



SCOPEBOX 2.0

A WHOLE NEW BOX OF TRICKS



ScopeBox 2.0

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1

Welcome to ScopeBox 2.0

Welcome

ScopeBox transforms your Mac into a suite of high-end video analysis tools, replacing a cart full of heavy and expensive components with one simple application.

This manual will walk you through the basics of using ScopeBox, and will also introduce you to some of the theory behind video quality analysis.

For the latest updates, news and support, be sure to visit www.scopebox.com.

What's new in 2.0

ScopeBox 2.0 takes the market-leading feature set of ScopeBox 1.0, and adds a host of new features and enhancements. While they may be introduced here, refer to the appropriate sections later in the manual for a more thorough explanation.

HDV support

HDV is one of the most exciting advancements in High Definition camera technology, allowing shooters to capture HD content on standard 1/4" DV tapes. ScopeBox 2.0 adds the ability to monitor and acquire video from any major HDV camera through an industry standard firewire (1394/ iLink) cable.

Multi Source Support

Another major innovation is ScopeBox's support for monitoring or recording signals from multiple cameras simultaneously. With one computer, you can easily connect all the cameras on your shoot. Match colors or exposure between cameras, keep an eye on what each camera is capturing, or even record separate feeds from each camera all at once.

Enhanced Logging

Easily see what footage you've shot with the new clip list and thumbnail views. Every shot can be quickly seen and labeled with name, reel number, source device, and timecode information. You can quickly see a thumbnail of the file, or open the file as a new source to review it with the full array of ScopeBox's tools.

Drop Frame Warnings

When capturing live to disk, a major concern is whether you actually got the shot or not. ScopeBox 2.0 adds drop frame detection, alerting you to problems as they occur, so you have the chance to recapture any problem shots before you leave the shoot.

Preview Overlays

You can now view your preview with custom overlays to aid in framing, composition, and shot matching. You can open any still image, QuickTime movie, or even another live source and display it on top of your live preview.

Speed

The entire video pipeline has been re-tuned with an eye for speed and stability.

2

Getting Started

Installing

ScopeBox is a self-contained application. Just drag and drop the application to your Applications folder or any other location on your hard disk, and you're ready to start using it.

Some input devices may need additional software installed to work with ScopeBox. For example, HDV and DVCProHD cameras will not work without the addition of decoders for those formats. These components are installed with Final Cut Studio. Other devices such as capture cards require drivers provided by their manufacturers.

As a rule of thumb, if your device works with other QuickTime applications, it should work within ScopeBox.

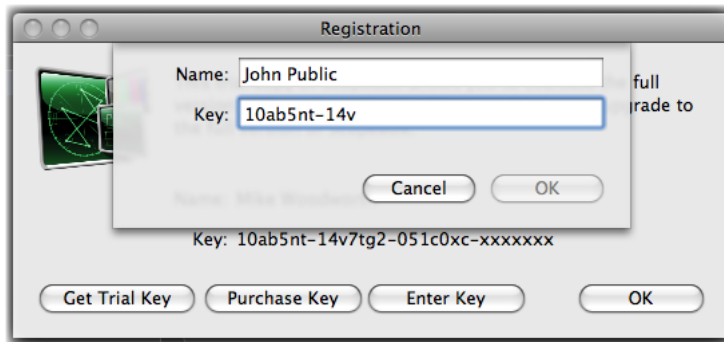
Uninstalling

If you want to uninstall ScopeBox, simply drag the application to the trash.

ScopeBox stores its preferences in a file named “com.divergentmedia.scopebox.plist” in your <username>/Library/Preferences/ folder.

Registering

When you first launch ScopeBox, it will run as ScopeBox Lite - a subset of the features allowing for preview of sources only. To enable the full feature set of ScopeBox, you must enter a serial number in the Registration dialog. You may also visit www.scopebox.com to obtain a time-limited trial key, which will allow you to try all of the features of ScopeBox before buying.



If you've already purchased ScopeBox, click the "Enter Key" button and enter your name and key exactly as it is shown in your registration information.



ScopeBox can only check for updates if you are currently connected to the internet. If your ScopeBox system is not connected, you can sign up for the mailing list at www.scopebox.com/maillinglist.html to receive emails when new versions are released.

Updating

ScopeBox automatically checks for updates during startup. If you'd like to force it to check for an update, select "Check for Updates" from the ScopeBox menu.

You can disable automatic updates via the "General" tab of the preferences dialog.

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Application Overview

The main ScopeBox window can be broken into 4 distinct regions. These are (a) the source bar at the top, (b) the palette region, (c) the sidebar, and (d) the recorder and clip list.



A sample view of ScopeBox's main window.

The Source Bar

If you've previously used ScopeBox, one of the biggest changes you'll notice in ScopeBox 2.0 is the ability to use multiple sources simultaneously. ScopeBox 2.0 can become the central component of a multi-camera video shoot, providing both per-camera monitoring and iso-recording.

Each source you add appears in the source bar as a small preview with built in VU meters, deck control icons, still grabbing and recording interface. This preview is called the Source Palette.

You can mix and match any combination of source types. The number of devices that may be used simultaneously is limited only by the processing power and bus bandwidth of your computer.

The Palette Region

Once you've added a source, you're free to start inspecting the signal in a variety of ways. You do this by adding palettes to the source. Each new palette you add will give you an additional tool to quantitatively or qualitatively examine the video, audio, or timecode signal of that source.

When a new palette is added, it appears in the Palette Region. This area serves as your general workspace for analyzing sources. You can add or remove palettes, change the source they monitor, or alter their size and position at any time.

