SALIENT SCIENCES

VIDEOFOCUS USERGUIDE

Version 4.6

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CONTENTS

CHAPTER 1

INTRODUCTION AND TUTORIAL

Salient Sciences is a leading provider of imaging software and training. VideoFOCUS software is used by media, law enforcement and military customers around the world. It provides all the features you'll need to get superior results from video.

HIGHLIGHTS:

- Analog and Digital capture: Whether the source of your video is a VHS tape, DVR player, or streaming video off the web, VideoFOCUS will capture it.
- A wide variety of forensics operations and filters are available for both images and videos.
- Simple cut, copy & paste editing of movies and images into final presentable videos.
- Speed and simplicity: VideoFOCUS is easy to use and install. The intuitive software, with a friendly graphical user interface, requires no specialized training.
- Portability: VideoFOCUS runs on various approved high end personal computers. Additionally, it can be run on laptops in the field to capture and work with video data immediately.

USER GUIDE

The user guide provides detailed information about all VideoFOCUS procedures, commands and features. It assumes you have a basic working knowledge of the Windows operating system, including using a mouse, selecting items in menus and dialog boxes, and opening, saving, and closing files. For information about these, please refer to your Microsoft documentation.

VIEWING THIS GUIDE ELECTRONICALLY

This guide is also provided as a Portable Document Format (PDF) file under the Help menu. To view it, you must have Adobe Acrobat Reader installed on your computer.

Note: *Acrobat Reader will automatically install when you attempt to open the user guide for the first time, or you can download it from Adobe.*

The PDF version of this guide includes hypertext links to help you move quickly to related points in the guide or to the Salient Sciences website. Hypertext links are displayed as underlined text.

TUTORIAL AND SAMPLE MOVIES

In addition to the User Guide, some key features of VideoFOCUS are featured in Tutorial Movies. To do this, you must first install and register your VideoFOCUS software. See the VideoFOCUS Installation guide provided with your software, as well as Appendix B, VideoFOCUS Registration from this user guide.

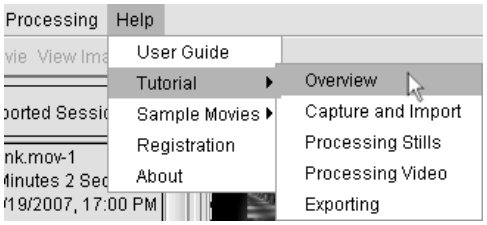
TUTORIAL PRESENTATIONS

Tutorial presentations under the Help menu provide a basic introduction to VideoFOCUS and demonstrate various features and procedures. The tutorial presentations provided with VideoFOCUS demonstrate the following:

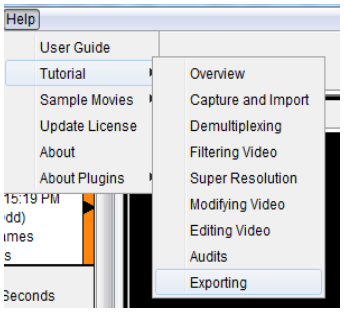
- Overview: A basic tour of the VideoFOCUS user interface and feature sets.
- Capture and Import: How to acquire your raw video material into VideoFOCUS .
- Demultiplexing: How to unscramble, isolate and sort camera views from multiplexed video.
- Filtering Video: How to improve video and still images through the use of filters.
- Super Resolution: How to create still images with superior resolution from video.
- Modifying Video: How to perform various modifications, such as adjusting the aspect-ratio, frame rate or clip speed of video.
- Editing Video: How to combine, edit and save videos and still images together.
- Audits: How to view and save detailed descriptions of all modifications made to video or still images.
- Exporting: How to export your modified videos and still images.

To access the VideoFOCUS Source tutorial presentations

1. Install and register your software.
2. Launch VideoFOCUS.
3. Choose the menu Help > Tutorial.
4. Select a presentation from the list. It will open in a Quicktime player. Press the play button in the player window to view it.



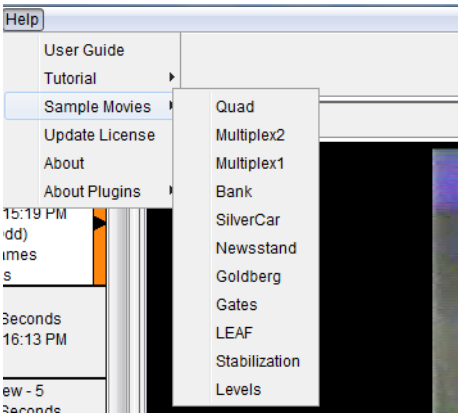
Accessing the tutorial presentations



Accessing the tutorial presentations

SAMPLE MOVIES

The sample movies provided with VideoFOCUS allow users to get a head start exploring the features demonstrated in the tutorial presentations. Once a sample movie is selected it will appear in the VideoFOCUS application window. Sample movies can be deleted at any time and reimported from the Help menu, as needed.



Sample Movies Menu

- Quad: This is an example of a four camera video, divided into quadrants. Users can crop and resize the quadrants, as demonstrated in the Modifying Video tutorial presentation.
- Multiplex1, Multiplex2 and LEAF: These movies are three examples of multiplexed video. These are useful for learning demultiplex techniques as demonstrated in the Demultiplex tutorial presentation.

- Bank, Silver Car, Newstand: These movies are three examples of video that benefit from the application of super-resolution and masking, as demonstrated in the Super Resolution tutorial presentation.
- Gates, Goldberg: ThisThese moviemovies contain an audio track. VideoFOCUS supports import, export and editing of Quicktime files containing audio.
- Stabilization: This movie is an example of shaky video shot inside a moving vehicle. Users can apply stabilization filtering to correct this, as demonstrated in the Filtering Video tutorial presentation.
- Levels: This movie has low light conditions. Users can use this to experiment with the levels filter, demonstrated in the Filtering Video tutorial presentation.

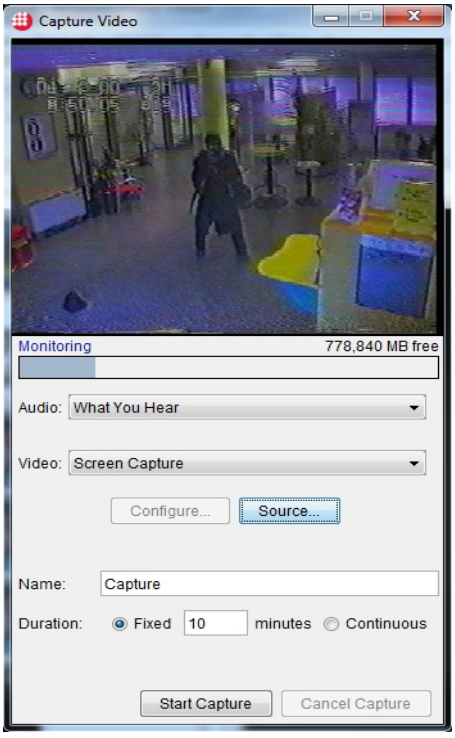
VIDEOFOCUS: A QUICK TOUR

This tour gives you a quick overview of the basic commands and features of VideoFOCUS. Take a look at the following sections for an overview of how to organize your acquiring and processing video, or skip ahead to Chapter 2 to start capturing video.

1. Creating Cases
2. Capturing and Importing Media
3. Browsing Video
4. Browsing Session Stills and Frames
5. Processing Sessions and Still Images
6. Editing Session Movies
7. Exporting Images and Session Movies
8. Setting Preferences

CAPTURING MEDIA

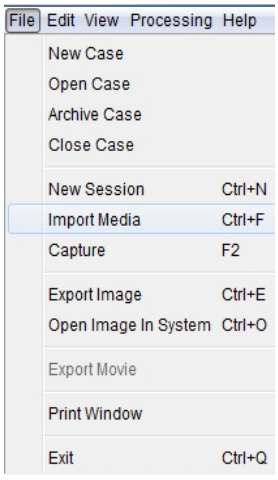
VideoFOCUS digitizes the incoming video signals through installed capture cards or any source window playing video on the desktop. Use the Capture panel to name the captured clips and to start and stop capturing. See Chapter 2 for details on capturing video.



Video Capture Panel

IMPORTING VIDEO & STILL IMAGES

VideoFOCUS can import video formats such as Quicktime, Windows Media, AVI, MPEG and many others. It can also import a wide variety of still image formats. See for details on importing video.

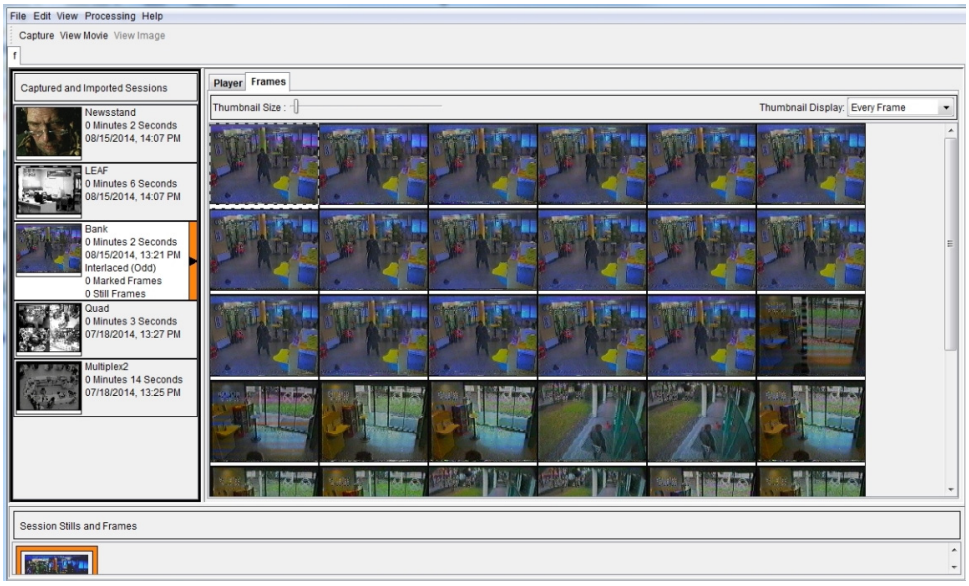


Import Media Menu

BROWSING VIDEO

VideoFOCUS stores captured and imported video and displays it in a thumbnail or movieplayer format. Users can toggle between both the thumbnail view and the movie player view by clicking the Frames and Player tabs at the top of the application window. Additionally, if users wishes to view the movieplayer and frames simultaneously, the player can be undocked by double clicking on any frame. Closing the player window re-docks it to the main window.

See Chapter 3 for information about Browsing Captured and Imported Sessions.



BROWSING SESSION STILLS AND FRAMES

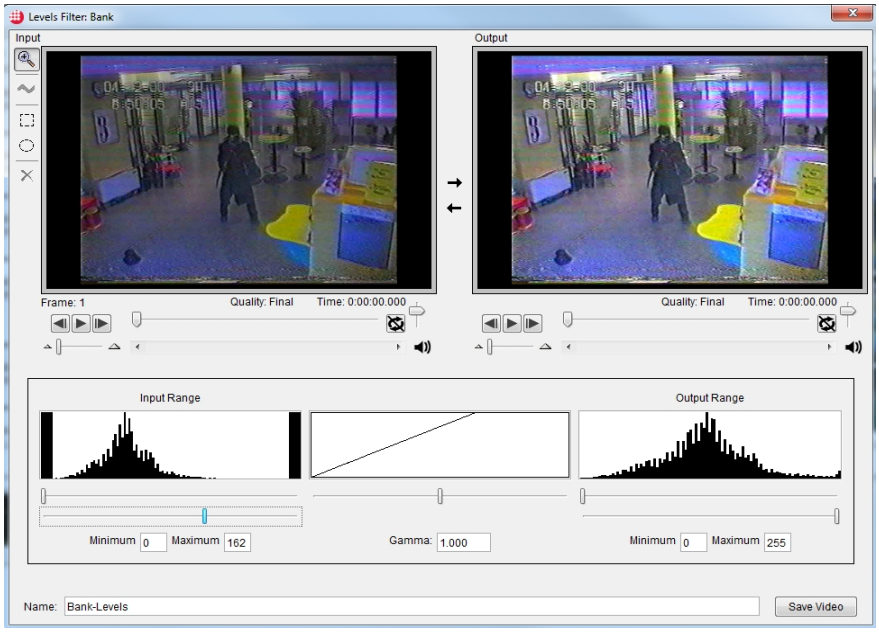
The Session Stills and Frames window is where you can view the images and stills you have created from any video session. It is also where you can find single images that you have imported into VideoFOCUS.

See Chapter 4 for more information about browsing session stills and frames.

PROCESSING SESSIONS AND STILLS

Once sessions and still images are stored in VideoFOCUS, they can be processed further with a wide variety of filters.

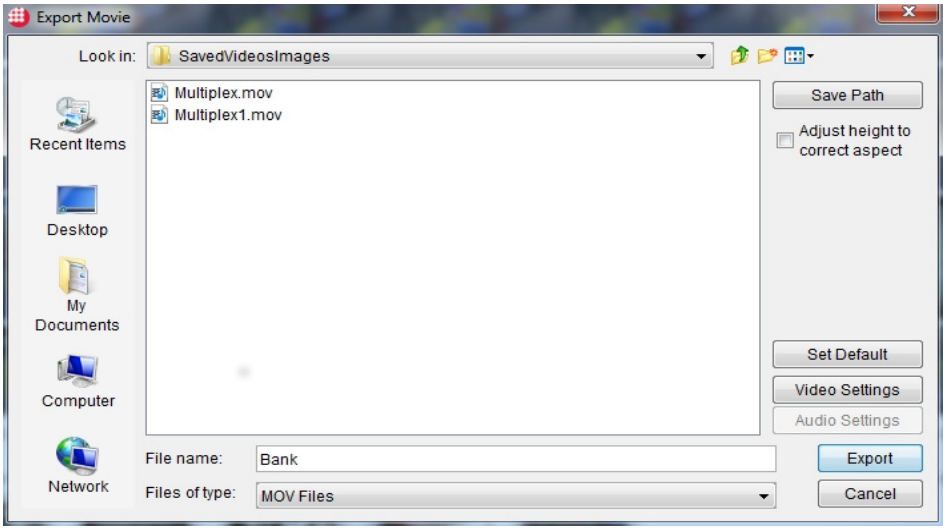
See Chapter 5 for more information about Processing Sessions and Stills.



Levels Filter

EXPORTING IMAGES AND SESSION MOVIES

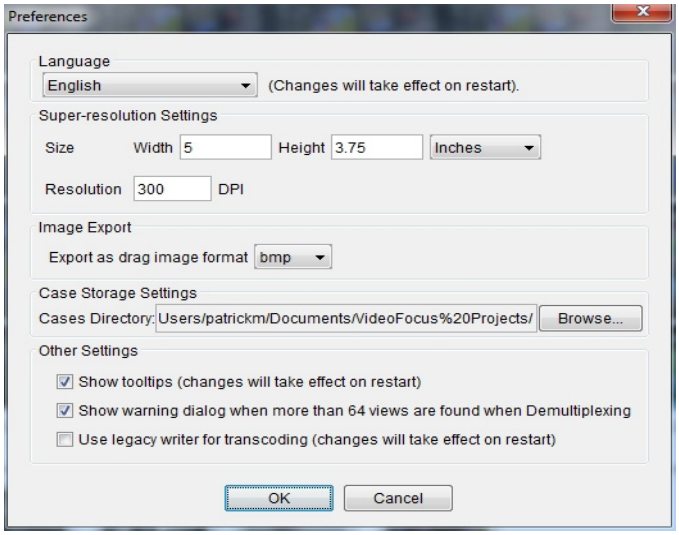
When you have finished processing your videos and still images, you can export them in the format of your choice. See Chapter 7 for more information about exporting images and session movies.



Export Session Movie Panel

SETTING PREFERENCES

The Preferences dialog allows you to set Super-resolution still settings and Movie Storage Settings.



CHAPTER 2

ORGANIZING & CAPTURING & IMPORTING MEDIA

OVERVIEW

VideoFOCUS allows you to organize your movies and videos into collections called *Cases*. You can have more than one case open in VideoFOCUSat any time. It is easy to open and close cases, move media between cases and archive them for later use.

VideoFOCUS can capture analog video from video tapes, digital video from proprietary video players or online media players where a file is not readily available. VideoFOCUS can also import movie files stored in standard file types, single images and image sequences - a number of still frames typically representing a duration of sequential time.

VideoFOCUS includes the Video Format Converter plugin which provides extensive support for a wide variety of media formats and codecs. It provides VideoFOCUS with the ability to import video with accompanying audio from a wide range of media file types.

WORKING WITH CASES

Case are the way you can organize your videos and images into a group related to a particular project. Upon launching VideoFOCUS you will need to make a case into which you can capture or import media. You may have more than one case open in VideoFOCUS at any time. You can close and open them at any time.

To create a new case

1. Choose *File-> New Case*

2. Give the file a name then hit the button *Create*

To open a case

1. Choose *File -> Open Case*

2. Navigate to the Directory where your Case is stored.

3. Select the case the hit the button *Open*

DEFAULT LOCATION OF CASES

Cases are collections of videos and stills that are stored on the VideoFOCUS machine and are easily retrievable by the application for further use. The location of the Cases that are created and stored by VideoFOCUS can be found in the Preferences Dialog.

To find the location of your Cases Directory

1. Choose *Edit -> Preferences*

Each of the Cases is a named directory stored on disk.

