VideoFOCUS User Guide

Every guide in one document, to print or to save as a PDF from your browser.

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Getting started

Open a case, bring video into it, watch it, mark the part that matters, and hand it to a tool that analyses or changes it. The tools put their results in the case as new items, beside the one they started from.

The ideas

- **Case** – a folder on disk that holds everything for one piece of work. Each open case is a tab in the main window; its tab shows the folder's path.
- **Item** (also called a session or media) – one video, audio recording or image in the case. The list on the left shows them all.
- **Derived item** – what a tool makes from an item: a modified copy, a combination, a demultiplexed set of views, a view-managed version. It is added to the list with a line saying what it came from (for example "Modified version of cam1.Avi.avi"); the item it came from is still there. The list is sorted by *Relationship* by default, so derived items sit under their sources.
- **View** – one picture within an item. Most items have one; a multiplexed recording or a combined item can have several, shown together.
- **Frame** – one picture in time. Frames are counted from 1. A **marked frame** is one you labelled; a **still** is a frame saved as an image.
- **Selection** – the part of an item that the next action works on: a span of time (set with Mark in and Mark out), a set of views, and on the Frames tab a set of thumbnails.

Your first case

1. **File > Open or Create Case**: choose an existing case folder, or make a new one (Cases and importing).
2. **File > Import Media**: choose video, audio or image files. Each becomes an item in the list on the left.
3. Click an item in the list. The main window shows it on the **Player** tab. Press the Play button, drag the position slider, or type a frame number to move through it. See the Player tab.
4. To work on part of the item, move to where it starts and press **Mark in**, move to where it ends and press **Mark out**. The marked span is the *time selection*.
5. **Clip** saves a clip of the time selection (of the views you selected, if you selected some). **Copy** copies the selection; **Cut** and **Paste** are there too, and Clip and Cut are disabled until you have marked a time. **Snapshot** saves the current picture as a still.
6. Choose a tool from the **Processing** menu (below) to analyse or change the item. The result appears in the list.

To get something out of the case, see Export.

Which tool for which job

I want to…	Processing menu	Guide
Cut, copy, paste and add titles to build a new item	Edit	Edit
Resize, crop, rotate, change speed or frame rate, fix interlacing	Modify	Modify
Record the screen or the computer's sound	File > Quick Capture, Audio Capture	Capture
Document an item and how it was made	View > View Report; Help > View Item Data	Reports and audit
Get video, audio or images out of the case	File > Export Video, Save Video As	Export
Join items, split off audio or one view, merge views, split a multiplexed recording	Combine, Concatenate, Extract Audio, Extract View, Merge Views, Demultiplex	(no guide yet)

The main window

Where you watch video, choose the part you want, and start every tool. New to VideoFOCUS? Read Getting started first.

The layout

- **Menu bar** – File, Edit, View, Processing, Help.
- **Toolbar** – Undo, Redo, Quick Capture, View Movie, View Image.
- **Case tabs** – one tab per open case, named for the case. Everything below belongs to the selected case.
- **Media list** (left) – every item in the case.
- **Player / Frames** (right, top) – two tabs showing the selected item.
- **Stills pane** (right, bottom) – "Media Stills and Frames". The small arrows between the two right-hand panes hide the top or the bottom one.

The media list

One row per item. The selected row shows a thumbnail and the item's details: length, start time, picture size, audio, whether it is interlaced, and how many marked frames and stills it has. The other rows show the name, with an icon for where the item came from (imported, or made by a tool). **Sorted By** at the top orders the list – *Relationship* by default, which puts derived items under their sources.

- Click a row to select it; Ctrl-click adds rows. Combine and Concatenate stay disabled until several rows are selected.
- Right-click a row for the menu of commands that apply to it.
- **Edit > Delete Session** or `Delete` removes the selected item from the case.