The Sidebar

Changing the settings of one of your sources or palettes is done in the sidebar. Clicking on a palette, source, or recorder (which we'll get to in the next section) will select it. You can tell which item in the window is selected by the dark white border drawn around it. When an object is selected, a number of controls will appear in the sidebar. Changing these settings will alter the behavior of the selected object.

The Recorder and Clip List

Whenever you add a new source, if it is one ScopeBox can record, a new bar will appear directly below the Palette Region at the bottom of the window. This is your recorder settings bar. It works in tandem with the record button in the source palette to allow you to set up video and audio records, as well as get feedback for records currently happening. You'll see a separate color coded recorder settings bar for each recordable source currently open.

The recorder settings bar has fields for setting the name of each file to be recorded, the reel info embedded in QuickTime movies, and to see the start time, end time and current duration of any recordings in progress.

Beneath this is the clip list that can be shown or hidden by clicking the show/hide clip list button. This list allows you to review at a glance all the day's prior recordings, and change names or reel info.

4

Dealing With Sources

Adding a Source

The “Source” menu allows you to add new sources. In addition, new sources can be added by right clicking within the source bar and choosing the desired source under Add Source.



Opening a new source from the Source menu.

By default, you will be presented with the options “Add Live Source” and “Add Movie Source.” You may see additional sources, depending on installed plug-ins. All standard FireWire cameras and QuickTime-compatible capture cards will appear under the “Add Live Source” menu.

The “Movie Source” menu allows you to open any QuickTime-compatible video within ScopeBox.

Unavailable Sources

If a source is unavailable, it will be grayed-out in the menu. A source may be unavailable for many reasons:

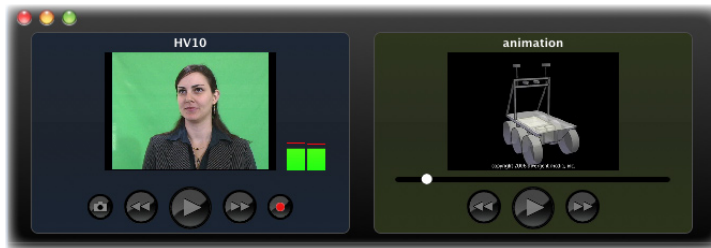
- ◆ It is already open in ScopeBox or another application.
- ◆ Your system is missing the necessary codecs or drivers.
- ◆ There is a conflict between devices on your FireWire bus.

If you are having problems with a device please refer to the source diagnostics and troubleshooting sections near the end of this manual.

Removing a Source

To remove a source, simply select the source's palette in the source bar, and choose "Remove Source" from the "Source" menu. You can also right click on a Source Palette and choose "Close".

The Source Palette



Examples of the live source (left) and QuickTime source (right) Source Palettes.

Once you've added a source, its Source Palette will appear in the source bar at the top of the ScopeBox window. The source palette is a quick way to confirm you are receiving the proper video and audio signals. Below the video preview, you'll find a set of controls for either deck control or movie shuttling. If the source is recordable, buttons will be available for grabbing a still and starting and stopping records.

Changing a Source's Settings

If you click on the preview box, the left side of the window will display all the appropriate options for that source. These will depend upon the type of source you have selected.

Settings are split into 3 sections - video, audio and timecode. Unchecking the checkbox next to any of these will disable that channel of the source.



The source setting sidebar for the AJA ioHD

Video

The “Input” dropdown allows you to select which input you would like assigned to this source. This dropdown will only show up for devices or capture cards with multiple inputs. However, many such devices choose to present themselves as discrete devices rather than a single source with different inputs. In those cases, the input dropdown will be disabled, and you’ll select the input as part of the device selection process.

The “Compressor” dropdown allows you to change the compression scheme used to display and record the source. ScopeBox will convert your video to the selected format in realtime. By default, this box will reflect the native format of your source.

The “Preview Level” dropdown allows you to change the quality level ScopeBox uses to decompress your video before processing and displaying it. By default this will be set to High, and can be left alone unless your machine is unable to process your current source at full resolution without dropping frames.

The “Setup” dropdown allows you to change the setup level of your video. This is the baseline level for black in your video. You shouldn’t change this setting unless your black levels appear to be incorrect in

the waveform palette.

If your device has custom controls the advanced settings button allows you make adjustments to these.

HDV FireWire devices will have a checkbox to enable iFrame only decompression. This only decompresses every twelfth to fifteenth frame, allowing HDV to be used with much older or slower machines that might not otherwise be able to process HDV video. Due to the nature of HDV video, iFrame only decompression allows the frames that do arrive to be displayed with much lower lag as well.



When using dupe removal with DVCPHD cameras such as Panasonic's HVX200, it is important to choose the correct format in the camera's menus. See the troubleshooting and source diagnostics sections near the end of this manual for more information.

DV and DVCPHD firewire devices will have a “Remove Duplicate Frames” checkbox. If your camera supports pulled up progressive formats, this allows you to strip any duplicate frames from the signal, and record a progressive movie, without wasting the disk space on redundant frames.

Currently ScopeBox can properly process duplicate frames in:

- ◆ DV24pA
- ◆ DVCPHD 720p24
- ◆ DVCPHD 720p30
- ◆ DVCPHD 1080 24pA

Audio

The audio section allows you to select an audio source for recording and adjust the level at which the audio is played through your computer speakers.

The preview audio adjustment is for monitoring only - any changes you need to make to adjust the levels you see within your VU meters should be done in your camera's audio controls.

