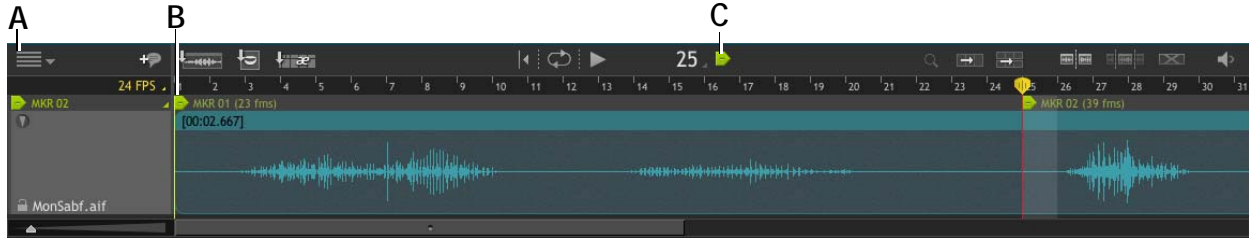
A. *Marker menu. Click the icon to see a list of all markers.* **B.** *Marker 1 for the scene.* **C.** *Add/Remove Marker: Click to add an marker, or click a selected marker to delete it. When the icon is green, the playhead is currently over a marker.*

To place markers on the scene:

1. Move the playhead to the frame you want to mark.

2. Click ▶ (C.). Dragonframe adds a marker. Click ▶ again to remove the marker.

3. (Optional) Double-click the marker to edit its name.

See also:
"Exporting the Track Reading" on page 167.
"Importing a Track Reading" on page 168.
"Contextual Menus and Keystrokes for the Audio Workspace" on page 152.

Navigating Through Markers

•   Press **CTRL** and the arrow keys to step through the markers one at a time. Or,

•   Open the marker menu (A.) to see a list of all markers.

Viewing the Track Reading in the X-Sheet or Timeline

You can view track reading information, including mouth and face shapes, in the timeline. You can view the same information in the X-Sheet as well, without the shapes.

See also:
"Viewing Audio Information in the X-Sheet" on page 184.
"Timeline Map" on page 116.

The Heads-Up Display

You can view audio cues and mouth shapes in the Heads-Up Display (HUD) within the Animation workspace. To view the display, press in the Animation tools.

The default HUD appears:
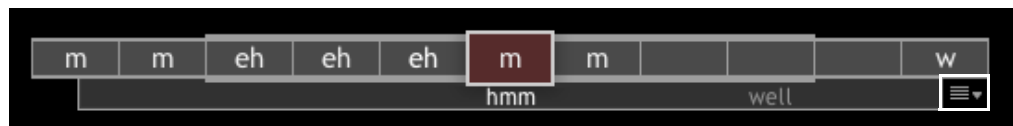
HUD with phonetics and dialogue showing. Menu is highlighted on the right.

Use the menu to choose the other two HUD views, which show the face shapes three- or one-at-a-time:
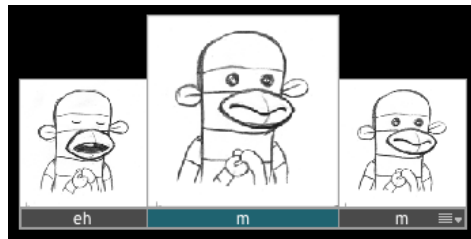
Use the menu to show phonetics or the names of the face shapes.

Exporting the Track Reading

You can export the track reading, including face cues, phonetic cues, and markers.

1. To export the track reading, click ☰ ▾, then select **EXPORT TRACK READING.** Dragonframe opens an export dialog.

2. Navigate to where you want to save the reading and click **SAVE.**

Dragonframe exports the track reading.

Importing a Track Reading

Once you've exported a track reading, you can import it into other scenes. If you've marked the track, you can import a single section or the entire track.

To import the track reading into another scene:

1. Open the scene you want to import the clip to.

2. Click ![icon] to open the Audio workspace.

3. Click ![icon]. Navigate to the saved track reading and click **IMPORT TRACK READING**.

The Import Track Reading dialog appears.
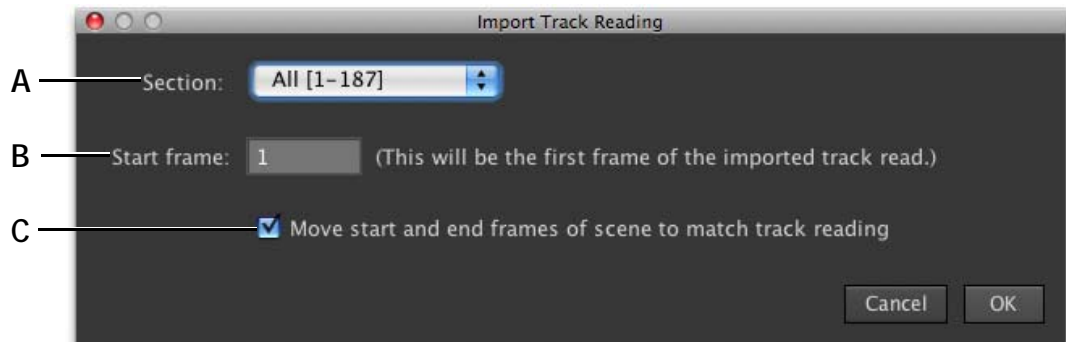
A. Section Drop-down list: Select only one of the marked sections from the track reading, or import all the sections. B. Start Frame: Select which frame number to start the scene with. C. Match the starting and ending frame numbers to the frame numbers in the marked section. For example, if the section starts with frame 48 and ends with 156, the new scene will start on frame 48 and end with 156.

4. Select the options you need and click **OK**.

Dragonframe imports the selected sections into the new scene.

Exporting a Track Reading Preview

You can create a QuickTime of the face cues from your scene.

To export a track reading preview:

1. Click ☰ ▾, then select **EXPORT PREVIEW.**The Export Preview dialog appears**.**

A ———

B ———

C ———
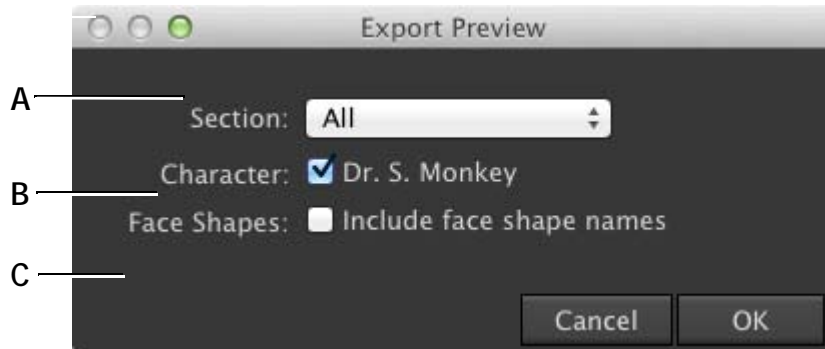
A. *Section: Choose which marked section to export to the preview, or choose* **ALL***.*
B. *Character: Choose which character to include.* **C.** *Face Shapes: Show face shape names during the QuickTime video.*

2. Adjust the export options as needed, and click **OK**. Dragonframe exports the preview. A dialog appears.

3. Navigate to where you want to save the file, and click **SAVE**.

See also:
"Marking the Track Reading" on page 166.

Exporting an After Effects Time Remap

Dragonframe can produce an After Effects "Time Remap" file from your audio track reading. This is a special text data file that instructs After Effects to show a specific layer at a specific time. Using advanced After Effects knowledge, you can use this to make an animation from your track reading.

See also:
Creative Cow's tutorial about how to use time remap information in After Effects:

http://library.creativecow.net/articles/rabinowitz_aharon/lip_synch/video-tutorial

Contextual Menus for the Audio Face Set Area

CTRL-click in the audio face set area to access a contextual menu.

Select:	To:	See this section for more information:
CLEAN UP SHAPES	Snap the face shapes into rows and columns.	"Adding Face Cues to the Track Reading" on page 160.

Chapter 11: Using the X-Sheet

The X-Sheet gives an overview of your scene, with exposures, and audio cues, and any reminders you've set for yourself. Draw on the X-Sheet, or customize its layout. As you update your scene, the X-Sheet updates automatically as well. You can also print a hard copy of the sheet for easier reference while you're animating.

A map of the X-Sheet's main features follows on the next page.

This chapter includes the following sections:

See also:
Dragonframe tutorials:
http://www.dragonframe.com/tutorials.php

X-Sheet Map

A. *Print: Print the X-Sheet.*

B. *Production Information. Click editable cells to add info.*

C. *Column Headers: Click and drag to rearrange columns. Columns can include Frame numbers, exposures, dialogue information, notes and custom columns.*

D. *Rows: Keeps track of scene information, including held or hidden frames, exposures, and dialogue information.*

E. *Add Column: Add a preset or custom column.*

F. *Text Size: Adjust the sizing of the X-Sheet.*

G. *Layout: Change the X-Sheet's on-screen color scheme.*

H. *Sheet #: Shows the page you're currently viewing. When printed, each page contains 48 frames.*

I. *Scroll Bar: Page through the X-Sheet.*

J. *Frame Editing Tools: Hide, show hidden, hold and delete frames.*

K. *Drawing Tools: Mark up the X-Sheet.*

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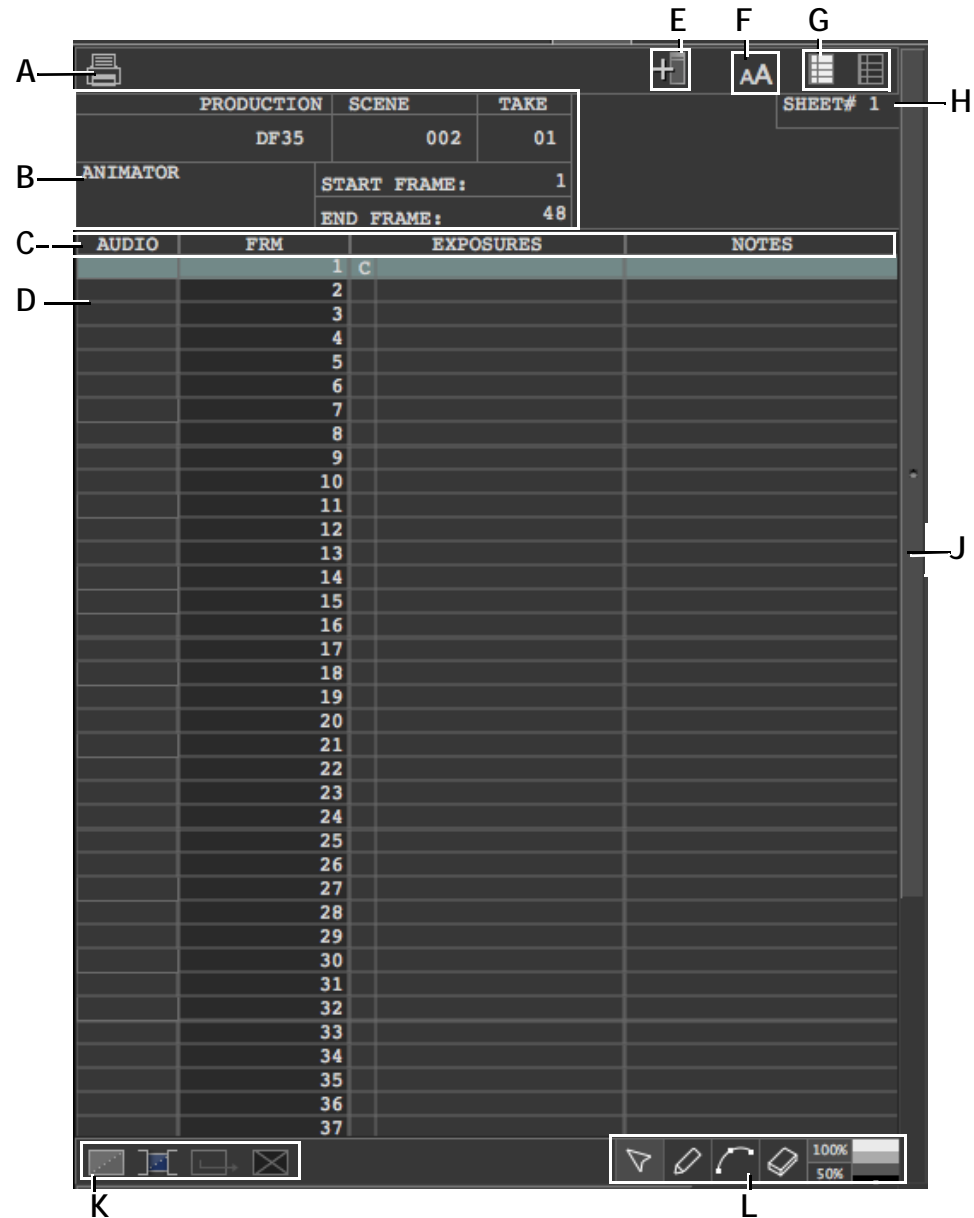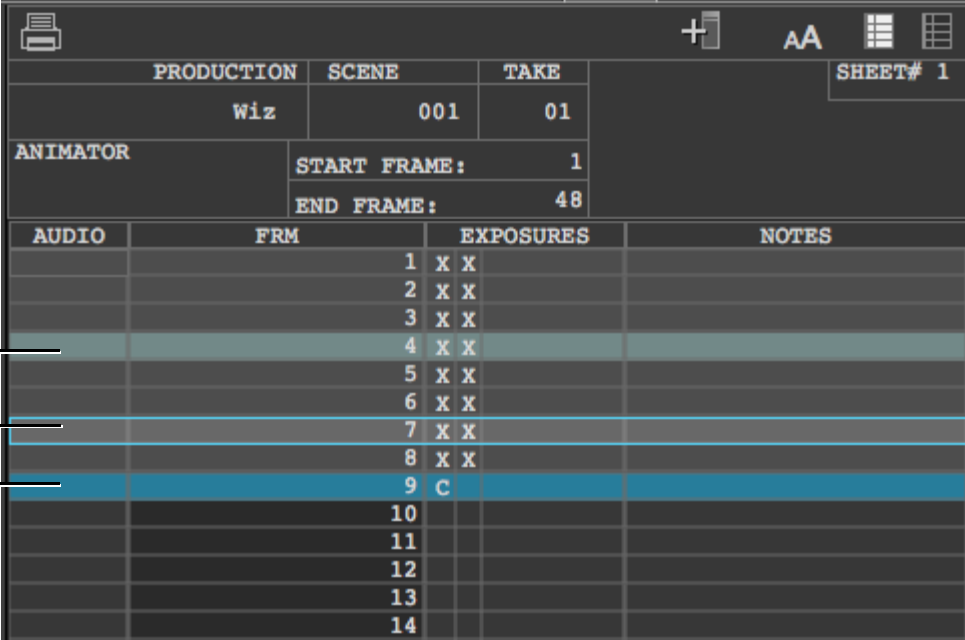
Reading the X-Sheet

When you're shooting your scene, the X-Sheet updates dynamically to help you keep track of the elements of the scene. To open the X-Sheet:

- From the Animation workspace, click ▤ (in the bottom right corner). Dragonframe opens it within the Animation workspace.

- Open the X-Sheet as a tab (in the upper-right corner). Dragonframe opens the X-Sheet as its own workspace.

As you capture frames, the X-Sheet gives you another way to keep track of what you've shot and which frame (and exposure) you're about to capture:

A. *Current Frame. This frame is the frame currently showing in the View pane.*

B. *Selected frame. This frame has been selected with the mouse. You could copy, cut, or otherwise edit the frame in the X-Sheet.*

C. *Frame about to be captured. It's highlighted with blue.*
x marks an already-captured exposure.
c marks the exposure to be captured.
In this example, you are about to capture frame 9, exposure 1.

See also:
"X-Sheet Map" on page 172.
"Using the Timeline" on page 115.
"Frame Counters Overview" on page 17.
"Passes, Takes and Exposures Explained" on page 10.

# Adding Production Information to the X-Sheet

The information for your scene and take appear in the X-Sheet auto-matically when you create a new scene. Some of the areas in the X-Sheet header are editable. Click inside the header to add your animator's name, a note about the scene, or to edit the scene length.

Setting Scene Length and Starting Frame

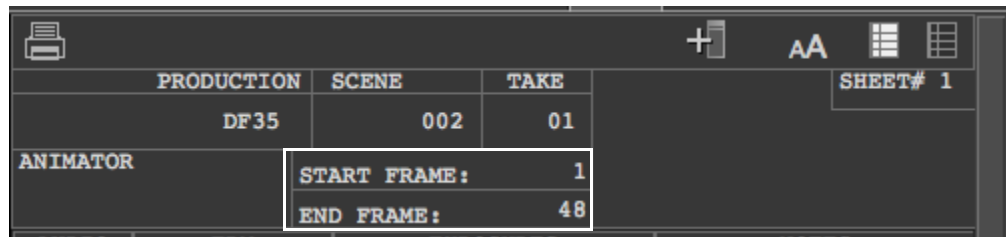The X-Sheet is set at 48 frames long. As you shoot past frame 48, the X-Sheet grows accordingly.

Preset the length of the X-Sheet in two places:

- Click **SCENE|SETTINGS**. The Settings dialog opens:
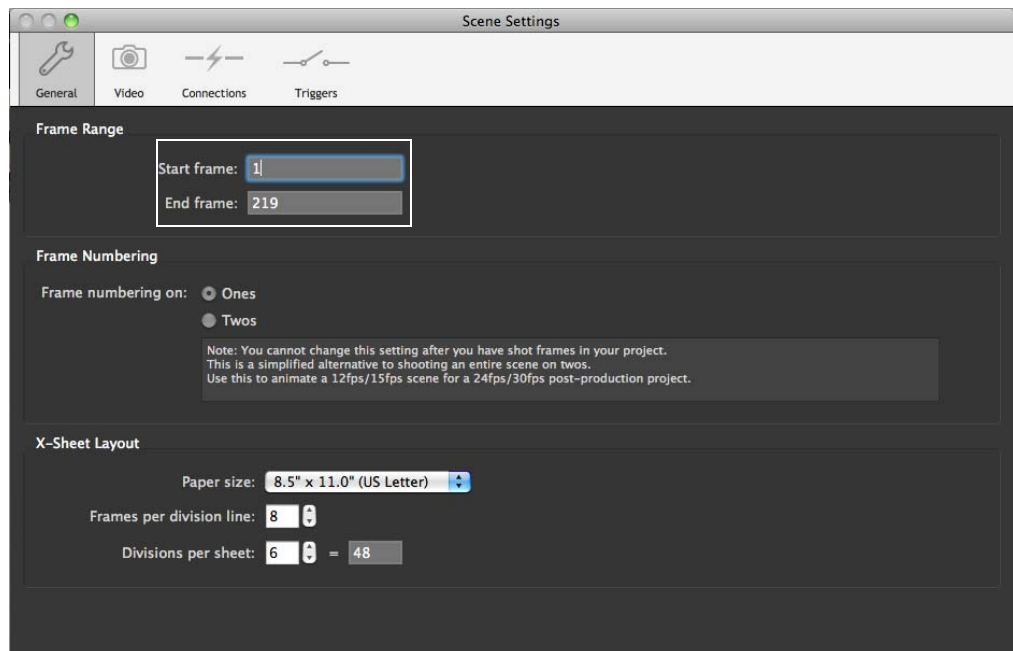
Start Frame and End Frame fields in General Settings.

- Open the X-Sheet (**WINDOW|X-SHEET**) and look for **START FRAME/ END FRAME** in the header:

Start Frame and End Frame fields in the X-Sheet.

From either the Settings dialog or the X-Sheet, change the length of the scene by entering values in the **START FRAME** or **END FRAME** fields.

The X-Sheet updates automatically to reflect your changes.

NOTE: You can set your scene to start at a frame other than 1.

Frame Editing From the X-Sheet

You can cut, copy and paste frames within the X-Sheet, instead of doing it with the timeline. The X-Sheet gives you a broad overview of the entire scene in a table format.

See also:
"Frame Editing with the Timeline" on page 118.

Cutting or Copying from the X-Sheet

To cut or copy frames from the X-Sheet:

1. Select rows:

   • Click the row of the first frame you want to cut or copy, then drag the cursor over any additional rows to include. The rows you select have a cyan outline. Or,

   • Click the first frame you want to cut or copy, press **SHIFT**, then click the row of the last frame you want to include. The rows you select have a cyan outline.

2. Cut or copy the section:

   • **CTRL**-click and select **CUT**, or **COPY**. Or,

   • Press **COMMAND X** or **COMMAND C**.

Pasting Frames from the X-Sheet

To cut or copy frames from the X-Sheet:

1. Click the row of the frame where you want to paste cut or copied frames. The row has a cyan outline.

2. Paste the frames:

   • **CTRL**-click and select one of the four paste options. Or,

- Press **COMMAND V**. The paste dialog appears:
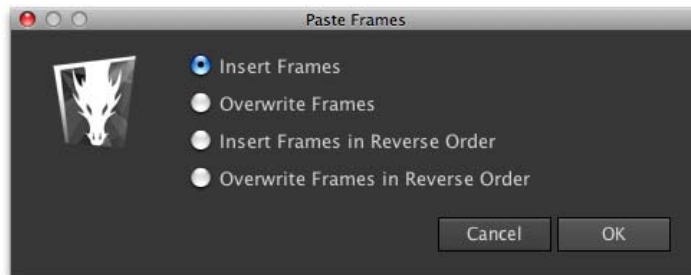
Choose one of the four paste options and click **OK**.

Holding a Frame in the X-Sheet

If you wish to repeat a frame, or hold it, you can do so from the X-Sheet. This is the same thing as copying the frame and pasting it multiple times.

To hold a frame:

1. Move the mouse to the bottom edge of a frame and click and drag the cursor down for the number of frames you wish to hold.

Frame 2 selected. Cursor hovers over the bottom edge of the cell for frame 2 in the FRM column.

Or, select a frame, then click . A dialog appears. Enter how long to hold the frame and click **OK**.

Dragonframe marks the frames held:

Frame 2 is held (repeated) from frame 2 to frame 4.

See also:
"Shoot Multiple" on page 95.

Hiding a Frame in the X-Sheet

Hide a frame to leave it out of the X-Sheet and Timeline without completely deleting it. Dragonframe marks hidden frames in the X-Sheet; you can either show or hide hidden frames while you're working them.

NOTE: Dragonframe will only hide entire frames, not individual exposures.
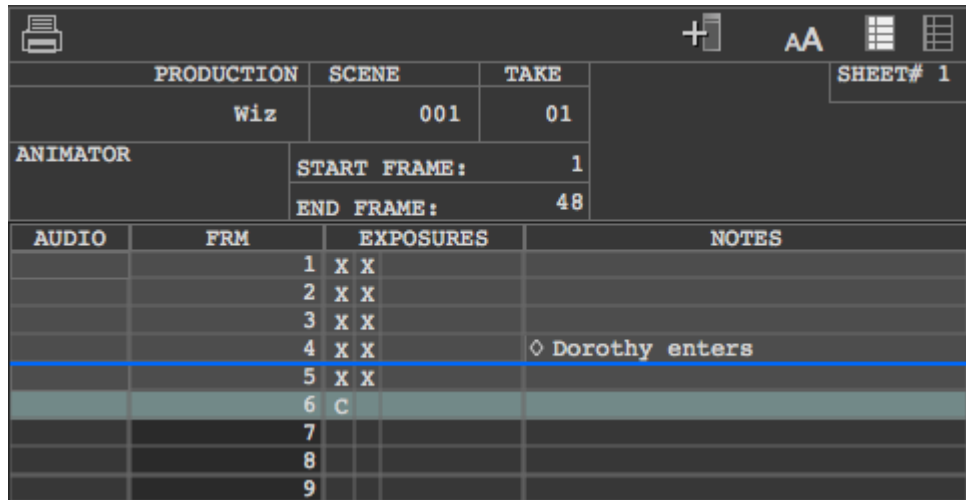
To hide frames:

1. Select the frame(s) you want to hide:

Frames 5-7 selected; camera ready to shoot frame 9.

2. Click ![icon]. Dragonframe hides the frames, renumbering the frame sequence:

The old frames 5-7 are now hidden. Camera is now ready to shoot frame 6 since three frames of the sequence are hidden.
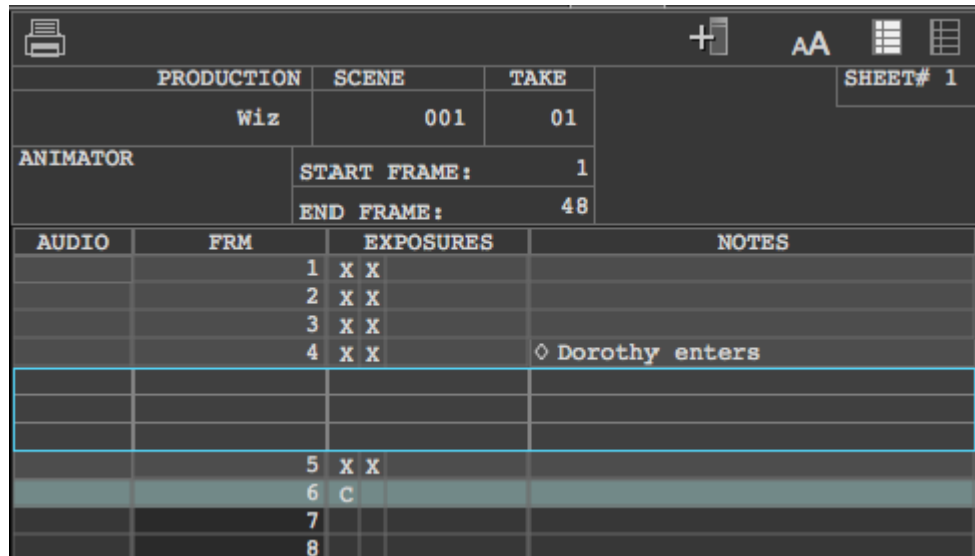
3. (Optional) Hide the hidden frames in the X-Sheet by clicking ▣.
    Dragonframe removes the hidden frames and replaces them with a
    marker:

Showing Hidden Frames

To show hidden frames, click ▣. Dragonframe shows the hidden
frames in the X-Sheet:

Unhide Hidden Frames from the X-Sheet

To unhide frames that you hid:

1. (Optional) Show any hidden frames.

1. Select the hidden frames.

2. Click ▣. Dragonframe unhides the hidden frames.

See also:
"Hiding Frames with the Timeline" on page 120.

Deleting Frames from the X-Sheet

To delete frames from the X-Sheet:

1. Select the rows you want to delete. The rows you select have a cyan outline.

2. Press ✉, or **CTRL**-click and select **DELETE**. Dragonframe deletes the selected rows, including all exposures, and places the files in the delete bin.

NOTE: To replace just one exposure in a frame, you can reshoot it from the X-Sheet.

See also:
"Delete Key" on page 91.
"Cut Back Key" on page 91.
"Reshooting a Frame Sequence from the X-Sheet", below.
"Finding Your Source Files" on page 292.
"Deleting Frames from the Timeline" on page 122.
"Restoring Frames from the Delete Bin" on page 124.

Reshooting a Frame Sequence from the X-Sheet

There are three ways to reshoot frames:

- To reshoot one or more frames, select those frames and **CTRL**-click, then select **RESHOOT FRAMES**. Dragonframe clears the old frames from the X-Sheet, and replaces them with the frames you shoot next. When you're finished, Dragonframe will continue shooting at the end of the frame sequence.

- To insert one or more frames earlier in the sequence, select a frame and **CTRL**-click, then select **INSERT CAMERA**.

  Dragonframe will add frames from that part of the frame sequence until you **CTRL**-click, then select **RETURN CAMERA TO END**.

- To reshoot a single exposure earlier in the sequence, double-click the cell of the exposure you want to reshoot. The **C** moves to the cell you selected. Press **SHOOT** to overwrite the exposure.

To reshoot the exposures that follow, continue shooting. Dragon-frame will overwrite the rest of the frames.

Or, **CTRL**-click, then select **RETURN CAMERA TO END.**

See also:
"Reshooting Frames from the Timeline" on page 122.

Customizing the X-Sheet's Columns

You can add, delete, or customize the X-Sheet's columns.

• Click column headers and drag them to rearrange the columns.

• Click and drag the right edge of a column header to resize the column.

• **CTRL**-click a NOTES column header and click **ALERTABLE** to make Dragonframe display a pop-up reminder for the notes in that column.

• **CTRL**-click a column and click **CLEAR COLUMN** to remove all of its data.

• **CTRL**-click a column and click **REMOVE COLUMN** to remove it from the X-Sheet.

• Add custom or preset columns:

    a. Click ⊣▮ (at the top of the X-Sheet). A drop-down menu appears.

    b. Select a preset column, or a custom (**EMPTY**) column. The column appears.

    c. (For a custom column) **CTRL**-click the new column's header and select **RENAME COLUMN** to add a header.

    d. (For a custom column) Double-click in rows to add content, just as you would in the **NOTES** column.

See also:
"Printing the X-Sheet" on page 185.
"Leaving Reminder Notes in the X-Sheet", below.

Importing X-Sheet Data

You can import data from a .csv file into the X-Sheet. Dragonframe allows you to choose which columns and data to include in the import.

To import X-Sheet data:

1. Click **FILE|IMPORT|X-SHEET DATA…** Dragonframe opens the Import X-Sheet dialog.

2. Navigate to the .csv file you want to import, and click **IMPORT X-SHEET DATA**. Dragonframe opens the Import Track Reading dialog:
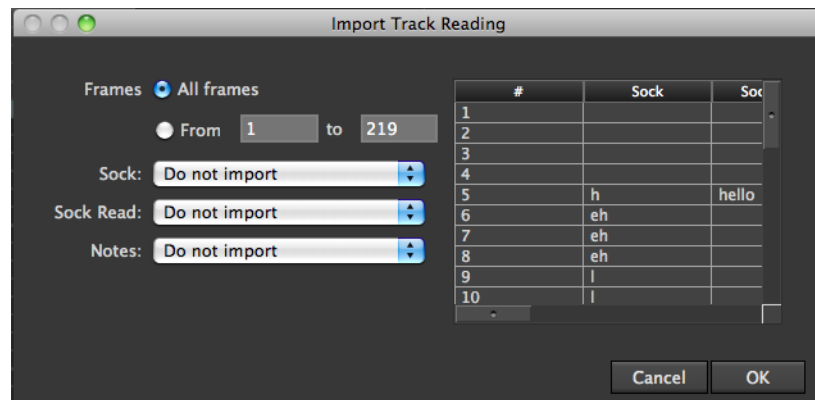
3. (Optional) Select whether to import all frames or a range of frames.

4. Choose which columns to include in the import. You can have Dragonframe include the data in new columns, the existing notes column, or new or existing audio columns.

5. Click **OK**. Dragonframe imports the data into the X-Sheet.

Leaving Reminder Notes in the X-Sheet

You can add notes to the X-Sheet and set them to pop up before you shoot a frame. You can also clear selected notes from the X-Sheet.
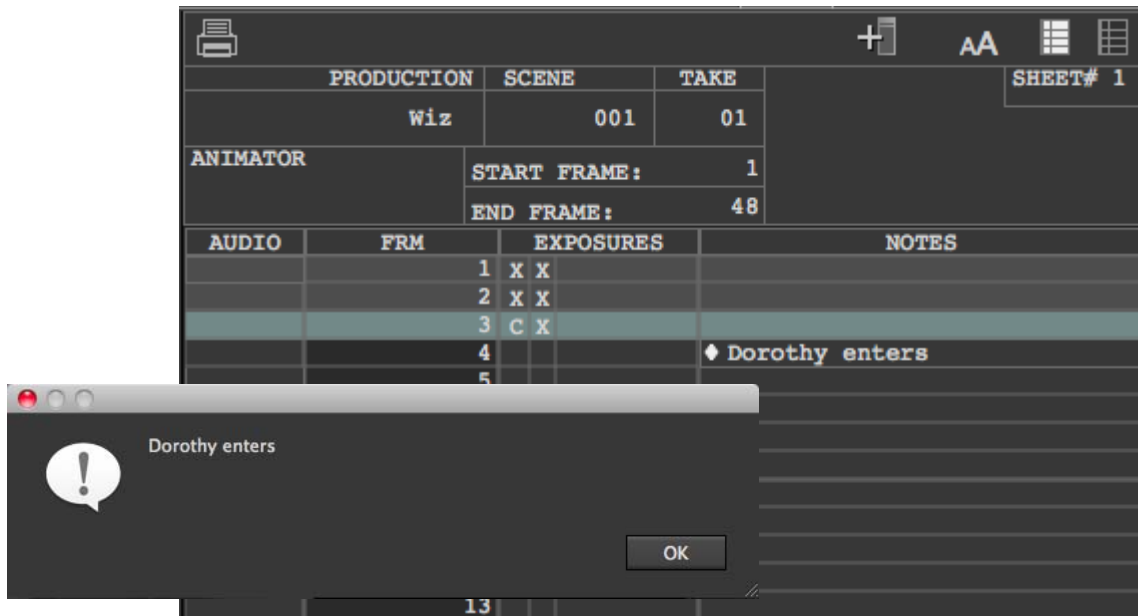
To set a reminder note:

1. Click the **NOTES** column in the X-Sheet, in the row of the relevant frame.

2. Type the note.

3. (Optional) To make the note pop up on that frame, click the diamond that appears next to the note:

Note with diamond selected. The note will pop up on frame 4.

When you're about to shoot a frame where you've added a pop-up note, Dragonframe opens the note:
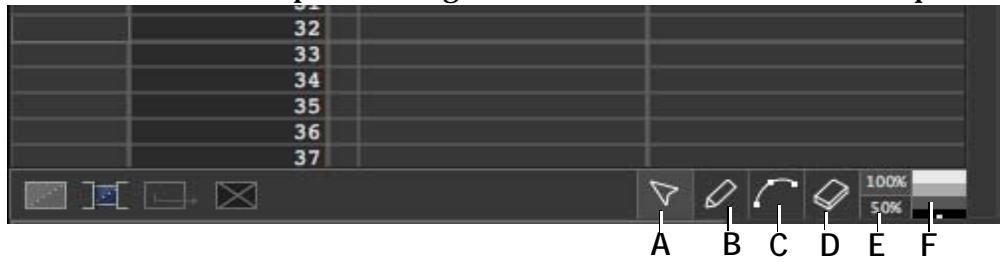

Note added in Notes column, with corresponding pop-up reminder.

To clear a note:

Select the notes you want to clear, then **CTRL**-click and select **CLEAR SELECTED NOTES.**

Drawing on the X-Sheet

The X-Sheet has simple drawing tools at the bottom of the workspace:

A   B   C   D   E   F

A. Selection tool.

B. Freehand drawing tool.

C. Curve drawing tool.

D. Eraser tool. Double-click to erase all drawings.

E. Opacity: Adjust the opacity of the drawing.

F. Line Shade: Adjust the shade of the drawing.

Viewing Audio Information in the X-Sheet

You can view audio information in the X-Sheet, such as the waveform, phonetic cues, or mouth names.

You can add columns for audio cues by pressing ⊞. An X-Sheet with all audio information displayed might look like this:
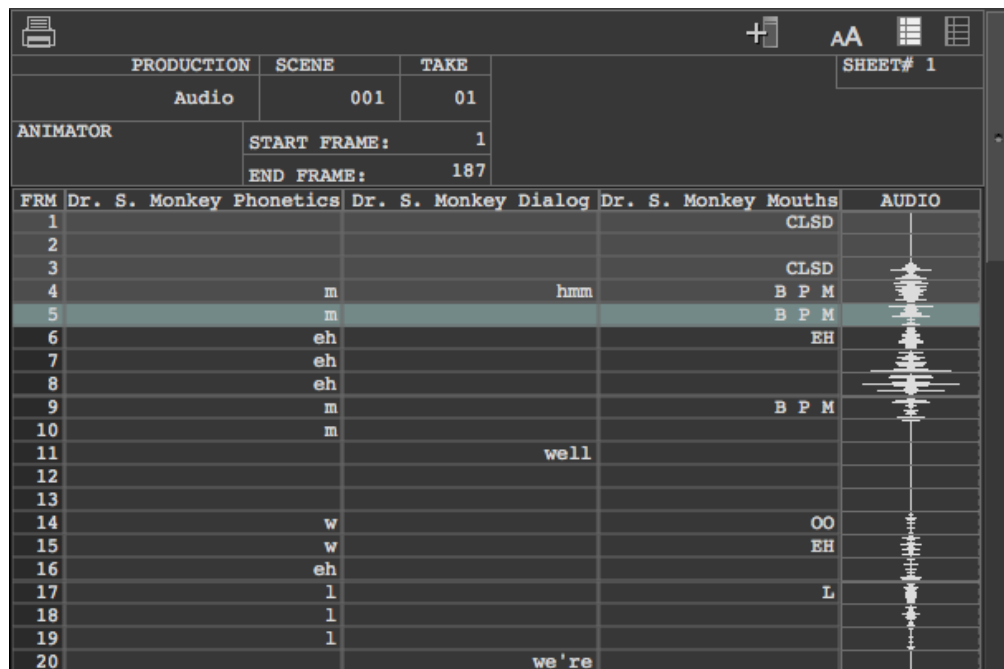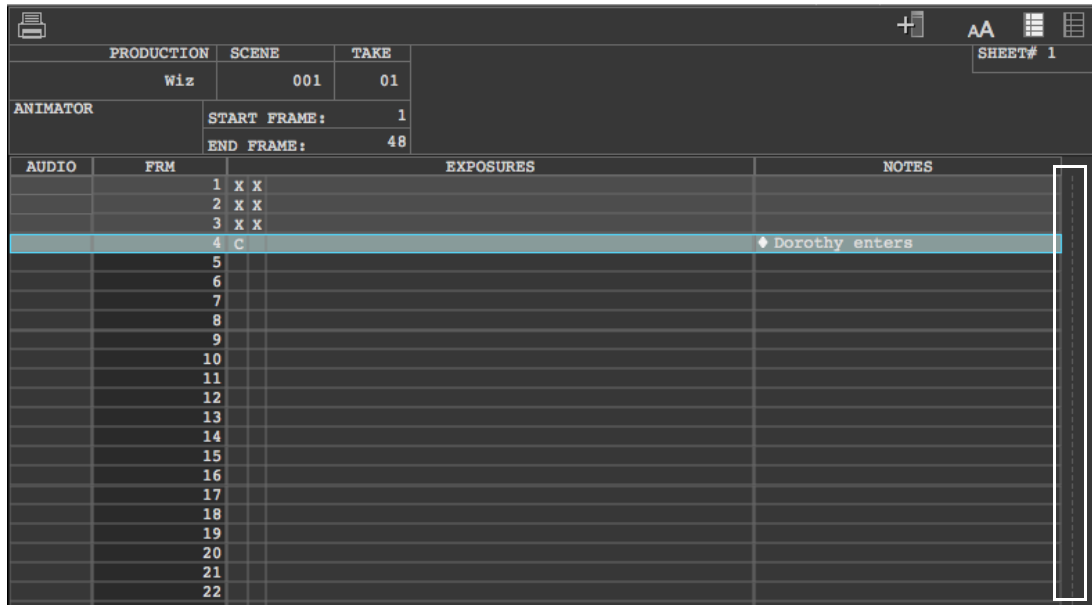
See also:
"Customizing the X-Sheet's Columns" on page 181.
"Adding and Editing an Audio Clip" on page 145.
"Reading Dialogue Tracks" on page 155.