Note: *Cases can reside anywhere on the hard disk. The default directory is where VideoFOCUS stores newly created cases within the application.*

ARCHIVING OF CASES

You may further archive your Case into a ZIP file for easy sharing and storage. In order to restore this data into VideoFOCUS, you must unpack the zip file into a directory. This directory will be seen by VideoFOCUS as a Case

To archive a Case

1. Choose *File->Archive Case*

2. Select a location

3. Name the Case

4. Hit *Save*

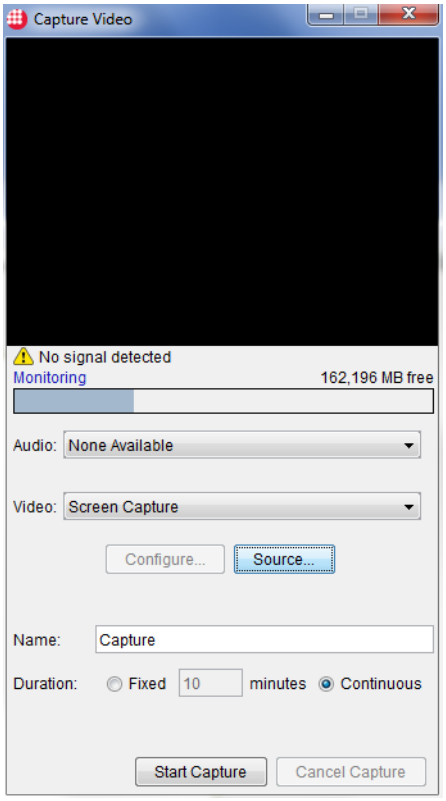
RESTORING ARCHIVES FOR USE IN VIDEOFOCUS

In order to restore archived Cases into VideoFOCUS, you must unpack the archived ZIP file into a directory. This directory will be seen by VideoFOCUS as a Case. Once the ZIP file is uncompressed, follow the instructions on Opening a Case.

CAPTURING VIDEO

According to which device is selected in the Device menu, users can capture signals through an installed video card (such as Decklink or Microsoft DV) or from a video player via **Screen Capture**. When capturing an incoming video signal, VideoFOCUS digitizes the signal and stores the video on the computer's hard drive. The stored digital video is called a **Capture Session**.

To open the Capture panel, choose File > Capture



Incoming signals are displayed here.

The bar indicates free disk space

Audio lists the sound devices installed. Video lists the video capture devices installed and allows the setup for screen capture.

CAPTURE PANEL INFORMATION

The following table describes the information of the Capture panel.

Capture Video dialog box - Video Status options	
Signal Monitor	This window lets you monitor the incoming video signal. The label below the video signal tells you whether you are “Monitoring” or “Capturing”.
Alert Messages	This area is below the Signal Monitor. If there is not enough free space for your capture session, or no video signal, VideoFOCUS will display an alert message. This area will also indicate other problems with capture such as slow writes to the disk.
Video Summary	The Video Summary Area displays the amount of available disk space. Blue indicates the amount of data currently residing on the drive. Free space is left blank. When capturing, the data being written to disk is shown in red.
Audio Selector	Allows the selection of the audio capture device.
Video Selector	Allows the selection to capture with an installed capture card, such as a BlackMagic card, or to execute a Screen Capture.
Configure	Allows the user to select the correct format for a PAL or NTSC signal. See Setting the Video Capture Device
Source	Activates the source window selection window for Screen Capture.
Name	Where a session movie is named before capture.
Duration	Where a user chooses to capture a fixed time in minutes, or to record continuously.
Start/Stop Capture	Initiates and stops a capture.
Cancel Capture	Cancels a capture, eliminating all captured data.

To capture video

1. For analog video make sure your video source is plugged in and powered on. For screen capture, make sure your video player is open on the desktop and you can visible see the movie you wish to capture.
2. Select the Video device. If you wish to select Screen Capture as your device, see Configuring VIDEOFOCUS for Screen Capture.
3. Enter a name for your Capture Session in the Session Name field.
4. Choose the duration for your capture (you can manually start and stop the capture process, or you can capture for a fixed number of minutes. The capture will stop after the duration of time specified).
5. Click Start Capture to begin capturing video.
6. Click Stop Capture when you’ve captured the footage needed.
7. Click Cancel Capture if you wish to abort the capture session. The captured video will not be saved.

SETTING THE VIDEO CAPTURE DEVICE

The devices listed in the menu depend on what video capture and audio hardware is installed in the computer. Choose the device you intend to capture with.

Many digital video recording devices (DVRs) require a proprietary player to display captured video. There is often no way to export a standard video file from these systems. Screen Capture provides a way of capturing this data as it plays on the monitor. Additionally, Screen Capture can be employed to capture streaming video off the web, if desired by choosing the source window to be the Internet browser (Chrome, Mozilla etc.) and selecting the region where the video.

Note: *You may find that various DirectShow and Video For Windows devices appear in the Capture Video Dialog. Some of these devices may work with VideoFOCUS if they produce video sessions in a suitable format. Please contact us for more information on the current list of supported cards - (+1) 919.572.6767 (option 2) or support@salientsciences.com*

CONFIGURING CAPTURE DEVICES

Depending on the Video Device selected, you will need to configure the Video Source and Video Format options as described below.

CONFIGURING AN ANALOG CAPTURE DEVICE

1. For a Blackmagic Video Capture Device

First be sure to configure the BlackMagic card via the Blackmagic control panel on your Windows machine.

Note: *Video Format: Select the item that says UYVY (720x486) if you are capturing NTSC, the video standard in North America and Japan; or UYVY (720x576) if you are capturing PAL, the video standard in Europe, Asia, and Australia. Click Accept.*

2. For a DV Video Device: Select a 1394 DV capture device in the Video Device list. Typically, your DV input device will be called “Microsoft DV Camera and VCR”

Note: *For 1394 DV capture devices, the playback device (camera or deck) you are using must be connected and powered on when you open the Capture Video dialog. Your playback device needs to output a signal in order to be recognized by VideoFOCUS. Most playback devices automatically output a signal when powered on. If yours does not, you might have to play a tape to output a signal.*

Note: *Video Format: Select the item that says DVDSD (720x480) or DVDSD (720x576) and click Accept. VideoFOCUS recognizes two video standards: NTSC (720x480), the standard in North America and Japan; and PAL (720x576), the standard in Europe, Asia, and Australia. When you select a 1394 DV video capture device, VideoFOCUS determines the standard automatically and presents the proper format for selection.*

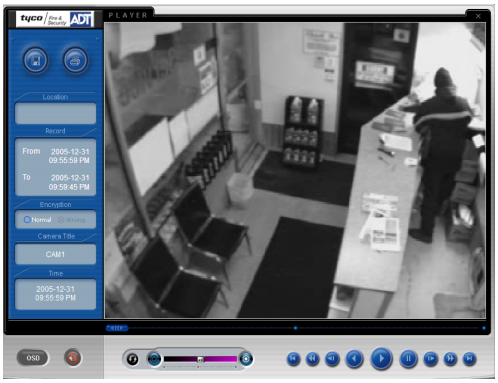
CONFIGURING VIDEOFOCUS FOR SCREEN CAPTURE

1. Launch VideoFOCUS.
2. After VideoFOCUS is up, launch the proprietary video player or open the window containing your source video.

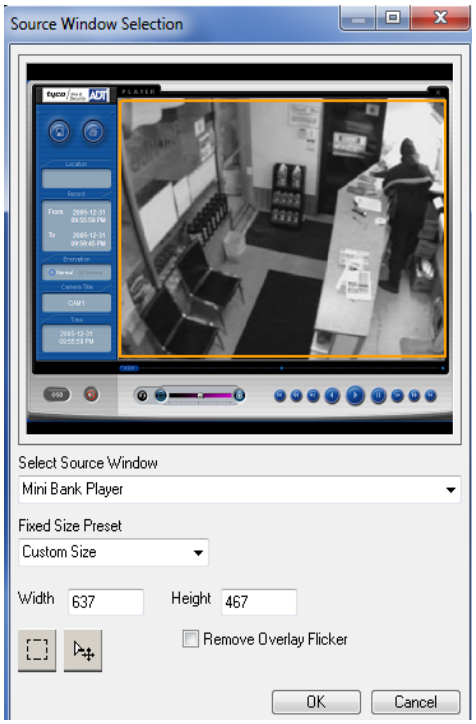
Note: *You may need to install any proprietary players on your computer first. It is recommended that you run the player from your local disk, not the CD drive, as this will ensure optimal performance from the player.*

3. Open the capture panel. Choose Screen Capture in the Device menu and click Source. The Source Windows dialog appears. The drop-down menu lists all the windows present on your desktop.
4. Choose the name of the window you want to capture. Once a window is selected it will be brought to the foreground and display in the source selection window.

Note: *In case a selected window does not display in the source selection window, you may want to decrease the Hardware Acceleration for the computer's graphics card. To do this, exit VideoFOCUS, then go to: Start Menu > Control Panels > Display > Settings tab > Advanced button > Troubleshoot tab, and lower the Hardware Acceleration slider. If you are using Windows Media Player, you can lower the Hardware Acceleration within the player itself by opening: Tools > Options > Performance, and lowering the Video Acceleration slider.*

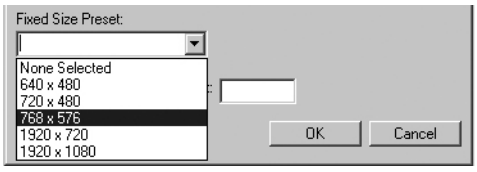


DVR Player Window

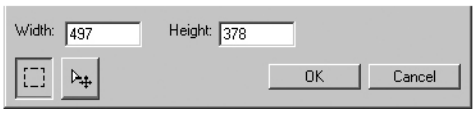


Source Selection in Capture Media Dialog Video Portion is being selected with crop tool

5. Use the crop cursor to select only the video portion of the player (most media player windows are comprised of video displayed within a console). Additionally, you may choose a preset pixel size from the drop-down menu or manually enter a custom size using the pixel height and width text fields. If you wish to move the crop box, select the arrow tool to drag it.



Preset Pixel Sizes



Pixel fields and Crop Tools

6. If there is timecode overlaying the video, you may want to select the Remove Overlay Flicker checkbox. This will help ensure that the timecode remains visible at all times in the captured video.

7. Select an Audio Source, if your video contains audio and you wish to capture it. See Configuring a Sound Card for Analog or Screen Capture.
8. Click OK and the selected portion of the source window is displayed in the capture panel.
9. Activate the player to play the desired video segment. Click Start Capture to begin capturing video data. If the player occupies the full screen, the capture panel will go to the background, ensuring no overlap of the target window.
10. Click Stop Capture when you wish to end the capture session. If the player occupies the full screen, you can also stop capturing by double-clicking the VideoFOCUS icon in the system tray in the lower right corner of your screen.

Double-clicking the VideoFOCUS icon that appears in the lower right corner of the screen will stop video capture.

11. The captured video will appear in the Captured and Imported Sessions list.

CONFIGURING A SOUND CARD FOR ANALOG OR SCREEN CAPTURE

VideoFOCUS will capture audio, in addition to video, if a built-in or approved 3rd party sound card is properly configured. Please contact us for more information on the current list of supported cards - (+1) 919.572.6767 (option 2) or support@salientsciences.com

IMPORTING MEDIA FILES

VideoFOCUS can import most video formats that open in Quicktime or Windows Media Player. Additionally VideoFOCUS can import singe image files or a collection of sequential image files..

Some, but not all, of the support image and video formats that VideoFOCUS supports include the following:

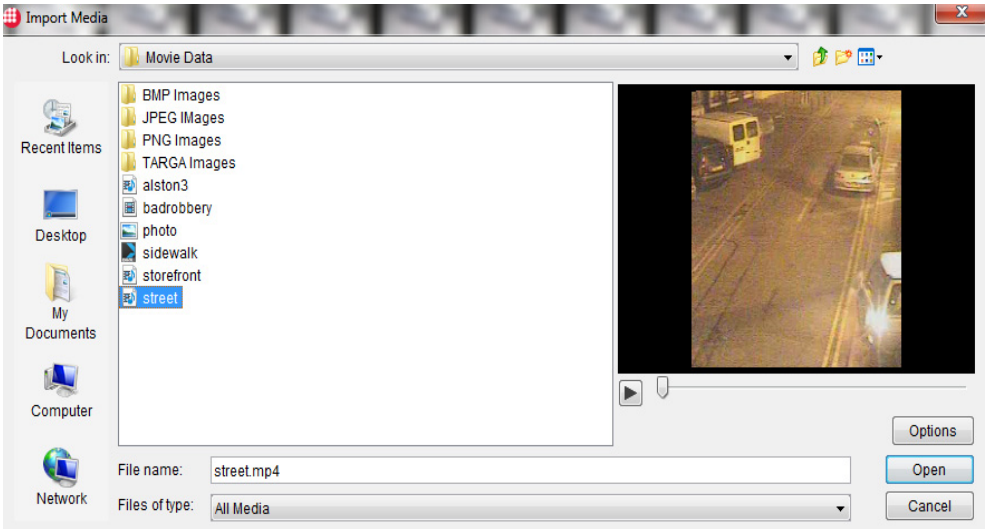
Format	Description
QuickTime (.mov)	Video file format developed by Apple Computer.

Format	Description
Windows Media (.asf, .asx, .wmv, .wm)	Developed by Microsoft for streaming and playing back media files, consists of: Advanced Streaming Format (ASF), Active stream redirector (.ASX) Windows Media Video (WMV), Windows Media (WM).
AVI (.avi)	Audio Video Interleave, a Microsoft format for digital audio and video commonly produced by digital video recorder (DVR) systems.
MPEG (.mpeg, .mpg, .m1v, .m2v)	Includes MPEG-1 and MPEG-2 formats. MPEG-1 is a low-resolution format widely used on the Internet. MPEG-2 is a higher resolution format, most commonly used for DVD.
MPEG-4 (.mp4, .m4v, .mp4v)	Designed to transmit video and images over a narrow bandwidth, the current primary use for MPEG-4 video is Internet streaming media.
Indeo (.ivf)	A high compression format developed by Intel, commonly used for CD-ROM production.
DivX (.divx)	A popular compression format based on MPEG-4. DivX files can be downloaded over high-speed lines in a relatively short time with minimal loss of video quality. Often used to exchange video files on the Internet.
DV (.dv)	Digital Video (DV) defines both a compression and a tape format. It is popular for consumer and semiprofessional video production.
VOB (.vob)	Short for Video Object. A DVD file that contains the actual Video, Audio, Subtitle and Menu content.
3G Mobile (.3g2, .3gp)	A low-quality format used in mobile phones to store audio/video files.
Image Formats ???	

TO IMPORT MEDIA FILES

1. Select File > Import Media. All Media is the default file type selection. If you wish to narrow your search to either images or video, you can choose the file type/ extension associated with the file type. Navigate to and select the file you wish to import.

The Import Media Dialog provides a Visualization Window that allows the viewer to review the video and images before import.



Note: *Single of a series of video can also be imported into the application by dragging them from the Desktop.*

SETTING VIDEO ATTRIBUTES ON IMPORT

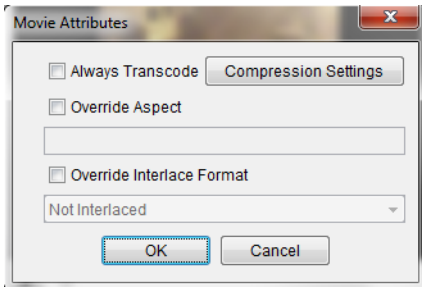
VideoFOCUS will allow you to change the attributes of a video (or series of sequential images imported as a video) via the **Movie Attributes Dialog**.

Transcoding

Certain video formats may require transcoding before they can be imported. Transcoding is a process by which the original video is copied and converted to a format that VideoFOCUS can more readily work with. Typically, file formats that may require transcoding are streaming formats (.asx, .asf, .wmv) that do not display video frames unless the clip is playing. This can cause problems if the user wishes to browse through the video frames at random. Transcoding is a way of creating a non-streaming copy of the original video.

To Transcode a Video File

1. Select File > Import Media.
2. Navigate to and select the video file you want to import.
3. Select the Options button which will open the **Movie Attributes Dialog**. Click on the **Compression Settings** button, which contains a list of compression formats.



Note: *The default compressor is None, which uses no compression when converting the file. This setting is preferred if you wish to maintain the quality of the original video, but may result in large files if the original video is several minutes long. In that event, any compressor can be selected from the list to create a smaller file.*

4. Click OK to close the Movie Attributes Dialog.
5. Click Open in the Import Media Dialog. The transcode progress bar will appear. Once the transcode is complete, the file will appear in the session list.

Always Transcode Videos
If you wish to always transcode videos with a particular setting on import, click the **Always Transcode** checkbox . The videos will be transcoded with the current settings set in the Compression Settings Dialog.

Override Aspect
The Override Aspect Field allows the user to override the current aspect ratio. Please enter values in the form X:Y where X is the width and Y is the height.

Override Interlace Format
Some video may have the incorrect aspect ratio set or it may not be defined at all. If you know the interlace of the video, you can set it in the Override Interlace Format pulldown menu. Options are

- Not Interlaced
- Interlaced (Even)
- Interlaced (Odd)

IF YOU CAN'T IMPORT A VIDEO FILE

- The CODEC required by the video file must be installed on your computer to decode, or play the file. If the codec is not installed, an error will result if you try to play or import the file. You may be able to locate the codec associated with a particular video format on the Internet. Many video and DVR developers provide copies of necessary codecs on their websites for download. Before installing the codec, exit VideoFOCUS, then try the import procedures again.