Timecode

If your device is connected via FireWire and supports AVC protocols (DV, DVCProHD, or HDV devices) then timecode and deckcontrol will automatically be activated and configured. If you are using any other device, you will see a popup to choose a serial port for connecting to decks or cameras via Sony rs232/rs422 protocol.

Because serial deck control does not provide information about the timecode format of the device, you'll also need to choose the appropriate timecode format to tag incoming timecode.

Drop Frame Warnings

Periodically, under high usage you may see a yellow caution icon appear next to the video preview in the source palette. This is ScopeBox's warning that the source has dropped one or more frames. You can reset this warning by right-clicking on the source palette and choosing "Reset Drop Frame Warnings."



A Source Palette showing the dropped frame warning icon.

While a certain number of dropped frames are unavoidable under conditions of extreme system usage, it's also possible to see dropped frames when adding or removing sources. If the drop frame warnings are persistent, check the performance section near the end of this manual for tips on diagnosing the problem.

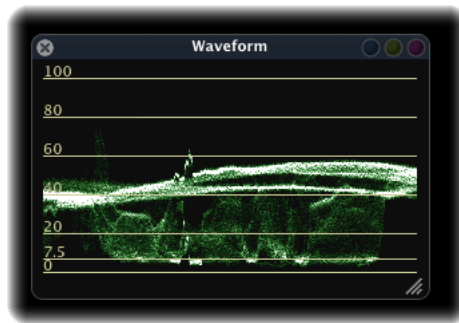
5

Palette Overview

Working with Palettes

ScopeBox displays all content in flexible palettes within the palette region of the ScopeBox window. The settings for each palette are displayed in the sidebar on the right side of the ScopeBox window whenever a palette is selected.

You may add multiple copies of each palette, each with its own settings. For example, you may choose to open a preview palette for each of your sources, and you may choose to also multiple preview palettes for a single source, each with distinct settings.



A standard palette in ScopeBox.

Adding Palettes

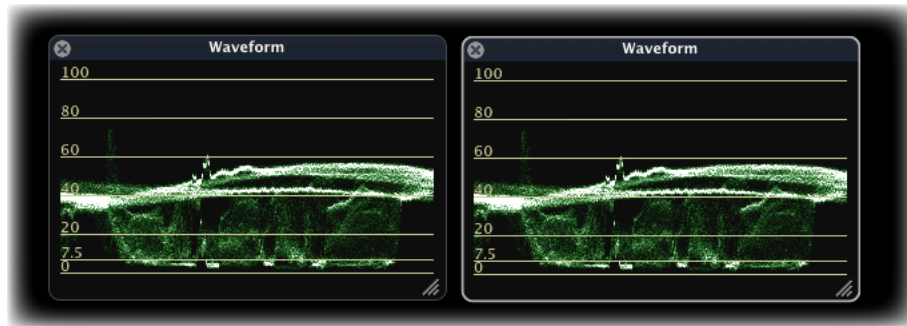
To add new palettes, select the desired palette type from the Palettes menu or right click on the background of the ScopeBox window.

Closing Palettes

To close a palette, click the “x” in the upper left corner or hit the Delete key while the palette is selected.

Moving Palettes

Click and drag to move a palette to the desired position. You can also use the arrows keys for very precise positioning of a selected palette.



A waveform palette unselected (left) and selected (right).

If you wish to organize your palettes with more precision, you can “Enable Snapping” in the Layouts menu. This will constrain your palette’s movement and re-sizing to an internal grid, allowing you to easily line up multiple palettes.

Resizing Palettes

Click and drag on the lower right corner to resize a palette.

Soloing Palettes

Soloing a palette allows you to temporarily hide all other palettes and focus your attention on the selected palette re-sized full screen. You can activate a palette's soloing by choosing Solo Palette from the View menu, by right clicking on the palettes, or with the keyboard shortcut $\text{⌘}=\text{-}$.

Switching Sources

When you have multiple source open, each palette contains a set of small circular buttons in the upper right corner. Each button corresponds to a source in your Source bar. To select which source the palette is monitoring, click the button corresponding to the desired source's color.

You can also change a palette's source by right clicking and choosing a new source from the Source sub-menu.

6

Preview Palette

The Preview palette displays video source output and can replace a traditional field monitor for checking focus, framing, and color calibration.



The Preview Palette with 16x9 mask, center marks, and title safe overlays enabled.

Controls

When you select the preview palette, the following controls will appear in the sidebar.

Aspect

Controls the aspect ratio at which the video source will be displayed. Standard Definition video uses rectangular pixels whereas computer

monitors use square pixels. This can result in video images that are stretched when displayed on a computer. Select “4:3 Square” to correct this issue. “4:3 Rect” will display your video exactly as it comes off the camera. The “16:9 Wide” option will squeeze the image to a widescreen format for proper display of anamorphic video or HD sources. When you choose a new source, ScopeBox will automatically set your preview’s aspect to match that of the incoming image.

Zoom

Sets the size of your image. 100% and 200% set the video image to the corresponding magnification no matter the size of the preview palette. This gives you a pixel-for-pixel view of your image with no interpolation from the graphics card or video re-size, which is especially useful when trying to set focus. However, if your palette is too small you may not see the whole image. “Fit to Size” fits the video to fill the palette, but does so by re-sizing the image which may introduce minor sub-sampling interpolation - leading to a slightly blurrier image.