Printing the X-Sheet

To print a hard copy of the X-Sheet, click **FILE|PRINT**, or click 🖨 in the X-Sheet.

NOTE: The X-Sheet shows a dotted line where the page break falls:

X-Sheet with a page break alongside the Notes column.

Customizing the X-Sheet's Print Layout

By default, the X-Sheet will fit a standard 8 ½ by 11 inch sheet of paper. It will contain 48 frames per sheet. Frames are grouped by thicker, "division" lines. By default, there are eight frames per division, and 6 divisions per page.

Click **SCENE|GENERAL** to adjust the size and layout of the printed X-Sheet. The Scene dialog appears:
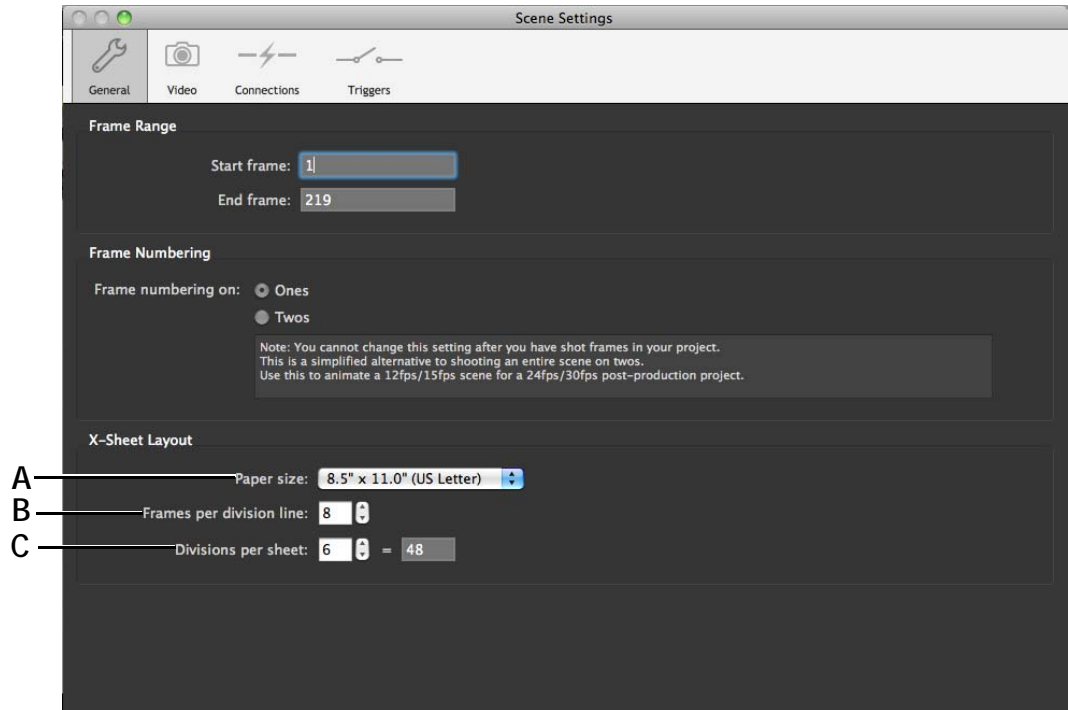
A. Select a new paper size. *B.* Change how many frames are grouped together between division lines (thicker lines) on the page. *C.* Change how many divisions will appear on each page.

You can also add, delete, or resize columns to change the print layout.

See also:
"Customizing the X-Sheet's Columns" on page 181.

Exporting the X-Sheet as a CSV

Export the X-Sheet to give you more control over formatting, or to review the data in another program (such as Excel).

Click **FILE|EXPORT X-SHEET** to export the X-Sheet as a CSV file. It will include all audio track reading information, camera move data and notes.

Special Keys and Contextual Menus for the X-Sheet

X-Sheet Keypresses

Press:	To	See this section for more information:
ESCAPE	Exit the drawing tool.	"Drawing on the X-Sheet" on page 184.
DELETE or **BACK-SPACE**	Delete selected drawing objects.	"Drawing on the X-Sheet" on page 184.
COMMAND D	Duplicate selected drawing objects.	"Drawing on the X-Sheet" on page 184.

X-Sheet Contextual Menu for Cells

CTRL-click and select:	To:	See this section for more information:
CUT	Cut the selected frame.	"Cutting or Copying from the X-Sheet" on page 175.
COPY	Copy the selected frame.	"Cutting or Copying from the X-Sheet" on page 175.
PASTE INSERT	Paste the frame in between the existing frames.	"Pasting Frames from the X-Sheet" on page 175.
PASTE OVERWRITE	Paste the frame over existing frames.	"Pasting Frames from the X-Sheet" on page 175.
PASTE REVERSE	Paste the frames in reverse order in between existing frames.	"Pasting Frames from the X-Sheet" on page 175.
PASTE REVERSE OVERWRITE	Paste the frames in reverse order overwriting the existing frames.	"Pasting Frames from the X-Sheet" on page 175.
DELETE	Delete the selected frame.	"Deleting Frames from the X-Sheet" on page 180.

CTRL-click and select:	To:	See this section for more information:
HIDE FRAMES	Hide frames from the X-Sheet without deleting them.	"Hiding a Frame in the X-Sheet" on page 177.
UNHIDE FRAMES	Restore hidden frames to the X-Sheet.	"Unhide Hidden Frames from the X-Sheet" on page 179.
HOLD FRAME...	Repeat the selected frame (like copying and pasting it).	"Holding a Frame in the X-Sheet" on page 176.
RESHOOT FRAMES	Reshoot the selected frames.	"Reshooting a Frame Sequence from the X-Sheet" on page 180.
INSERT CAMERA	Move the camera earlier in the sequence and insert additional frames	"Reshooting a Frame Sequence from the X-Sheet" on page 180.
RETURN CAMERA TO END	Move camera back to the end of the sequence after you're done inserting new frames.	"Reshooting a Frame Sequence from the X-Sheet" on page 180.
REVEAL IN FINDER	Show the selected frame's file location.	"Finding Your Source Files" on page 292.
USE AS LINE-UP LAYER	Use the selected frame as a Line-up layer.	"Adding a Line-Up Layer (Movie or Still)" on page 104.
CLEAR SELECTED NOTES	Remove any notes from the selected row.	"Leaving Reminder Notes in the X-Sheet" on page 182.

X-Sheet Contextual Menu for Notes Header

CTRL-click and select:	To:	See this section for more information:
RENAME COLUMN	Change the columns name.	"Customizing the X-Sheet's Columns" on page 181.
ALERTABLE	Choose whether the column will be "alertable"--whether Dragonframe will alert you when you reach a certain note.	"Leaving Reminder Notes in the X-Sheet" on page 182.

CTRL-click and select:	To:	See this section for more information:
CLEAR COLUMN	Remove any data from the column.	N/A
REMOVE COLUMN	Remove the column from the X-Sheet.	"Customizing the X-Sheet's Columns" on page 181.

Chapter 12: Automate Lighting with DMX

This chapter covers using DMX to automate lighting. DMX is a protocol to control lights. Connecting DMX-enabled tools to Dragonframe, like the DDMX-S2 or IOTA Controller and a dimmer pack, allows you to automate lighting, or turn off work lights automatically. The DMX interface in Dragonframe also helps you visualize your lighting setup to make it easier to set up and play back your programs. In addition, you can completely customize lighting programs for different exposures.

NOTE: If you want to configure the input/output triggers on the DDMX-S2 or the IOTA Controller, see "Adding Input and Output Triggers" on page 215.

The image on the next page gives an visual overview of the DMX workspace's features.

This chapter includes the following sections:

See also:
Dragonframe tutorials:
http://www.dragonframe.com/tutorials.php

DMX Workspace Map

A. *Ready to Capture: Prepare external hardware (like the DDMX-S2 or a motion control rig) for shooting. While in* READY TO CAPTURE *mode, you cannot edit your lighting program.*

B. *Lighting Programs: Manage lighting programs. Create custom programs for each exposure, or set up a bash light for your project.*

C. *Keyframe Setup: Adjust levels and settings for each channel's keyframes.*

D. *Virtual Lighting Workspace: Lay out badges representing each light around the Live View. Create and customize keyframes from each badge.*

E. *Key Frame Timeline: View how the lighting will change for each channel over the course of the scene.*

See also:

Connecting DMX to Dragonframe

Connect the DDMX-S2 or IOTA Controller to Dragonframe to control the DMX dimmer pack. This is the starting step for automating and animating the lights on your set, or automating a work light.

Once you've attached the DDMX-S2 to Dragonframe, you can attach your lights to the channels on the DMX Dimmer Pack.

NOTE: All the instructions about the DDMX-S2 in this chapter apply to the IOTA Controller, since it has the same DMX functionality as the DDMX-S2.

1. Connect the DDMX-S2 to your computer with the USB cable.

2. Connect the DDMX-S2 to the DMX dimmer pack. For instructions, go to http://www.dragonframe.com/dmx.php

3. Select **HELP|INSTALL FTDI SERIAL DRIVERS (DDMX-S2/IOTA)**. This installs the drivers for your computer to use to work with the DDMX-S2.

4. In Dragonframe, select **SCENE|CONNECTIONS**. The Settings dialog appears, showing the Connections tab:
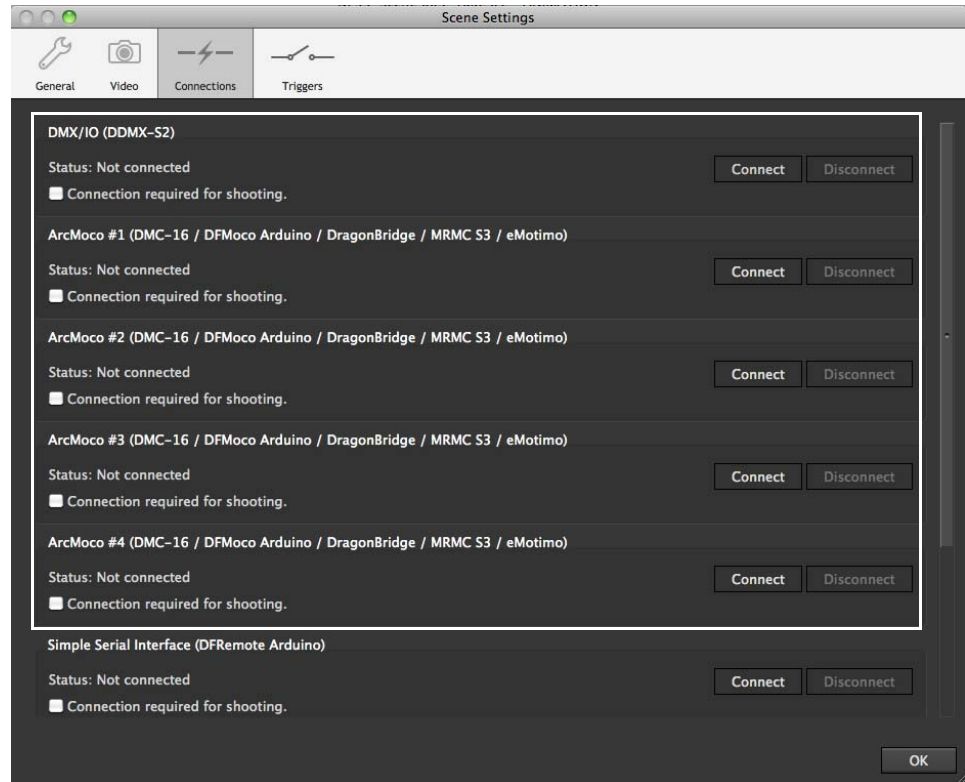
Connections tab with DMX/IO connection and Arc Moco connection.

5. Connect your device:

- If you're connecting with the DDMX-S2, click **CONNECT** under **DMX/IO**.

- If you're connecting with the IOTA Controller, click **CONNECT** under **ARC MOCO 1, 2, 3 OR 4.**

The Stereo Slider Serial Port dialog appears:
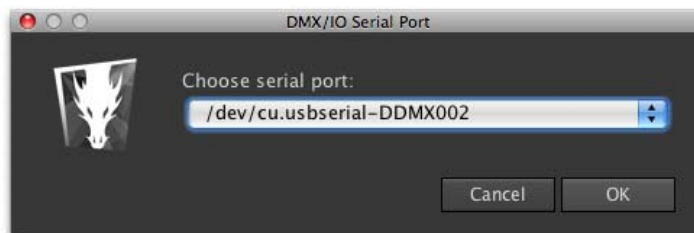
6. Choose the serial port, then click **OK**.

Dragonframe connects the device, then automatically checks the **CON-NECTION REQUIRED FOR SHOOTING** check box. When this box is

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checked, you will not be able to capture any frames for the scene until Dragonframe is connected to the hardware.

CAUTION: If you uncheck the **CONNECTION REQUIRED FOR SHOOTING** box, you could shoot all or part of a scene without running the lighting program.

7. Plug the lights you want to use into the dimmer pack. Note the channel each light is plugged into.

Creating a Lighting Program

Create a lighting program for your project by adding keyframes for the lights (channels) on your set.

A keyframe is the setting for a particular channel at a point in time. For example, you might want the light connected to channel 1 to be at 50% at frame 1, then fade to 0% by frame 48. To do so, you'd create a keyframe for frame 1 at 50%, and a keyframe for frame 48 at 0%. Dragonframe would gradually fade the light from frame 1 to 48.

Create keyframes in the timeline and keyframe area, at the bottom of the screen. Here's an example of what a program might look like:
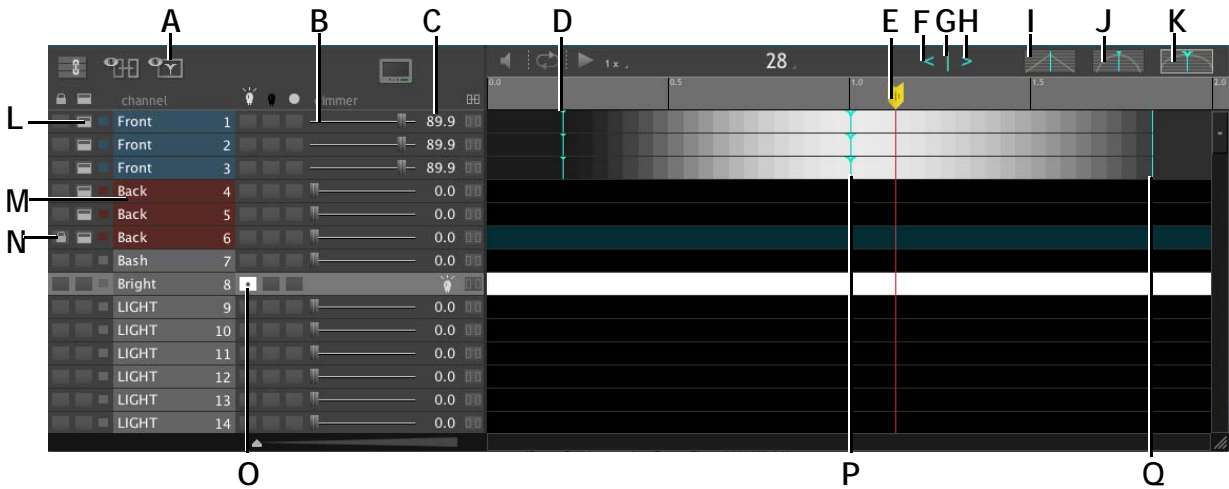
A. *Only Active: Show only channels with keyframes created, or show all channels*

B. *Dimmer: Adjust the level for a channel. Creates a keyframe at the point where the playhead is.*

C. *Level field: Shows level for channel as a percentage.*

D. *Smoothed keyframe: Keyframe created with smoothed lighting.*

E. *Playhead: Marks the progression through the scene's frames.*

F. *Previous: Move to the previous keyframe.*

G. *Keyframe: Add a keyframe at the current location of the playhead for the selected channel.*

H. *Next: Move to the next keyframe.*

I. *Linear fade: Creates a keyframe with a linear lighting adjustment (default).*

J. *Smoothed curve: Creates a keyframe with a smoothed lighting curve.*

K. *Smoothest curve: Creates a keyframe with the smoothest lighting curve.*

L. *Badge: Shows or hides a badge. See page 203.*

M. *Color: Select a color for the channel.*

N. *Lock: Locks the channel for editing. With channel locked, its timeline is grayed out.*

O. *Light on: Set a light on for the scene.*

P. *Smoothest keyframe: Keyframe created with the smoothest lighting curve.*

Q. *Default keyframe: Keyframe created with the linear (default) lighting animation.*

Adding a Keyframe

Add a keyframe from the most convenient place in the workspace:
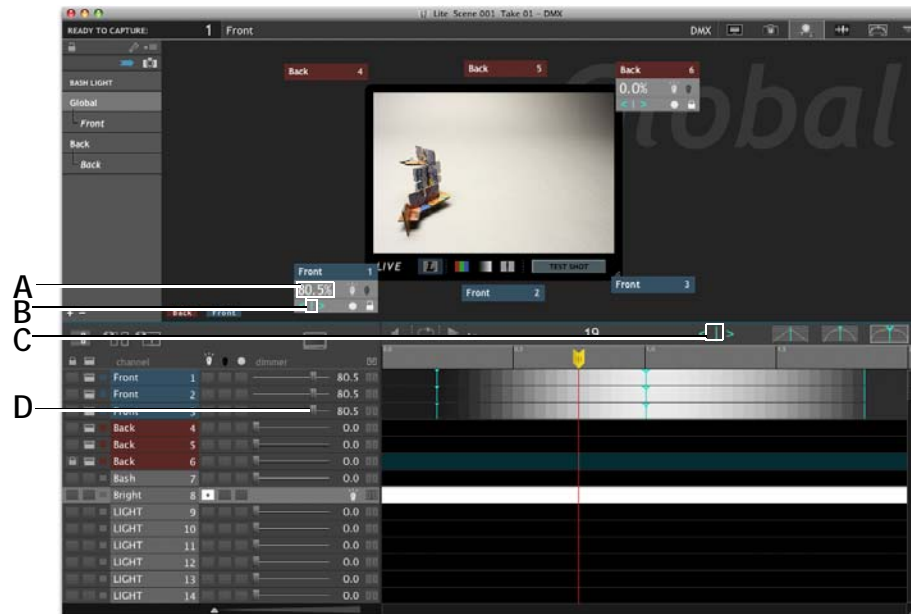
A. Percentage value in the channel's badge. B. Badge keyframe button. C. Workspace Keyframe button. D. Channel's dimmer.
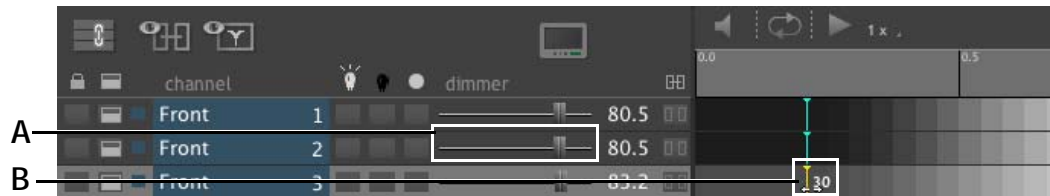
Move the playhead to the frame where you want the keyframe, then:

- Adjust the channel's dimmer.

- Press the keyframe button (C.).

- Press the keyframe button in the channel's badge.

- Click on the percentage value in the channel's badge, and drag to the left or right.

NOTE: For more information about badges, see "Visualizing Your Lights in the Lighting Workspace" on page 203.

Adjusting a Keyframe Level

Adjust keyframe levels from the most convenient place in the work-space:

A. *Channel dimmer.* B. *Keyframe.*

Move the playhead to the frame you want the keyframe, then:

- Adjust the channel's dimmer (A.).

- Click on the percentage value in the channel's badge, and drag to the left or right. See "Visualizing Your Lights in the Lighting Work-space" on page 203.

- Click on the lower half of the keyframe (B.), then drag the mouse left or right.

Adjusting Multiple Keyframes

Select more than one keyframe to adjust their levels together.

If you adjust a channel's dimmer:

- All other selected channels' faders will move relative to it. This may create or adjust keyframes on those channels.

- If you hold **SHIFT**, all of the selected channels' faders will be set to the same level.

- If you hold **OPTION**, only the channel you are touching will adjust.

If you adjust a keyframe level by clicking and dragging on its bottom half:

- All other selected keyframe values will move relative to it.

- If you hold **SHIFT**, all of the selected keyframes will be set to the same level.

- If you hold **OPTION**, only the keyframes you are touching will adjust.

See also:
"Visualizing Your Lights in the Lighting Workspace" on page 203.
"Selecting Keyframes" on page 199.

Moving Around the Lighting Program

Use the **STEP** keys to move through your lighting program:

- Step left or right to move the playhead forward or back one frame.

- Press **1** or **2** to move the playhead forward or back one frame.

- Press **CTRL** and step to move to the next keyframe or the previous keyframe.

- Press **HOME** to move to the beginning of a program.

- Press **END** to move to the beginning of a program.

Selecting Keyframes

- Click to select a keyframe.

- **COMMAND**-click to toggle selection of keyframes.

- **SHIFT**-click to select a group of keyframes.

- Click and drag the mouse to select a large group of keyframes.

Cutting, Copying, Pasting, and Deleting Keyframes

You can cut or copy keyframes and paste them to other channels. You can also delete them.

To cut, copy, and paste keyframes:

1. Select the keyframes you want to cut or copy.

2. Press **COMMAND X** or **COMMAND C**.

3. Select the channels where you want to paste the keyframes.

4. Press **COMMAND V**. Dragonframe pastes the keyframes into the selected channels.

To delete keyframes:

1. Select keyframes.

2. Click **DELETE** to delete them.

See also:
"Selecting Keyframes" on page 199.

Clearing a Channel

To remove all of the keyframes from a channel, select the channel, **COM-MAND**-click it, then select **CLEAR CHANNEL**.

Dragonframe clears all the keyframes from the channel.

Saving and Loading a Channel

Save a channel's keyframes and levels to load into a lighting program later.

1. Select the channel you want to save.

2. **COMMAND**-click the channel and click **SAVE CHANNEL**. The Save Channel dialog appears.

3. Enter a file name and choose where you want to save the file, then click **OK**.

4. When you're ready to load a channel, select the channel you want to overwrite.

5. **COMMAND**-click the channel and click **LOAD CHANNEL**. The Load Channel dialog appears.

6. Find the channel file you'll use to overwrite the channel, and click **OK**. Dragonframe overwrites the channel with the saved channel's keyframes and levels.

Grouping Channels

Create a group from a set of channels so you can edit keyframes for all channels in the group at the same time. This way you can quickly switch

between sets of channels. A lighting program with two groups might look like this:
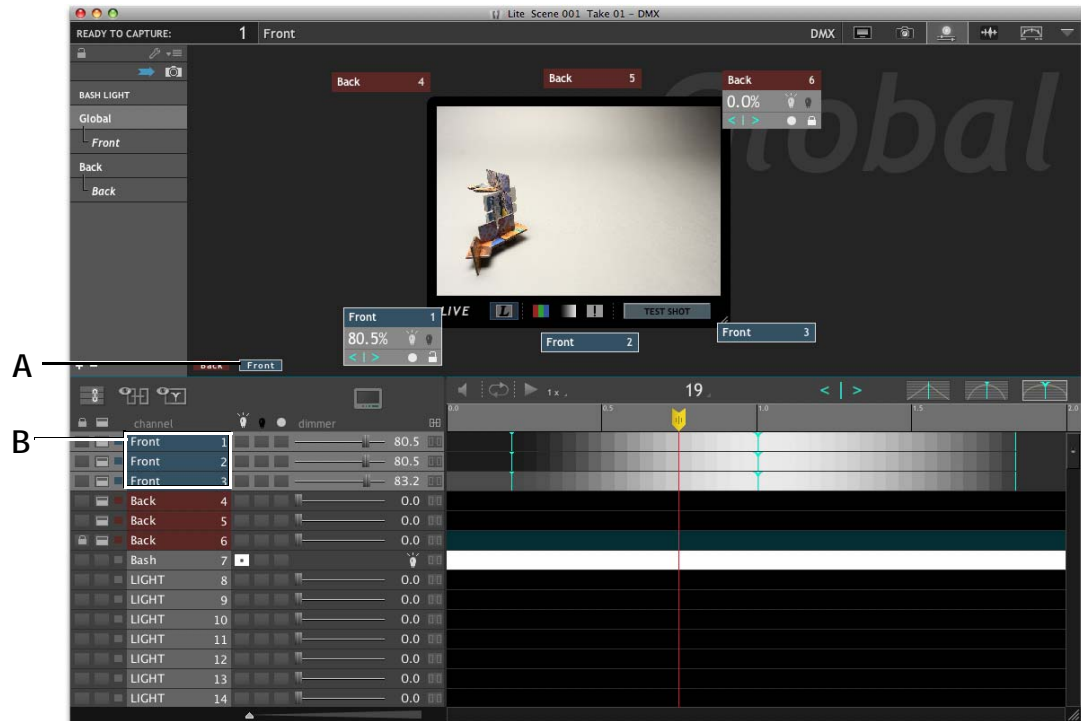
A. Group **FRONT**: *The group name is highlighted because the group is selected.* *B.* **FRONT**'s *channels.*

To group channels:

1. Select one or more channels, then

   • Click ▤, or
   • **COMMAND**-click and select **GROUP CHANNELS**.

The Group dialog appears:

2. Enter a group name, pick a color for the group, and click **OK**.

Dragonframe applies the colors you chose to the grouped channels, and places the group's name in the corner of the lighting workspace. (A.)

Clicking the group name selects all the channels in the group.

Once you've created a group:

- Clicking on one of the channels in a group selects the entire group.

- Adding or editing a keyframe in one of the channels adds/edits it for all other channels in the group.

NOTE: To modify only one channel in a group, hold **OPTION** while dragging the level slider.

See also:
"Selecting Keyframes" on page 199.

Deleting or Editing a Group

- To remove the grouping from a set of channels, **CTRL**-click the group name and choose **DELETE GROUP.**

- To change the name or color of a group, double-click the group name and choose **GROUP SETTINGS**. The Group dialog appears. Modify the settings, then click **OK.**

Previewing Your Lighting Program

Use the playback controls at the top of the timeline to preview your lighting program.
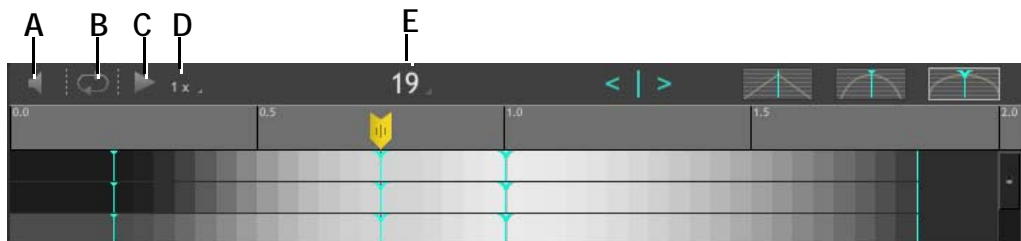
A. Volume. B. Loop. C. Play. D. Playback Speed drop down list. E. Frame number. Click to change the display style.

Soloing a Channel

You can select one or more channels to "solo". Dragonframe will play back only those programs, while leaving all other channels static.

To solo a channel:

1. Select the solo box for the channels you want to solo:

Channel with the solo box enabled.

2. **PLAY** the program.

Preparing Dragonframe for Shooting from the DMX Workspace

Once you have set up your lighting program, you must place Dragonframe into the ready-to-capture mode. This moves all external hardware to the starting position, including your lights and motion control rig.

To prepare Dragonframe for shooting, press . Dragonframe moves all external hardware to the ready-to-capture position. While in ready-to-capture mode, you cannot edit lighting programs or motion control moves.

NOTE: You can press from the Arc Motion Control workspace. Dragonframe moves into ready-to-capture mode in either workspace.

See also:
"Preparing Dragonframe for Shooting from the Arc Workspace" on page 240.
"Stepping Through a Move" on page 237.

Visualizing Your Lights in the Lighting Workspace

Dragonframe's DMX workspace includes a workspace for laying out your lights on screen. This could help you remember which lights you plugged into which channels in the DMX box. That way, when you start setting up keyframes, you'll have a visual reminder which channels control which lights.
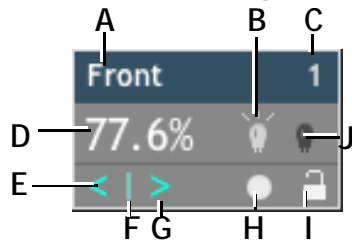
NOTE: Arranging channels in the lighting workspace is optional; it just provides a visual way of working with the channels.

To lay out a channel in the workspace, click the badge icon next to the channel you want to lay out.

A badge appears in the workspace.

Click and drag the badge to move it. Double-click it to open it.

A. *Channel Name.*

B. *Light On: Turn the channel light on for the scene.*

C. *Channel Number.*

D. *Percentage Value: Adjust the dimmer. If the playhead is over a keyframe, you'll adjust the keyframe value. If the playhead is not over a keyframe, you'll add a keyframe.*

E. *Previous keyframe.*

F. *Keyframe button.*

G. *Next keyframe.*

H. *Solo. Solo the channel for playback.*

I. *Lock. Lock the channel for editing.*

J. *Light Off: Turn the channel's light off for the scene.*

Automating a Bash Light

Use DMX to automate a work light. The light will be on when you're not shooting, then turn off after your camera captures the video assist frame.

NOTE: You can automate a work light without a DMX dimmer pack. See "Using an External Relay Switch or a Logic Output to Automate a Bash Light" on page 220.

To automate a bash light:

1. Connect the DDMX-S2 and the dimmer pack to your computer as described in "Connecting DMX to Dragonframe" on page 193.

2. Note which channels your work lights are plugged into.

3. Select **WINDOW|DMX**. The DMX workspace opens with the Global lighting program showing.

4. Click bash light to view and edit the program for the work light:
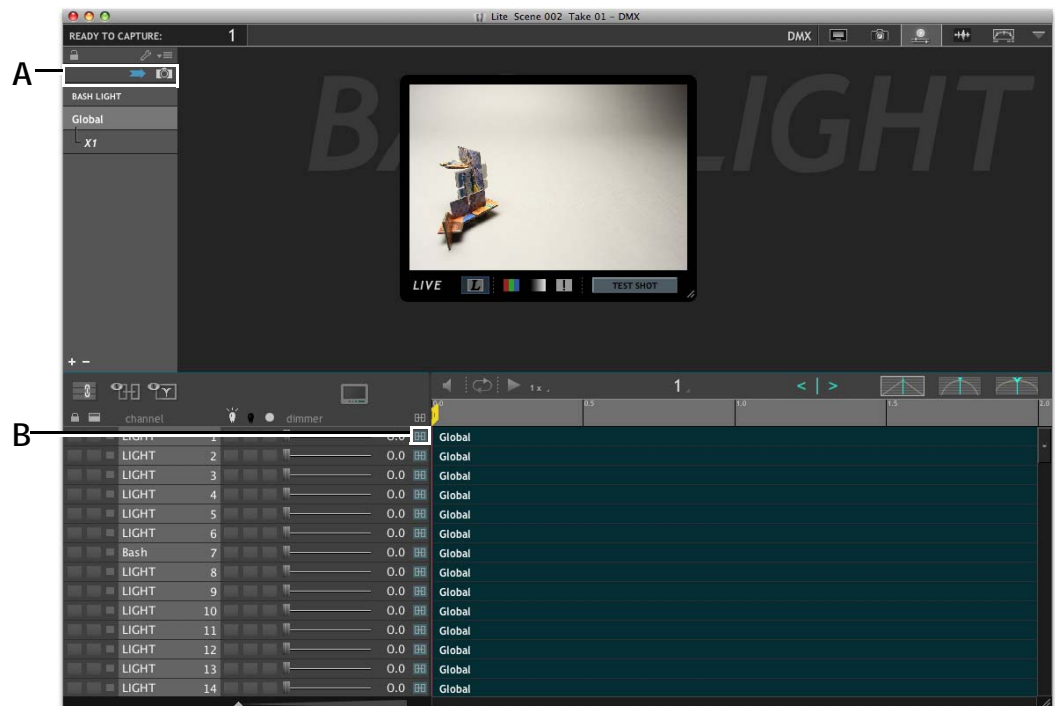
A. *DMX* **BASH LIGHT** *program.* **B.** *Link Icon.*

All of the channels and settings are blued out (not editable) because they are set to be the same as the **GLOBAL** program (the parent program).

3. Click ⊞ (B.) next to the channel(s) you noted in step (2.). This detaches that channel from the global program.

Dragonframe makes the channel(s) editable. However, the timeline is blacked out, because a work light will not use keyframes.

4. Change the settings for the channel as needed.
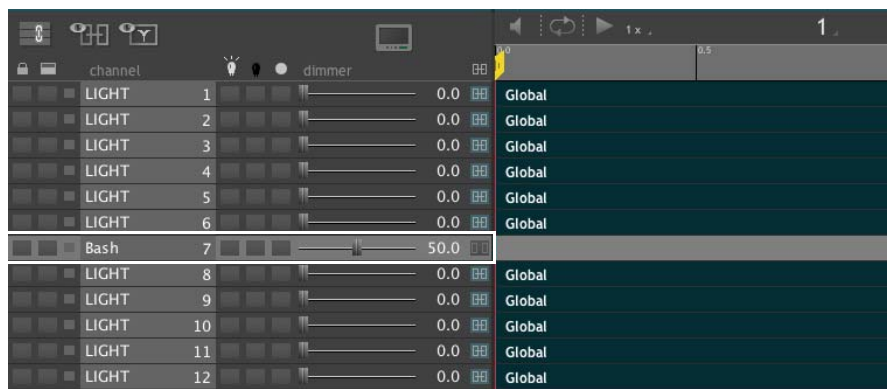
Bash light set up at 50%.

See also:
"Creating Custom Lighting Programs per Exposure", below.
"Using an External Relay Switch or a Logic Output to Automate a Bash Light" on page 220.
"Creating a Lighting Program" on page 195.
"Adding a Capture Delay" on page 84.

Creating Custom Lighting Programs per Exposure

If your project has multiple exposures (a front light/backlight, for example), you can set up separate lighting programs for each exposure. You can set up each lighting program to be completely different, or quickly change one or two channels for each exposure. Dragonframe manages the programs for you, and automates the lighting for each exposure seamlessly.

When you work in the DMX workspace, you'll see your default programs on the left side of the workspace.
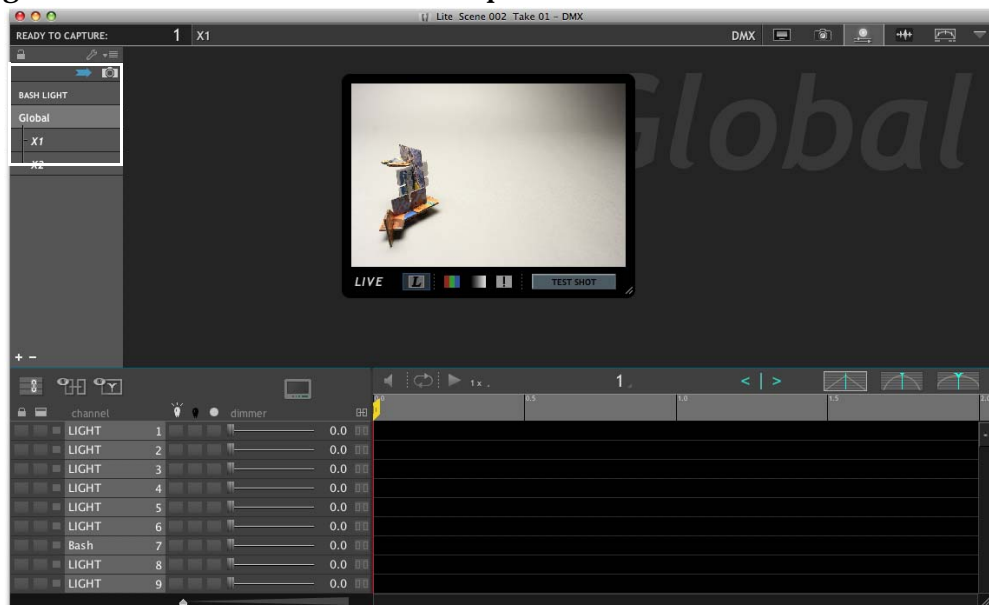
DMX window with the default **BASH LIGHT** *program, the default parent program named* **GLOBAL**, *and two child programs,* **X1** *and* **X2**, *created by default when you set up two exposures named* **X1** *and* **X2** *in the Cinematography window.*

You will always have the following programs:

- **GLOBAL:** This is the default program. If you don't need any lighting variations (for exposures or bash lighting), you will only work with the **GLOBAL** program.

- **BASH LIGHT:** If you want to configure certain lights as bash/work lights, you customize those lights' channels in the **BASH LIGHT** program.