- If the file plays in QuickTime or Windows Media Player, but still does not import to VideoFOCUS it may be a streaming format that is currently unsupported. To obtain a copy of this video in VideoFOCUS you can execute a screen capture. See the Configuring VIDEOFOCUS for Screen Capture section above.
- There are various 3rd party utilities that can convert self-contained video files to an uncompressed format that can be imported. If you need assistance contact (+1) 919.572.6767 (option 2) or support@salientsciences.com

IMPORTING A SEQUENCE OF IMAGES

The user may import a sequence of sequentially numbered still images as either a series of images which will be placed into the **Session Stills and Frames** panel or as a single movie and placed into the **Captured and Imported Sessions** panel.

1. Select File > Import Media.
2. Navigate to the folder of sequentially numbered images and select the ones you would like to import.
3. Choose "As Image" or "As Video" and the default Frame rate for your video.
4. If you chose to import "As Video" you can choose to set attributes of your movie. . Click the **Options** button which will bring up the **Movie Attributes Dialog** as discussed above.

Note: *Image Sequences can also be dragged from the Desktop.*

DRAG & DROP AND COPY & PASTE MEDIA IMPORT

FROM EXTERNAL APPLICATIONS

VideoFOCUS will import media files that are dropped into the application. Individual or multiple video files can be imported by dragging them from the desktop or file explorer and dropping them into either the **Capture and Imported Sessions** area. Similarly individual or multiple image files can be imported by dropping them into the **Session Stills and Frames** area.

Similarly, files can be copied from any other application that supports writing to the system Clipboard and then pasted into the relevant areas in VideoFOCUS.

WITHIN THE APPLICATION

Sessions and stills and frames can be copied & pasted between **Cases**.

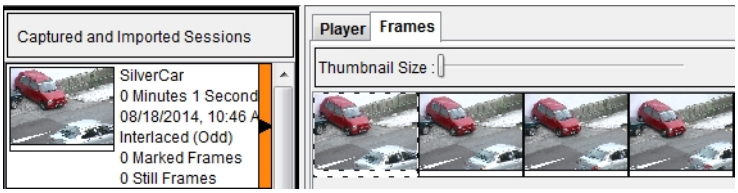
Single frames or groups of frames can be copied & pasted or dragged & dropped from the **Sampler Window** and placed in the **Sessions Stills and Frames** area. Similarly, single frames can be copied & pasted from the **Video Player Window** into the **Session Stills and Frames** area.

CHAPTER 3

BROWSING CAPTURED AND IMPORTED SESSIONS

Video can be brought into VideoFOCUS through various methods: by capturing it digitally, by screen capturing from digital media players, by importing self-contained media files, such as those encoded as Quicktime (.mov) Windows Media (.wmv) or AVI (.avi) or by importing a series of sequential still frames that are converted into a video file. The import process can also be initiated by a drag & drop or copy & paste action into or within VideoFOCUS. Videos reside in the **Captured and Imported Sessions** pane in VideoFOCUS.

When you acquire video, VideoFOCUS automatically displays it in the **Captured and Imported Sessions** pane.



A session as it appears in the Captured and Imported Sessions window.

SESSION INFORMATION

As sessions are acquired, the left column of the window becomes a scrollable list. To select a session, simply find it in the list and click on it. When it is selected, a white highlight will appear and any frames associated with it will display as thumbnails, or in a movie player, in the right panel of the window.

Because each session can be unique, session names and creation dates are always displayed in the list, in addition to other information. The following table describes the items displayed in the session list.

Session Information	
Session Name	The name of the capture session.

Session Information	
Session Length	The length of the capture session in minutes and seconds.
Created Date	The date and time the capture session was captured or imported.
Interlaced	The interlace status of the movie. “Odd” means the session is field interlaced with the odd field dominant. “Even” means the session is field interlaced with the even field dominant. “Not Interlaced” means the session is not field interlaced. “Field Dominance” refers to which field is used to begin or end a segment of video.
Marked Frames	The number of marked frames in the session.
Stills	The number of super-resolution stills, created from the session.

BROWSING FRAMES

Once a session is selected, the thumbnails of the individual video frames are displayed in the right panel of the Captured and Imported Sessions pane. Browsing frame thumbnails is one way to navigate through a video.

If you click on an individual frame with which you want to work, you can quickly view it in detail using the movie player.

Frame thumbnails display for a selected session when the Frames tab is chosen.

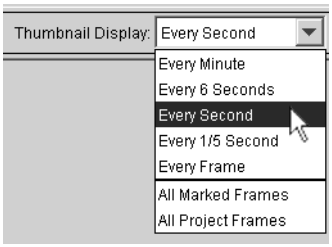
Users can toggle between viewing frames or the movie player by clicking the **Frames** and **Player** tabs at the top of the application window. Both views are synchronized, meaning, that if you click on a thumbnail in the Frames view, the Player view will display that frame when selected. Likewise, if you scrub the movie player to a particular area, the Frames view updates in the background to display that area, as well.

Additionally, to view the movie player and frame thumbnails simultaneously, the player can be undocked by double clicking on any frame. Closing the player window re-docks it to the main window.

SETTING THE THUMBNAIL DISPLAY

The Thumbnail Display is a drop-down menu that lets you choose a granularity for viewing the captured video. The menu can display a range of individual frames, from one frame per minute to every frame. You can also view only marked frames.

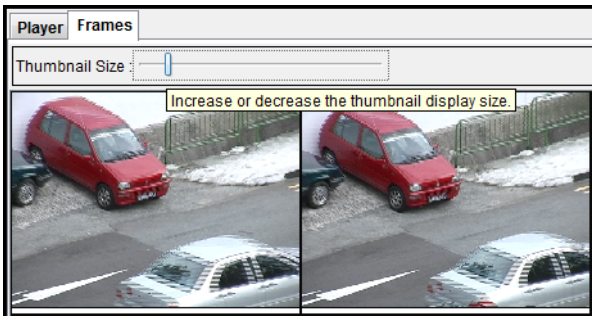
This can be a useful feature when working with longer videos, of several minutes in length. For example, by adjusting Thumbnail Display setting (to a setting such as Every Minute or Second), you can browse the video to get a rough overview of it, and then ultimately find a frame of interest using a finer setting (such as Every Second or Frame).



Adjust the Thumbnail Display to get a quick overview of long capture sessions

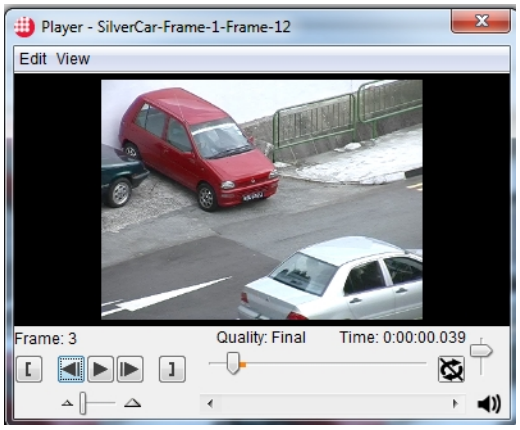
SETTING FRAME SIZE

The size of the frame thumbnails can be adjusted using the Thumbnail Size slider. The smallest setting is 80x60 pixels, but they can be resized to be much larger, to the full width of the application window, if necessary. To enlarge the size of the frame thumbnails, simply drag the slider to the right. Dragging it to the left shrinks them back again.



BROWSING VIDEO

Once a session is selected, users can toggle between viewing it as frames or as a movie by clicking the Frames and Player tabs at the top of the application window.



A movieplayer displays for a selected session when the Player tab is chosen.

Both views are synchronized, meaning, that if you click on a thumbnail in the Frames view, the Player view will display that frame when selected. Likewise, if you scrub the movieplayer to a particular area, the Frames view updates in the background to display that area, as well.

Additionally, to view the movieplayer and frame thumbnails simultaneously, the player can be undocked by double clicking on any frame. Closing the player window re-docks it to the main window.

To view your video in the movie player

1. Select a session from the session list
2. Choose View > View Movie, double-click the thumbnail, or click the Player tab. The movie player window opens, displaying the selected frame.
3. Use the playback controls to view the video. You can also use the space key to start and stop playback. The arrow keys frame forward or frame backward.

ELEMENTS OF THE PLAYER WINDOW

The player window has series of controls that can affect the way video is displayed, scaled and selected.

RESIZING THE PLAYER WINDOW

The player window can be undocked from the main application window. This creates an independent window with its own menus. The View menu has size options for scaling the player.The following table describes the items in the View menu.

View Menu	
Half Size - Ctrl+1	Sets the player to display the video at one-half its native size.
Normal Size - Ctrl+2	Sets the player to display the video at its native size.

View Menu	
Actual Pixels - Ctrl+3	Sets the player to display the video at its actual pixel size (a change between "Actual" and "Normal" may not be noticeable unless the video has been field split, demultiplexed, or its display size has been adjusted for non-square pixels).
Maximize - Ctrl+4	Sets the player to fill the entire screen.
Aspect Adjust	Adjusts the width of the player to display a video with the aspect ratio corrected (a change may not be noticible unless the video has been field split, demultiplexed, or its display size has been adjusted for non-square pixels).

Note: *In addition to resizing the player window via the View menu, the player can be resized freely, by dragging the edges of the player window.*

To undock the movie player

To access the menu settings above, the movie player must first be undocked. To undock it, select a session from the session list, then do any of the following:

- Choose View > View Movie
- Double-click any session thumbnail
- Right-click on the docked player, and select Undock from the menu.

To redock the player, close the player window.

More About Display Size

Certain operations in VideoFOCUS can alter the pixel dimensions of a video frame, specifically, field splitting and cropping. Following a field splitting operation, only one field, or set of scan lines will be present in a frame. Therefore, an NTSC video frame, which is normally 720x486 pixels, will be 720x243 pixels. Because only half of the horizontal lines are present, the frame without correction would seem squashed if viewed in a movieplayer. (see Figure 1)

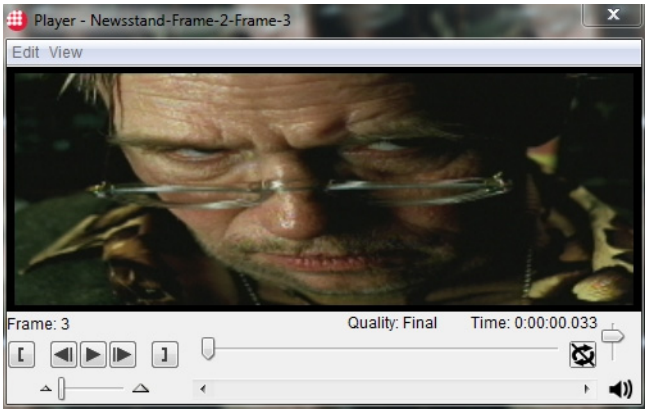


Figure 1 - Display of "Actual Pixels" of a field split movie

Viewing material this way can be difficult, for obvious reasons. As a solution, VideoFOCUS compensates for the difference in pixel height by adjusting the movieplayer width, thus providing a display comparable to the original pixel dimensions. (see Figure 2) The underlying data is not changed in this operation, only the visual display size.

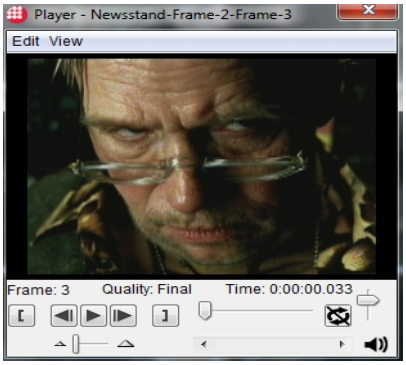


Figure 2 - Display width "Aspect Adjusted" for pixel dimensions of a field split movie.

Note: *Movies exported from VideoFOCUS contain information which instructs media players to display our movies this way as well. This can be enabled or disabled at the user's discretion. See the Export Session Movie section in Chapter 8, Exporting Images and Sessions.*

ZOOMING AND PANNING THE PLAYER WINDOW

Frames in the movieplayer window can be zoomed by rolling the mouse wheel (if you don't have mouse with a wheel, there is currently no other way to zoom). Clicking and dragging the mouse when zoomed in repositions or pans the frame in the context of the window.

To zoom and pan the frame of video in the movieplayer

1. Open the moveplayer by double-clicking a frame thumbnail
2. Roll the mouse wheel to zoom in and out
3. Hold down the left mouse button and drag the image to pan it

MARKING FRAMES

The Mark Frame command places a marker on a frame of interest. This makes it easier to find a frame or scene later, after browsing the captured video.

To mark or unmark a frame

1. Select a frame, either a thumbnail or a frame in the movieplayer.
2. Choose Edit > Mark Frame to toggle between marked and unmarked. Marked frames are displayed with a solid orange marker.

Note: *Marked frames are displayed in the frame sampler pane with a solid orange marker. A striped orange marker means that the frame itself is not marked, but one that it represents in a finer filter setting is marked. Adjust the filter Browse Video setting to a finer setting such as Every Frame to see the exact marked frames.*

A striped orange marker, compared to a solid orange marker.

LOCATING STILL FRAMES

A frame is considered a still frame only if it has been used to create a super-resolution still image or has been dragged or copied into the **Session Stills and Frames** pane. These frames are displayed with a red marker. To locate any still frames, set the Thumbnail Display menu to *View All Still Frames***.**

To view all Still Frames

1. Set the Session window to Frames view

2. Set the Thumbnail Display menu to *All Still Frames*

PRINTING FRAMES AND THUMBNAILS

You can print any frame from the movie player window at screen resolution. The print size will adjust to fill the page in landscape format. You can also print the whole window of frame thumbnails at any size the Thumbnail Size slider is set to.

To print a frame

1. Set the Session window to Player view

2. Select a frame in the movie player.

3. Choose File > Print Window to print the frame.

To print the window of frames

1. Set the Session window to Frames view

2. Choose File > Print Window to print all the frames.

To print All Marked Frames

1. Set the Session window to Frames view

2. Set the Thumbnail Display menu to *All Marked Frames*

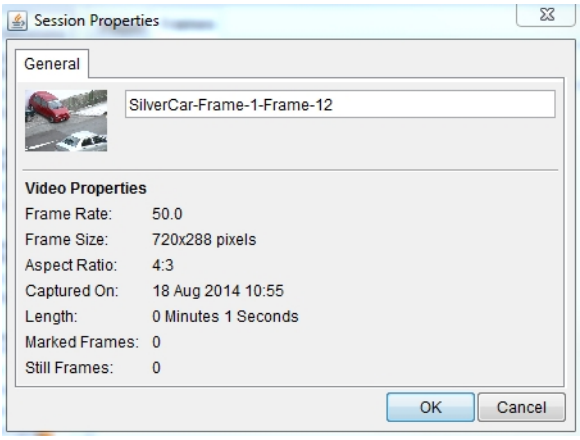
3. Choose File > Print Window to print all the marked frames.

Note: *Still frames are displayed in the frame sampler pane with a solid red marker.*

VIEWING SESSION PROPERTIES

To view session properties

1. Select a session. Choose Edit > Session Properties.
2. This will open the Session Properties window.



RENAMING SESSIONS

To rename an existing session

1. Select a session. Choose Edit > Session Properties.
2. In the Session Properties window, enter a new name, click ok.

PROCESSING SESSIONS

You can perform many operations on existing sessions such as filtering and demultiplexing. Futher modifications, such as cropping, adjusting the speed or frame rate, and changing the aspect ratio are also possible. See Chapter 5 for more information.

EXPORTING CAPTURED AND IMPORTED SESSIONS

Any session can be exported as an AVI (.avi), QuickTime (.mov) or Windows Media (.wmv) file. See Chapter 7 for more information.

DELETING SESSIONS

If you are running out of space on your video drive, you might need to delete some sessions. When you delete a capture session, it is important to understand that you are deleting everything associated with it, including marked frames and still frames.

Note: *Exported stills or videos derived from a session are not affected if it's deleted.*

To delete a session

1. Select a session in the Browse Video window. You can also shift-select a group of sessions, if you wish to delete more than on at a time.
2. Choose Edit > Delete Session.

To Delete All Related Sessions

Many times sessions reference data from one another. For example, if a mulitplexed video is digitized and then demulitplexed, any number of saved "views" from this session will reference the original mulitplexed movie. Additionally, filtering, editing, or other modifications the can create a session that is not self-contained at all, but merely references the original video data. The idea behind Select All Related Sessions is to find any file that references the underlying media on the hard disk. This is a sure way of clearing off space when many sessions reference the same media file and it's not obvious to the user which session is the original.

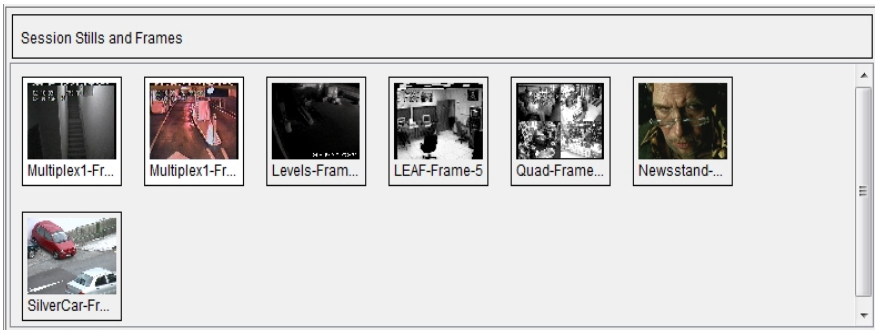
Note: *Once the media file of a session is deleted from the hard disk it can't be restored, unless it was an imported file to begin with and resides elsewhere, rather than the VideoFOCUS movie storage directory.*

1. Select a session.
2. Choose Edit > Select All Related Sessions. All related sessions will be highlighted.
3. Hit the Delete key to delete all the selected sessions.