Mask

The mask overlay draws blue bars as a framing guide when shooting at an aspect ratio other than the destination ratio. Using this will allow you to frame shots not only for the acquisition format, but for any other formats you may have to deliver to as well. For instance, if you know the video you are shooting in HD (16x9) will be used in an SD production, setting your mask to 4x3 will allow to see where by default the image will be cropped in the format change.



Changes made to the image in monitor calibration only affect what you see in the preview palette. They are not reflected in any other scopes, nor are they recorded to disk. Monitor Calibration should only be used to ensure your preview accurately reflects the video signal. You can do this by calibrating to color bars sent from your source device.

Monitor Calibration

The Saturation, Brightness, and Contrast sliders provide simple correction of the Preview image. These corrections are used to compensate for differences in computer monitors. Calibrating the Preview palette ensures that the image accurately represents what the camera is shooting. Any changes made do not affect the video captured to

disk or the video monitored in any other scope.

Blue Gun

When checked, the Preview palette displays the blue channel as black and white, ignoring red and green. This simulates the “blue only” button on many CRT monitors, which is useful when calibrating a monitor with SMPTE color bars.

Flip

Flips the preview image horizontal and/or vertically. This function can be used to correct for a lens adapter that flips the image.

Title Safe

Adds two overlay boxes to the video. The outer box shows the graphics safe region and the inner box shows the title safe region. Make sure important action happens inside the title safe box, as older televisions may crop beyond it.

Rule of Thirds

Provides a 3x3 grid to assist with composition.

Center

Provides center cross-hairs to assist with composition.

Luma Zebra

Overlays rolling stripes on the brightest areas of the image. These areas may be overexposed. The slider controls the threshold at which the zebras appear. The stripe color is displayed in the square to the right and can be clicked to select another color.

Chroma Zebra

Similar to the Luma Zebras but overlays a zebra pattern on the highest saturation.

Overlay

Overlays allow you to open a custom image or QuickTime movie to superimpose on top of your live video. These images can be custom guides for framing around your productions lower thirds, a background that will later be chroma keyed into the shot, or video footage you need to match framing or exposure in.

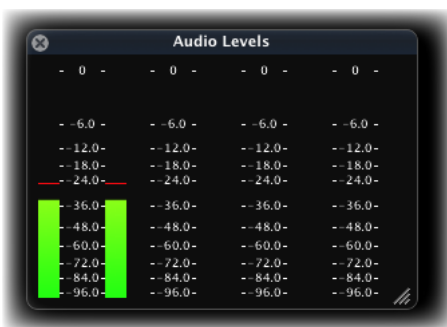
To add an image, make sure the dropdown is set to “Custom Image”, and drag and drop an image into the image well below. In addition, any other open movie or live source can be selected from the dropdown to use it as the superimposed item.

Below the image well is a slider to adjust the opacity of the overlay.

7

VU Meters

The VU Meter displays the level of the audio signal in dBFS. It provides both an instant meter and an averaging peak meter. Every spike is displayed, even if very brief. Anything above 0db will clip and display a red peak indicator above the channel.



The VU Meter Palette.

Controls

Channel Count

By default the VU meter will show all channels currently reported by a source. However, many devices report a fixed number of output channels, which can waste valuable screen space showing empty channels. If you're shooting with a camera that sends 8 channels to ScopeBox, but are only using 2, you can set channel count to 2 to only present the first 2 channels.

Scale

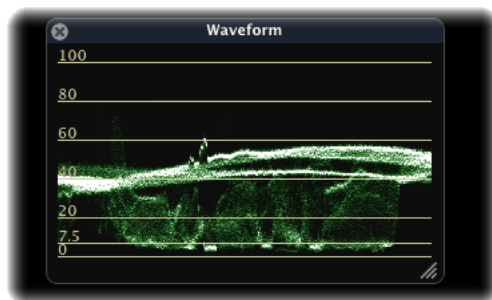
Different source formats require different peak audio levels. This lev-

el is often referred to as Unity. When working with bars and tone, or when trying to set your mic volumes at the proper levels, you want to know exactly where unity lies in the VU meter. ScopeBox provides a set set of Scale markers for each of the 3 major unity levels found on professional video devices -12, -14 and -20 dB.

8

Waveform

The Waveform scope provides a view of the luminance in the video signal, measured in IRE units. 0IRE is black and 100IRE is (broadcast safe) white. The vertical axis corresponds to luminance while the horizontal axis matches the horizontal axis of the video source.



The Waveform Palette.

Controls

Mode

The mode dropdown allows you to choose the method ScopeBox uses to render your scope. Each mode offers you different information:

Weighted mode looks more like a traditional scope and expresses the number of pixels at a given value by varying the brightness.

Mono displays every data point at full intensity, which can be useful in ensuring complete legality. With weighted views it is possible to miss a small pixel region that is out of range.

Colorize replaces the traditional green in a scope and with the actual color that it represents. For example, if someone is wearing a bright red shirt, there will be a bright red streak where the scope renders those pixels.

Sampling

By default, ScopeBox scopes process video at full resolution, which may be too resource intensive for slower computers or high definition signals. Selecting a sub-sampling multiplier tells the scope to look at only every other line (2), every fourth line (4), or every eighth line (8) when computing the scope.

Intensity

When in weighted mode, the intensity slider adjusts the brightness of the scope. By changing this value, you adjust the visibility of areas of low pixel concentration.

9

Vectorscope

The Vectorscope displays chrominance (color) information. Saturation is indicated by distance from the center while the position around the circle indicates hue.



The Vectorscope Palette.

The markers on the Vectorscope (R, Y, B, etc) indicate colors. The boxes show where the signal should land when displaying the standard SMPTE 75% color bars signal, providing a guide for gauging saturation.