- One child program for each exposure you've created (**x1**, **x2**, etc). By default, the exposure programs inherit all of their settings from their parent program, **GLOBAL**. But you can choose to customize individual channels in any of the exposure programs. You can also detach it from the parent if you want to start from scratch.

Whenever you set up lighting program, you can choose to create a parent program, or a child program.

- A parent program is an independent program. You set up all of its attributes from scratch.

- A child program inherits all of its attributes from its parent. You can customize a few attributes without having to set up everything from scratch.

The previous sections all explained how to modify the **GLOBAL** lighting program. The ones that follow will show how to set up work lights, and add or modify lighting programs.

See also:
"Passes, Takes and Exposures Explained" on page 10.
"Automating a Bash Light" on page 204.

Modifying the Default Exposure Lighting Programs

The simplest way to customize lighting per exposure is to change one or two channels on the default exposure programs (**x1**, **x2**, etc). All of the rest of the settings for the exposures will remain the same as the parent program, **GLOBAL**.

To customize a few attributes of an exposure:

1.   Select the program in the program list. Below, **x2** is selected:
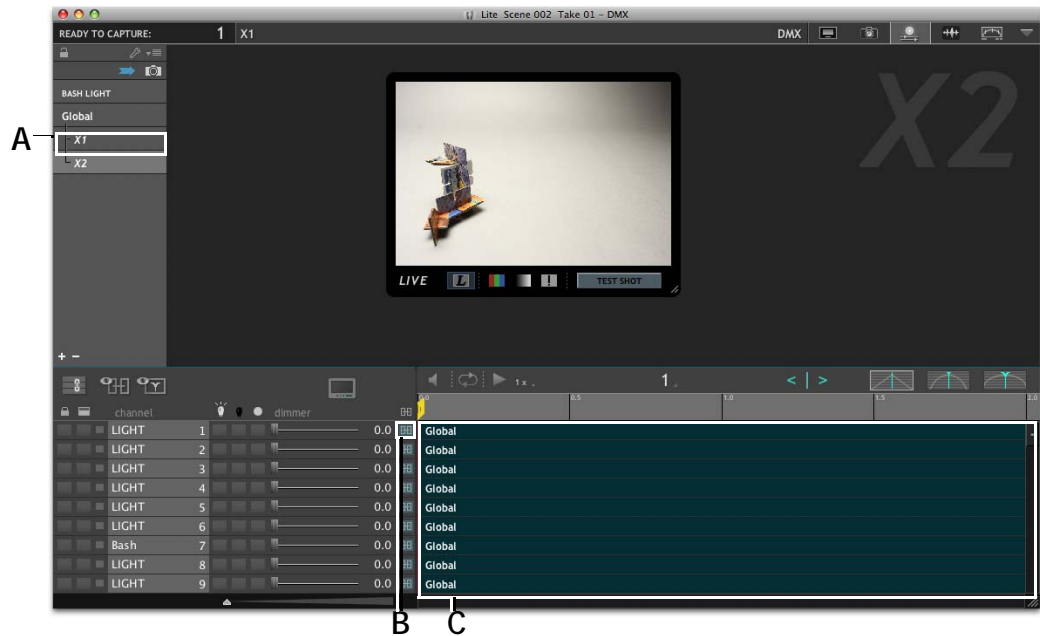
A. **x2** *(child) program selected.* *B.* *Link icon.* *C.* *Keyframe timeline is blued out (not editable), and labeled* GLOBAL, *because currently all of its settings come from the* GLOBAL *program.*

2. Click the link icon (B.) next to the channels you want to customize.

3. Edit the channels as needed.

See also:
"Creating a Lighting Program" on page 195.
"Passes, Takes and Exposures Explained" on page 10.

Setting Up an Exposure from Scratch

If you want the lighting for an exposure to be completely different from the lighting for the global program, detach it completely. That way, you'll create its lighting from scratch.

To detach an exposure from its parent:

1.   Create any exposures you need in the Cinematography window.

2.   Open the DMX workspace. Any exposures you created appear in the program list.

3.   In the lighting program list, click and drag the exposure you're going to edit until it detatches from its parent.

All of the settings inherited from the parent disappear. Now you can create the lighting program from scratch.
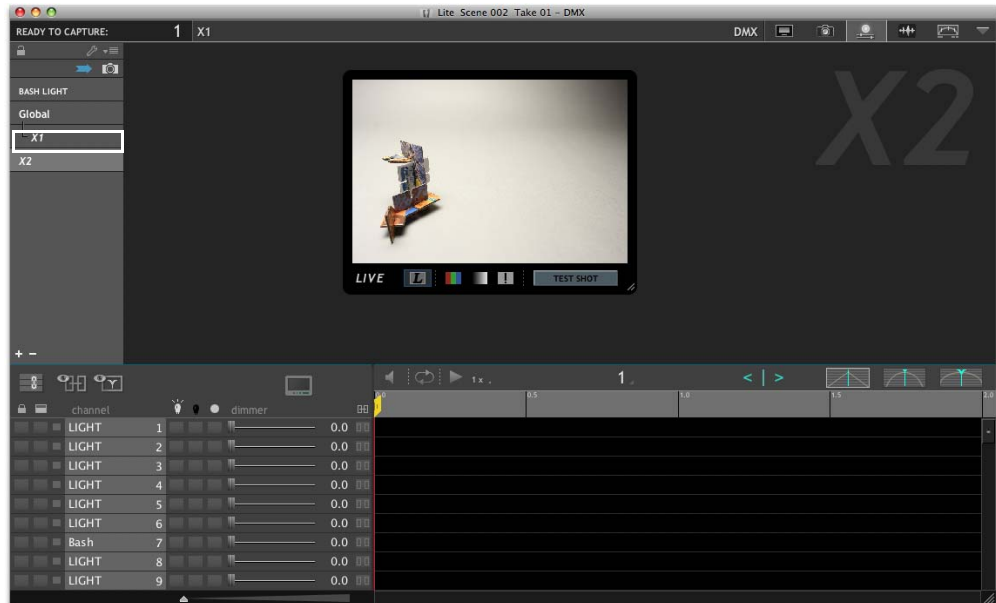
X2 *is now detatched from the* **GLOBAL** *parent program, and is now a parent program itself.*

4. Set up the new lighting program for the exposure.

NOTE: A parent program must have an exposures associated with it to run when you're shooting. For example, if you create a new program called **BACKLIGHT**, but don't link any exposures to it as children, the program will not run. Or, if you set up the **GLOBAL** program, but detach all default exposures from it, the **GLOBAL** program will not run.

NOTE: You can change your mind and reattach an exposure to its original parent, **GLOBAL,** without completely losing customizations. When an exposure is reattached, any custom settings will seem to disappear, since all the channels will be inherited from **GLOBAL**. However, if you click the link icon for a channel that you had previously edited, Dragonframe will restore the customized settings.

See also:
"Passes, Takes and Exposures Explained" on page 10.
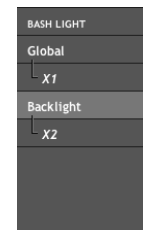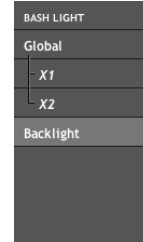
"Multiple Passes and Exposures" on page 78.

"Creating a Lighting Program" on page 195.

Creating a New Parent Program for Exposures

If you want more than one exposure to share the same attributes, you can create a new parent program, then attach each of the exposures to it.

To create a parent program and attach exposures to it:

1. Create any of the exposures you need in the Cinematography work-space.

2. Click + in the bottom of the program list. A new program appears in the program list.

3. Name the program. Here, we'll call it **BACK-LIGHT**:

4. Set up the lighting program as needed.

5. Drag and drop the exposures you're linking onto the program name. Dragonframe links them to the parent program, and shows them in the hierarchy:

Now any settings you created in the parent program, **BACKLIGHT**, will apply to the exposures you linked to it.

See also:
"Passes, Takes and Exposures Explained" on page 10.
"Multiple Passes and Exposures" on page 78.
"Creating a Lighting Program" on page 195.

Deleting a Lighting Program

You can delete any lighting program that you've created. In other words, you *cannot* delete default programs like **GLOBAL**, **BASH LIGHT** or the default exposure programs.

To delete a lighting program:

1. Select the program in the program list.

2. Click - (minus) at the bottom of the program list. Dragonframe deletes the lighting program. Any of its children will appear as parents in the program list.

See also:
"Deleting Multiple Exposures" on page 83.

Saving, then Loading a Lighting Program

You can upload a lighting program and apply it to another scene. When you load a program, you can overwrite a current program's settings, or add the saved program as a new program.

To save a program:

1. In the program list, **COMMAND**-click and select **SAVE PROGRAM**. The save program dialog appears.

2. Choose where to save the program and click **OK**.

To load a program:

1. Select **FILE|OPEN SCENE…**, then select the scene you want to use the saved program in. Click **OK**.

2. Open the DMX workspace.

3. Load the saved program:

   • To overwrite the settings of another program:
   Select the program you want to overwrite.
   COMMAND-click, and select **LOAD PROGRAM…**
   Navigate to the saved program, and press **ENTER**. Dragonframe overwrites the old program with the saved one.

   • To add the saved program:
   COMMAND-click in the open area below all of the program names, and select **LOAD PROGRAM…**
   Navigate to the saved program, and press **ENTER**. Dragonframe adds the saved program to the list.

Special Keys and Contextual Menus for the DMX Workspace

Use the keypresses and menus in this section to access all of the workspace's tools.

DMX Keypresses

Press:	To	See this section for more information:
SPACE or **0**	Play the DMX Program.	"Previewing Your Lighting Program" on page 202.
LEFT or **1**	Step back one frame.	"Moving Around the Lighting Program" on page 199.
RIGHT or **2**	Step forward one frame.	"Moving Around the Lighting Program" on page 199.
DELETE or **BACK-SPACE** or *****	Delete selected keyframes.	"Cutting, Copying, Pasting, and Deleting Keyframes" on page 199.
CTRL LEFT	Move to previous keyframe.	"Moving Around the Lighting Program" on page 199.
CTRL RIGHT	Move to next keyframe.	"Moving Around the Lighting Program" on page 199.
HOME	Move to the start of the DMX timeline.	"Moving Around the Lighting Program" on page 199.
END	Move to the end of the DMX timeline.	"Moving Around the Lighting Program" on page 199.

DMX Contextual Menus: Programs

And select:	To:	See this section for more information:
ADD PROGRAM	Add a new lighting program.	"Creating Custom Lighting Programs per Exposure" on page 206.
RENAME PROGRAM	Rename an existing program.	"Creating Custom Lighting Programs per Exposure" on page 206.
DUPLICATE PROGRAM	Copy an existing program.	"Creating Custom Lighting Programs per Exposure" on page 206.
SAVE PROGRAM	Save the current lighting program.	"Saving, then Loading a Lighting Program" on page 211.
LOAD PROGRAM	Load a saved program.	"Saving, then Loading a Lighting Program" on page 211.

DMX Contextual Menus: Lighting Workspace

EXPAND BADGES	Expand all minimized light badges.	"Visualizing Your Lights in the Lighting Workspace" on page 203.
COLLAPSE BADGES	Minimize all badges.	"Visualizing Your Lights in the Lighting Workspace" on page 203.
CLEAN UP BADGES	Snap badges into rows.	"Visualizing Your Lights in the Lighting Workspace" on page 203.
GATHER BADGES	Move badges that are off screen back into the lighting workspace.	"Visualizing Your Lights in the Lighting Workspace" on page 203.
HIDE BADGES	Remove the badges from the lighting workspace.	"Visualizing Your Lights in the Lighting Workspace" on page 203.

DMX Contextual Menus: Channels

NEW GROUP	Create a new group of channels.	"Grouping Channels" on page 200.
REMOVE FROM GROUP	Remove the selected channel from the group.	"Grouping Channels" on page 200.
CLEAR CHANNEL	Clear all the keyframes from the channel.	"Clearing a Channel" on page 200.
SAVE CHANNEL	Save the channel for use in another lighting program.	"Saving and Loading a Channel" on page 200.
LOAD CHANNEL	Load a saved channel.	"Saving and Loading a Channel" on page 200.

Chapter 13: Adding Input and Output Triggers

You can use Dragonframe to trigger external devices, or use external devices to tell Dragonframe to shoot. To do so, you must first connect Dragonframe to the DDMX-S2, or to the IOTA Controller.

This chapter contains the following sections:

See also:
Dragonframe tutorials:

http://www.dragonframe.com/tutorials.php

Adding an Input Trigger

Use the DMX Logic Input to have an external device (such as a push button or a moco system) trigger an event in Dragonframe. For example, you might connect a push button to Dragonframe with the DDMX-S2, and set a trigger for **SHOOT**. When you press the push button, Dragonframe will shoot a frame.

To trigger a Dragonframe event with an external device:

1. Connect the DDMX-S2 to your computer as described in "Connecting DMX to Dragonframe" on page 193.

2. Connect the external device you're using to the input terminal and ground (labeled **IN** and **GND**) on the DDMX-S2. For information about the DDMX-S2's terminals, see the DDMX-S2 Brochure and Technical Specifications at
http://www.dragonframe.com/dmx.php

3. Select **SCENE|TRIGGERS**. The triggers setup dialog appears:
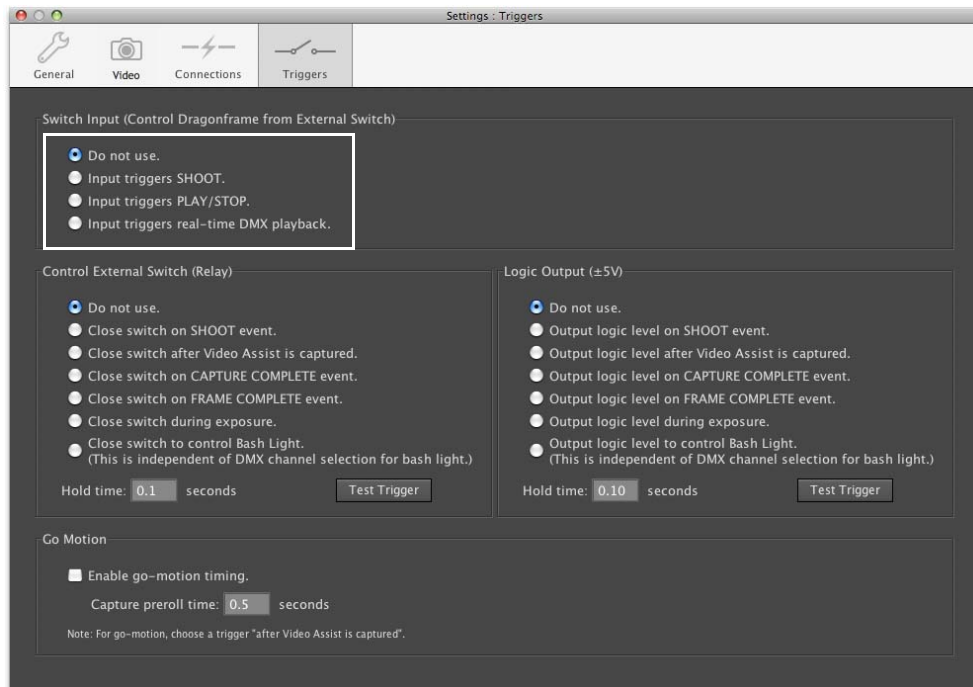
Triggers dialog with Switch Input settings

4. Select which event you want your external device to trigger in Drag-onframe:

- **SHOOT**: Dragonframe will shoot a frame,

- **PLAY/STOP**: Dragonframe will begin or stop playback of your frames, or

- **REAL-TIME DMX PLAYBACK**: Dragonframe will play your DMX lighting program.

See also:
DDMX-S2 Brochure and Technical Specifications at
http://www.dragonframe.com/dmx.php

Adding a Switch/Relay Output Trigger

You can use Dragonframe to trigger external devices with a switch. For example, you might connect an unsupported camera to Dragonframe via an external switch. When you press **SHOOT** in Dragonframe, Drag-onframe would close the switch, and your camera would capture a frame.

To trigger an external device with Dragonframe using a switch/relay:

1. Connect the DDMX-S2 to your computer as described in "Connecting DMX to Dragonframe" on page 193.

2. Connect the external device you're using to the switch/relay output terminal (labeled **RELAY**) on the DDMX-S2. For information about the DDMX-S2's terminals, see the DDMX-S2 Brochure and Technical Specifications at
http://www.dragonframe.com/dmx.php

3. Select **SCENE|TRIGGERS**. The triggers setup dialog appears:
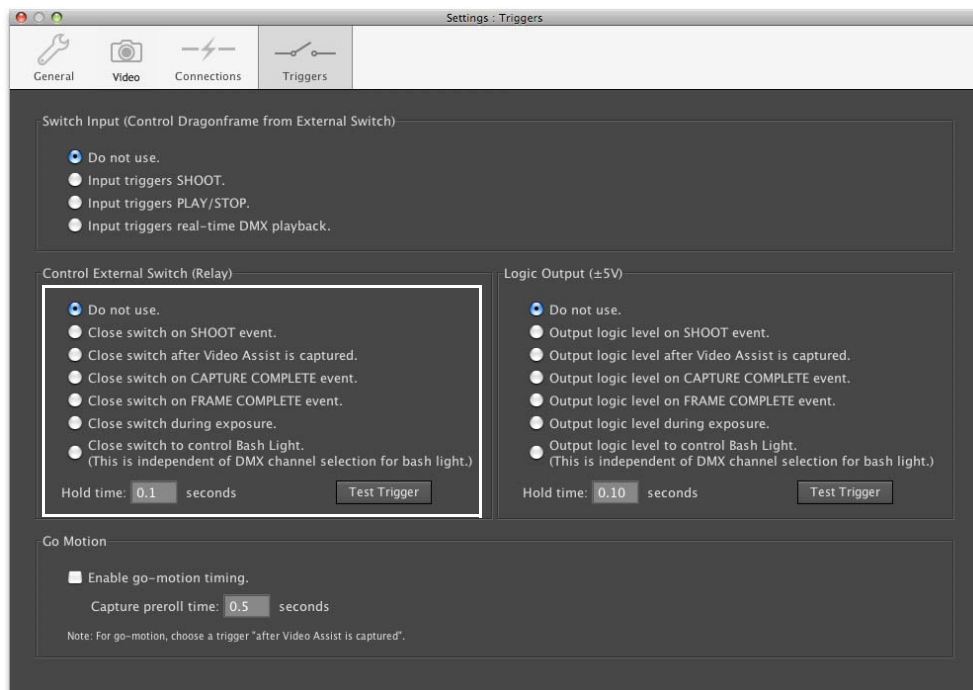
Triggers dialog with External Switch (Relay) settings.

4. Select which Dragonframe event will trigger (close) the external switch:

- When you press **SHOOT** in Dragonframe,

- When Dragonframe is finished capturing a video assist,

- When Dragonframe has completed capturing the high-res frame,

- When Dragonframe has completed capturing all exposures for a frame,

- When Dragonframe is capturing a frame,

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- • When a work light should be on. The switch will be closed during video assist, and open for the high-res capture.

5. (Optional) Adjust the hold time for the trigger. This is the amount of time Dragonframe will hold the switch closed.

See also:
"Using an External Relay Switch or a Logic Output to Automate a Bash Light" on page 220.

"Adding a Logic Output Trigger" on page 218.

DDMX-S2 Brochure and Technical Specifications at http://www.dragonframe.com/dmx.php

"Using DDMX-S2 to Trigger Motion Control" on page 256.

"Connecting an Unsupported Camera to Dragonframe" on page 53.
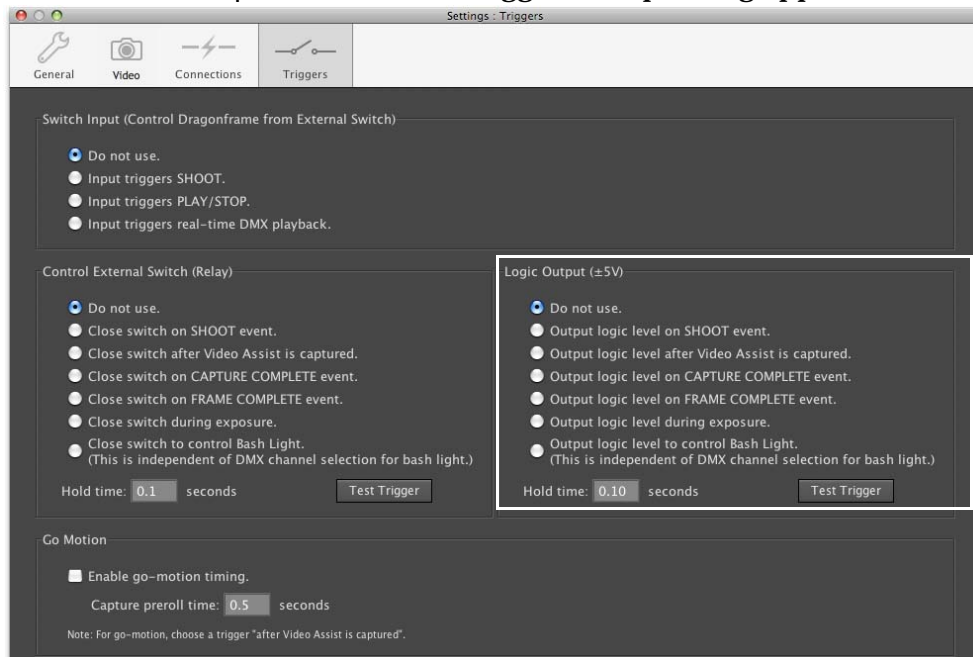
Adding a Logic Output Trigger

You can use Dragonframe to trigger external devices with a logic output trigger of plus or minus five volts.

To trigger an external device with Dragonframe using a logic output:

1. Connect the DDMX-S2 to your computer as described in "Connecting DMX to Dragonframe" on page 193.

2. Connect the external device you're using to the logic output terminal (labelled **LO** or **HI** and **GND**) on the DDMX-S2.
   For information about the DDMX-S2's terminals, see the DDMX-S2 Brochure and Technical Specifications at http://www.dragonframe.com/dmx.php

3. Select **SCENE|TRIGGERS**. The triggers setup dialog appears:

Trigger dialog with Logic Output settings.

4. Select which Dragonframe event will trigger a logic level (HI or LO):

    - When you press **SHOOT** in Dragonframe,

    - When Dragonframe is finished capturing a video assist,

    - When Dragonframe has completed capturing the high-res frame,

    - When Dragonframe has completed capturing all exposures for a frame,

    - While Dragonframe is capturing a frame,

    - When a work light should be on. The level will be active during video assist, and inactive (grounded) for the high-res capture.

5. (Optional) Adjust the hold time for the trigger. This is the amount of time Dragonframe will hold the switch closed.

See also:
"Using an External Relay Switch or a Logic Output to Automate a Bash Light" on page 220.

DDMX-S2 Brochure and Technical Specifications at http://www.dragonframe.com/dmx.php

"Using DDMX-S2 to Trigger Motion Control" on page 256.

Using an External Relay Switch or a Logic Output to Automate a Bash Light

If you want to automate a bash light without having to purchase a DMX dimmer pack, you can connect a bash light to an external switch, then to the Output or Logic terminals on the DDMX-S2. Dragonframe will close the switch (or set your logic level HI/LO) when the bash light should be on, and open the switch (or set your logic level to ground) when the bash light should be off. To set up a work light with the DDMX-S2:

1. Connect the DDMX-S2 to your computer as described in "Connecting DMX to Dragonframe" on page 193.

2. Connect the external device you're using to:

   - The switch/relay output terminal (labeled **RELAY**) on the DDMX-S2, or

   - The logic output lo or hi terminal (labelled **LO** or **HI** and **GND**) on the DDMX-S2.
     For information about the DDMX-S2's terminals, see the DDMX-S2 Brochure and Technical Specifications at http://www.dragonframe.com/dmx.php

3. Select **SCENE|TRIGGERS**. The triggers setup dialog appears.

4. Set up the work light:

   - If you connected to the switch/relay output terminal, select **CLOSE SWITCH TO CONTROL BASH LIGHT** in the **CONTROL EXTERNAL SWITCH (RELAY)** section of the dialog.

   - If you connected to the logic output lo or hi terminal, **SELECT OUTPUT LOGIC LEVEL TO CONTROL BASH LIGHT** in the **LOGIC OUTPUT SECTION** of the dialog.

5. (Optional) Adjust the hold time for the trigger. This is the amount of time Dragonframe will hold the switch closed.

Using Go-Motion with an External Motion Control System

If you are shooting go-motion with an external system such as Kuper or Flair, set up your system according the information in this section.

To enable go-motion timing:

1. Connect the DDMX-S2 to your computer as described in "Connecting DMX to Dragonframe" on page 193.

2. Connect the external device you're using to:

    •   The switch/relay output terminal (labeled **RELAY**) on the DDMX-S2, or

    •   The logic output lo or hi terminal (labelled **LO** or **HI** and **GND**) on the DDMX-S2.
        For information about the DDMX-S2's terminals, see the DDMX-S2 Brochure and Technical Specifications at http://www.dragonframe.com/dmx.php

3. Select **SCENE|TRIGGERS**. The triggers setup dialog appears:
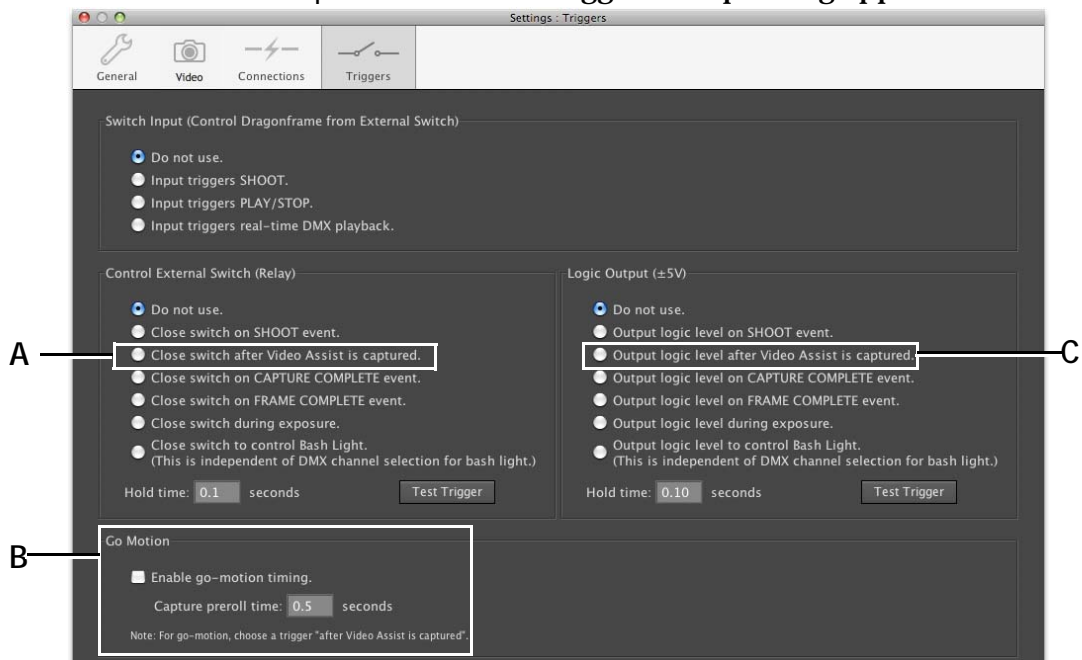
A. *Click this option if you connected to the switch/relay output terminal.* *B.* *Trigger dialog with go-motion settings.* *C.* *Click this option if you connected to the logic output lo or hi terminal.*

4. Choose a trigger depending on what you connected to in step 2.

    •   If you connected to the switch/relay output terminal, click **CLOSE SWITCH AFTER VIDEO ASSIST IS CAPTURED**.

    •   If you connected to the logic output lo or hi terminal, click **OUTPUT LOGIC LEVEL AFTER VIDEO ASSIST IS CAPTURED.**

5. Check **ENABLE GO-MOTION TIMING**.

6. (Optional) Adjust the **PREROLL TIME**. Dragonframe enables go-motion timing.

With go-motion enabled, every time you capture a frame, Dragonframe will:

1.   Capture the video assist frame.

2.   Get the camera ready to shoot high-res.

3.   Fire the **AFTER VIDEO ASSIST**.

4.   Wait for the **PRE-ROLL** time.

5.   Capture the high-res frame.

See also:
"[Real-time Motion Control with the DMC-16](#)" on page 250.

Calculating the Go-Motion Pre-Roll Time

In our testing with a Kuper motion control system, we achieved repeatable blur at different shutter speeds by using the following formula:

Pre-Roll = (Exposure Time / 2) + 0.15 seconds

Set the exposure time in Kuper to twice the exposure time of the camera set in Dragonframe. This is because Kuper was originally designed for film cameras, where the film is exposed for half of the exposure time.

Here are some examples:

Shutter Speed	Kuper Exposure Time	Pre-Roll Time
0.5	1.0	0.40
1.0	2.0	0.65
2.0	4.0	1.15
4.0	8.0	2.15

Chapter 14: Motion Control

This chapter covers integrating Dragonframe with motion control systems, including Arc, the moco interface within Dragonframe. You can also create action scripts to automate some of Dragonframe's features, and use Dragonframe to calculate camera moves for a hand-cranked camera rig through Arc.

It includes the following sections:

See also:

Dragonframe tutorials:

http://www.dragonframe.com/tutorials.php

Using the Arc Motion Control Workspace

The Arc motion control workspace provides an interface for programming complex, multi-axis camera moves, directly within Dragonframe.

Dragonframe can interface with:

- Our DMC-16,

- The IOTA Controller, and

- Arduino or compatible boards running our DFMoco sketch. The Arduino can interface with any standard stepper motor drivers, and control up to eight channels at once (8 for the Mega/Mega 2560, 4 for the Uno, Duemilanove).

WARNING: All motion control has inherent risks. Make sure that you are clear of moving rigs at all times. Set your motor speeds low at first to make sure the speed is safe.

The sections that follow describe how to connect hardware to Dragonframe, gives an overview of the entire Arc workspace, and then detail how to set up axes and moves in the workspace.

Understanding Stepper Motors

Stepper motors are very common for motion control, because they can be easily and accurately controlled, and are relatively low-cost. Internally they have four magnets that can be activated in sequence to move the motor by steps.

There are usually three components to a stepper motor system:

- A signal generator. This generates step and direction signals, which are logic-level signals (3.3-5V).

- A stepper motor driver. This turns step and direction signals into high-powered signals that control the stepper motor magnets.

- A stepper motor: This takes the powered signals from the driver and rotates in order to move your axis.

For example, a Kuper card is a step/direction signal generator. Typically this feeds into one or more high-powered driver boxes (such as Gecko Drivers). Each stepper motor on a motion control rig is then plugged into the driver boxes.

Using the IOTA Controller for Motion Control

The IOTA Controller is a signal generator and stepper motor driver, combined. It is a two-channel, 24V, 0.8A, 2 phase micro-stepped motor drive (1600 steps internally / 2000 externally). You can control two standard, four coil stepper motors with one box, as long as the stepper motors do not require more power than the box can provide.

You can directly connect our IOTA 3D Slider and our focus motor to the IOTA Controller.

The IOTA Controller uses a CPC-11 connector (from Amp / TE Connectivity). Here are the pin-outs:

Pin #	Out
pin 1	Case/Shield Gnd
pin 2	n/c
pin 3	Phase A+

Pin #	Out
pin 4	Phase A-
pin 5	n/c
pin 6	Phase B+
pin 7	Phase B-
pin 8	n/c

Connector on box:

- Female Flanged Panel Mount w/ Threads

- Amp P/N 206433-1 Size 11-8 "Reverse Sex" Socket

- 5 each Socket Contacts AMP P/N 665693

Mating connector on motor:

- Male Cable Mount w/ Locking Ring

- Amp P/N 206434-1 Size 11-8 "Reverse Sex" Plug

- 5 each Pin Contacts AMP P/N 665703

- Backshell, Size 11, AMP P/N 206062-1

Using the Arduino for Motion Control

We have written a sketch (program) for the Arduino that turns it into a stepper motor signal generator for 4-8 axes. The sketch is called **DFMOCO** and is installed with Dragonframe at:
 <Dragonframe Installation Folder>**/RESOURCES/ARC MOTION CONTROL/DFMOCO**.

You can load the sketch onto an Arduino Uno, Duemilanove, Mega, or Mega 2560 (others may work, but these are the ones we have tested). The step and direction pins for each axis are described in the introductory comments of the DFMoco sketch.

If you already have stepper motor drivers, you could easily wire up the step and direction signals into a connector for your motor drivers.

Alternatively, you could wire up the step and direction signals to a small stepper motor driver, such as the Big Easy Driver. Find the Big Easy Driver at: https://www.sparkfun.com/products/11699

The Big Easy Driver has power output comparable to the IOTA Controller. This is suitable for smaller motors but not full-scale rigs.

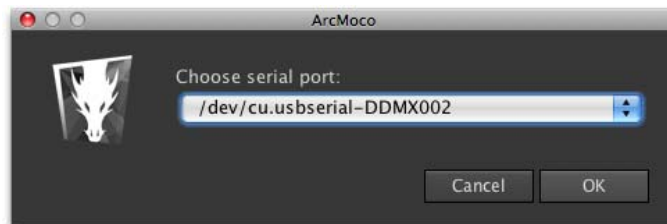## Connecting Dragonframe to Moco Hardware

Once you've connected your hardware, connect Dragonframe to it.

1. In Dragonframe, select **SCENE|CONNECTIONS**. The Settings dialog appears, showing the Connections tab:
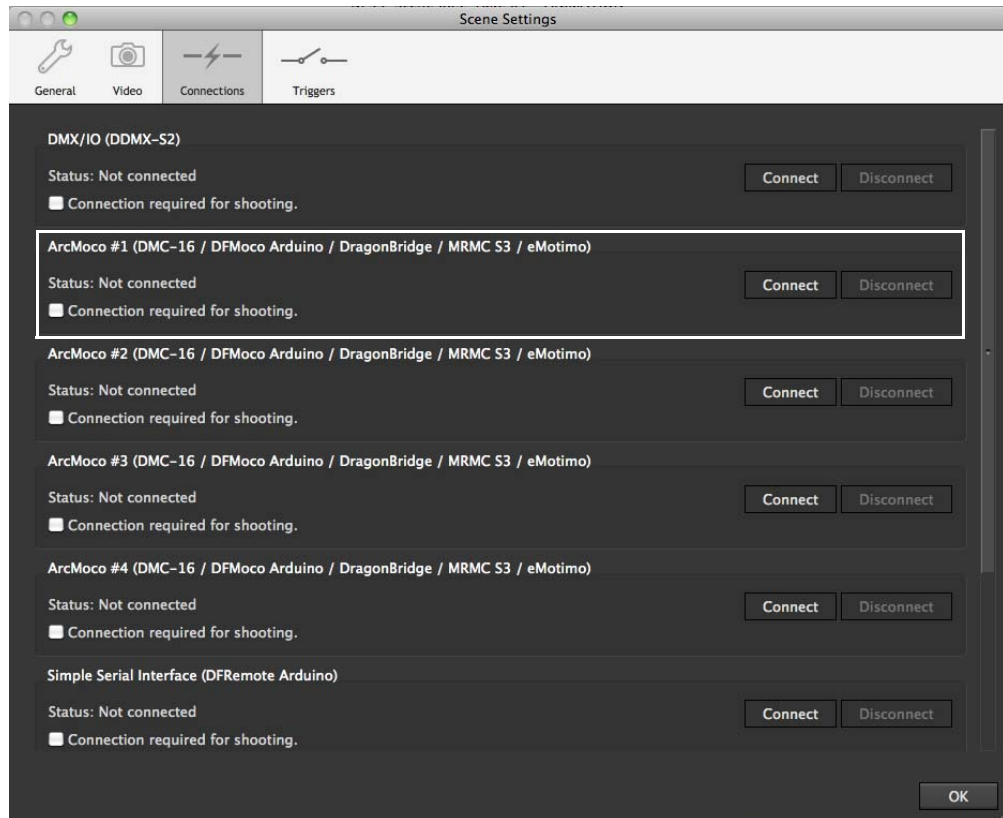
Settings dialog, Connections tab, ArcMoco#1 settings.

2. Under **ARCMOCO 1, 2, 3** or **4**, click **CONNECT**. An ArcMoco dialog appears:

3. Choose the serial port, then click **OK**.

Dragonframe connects the device, then automatically checks the **CON-NECTION REQUIRED FOR SHOOTING** check box. When this box is checked, you will not be able to capture any frames for the scene until Dragonframe is connected to the hardware.

CAUTION: If you uncheck the **CONNECTION REQUIRED FOR SHOOTING** box, you could accidentally shoot all or part of a scene without your motion control setup working.