CHAPTER 4

BROWSING SESSION STILLS AND FRAMES

The Session Stills and Frames window stores any video frames super-resolution stills or video frames derived from Captured and Imported Sessions. For example, if you were to apply super-resolution processing to a video frame, the results are automatically stored in this window. Likewise, any video frame of interest can be copied from a captured or imported session and pasted to this window, saving it for later processing, if needed. It also contains any single images imported directly into the application



This area contains stills made from a super-resolution process, single frames dragged from sessions and any single images imported directly into VideoFOCUS.

As stills and frames are added to the window, they arrange themselves according to the order of the videos in the session list. Stills or frames created from the same video sessions are automatically grouped together as well. Additionally, when a video session is selected above, any super-resolution stills or frames derived from it are given white highlights in the window below, so they can be easily located.

STILL IMAGE INFORMATION

The pixel dimensions of each still image are noted at the bottom of the image thumbnail. Hovering the mouse over the image reveals the name in a tooltip.

The pixel size and naming depends on how the still images were created. For example, if the still image was created by simply copying and pasting a video frame, into the window, the pixel dimensions are those of the original video, and the name will be the same as well, with the frame number added. Still images can be modified however, to change their size and resolution. See Chapter 5 for more information.

VIEWING STILL IMAGES

To view a still image, find it in the window and click on it. When it is selected, an orange highlight will appear around it. By double clicking it, or hitting the Enter key when it is selected, it will open it in its own window.

RESIZING THE STILL WINDOW

When still image windows are opened, the View menu has size options for scaling the window. The following table describes the items in the menu.

View Menu	
Half Size - Ctrl+1	Sets the window to display the still at one-half its native size.
Normal Size - Ctrl+2	Sets the window to display the still at its native size.
Actual Pixels - Ctrl+3	Sets the window to display the still at its actual pixel size (a change between "Actual" and "Normal" may not be noticible unless the video has been field split, demultiplexed, or its display size has been adjusted for non-square pixels).
Maximize - Ctrl+4	Sets the window to fill the entire screen.
Aspect Correct	Adjusts the width of the window to display a still with the aspect ratio corrected (a change may not be noticible unless the video has been field split, demultiplexed, or its display size has been adjusted for non-square pixels).

ZOOMING AND PANNING THE STILL IMAGE WINDOW

Opened still images can be zoomed by rolling the mouse wheel (if you don't have mouse with a wheel, there is currently no other way to zoom). Clicking and dragging the mouse when zoomed in repositions or pans the frame in the context of the window.

To zoom and pan the frame of video from a still image

1. Open a still image window by double-clicking a still thumbnail

2. Roll the mouse wheel to zoom in and out

3. Hold down the left mouse button and drag the image to pan it

VIEWING THE FRAME OF VIDEO

All the still images in the Session Stills and Frames windows are derived from videos present in the session list. It's therefore possible to see images within the context of the video from which they originated.

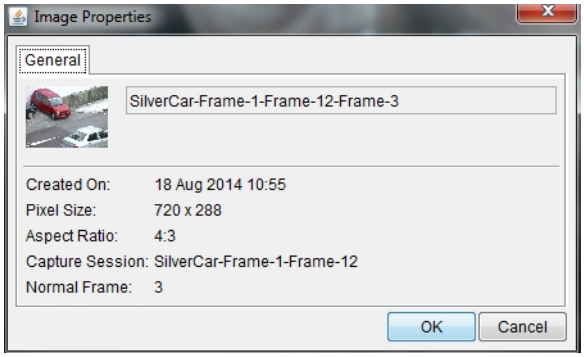
To view the frame of video from a still image

1. Select a still image thumbnail
2. Choose View > View Movie
3. The movieplayer will open, displaying the appropriate session movie. The movieplayer will be set to the exact frame that was used to create the still image.

VIEWING STILL IMAGE PROPERTIES

To view still image properties

1. Select a still image.
2. Choose Edit > Image Properties.
3. This will open the Image Properties window.



RENAMING SESSION STILLS AND FRAMES

To rename a still image

1. Select a still image. Choose Edit > Image Properties.
2. This will open the Image Properties window.
3. In the Image Properties window, enter a new name, click ok.

PRINTING SESSION STILLS AND FRAMES

You can print any still image window at screen resolution. The print size will adjust to fill the page in landscape format. You can also print the whole window of Session Stills and Frames thumbnails.

To print a still image

1. Select a still image thumbnail.
2. Right-click > Print Image.

To print the Session Stills and Frames window

1. Click once into the window so it has focus.
2. Choose File > Print Window to print all the still image thumbnails.

PROCESSING SESSION STILLS AND FRAMES

You can perform many operations on existing still and frames. Filtering and other modifications, such as cropping, and changing the aspect ratio are also possible.

EXPORTING SESSION STILLS AND FRAMES

Any still that has been created or modified can be exported as a JPEG, BMP or TIFF file. See Exporting Still Images on page 65 for more information.

DELETING SESSION STILLS AND FRAMES

To delete a still image or frame.

1. Select a image thumbnail. You can also shift-select a group of images, if you wish to delete more than on at a time.
2. Choose Edit > Delete Image, or hit the Delete key.

CHAPTER 5

PROCESSING SESSIONS AND STILL IMAGES

Any video or still image in VideoFOCUS can be processed. Processing can be applied to an entire video, selected from the Captured and Imported Sessions window, or to individual images collected in the Session Stills and Frames window. The six items listed under the Processing menu are **Modify** and Filter**, Demultiplex, Filter**, **Super-resolution, Combine, and Extract Audio**.. There is a seventh item called **Edit** which is described in more detail in Chapter 6.

MODIFY

The Modify menu contains various operations that can be applied to both sessions and still images. The following tables describe the options in the Modify panel.

Modify - Spatial Properties	
Crop Frame	Allows the user to crop the video to any size. The crop marquee initially appears constrained to the aspect ratio of the original frame, but can be resized freely by dragging the corners.
Change Aspect Ratio	Allows the user to correct or change the aspect ratio of a video or still image.
Change Frame Size	Allows the user to change the frame size of a video or still image, while preserving the original height and width ratio.
Rotate Frames	Allows the user to rotate a video or still by a specified amount. Negative values are allowed.

Modify Options - Temporal Properties	
Marked Frames Only	Allows the user to create a modified new session that is made up exclusively of marked frames from the current session. The number of marked frames in the current session is indicated in a label below the checkbox.

Force Uniform Frame Rate	Allows the user to assign a new frame rate to the video (the frame-rate of the original file is not affected). This is a useful feature for speeding up or slowing down the motion of any kind of video file or standardizing the frame rate of a time-lapse video.
Change Speed	Allows the user to alter the speed of a clip by entering a percentage value above or below the value of its current speed. Entering a negative number will play the clip in reverse.
Split Fields Into Frames	Splits the two fields comprising each video frame into their own individual frames. This option is useful for video that has been field multiplexed or in any situation where there is a very large disparity between fields.
Force Interlace Format	This is used to reassign the interlace status of a video. This may need to be done with imported videos which have the incorrect field dominance assigned.
Self-Contained	This forces the new session data to be written to a self-contained file, rather than to a file referencing to the original.

MODIFY - SPATIAL PROPERTIES

Spatial options are available when modifying both video and still images. Videos are stored in the Captured and Imported Sessions window. Still images are stored in the Session Stills and Frames window.

CROP FRAME

If you are working with surveillance video that is divided into four quadrants, cropping can isolate each quadrant. Or, in the case of a still image, you can crop out any non-essential details.

To modify a session or still image by cropping

1. Select a video from the session list, or a still image from the Session Stills and Frames window.
2. Choose Processing > Modify
3. Choose the Crop Frame checkbox
4. Position and scale the marker to the area of the frame that you want to crop (placing the cursor in the middle of the crop box will position it, and placing it on a corner will scale it).
5. Name the modified session or still image.
6. Click Create Session or Still. Modified videos will appear in Captured and Imported Sessions window. Modified stills will appear in the Session Stills and Frames window.
7. You may create more than one cropped video or image from an original.
8. When done, click Done to exit the Modify panel.

CHANGE ASPECT RATIO

Aspect Ratio refers to the ratio of width to height of a picture. Standard definition television screens use a 1.33:1 aspect ratio (also known as 4:3). High definition television use a 16:9 (or 1.78:1) aspect ratio, which is a wider picture, similar to what is seen in a movie theater.

Example of two common apsect ratios: 16:9 and 4:3

To modify a session or still image by changing the aspect ratio

1. Select a video from the session list, or a still image from the Session Stills and Frames window.
2. Choose Processing > Modify
3. Choose the Change Aspect Ratio checkbox (the current aspect ratio values will appear).
4. Enter a new value to either text field.
5. Name the modified session or still image.
6. Click Create Session or Still. Modified videos will appear in Captured and Imported Sessions window. Modified stills will appear in the Session Stills and Frames window.
7. Click Done to exit the Modify panel.

CHANGE FRAME SIZE

Changing the frame size is a way of altering the pixel dimensions of a video or still image. When entering a new height or width, the other value changes accordingly to preserve the original height to width ratio. To modify a session or still image by changing the frame size. Typically this is only done on export to fit the movie to a particular needed format.

1. Select a video from the session list, or a still image from the Session Stills and Frames window.
2. Choose Processing > Modify
3. Choose the Change Frame Size checkbox (the current height and width values will appear).

4. Enter a new value to either text field.
5. Name the modified session or still image.
6. Click Create Session or Still. Modified videos will appear in Captured and Imported Sessions window. Modified stills will appear in the Session Stills and Frames window.
7. Click Done to exit the Modify panel.

Note: *The* ***Constrain Pixel Shape*** *checkbox will retain the current relative dimensions of the original object.*

ROTATE FRAME

Rotate frame will rotate the movie or image by the specified degree amount. Please note that negative values are allowed.

To modify a session or still image by rotating the frame

1. Select a video from the session list, or a still image from the Session Stills and Frames window.
2. Choose Processing > Modify
3. Choose the Rotate Frame checkbox .
4. Enter a degree value for rotation (negative values are allowed)
5. Name the modified session or still image.
6. Click Create Session or Still. Modified videos will appear in Captured and Imported Sessions window. Modified stills will appear in the Session Stills and Frames window.
7. Click Done to exit the Modify panel

MODIFY - TEMPORAL PROPERTIES

These options are only available when modifying video. They are not present when modifying still images.

MARKED FRAMES ONLY

Marking a frame is a simple way of bookmarking a frame of interest so it can be easily retrieved at a later time. Additionally, this feature can be used as a simple way of creating a new video comprised of a few selected frames.

To modify a session from marked frames

1. Select a video from the session list.
1. Select a frame, either by looking at a thumbnail view or in the movie player.
2. Choose Edit > Mark Frame to toggle between marked and unmarked.
3. Mark all the frames that you wish to include in your new session.
4. Choose Processing > Modify.
5. Choose the Marked Frames Only checkbox.

6. Name the modified session or still image.
7. Click Create Session.
8. A new session will be created that contains only those frames.
9. Click Done to exit the Modify panel.

FORCE UNIFORM FRAME RATE

This assigns a new frame rate to the video (the frame-rate of the original file is not affected). This is a useful feature for speeding up or slowing down the motion of any kind of video file or standardizing the frame rate of a time-lapse video.

To modify a session by forcing a uniform frame rate

1. Select a video from the session list.
2. Choose Processing > Modify.
3. Choose the Force Uniform Frame Rate checkbox.
4. The original frame rate is displayed. Raise the frame rate to speed up a clip. Lower the frame rate to slow it down.
5. Name the modified session or still image.
6. Click Create Session.
7. A new session will be created with the designated frame rate.
8. Click Done to exit the Modify panel.

CHANGE SPEED

This changes the speed of a video by entering a percentage value. For example, entering a value of 50% will slow the video to half its original speed, while entering a value of 200% will speed it up twice as fast. Use a negative number to play the video in reverse. While the speed of the video is changed, the frame rate of the video is not affected, as when using Force Uniform Frame Rate.

Note: *When changing the speed of a video containing an audio track, the audio is not scaled with the video. The audio is muted in speed and frame rate adjusted videos.*

To modify a session by changing speed

1. Select a video from the session list.
2. Choose Processing > Modify.
3. Choose the Change Speed checkbox.
4. The original percentage rate is displayed.
5. Raise the percentage rate to speed up a clip, or lower the perentage rate to slow it down.
6. Name the modified session or still image.
7. Click Create Session.
8. A new session will be created with the designated percentage rate.

9. Click Done to exit the Modify panel.

SPLIT FIELDS INTO FRAMES

Analog video frames are comprised of two interlaced video fields. The ghosting effects of field interlacing may not be obvious except when rapidly moving objects have been caught on video, or if a video has been field multiplexed. Splitting each field into a separate video frame can eliminate this effect, making the video easier to work with. See the section on for a more detailed discussion of field interlacing.

To modify a session by splitting fields into frames

1. Select a video from the session list.

2. Choose Processing > Modify.

3. Choose the Split Fields into Frames checkbox.

4. Name the modified session or still image.

5. Click Create Session.

6. A new session will be created with the fields split into frames.

7. Click Done to exit the Modify panel.

FORCE INTERLACE FORMAT

On rare occasions when analog video is imported (most digitally derived media is not field interlaced) an incorrect field dominance may be assigned. This option is available to correct that, in necessary.

To modify a session by forcing the interlace format

1. Select a video from the session list.

2. Choose Processing > Modify.

3. Choose the Force Interlace Format checkbox.

4. Choose one of the three options (if you don't know the correct format, you may have to try more than one to get it right).

5. Name the modified session or still image.

6. Click Create Session.

7. A new session will be created.

8. Click Done to exit the Modify panel.

MODIFY - AUDIO PROPERTIES

These options are only available when modifying video with audio or an audio session. They are not present when modifying still images or a video session without audio.

SYNC ADJUST

This adjusts the selected audio channel's start time. This is useful to correct synchronization issues between the audio and video playback.

To modify a session with Sync Adjust.

1. Select a video or audio session from the session list.
2. Choose Processing > Modify
3. Choose Audio Properties.
4. Check one or more of the channel boxes under Sync Adjust.
5. Adjust the start time.
6. Name the modified session.
7. Click Create Session. Modified videos or audio sessions will appear in Captured and Imported Sessions window. Click Done to exit the Modify panel

CHANNEL SELECT

This allows an audio channel to be either retained (selected) or removed from the video session.

To modify a session with Channel Select.

1. Select a video or audio session from the session list.
2. Choose Processing > Modify
3. Choose Audio Properties.
4. Check to remove one or more of the channel(s) under Channel Select.
5. Name the modified session.
6. Click Create Session. Modified video or audio sessions will appear in Captured and Imported Sessions window. Click Done to exit the Modify panel

CHANNEL MIX

This allows you to either create a Mono (50/50) mix of all the audio channels or a Stereo balanced mix. The Stereo balance mix is useful when the level of one channel is lower than the other and needs compensation.

To modify a session with Channel Mix.

1. Select a video or audio session from the session list.
2. Choose Processing > Modify
3. Choose Audio Properties.
4. Check the Stereo Balance box and make your slider adjustment or check the Mono box.
5. Name the modified session.
6. Click Create Session. Modified video or audio sessions will appear in Captured and Imported Sessions window. Click Done to exit the Modify panel

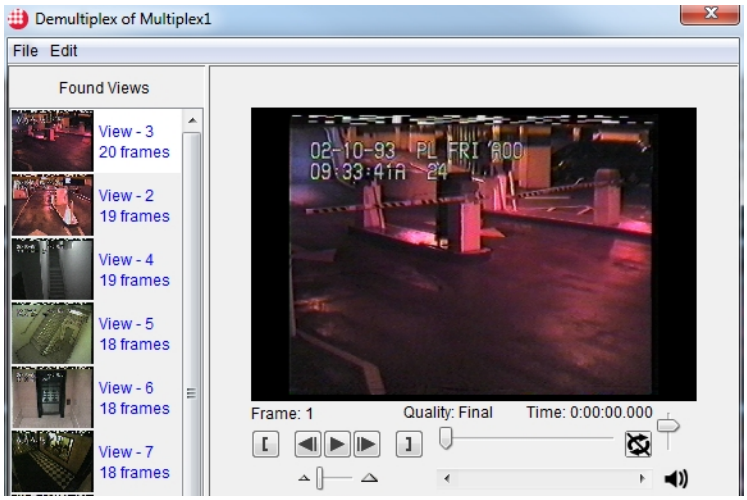
DEMULTIPLEX

Multiplexed video is often a compilation of rapidly changing camera views. Additionally, camera views may be allocated to separate video fields, resulting in frames with mismatched, overlapping images. The Demultiplex feature uses a pixel-matching algorithm to sort through multiplexed camera views and organize them into individual video streams. After this process, these views can be reviewed, edited and saved.

To demultiplex a session

1. Select a multiplexed video from the session list.
2. Select Processing > Demultiplex
3. Hit Process Selection

While processing, a pixel-matching algorithm compares and matches the pixels among every frame in the video. The results are displayed in the Found Views list. The number of found views are dependent on how successful the pixel matching algorithm is distinguishing one frame from another. Anomalies such as tape static, noise or camera panning can sometimes cause more views to appear than are actually present on the tape. These problems can be corrected, or compensated for, however. See Strategies For Demultiplexing for more information.



Found Views are displayed in a list. The views can be selected, reviewed in the movie player, and edited before being saved.

DEMULTIPLEX PANEL

The following table describes the items in the Demulitplex panel.

Demultiplex Panel	
View Name	A default name is assigned to each camera view. This name can be changed if the view is saved as a Session Movie.
Number of Frames in View	The number of video frames contained in the view.
Movie Player Area	A movie player in which individual views can reviewed and edited if needed. The movie player review area contains a play button, a frame forward button, a frame backward button, mark-in and mark-out buttons and a video scrubber.
Algorithm Sensitivity Slider	Adjusts the percentage of the pixels in a frame that must match another in order to consider them from the same camera. A smaller percentage setting generally results in the creation of fewer views. A larger percentage will likely result in the creation of more views.
Reassign Frames Into Views	Takes all the frames from selected views and redistributes them into the unselected views.