Controls

Colorspace

The colorspace option provides three different colorspace with which to view the vectorscope. These colorspace will adjust the

color targets and scaling of the vectorscope.

Mode

The mode dropdown allows you to choose the method ScopeBox uses to render your scope. Each mode offers you different information:

Weighted mode looks like a traditional scope and expresses the number of pixels at a given value by varying the brightness.

Mono mode displays every data point at full intensity, which can be useful in ensuring complete legality. With weighted views it is possible to miss a small pixel region that is out of range.

Colorize mode replaces the traditional green in a scope and with the actual color that it represents. For example, if someone is wearing a bright red shirt, there will be a bright red streak where the scope renders those pixels.

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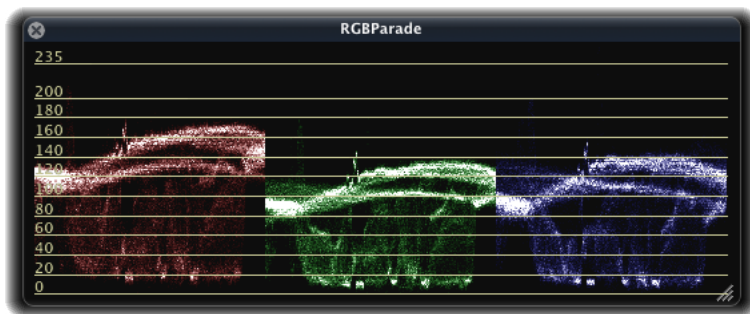
Intensity

When in weighted mode, the intensity slider adjusts the brightness of the scope. By changing this value, you adjust the visibility of areas of low pixel concentration.

10

RGB Parade

The RGB Parade displays individual waveforms for each channel (Red, Green and Blue) of your video signal.



The RGB Parade Palette.

You can use the RGB Parade to gauge separation between the color channels. For example, when setting white balance, all three channels should be equal horizontally, indicating that you have equal amounts of red, green and blue, thus creating white.

The RGB Parade is also useful when trying to determine the cause of a color cast in shadow or highlight areas. Such casts can be caused by clipping (overexposure or underexposure) in one particular color channel. It is often difficult to diagnose this issue without a specialized tool like the RGB Parade.

Controls

Mode

The mode dropdown allows you to choose the method ScopeBox uses to render your scope. Each mode offers you different information:

Weighted mode looks like a traditional scope and expresses the number of pixels at a given value by varying the brightness.

Mono mode displays every data point at full intensity, which can be useful in ensuring complete legality. With weighted views it is possible to miss a small pixel region that is out of range.

Colorize mode replaces the traditional green in a scope and with the actual color that it represents. For example, if someone is wearing a bright red shirt, there will be a bright red streak where the scope renders those pixels.

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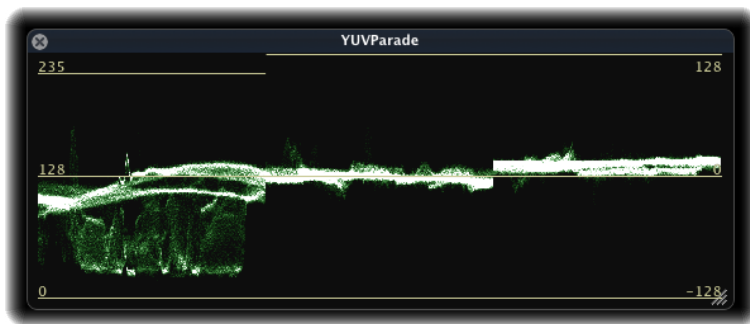
Intensity

When in weighted mode, the intensity slider adjusts the brightness of the scope. By changing this value, you adjust the visibility of areas of low pixel concentration.

11

YUV Parade

The YUV Parade displays individual waveform monitors for the Y, U and V components of the signal.



The YUV Parade Palette.

The YUV Parade is useful for signal chain diagnosis since most video devices process in the YUV colorspace.

Controls

Mode

The mode dropdown allows you to choose the method ScopeBox uses to render your scope. Each mode offers you different information.

Weighted mode looks like a traditional scope and expresses the number of pixels at a given value by varying the brightness.

Mono mode displays every data point at full intensity, which can be useful in ensuring complete legality. With weighted views it is possible to miss a small pixel region that is out of range.

Sampling

By default, ScopeBox scopes process video at full resolution, which may be too resource intensive for slower computers or high definition signals. Selecting a sub-sampling multiplier tells the scope to look at only every other line (2), every fourth line (4), or every eighth line (8) when computing the scope.

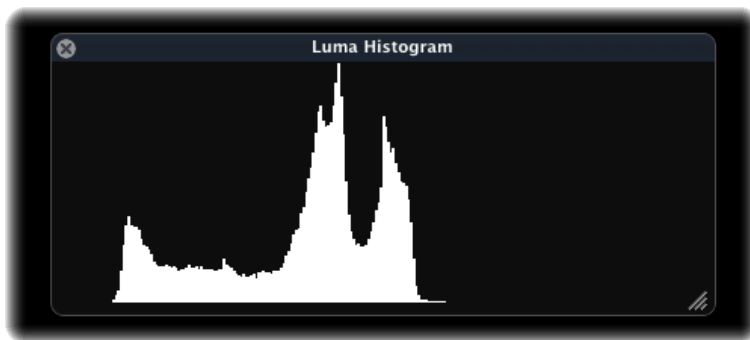
Intensity

When in weighted mode, the intensity slider adjusts the brightness of the scope. By changing this value, you adjust the visibility of areas of low pixel concentration.