4. Open the Arc Motion Control workspace. The map that follows gives an overview of the workspace.

Arc Motion Control Workspace Map
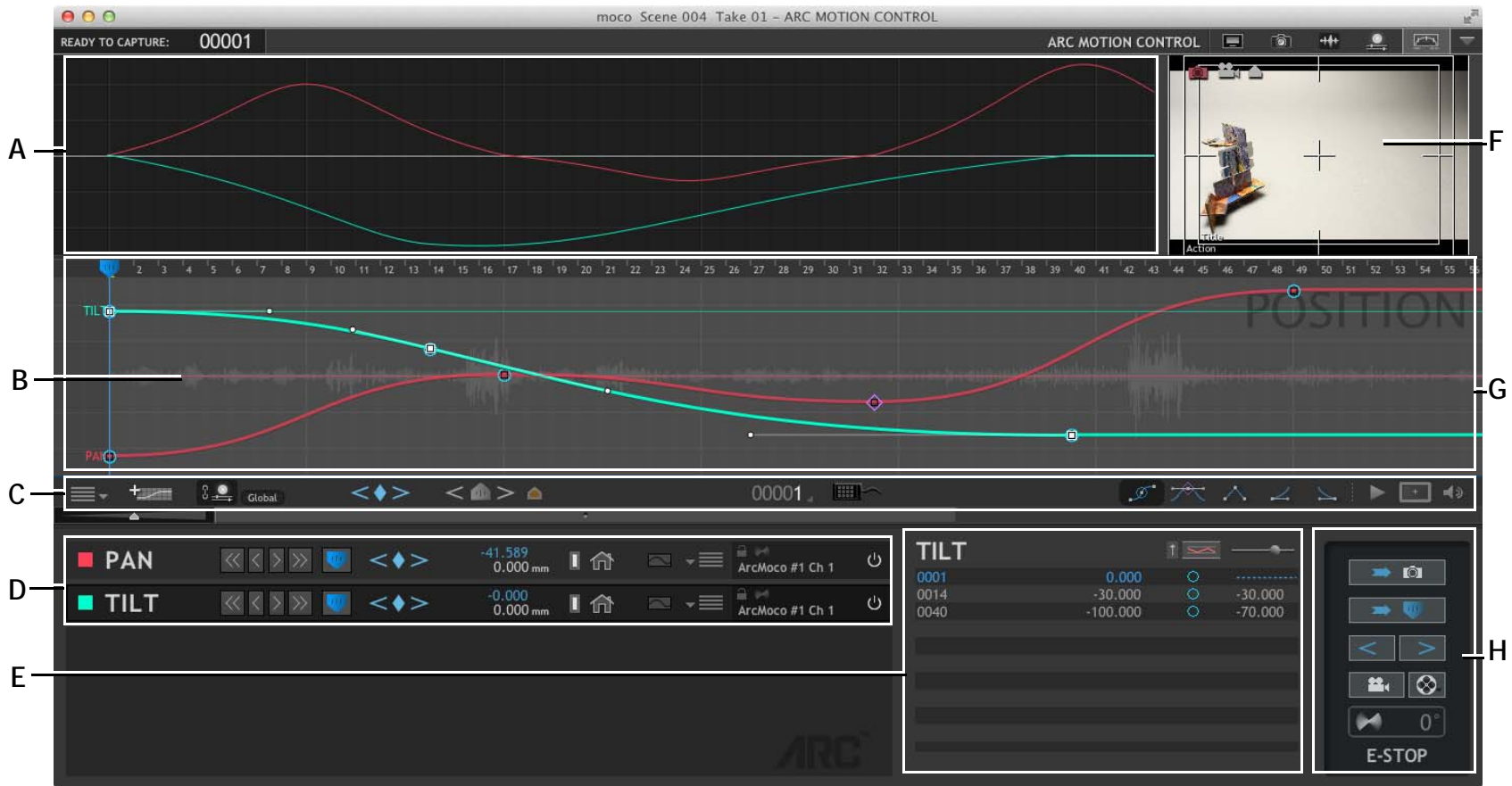
A. *Velocity Graph: See the velocity of each axis over time. This helps you create a smooth move.*

B. *Audio Waveform: Sync up the move with sound events.*

C. *Workspace Tools: Open the main menu for the window, add axes, or link the Arc playhead with the DMX program. Add keyframes, mark up the axis, view the jog box window, adjust the axis style, or open the Live View.*

D. *Axis Controls: Work with a axis: jogging the motor, setting keyframes, and setting limits.*

E. *Keyframe List: See the keyframes for the selected axis in an editable table. You can add, edit and delete keyframes from this list.*

F. *Live View: Preview the move test.*

G. *Position Graph: See each axis and the audio waveform over time. Adjust the move directly in this window by moving keyframe handles.*

H. *Motor Controls: Move all of the motors together, run a move test, or engage the system for shooting.*

See also:

The DMC-16 User Guide, available here:

http://www.dragonframe.com/downloads/DMC16v1.1.pdf

"Adding an Axis", below.

"Stepping Through a Move" on page 237.

"Adding Keyframes" on page 234.

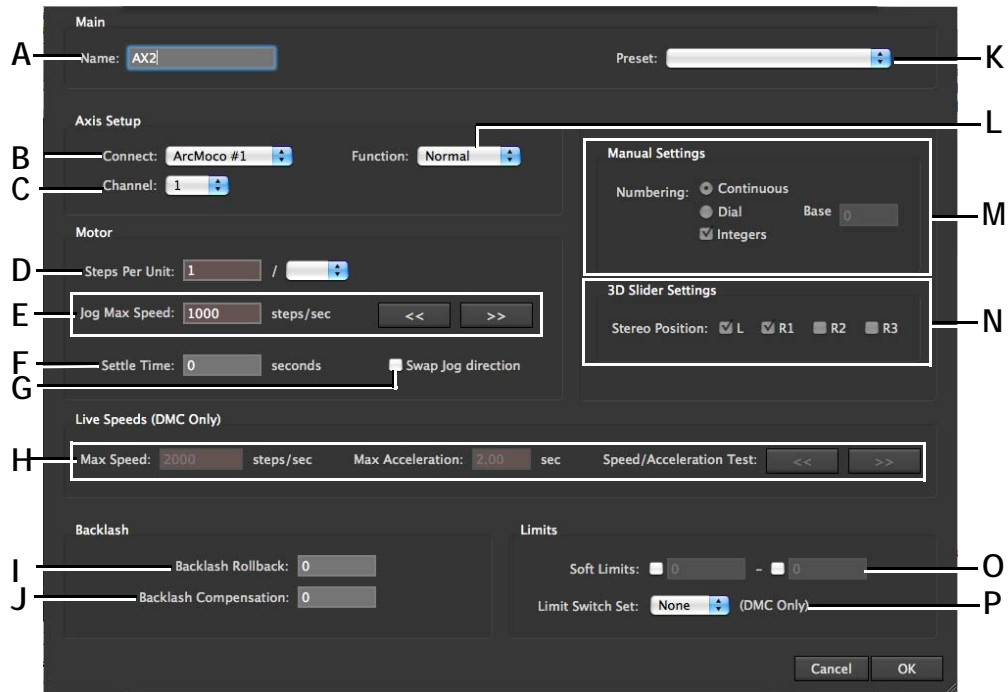"Using Targets to Plot a Path" on page 236.

"Opening the Jogpad Window" on page 245.

"Controlling an Axis" on page 232.

Adding an Axis

1. Open the Arc workspace.

2. Click ▭▭▭ (in the workspace tools). Dragonframe opens the Configure Axis dialog:

A. Name: Name the axis.

B. Connect: The device you're connected to, such as ArcMoco #1-#4, Digital Focus, or Flair.

C. Channel: Only for ArcMoco. Select the channel you're using for the axis. You noted this in "Connecting Dragonframe to Moco Hardware" on page 226.

D. Steps Per Unit: Enter the # of steps per mm/cm/m/ft/in/degrees. The IOTA has 1260 steps/mm.

E. Jog Max Speed: Enter the maximum speed of the device, specific to the motor you're using. Use the Jog Test Buttons to test the speed. **Start the speed slowly at first for safety.**

F. Settle Time: Enter the amount of time to wait after the axis moves before shooting a frame.

G. Swap Jog Direction: Swap directions to have the orientation of the jogging match your frame of reference.

H. Max Speed, Acceleration and Test Buttons: The very fastest you want this axis to go when running moves, and the number of seconds it will take to reach the maximum speed. Use the test buttons to test the speed as you adjust settings. **Set speeds as slowly as possible for safety.**

I. Backlash Rollback: Set your rig to roll back before moving in the direction of your move, so you always enter a position with any slack removed. Make the rollback amount equal to or greater than the backlash in your rig.

J. Backlash Compensation: Enter the compensation amount. Dragonframe will factor it out.

K. Preset: Choose from a provided preset, or adjust settings and click SAVE AS to save your own for later use.

L. Function: Choose whether you're setting up regular moco moves, a 3D slider, a focus move or a manual axis.

M. Manual Settings: Set up numbering for manual rigs.

N. 3D Slider Settings: Set up 3D stereo positions.

O. Soft Limits: Set how far the device moves to each side. Since the limits exist on the hardware, these settings on the software are "soft"--subject to the actual physical limits.

P. Limit Switch Settings: One of eight limit switch sets on the DMC-16. A limit switch set is a set of lower limit and upper limit physical switches.

3. Select the kind of device you're using. (B.)

4. Choose which channel you connected your rig to. (C.)

5. Choose which moco function (L.) to use:

- **NORMAL**: Regular moves, such as pan and tilt.

- **3D**: Configure a 3D stepper such as the IOTA Controller.

- **FOCUS**: Set up an axis to control a focus motor.
  If you configure an axis for focus, you can use the focus controls in the Cinematography window to jog the focus motors.

- **MANUAL**: Set up a hand-cranked rig.

6. (Optional) Fill out the rest of the dialog with the settings that apply to your rig and project.

7. Click **OK**. Dragonframe adds an axis to the position graph, the axis list, and the keyframe list. In the example below, the new axis is named **PAN**, and its assigned color is red.
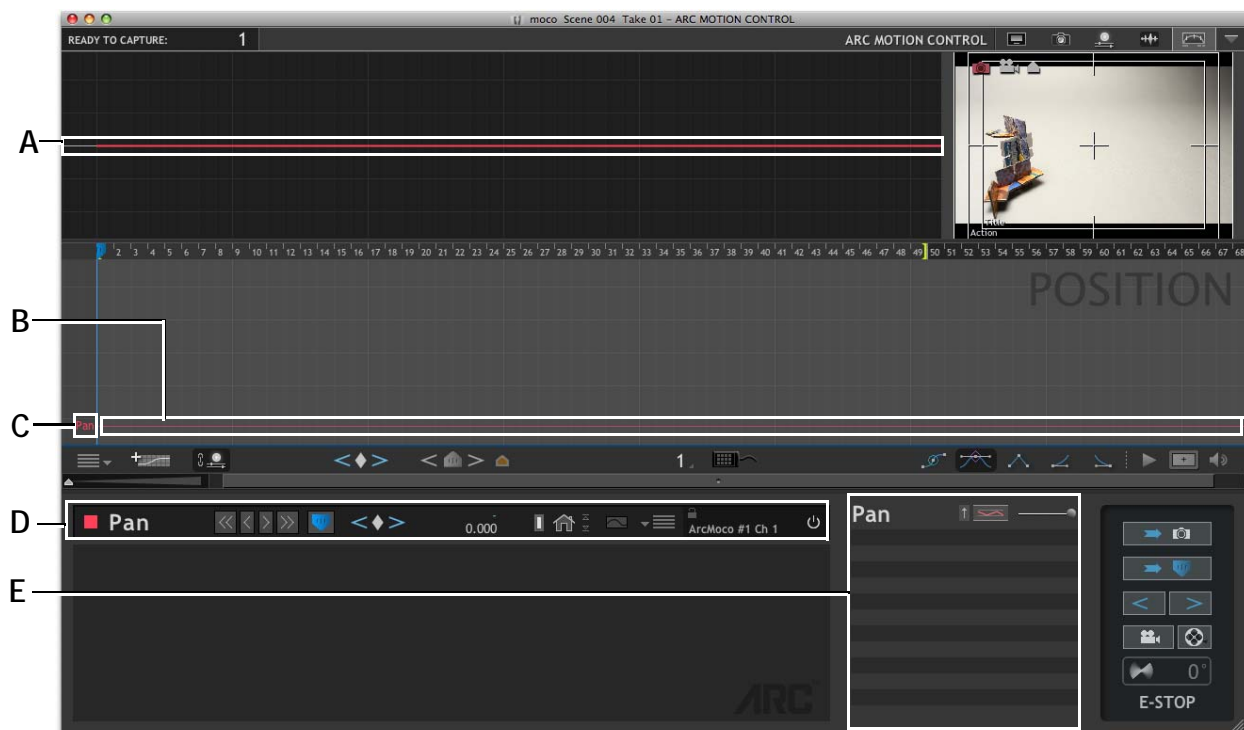
A. *Velocity graph: View the axis' speed over time.*

B. *Motor: View the current position of the motor assigned to* **PAN**.

C. **PAN:** *View* **PAN***'s position graph here once you add keyframes.*

D. *Axis list. Use the axis-specific tools, such as jog and inch.*

E. *Keyframe list. View keyframes in a table format Double-click a row to add or edit them.*

See also:
"Connecting Dragonframe to Moco Hardware" on page 226.

"Focus Magnification During Live View" on page 71.

 "Configuring the Slider" on page 275.

"Adding Hand-Cranked Camera Moves" on page 267.

Digital Focus Control for Some Webcams

Some Logitech webcams allow you program focus pulls in Arc. To control digital focus for a compatible webcam, set it up as an axis in the Add Axis dialog. Choose **DIGITAL FOCUS** from the **CONNECT** drop-down list.

See also:
"Adding an Axis" on page 229.

Controlling an Axis

Once you've added an axis, you can jog the motors on the position graph, set the zero and home points for the axis, and follow your motor's progress along the axis. You can also disable an axis if you're not using it.

Jogging and Inching your Motors

Jog and inch the motors from the Axis list (D.).

- Click < or > to inch the motors.

- Click << or >> to jog them.

- Click and hold the buttons to move more quickly.

NOTE: If you've set up a move to control focus, you can also use the focus check buttons in the Cinematography workspace to jog your focus motor.

See also:
"Focus Magnification During Live View" on page 71.

Setting the Zero Point and Going to the Zero Point

To set a zero point:

1. Jog the motor to the zero position of the axis.

2. Choose **SET ZERO** from the axis menu. Dragonframe sets the zero point at the current position and lights up the zero icon.

To return to the zero point:

Click ▮ . Dragonframe sends the motor to zero.

NOTE: Anytime your motor returns to the zero point, the zero icon will light up.

Setting a Home Point and Going to Home

To set a home point:

1. Jog the motor to the position you want to be home.

2. Choose **SET HOME** from the axis menu. Dragonframe sets the home point at the current position and lights up the home icon.

To return to the home point:

Click ⌂. Dragonframe sends the motor to the home point.

NOTE: Anytime your motor is at the home point, the home icon will light up.

Setting the Limits for the Axis

If you didn't set limits for your device when you configured an axis, you can set them using the jog buttons. To set limits:

1. Jog the motors until you reach the limit for your device.

2. See if the position for the values are positive or negative.

3. Select the menu in the Axis list, then set either a lower limit or upper limit, depending on the motor's position information.

NOTE: When you move away from the limits of the devices, the icons go dark. When you arrive at a limit, Dragonframe lights the icon.
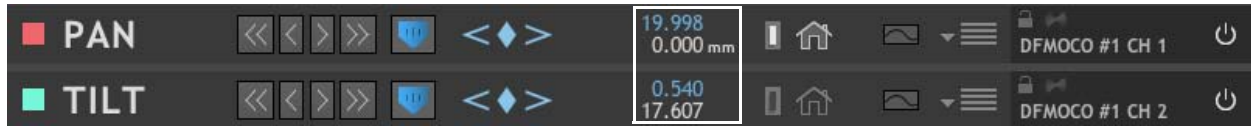
See also:
"Adding an Axis" on page 229.

Reading the Position Counters

As you jog the axis motor or reposition the playhead, you can keep track of where you are.

The Arc workspace displays both motor and playhead positions at all times in the Axis list:

Two axes set up, playhead (blue) and motor (white) positions for each.

Disable an Axis

You can disable one or more axes without deleting them.

To disable an axis, click ⏻. Dragonframe removes the axis from the position graph.

Adding Keyframes

Once you've added an axis to the graph, add keyframes.

1. Jog the motors to the desired position.

2. Move the playhead to the frame you want. By default, moving the playhead in the Arc window will move you through your DMX lighting program as well.

3. Press the keyframe button on each axis you want to keyframe. If you want to keyframe all axes, press the keyframe button in the main control bar:
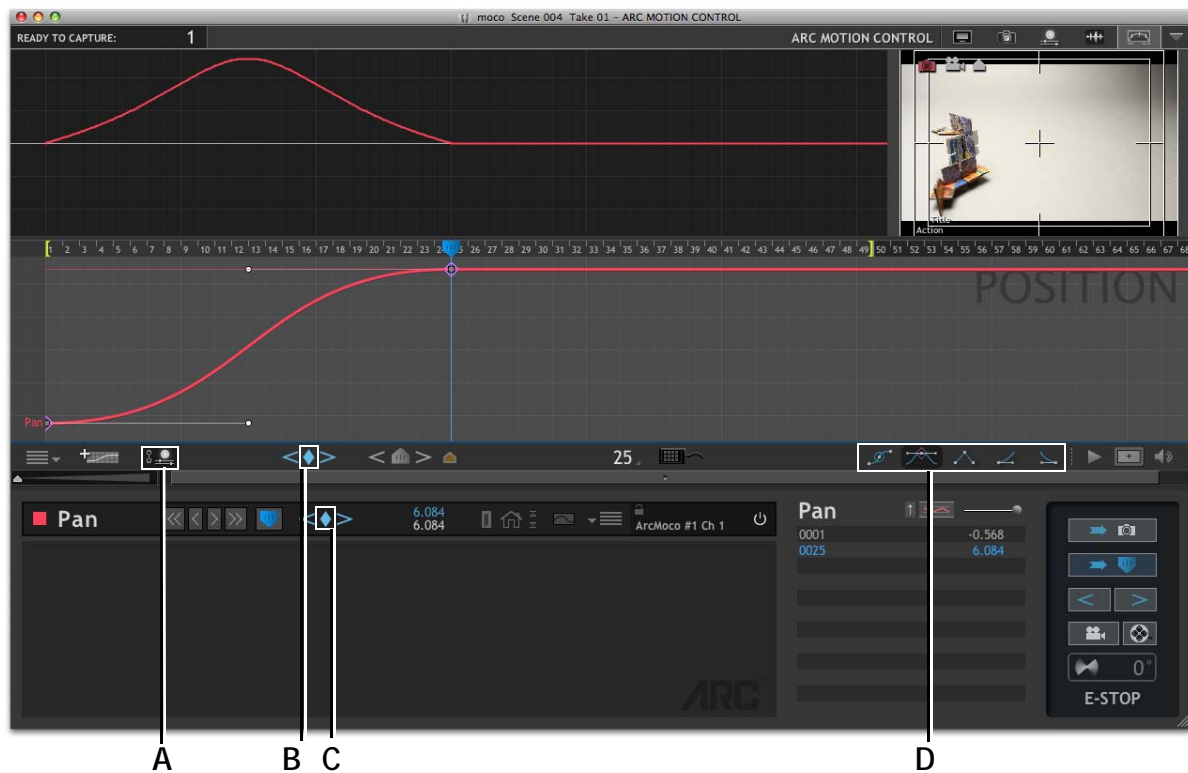

A. *Unlink the Arc playhead from the DMX lighting program. When the playhead is linked, your lighting program will play back as you move the playhead.* ***B.*** *Press the keyframe icon in the main control bar to add keyframes for all axes.* ***C.*** *Press the keyframe icon in the Axis list to add a keyframe only for* PAN. ***D.*** *Select a keyframe style.*

5. Select a keyframe style:

*   Auto-smooth the curve.

*   Ease in and out.

*   Ease into the keyframe.

*   Ease out of the keyframe.

*   Make the keyframe linear.

If you have applied auto-smooth or auto-ease to a keyframe, a colored shape appears around it:
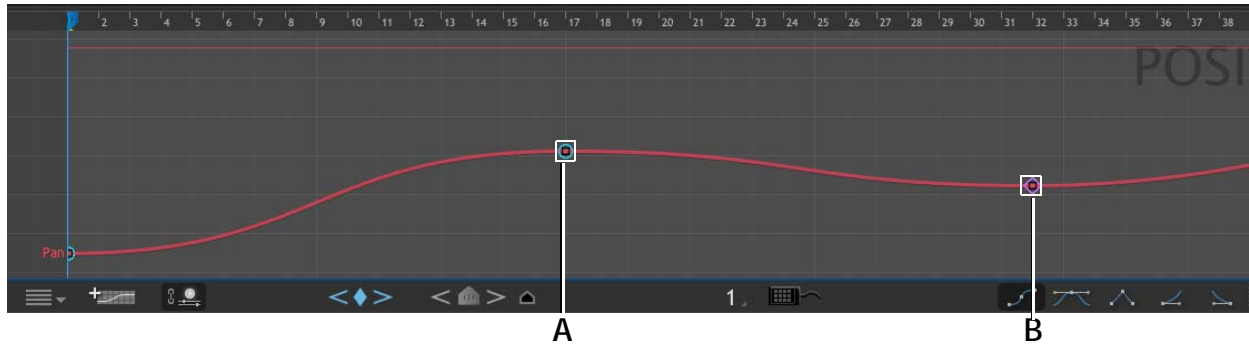
A. *Blue circle around keyframe: Auto-smoothing applied.* B. *Purple diamond around keyframe: Auto-ease applied.*

At any time you may:

- Click the keyframe in the axis to select it.

- Move the bezier handles of selected keyframes.

- Click an axis to select it.

Using Targets to Plot a Path

Often the best moves have the fewest keyframes. Targets are a way of marking your desired path without keyframes. To add targets:

1. Jog the motors to the desired position.

2. Move the playhead to the desired frame.

3. Click ⌂ (B.).

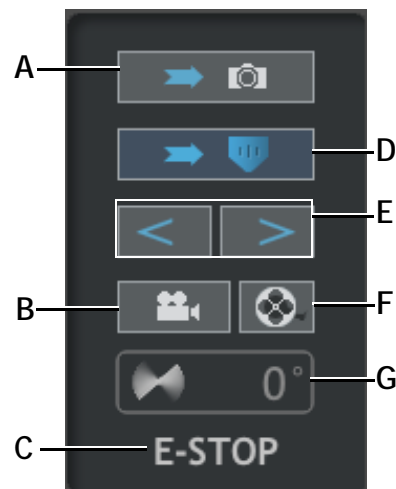4. Dragonframe adds a target to the location you chose:
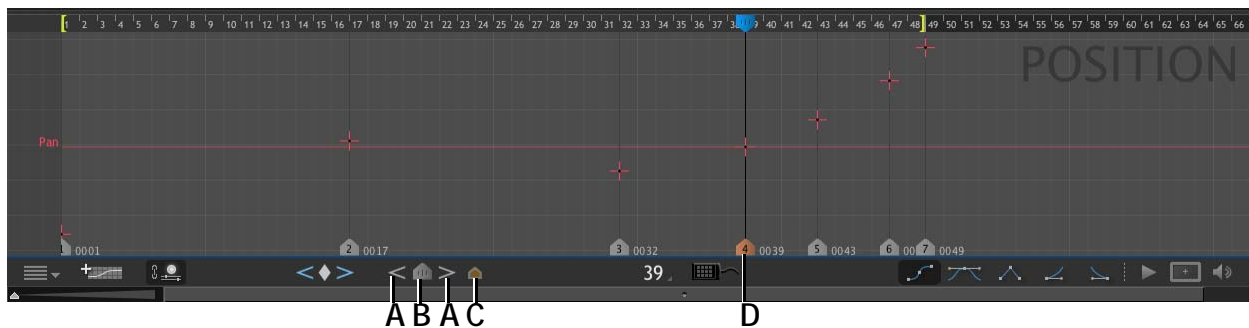
A. *Target navigation buttons.* B. *Target button.* C. *Hide targets.* D. *Target added.*

When you've added multiple targets:

- Click < and > to move througsh them one by one.

- Click ⬆ to hide all targets.

- To delete a target, select it, then presss **DELETE**.

Stepping Through a Move

Use the motor controls to move the motors along your axis frame by frame.

A. *To Camera Position: Move the motors to the frame that is ready to be captured, and prepare to shoot. This also moves any DMX lighting programs you created to a ready-to-capture mode.*

B. *Run Move Test: Run a test of the move with video assist frames.*

C. *E-Stop (**ESC**): Stop all motors.*

D. *To playhead: Move the motors to the playhead. When you're on the playhead, this button turns blue.*

E. *To Frame: Move the motors keyframe by keyframe.*

F. *Create QuickTime: Create a QuickTime of the move test.*

G. *Blur Amount: Adjust the blur amount for go-motion if you are using the DMC-16.*

NOTE: By default, the Arc playhead is linked with DMX. That means that as you step through the move, Dragonframe will also run your lighting program. Enable or disable the link to DMX by pressing 🔌 in the workspace tools.

See also:
"Running a Move Test", below.

"Creating a Movie of the Test" on page 240.

"Preparing Dragonframe for Shooting from the Arc Workspace" on page 240.

Running a Move Test

Once you have created a move, you can run a test of it. Once you run the test, you can play the test back, adjust the move and re-shoot sections of the test, or create a movie of the test.

To run a move test:

1. Click ![camera icon] in the motor controls on the bottom right of the screen. The Run Move Test dialog appears:
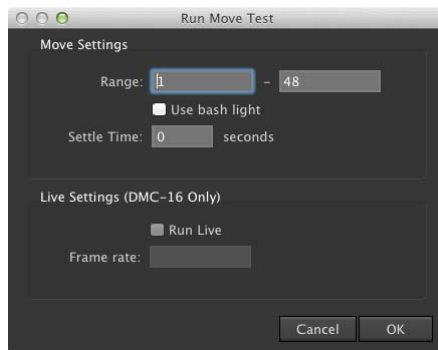
2. (Optional) Enter a range for the test. If you have in and out points set for playback, those frames will automatically appear in the dialog.

3. Check the **USE BASH LIGHT** check box to have your bash light settings active during the test.

4. (Only for DMC-16) Check whether you want the move to run at live speeds, and enter the frame rate to use.

5. Click **OK**. Dragonframe opens the Move to Position dialog:
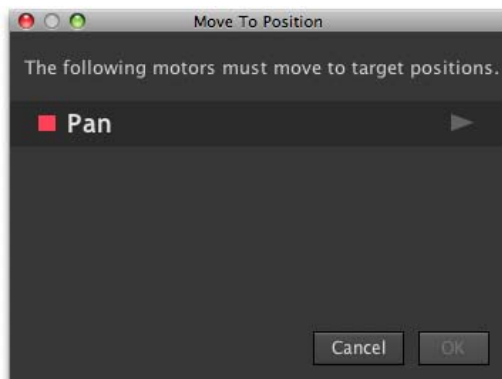
6. Click ▶ for each axis. Dragonframe moves the motor for the axis to the starting position. When all the motors are in place, click **OK**.

Dragonframe runs the move test.

NOTE: When it runs the test, Dragonframe captures only video assist frames for speed. If you need to test high-quality stills, run the move.

See also:
"Preparing Dragonframe for Shooting from the Arc Workspace" on page 240.
"Real-time Motion Control with the DMC-16" on page 250.

Playing Back the Move Test

Once you've shot a move test, play it back, or play back just part of it.

- Press **PLAY** to play back the test.

- Set in and out points to play back only a section of the test. Move the playhead, then press **I** for in or **O** for out. When you press **PLAY**, only that section will play back.

Reshooting Part of a Move Test

You can reshoot part of a test and Dragonframe will automatically replace the frames in the original test.

To reshoot a section of a test:

1. Adjust the move as needed.

2. Set in and out points around the section you adjusted. In this example, you'd set the in point for frame 14, and the out point to frame 21.

3. Click ⬛. The Run Move Test dialog appears:
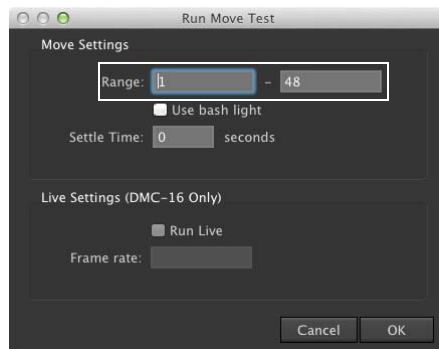
Run Move Test dialog. The range matches the in and out points set in the Arc workspace.

4. Click **OK**, and run the rest of the test as you normally would. Dragonframe runs the test. It replaces the frames from your original test with the new frames.

5. Press **PLAY** to play back the modified test.

Creating a Movie of the Test

You can export a movie of the completed test.

1. Click ![icon]. Dragonframe displays a message: **EXPORT MOVE TEST TO MOVIE.** The Save Movie dialog appears.

2. Choose a location for the movie and click **OK**. The Movie Settings dialog appears.

3. Adjust the settings as needed and click **OK**. Dragonframe exports the movie.

Preparing Dragonframe for Shooting from the Arc Workspace

Once you are done programming your move, you must engage the Dragonframe for shooting. This moves all external hardware to the ready-to-capture position, including your motion control rig, and the DMX dimmer pack, if you've created a lighting program.

1. Press ![button]. Dragonframe goes into ready-to-capture mode; and the button turns blue.

The Move To Position dialog appears:
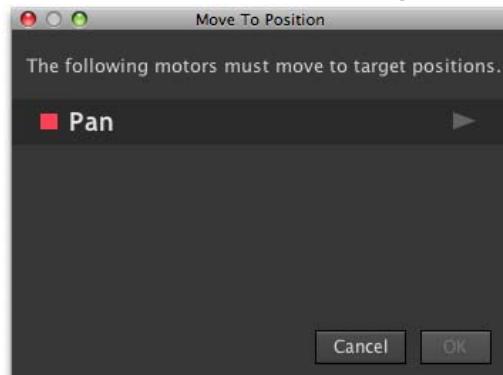
2. Click ![icon] for each axis. Dragonframe moves the motor for the axis to the ready to capture position. When all the motors are in place, click **OK**.

3. Open the Animation workspace and begin shooting. Dragonframe moves the motors and DMX Lighting program to the correct position as you shoot frames.

NOTE: You can't edit your move or lighting programs while in shooting mode. To exit shooting mode, press ➡ 📷 .

NOTE: You can also place Dragonframe into the ready-to-capture mode from the DMX Workspace.

See also:
"Preparing Dragonframe for Shooting from the DMX Workspace" on page 203.

Shooting with Motion Control

After you've placed Arc motion control in **READY TO CAPTURE** mode, you're ready to shoot your animation. The sections that follow explain some tools you can use while shooting.

See also:
"Preparing Dragonframe for Shooting from the Arc Workspace" on page 240.

Shoot Move and Move Shoot Modes

By default, Dragonframe will move the motors to the next position right after you shoot. This is called the Shoot Move mode. However, you may prefer to line up the animation *before* the motion control moves to the next frame position. This is called the Move Shoot mode.

To switch from the default mode, select **CAPTURE| MOVE SHOOT MODE.**

Dragonframe will show a moco frame position alongside the **READY TO CAPTURE** frame number:

Moco frame position alongside the ready-to-capture frame number at the top left of window.

Moving the Rig Manually

While you are shooting, you may want to peek a few frames forward into the move to make sure you will hit your marks.

To safely preview motion control forward or backwards, one frame at a time, press **OPT** and the arrow keys.

Dragonframe will show the moco frame position alongside the **READY TO CAPTURE** frame number:

Moco frame position alongside the ready-to-capture frame number at the top left of window.

After preview, Dragonframe will return the rig back to the correct frame, when you press **SHOOT**, no matter its current position.

Handling Cutbacks and Edits

After a cutback or other edit, Dragonframe may need to move your rig to a new position. If the rig needs to move more than a couple of frames forward or backward, the moco stepping window appears:

A. *1x-24x: Change stepping speed.* **B.** *Stop: Stop stepping.*

Your rig will begin stepping to the new position.

• Stop the movement by pressing **STOP** (B.), or **ESC** on the keyboard.

• Change the speed by pressing **1X**, **4X**, **12X**, or **24X** (A.).

WARNING: All motion control has inherent risks. Make sure that you are clear of moving rigs at all times. Set your motor speeds low at first to make sure the speed is safe.

If the Dragonframe moves the rig backwards, and you have backlash rollback amounts set for one or more axes, Dragonframe will display a dialog that prompts you to **PRESS ENTER TO PERFORM BACKLASH ROLLBACK**.

Press **ENTER**. Dragonframe will automatically back up and then move into the proper position.
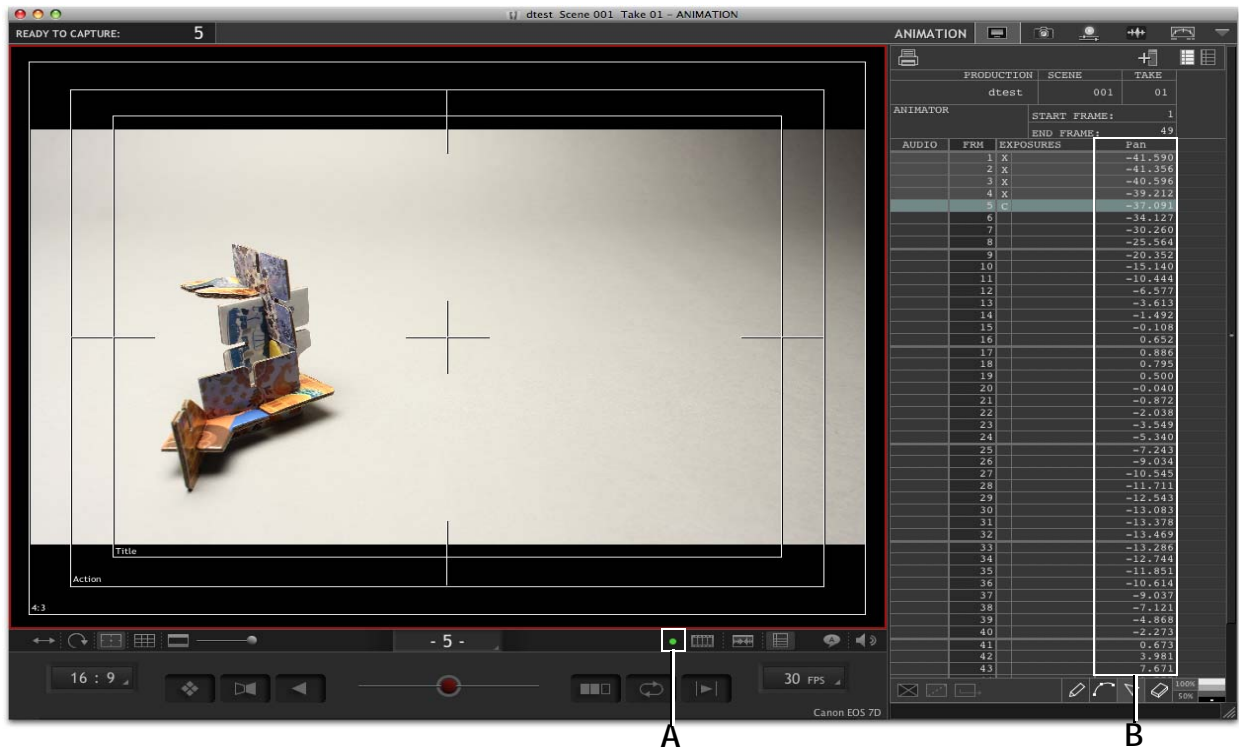
See also:
"Frame Editing with the Timeline" on page 118.

"Cut Back Key" on page 91.

The backlash rollback description in "Adding an Axis" on page 229.

Viewing Your Move in the X-Sheet

Once you're in the Animation window, you can see the positions for each frame in the X-Sheet:

A. Green dot: The moco device is connected and you are ready to shoot. A red dot means the moco system is not connected properly, and you are not ready to shoot. *B.* Pan column: Position information for the move named **PAN** in the X-Sheet.

See also:
"Connecting Dragonframe to Moco Hardware" on page 226.

Importing or Exporting Your Axis Setup

Once you have axes set up, you can export them to other projects. This will export the configuration information (limits, channel, etc) without exporting keyframe information. For example, if you always work with a particular rig, exporting an axis setup would allow you to quickly start a new project without having to re-configure each axis on your rig.

Exporting an Axis Setup

To export an axis:

1. Click the main menu for the workspace (in the workspace tools), then select **EXPORT AXIS SETUP**. Dragonframe opens the Export Axis Setup dialog.

2. Choose where you want to save the setup, and click **OK**. Dragon-
frame exports the setup.

Importing an Axis Setup

To import an axis setup into another scene:

1. Click the main menu for the workspace (in the workspace tools),
then select **IMPORT AXIS SETUP**. Dragonframe opens the Import
Axis Setup dialog.

2. Navigate to the saved axis setup file (.arcx), and click **OK**. Dragon-
frame imports the axis setup information. You can now add key-
frames for the axis.

NOTE: Once you import axis setup information, you can disable any axes you
aren't using. For example, if your rig has four axes, but you're only using
two for a particular project, click ⏻ in the Axis list to disable the axes
you're not using.

Importing and Exporting Camera Moves

You can export an entire move (axis information and keyframe infor-
mation) to other Dragonframe projects.

Exporting a Move

To export a move:

1. Click the main menu for the workspace (in the workspace tools),
then select **EXPORT MOVE**. Dragonframe opens the Export Move
dialog.

2. Choose where you want to save the move, and click **OK**. Dragon-
frame exports the move.

Importing a Move

To import a move into another scene:

1. Click the main menu for the workspace (in the workspace tools),
then select **IMPORT MOVE**. Dragonframe opens the Import Move
dialog.

2. Navigate to the saved move file (.arcm), and click **OK**. Dragonframe
imports the move and shows it in the Arc workspace. You can now
edit the move, or begin shooting.

NOTE: Once you import a move, you can disable any axes you aren't using. For example, if your rig has four axes, but you're only using two for a particular project, click ⏻ in the Axis list to disable the axes you're not using.

Using the Jogpad Window with the Dragonframe Keypad

While using Arc, you can convert the Dragonframe keypad into a jog box (the Jogpad), allowing you to move around your rig and control it without touching the computer.