To view the frames in a Demultiplex View

1. Select a view in the Demultiplex panel
2. Use the buttons and scrubber in the movie player to play or scroll through the view.

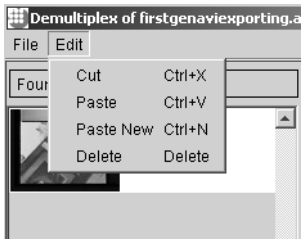
REASSIGNING FRAMES AND VIEWS

Since the demultiplex feature works by a frame-matching algorithm, there may be occasional frames which are omitted from a view because of irregularities or may be assigned to the wrong view. Individual frames can be reassigned by using cut and paste methods, or drag and drop reassignment.

You can reassign individual frames, group of frames or combine entire views in together. You can also take an existing view and split it into more views by adjusting the sensitivity slider to a higher percentage value and processing it once more.

To reassign single frames by Cut/Paste

1. Display the frame in the Movie Player area.
2. Select Edit > Cut.
3. Select the View you want to move it to.
4. Select Edit > Paste.



Frames in views can be edited by accessing the cut and paste options under the Edit menu.

Note: *All frames pasted within the views will be ordered in their proper chronological sequence.*

To move single frames by Drag/Drop

Individual frames can also be reassigned by using drag and drop from the Movie Player.

1. Display the frame in the Movie Player area.
2. Drag the selected frame from the Movie Player area to the desired View Icon on the left.

Note: *All frames dropped within the views will be ordered in their proper chronological sequence.*

To move a region of frames

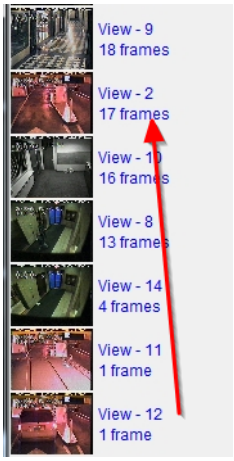
A group of frames can be moved from one view to another by using the movie player.

1. Display the first frame of the region in the movie player.
2. Hit the Mark In Button
3. Display the last frame of the region in the movie player.
4. Hit the Mark Out Button
5. Select Edit > Cut
6. Select the View you want to move the region to
7. Select Edit > Paste

You can also combine entire views, comprised of many frames, together.

To combine entire views by Drag/Drop

1. Select a view in the Demultiplex panel.
2. Drag the view and drop it onto the view that you want to merge it with.



Consolidate views that match by dragging and dropping one on the other.

To combine entire views by Cut/Copy

1. Select the view you want to move.
2. Select Edit > Cut
3. Select the View you want to move it to.
4. Select Edit > Paste

To create New Views

Sometimes, you may want to isolate a series of frames into their own view. To do so you can cut them from an existing view and then use Edit > Paste New.

1. Select the View or Frames you want to move.
2. Select Edit > Cut
3. Select Edit > Paste New

REVIEW ALL FRAMES IN A VIEW

Once you have reassigned frames, you should review all the frames in the view to make sure that you have everything you need. The best way to ensure that you are seeing every frame is to play the view in the movie player. If you quickly scrub through the movie with the movie scrubber, you may miss misassigned frames, especially for long views.

REASSIGN FRAMES INTO UNSELECTED VIEWS

There may be times when you want to take a view or group of views and reassign them into the remaining views. This will typically happen after you have run a first demultiplex on a session. Sometimes there will be a set of views of a small number of frames at the end of the list. These were defined to be their own distinct cameras. You can force them into one of the existing views by using the reassign option.

1. Select the view(s) you want to reassign.
2. Click the check box "Reassigning frames into Unselected Views".
3. Hit the Process Selection button.

The views where these frames have been assigned will be highlighted in blue.

SAVING VIEWS

Once you have a view from which you would like to create stills, save it to the main window.

To save a view

1. Select a View in the Demultiplex panel.
2. Select File > Save.

To save All Views

You can also save all the views from the Demultiplex panel at once.

1. Select File > Save All

STRATEGIES FOR DEMULTIPLEXING

Depending on the length and quality of the video data, demultiplex results may vary. For example, since the found views are based on pixel-matching, not from decoding the original multiplex signal, more views may be found than correspond to the actual number of cameras on the tape.

After the initial processing completes, browse through the views in the list to assess how well the process worked. The views will be arranged according to the largest quantity of frames per view, in descending order.

Check for any mismatched frames in the views. Use the movie player scrubber to browse through each one, playing them if necessary. Views at the bottom of the list may contain very few frames, or possibly only one frame. When this occurs, it’s possible that the views are comprised of frames with a high degree of video noise, or similar anomalies, that prevented a match with other frames in the video.

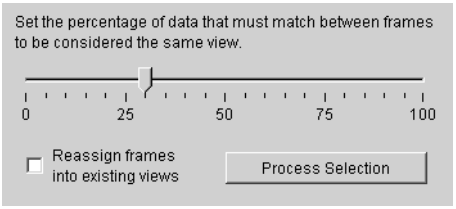
Additionally, it is generally easier to demultiplex shorter videos, rather than longer ones, comprised of several minutes.

CHANGING THE SENSITIVITY OF THE MATCHING ALGORITHM

The sensitivity slider sets the percentage of data that must match between frames in order to assign them to the same view. In most cases, demultiplexing will perform well using the default slider position (the default is set to group frames according to 40% of matching pixel data). It is recommended to use the default slider setting when processing for the first time.

A smaller percentage number means that a smaller area of the frame must match in order for the two frames to be considered the same view. A higher percentage means that a larger area of the frame must match to be considered the same view.

Moving the slider to a lower percentage number (left) usually results in fewer views. This means if frames are similar, but don't necessarily match, they may be grouped into the same view. Moving the slider to a higher percentage number (right) may result in more views, as it forces the algorithm to be more discriminating. Increased sensitivity to anomalies such as static, camera noise or panning are likely to cause more views to be found.



Adjust the sensitivity slider to set the percentage of data that must match between frames

Varying results of the demultiplex process may appear as follows:

"TOO MANY" VIEWS ARE CREATED

The demultiplexer may create dozens of views, even though the number of actual cameras could have been limited to 5 or 10. Because the number of found views is a result of the percentage of matching pixel data in individual frames, more views are created when the demultiplexer recognizes discernable differences in that data. There are different ways to correct this:

Manual consolidation of views
This is generally the easiest way of re-grouping views that are recognizably from the same camera. Drag and drop the views that match on top of one another until all the matching views are consolidated.

Reassign frames into existing views
The Reassign checkbox performs this process automatically, distributing frames to other existing views. The views that have been changed by this process will appear in the list highlighted in blue text. However, it may take longer for the computations to perform this task than a manual drag and drop would. It's generally more effective to use this feature with larger groups of views too difficult to consolidate manually. Once running this process, you will need to check the resulting views for consistency.

Lowering the slider setting

The demultiplexing process can be run again on the original session with a lower slider setting. This will produce fewer views, however, another effect of lowering the frame-matching sensitivity could be the presence of mismatched frames within individual views, thus prompting the need for more demultiplexing.

MISMATCHED FRAMES GROUPED TOGETHER IN VIEWS

It's possible some mismatched frames will be grouped together in views. This can be corrected by demultiplexing the newly created views themselves. Highlight the views to be demultiplexed. Move the slider further to the right, thereby increasing the sensitivity of the frame-matching algorithm, and process again. The new views will appear in the list highlighted in blue text. These views can then be combined with any other matching views in the list.

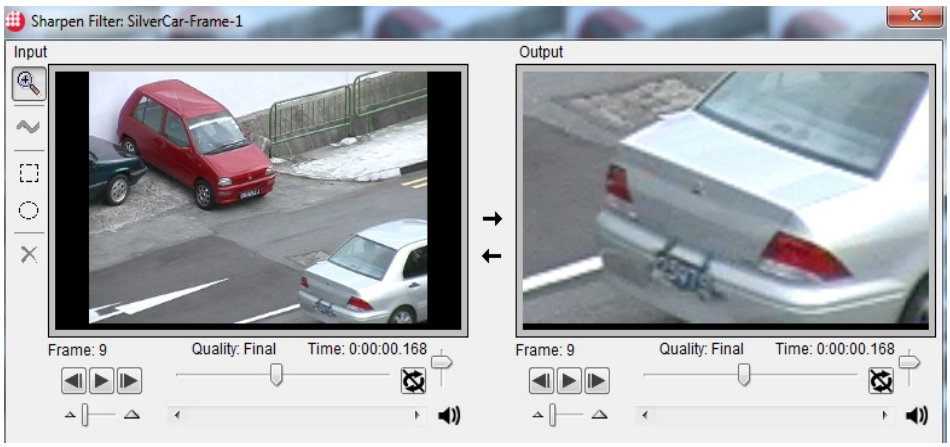
It may be simpler in some cases, when relatively few frames are misplaced, to manually drag the frames from the movie player to the appropriate views in the list. Additionally, after examining the video closely, you may want to delete any views or frames that contain irrelevant data, thus simplifying the regrouping process.

FILTERS

Each of the filters listed under the Processing menu has specific function designed to improve the quality or modify videos and still images. After applying the effects of a particular filter, users can take the modified video or still image and apply additional filter passes to combine their effects.

FILTER OVERVIEW

Eachfilter has two displays. The left is the Input display, representing the original video or still image. The right is the Output display, representing the filtered results. When filtering videos, the input and output displays function as movie players, when filtering still images, they do not.



Input display is on the left, Output display is on the right.

The Output display is showing a zoom and pan effect.

Zooming and Panning

The Input and Output displays in the filter panels can be zoomed by rolling the mouse wheel. (if you don't have mouse with a wheel, there is currently no other way to zoom). Clicking and dragging the mouse when an image is zoomed repositions or pans the image in the context of the display.

SYNCHRONIZING FILTER DISPLAYS

The arrow buttons between the players synchronize the views between the input and output displays. Which is synchronized to which depends on the direction of the arrow clicked.

Clicking the top arrow syncs the Input display to the Output display, and the bottom arrow, vice-versa.

FILTER TOOLS

The tools in the upper right corner allow the user to select a sub-portion of any frame as a region of interest to apply the filter. If the Tracking button is activated, and the area under the region of interest contains motion, the filter attempts to track it, and the region will follow it as it moves frame to frame. If no region is selected, the filter is applied to the entire frame area.

Once any filter adjustments have been made, the video, or individual frames, can be immediately saved, by clicking the respective "Save Image" or "Save Video" buttons.

GRAYSCALE FILTER

The Grayscale filter converts color video or images to grayscale mode. Users can choose to do a straight RGB conversion, or designate which color channel (Red, Green or Blue) to convert through the drop-down menu. The results that looks best will depend on the color values in the original video or image.

To use the Grayscale filter

1. Select a session or still image.

2. Choose Processing > Filter > Visual > Grayscale

3. Choose Grayscale or a different color channel from the drop-down menu.

4. Name the modified session or still image.

5. Click Save.

6. Close to exit the filter

SHARPEN

The Sharpen filter increases the level of defintion in the edges of the entire image, or a region of interest. It can improve image quality, but it can't restore clarity to severely blurred images or video.

To use the Sharpen filter

1. Select a session or still image.
2. Choose Processing > Filter > Visual > Sharpen
3. Make adjustments to the Weighting Value slider.
4. Name the modified session or still image.
5. Click Save.
6. Close to exit the filter.

EQUALIZE

The Equalize filter finds the brightest and darkest values in the entire image, or the selected region of interest, then remaps them so the brightest value represents white and the darkest value represents black. The intermediate values are then equalized evenly throughout the grayscale. Though it may yield superior image quality, especially in the case of dark video or still images, it may not necessarily make smooth or natural looking adjustments to the brightness and contrast levels in a session or still image.

To use the Equalize filter

1. Select a session or still image.
2. Choose Processing > Filter > Visual > Equalize
3. Adjustments are made automatically to the entire image or the selected region of interest.
4. Name the modified session or still image.
5. Click Save.
6. Close to exit the filter.

BLUR

The blur filter softens selected pixel areas of the entire image, or a selected region of interest, reducing detail. Combined with the built-in tracking capability, it can be used to obscure faces in videos (if there is not excessive motion).

To use the Blur filter

1. Select a session or still image.
2. Choose Processing > Filter > Visual >Blur
3. Make adjustments to the Pixel Radius slider.
4. Name the modified session or still image.
5. Click Save.

6. Close to exit the filter.

STABILIZE

The Stabilize filter minimizes the shakiness that can result from hand-held video. It works by utilizing an algorithm that considers parameters of Translation and Rotation throughout a series of video frames.

To use the Stabilize filter

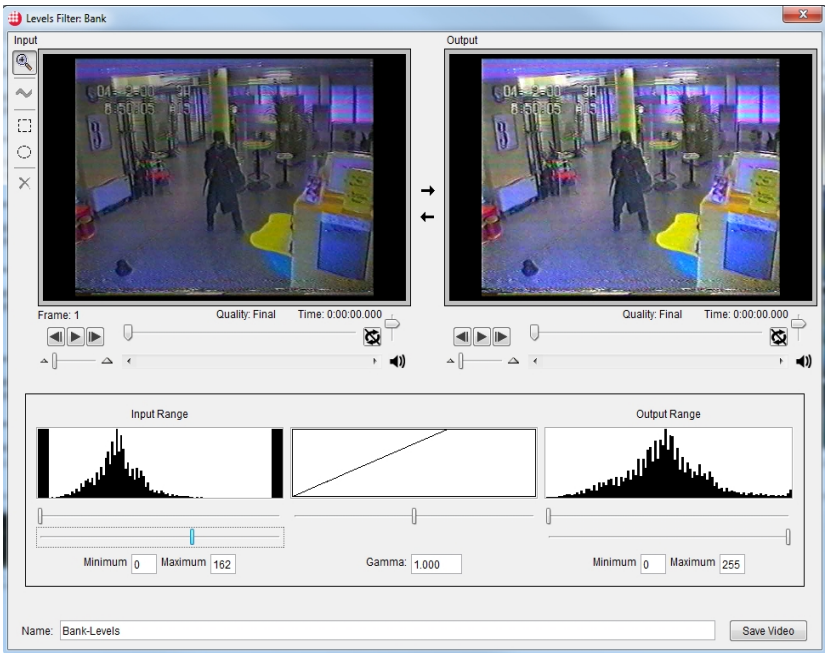
1. Select a session.
2. Choose Processing > Filter > Visual> Stabilize
3. Make adjustments to the Translation and Rotation sliders
4. Test the effectiveness of the filter by playing the sequence, making further adjustments, if necessary.
5. Name the modified session.
6. Click Save.
7. Close to exit the filter.

LEVELS ADJUST

The Levels filter allows you to make adjustments to the brightness, contrast and midtones of a session or a still image. When the filter is opened, two histograms are displayed. The Input Range histogram provides a picture of the pixel value distribution in the original session or still. The Output Range histogram changes reflecting any slider adjustments.

To use the Levels Adjust filter

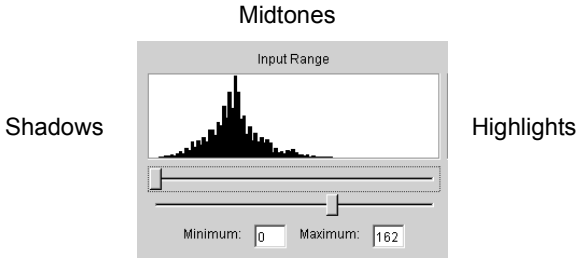
1. Select a session or still image.
2. Choose Processing > Filter > Visual > Levels Adjust
3. Make adjustments to the Input, Output and Gamma sliders.
4. Name the modified session or still image.
5. Click Save.
6. Close to exit the filter.



The Levels filter displays an Input and Output histogram.

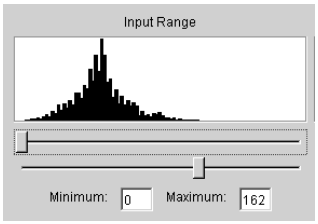
THE LEVELS HISTOGRAM

The *x* axis of a histogram represents color values from the darkest shadow values (0, black) at the left, to the brightest highlight values (255, white) on the right. The midtone values are distributed in the middle. The *y* axis represents the number of pixels corresponding to these values.



INPUT RANGE SLIDERS

Use the Input Range sliders to increase the contrast in the session or still image. The top slider controls shadows, the bottom slider controls highlights. A basic strategy for getting good results when adjusting levels is to to simply move the top and bottom Input Range sliders inward, until they are below the first group of pixels on both ends of the histogram, as shown below.



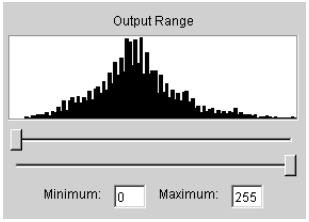
Shadow control

Highlight control

Increases the contrast

OUTPUT RANGE SLIDERS

Use the Output Range sliders to reduce the contrast in the session or still image. The top slider controls shadows, the bottom slider controls highlights.