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Luma Histogram

The Luma Histogram displays the range of luminance levels in the video signal, with black on the left and white on the right. The height of each line corresponds to the percentage of the image that occurs at that luminance level.

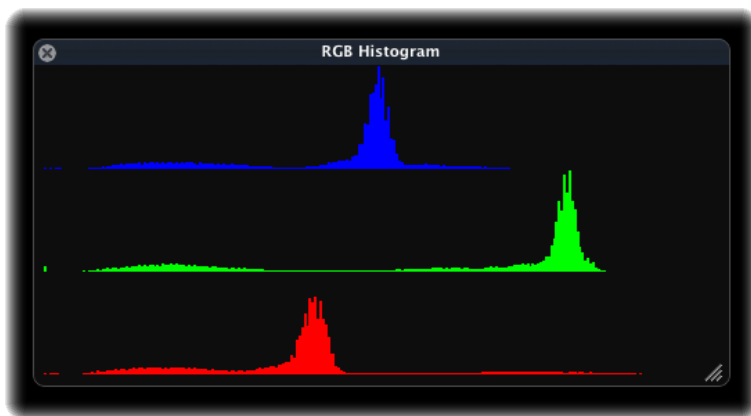


The Luma Histogram Palette.

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RGB Histogram

The RGB Histogram displays the intensity of the Red, Green and Blue signals. Similar to the Luma Histogram, the leftmost column is the lowest intensity and the rightmost is the highest intensity.



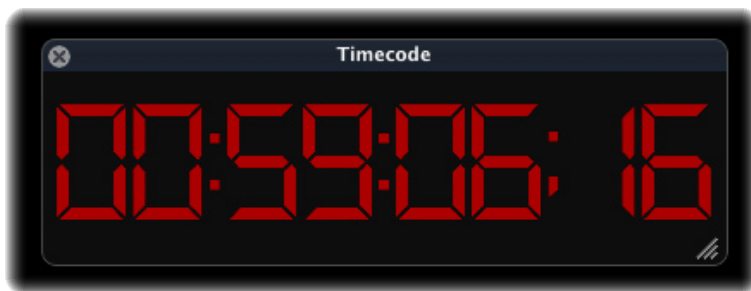
The RGB Histogram Palette.

The RGB histogram is particularly useful when working with chroma key shots. The key color should be as even as possible for clean keying. Doing so produces a very tight clump of long bars rather than a wider clump of short bars.

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Timecode

The Timecode palette displays the timecode as sent from the video source, generally when playing a tape or recording. Some devices operate in “free run” mode, which generates timecode without a tape present. Timecode is formatted in SMPTE standard format - Drop Frame timecodes have a semicolon (;) between the seconds and frames place whereas Non Drop Frame timecodes have a colon (:).



The Timecode Palette.

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Recording

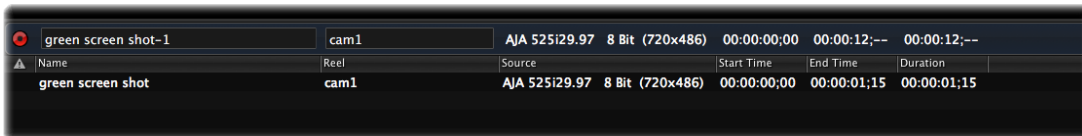
Starting and Stopping a Record

Each source has a record button, which can be used to stop and start recording. ScopeBox will store files in the location specified in your preferences. From the “Source” menu, you can also start recording one or all of your sources simultaneously.

Recorder Settings Bar

The name of the video file and the reel name are set for each recording source in the source recorder settings bar at the bottom of the ScopeBox window.

By clicking a source’s recorder settings bar, you can access additional options in the sidebar.

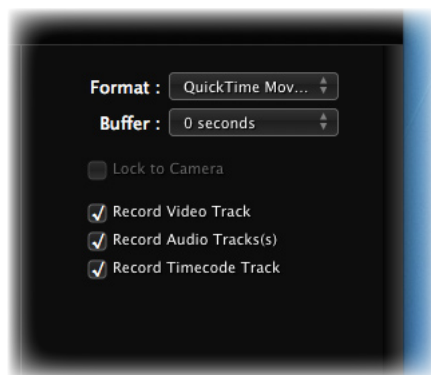


A recorder settings bar with cliplist below.

Record Format

Depending upon the type of source, recorders can record video files of differing formats. All sources support capturing to QuickTime movies, and unless you have a good reason to choose another format this is your best choice. QuickTime is the format to use if you plan to edit your footage in Final Cut Pro.

FireWire devices which capture in HDV format have the added option of recording to .m2t streams. DV FireWire devices can be captured to .dv streams. These formats are often better supported than QuickTime on Windows or Linux edit systems, or in custom video workflows. The decision to use these stream formats should be made in consultation with your editor, post production supervisor, or someone else knowledgeable about which file formats are best suited to your workflow.



Available settings for recorders.

Buffer Size

One of ScopeBox's most unique features is the ability to capture video that happened in the past. From the moment you open a source, ScopeBox silently begins recording frames in memory, tossing out the oldest frames to maintain a buffer of the last few seconds. With the buffer size control you can set this backup record from 0 - 30 seconds. Once ScopeBox has had enough time to refill this buffer, every record you make will have that amount of time prepended to the front of the clip, as if you hit the record button that much earlier in time - a life saver when your interviewee says something great before you're ready, or when shooting wildlife or sports.