The Player tab

Shows the selected item, with these controls:

Control	What it does
Play / Pause	Plays the item. The loop button repeats it; the play-selection button plays only the marked time.
Position slider	Drag to move through the item quickly. The sensitivity slider next to it sets how far a drag moves; the arrows scroll the slider's range.
Frame	The current frame number, counted from 1. Type a number, or use its arrows to step one frame. The last frame's number goes to the end, after the last frame.
Elapsed time	Seconds from the start, to the millisecond. Type seconds to jump there.
Time	The clock time at the playhead (date and time, to the millisecond), where the item has one. Type a date-time to jump there.
Mark in / Mark out	Set the start and end of the *time selection*. Previous / Next move between several selected spans.
Clip, Cut, Copy, Paste	Act on the time selection (and on the selected views of a multi-view item). Clip and Cut stay disabled until a time is marked; Paste is disabled until there is something to paste.
Snapshot	Saves the current picture as a still.
Select area, Magnifier	Select area lets you draw a rectangle that snapshots and clips are cropped to; Magnifier shows it enlarged.
Add title	Adds a title at the playhead.
Volume, Mute	Audio level for playback.

An item with several views (a combined or demultiplexed item) shows them together, and the controls add **Views** and **View times**: which views the actions apply to (none selected means all of them), and when each view starts and ends.

The Frames tab

A grid of numbered thumbnails, for finding your place or choosing frames.

- **Thumbnail Display** chooses what each thumbnail stands for: every frame, every 1/5 second, every second, every 6 seconds, every minute, or key frames only.
- **Thumbnail Size** makes the grid larger or smaller.
- Click a thumbnail to select it. The selected thumbnails are the frames that the Edit menu's commands work on.

The stills pane

Lists the stills of the selected item. **View > View Image** opens a selected still in its own window; **View Movie** plays the video it came from, at its frame. Delete a still with **Edit > Delete Image**.

The menus

Menu	Holds
File	Open or Create Case, Archive Case, Close Case, Close All Cases, Case Properties (Cases and importing); New Session, Import Media, Quick Capture, Audio Capture; Export Video, Save Video As, Open Video In System; Print Window; Exit. Save Video As and Open Video In System work on the selected item.
Edit	Undo, Redo; Copy; Select All, Select All Dependent Items; Set As Poster Frame; Delete Session, Delete Image; Preferences; Session Properties.
View	View Image, View Movie, View Report (Reports and audit), and lists of the case's sessions and images.
Processing	Edit, Modify, Combine, Concatenate, Extract Audio, Extract View, Merge Views, Demultiplex, Filter (a submenu of video filters), Current Frame (a submenu). Items that need a particular selection are disabled until you have it.
Help	User Guide (this guide), Sample Movies, Update License, View Item Data (the audit window), Bug Report, About, Legal Notices.

Export is under **File > Export Video** – see Export.

Keys

- `F1` – this guide (or, in a tool's window, that tool's guide).
- `Delete` – delete the selected session or image.
- `Ctrl`+`Y` – redo, as well as the shortcut shown in the Edit menu.

Cases and importing

A case is where everything for one piece of work lives. Open or create one, say who and what it is for, then import the media you will work on.

Opening, creating and closing cases

- **File > Open or Create Case** shows the *Open Existing or Create New Case* window: a folder chooser that lists your case folders (each shown with the product and version that made it, such as "ab15 (Pro 15.1)"). Choose a case and press **Create** (its tooltip is "Open or create the case") to open it; type a new name in **File name** and press **Create** to make a new case.
- An open case is a tab in the main window. Opening a case that is already open just selects its tab.
- **File > Close Case** closes the selected case's tab; **Close All Cases** closes every tab.

Case Properties

File > Case Properties opens *Case Properties: <case>*:

Field	What it is
Agency, Examiner	Who the work is for and who is doing it.
Case #, Title, Notes	Identify the case; Notes is free text.
Time Zone Region	The time zone the case shows clock times in. The main window's **Time** display ("the time at the playhead") is in this zone, and a time you type there without an offset is read in it. **Local** sets it to this computer's zone; **UTC** sets UTC.

Save keeps the changes; **Cancel** discards them.

Archiving a case

File > Archive Case packs the selected case into one `.zip` file. A save window asks where to put it (the name starts as the case's name; `.zip` is added if you leave it off). If the file exists you are asked whether to replace it. A progress window *Archiving <case>* shows each file as it is added (*Adding <file> (3 of 120)*); the backups of the case store kept by saves and upgrades are left out; cancelling it deletes the unfinished file.

Importing media

File > Import Media opens *Import Media*, a file chooser for the selected case. You can pick several files at once. Each file you import becomes an item in the case, described as "Import of <file name>".