Opening the Jogpad Window

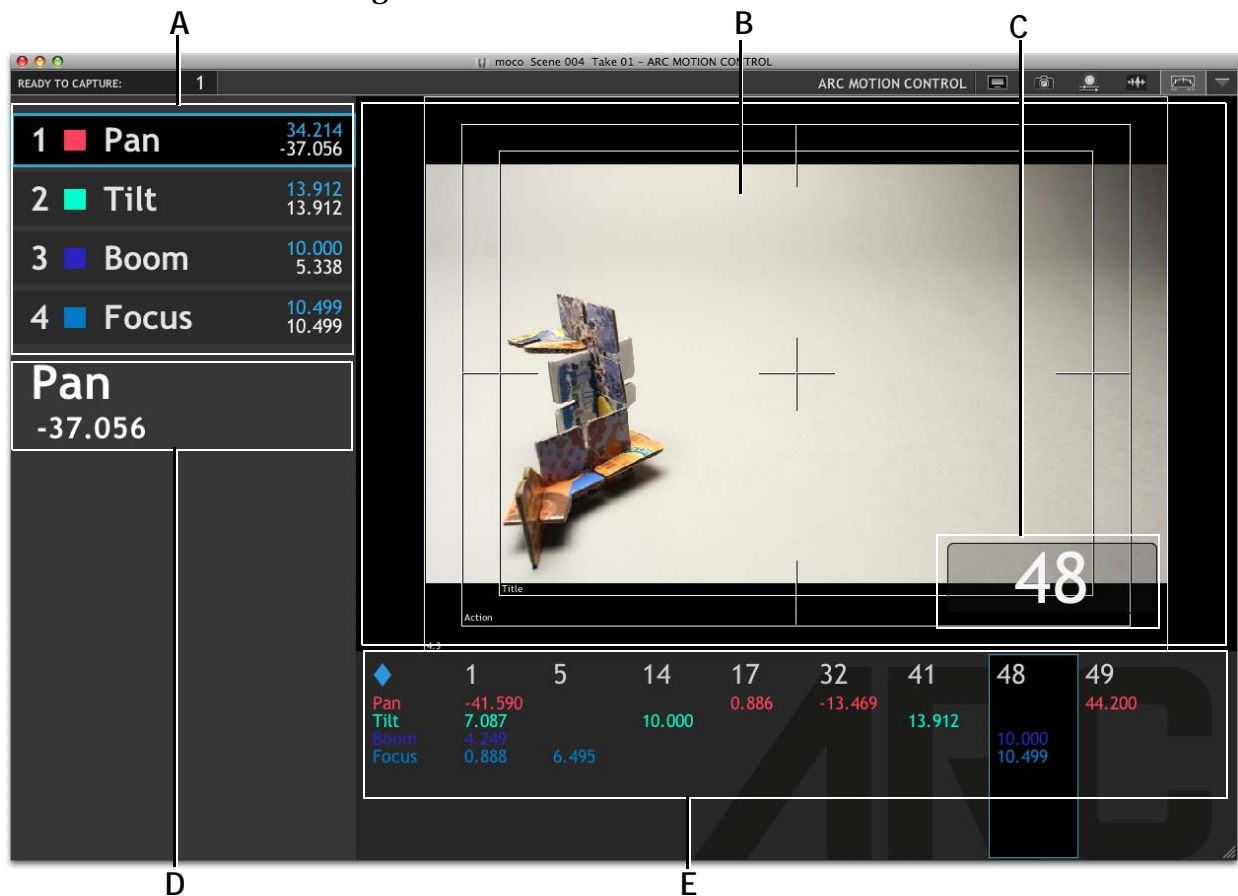To open the Jogpad window, click ⌨︎. The jogpad window appears:

Jogpad guide within the Jogpad window.

Anytime this window is open, you can use the keypad as the Jogpad.

The Jogpad guide appears when you first open the window, showing the layout of the Jogpad.

Click the guide to close it and see the Live View:

A. Axis list. The list of axes. If there are more than eight, Arc displays axes in groups of eight. Press the number of the axis to select it. Press **9** for the next axis group.

B. Live View. See how jogging the motors affects the shot.

C. Frame number: The frame number of the currently selected keyframe.

D. Axis: The currently selected axis and its motor position.

E. Keyframe list: All of the keyframes for the current axis group. Press . (period) to cycle through keyframes.

- Press the number of the axis to select it in the axis list. For example, to view **BOOM**, click **3**. Dragonframe displays the current position of that axis' motor below the axis list.

- Press ⬥ to move through the axis' current keyframes in the keyframe list.

- Press **9** to display the next eight axes, if there are more than eight.

- Click anywhere in the window to return to the Arc workspace.

Jogging an Axis with the Jogpad

Use the Jogpad to move the axis motors.

1. Press the number of the axis to select it.

2. Press ⊞ and ⊟ to jog the motor for the selected axis. Press and hold to move more quickly.

Setting a Keyframe with the Jogpad

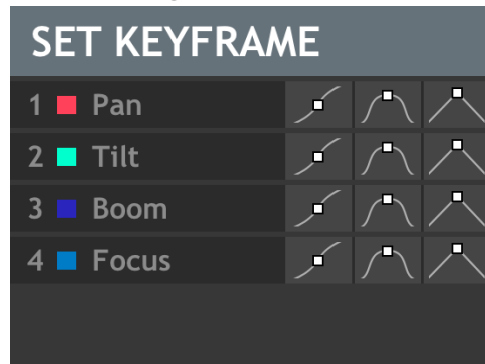1. Press **ENTER** to set a keyframe. The Frame Number dialog appears.

2. Press **ENTER** to set a keyframe at the current frame number.

   Or, enter a new frame number. Then press **ENTER**. The Set Keyframe dialog appears:

3. Enter the axis number to select an axis. Dragonframe highlights the smooth keyframe style for that axis.

4. (Optional) Keep pressing the axis number to toggle through the keyframe styles for that axis, and then to deselect the axis.

5. (Optional) Press the axis numbers for any other axes to add keyframes for them.

6. (Optional) Press **9** to view the next axis group.

7. Press **ENTER** when you've added all the keyframes you need for that frame. Dragonframe adds the keyframes you selected and displays them in the keyframe list.

Setting Zero or Home with the Jogpad

Use the Jogpad's menu button to set a zero or home point.

1. Move the motors to the point you want to set for zero or home.

2. Press **PLAY** to open the jogpad's menu. The menu appears:

MENU

1 - GO TO FRAME
2 - GO TO KEY
3 - GO TO ZERO
4 - GO TO HOME
5 - SET ZERO
6 - SET HOME
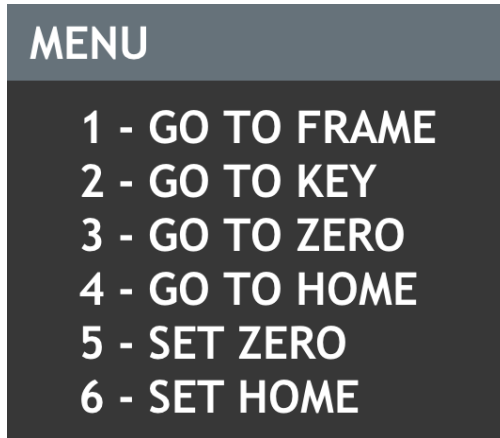
3. Press **5** to set the zero point; press **6** to set the home point.

NOTE: Press **ENTER** to close the menu without selecting anything.

Going to a Frame with the Jogpad

1. Press **PLAY** to open the Jogpad menu.

2. Press **1** to go to a frame number. The frame dialog opens.

3. Enter the frame number you want to go to and press **ENTER**.

4. Dragonframe opens the Go to Frame dialog:

GO TO FRAME

1 ■ Pan ▶
2 ■ Tilt ▶
3 ■ Boom ▶
4 ■ Focus ▶
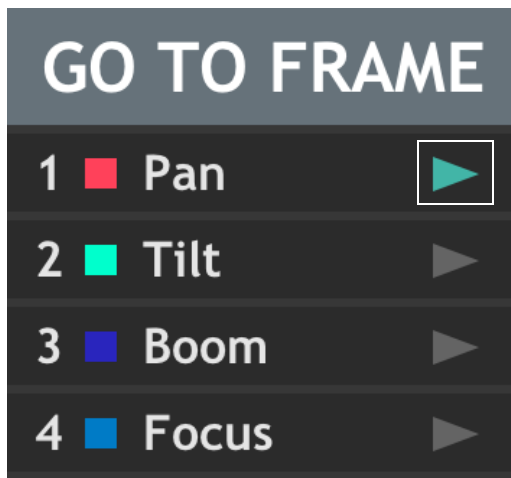
The Go to Frame dialog. Here Dragonframe has already moved the motor for the **PAN** *axis to the correct position.*

5. Enter the frame number for the axis you want to move. You can enter more than one.

6. Dragonframe moves the motors for the axes you chose to the frame number you selected. When Dragonframe has moved the axis, the arrow next to the axis turns green, as shown above for **PAN**.

Going to a Keyframe with the Jogpad

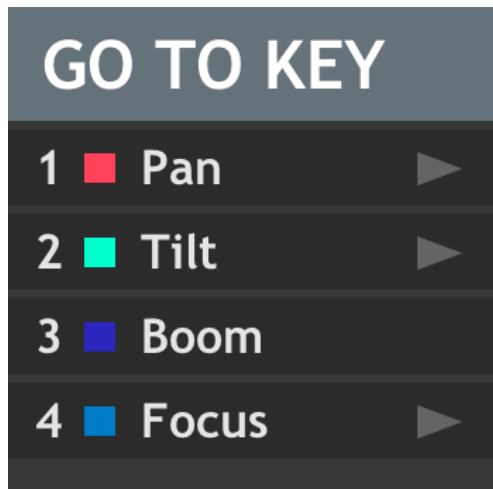1. Press **.** (period) to move to the keyframe you want to select.

2. Press **PLAY** to open the Jogpad menu.

3. Press **2** to move the motor to the keyframe you selected. Dragonframe opens the Go to Key dialog:

GO TO KEY

1 ■ Pan ▶

2 ■ Tilt ▶

3 ■ Boom

4 ■ Focus ▶

4. Press the number of the axis you want to move. You can enter more than one. Here, the **BOOM** axis does not have an arrow next to it because the axis is already at the keyframe's position.

Dragonframe moves the motors for the axes you selected.

5. Press **ENTER** when you're finished moving the motors.

Go to the Home Point or Zero Point with the Jogpad

1. Press **PLAY** to open the Jogpad menu.

2. Press **3** to go to the zero point, OR

   Press **4** to go to the home point.

Dragonframe moves the motors to the point you selected.

Stopping the Motors with the Jogpad

Press / (slash) , * (asterisk) or **BS** (backspace) to stop the motors.

Real-time Motion Control with the DMC-16

Using the DMC-16 adds extra motion-control capabilities to Dragon-frame.

Running a Live Move Test with the DMC-16

With DMC-16, you can run the move live (or at a reduced frame rate). The rig will capture video assist frames while moving continuously during the capture.

To run a live move test, click [camera icon]. The Run Move Test dialog appears:
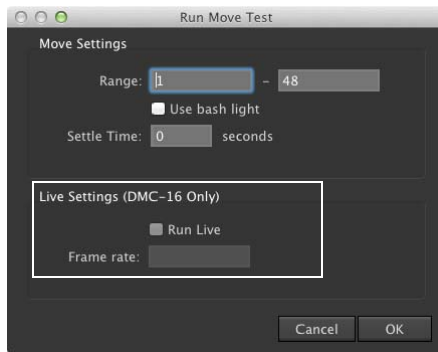
Run Move Test dialog. With the Live settings, run the move live, and adjust the frame rate.

Using the Live Jog Controls

With the DMC-16, you can run your move at live speeds, and jog the entire rig through the move, instead of just one axis at a time.

WARNING: All motion control has inherent risks. Make sure that you are clear of moving rigs at all times. Set your motor speeds low at first to make sure the speed is safe.
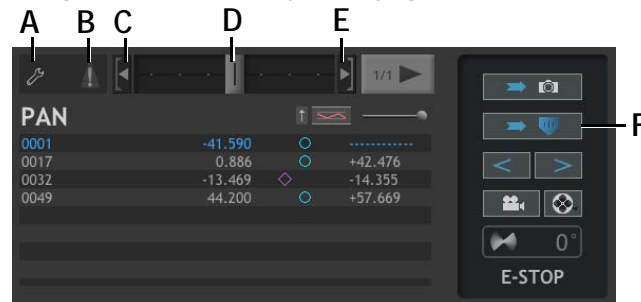
To use the enhanced jog controls:

1. Set up your move in the Arc workspace. Once you've created the move, a button appears above the axis keyframe data:

Upload Move button. Press to upload your move and ready the DMC-16 to run it at live speeds.

2. Press **UPLOAD MOVE** to upload your move info to the DMC-16. Dragonframe displays the jog controls:

A. Settings: Adjust the move settings.

B. Live Warnings: The move exceeds the maximum velocity or acceleration of the axis.

C. Backward: Lock the slider to the left.

D. Slider bar: Move left or right to jog forward or backwards. The farther left or right you slide it, the faster it moves.

E. Forward: Lock the slider to the right.

F. Go to Frame: Move all axes to the same frame.

3. Press ![icon] (F.) to move all of the axes onto one frame.

4. Jog through your move using the controls:

   • Move the slider bar (D.) right or left to jog the rig forwards or backwards. The farther you go to the right, the faster it goes to the end of the move. The further you go to the left, the faster it goes back to the start of the move.

- Press ⬚< (C.) or ⬚> (E.) to lock the slider to the left or right so you don't have to hold it in position.

- Hover over the slider bar to see a maximum FPS for the move. This maximum speed is either your FPS or the maximum velocity and acceleration of your move.

See also:
"Adding an Axis" on page 229.
"Stepping Through a Move" on page 237.
"Running a Move Test" on page 238.
"Understanding Live Warnings" on page 254.

Run Your Move Live

The DMC-16 also allows you to run your move at full speed.

WARNING: All motion control has inherent risks. Make sure that you are clear of moving rigs at all times. Set your motor speeds low at first to make sure the speed is safe.

To run your move:

1. Press ⬚➡🛡 (F.) to move all of the axes onto one frame.

2. (Optional) **CTRL**-click on the Run Live button and select a move speed from the menu.

3. Press the Run Live button. The rig will rewind to the start frame (marked with the In marker). It will also back up (pre-roll) to the pre-roll position.

   As the rig moves backwards, the Run Live button will blink blue. When the move is ready to run, the Run Live button changes to solid blue. Dragonframe displays this message: **READY TO RUN MOVE.**

4. Press the Run Live button again. Dragonframe starts the move.

   At the end of the move, the rig will decelerate.

5. (Optional) Press **ESCAPE** to cancel the run and slow down the rig.

Run Live Settings

Click the settings button to access the Run Live settings:
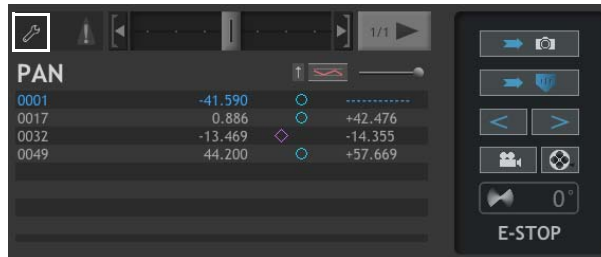
Settings button.

The Moco Settings dialog opens:
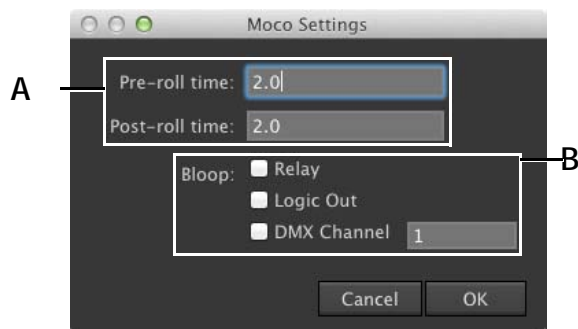
A. *Pre- and Post-roll time: Set the time in seconds.* **B.** *Bloop: Check the boxes to have Dragonframe trigger the relay, logic out or a DMX channel one second before starting the live move.*

Understanding Live Warnings

If you program a move with the DMC-16, and it exceeds the maximum velocity or acceleration of the axis at your current scene FPS, Dragonframe will display warnings in the Arc workspace:
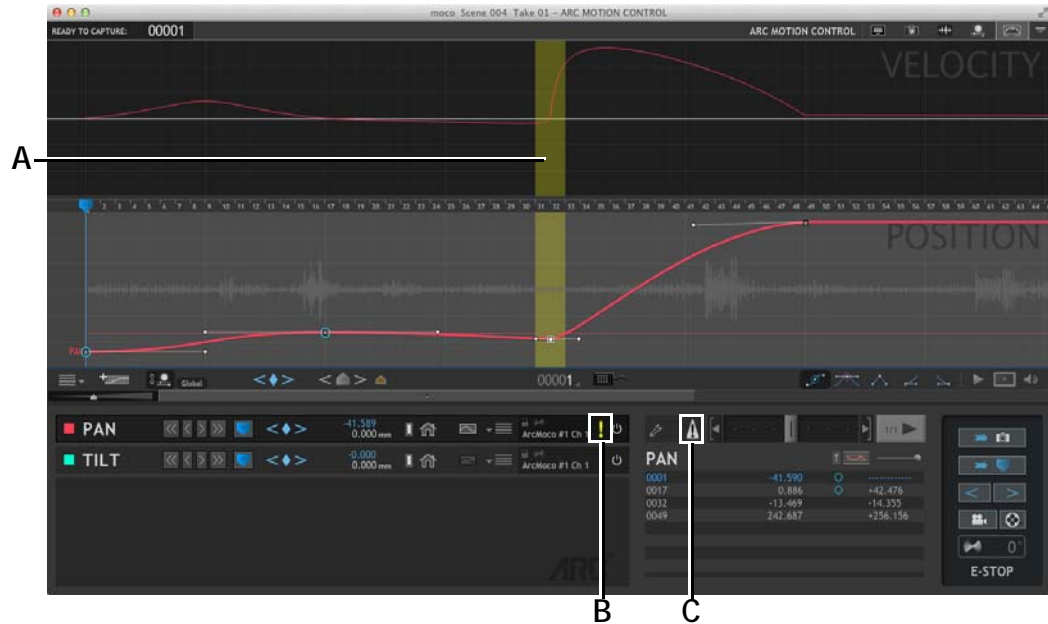
A. Highlight on Velocity graph: The abrupt change of velocity at this point of the graph exceeds the maximum acceleration for the graph. B. ! in Axis Control Panel: There is a warning for the axis. C. Triangle button: Click to remove warning highlights.

In this Velocity graph above, there is a rather abrupt change in velocity. This curve is probably exceeding the maximum acceleration that you set in the Configure Axis dialog.

To eliminate the problem:

• Adjust your maximum speed and acceleration in the Configure Axis dialog (if your rig can go faster) or

• Smooth out your move if you need to run it live.

These warnings are only important if you intend to run the move at full speed. If you are just going to shoot stop motion, you can turn them off and disregard them.

To turn the warnings on or off, click ⚠ (C.).

See also:
"Adding an Axis" on page 229.

Using Go-Motion with the DMC-16

DMC-16 and Arduino DFMoco can perform go-motion. Adjust the blur for go-motion in the Arc workspace:
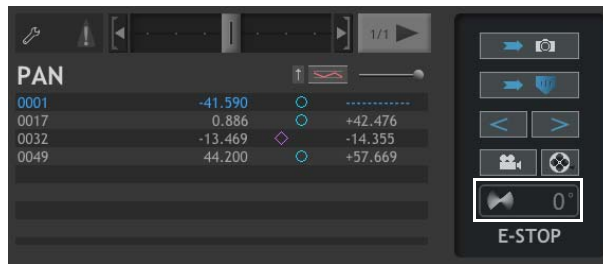
Blur button.

1. Click ⏮ to set the blur amount. Usually this is 180 degrees. This sets how much of the move is captured while the shutter is open.

2. For each axis, press ⏮ in the axis list to enable blur:
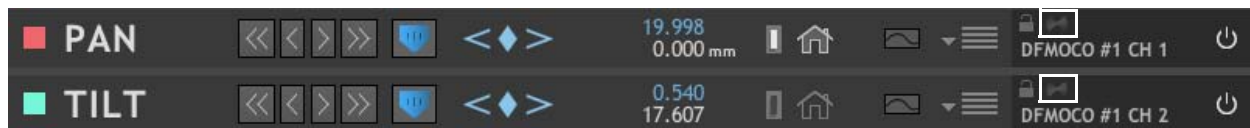
Blur button for each axis. Click to enable blur for that axis.

Using External Moco Systems with Dragonframe

If you do not want to use the Arc motion control interface within Dragonframe, you can use external motion control systems instead. Choose an option that fits your equipment and your needs.

Two-Way Control with Arduino

Arduino (http://arduino.cc/) is a hobby electronics board with open-source software and hardware specifications. With some simple wiring and pre-made software, you can wire the Arduino to control Dragonframe, or to control an external system based on events from Dragonframe.

Find a Dragonframe library for Arduino, sample code, and instructions: http://www.dragonframe.com/arduino

3D (Stereo) Shooting

You can configure the Arduino to trigger a stereo camera head mover, such as the Mark Roberts S3 Stereoscopic 3D Stepper: http://www.mrmoco.com/Newsletter/motioncontrolnews190609.htm

See also:
"Shooting in 3D" on page 273.

Using DDMX-S2 to Trigger Motion Control

If you have a motion control system that controls the camera position, but want Dragonframe to take care of shooting, use the DDMX-S2 box to coordinate both events. You will shoot a frame in Dragonframe, and then have Dragonframe trigger the motion control system to move to the next position.

To set up shoot-move-shoot with the DDMX-S2, connect the DDMX-S2 and use the relay or logic output to trigger the motion control system after **CAPTURE COMPLETE**.

Dragonframe controls the camera, but the motion control system controls the position of the camera.

NOTE: With this mode, you cannot do go-motion (blur) effects. For go-motion with an external motion control system, you can have Kuper control Dragonframe, or you can set up triggers with the DDMX-S2.

See also:
"Connecting DMX to Dragonframe" on page 193.
"Adding a Switch/Relay Output Trigger" on page 216.
"Adding a Logic Output Trigger" on page 218.
"Kuper Controls Dragonframe", below.
"Using Go-Motion with an External Motion Control System" on page 220.

Flair Controls Dragonframe

Dragonframe can control the frame position of a rig programmed by Flair. Using Dragonframe with Flair gives you these capabilities:

• Automatic synchronization of Dragonframe and Flair during animation.

• Easy set-up for shooting move tests through the Dragonframe Moco interface.

• Shoot-Move or Move-Shoot options for the animator.

• Single-frame forward or backward movement of Flair for animators or operators during the shoot.

• Synchronization warnings.

Setting Up Flair

Get setup instructions from Mark Roberts Motion Control (http://www.mrmoco.com/). You may need a special version of the Flair software to connect to Dragonframe.

Connect Flair

1. Connect the two computers via serial-USB adapters, according to instructions from Mark Roberts Motion Control (http://www.mrmoco.com/).

2. In Dragonframe, select **SCENE|CONNECTIONS.** The Scene Settings dialog opens:
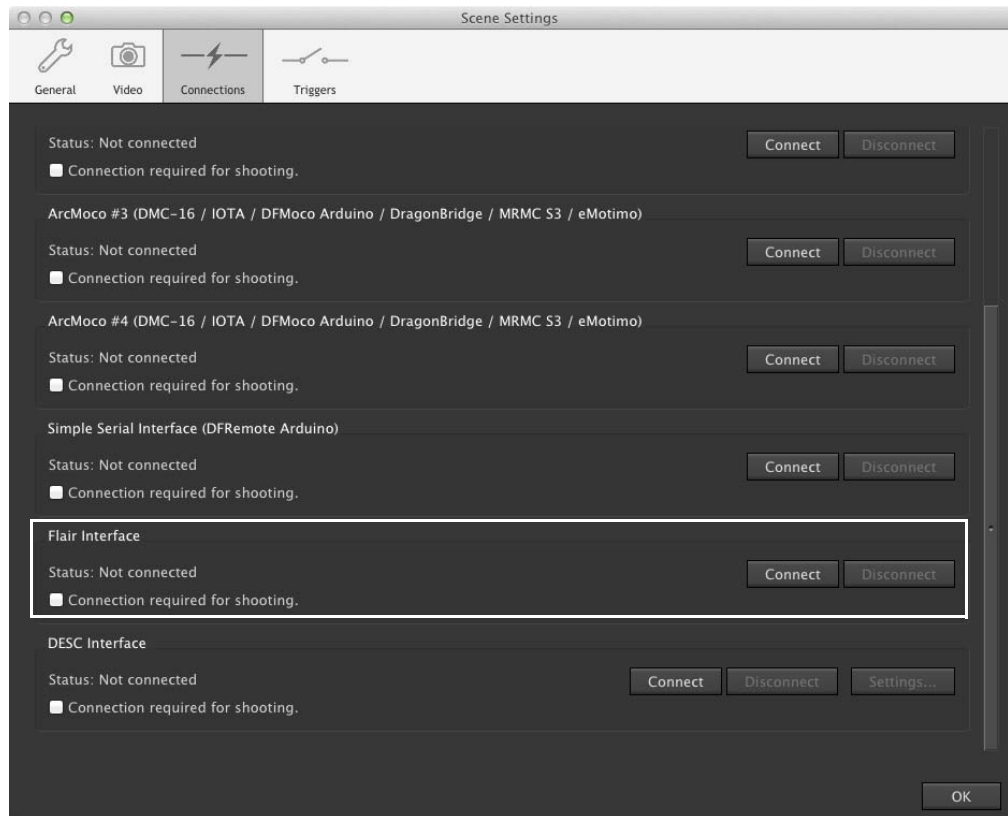
3. Scroll down to find the **FLAIR INTERFACE** and click **CONNECT**. Dragonframe connects to Flair.

4. In the Arc workspace, click ▚▚▚▚ (in the workspace tools). Dragon-frame opens the Configure Axis dialog:
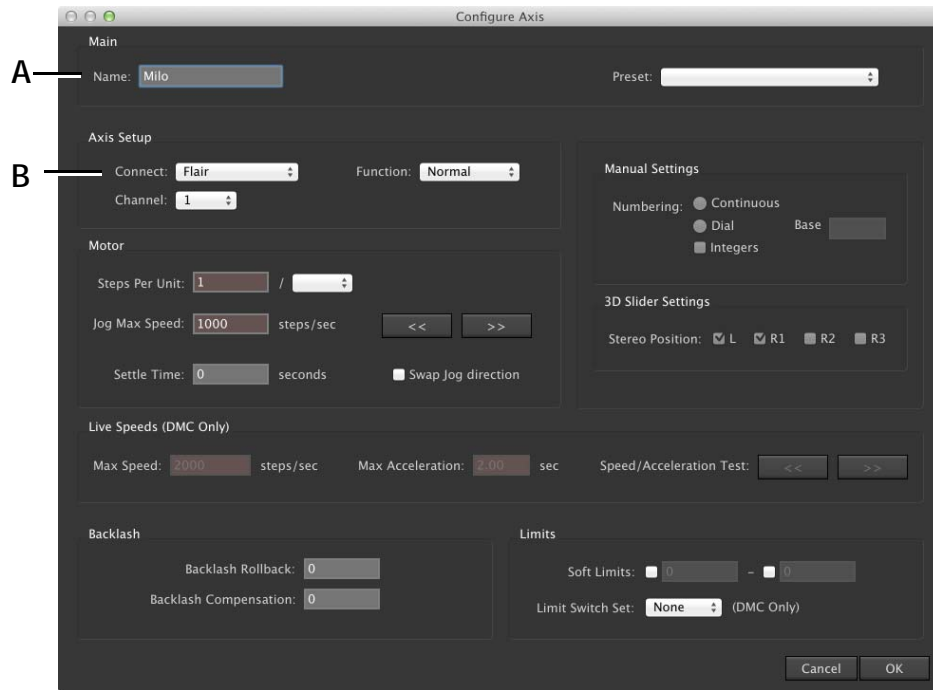
A. *Name: Name the axis.* **B.** *Connect: Select* **FLAIR** *to set up an axis for Flair.*

5. Name the axis (A.).

6. From the **CONNECT** drop-down list (B.), select **FLAIR**, then click **OK**.

NOTE: The rest of the settings in the dialog do not affect your Flair move.

Dragonframe sets up your axis and displays it in the Arc workspace.
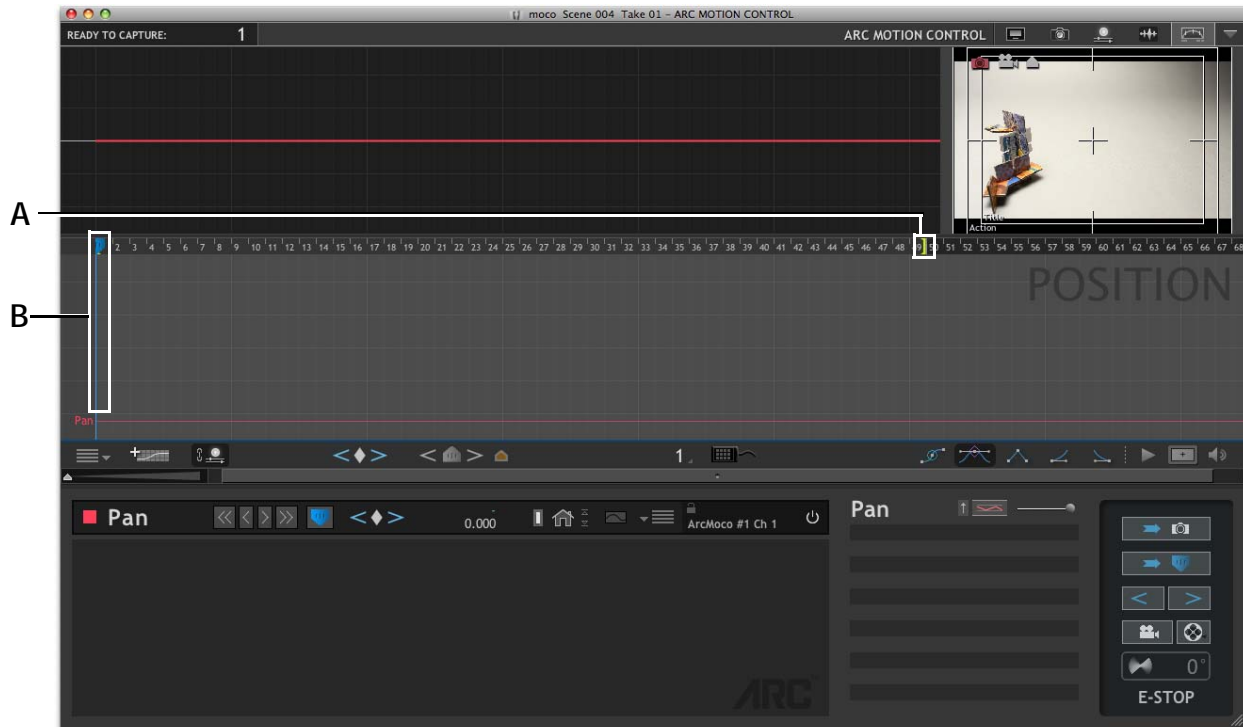
A. Out point: The out point for the move. Change this to match the end point of your Flair move. *B.* Blue playhead: Move through the timeline.

6. Move the blue playhead to the end frame of your Flair move, and press **O**. This sets the out point in the Arc timeline to match the length of your move in Flair.

See also:
"Adding an Axis" on page 229.

Synchronizing Flair and Dragonframe

Synchronize Flair in two ways:
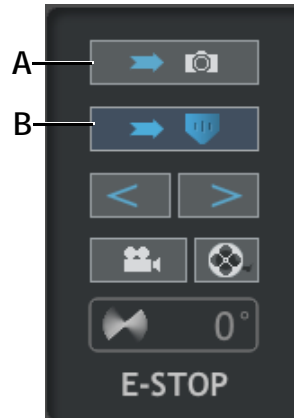
A. *Ready to Capture: Sync the Flair position to the Ready to Capture frame.* **B.** *Go to Frame: Sync the Flair position to the blue playhead.*

- Press [icon] when you are ready to animate the shot or shoot pose tests.

- Press [icon] for testing and lighting.

If the moco frame position is different than the Ready to Capture frame, the frame number appears in the upper-left corner of the Dragonframe interface:

Moco frame position alongside the ready-to-capture frame number at the top left of window.

See also:

Shoot-Move or Move-Shoot

You can line up animation before the motion control moves to the next frame position, or vice-versa. Select **CAPTURE|SHOOT MOVE MODE** or **CAPTURE |MOVE SHOOT MODE** to change the mode.

See also:
"Shoot Move and Move Shoot Modes" on page 241.

Previewing Moves

While you are shooting, you may want to peek a few frames forward into the move to make sure you will hit your marks.

To safely preview motion control forward or backwards, one frame at a time, press **OPT** and the arrow keys.

See also:
"Moving the Rig Manually" on page 241.

Running Move Tests

You can run a move test where Dragonframe moves Flair to each position and captures test frames.

See also:
"Running a Move Test" on page 238.

Kuper Controls Dragonframe

Kuper is an industry-standard motion control system. Typically, it controls a film camera, but you can use the Dragonframe Electronic Shutter Control (DESC) to trigger a digital still camera.

The DESC is a piece of hardware that you can purchase directly from our site:
 https://www.dragonframe.com/store/Dragon-Electronic-Shutter-Control.html

There are three different reasons you might use this integration:

• You prefer to control the shooting from Kuper.

• You need exact timing of the motion control move and the camera shutter release. For example, perhaps you are doing go-motion.

• You need exact timing of both the open and close of the shutter. For example, you may be doing special effects sequences at different speeds.

To have Kuper control Dragonframe you will need:

1. A Kuper motion control system.

2. The DESC or some other way of externally controlling the shutter.

3. A serial port connector to connect your computer to the DESC.

  • If your computer does not have a serial port, you will need a USB serial port adapter.

  • If you have not done so already, you will need to install the Mac USB serial port drivers. There is an option for this in the Dragonframe Help menu.

4. A wired remote trigger for your camera, which you will have to disassemble.

Configuring Kuper, DESC, and Dragonframe involves several steps, described in the sections that follow:

1. Make the connections between the hardware and your computer. See "Making Hardware Connections for Motion Control" on page 262.

2. Set up Dragonframe's Capture Preferences. See "Setting Up Dragonframe's Capture Preferences for Motion Control" on page 263.

3. Set up camera settings in Dragonframe's Cinematography workspace. See "Configuring Camera Settings for Motion Control" on page 264.

4. Open Dragonframe's Motion Control workspace to begin working with Kuper and the DESC. See "Connecting to the DESC through Dragonframe's Connections Tab" on page 265.

Making Hardware Connections for Motion Control

1. Connect the computer running Dragonframe to the DESC box via a serial port adapter.

2. If you are using an **EXTERNAL** or **EXTERNAL BULB** trigger method, connect your remote camera trigger to the DESC.

Setting Up Dragonframe's Capture Preferences for Motion Control

1. In Dragonframe, click **DRAGONFRAME|PREFERENCES** and click **CAPTURE**.
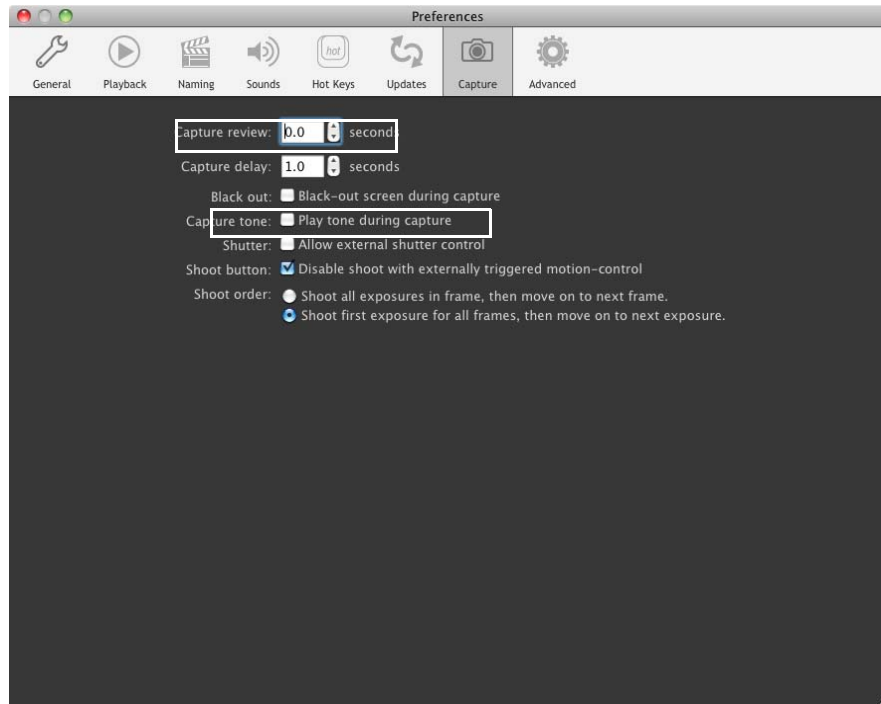
Capture Preferences, with **CAPTURE DELAY** *and* **SHUTTER** *settings.*

2. Set **CAPTURE DELAY** to **0** seconds.

3. Check **ALLOW EXTERNAL SHUTTER CONTROL**. If you are already connected to your camera, press **COMMAND R** to reset connections.

Configuring Camera Settings for Motion Control

1. Open Dragonframe's Cinematography workspace. You'll adjust settings in the Camera Control pane:

Dragonframe's Camera Control pane with **SHUTTER** *setting.*

2. Set the shutter to **INTERNAL**, **EXTERNAL** or **EXTERNAL BULB**.

   - Use **INTERNAL** if you want the DESC to tell Dragonframe to **SHOOT** a frame, but not trigger the camera directly.

   - Use **EXTERNAL** if you want the DESC to only control when the shutter is released, but use the camera's pre-set shutter speed.

   - Use **EXTERNAL BULB** if you want the DESC to control the open and close of the shutter.

If you're going to shoot in **EXTERNAL BULB** mode, the setup is slightly different, depending on your camera.

- For the *Canon 5D Mark II*, set the Mode Dial to **<B>**, and ignore Dragonframe's warning.

- For the *Canon 1D Mark III*, set the camera to **BULB** mode by holding the Mode button while turning the main dial, until you see **BULB** in the top LCD.

- For *other Canon cameras without an explicit bulb mode*, Dragonframe will set the shutter speed to **BULB** automatically.

- For *Nikon cameras*, Dragonframe will set the shutter speed to **BULB** automatically.