Shadow control

Highlight control

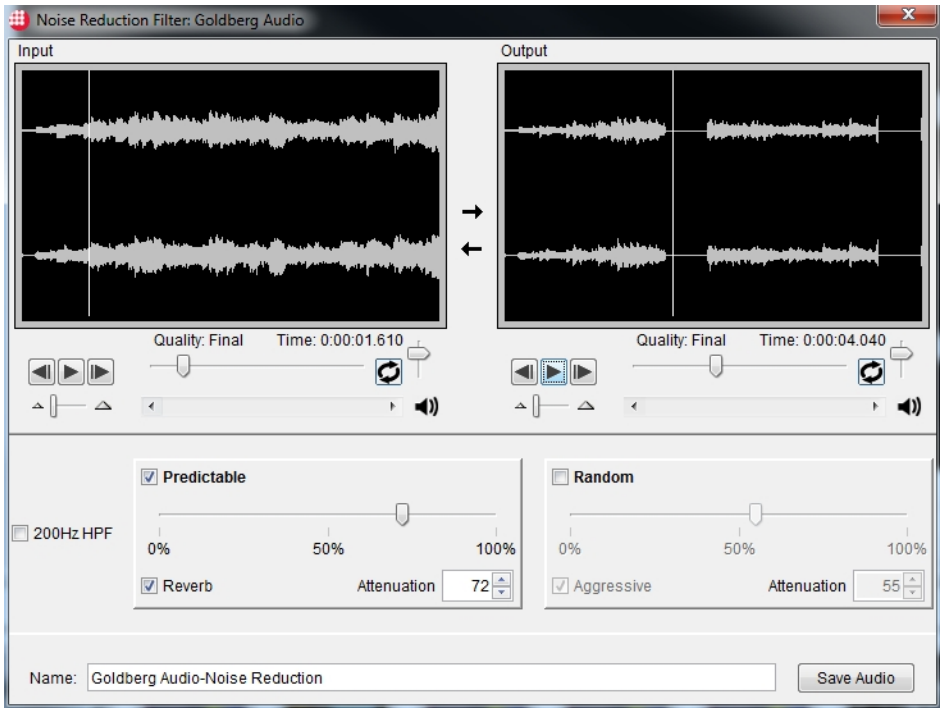
Decreases the contrast

GAMMA SLIDER

The Gamma slider controls the midtones. Moving it to the left will lighten the midtones, moving it to right will darken them.

AUDIO FILTERSAUDIO FILTER

NOISE REDUCTION



The Noise Reduction filter is used to reduce both Predictable and Random broadband noises occupying the same wide range of frequencies as desired voice signals. The Predictable stage employs an adaptive algorithm that automatically recognizes consistent temporal patterns in the audio signal to attenuate repetitive noise signals such as motors, fans, and engines, plus time-based acoustical effects such as reverberation. Conversely, the Random stage utilizes a spectral subtraction algorithm that automatically measures the frequency pattern of any noise signals present during pauses in the speech, with this pattern then subtracted from the audio signal at all times to provide a general “denoising”; this algorithm is especially effective against persistent Gaussian, or random, noises such as hiss and static. With either stage, the degree of noise Attenuation can be adjusted to any value between 0% (no effect) and 100% (maximum effect), to tailor the tradeoff between sound quality and noise reduction in the resulting output audio.

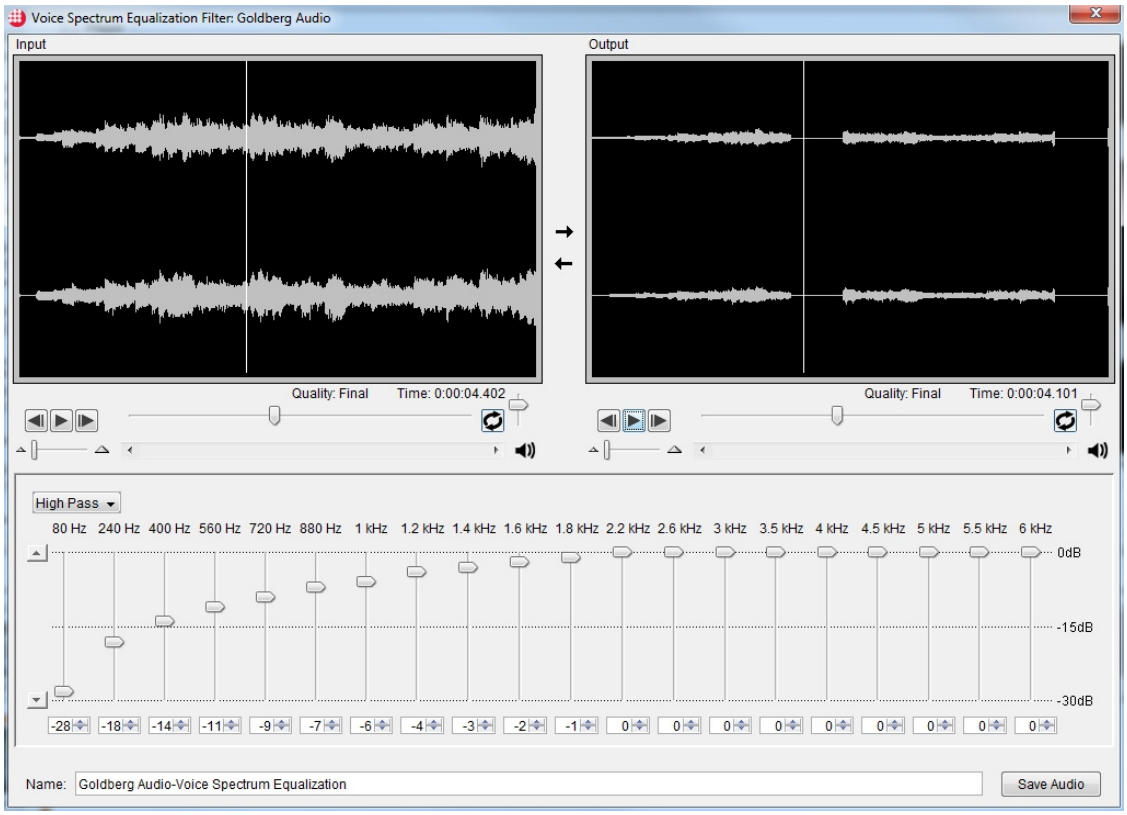
The 200Hz highpass filter (HPF) is used to reduce low-frequency noises. The filter attenuates all sound energy below 200Hz, which is considered to contain no signals contributing to speech intelligibility, and leaves all higher frequencies unaffected.

To use the Noise Reduction filter

1. Select a video session with audio or select an audio session.

2. Choose Processing > Filter > Audio> Noise Reduction.
3. Make adjustments to the Predictable and/or the Random sliders.
4. Test the effectiveness of the filter by playing the sequence, making further adjustments, if necessary.
5. Name the modified session.
6. Click Save.
7. Close to exit the filter.

VOICE SPECTRUM EQUALIZATION

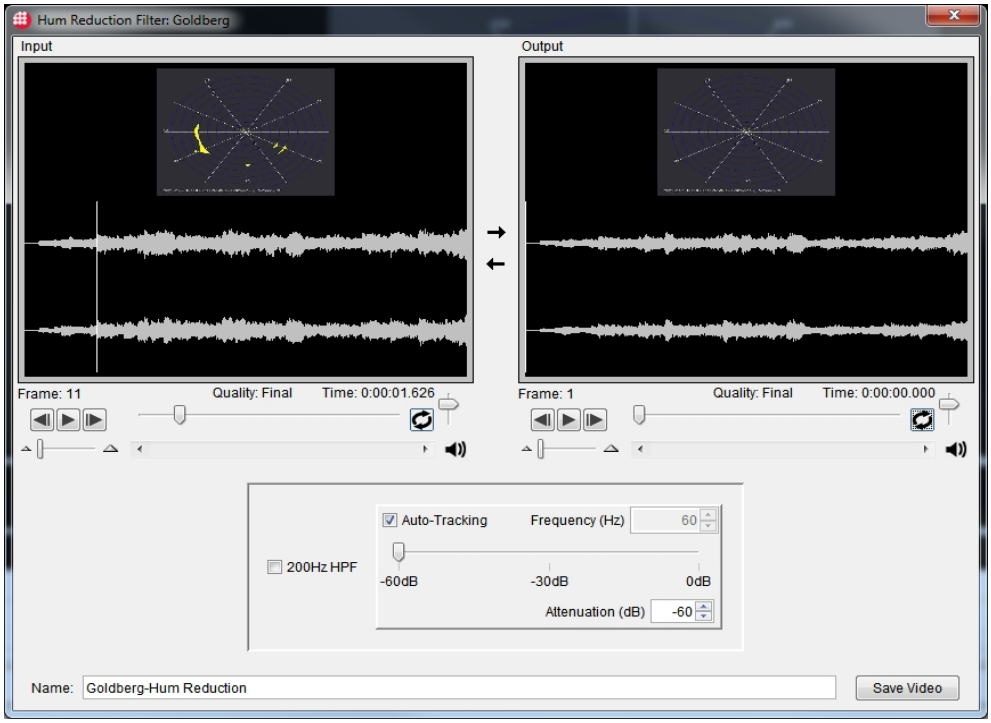


The Voice Spectrum Equalizer is used to reshape the spectrum of the output audio.The sliders allow attenuation of the audio energy in a series of adjacent frequency bands, with each band centered at the specified frequency. The lower the slider bar is moved, the more attenuation is applied in that frequency band. The Preset dropdown box can be used to quickly adjust the slider array as a whole to one of three presets – Allpass, lowpass or highpass.

To use the Voice Spectrum Equalization filter

1. Select a video session with audio or select an audio session.
2. Choose Processing > Filter > Audio> Voice Spectrum Equalization.
3. Make adjustments to the Frequency sliders.
4. Test the effectiveness of the filter by playing the sequence, making further adjustments, if necessary.
5. Name the modified session.
6. Click Save.
7. Close to exit the filter.

HUM REDUCTION



The Hum Reduction filter employs a special comb filtering algorithm that attenuates harmonically-structured noises such as 50/60Hz electrical mains hum. Such hum can occur on any recording device, analog or digital, that is AC-powered, and is typically the result of close proximity of the microphone and audio circuitry to power sources, fluorescent lighting, or other equipment that may be emanating strong electromagnetic fields. The filter's fundamental frequency can be manually adjusted via the Frequency control; alternatively, the Auto-Tracking feature can be enabled to automatically identify the frequency of any hum present in the incoming audio and

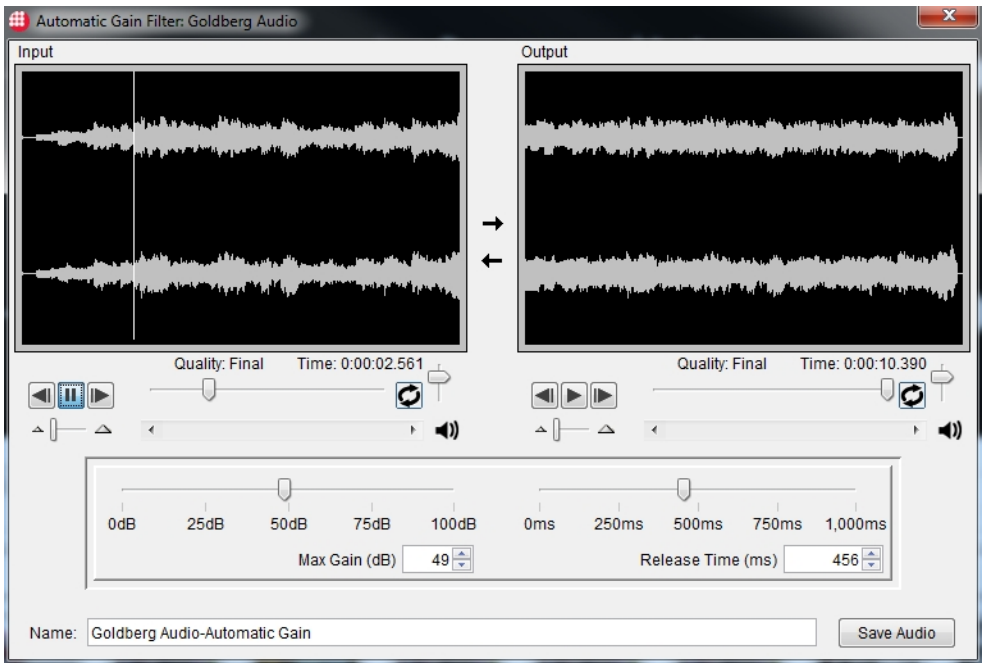
adjust the Frequency control accordingly. Precise adjustment of the Frequency setting is critical, as recorder speed and audio sampling rate variations often result in the embedded hum varying slightly from the nominal 50/60Hz source frequency. Additionally, the degree of noise Attenuation can be adjusted to any value between 0% (no effect) and 100% (maximum effect), to tailor the tradeoff between sound quality and hum reduction in the resulting output audio

The 200Hz highpass filter (HPF) is used to reduce low-frequency noises. The filter attenuates all sound energy below 200Hz, which is considered to contain no signals contributing to speech intelligibility, and leaves all higher frequencies unaffected.

To use the Hum Reduction filter

1. Select a video session with audio or select an audio session.
2. Choose Processing > Filter > Audio> Hum Reduction.
3. Make adjustments to the slider and check the desired boxes.
4. Test the effectiveness of the filter by playing the sequence, making further adjustments, if necessary.
5. Name the modified session.
6. Click Save.
7. Close to exit the filter.

AUTOMATIC GAIN



The AGC (Automatic Gain Control) is a dynamic level processor that should only be applied once all other audio processing is complete. The AGC applies gain as needed to maintain a good audio level (approximately -12dB). The gain applied by the AGC is limited by the Max Gain setting; regardless of the audio level, no gain greater than Max Gain will be applied. The Release Time controls how quickly the AGC will respond to decreases in input signal level. The shorter the Release Time, the more quickly the AGC will react.

To use the Automatic Gain filter

1. Select a video session with audio or select an audio session.
2. Choose Processing > Filter > Audio> Automatic Gain.
3. Make adjustments to the sliders.
4. Test the effectiveness of the filter by playing the sequence, making further adjustments, if necessary.
5. Name the modified session.
6. Click Save. Close to exit the filter.

COMBINE AUDIO AND VIDEO

Video Focus allows you to combine two audio sessions or combine an audio session with a video session.

1. Select two audio session, or select an audio session and a video session.

2. Choose Processing > Combine.
3. A new combine session with be create in your session list.

EXTRACT AUDIO

Extract Audio simply extracts the audio from a video session and saves it as a separate Audio session.

1. Select a video session with audio.
2. Choose Processing > Extract Audio.
3. A new audio session will be created in your session list.

SUPER-RESOLUTION

Super-resolution is a technique that combines multiple frames of video and can thereby eliminate extraneous noise and produce images with a greater resolution than the original video frames from which they came. The resulting stills can then be exported in BMP, TIFF or JPEG format.

To create Super-resolution still

1. Select a frame from a video session. This will be the frame for your still.
2. Choose Processing > Super-resolution.
3. Play the sequence in the player to assess the amount of motion.
4. Adjust the frame neighborhood and contribution curve, if needed.
5. Enter height, width and DPI values for the still image.
6. Click the Create Still button.
7. VideoFOCUS creates the still and displays it in a window.

STILL CREATION OVERVIEW

The Super-resolution process, though it can create superior looking stills from video, cannot extract details that are not present in the video or otherwise invisible to the naked eye.

The process of creating super-resolution stills involves separate steps.

- An alignment step which "lines up" sequential frames.
- A rendering step that uses the information from those aligned frames to create a cleaner, higher resolution image.

Five important aspects of a video sequence impact the creation process: the Frame Neighborhood, the Contribution Curve Slider, Movement, ands Deinterlacing.

FRAME NEIGHBORHOOD

When creating a still, most of the image information is taken from the center frame. The center frame is then compared, pixel by pixel, to the neighborhood of frames on either side. This comparison can correct off-color pixels caused by static or other video defects and combine the composited data, boosting the resolution of the final still image. By default, the frame neighborhood includes the center frame and six surrounding frames. The center frame is shown with a red marker and the frames included in the frame neighborhood are shown with an orange outline.

A neighborhood of seven frames.

The center frame is most important.

A seven frame still frame neighborhood contains more image information and more opportunities to improve image quality. However, if the video changes a great deal from frame to frame, a seven frame neighborhood may result in a blurry image. You can't add more frames to the default neighborhood, but you can remove frames if you don't want them to be included in the computation of the preview.

You should remove a frame if it contains:

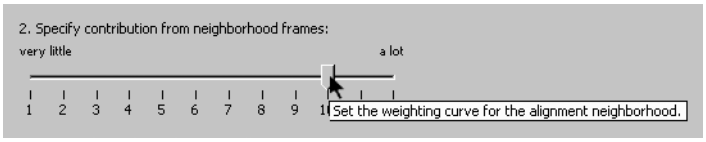
- A scene change
- Sudden motion, either by the camera or the subject
- Major video defects

To adjust the super-res still frame neighborhood

Click on a frame to select or deselect it. When you deselect a frame, all frames from that frame outward are automatically deselected. Only the selected frames will be included in the still frame neighborhood.

CONTRIBUTION CURVE SLIDER

The contribution curve determines how much emphasis is given to each frame in the frame neighborhood when creating the still image. The center frame always contributes more than the outer frames, but how much contribution comes from the outer frames is determined by raising or lowering the Contribution Curve slider. When it is moved, the amount of contribution can be seen graphically in the shape of the orange pyramid over the frames.



Moving the slider to the right adds more contribution from the outer frames.

To adjust the contribution curve

1. Click the player button to view the clip and check for motion in the sequence of frames.
2. Drag the slider to the left if there is a lot of motion, or to the right if there is less motion.

MOVEMENT

Virtually all video sequences contain some movement, whether it is movement of the subject being filmed, or camera effects like zooming and panning. These different types of movement can be compensated for by applying different contribution curves. For example, a higher contribution curve would be better to create a still from a motionless shot, and a shot with camera movement would more likely use a lower contribution curve, and possibly fewer frames.

DEINTERLACING

Primarily, interlacing is only encountered while working with analog video. Interlaced video frames are comprised of two fields. Each field is a set of scan lines sampled at a different moment in time. Consequently, a single video frame displays two moments in time.