- **Preview** – when you select a file the right-hand side plays it, so you can check it before importing.
- **Files of type** – shows All Files, Video, Images, Audio or Video, Audio and Images.
- **Accept** – says how to treat what you choose: *any type*, *video and audio*, *only video*, *only audio*, *only images* or *only subtitles*.
- **Skip testing** – each way of importing a file is tested and its result accepted or rejected, which keeps bad media out of the case. Skipping the test is faster but a file that would have been rejected may go in and make the application unstable, so tick it only for sources you know produce error-free media. A warning asks you to confirm.
- **Import As Video … at … fps** – appears when the chosen images look like a numbered sequence. It is ticked by default: the images become one video at the frame rate you give. Untick it to import them as separate images.
- A progress window *Import <name> …* shows each import, with *testing* when it is checking the result. When you import several files it counts them as it goes (*Importing: <file> (2 of 5)*).

Import remembers the folder and the Files of type you last used. Importing needs an open case.

The other ways to get media into a case: **File > New Session** (build one from pieces in Edit), **Quick Capture** and **Audio Capture** (record it), and the **Help > Sample Movies** list (tutorial clips). Next: the main window.

Edit

Cut parts out of a video, paste parts in, and add title cards, then save the result as a new item. The original stays as it was.

What the window does

There are two ways in:

- **Processing > Edit** opens the selected item for editing. You work on a copy, so nothing you do changes the item in the case until you Save, and then only by adding a new item.
- **File > New Session** opens the same window with nothing in it. Fill it by pasting something you copied in the main window.

If the item has several views, Edit first asks how to lay them out (the number of rows) and then edits them together as one picture.

The window

- **The player** – the same controls as the main window's Player tab: play, frame, elapsed time, clock time, Mark in and Mark out, the position slider, volume.
- **Edit menu** – Cut, Copy and Paste.
- **View menu** – Half Size, Normal Size, Actual Pixels and Maximize. These change how the picture is shown, not the item.
- **Title menu** – New, Edit, Delete and Go: see Titles.
- **Name** – the name the new item will have. It starts as the source's name plus `-Edit`.
- **Save** and **Close**.

How to

Cut part of the video out

1. Move to where the part starts and press **Mark in**; move to where it ends and press **Mark out**. Or type frame ranges (for example `1-30`) into the time selection.
2. **Edit > Cut**. The part is removed; the item gets shorter and the numbers after the cut move down. The time selection clears.
3. If you cut from the start, the item's clock start time moves later by the length you cut.

Copy part and paste it somewhere else

1. Select the part, **Edit > Copy**.
2. Move the playhead to where it should go. **Edit > Paste** puts it in at the displayed frame. To add it to the end, go to the last frame's number (typing the last frame number goes to the end, after the last frame) and paste.

3. Paste is disabled until there is something on the clipboard. What you copied in the main window can be pasted here, and the other way round.

Make a new item from scratch

1. In the main window, select the part you want and press **Copy**.
2. **File > New Session**, then **Edit > Paste**. The name starts as `New Item`.

Titles

A title is a text card: it shows your text for the time you choose, as part of the item. Adding one makes the item *longer* by that time (a three-second title adds three seconds), and the title counts as a single frame.

- **Title > New** opens **Edit Title** for a title at the playhead: the *Title text*, its *Size* in points, *Left / Center / Right* justification, and *Duration (Seconds)* (default 3.0; OK stays disabled until it is a positive number). **OK** adds it; **Cancel** does not. The text of a new title starts in the middle of the frame (blank lines above it push it down; delete them to move it up). The new title is selected.
- **Title > Edit** and **Delete** work on the title at the playhead, and are disabled when the playhead is not on one.
- **Title > Go** lists the titles in the item, to move the playhead to one.
- A title has no clock time, so the **Time** display is empty while the playhead is on it.

Saving and closing

- **Save** is disabled until something has changed (a cut, a paste, a title, or a new name). It adds a new item to the case, named as in the **Name** box and described as "Edit of <source>".
- The window stays open after Save, the name moves on to the next free one (`…-Edit-1`), and Save is disabled again. Keep editing and Save again to make another item.
- **Close** (or `Esc`) closes the window. If there are unsaved changes it asks *Save changes before closing?* – **Yes** saves, **No** discards them, **Cancel** stays in the window.
- The item you edited, and the other items in the case, are not changed.