Connecting to the DESC through Dragonframe's Connections Tab

1. Click **SCENE|CONNECTIONS**. The Connections tab opens.
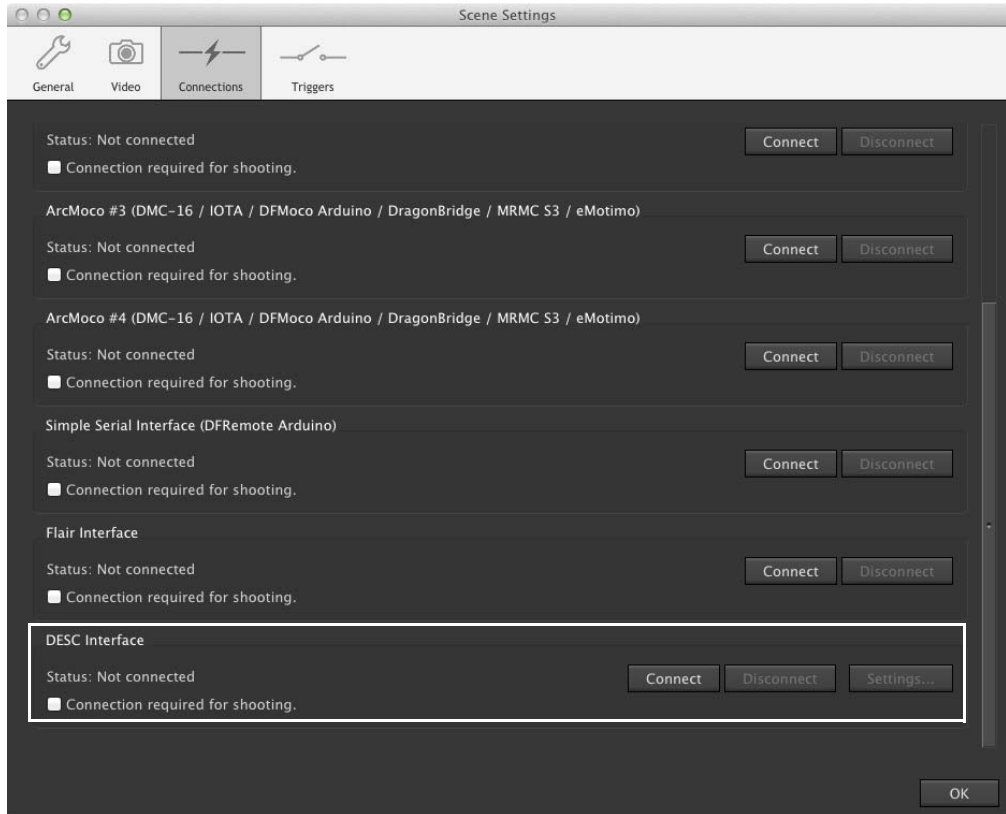
Settings dialog, Connections tab, Still Camera Interface settings.

2. Click **CONNECT** for the DESC Interface. The DESC Serial Port dialog appears.
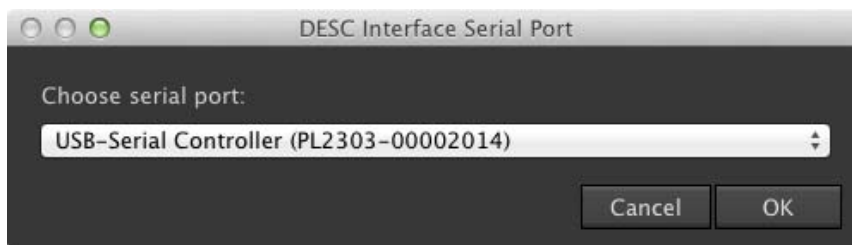
3. Choose the serial port that is connected to the DESC box.

Dragonframe connects the device, then automatically checks the **CONNECTION REQUIRED FOR SHOOTING** check box. When this box is checked, you will not be able to capture any frames for the scene until Dragonframe is connected to the hardware.

CAUTION: If you uncheck the **CONNECTION REQUIRED FOR SHOOTING** box, you could accidentally shoot all or part of a scene without Kuper working.

The DESC box will send a pre-trigger **P1** message to Dragonframe, and Dragonframe will do the pre-capture: capturing the Live View and disconnecting from the camera.

If the setup described above doesn't work, it's probably because the DESC box isn't set up properly. See the DESC setup manual for setup instructions.

See also:
"Adding an Input Trigger" on page 215.

Creating Action Scripts

Dragonframe can call a local script file whenever certain events occur. This is a straightforward integration with many possibilities. For example, you could:

- Back up your high-resolution images whenever Dragonframe downloads a new image.

- Color-process your RAW files whenever Dragonframe downloads a new image.

- Notify a content management system whenever Dragonframe captures a frame.

- Instruct a motion control application to advance its position whenever Dragonframe moves to a new frame.

Dragonframe calls your script file for the following events:

- **SHOOT**: As soon as the user triggers a frame capture.

- **DELETE**: As soon as the user deletes an image.

- **POSITION FRAME**: When Dragonframe is ready to capture another frame or exposure.

- **CAPTURE COMPLETE**: When Dragonframe has downloaded a high-resolution image from your camera.

- **FRAME COMPLETE**: When an entire frame has been shot.

- **TEST**: When a test shot has been captured.

- **EDIT**: When the user has edited frames.

- **CONFORM**: When the user has conformed the take.

Your script file is a bash script (**.SH)**.

Find script examples at our website:
http://www.dragonframe.com/scripting.php

Adding Hand-Cranked Camera Moves

Dragonframe works with hand-cranked camera rigs to help you plan and execute camera moves. When you set up a camera move, Dragonframe gives you position information for each frame. You can export moves to other scenes.

See also:
"Importing Scene Settings" on page 140.

What Gear Do I Need to Use the Hand-Cranked Move Feature?

You can use one of three types of manually controlled rigs:

- A rig using a dial. Print a tape showing evenly spaced increments and tape it on the dial. Your dial must start on 1 (not 0) to work with Dragonframe.

- A rig using a counter that keeps track of increments.

- A millimeter ruler. Your camera should have a pointer on it that can align with the millimeters.

Programming a Basic Hand-Cranked Move

1. On your rig, note your start and end position, and the positions of any keyframes you'll use in-between.

    - For a rig with a dial, note the numbers on the dial, and the number of rotations you use to get to each position.

    - For a rig with a counter, note the counter positions.

    - For a ruler, note the millimeter measurement you'll use.

2. For a rig with a dial, note the total number of increments on the dial tape.

3. From Dragonframe, open the Arc Motion Control workspace.

4. Click ▱▱▱ (in the workspace tools). Dragonframe opens the Configure Axis dialogue:
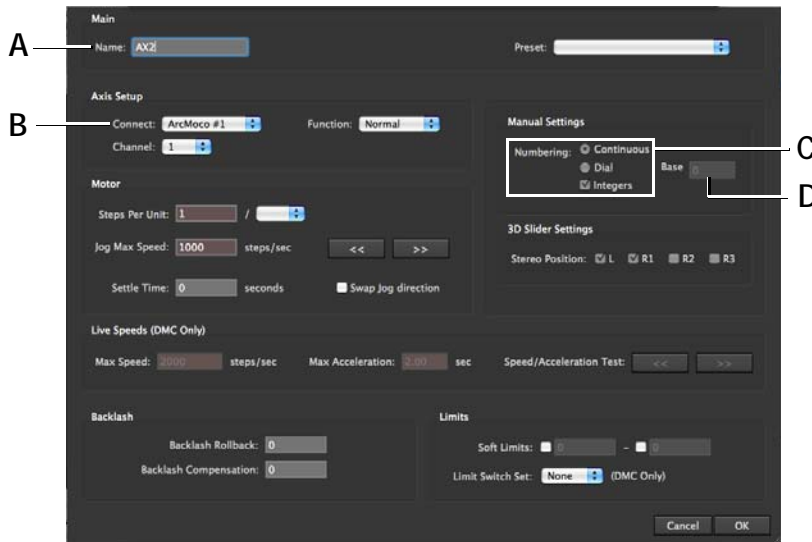
A. *Name: Name the axis.*

B. *Connect: Choose* MANUAL *for a hand-cranked rig.*

C. *Numbering: Select the kind of numbering you'll use: continuous, a dial, or integers.*

D. *Base: Enter the total number of increments for a dial.*

5. (Optional) Enter a name for the axis. For example, PAN.

6. Choose the type of numbering your rig uses:

   • Select CONTINUOUS if you're using a counter or a millimeter ruler.

   • Select DIAL if you're using a dial. Then enter the total number of increments in the BASE field using the information that you found in step 2.

   • (Optional) Check INTEGERS to round all move information to the nearest integer. This makes it easier to decipher the position information.

7. Click **OK**. Dragonframe creates the axis for your move:
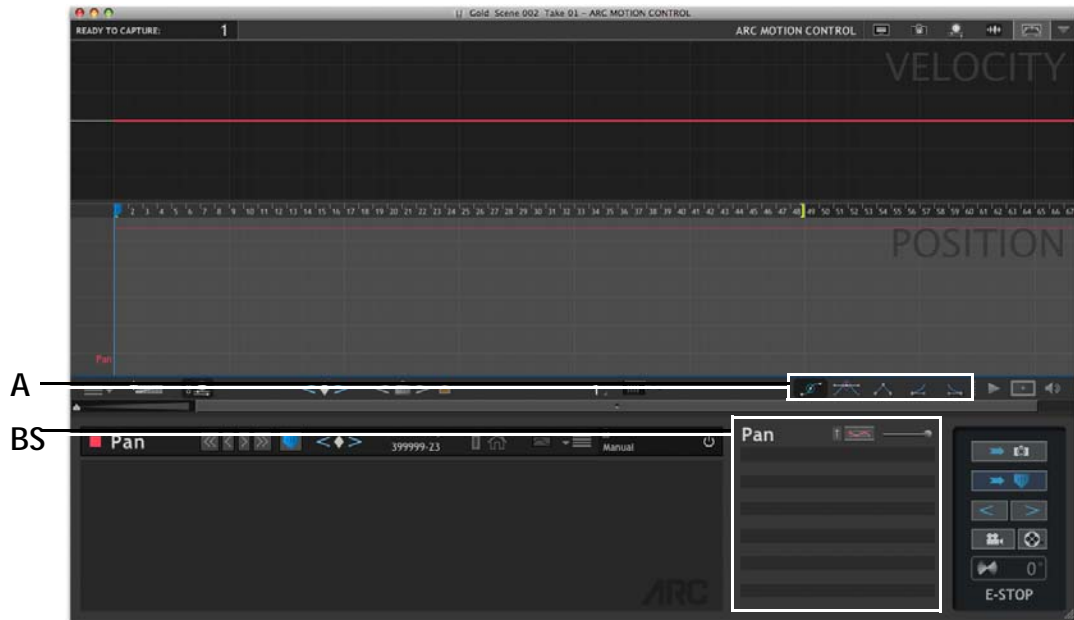
A. *Keyframe styles.* **B.** *Keyframe list.*

3. In the keyframe list, double click a row to add a keyframe. The keyframe dialog opens:
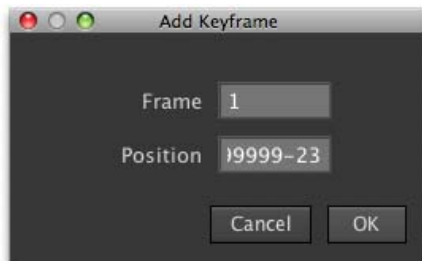
4. Enter the frame number for the first keyframe.

5. Enter the position for the first keyframe. For example, if you're using a dial and you want the first keyframe to start on 1, you'd enter **0-1**. If you wanted a keyframe to start on the third rotation of the dial, number 8, you'd enter **3-8**.

Dragonframe adds the keyframes to the axis as you create them.

6. (Optional) Select keyframes and use the bezier handles to adjust the ease-in or ease-out of the move. You can also change the keyframe style.

See also:
"Adding Keyframes" on page 234.

Understanding the Position Information for a Dial

In Dragonframe, a dial position is listed as a rotation count plus a dial increment in the format **ROTATION COUNT-INCREMENT**. When you add keyframes in Dragonframe, you enter those two values for each keyframe. In the image on the right, the first value (**0-1**) is a typical way a dial rig starts: the dial reads 1 and you have not rotated yet.
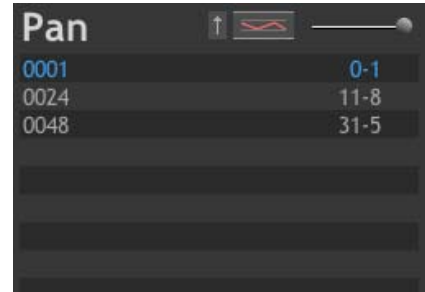
The second keyframe has a value of 11-8, meaning you've turned the dial eleven times, and ended with the dial reading eight.

In the final keyframe, you've rotated the dial 31 times, and ended on position five.

Once you set up the move, Dragonframe displays the move information for each frame in the X-Sheet. For example, a position of 1-5 would mean that you move the dial 1 revolution and rest it at increment 5. If the dial will move more than one full revolution from one move to the next, Dragonframe puts the number of revolutions inside brackets next to the position information.

For example, if you're using a dial with base eight, the move column for your X-Sheet might look like the image to the left:

The table below gives a further explanation of what those positions mean.

This position:	Means:
0-1	Set the dial to the first increment on the tape.
2-2	You've moved the dial two full revolutions since the beginning of the scene. Set the dial to the second increment.
7-5	You've moved the dial seven full rotations since the beginning of the scene. Set the dial to the fifth increment.

This position:	Means:
10-6 [1]	You've moved the dial ten full rotations since the beginning of the scene. Set the dial to the sixth increment. The last move was **9-5**, so in brackets, Dragonframe notes that you must turn the dial more than one full revolution to reach position **10-6**.
11-8 [1]	You've moved the dial eleven full revolutions since the beginning of the scene. Set the dial to the eighth increment. The last move was **10-6**, so in brackets, Dragonframe notes that you must turn the dial more than one full revolution to reach position **11-8**.

NOTE: The more increments your dial is broken into, the more flexibility you will have for short moves or longer eases.

Printing a Hard Copy of the Move

To print the move, click **FILE|PRINT**. This prints a copy of your scene's X-Sheet, with the moves for each frame.

See also:
"X-Sheet Overview" on page 25.
"Using the X-Sheet" on page 171.

Dragonframe User Guide

Chapter 15: Shooting in 3D

The most common technique for 3D stereoscopic shooting of stop motion animation is to use one camera on a special left/right slider. For every frame of animation, the camera shoots an image for the left eye, moves into the right eye position, and shoots an image in that position.

Connect Dragonframe to a stereo slider, such as the IOTA, to seamlessly automate 3D shooting. This chapter describes how to connect and configure a slider, how multiple exposures allow you to capture left and right frames automatically, and how to review stereo images in the Cinematography workspace. It includes the following sections:

See also:
Dragonframe tutorials:

http://www.dragonframe.com/tutorials.php

Connecting to a 3D Slider

Dragonframe has built-in support for connecting to the IOTA 3D Stereoscopic Slider or other stepper-controlled sliders via the IOTA Controller. Dragonframe also has built-in support for the Mark Roberts S3 Stereoscopic Stepper. This section and the one that follows describe this built-in support. For other 3D sliders, look at our Arduino integration (http://www.dragonframe.com/arduino) or our DDMX-S2 (http://www.dragonframe.com/dmx.php) for integration options.

To connect the IOTA:

1. Connect the IOTA Controller to your computer with the USB cable.

2. Select **HELP|INSTALL FTDI SERIAL DRIVERS (DDMX-S2/IOTA)**. This installs the drivers your Mac needs to work with the IOTA.

3. In Dragonframe, select **SCENE|CONNECTIONS**. The dialog appears, showing the Connections tab:
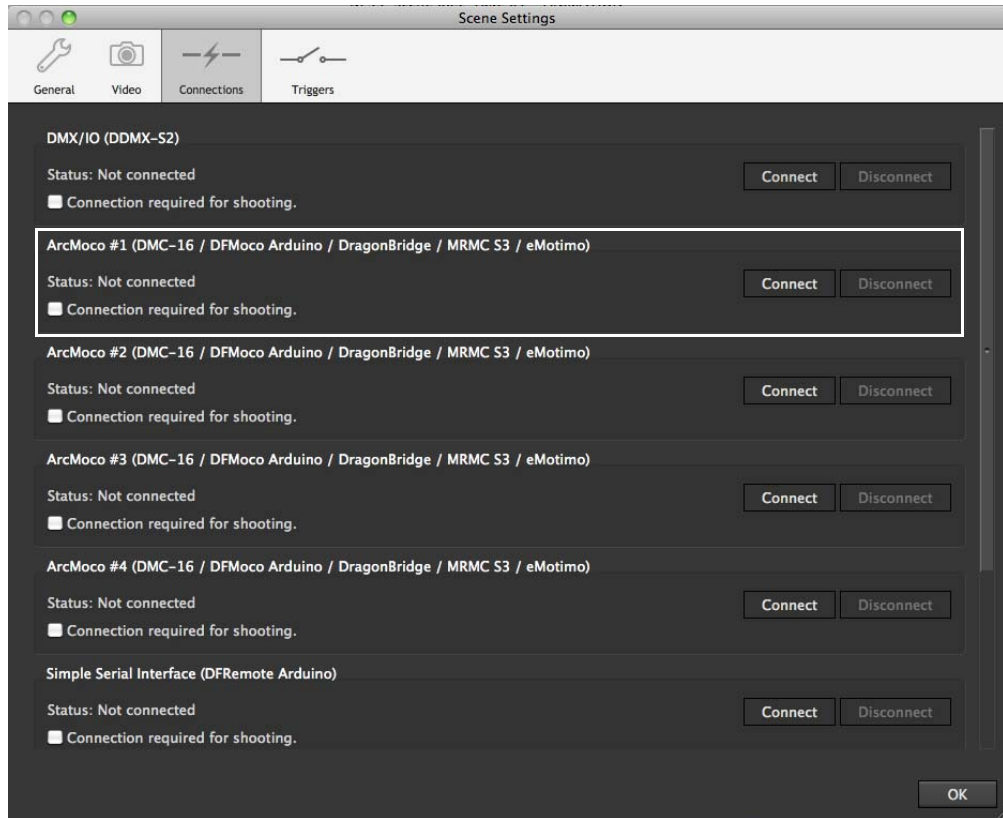
Settings dialog, Connections tab, Arc Moco #1 settings.

4. Under **ARCMOCO 1, 2, 3** or **4**, click **CONNECT**. An ArcMoco dialog appears:
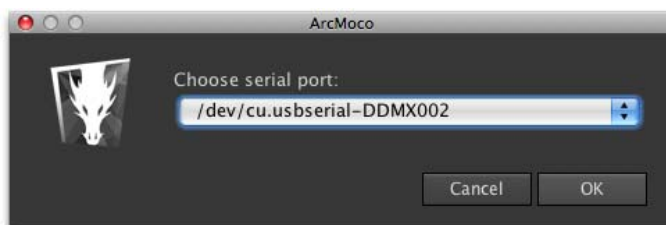
5. Choose the serial port, then click **OK**.

Dragonframe connects the device, then automatically checks the **CON-NECTION REQUIRED FOR SHOOTING** check box. When this box is checked, you will not be able to capture frames for the scene until Dragonframe is connected to the hardware.

CAUTION: If you uncheck the **CONNECTION REQUIRED FOR SHOOTING** box, you could accidentally shoot all or part of a scene without your 3D slider working.

See also:
Arduino integration at http://www.dragonframe.com/arduino

Setting Up the 3D Slider

Once you have connected to the slider, you will configure the slider, and set interocular distances from the Arc Motion Control workspace. You can also use Arc to animate the interocular distances.

See also:
"Arc Motion Control Workspace Map" on page 228.
"Using the Arc Motion Control Workspace" on page 223.

Configuring the Slider

To configure the slider:

1. Click to open the Arc Motion Control workspace.

2. Click ▦ to add an axis. The configure axis dialog appears. Many of the options in the dialog are specific only to motion control, so only the options for 3D are described below:
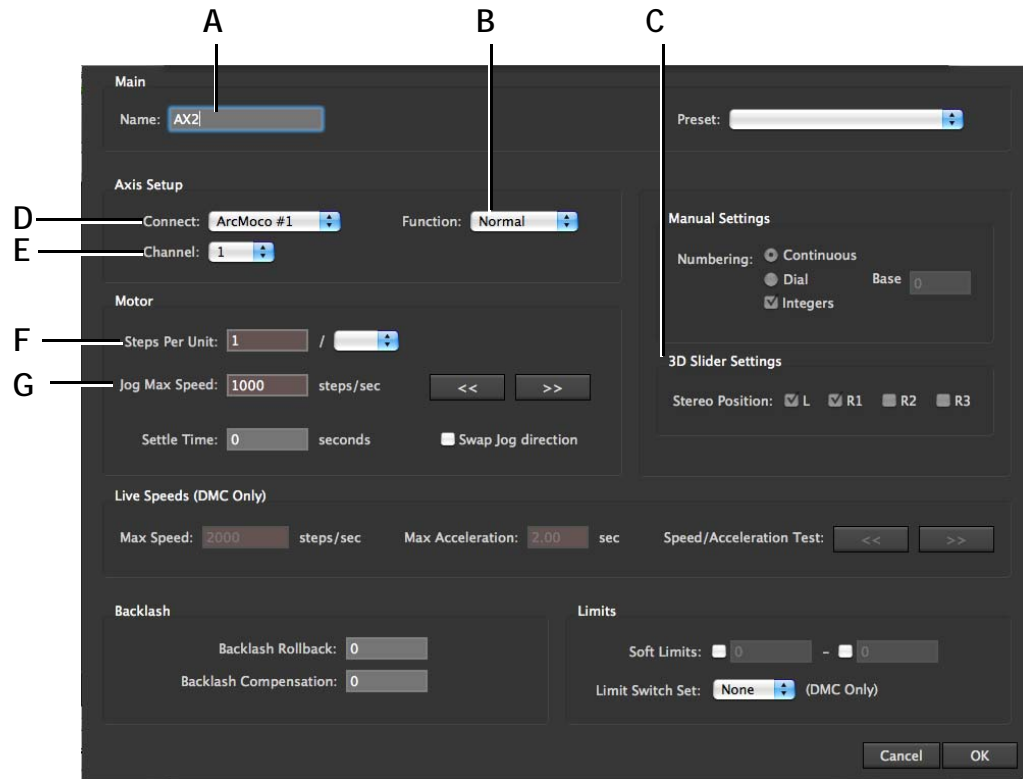
A. Name: Name the axis.

B. Function: Choose whether you're creating regular moco moves, setting up a 3D slider, or a focus move.

C. 3D Slider Settings: Choose whether you're creating regular moco moves, setting up a 3D slider, or a focus move.

D. Connect: Choose the device you're using. For a slider, it would be Arc Moco 1-4. You would have selected it in "Connecting to a 3D Slider" on page 273.

E. Channel: Select the channel you're using for the axis. You would have noted this in "Connecting to a 3D Slider" on page 273.

F. Steps Per Unit: Enter the number of steps per mm/ cm/m/ft/in/degrees. The IOTA has 1260 steps/ mm.

G. Jog Max Speed: The maximum speed of the device, specific to the motor you're using. **Start the speed slowly at first for safety.** Set the IOTA's between 6000-8000.ss

3. Name the axis (A.).

4. Select the device (D.) and channel (E.) you set up in "Connecting to a 3D Slider" on page 273.

5. Set the steps per unit (F.). The IOTA takes 1260 steps per mm.

6. Set the maximum speed for joggings (G.) Set the IOTA between 6000-8000.

WARNING: Start the steps per second slowly at first to make sure the rig moves safely.

7. Set the function to **3D**.

8. (Optional) Check **R2** and **R3** to add up to two additional IOs for a bracketed IO or a center frame. You can assign any of these positions to separate exposures.

9. Click **OK**. Dragonframe adds your axis to the Arc workspace:
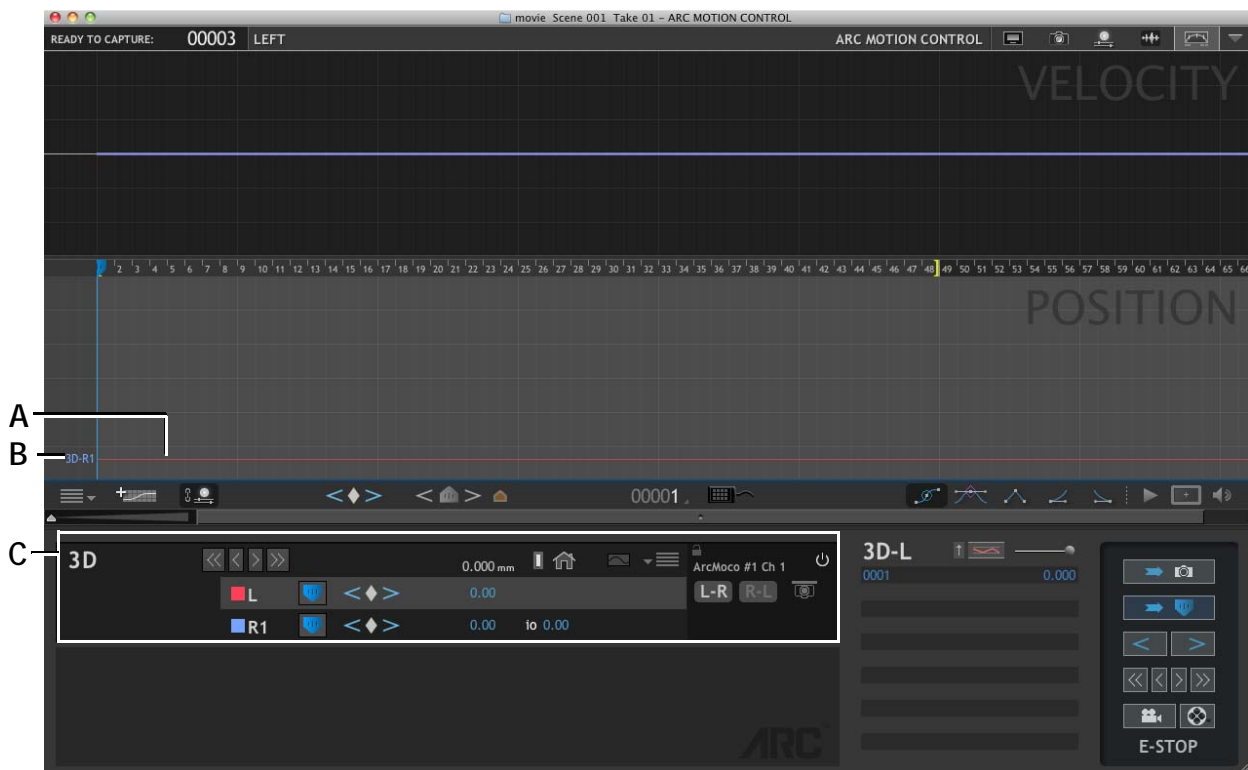
A. Motor's current position (red line). B. Right position (blue) in the position graph. The left position is directly under it because no keyframes have been added yet. C. Axis list with tools for 3D setup.

See also:
"Setting Up Exposures for 3D Shooting" on page 280.
"Adding an Axis" on page 229.

Setting the Slider's Interocular Distances

Once you've added your axis, you can set up the slider's interocular distances. The axis you configured appears in the axis list, with both of the eye positions listed:
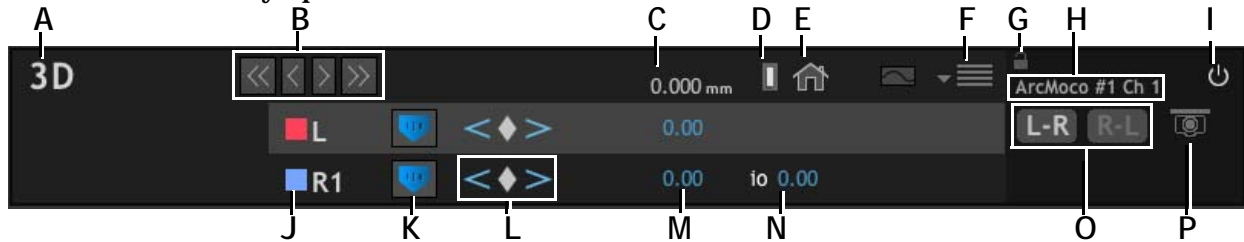
A. *Axis Name: Click to configure the axis.*

B. *Jog/Inch buttons. Move the slider.*

C. *Motor Position: Click to go to a position.*

D. *Zero: Send the axis to zero.*

E. *Home: Send the axis to the home position.*

F. *Menu: Set zero, home, and limits, or clear the axis.*

G. *Lock: Lock the axis for editing.*

H. *Device and channel name.*

I. *Disable: Disable the axis without deleting it.*

J. *Graph Color: Change the color of axis on the graphs.*

K. *Playhead: Click to send the axis to the playhead.*

L. *Keyframe buttons: Click the diamond to define the left and right positions (keyframes). Click < or > to move through keyframes.*

M. *R1 position: Shows the current R1 position.*

N. *IO distance: Shows the current IO. Click to edit.*

O. *L-R/R-L: Choose whether to be left-dominant or right-dominant. Left-dominant is the default.*

P. *Underslung: Click to indicate that your camera is underslung.*

1. (Optional) Click ⬚ to indicate the camera is underslung.

2. (Optional) Click ⬚ to turn on Live View so you can see how moving the slider affects the shot.

3. Press the jog buttons (B.) to move to the zero point for your device.

4. From the menu (F.) click **SET ZERO**.

5. Press the jog buttons (B.) to move to the primary eye position.

6. Click the diamond keyframe button (L.) to set the primary eye position.

7. Click the IO for the secondary eye position (N.), and enter the interocular distance. Click **OK**.

8. (Optional) Repeat step 7. to create IOs for any additional eye positions you enabled when you configured the slider.

Once you're done setting up the positions, the workspace will look something like this:
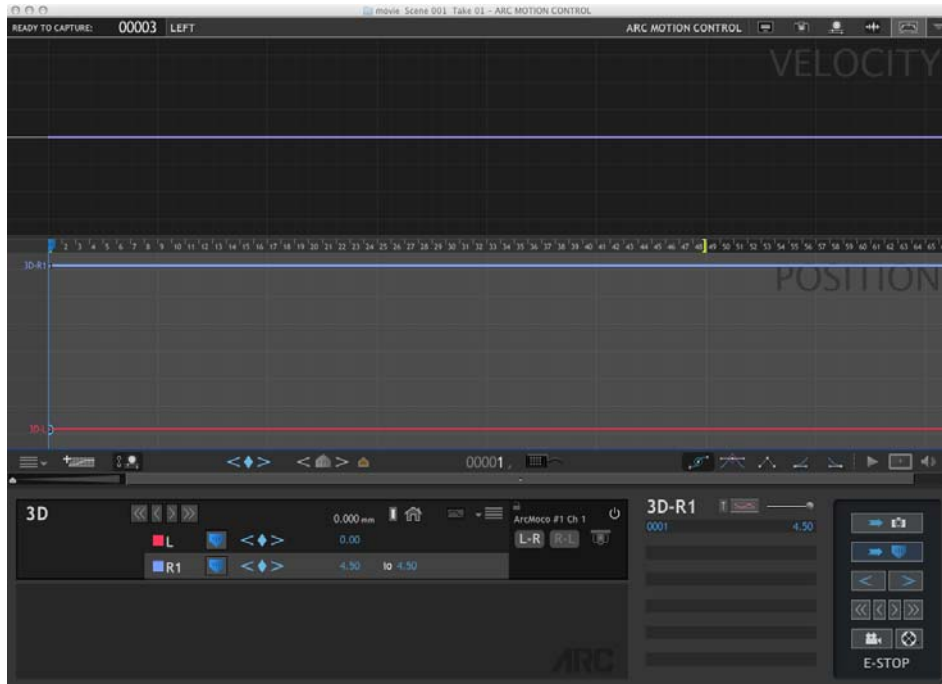
NOTE: You can also set up and refine eye positions from the Cinematography window.

See also:
"Refining 3D Settings from the Cinematography Workspace" on page 283.
"Configuring the Slider" on page 275.
"Setting the Zero Point and Going to the Zero Point" on page 232.
"Jogging and Inching your Motors" on page 232.
"Setting the Limits for the Axis" on page 233.
"Adding Keyframes" on page 234.

Creating an Animated IO

Your primary and secondary positions can be static or they can be animated throughout the scene. Generally, you will leave your primary eye at one position, and animate just the secondary eye.

To animate the secondary eye (in this example, **R1**):

1. Click **R1** to select that sub-axis in the axis list:
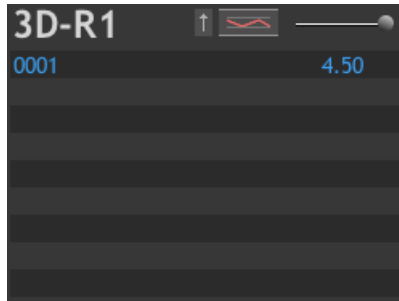
*Keyframe list for **R1**.*

2. In the keyframe list, double-click an open area.

3. Enter a frame number and IO position for a second keyframe and click **OK**.

4. In the position graph, adjust the keyframe handles to shape the move.

See also:
"Adding Keyframes" on page 234.

Setting Up Exposures for 3D Shooting

Now that you've configured your stereo positions, you can assign them to exposures, enabling Dragonframe to move your slider automatically. Use Dragonframe's multiple exposure feature to set up left and right "sub-frames". This way, Dragonframe will shoot multiple images per frame. In addition, you can name the exposures to identify if they are left or right eye images, making it easy to work with the files in post-production.

Set up multiple exposures from the Camera Control pane in the Cinematography workspace. From each location, you can indicate whether

the exposure will capture the frame for the dominant eye, or one of the interocular distances:

Cinematography workspace's Camera Control pane with stereo positions set.

NOTE: When you set up exposures for 3D shooting, make sure to set each exposure to capture automatically. For more information, see "Manual vs. Automatic Captures" on page 82.

See also:
3D Stereo Shooting on our website:
http://www.dragonframe.com/stereo.php
"Multiple Passes and Exposures" on page 78.
"Linking Exposures" on page 81.
"Passes, Takes and Exposures Explained" on page 10.

Using a Push-In Mask for 3D

We highly recommend shooting 3D with a push-in mask. By composing your scenes with space on the left and right of the image, you will have room to slide the stereo layers in post. Sliding the stereo layers will give you more control of your 3D depth.

See also:
"Pushing In the Broadcast-Safe Overlay and Aspect Ratio Mask" on page 64.

Reviewing 3D Images

There are a few ways to review 3D images.

• Review 3D test shots in the Cinematography workspace,

• View anaglyph or transparency stills in the Cinematography workspace,

- Play back 3D sequences in the Animation workspace, and

- Export 3D sequences to QuickTime.

As you use these methods to review your work, Dragonframe also provides a variety of tools to help you refine 3D settings.

Taking 3D Test Shots and 3D Images

Once you have set up a stereo slider, created left and right exposures, and assigned stereo positions to them, you can take 3D test shots or 3D images.

- To take a 3D image, press **SHOOT** as you normally would.

- To take a test shot, maximize the 3D Stereo Review pane, and click the **3D TEST SHOT** button.
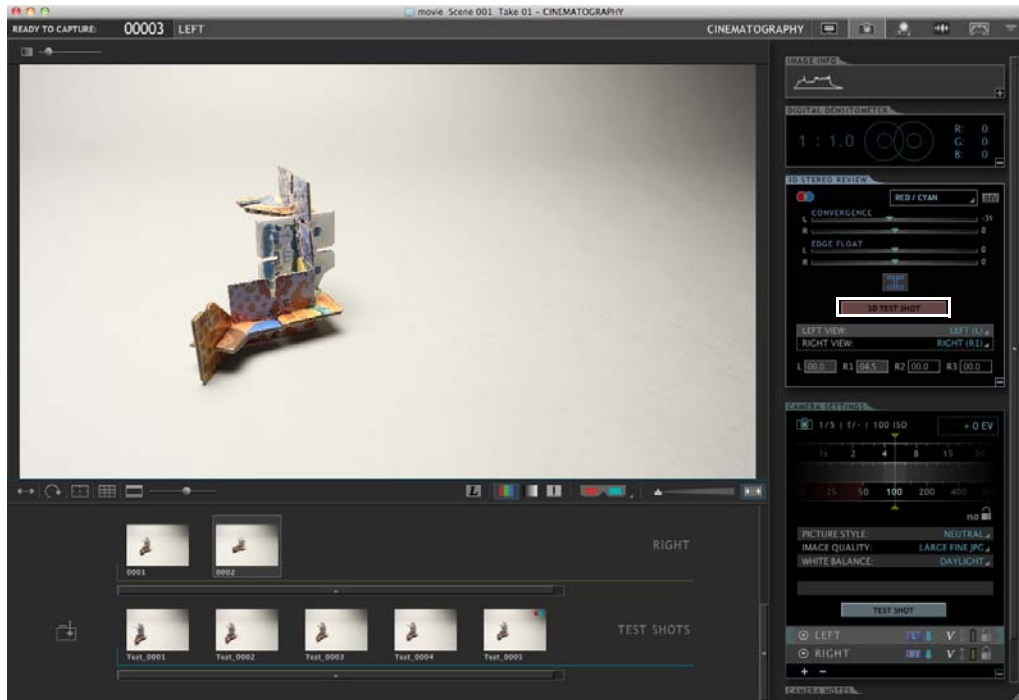
3D Test Shot button.

Reviewing 3D Images and Test Shots

To review 3D images, select an image from the Test Shot tray (C.) or the Exposure Image tray (B.). Then select a 3D viewing mode (A.)