NTSC, the video standard in North America and Japan, captures 30 video frames per second. Therefore, it records 60 fields per second, or 60 images. Each image consists of only half of the scan lines of the complete picture at a given time, as illustrated below (see Figure 1)

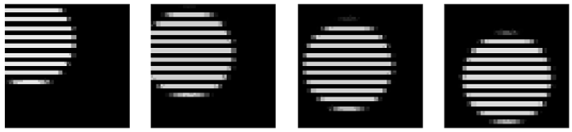


Figure 1 - A moving ball with the fields separated.

When the fields are combined into their respective frames, an object may look like it is in two places at the same time. This happens when there is a good deal of motion in a video sequence. (see Figures 2 and 3)

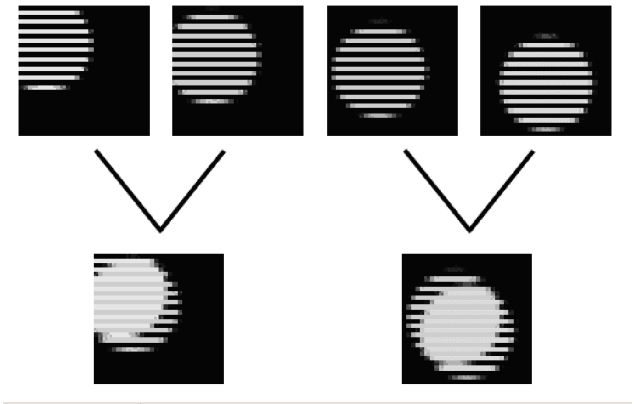


Figure 2 - The moving ball with the fields combined into their respective frames.

Figure 3 - A moving car displaying the same interlace effect.

Deinterlacing is the act of removing one field, or set of the alternating lines in a video frame. This process can produce a more satisfactory still image but may, as a result, introduce a jagged, “stairstep” look to diagonal lines.

VideoFOCUS provides two solutions for improving or minimizing the effects of field interlacing.

Temporal Deinterlace

This option is available in the Super-resolution panel. A Temporal Deinterlace is a process by which a still is created through a combination of information derived from both fields, rather than a simple elimination of the odd or even field. This process will produce a high-quality still image for the majority of cases when motion is present in a video sequence.

Note: *The Temporal Deinterlace option is disabled when video is not interlaced, as in the case of most digitally derived video.*

Splitting Fields Into Frames

In cases where there is simply too much of a disparity between video fields to perform an effective Temporal Deinterlace, the Modify panel has option called Split Fields Into Frames. This method separates the video fields and creates a new session which displays them as “frames” (the representative number of frames in the session will effectively double, however, each frame will consist of only one field). See the section on the Modify menu option Split Fields Into Frames for more information.

CREATING MASKS

Video occasionally displays superimposed text or graphics. Additionally, sequences may consist of moving objects or exhibit a large amount of camera motion. These conditions can interfere when aligning video frames. Masking lets you mask out unimportant areas to exclude them from the frame alignment computation (they will appear in the final still, but can be cropped out using the Crop Frame feature in the Modify menu).

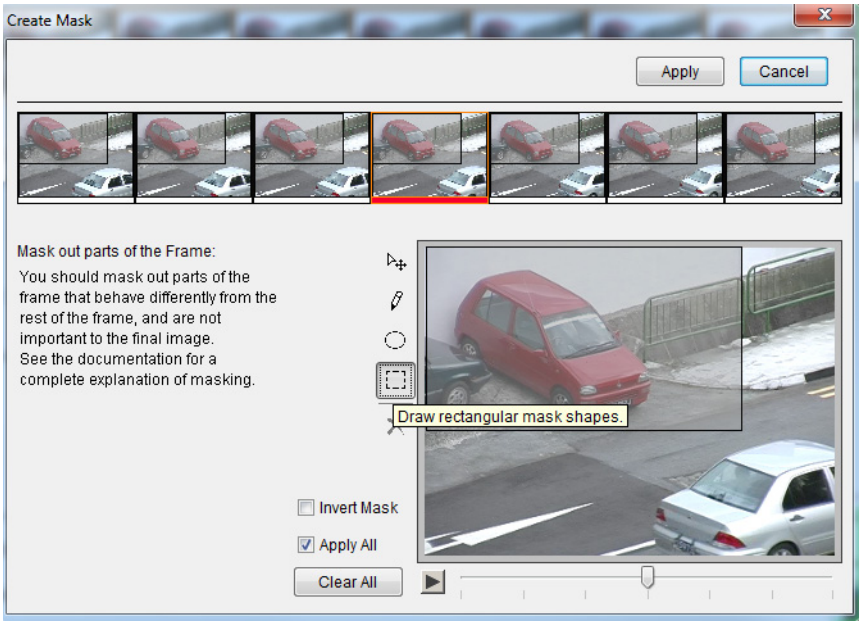
Typically, for most image sequences, one mask used over all the frames will be sufficient. For more complex sequences, the masks can be adjusted for each individual frame. This would be useful for sequences where objects move quickly over the extent of the frame from one side to the other.

Items you should typically mask include subtitles, logos or other superimposed graphics, or objects that move differently from the subject in the video.

To draw masks

1. In the Super-resolution dialog box, click Create Masks to open the Create Masks dialog.
2. Press the Play button to view the clip and check for moving objects. You can also click through the clip frame by frame. After the clip has played, it returns to the super-res still frame.
3. Use the draw tools to draw mask objects that define the masked areas. The masked areas are represented with opaque gray areas on the frames in your super-res still frame neighborhood.

Note: *The "Apply All" option is checked by default, When it is checked, the mask you draw is applied to all of the frames in the frame neighborhood. If you want to edit the mask in a single frame, you need to uncheck the "Apply All" option.*



4. Use the pointer to select a mask object in order to move or resize it.
5. When a mask object is selected, you can delete it by clicking on the delete button.
6. You can invert the mask selection by choosing the Invert Mask checkbox.
7. Close the Masking panel and the mask will appear in the frame neighborhood of th Super-resolution panel.

HEIGHT, WIDTH AND RESOLUTION SETTINGS

Set the image width and height in this area before creating the still image. The dimensions are automatically updated to maintain aspect ratio.The upper limit for the width of the exported image is12 inches (3,600 pixels, 300 mm). When setting a resolution in dots per inch (DPI). You must select a value that is between 50 and 300.

If you wish to set a default for these values, this can be done in the Preferences panel.

To specify Super-resolution still sizes

1. From the Edit menu, select Preferences.
2. Specify the options you wish, then click OK.

VIEW PREVIEW SETTINGS

Once you've created a still, you can access its creation settings by choosing View > View Still Settings. This opens the Super-resolution window with all of the settings that were used to create it. You can then adjust the settings to make variations on the same still.

EXPORT STILL AFTER CREATING

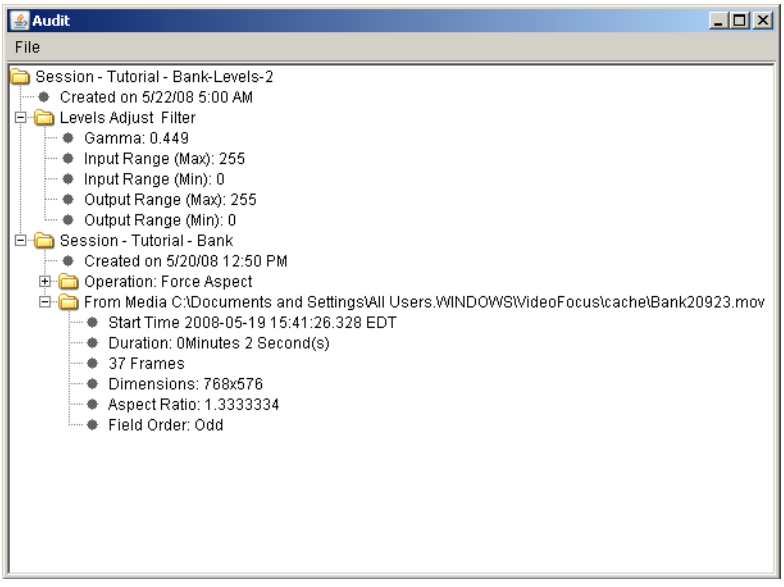
The Export Still After Creating checkbox, located under the Still Name text field, allows you to export the still immediately after it finishes rendering. When you choose that option, the still will render, and display. In addition, the Export dialog will come up, prompting you to enter export settings.

AUDITING SESSIONS AND STILL IMAGES

As videos and still images become modified, filtered or edited, VideoFOCUS keeps track of all operations made along the way, and they can be easily retrieved and viewed in a expandable Audit tree. The Audit tree provides the names and parameters of all steps leading up to the session or still's present state. By following the noted operations, the user has the information needed to recreate or demonstrate the changes, if required.

To view an Audit tree of a session or still image

1. Select any session or still image.
2. Choose View > View Audit.



This Audit tree indicates a Levels Adjust filter was applied to this movie, and provides the settings to recreate it.

CHAPTER 6

EDITING SESSIONS

Sessions can be edited together by selecting groups of frames and executing simple cut, copy and paste operations. In addition to editing session movies together, you can edit movies and still images together. These new sessions can then be exported from VideoFOCUS in many different formats including Quicktime (.mov) files, AVI (.avi) files, Windows Media (.wmv), MPEG-4, etc.

Video editing in VideoFOCUS is non-destructive, meaning that the original media is never modified.

EDITING OVERVIEW

Editing begins by creating a new blank editable session into which other session movies, sections of session movies, still frames or titles can be added.

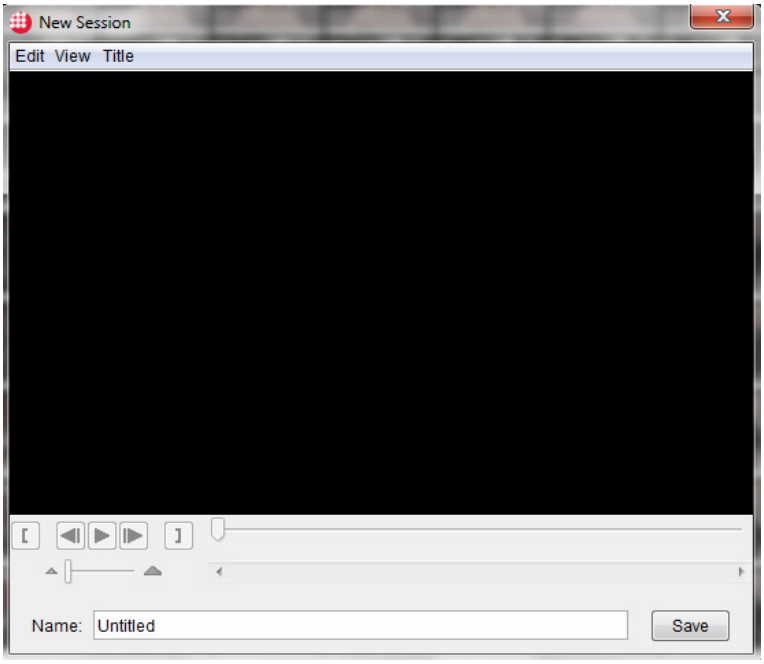
Frames and groups of frames can be selected from session movies either in the frame thumbnail view or the movie player view. The user only has to select a session and browse through the video to find any frames of interest. Once located, they can be easily selected, and copied. They are then pasted into a new editable session created by the user.

All actual editing takes place in the new editable session. In the editable session, the user can paste, copy and cut frames (there is no cutting or pasting of frames in regular session movies, only copying). Once editing is finished, the new session is saved and appears in the Captured and Imported Sessions window. The user then has the option of leaving it open to add or subtract further sequences, or closing it. When the editable session is closed, all unsaved changes are lost.

STARTING THE EDITING PROCESS

CREATING A NEW BLANK EDITABLE SESSION

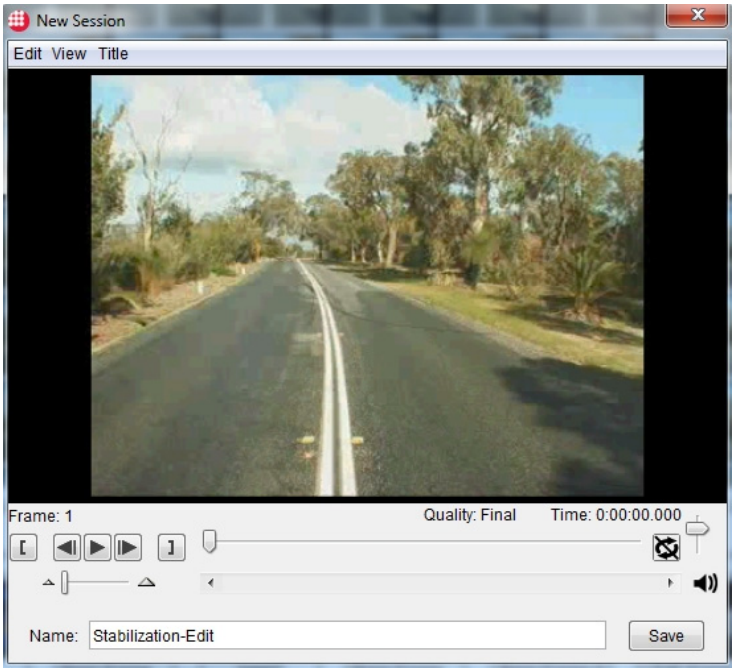
1. Select *File->New Session.*



A new blank session will be created into which whole sessions, collections of frames, images and titles can be added.

CREATING A NEW EDITABLE SESSION FROM AN EXISTING SESSION

1. Select the session you wish to edit in the Captured and Imported Sessions Window
2. Choose *Processing->Edit*



An editable copy of the original session is created into which whole sessions, collections of frames, images and titles can be added. The original session is never changed but a new edited version is created upon save.

ADDING MEDIA TO THE NEW EDITABLE SESSION

Once you have created a new blank session or an editable version of an existing session movie, you can begin to add other media to it.

Media can be dragged and dropped onto the new session object. It will be inserted wherever the movie playhead is located.

After saving a session, editing can continue as long as the new session window stays open. Any number of successive sequences from other videos can be added or subtracted, as needed. For instance, you could choose another video from the session list, select and copy a group of frames in the same way, and paste those into the same video.

TO ADD A WHOLE SESSION MOVIE

1. Move the movie playhead to the location at which you would like to insert a different session movie.
2. Select the session movie you want to add in the Captured and Imported Sessions Window.
3. Drag the session movie into the new session window. The session movie will be added at that location.
4. Click Create SessionSave. The new session appears in the session list. Close the new session window.

Note: *Session movies can be added to a new editable movie by either dragging and dropping or by copying and pasting using CTRL-C and CTRL-V or the corresponding menu items.*

TO ADD A SECTION OF A SESSION MOVIE FROM THE MOVIE PLAYER

1. Select the Player tab at the top of the application window so the movie player displays.
2. Find the first frame in the sequence to be marked copied.
3. Click on the scrubber, and hold the shift key down.
4. Drag the playhead slider to the last frame in the sequence to be copied.
5. As the slider is dragged, the region between the first and last frames displays an orange selection highlight.
6. Choose Edit > Mark Frames Copy (Ctrl-C) to copy the frames.
7. Choose Processing > Modify File > New Session (Ctrl-N) to create a new session, if one is not open.

TO ADD A SECTION OF A SESSION MOVIE USING THUMBNAIL VIEW

Selecting frame sequences in the thumbnail view is just as easy as selecting from the movie player.

1. Select the Frames tab at the top of the application window so the thumbnails display.
2. Find the first frame in the sequence to be marked copied.
3. Click on the frame, and hold the shift key down.
4. Find the last frame in the sequence to be marked copied.
5. Click on the frame, and the region between the first and last frames displays an orange selection highlight.
6. Choose Edit > Mark FramesCopy (Ctrl-C) to markcopy the frames.
7. Choose Processing > Modify File > New Session (Ctrl-N) to create a new session..
8. In the Modifynew session window, choose Marked Frames Only.Edit > Paste (Ctrl-V) to paste the sequence

9. Click Create SessionSave. The new session appears in the session list. Close the new session window.
10. In the new session window, Choose Marked Frames Only Edit > Paste (Ctrl-V) to paste the sequence.
11. Click Create New SessionSave. The new session appears in the session list. Close the new session window, if desired.

TO ADD A STILL IMAGE INTO A SEQUENCE

Editing a still image into a sequence is also as easy.

1. Find the still image to be copied.
2. Click on the image so it's selected.
3. Choose Edit > Copy (Ctrl-C) to copy the image.
4. Choose File > New Session (Ctrl-N) to create a new session, if one is not open.
5. In the new session window, Choose Edit > Paste (Ctrl-V) to paste the still image.
6. Click Save. The new session appears in the session list. Close the new session window, desired.

TITLING

Titles can easily be added, edited, located and deleted in an editable session.

TITLING ACTIONS

The following titling menu actions are available in player window when editing a session.

New Creates a new blank title at the current playhead position.

Edit Edits an existing title (if a title is at the playhead position)

Delete Deletes an existing title (if a title is at the playhead position)

Go Positions the playhead to the location of existing titles within the session

The 'New' and 'Edit' actions bring up a title editor.

ADJUSTING TITLE APPEARANCE

Just as in editing with a typical text editor title text can be entered directly into the editor and will appear at the cursor location. The following elements control the title's appearance.