Some cameras may not properly work with ScopeBox's Lock to Camera feature. Specifically, many HDV cameras reset the timing information in their video stream at the start of each recording. This may cause ScopeBox to record audio and video out of sync for the remainder of that shot.

Lock to Camera

When Lock to Camera is enabled, ScopeBox will monitor your attached source's tape status. If the device goes into record mode, ScopeBox will also begin to record. When the device returns to Stop or Pause state, ScopeBox will stop the record.

This allows you to easily record both on your camera and within ScopeBox with one push of a button on your camera.

It's important to realize, however, that when Lock to Camera is enabled, the record button on your Source Palette will no longer work. Lock to Camera also means that Scopebox will discontinue recording in the event you run out of tape on your camera.

Record Track Selections

Sometimes you only need to record audio or video. In this case, uncheck any tracks you don't need, and Scopebox will omit them from any future recordings - saving you disk space and CPU usage.

The Clip List

The disclosure triangle in the bottom left of the window will open the Clip List which shows you the history of all of your recordings. From the Clip List, you can review previous shots, change their file names or reel info, or check timecode information.

By right clicking on a clip in the Clip List, you can choose to open a movie in QuickTime Player, to show the file in the finder, or to open the clip as a new source in ScopeBox.

Thumbnail Mode

The button to the right of the show/hide Clip List button allows you to toggle the Clip List between list mode and thumbnail mode. In thumbnail mode you can easily see the first frame of each clip.

Drop Frame Warnings

If while you are recording, the source detects a dropped frame, a warning will appear in both the Source Palette and the associated Recorder Settings Bar to alert you to the dropped frame in your recorded clip.

The first column of the Clip List shows warnings for any previous clip which experienced dropped frames, allowing you to quickly review what may need to be reshot.

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View Menu

The View Menu allows you to customize the look and feel of the main ScopeBox window. Each of the major sections of the window - the source bar, sidebar, and the clip list - can be shown or hidden from the View Menu. In addition, you can save and recall preset palette layouts and configurations.

Saving a new layout

To save a custom layout, arrange the palettes as desired and select “Save Custom Layout...”. You will be prompted to name your layout.

If you wish the recalled layout to apply to whichever video source(s) you have open at the time of recall, check “use existing source.” If you want the layout to save your source settings and recall them later, check “save video settings.”

After clicking OK, you will find your newly saved layout in the Layouts menu.

Restoring a layout

Choose any of the layouts found in the custom layout section to restore the main window to this configuration. If you choose to save video settings with your layout, and that source is no longer available, ScopeBox will add a placeholder source. Right click on this source to replace it with an existing source.

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Window Menu

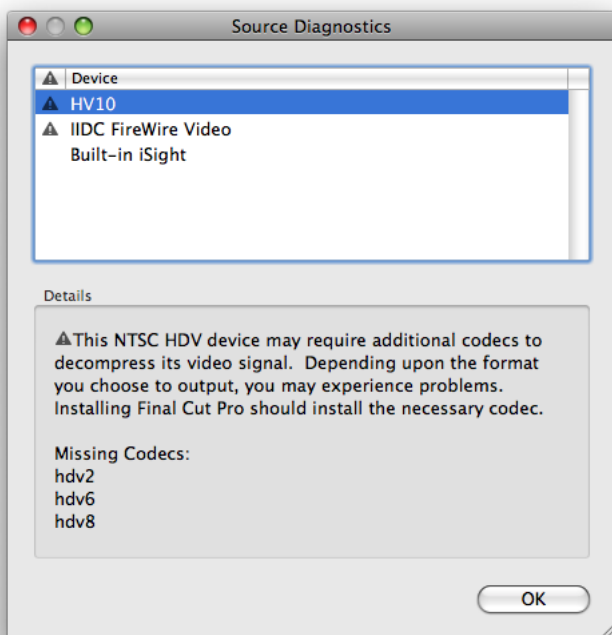
The Window Menu provides the Toggle Fullscreen option. Fullscreen mode hides the dock, menu bar, and all other applications, making ScopeBox the only visible application.

When in fullscreen mode, the menu bar is revealed when the cursor is at the top of the screen.

18 Source Diagnostics

If you're having trouble accessing a particular video device in ScopeBox, select "Source Diagnostics" from the "Help" menu.

The source diagnostics window will show all of the detected video devices on your system. If a device has a caution icon next to it, that means ScopeBox is unable to connect to that device. By selecting the problem device in the list, you'll see an explanation below of what reason ScopeBox has for disabling this source.



An example of Source Diagnostics explaining a source error.

There are a few common problems which may cause devices to be disabled, depending upon their type:

Capture cards and IIDC or USB cameras

These traditional QuickTime supported devices are disabled most often due to a conflict with another piece of software on your computer. These devices can only be used by a single application at once.

Applications like FCP must be explicitly told not to open their device, or launched after ScopeBox has opened the device as a source. Also, many instant messaging clients will take control of a camera when launched, even if you're not actively engaged in a video chat.

HDV, or DVCPROHD cameras

In order to take advantage of some firewire cameras, you must have the appropriate video codecs installed, which requires installing Final Cut Pro on the machine. Final Cut Pro installs codecs in “/Library/QuickTime” on your computers hard disk. The Source Diagnostics window will alert you to which codecs are currently missing that your camera may require.

Also, many FireWire cameras have modes in which they do not output a signal on the FireWire port. Examples of such cameras include Panasonic's HVX-200 while in native frame rates (24pN, 30pN) and Sony's EX-1 while in HQ modes.