A
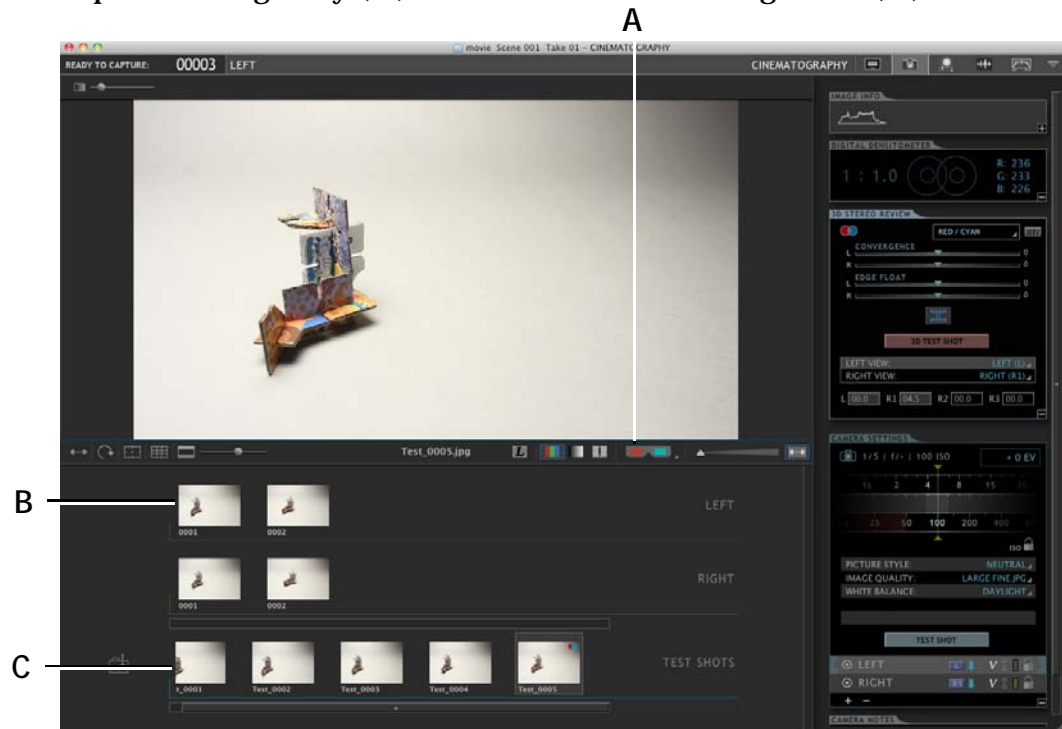
A. *3D Viewing Modes. Click to activate the current viewing modes Click the arrow to select a viewing mode, including* **COLOR ANAGLYPH**, **BLACK AND WHITE ANAGLYPH, COLOR TRANSPARENCY,** *or* **BLACK AND WHITE TRANSPARENCY**.

B. *Click an exposure to view it. Left and right pairs appear in the corresponding exposure tray—here, they're labeled* **LEFT** *and* **RIGHT**.

C. *Click a test shot to view it. Stereo pairs appear with a stereo icon on them.*

Refining 3D Settings from the Cinematography Workspace

You can adjust 3D settings, such as anaglyph colors, convergence, screen edge, right and left exposures, and interocular values from the

3D Stereo Review pane. To view the pane, maximize it in on the left side of the Cinematography workspace:
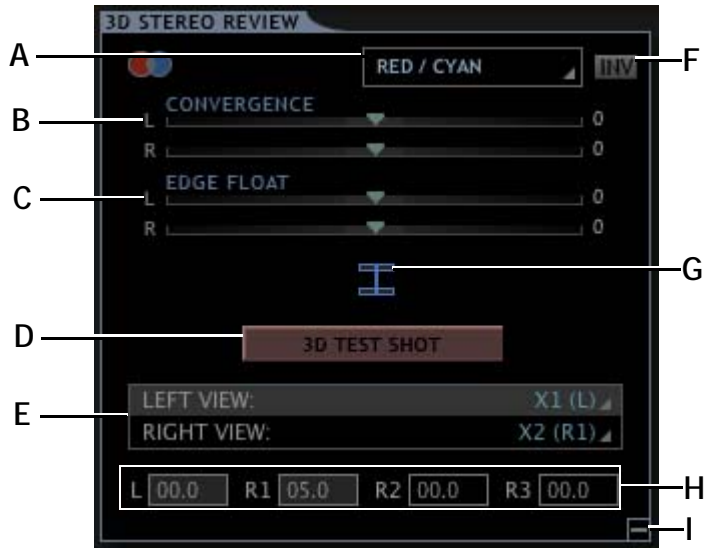
A. *Anaglyph color: Change the colors used to make anaglyphs from Red/Cyan to Green/Magenta.*

B. *Convergence: Adjust convergence for horizontal alignment of your left and right views.*

C. *Edge float: Adjust the left and right screen edges in 3D space.*

D. *3D Test Shot: Take a 3D test shot.*

E. *Exposures: Change which exposures are used for the left and right views.*

F. *Inv: Invert the colors used for the anaglyph, for example, if you mirror the image.*

G. *Calipers: Click to open measurement calipers over the View pane.*

H. *IO Values: Change the interocular values for the left and right positions.*

I. *Minimize the 3D Stereo Review pane.*

NOTE: With the exception of the IO adjustments, (H.) the settings in the 3D stereo review pane are for preview only. They do not effect your saved image sequences.

Using an Edge Float

New to recent 3D movies is a technique called a "dynamic floating window." In this technique, the screen edges (window) are treated as 3D elements along with the movie within. By floating the screen edges in front or behind the actual projection plane, you can solve some 3D issues like edge violations.

Dragonframe includes a basic edge floating system as a 3D previewing tool (C.). The edge float sliders can be set to either make the screen edges float above or behind your projection plane or computer screen.

Stereo Calipers

Use the stereo calipers to measure stereo offset.

The stereo calipers can be used to measure pixel offset in stereo pairs. They can help you determine proper interocular settings.

In addition, the calipers can help you make quick decisions about lensing and staging without the need to preview every shot on the big screen in full 3D.

You can set the calipers to measure pixel distances based on your final export size, projection size or post-production size, such as 4K, 2K and HD. This way, even if you are shooting 5000 pixel raw files, you can still communicate clearly with your post production team about intended stereo offsets.

To use the calipers:

1. Shoot a stereo frame, test shot or scene in Dragonframe.

2. (Optional) Set a push-in mask.

NOTE: We highly recommend shooting 3D with a push-in mask. By composing your scenes with space on the left and right of the image, you will have room to slide the stereo layers in post. Sliding the stereo layers will give you more control of your 3D depth.

3. Open the Cinematography workspace and maximize the 3D Stereo Review pane if it's minimized:

A. Stereo viewing modes. Click to turn on the current mode. Click the arrow to select a mode: anaglyph or transparency in color or black and white.

B. 3D Stereo Review pane. Refine stereo settings.

C. Calipers button. Click to view the calipers.

D. 3D Test shot. Take a 3D test shot.

E. 3D Exposure. Select which exposures to use for the left and right views.

F. Test shot. Take a test shot.

4. Set the left and right exposure you wish to preview in the 3D Stereo Review pane (E.).

5. Select a stereo viewing mode (A.). The anaglyph or transparency appears in the View pane.

6. Click the calipers button (C.).

The calipers appear in the View pane.
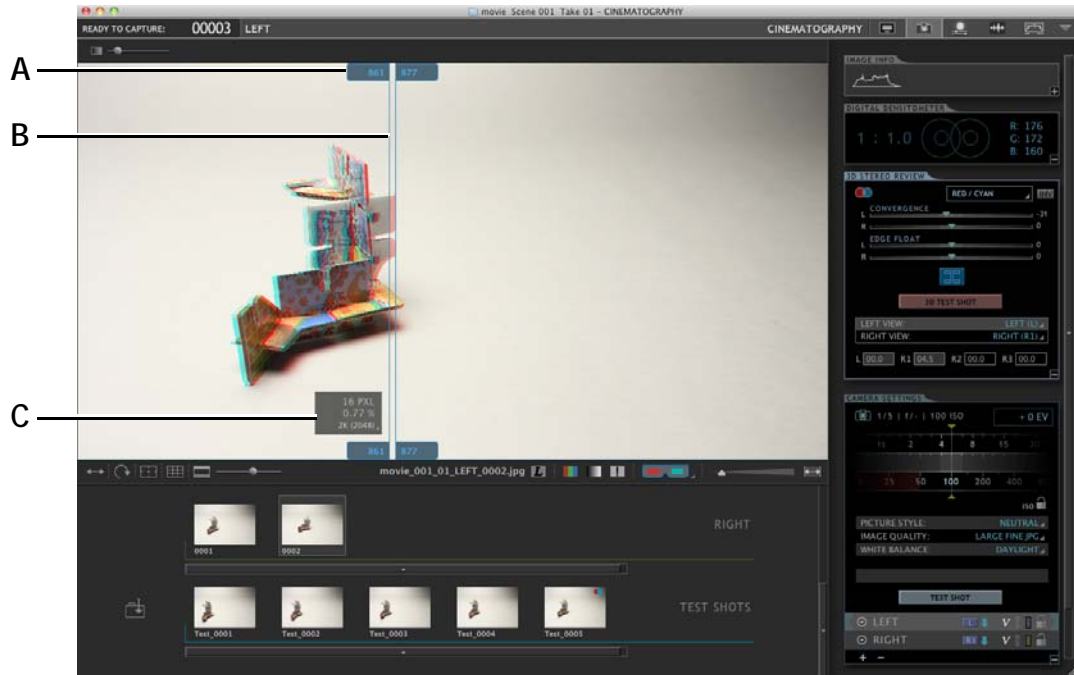
A. Caliper handles. *B.* Calipers. *C.* Calipers info box.

4. Click the arrow in the calipers info box to select the intended final width of your image:
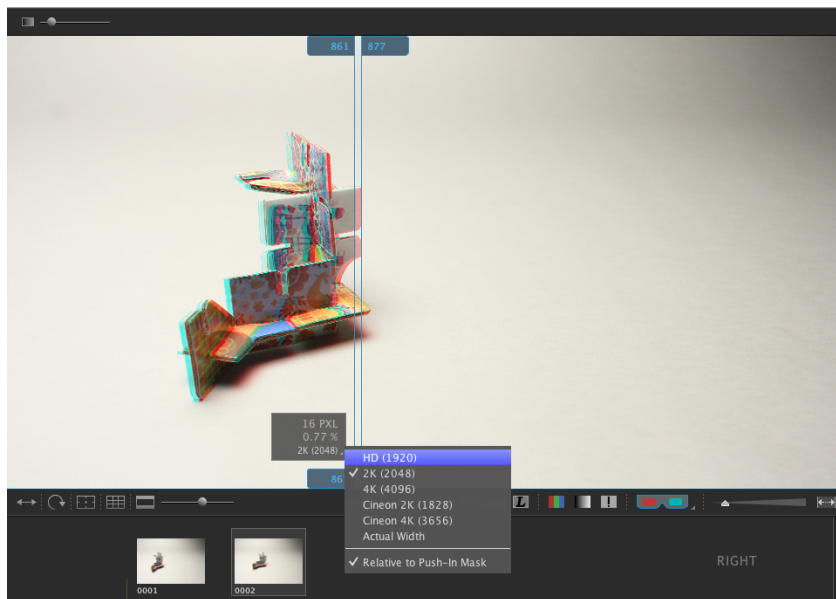
5. Grab the handles (A.) at the top or bottom of the calipers to take a measurement.

See also:

Basic Stereo Caliper Theory

A 3D image will often have elements of the image that appear at the screen level, behind the screen and in front of the screen in 3D space.

Elements that appear at the screen plane in 3D will be aligned horizontally. The left and right image will appear to match up or align. You can use Dragonframe's convergence sliders to visually align what you want appear at screen level in 3D space.

The elements in front or behind the screen plane will appear to be offset from their left or right counterpart. It is this offset that causes the illusion of 3D.

Based on the intended viewing size of your final work, you will find there is a limit to the amount of 3D offset you want to produce. There are physical and creative considerations. Through experience, you will want to understand the effect of the overall stereo offset: from the clos-

est to the farthest object in 3D space. You will also want to judge how much offset is acceptable behind and in front off the screen plane.
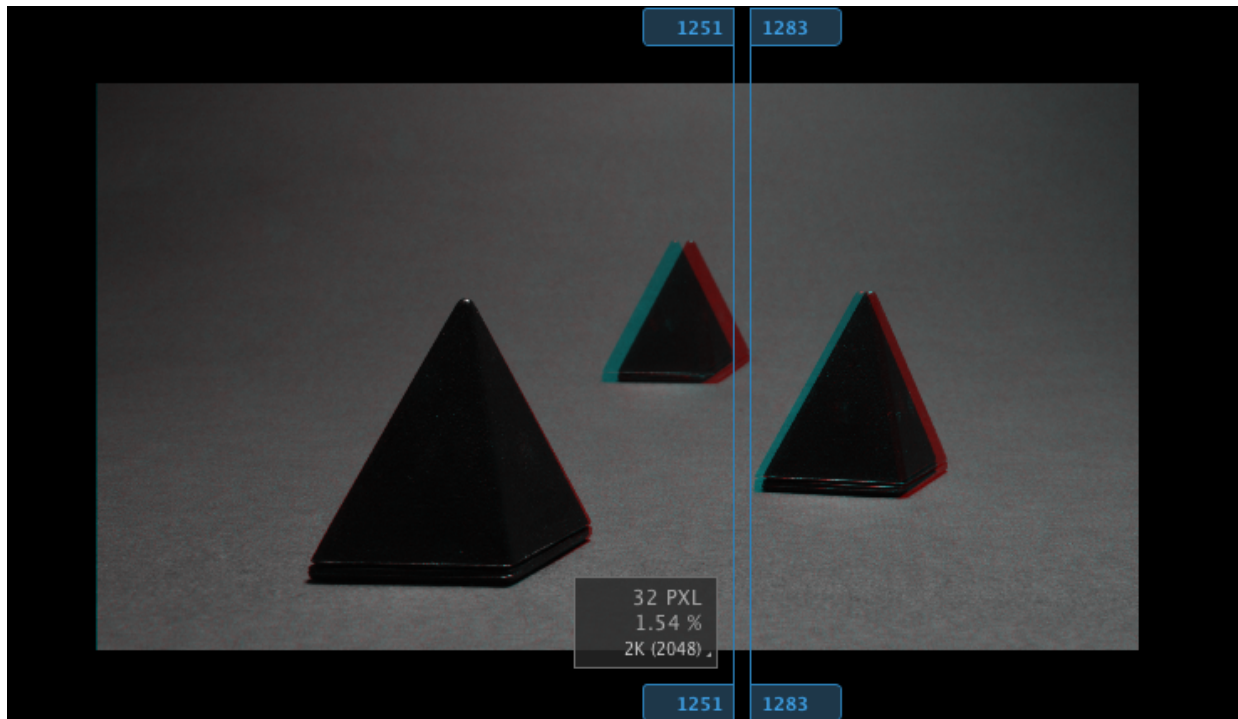
Calipers measuring stereo offset for object in 3D space.

Using the stereo calipers can help you and your team keep track of your stereo offset and reduce the amount of big-screen testing and review you need.

By setting an intended compositing size or projection size in the 3D Stereo Review pane, the camera team, post-production team and 3D supervisor can all talk in the same increments, saving time and confusion.

Playing Back Stereo Sequences in Dragonframe

To play back footage in 3D:

1. In the Cinematography workspace, choose which exposures are used for the left and right eye using the 3D Stereo Review pane.

2. Refine any other 3D settings needed in the 3D Stereo Review pane.

3. Open the Animation workspace.

4. Click **PLAYBACK**, and then select a 3D playback mode.

Now Dragonframe will play both exposures in the Animation workspace using the normal playback controls. Any adjustments you make in the 3D Stereo Review pane will be reflected in the Animation workspace's playback.

See also:
"Passes, Takes and Exposures Explained" on page 10.

"Multiple Passes and Exposures" on page 78.

"Setting Up Exposures for 3D Shooting" on page 280.

"Refining 3D Settings from the Cinematography Workspace" on page 283.

Exporting Stereo Sequences to QuickTime

Export your 3D sequence to QuickTime to preview your frames, or as a simple way to produce your project. To export your image sequence, select **FILE|EXPORT STEREO (3D) QUICKTIME**.

See also:
"Creating a Movie from a Stereo Image Sequence" on page 299.

Chapter 16: Exporting Your Take

There are a variety of ways to access your Dragonframe project. We designed Dragonframe to give you direct access to your images.

CAUTION: All frame editing is virtual. That is, once you make any edits, including deletes and cutbacks, you will need to conform your take if you want the files on disk to have frame order numbering on them.

To export your take, you can do one of the following after conforming your edits:

- Access your files directly. Dragonframe always saves images directly from your camera (for still cameras). *Conform your edits before you access image files.*

- Import Dragonframe source files as an image sequence into another program, such as AfterEffects. *Conform your edits before you import an image sequence from Dragonframe.*

- Export a movie for import into another program, such as Final Cut Pro. You do not need to conform edits before exporting a movie.

- Or, export a frame sequence, including DNG files. You do not need to conform edits before export a frame sequence.

This chapter contains the following sections:

See also:
Dragonframe tutorials:

http://www.dragonframe.com/tutorials.php

Finding Your Source Files

With Dragonframe, you can always directly access your source files. Import those files within post-production software, such as AfterEffects.

CAUTION: All frame editing is virtual. That is, once you make any edits, including deletes and cutbacks, you will need to conform your take if you want the files on disk to have frame order numbering on them.

To keep your files organized, Dragonframe creates a file hierarchy automatically as you create new scenes and takes. The capture files and the video assist files are always stored in the same place within the hierarchy. Learning Dragonframe's organizational system will help you to get access to those files anytime.

A. *The Scene folder.*

B. *The Take folder.*

C. *The Backup folder contains any capture or feed frames you've deleted.*

D. *The Feed folder contains video assist frames, stored as JPEGs. Multiple exposures are stored together.*

E. *The HQ folder contains proxies of the high-res images for playback.*

F. *The Exposure folders. These are your high-res images.*

G. TAKE.XML *contains the meta data for the take. (You can use this file to set up a "template" for new scenes.) This is all the information about your take besides media files (images and audio).*

H. *The Test Shots folder contains any test shots you took in the Cinematography workspace.*
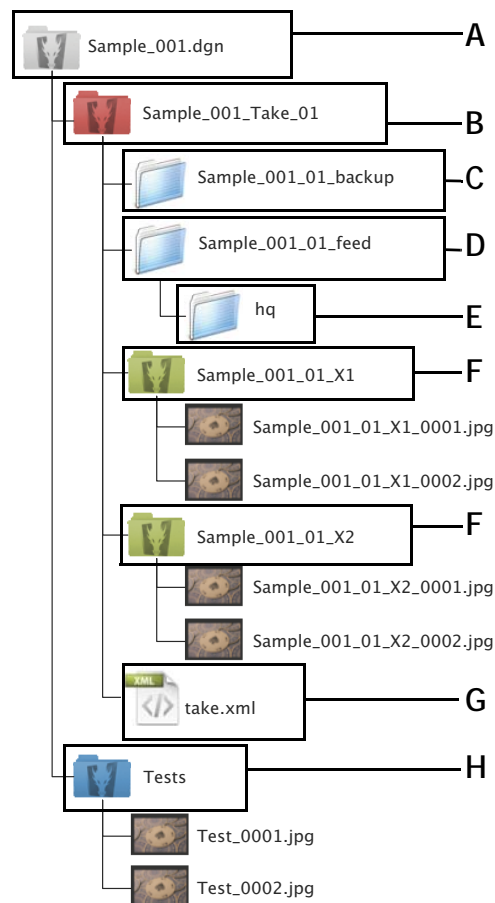
CAUTION:Dragonframe relies on the naming structure of your scene and take folders to locate your files. If you need to rename a scene or take, you must do it within Dragonframe by duplicating a scene or through the Manage Takes dialog. Dragonframe will not be able to open a project that has been renamed elsewhere.

See also:
"Conforming Timeline Edits" on page 126.

"Duplicating Your Scene" on page 136.

"Managing Takes" on page 138.

"Delete Key" on page 91.

"Passes, Takes and Exposures Explained" on page 10.

"Using a Scene Template" on page 141.

"Advanced Preferences" on page 311.

"Working with Test Shots" on page 66.

The next pages show a file hierarchy, depending whether you choose the default file names (Production + Scene) or the shorter file names (Scene only). Choose the naming convention from Naming Preferences.

File Hierarchy Map, long
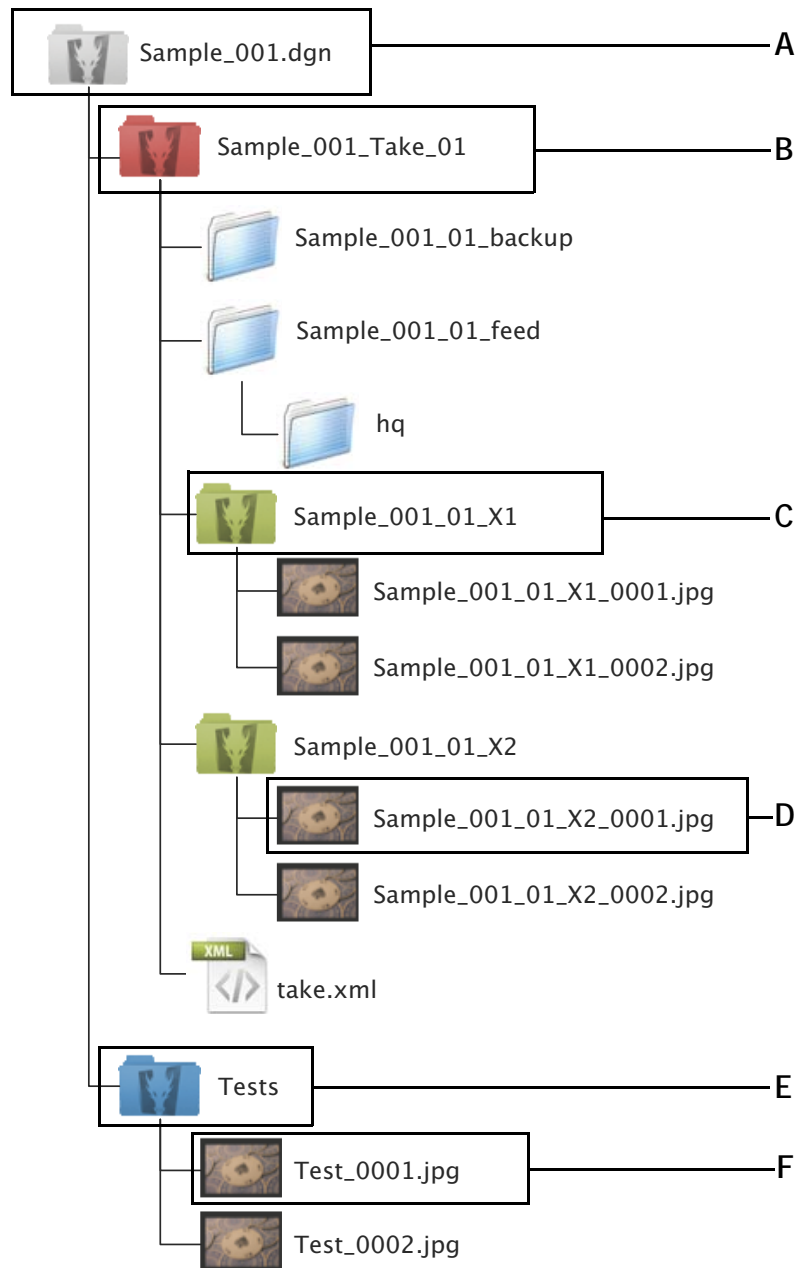
A. *Scene Folder: Production_Scene.dgn*

B. *Take Folder: Prod_Scene_Take*

C. *Exposure Folder: Prod_Sc_Tk_Exposure#*

D. *Capture Images: Prod_Sc_Tk_Ex_Frame#.jpg (Or other file extension)*

E. *Tests Folder*

F. *Test Images: Test.0001.jpg*

File Hierarchy Map, short
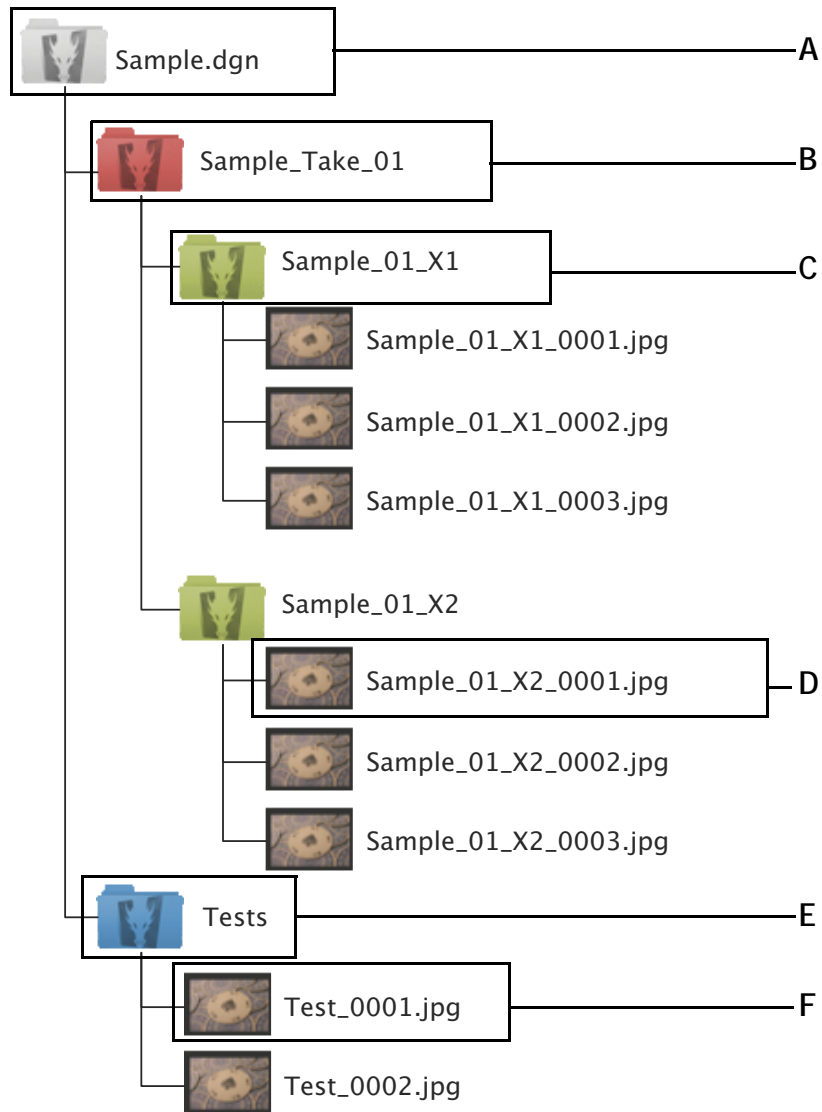
A. *Scene Folder: Scene.dgn*

B. *Take Folder: Scene_Take_##*

C. *Exposure Folder: Sc_Tk#_Exposure*

D. *Capture Images: Sc_Tk#_Ex_Frame#.jpg (Or other file extension)*

E. *Tests Folder*

F. *Test Images: Test.0001.jpg*

Creating a Movie of Your Take

You can export the frames in the take you're working on as a movie in various formats, including m4v or QuickTime. That way, you can get a quick preview of your take, or have a simple way of producing your project.

To export a movie:

1. Click **FILE|EXPORT MOVIE**. The Export Movie dialog appears.
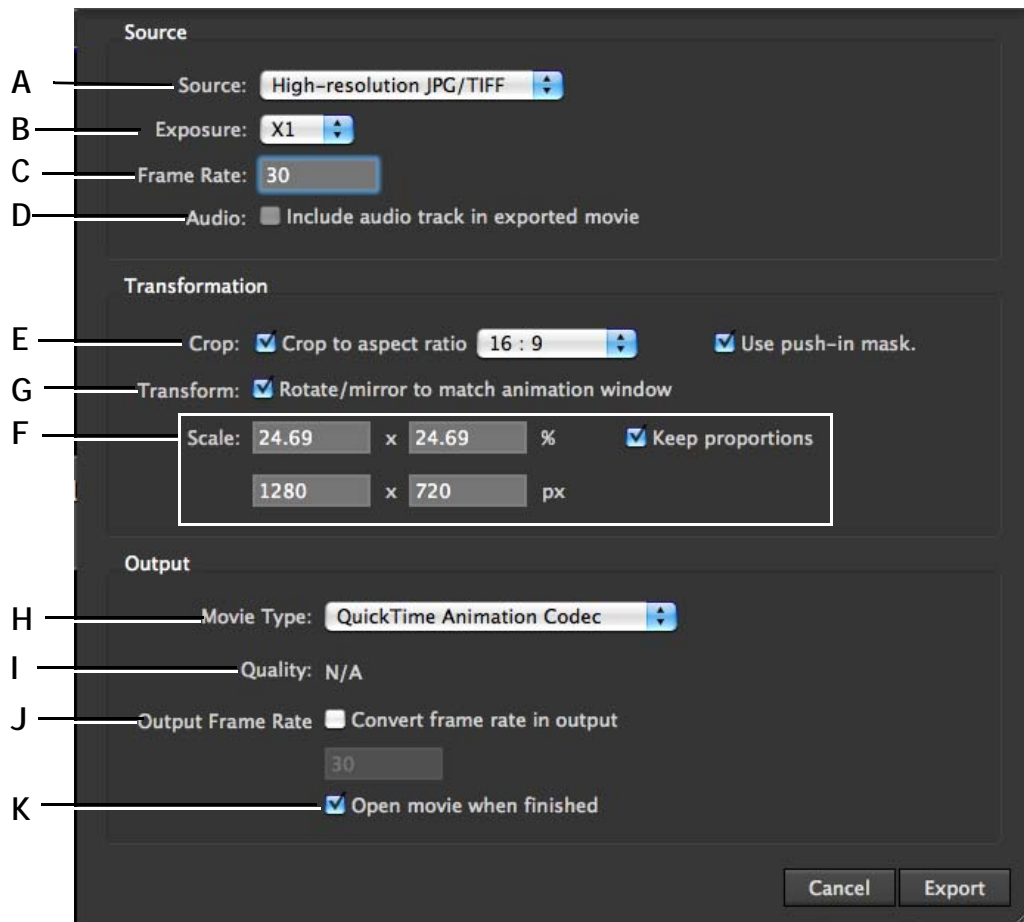
A. *Source: Select whether to use low-res video assist frames or high-res capture frames to create the movie.*

B. *Exposure: Select which exposure to used in the QuickTime movie if your scene has more than one exposure.*

C. *Frame Rate: Set the frame rate for the movie.*

D. *Audio: Include the imported audio track in the movie.*

E. *Crop: Crop the movie using the Aspect Ratio mask as a guide, or keep the frames un-cropped.*

F. *Transform: Match the movie's screen orientation to that of the Animation workspace, or ignore orientation settings.*

G. *Scale: Set the size of the movie as a percentage of the source file's image size, or using a pixel count.*

H. *Movie Type: Choose an output format and compression codec. For example, QuickTime Uncompressed or Windows AVI.*

I. *Quality: If your format has a variable quality level, you can select it here. 100% would mean the highest quality available from the format.*

J. *Output Frame Rate: Use this setting if you animate at one frame rate, but want your output to be in another. For example, you animated at 12 FPS, but your post-production work requires 24 FPS movies as input. Here, leave the original frame rate at 12, then set the output frame rate to 24.*

K. *Open movie when finished: Open the movie once Dragonframe finishes exporting it.*

2. (Optional) Change any settings necessary, then click **OK**. Dragon-frame opens the Save Movie dialog.

3. Navigate to where you want to save the movie and click **SAVE**.

4. Click **OK**.

Dragonframe exports the movie. If you've selected to open the movie after the export is complete, it will appear in its own window.

Available Movie Formats

Dragonframe supports the following movie formats:

H.264/AAC (.mp4)

The de-facto standard for Internet sharing. It is cross-platform and the recommend format for uploading to YouTube or Vimeo.

This is not available on Windows XP.

QuickTime Uncompressed (.mov)

A lossless, very large movie file format. May be suitable for post-pro-duction on small projects.

QuickTime Animation Codec (.mov)

A lossless codec with smaller file sizes than uncompressed. Commonly used for post-production.

QuickTime Photo JPEG (.mov)

A high-quality, large file codec. May be used for sharing or post-produc-tion.

QuickTime ProRes (.mov)

A high-quality, small file codec. Commonly used for post-production.

Windows AVI Uncompressed (.avi)

A lossless, very large movie file format. May be suitable for post-pro-duction on small projects.

Windows AVI Motion JPEG (.avi)

Similar to QuickTime Photo JPEG, it has JPEG-compressed frames. May be used for sharing or post-production.
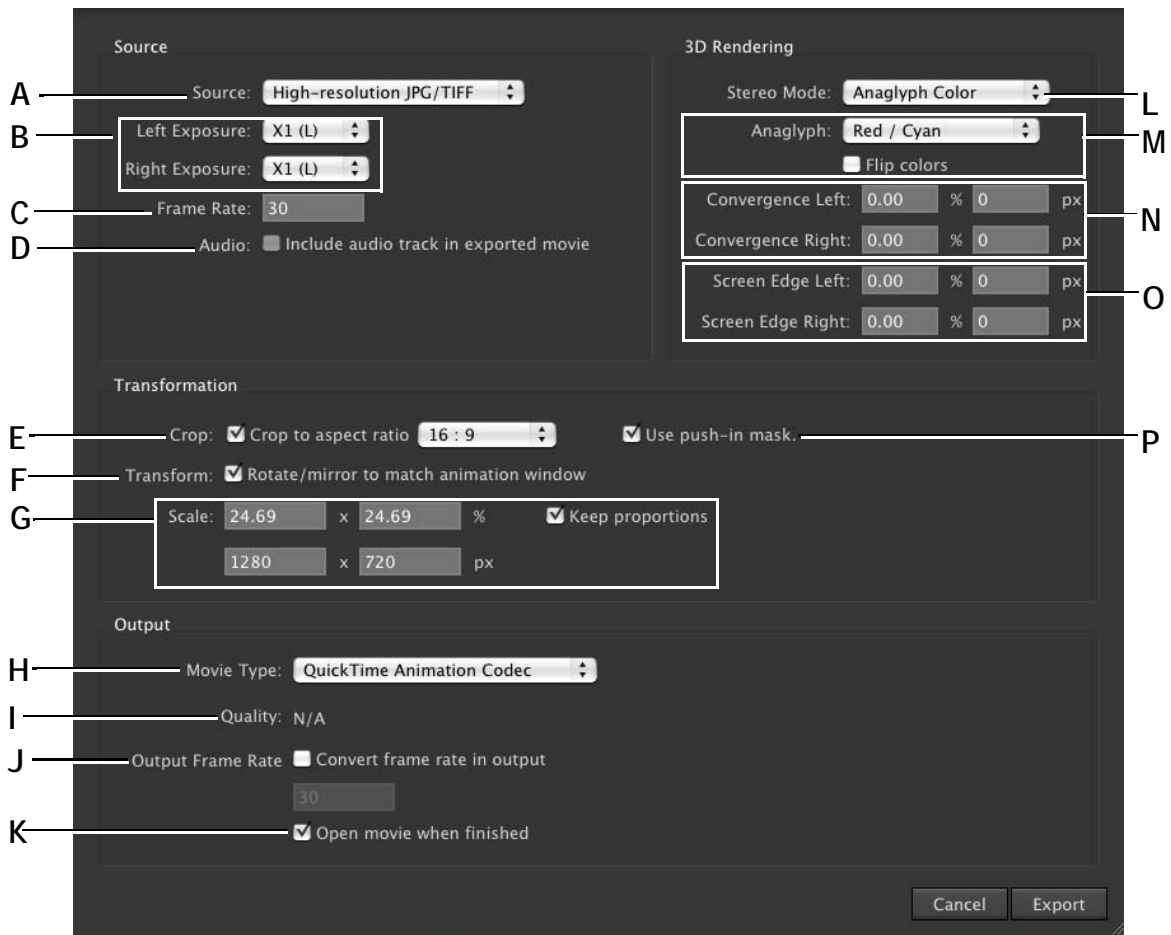
Windows WMV Video 7 (.wmv)

A high-quality, small file codec. Generally used for sharing.

Creating a Movie from a Stereo Image Sequence

Export your 3D sequence to a movie to preview your frames, or as a simple way to produce your project.

To export your image sequence, select **FILE|EXPORT STEREO (3D) MOVIE**.

The Export Stereo QuickTime dialog appears:

A. Source: Select whether to use low-res video assist frames or high-res capture frames to create the movie.

B. Left/Right Exposure: Choose the left-eye and right-eye exposures.

C. Frame Rate: Select the frame rate for the movie.

D. Audio: Include the audio track in the movie.

E. Crop: Crop the movie using the aspect ratio mask as a guide, or keep the frames un-cropped.

F. Transform: Choose whether to match the movie's screen orientation to the Animation workspace.

G. Scale: Size the movie as a percentage of the source file's image size, or using a pixel count.

H. Movie Type: Choose an output format and compression codec. For example, QuickTime Uncompressed or Windows AVI.

I. Quality: If your format has a variable quality level, you can select it here. 100% would mean the highest quality available from the format.

J. Output Frame Rate: Use this setting if you animate at one frame rate, but want your output to be in another. For example, you animated at 12 FPS, but your post-production work requires 24 FPS movies as input. In that case, leave the original frame rate at 12, then set the output frame rate to 24.

K. Open movie when finished: Open the movie once Dragonframe finishes exporting it.

L. Stereo Mode: Select the stereo mode to use for the QuickTime: anaglyph or transparency in black/white or color.

M. Anaglyph: Choose which colors to use for the anaglyph. Click **FLIP COLORS** to invert the colors.

N. Convergence L/R: Set convergence values for the left or right image as a percentage, or by specifying the number of pixels.

O. Screen Edge L/R: Set screen edge values for the left or right image as a percentage, or by specifying the number of pixels

P. Use push-in mask: Keep the push-in mask in the exported frames.

See also:
"Available Movie Formats" on page 298.
"Shooting in 3D" on page 273.
"Reviewing 3D Images" on page 281.

Exporting Image Sequences

You always have access to your files in Dragonframe. However, you may want to export your images from Dragonframe instead of using the original files. Export files to convert image formats, scale down files, or change the naming convention.

CAUTION: All frame editing is virtual. That is, once you make any edits, including deletes and cutbacks, you will need to conform your take if you want the files on disk to have frame order numbering on them.