Justify Controls whether the text will appear on the left,center or right

Size Controls the size of the text

Duration The number of seconds the title will appear in the session

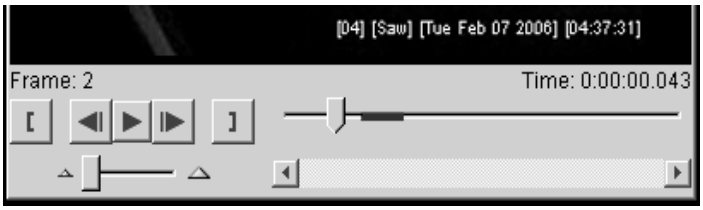
To adjust existing text the text must be first selected (in the typical way for a document editor) before the 'Justify' or 'Size' values are changed.

FINE TUNING FRAME SELECTION

For a more precise way of reviewing a movie or selecting a frame sequence, there are further options.

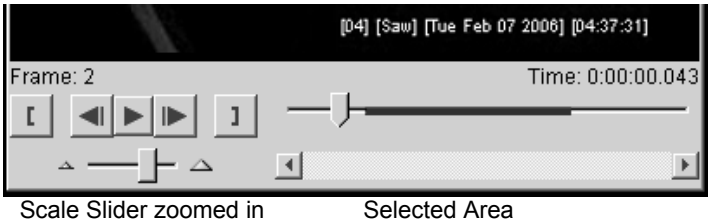
SCALE SLIDER

As some videos may be several minutes in length, the scale slider in the lower left corner of the movie player window allows the user to adjust the movie player timeline to display more, or fewer, frames while moving the playhead slider.



Scale Slider Selected Area

When moving the scale slider away from its default position on the left, a Selected Area slider appears. When moving the playhead slider, you will see whatever is in the selected region. To change that selected region, you can move the Selected Area slider to another region. To reset to the original state, move the Scale Slider back to its default position on the left.



Scale Slider zoomed in Selected Area

MARK IN/OUT BUTTONS

After zooming into a sequence, it may no longer be practical to shift-select sequences of frames, because it may not be possible to easily scrub the playhead all the way to the desired in or out point. In this case, it's best when locating the beginning of a sequence to mark it, by hitting the Mark In button, and then locating and marking the end by hitting the Mark Out button. The end result is that all the frames in between will be selected and ready for markingcopying. These buttons are found on both ends of the movie player controls.

Mark In  Mark Out

CHAPTER 7

EXPORTING MEDIA

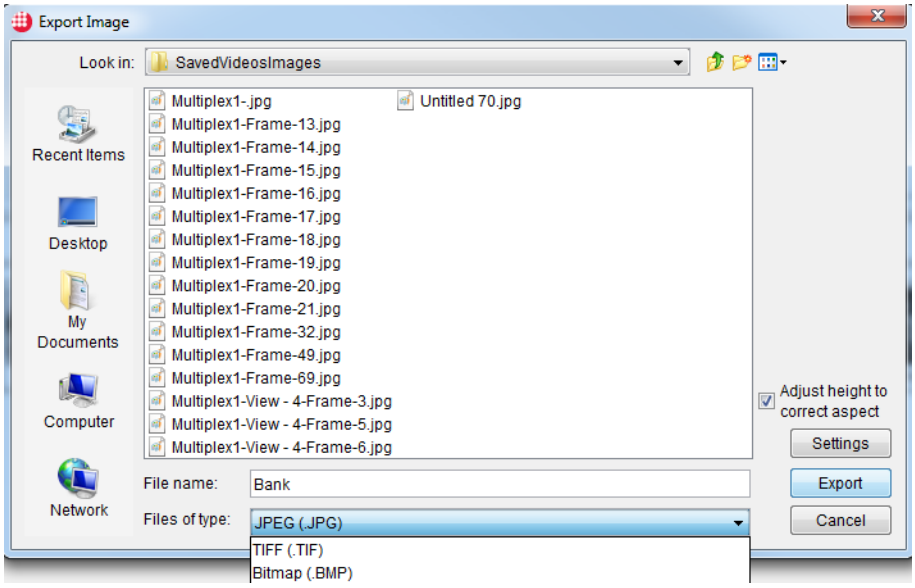
You can export still images, videos and audio from VideoFOCUS .

EXPORTING STILL IMAGES

After creating a filtered, modified or super-resolution still, it can be exported as a BMP, JPEG or TIFF file to archive or distribute it. It can also be opened in the operating systems default program for images.

TO EXPORT A STILL IMAGE

1. Select a still image in the Session Stills and Frames window.
2. Choose File > Export to open the Export Image dialog box.



3. Select a file format, BMP, JPEG, or TIFF.
4. Choose a path to send your file to a location of your choice.
5. Enter a name for the file, and hit Export.

EXPORT IMAGE DIALOG BOX OPTIONS

The following table describes the options in the Export Preview dialog box.

Export Preview dialog box options	
Look in	Choose a location to save the exported file. The default folder on the system can be found in the Preferences Dialog.
File name	Enter a name for the file. The default value used is the name of the Preview.
File Type	Choose a file format: • BMP • JPEG • TIFF
Settings	Use the settings slider to specify the level of quality at which you wish to export the image: • 0 represents the lowest image quality, highest compression • 10 represents the highest image quality, lowest compression ***Note:*** *This option is available for JPEG images only.*

OPEN STILLS IN SYSTEM DEFAULT IMAGING SOFTWARE

You can send any image in the Sessions Stills and Frame area to be opened by the operating system's default software for images. Typically this will be a software program such as Photoshop, Imaging or Gimp. This is useful if you would like to do further processing on your image in another software tool. You can then save the image to your hard disk from directly in that program.

To Open an Image in the System's Default Software for Images

1. Select the still image in the Session Stills and Frames area.

2. Right click the mouse to bring up the menu dialog.

3. Select *Open in System CTRL-O.*

DRAG & DROP

Stills and frames can also be dragged from the application onto the desktop or into another open software program. Drag and drop currently does not work on movies.

EXPORTING MOVIE FRAMES

You can export individual unprocessed video frames from any movies you have acquired in VideoFOCUS as JPEG, Bitmap or TIFF files.

To Export a Single Frame

1. Select a session in the session list.

2. Select an individual frame in either the thumbnail view or in the movie player.
3. Choose File > Export Image or Right-Click to access the same menu.
4. Select a file format, BMP, JPEG, or TIFF.
5. Choose a path to send your file to a location of your choice.
6. Enter a name for the file, and hit Export. It will export using the same pixel dimensions and DPI value as the source video.

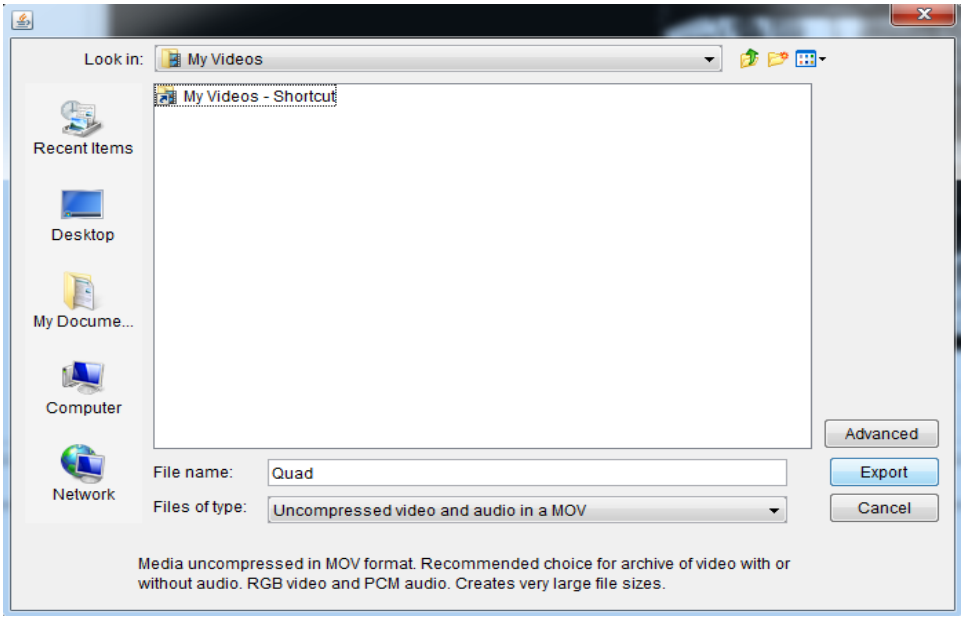
Note: *This is only for unprocessed raw images from your movies. If you have processed a frame it will appear in the Session Stills and Frames area of the application. If that is the case, follow the export instructions listed above*

EXPORTING SESSION MOVIES & AUDIO

You can export the movies you have acquired in VideoFOCUS in over many different compressed or uncompressed video formats. This feature is ideal for converting a library of video files into different formats (QuickTime to AVI, MPEG-4, etc.) for whatever reason, be it for archival or distribution purposes.

To Export a Session Movie

1. Select a session in the session list
2. Choose File > Export Movie. The Export Movie dialog appears.



3. Choose a profile. We have formats that support a variety of compressors, or codecs.
4. Choose your file location of your choice.
5. Choose Export to save and your new video will be created.

If the exported video is for archive purposes it is suggested that the user uses an uncompressed format. If you would like to email the video choose a compressed format.

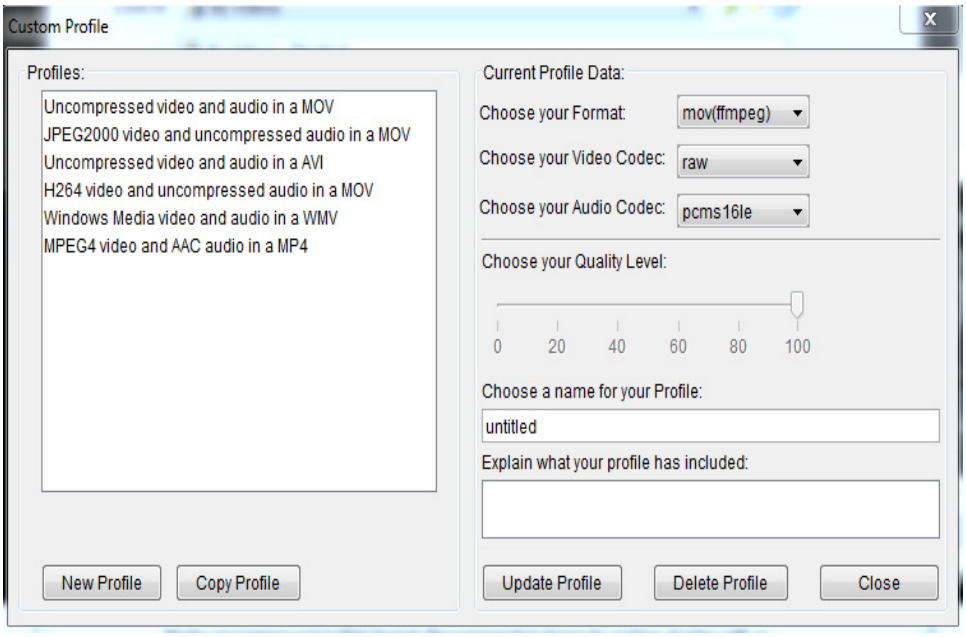
EXPORT SESSION MOVIE DIALOG BOX OPTIONS

The following table describes the options in the Export Preview dialog box.

Export Session Movie dialog box options	
Advanced	Allows the user to create, update or delete a custom profile.
Export	Executes an export.
Cancel	Cancels an export.
File Name	Edits the name of the file to be exported. *This field is not editable in a batch export with multiple files.*

CUSTOM PROFILE DIALOG

You can create, delete, view and update your own custom profiles, where you can choose your own format, video codec, and audio codec. Just click on the Advance button to bring up the Custom Profile Dialog.



COMPRESSION FORMATS (CODECS)

The compressor (codec) you choose depends on the intended purpose of the media file. For example, to save files for archival purposes, in the best possible quality, it's best not to compress the files at all, by choosing a profile that has a raw video codec option. Raw compressor creates files without introducing additional compression artifacts to the video (any compression artifacts present in the original file remain, however). The compression profile formats listed in the export dialog are standardized among video applications. Some are widely used, while others are less so.

Recommended Compression Formats - Quicktime

These files, appended with the .MOV extension, will open in QuickTime player.

1. **Uncompressed (Raw)**: No compression, best image quality, produces a large file. The large file size often prohibits it from being a reasonable format if the file is intended for electronic transfer, via email or the web.
2. **JPEG 2000**: JPEG compression, high quality, smaller file size. The loss of quality is minimal.
3. **MPEG-4**: MPEG compression, moderate quality, small file size. The loss of quality is pronounced, but the small file size makes the format ideal for electronic transfer, via email or the web.
4. **H264: H264** compression, high quality, small file size. The loss of quality is minimal, and the small file size makes the format ideal for electronic transfer, via email or the web.

Recommended Compression Formats - AVI

These files, appended with the .AVI extension, will open in Windows Media Player or QuickTime player.

1. **Uncompressed (Raw):** No compression, best image quality, produces a large file. The large file size often prohibits it from being a reasonable format if the file is intended for electronic transfer, via email or the web.
2. **JPG2K Compressor:** JPEG compression, high quality, smaller file size. The loss of quality is minimal if the quality slider is set to "best".

EXPORTING AUDIO

If you have files that contain an audio track, you can export them along with the video as a Quicktime (.mov) file, AVI or most other formats listed.

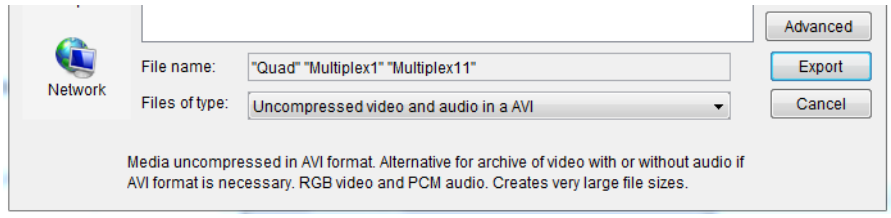
If you wish to export the audio only, then you can select a profile with a wave WAV format. This will create a WAV file that contains the audio from the movie.

BATCH EXPORT OF MOVIES AND STILLS

You can export any number of movies or stills at once, or in a succession of concurrent exports.

To Batch Export Session Movies

1. Select the sessions in the session list. Ctrl-click for non-contiguously ordered session movies, Shift-click for contiguously ordered session movies.
2. Choose *File* > *Export Movies*. The Export Movie dialog appears.
3. Choose a file selection format (AVI or QuickTime). Both QuickTime and AVI support a variety of compressors, or codecs.



When batch exporting, the File Name field is not editable.

4. The file names for the selected movies in a batch export will be preserved in the export process and cannot be edited in the export panel. If you wish to change the name of a file for batch export, do so before exporting it.
5. As the session movies, a progress bar appears. If multiple session movies are exported in a batch, each session movie will be concurrently exported.

To Batch Export Images

1. Select the images in the Session Stills and Frames list. Ctrl-click for non-contiguously ordered session movies, Shift-click for contiguously ordered session movies.
2. Choose *File* > *Export Image*. The Export Session Movie dialog appears.
3. Choose a file selection format (TIF, BMP or JPG).
4. The file names for the selected images in a batch export will be preserved in the export process and cannot be edited in the export panel. If you wish to change the name of a file for batch export, do so before exporting it.
5. As the images export, a progress bar appears. If multiple session movies are exported in a batch, each image will be concurrently exported.

APPENDIX A

TROUBLESHOOTING

This appendix contains information about contacting Salient Sciences Technical Support.

CONTACTING TECHNICAL SUPPORT

For phone support, call (+1) 919.572.6767 (option 2) from 9:00 AM to 5:00 PM, EST.

For online support, email support@salientsciences.com

As a Salient Sciences customer, you have access to our online support to ask questions, look up answers to frequently asked questions and download documentation - www.salientsciences.com/support

APPENDIX B

VIDEOFOCUS REGISTRATION

LICENSE INFORMATION

VideoFOCUS can license your software in two different ways:

HARDWARE DONGLE REGISTRATION

VideoFOCUS can be issued with a dongle. If you have a dongle:

1. Install the HASP drivers. If you need a HASP driver, please go to our faq webpage for instructions on how to download the latest driver from the manufacturer. www.salientsciences.com/videofocus/support/faq.html
2. Insert the dongle in any empty USB port. Ensure that the red light on the dongle is solid before proceeding with use of VideoFOCUS.
3. Launch VideoFOCUS . The license on the encoded dongle should be accepted.
4. If you are unable to register and are giving a warning that states "No Hardware Key Detected," please double check that the drivers are installed correctly and that the dongle is recognized by your computer.

SOFT REGISTRATION & CONNECTED TO THE INTERNET

If you were not issued a dongle with your copy of the software, the first time the application is launched, VideoFOCUS will see that "No Hardware Key" is detected and it will attempt to license your product over the Internet.

1. Launch VideoFOCUS .
2. A dialog will be displayed requesting an installation ID. This Installation ID will have been provided to you by Salient Sciences.
3. After entering the Installation ID, follow the prompts to fully register your product. Be sure to include end user information including: Company Name, Contact Name, E-mail, and Phone Number
4. VideoFOCUS will now launch.

SOFT REGISTRATION & NOT CONNECTED TO THE INTERNET

If you were given an Installation ID but your machine is not connected to the Internet you can still activate your product.

1. Launch VideoFOCUS .
2. A dialog will be displayed requesting an installation ID. This Installation ID will have been provided to you by Salient Sciences.
3. Follow the instructions as prompted by the VideoFOCUS registration installer.

If you experience any issues registering VideoFOCUS , please email **support@salientsciences.com** or call support at (+1) 919.572.6767 (option2).

UPDATE YOUR LICENSE

If you are not connected to the Internet, you can update your license when you receive a new activation code from Salient Sciences.

1. Choose Help > Update License.
2. Enter in your activation code. If you do not have one, contact **support@salientsciences.com**.