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Performance

ScopeBox is a high end application and requires a lot of system resources to run properly. The application uses a number of techniques to actively monitor video processing and allocate CPU resources to ensure video is captured without frame drops.

If the sources often show the drop frame warning icon, there are a number of options for increasing available resources and decreasing resource demand.

- ◆ Quit other applications
- ◆ Verify that there is enough free space on your start up drive (at least 1 GB - much more if you are planning to record)
- ◆ Lower the preview level of open sources
- ◆ Lower the palette count
- ◆ Close RGB Histogram and RGB Parade palettes
- ◆ Increase sampling on open palettes
- ◆ If using the recorder, lower the buffer size
- ◆ Decrease the ScopeBox window size

If none of these actions work then you may need more RAM, a faster video card or a faster machine.

20 System Requirements

ScopeBox is a flexible application that can be used with many hardware configurations. System requirements will vary drastically based on your specific usage and hardware. The following are guidelines for the minimum system required to run ScopeBox in its default layout.

SD video:

- ◆ PowerBook G4 laptop, PowerMac G5 or Intel-base Macintosh
- ◆ Graphics card with support for Quartz Extreme.
- ◆ 1 GB of RAM.
- ◆ 75 MB of disk space.
- ◆ External drive for recording.
- ◆ Mac OS X 10.4.11 or OS X 10.5.2 or newer.

HD video:

- ◆ PowerMac G5 or Intel-base Macintosh
- ◆ Graphics card with support for Quartz Extreme.
- ◆ 1.2 GB of RAM.
- ◆ 75 MB of disk space.
- ◆ External drive for recording.
- ◆ Mac OS X 10.4.11 or OS X 10.5.2 or newer.

For HDV sources, an Intel Mac is recommended because HDV decoding is extremely CPU intensive.



These minimum requirements are not a guarantee ScopeBox will work with your exact configuration. Please thoroughly test your hardware with the trial version before making any decisions. You can download the trial at www.scopebox.com/trial.html

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Troubleshooting

Using multiple FireWire cameras doesn't work.

Some cameras are unable to coexist properly on the FireWire bus, which may result in sources not appearing or not behaving as expected. The cameras sometimes monopolize the FireWire bus, preventing other cameras from sending video.

As a workaround, you can install a second FireWire bus in your Macintosh. On laptops this can be done with a PCMCIA or Express-card. On Mac Pro or PowerMac computers, this can be done via a PCI-e or PCI-x card.

Please report details about which cameras and computer configurations cause these issues, so we may refine our source documentation. Because there are hundreds of cameras and nearly infinite combinations, we need help from our users to document this information. Please send your system configuration via the web form at www.scopebox.com/contact.html

Video is choppy when using multiple cameras.

There are a few things that can cause this problem. First, your computer may not be powerful enough to decode all of the incoming video streams. HDV in particular is very CPU intensive. ScopeBox will drop frames on your palettes in order to optimize recording performance.

Additionally, many FireWire cameras limit your computer's FireWire bus to 100mbits/second all devices combined. Once you go beyond 2-3 cameras, you may have insufficient bandwidth to add additional sources. This issue can also be resolved by adding a third party PCI or express card FireWire bus.

My video input is not showing up / is grayed out / does not work.

Make sure your video input isn't in use by another application, check input cabling, and restart ScopeBox. Verify that your camera is outputting video.

Also, verify that you have the proper codecs or drivers installed. While this is not an absolute assurance the device should work in ScopeBox, you can confirm your system is set up properly by checking to see if the device works in other QuickTime applications.

Consult Scopebox's Source Diagnostics dialog under the help menu for additional help determining why ScopeBox may be disabling your device. See section 18 of this manual for more info of the Source Diagnostics dialog.

Audio from my DV camera sounds distorted / VU meters only show one channel of audio.

ScopeBox does not currently support the 12bit audio mode present on some DV camcorders. If you are experiencing audio distortion from a DV, DVCam, or DVCPHD camera, switch the device to 16bit mode and the audio should preview correctly.

I'm using a Panasonic HVX-200 and can't see any video.

When the Panasonic HVX-200 is set to “pN” mode, its firewire port is disabled. Set the camera to another mode in order for ScopeBox to be able to utilize it.

There are multiple settings in the HVX which affect the current frame mode. Be sure to set a non-pN mode under the camera > recording setup menu. Also, ensure your active scene file has a frame rate of “Default”, or this will override the recording setting.

Duplicate frame removal is not working with the HVX-200.

As explained above, there are multiple settings in the HVX which affect the current frame mode. Be sure you have set a non-pN mode under the camera > recording setup menu. Also under recording setup, you need to set “UB MODE” to “FRM.RATE”, which tells the camera to flag duplicate frames in the video stream, so that Scopebox is able to detect and remove them.

Finally, ensure your active scene file has a frame rate of “Default”, or this will override the recording settings above.

All my recordings are out of sync when using Lock to Camera with my HDV source.

Some cameras may not properly work with ScopeBox's Lock to Camera feature. Specifically, many HDV cameras reset the timing information in their video stream at the start of each recording. This reset in the stream may cause ScopeBox to record audio and video out of sync for the remainder of that shot. You will need to manually start your ScopeBox recordings after the HDV camera has had time to begin its record and the improper timing information has passed.

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Other Resources

If you need additional support using ScopeBox, please try the resources listed below.

Support on the Web

<http://www.scopebox.com/support.html>

Email support

support@divergentmedia.com

Phone support

toll free - 888.632.0904



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