To export a frame sequence:

1. Select **FILE|EXPORT IMAGE SEQUENCE**. The export image sequence dialog appears:

A. Choose which image source to use for the export: video assist, high-res TIFFs/JPGs, or raw files.

B. Choose which frames to include: all of the frames in the scene, or a range of frames.

C. Crop the frames to the aspect ratio you choose. Or, do not crop the frames.

D. Rotate or mirror the images to match the settings you've chosen in the Animation workspace.

E. Choose which image format your exported images will use.

F. Create the DNG files in the Dragonframe folder where the original RAW files are.

G. Specify the file names for the sequence.

H. Select whether multiple exposures will be exported to one folder, or separate folders per exposure.

I. Choose where to export the files. This option is disabled if you choose to convert DNG files in place.

J. Select which exposures to include in the export.

K. Choose the image size.

L. Specify settings for the image formats you chose.

2. Click **EXPORT**. Dragonframe exports the frame sequence with the settings you chose.

Chapter 17: Preferences

Dragonframe contains a number of ways to customize your user experience. Preferences gives you control over settings for your whole project, while the Settings dialog lets you adjust settings for a particular scene.

This section includes the following sections:

"Configuring Preferences" on page 303.
"Configuring Scene Settings" on page 312.

See also:
Dragonframe tutorials:

http://www.dragonframe.com/tutorials.php

Configuring Preferences

Change Preferences by selecting **DRAGONFRAME|PREFERENCES**, then click the tab you need. Changes made in Preferences will affect settings for your whole project.

General Preferences

Use General Preferences to modify a variety of Dragonframe's functions. Any changes you make will apply to your whole project. Select **DRAGONFRAME|PREFERENCES** to open General Preferences.
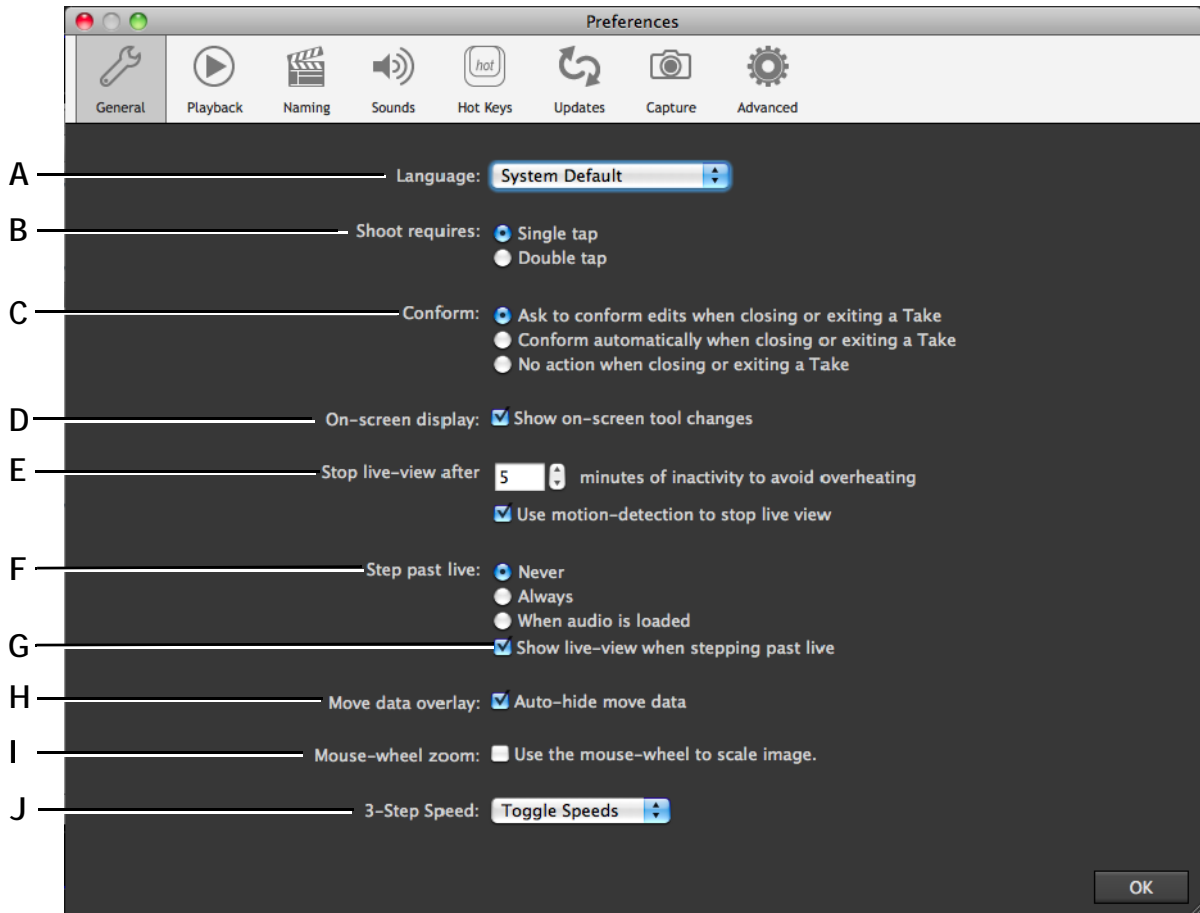
A. *Language: Choose which language to use in the interface.*

B. *Shoot requires: Adjust whether to press* **SHOOT** *once or twice to capture frames.*

C. *Conform: Change whether Dragonframe prompts you to conform edits when you exit a take.*

D. *On-screen display: Show or hide notes that flash in the View pane when selecting Dragonframe Animation tools.*

E. *Stop live-view after: DSLRs with Live View can overheat. Configure how long auto-shutoff takes, and whether Dragonframe will use its built-in motion detection feature to determine inactivity.*

F. *Step past live: Adjust whether you can step past the Live View into black to-be-shot frames.*

G. *Show live-view...: Check* **SHOW LIVE VIEW WHEN STEPPING PAST LIVE** *to see the Live View when you step into to-be-shot frames.*

H. *Move data overlay: By default, Dragonframe displays hand-cranked camera moves in the Animation workspace. Here, make move data disappear when stepping though scenes.*

I. *Mouse-wheel zoom: Change the scale of the Live View with the mouse wheel or with your mouse pad scroll.*

J. *3-Step Speed: Adjust how Dragonframe plays back frames when 3-Step is activated. You can press the 3-step hotkey to toggle playback speed, or select one speed here.*

Any preferences you change will be saved when you close the window.

See also:
"Conforming Timeline Edits" on page 126.
"Programming a Basic Hand-Cranked Move" on page 267.
"3-Step (Optional Hot Key)" on page 93.
"Programming Hot Keys" on page 307.

Playback Preferences

Modify Dragonframe's playback features using Playback Preferences. Any changes you make will apply to your whole project. Click **DRAGON-FRAME|PREFERENCES** to open Preferences, then click **PLAYBACK**.
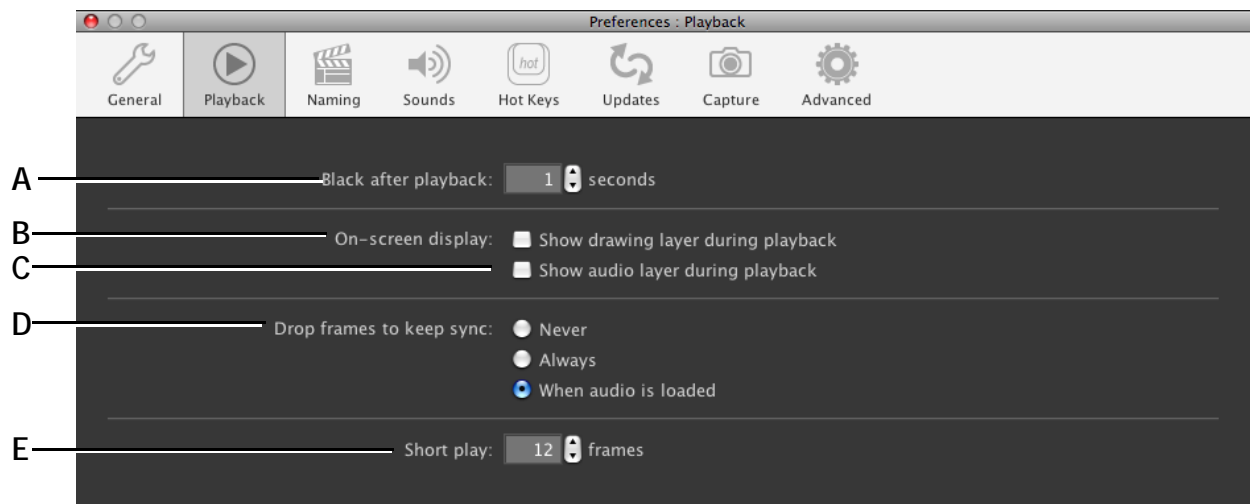
A. **Black after playback:** *Adjust the number of seconds the black feature adds to playback. Use this timing for a live frame during looping as well.*

B. **On-screen display:** *Show or hide marks made with the Draw Tool.*

C. **Show audio layer...:** *Show or hide audio tools in the Animation workspace.*

D. **Drop frames to keep sync:** *Select when Dragonframe will drop frames to keep up with the frame rate. For example, if you check* **WHEN AUDIO IS LOADED**, *Dragonframe will drop frames to keep playback in sync with the audio.*

E. **Short play:** *Adjust how many frames are included for short play.*

Any preferences you change will be saved when you close the window.

See also:
"Black (End in Black) Key" on page 93.
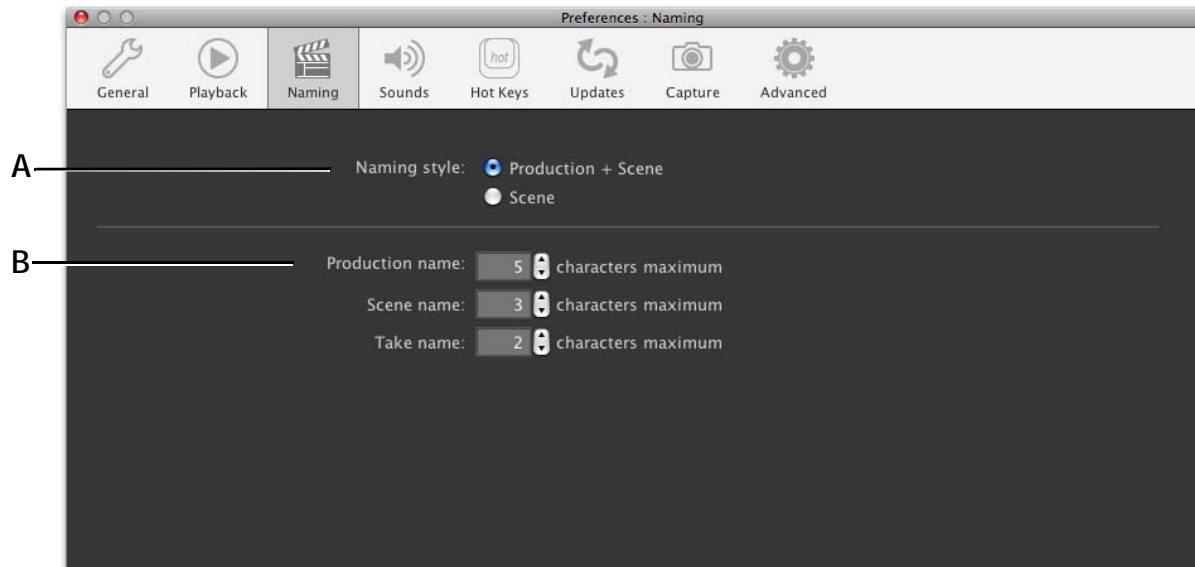"The Heads-Up Display" on page 167.
"Drawing on the View Pane" on page 108.
"Short Play Key" on page 92.

Naming Preferences

Change the way Dragonframe names files in its hierarchy from Naming Preferences. Any changes you make will apply to your whole project. Select **DRAGONFRAME│PREFERENCES** to open Preferences, then click **NAMING**.

A. Naming Style: Change whether file names include both production and scene names, or just scene names. B. Production, Scene, Take Names: Change how long the production, scene and take names can be.

Choosing Naming Conventions

In Dragonframe, you save every scene with one of two naming conventions. Dragonframe's naming conventions are based on the classic Hollywood clapboard: production, scene, and take. You can choose which naming convention to use in Naming Preferences:

- *Production, Scene.* This is the default preference for Dragonframe. Using all three levels of organization makes it possible to work on more than one project at once without confusing scene names.

- *Scene.* This is a simpler, shorter option, but may be harder to use if you work on multiple projects that overlap.

See also:
"Creating a New Scene" on page 133.
"Simplifying Scene Names" on page 134.
"Finding Your Source Files" on page 292.

Dragonframe's Sounds

Select which sounds Dragonframe uses to alert you when certain opera-
tions take place. Any changes you make will apply to your whole project.
To change sounds, click **DRAGONFRAME|PREFERENCES** to open Prefer-
ences, then click **SOUNDS**.
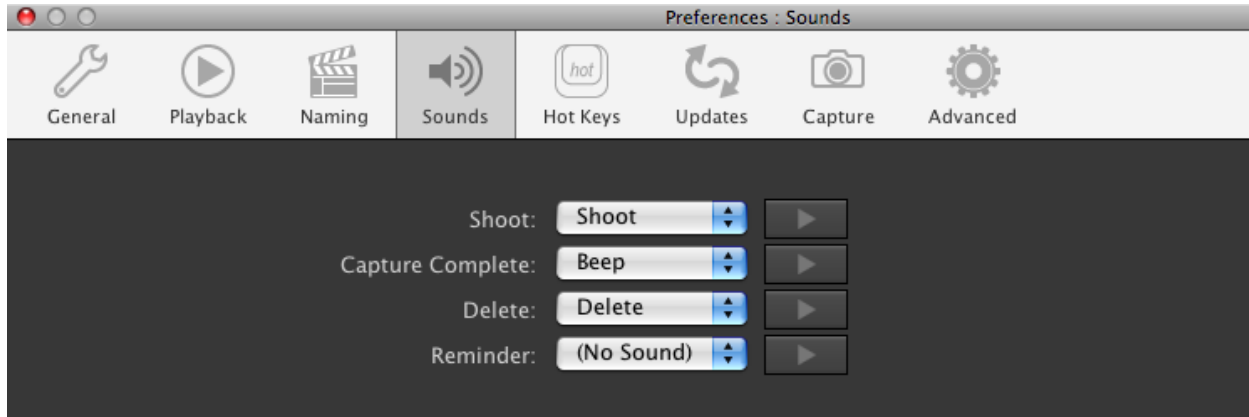
*Select sounds to associate with shooting a frame, completing a capture, deleting a frame, and
a pop-up reminder note. Click > to play the sound.*

Any preferences you change will be saved when you close the window.

Programming Hot Keys

Dragonframe comes with a variety of pre-programmed keyboard con-
trols. Change the default keypresses from Hot Key Preferences. Any
changes you make will apply to your whole project. To program custom

Hot Keys, click **DRAGONFRAME|PREFERENCES** to open Preferences, then select **HOT KEYS**:

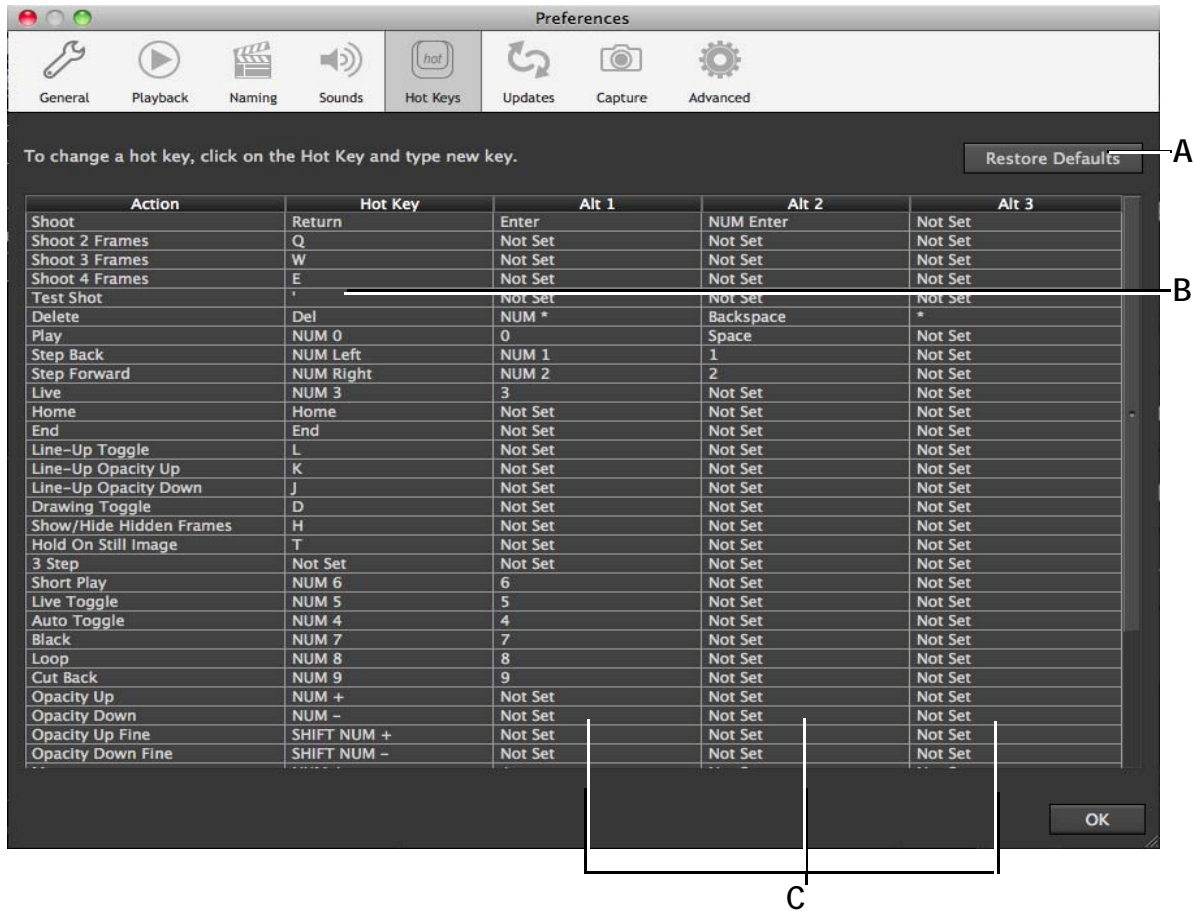| Action	Hot Key	Alt 1	Alt 2	Alt 3
Shoot	Return	Enter	NUM Enter	Not Set
Shoot 2 Frames	Q	Not Set	Not Set	Not Set
Shoot 3 Frames	W	Not Set	Not Set	Not Set
Shoot 4 Frames	E	Not Set	Not Set	Not Set
Test Shot	'	Not Set	Not Set	Not Set
Delete	Del	NUM *	Backspace	*
Play	NUM 0	0	Space	Not Set
Step Back	NUM Left	NUM 1	1	Not Set
Step Forward	NUM Right	NUM 2	2	Not Set
Live	NUM 3	3	Not Set	Not Set
Home	Home	Not Set	Not Set	Not Set
End	End	Not Set	Not Set	Not Set
Line–Up Toggle	L	Not Set	Not Set	Not Set
Line–Up Opacity Up	K	Not Set	Not Set	Not Set
Line–Up Opacity Down	J	Not Set	Not Set	Not Set
Drawing Toggle	D	Not Set	Not Set	Not Set
Show/Hide Hidden Frames	H	Not Set	Not Set	Not Set
Hold On Still Image	T	Not Set	Not Set	Not Set
3 Step	Not Set	Not Set	Not Set	Not Set
Short Play	NUM 6	6	Not Set	Not Set
Live Toggle	NUM 5	5	Not Set	Not Set
Auto Toggle	NUM 4	4	Not Set	Not Set
Black	NUM 7	7	Not Set	Not Set
Loop	NUM 8	8	Not Set	Not Set
Cut Back	NUM 9	9	Not Set	Not Set
Opacity Up	NUM +	Not Set	Not Set	Not Set
Opacity Down	NUM –	Not Set	Not Set	Not Set
Opacity Up Fine	SHIFT NUM +	Not Set	Not Set	Not Set
Opacity Down Fine	SHIFT NUM –	Not Set	Not Set	Not Set

A. *Restore Defaults: Revert to Dragonframe's default Hot Keys, discarding changes.*

B. *Hot Key Column: Click the column next to the action to reprogram it. Then press the keys you want to use. For example, to re-program* **SHOOT** *to use* **S** *as its Hot Key:*
1. Click next to the current Hot Key (Here, **ENTER**.*)*
2. Press **S***. Dragonframe notes the new Hot Key in the dialog.*

C. *Alt 1, Alt 2, Alt 3: Set three alternative Hot Keys for any action. To set alternative hot keys, click in the cell for that action, then type the new Hot Key.*
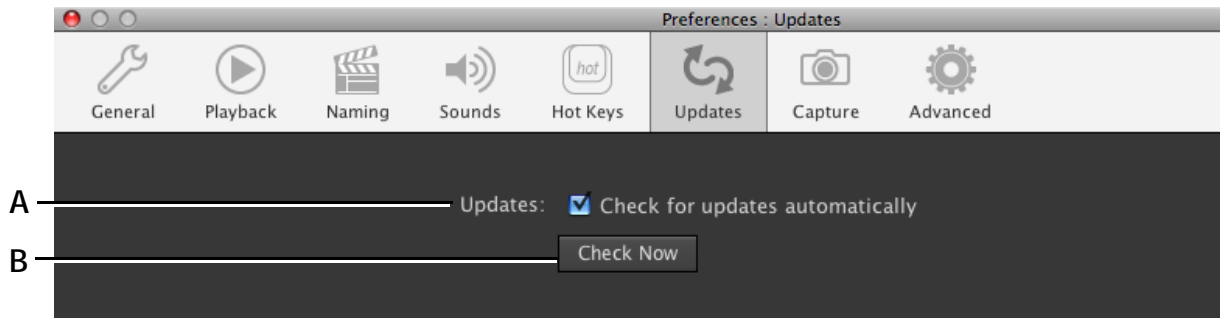
Any preferences you change will be saved when you close the window.

See also:
"Keypad Controls" on page 89.

Update Preferences

Dragonframe automatically looks for software updates to make sure you're using the most recent version. Use Update Preferences to change the settings for the updates.

To change update preferences, click **DRAGONFRAME|PREFERENCES** to open Preferences, then select **UPDATE**:


A. Updates: Check to have Dragonframe automatically look for updates and notify you when they're available. B. Check Now: Click to immediately check for updates to Dragonframe.

Any preferences you change will be saved when you close the window.

Capture Preferences

Capture Preferences control how Dragonframe works during captures.

To change Capture Preferences, click **DRAGONFRAME|PREFERENCES** to open Preferences, then select **CAPTURE**:
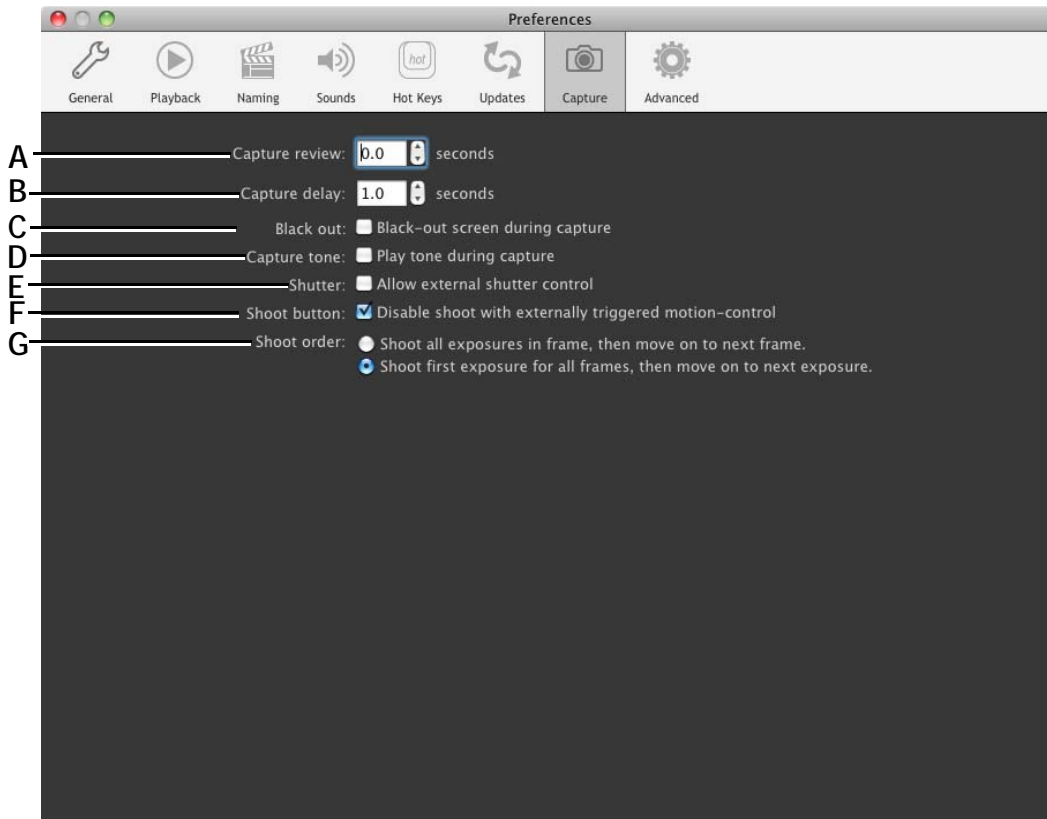
A. Capture Review: Automatically review high-res proxies in Animation window after every capture.

B. Capture Delay: Add a delay between the video assist and high-res captures.

C. Black Out: Make your screen black during captures.

D. Capture Tone: Enable or disable the sound that plays during a capture.

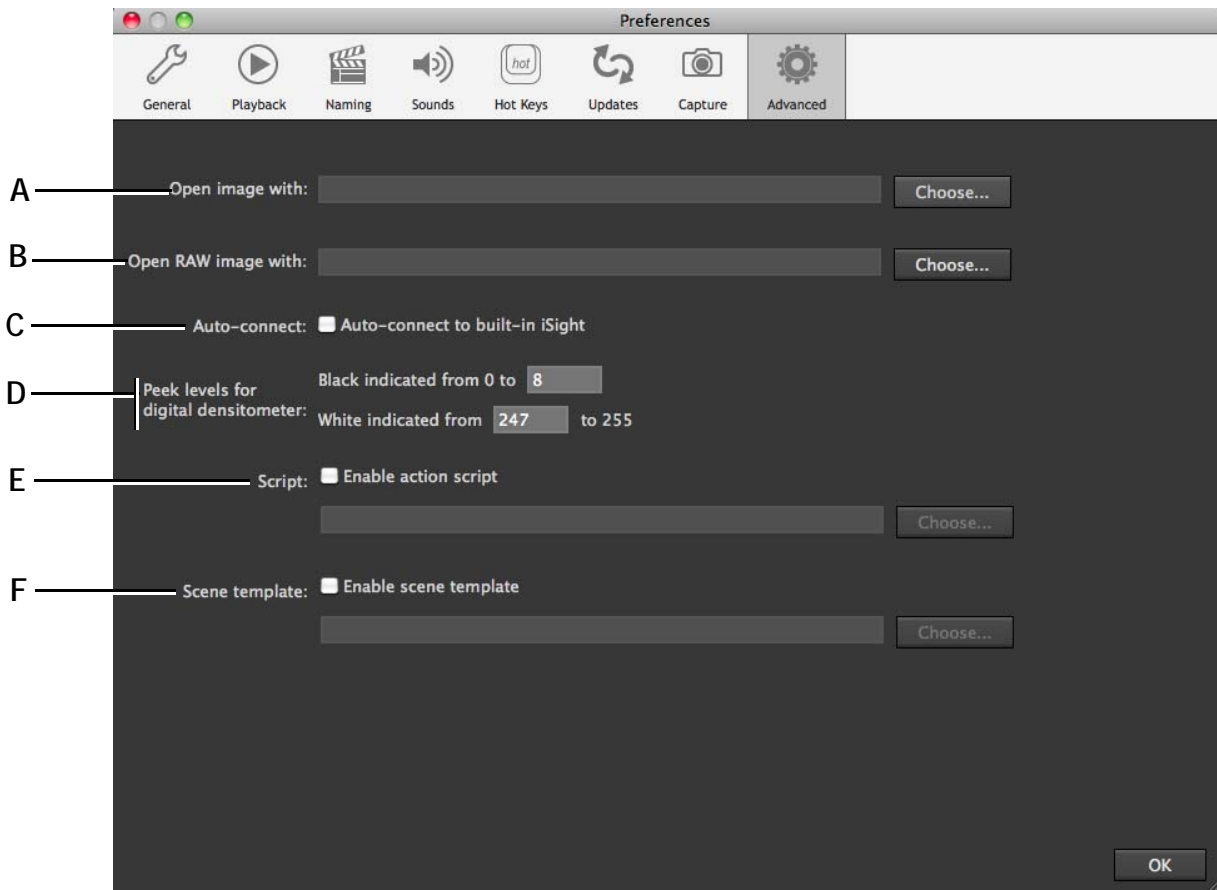**E.** Shutter: Enable a supported camera to use an external shutter control, such as the DESC, for motion control. When enabled, the shutter control setting will appear in the Cinematography workspace's Camera Settings.

F. Shoot Button: When this box is checked, and you have the Dragonframe External Shutter Control connected, pressing **SHOOT** will not trigger Dragonframe's shoot command. This allows you to control Dragonframe with the DESC.

G. Shoot Order: Change the order that Dragonframe shoots frames for shooting on twos, or shooting holds.

See also:

Advanced Preferences

To modify Advanced Preferences, click **DRAGONFRAME|PREFERENCES** to open Preferences, then select **ADVANCED**.

A. *Open image with...: Select which photo editing software to use when opening image files.*

B. *Open RAW image with: Select which photo editing software to use when opening RAW image files.*

C. *Auto-connect: Un-check the box to keep a Mac from auto-connecting to its iSight camera.*

D. *Peek levels: Adjust how Dragonframe defines peek values for the digital densitometer.*

E. *Script: Check this box to have Dragonframe use a script to automate actions.*

F. *Scene template: Check the box and load an already-configured* **TAKE.XML**. *Dragonframe will use this file as a template for every new scene.*

Any preferences you change will be saved when you close the window.

See also:
"Opening Test Shot Files in Another Application" on page 68.
"Reading Pixel Values with the Digital Densitometer" on page 73.
"Creating Action Scripts" on page 266.
"Using a Scene Template" on page 141.
"Finding Your Source Files" on page 292.

Configuring Scene Settings

Use scene settings to control settings for your scene, including scene length, camera settings, and settings for exposures, X-Sheet layout and triggers.

For information about General settings and Camera settings, see the sections that follow.

For information about exposures and hardware connections, see:

"Connecting DMX to Dragonframe" on page 193.
"Connecting to the DESC through Dragonframe's Connections Tab" on page 265.
"Connecting to a 3D Slider" on page 273.

General Settings

The General Settings tab gives you access to three aspects of your scene: shooting on twos, scene length, and the X-Sheet's page layout. When you adjust those setting, you change the way Dragonframe configures your scene's X-Sheet.

When you select **SCENE|SETTINGS…**, the General settings window opens:
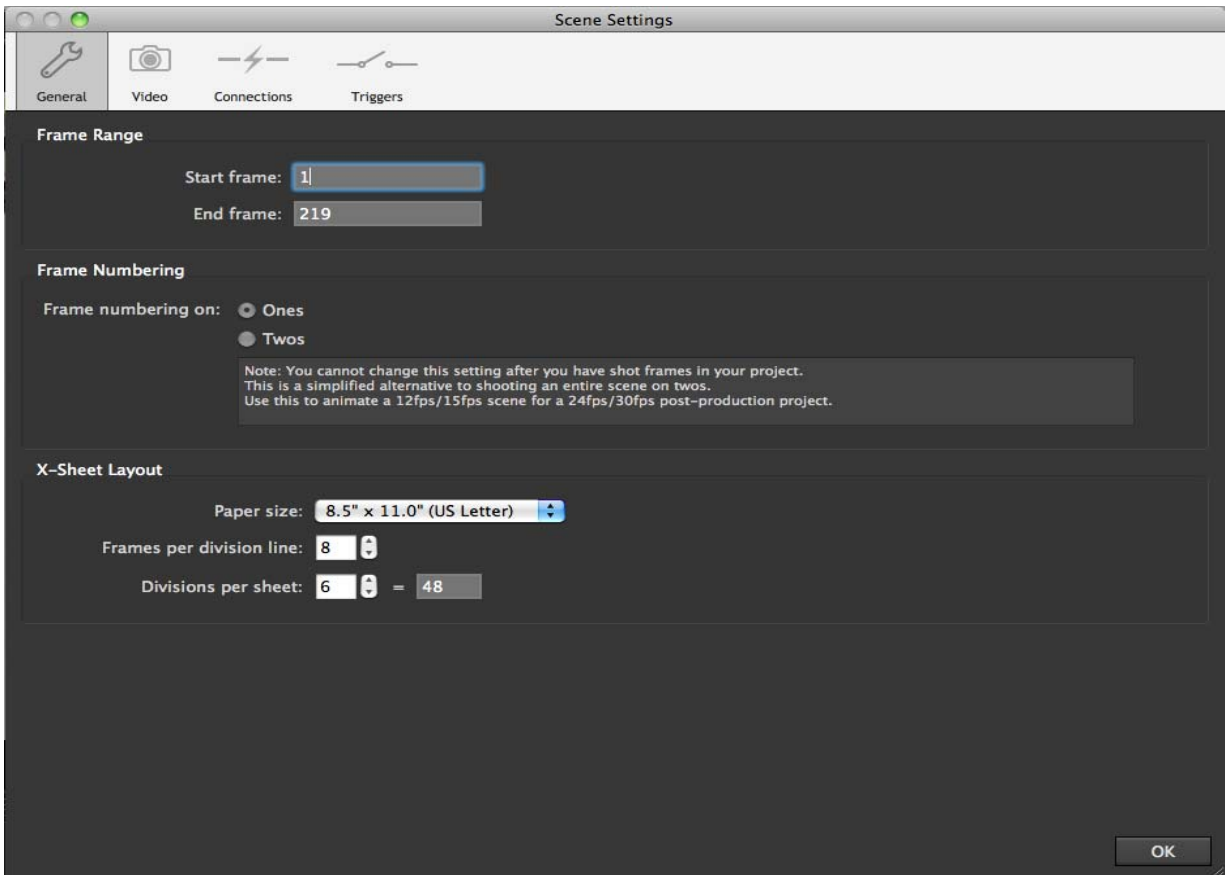
See also:
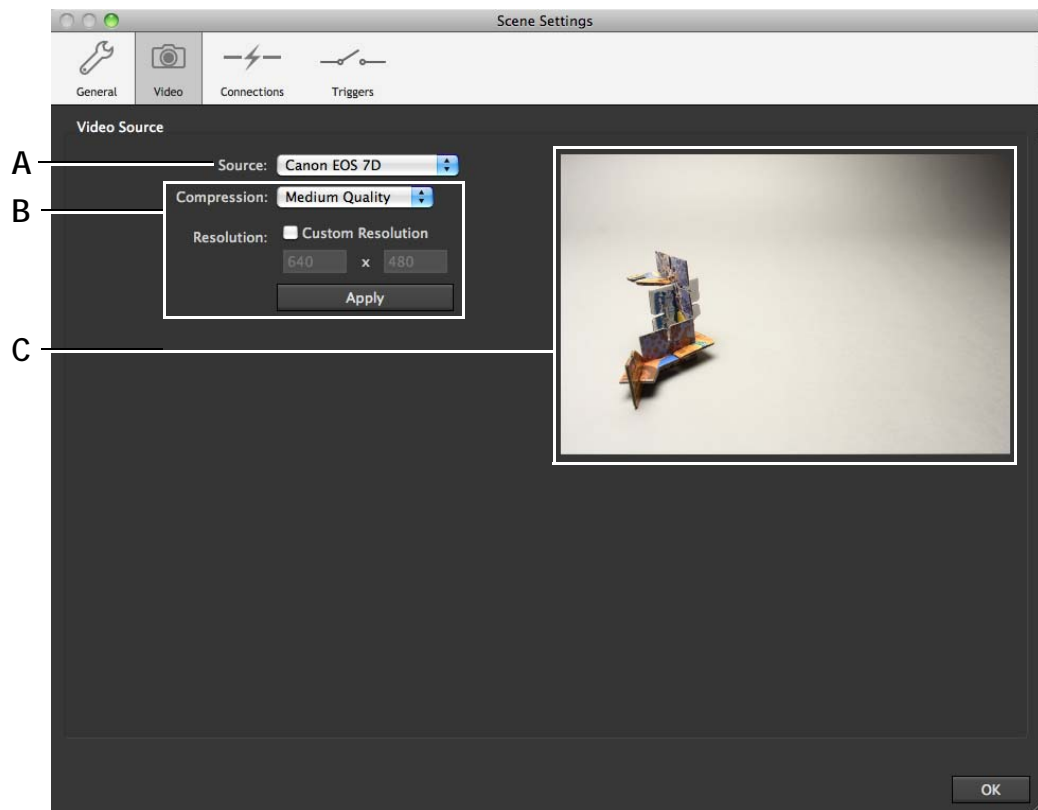"Setting Scene Length and Starting Frame" on page 174.
"Capture Options for Shooting on Twos" on page 96.
"Customizing the X-Sheet's Print Layout" on page 185.

Video Settings

Use the Video Settings dialog to work with your video source. You can select which source Dragonframe uses, or change with video settings.

Click **SCENE|VIDEO** to open Video Settings.

A. *Video source: Select the video assist source.* **B.** *Video settings: Adjust the settings specific to your camera.* **C.** *Preview: See how adjustments to settings affect the Live View.*

Any settings you change will be saved when you close the window.

See also:
"Quick Set-Up Guide for Supported Video and Still Cameras" on page 9.
"Camera Connections" on page 47.
"Adjusting and Locking Camera Settings" on page 76.