Capture

Record part of this computer's screen (and the sound it is playing) as video, snap a still of it, or record sound alone. The recording is added to the open case as a new item.

What the windows do

- **Quick Capture** (toolbar button, or **File > Quick Capture**) records an area of the screen as video, with the computer's sound if you want it, or saves a single still of that area.
- **Audio Capture** (**File > Audio Capture**) records sound only.

Both need an open case. They record what this computer is showing and playing, not a camera or microphone. Opening Quick Capture sends the main window to the back so it is not in the way. Quick Capture stays open between recordings and closes by itself when the last case is closed; closing a case in the middle of a recording cancels the recording.

Quick Capture

Control	What it does
Preview	The top of the window shows the screen as it is now, with the selected area marked, and the display's name, refresh rate and scale underneath.
Selector: Hide, Manual, Auto	How you choose the area. **Manual** shows a box you can move and resize. **Auto** lets you choose a window or a whole display for the box; going back to Manual brings back the box you had. **Hide** takes the selector off the screen. The arrow beside them lists the displays.
x, y, width, height	The area in screen pixels, which you can also type. **fix** keeps the box at its size while you move it.
Audio	Tick to record the sound the computer is playing along with the picture. While it is ticked there is no Pause.
Encoding	*MP4 Compressed* (smaller files) or *Uncompressed (MOV)* (larger, nothing lost). **Encoder settings** opens the MP4 settings (hardware H.264 encoding, hardware colour conversion) and the audio settings (floating audio).
Name	What the new item is called. It starts as *Capture* and moves on to a free name after each recording.
stop at … mins	Tick to end the recording on its own after that many minutes (30 to begin with).
Snap	Saves a still of the selected area, even while recording.
Start / Stop	Starts the recording; the same button then stops it and saves it. `Enter` does the same.
Pause / Resume	Holds the recording without ending it. `Space` does the same.
Cancel	Throws the recording away. `Esc` does the same.
Performance, Duration	While recording: frames per second, frames recorded and frames dropped; and the time recorded so far.

Audio Capture

The same Name, Encoding (*Uncompressed (WAV)*) and Encoder settings, with **Start / Stop** and **Cancel**. There is no area to choose and no Pause. It records the sound the computer is playing.

How to

Record part of the screen

1. Open the case you want the recording in. Open **Quick Capture** (its toolbar button, or **F2**).

2. Choose **Manual** or **Auto**, and set the area until the box covers what you want. Use **fix** if you want to keep the size.
3. Tick **Audio** if you want the sound. Check **Encoding** and **Name**.
4. Press **Start**. Watch *Performance*: many dropped frames mean the computer is not keeping up.
5. Press **Stop**. The recording appears in the case's media list.

Take a still

Select the area and press **Snap**. The still is added to the case.

Record sound only

Open **Audio Capture**, press **Start**, and **Stop** when done.

What you get

- A new item in the case, named as in the Name box. Its clock time is the time the recording started, so it lines up with other evidence.
- Frames the computer could not keep up with are marked in the item as dropped frames, so you can tell where the recording has gaps.
- If a recording fails part way, it stops there and you are told *Capture stopped because of an error* and pointed to the error log. What was recorded until then is kept and added to the case. If it fails before anything was recorded you are told *Capture cancelled due to error*; if nothing was recorded you get *No samples captured*, and no item is added.
- A still becomes an image item with its own clock time.

Reports and audit

VideoFOCUS keeps a record of how every item was made. The report turns that record into a document you can hand to someone else; the audit window shows the raw record.

What is recorded

Each item carries the steps that produced it: the import it came from, then every tool applied after (Edit, Annotate, Modify, Search, Time Sync, a copy, a capture…), each with its settings. The report and the audit window are two views of that same record, so you do not have to remember or write down what you did. Source files also carry their hash values, so a reader can check a file against the original.

The report

1. Select the item or items in the media list (the media list).
2. **View > View Report**. The report opens in your browser as a PDF.

- The report is of what is selected now: select different items and run it again for a different report.
- Export and Save As can write the report next to the exported files: choose a *Report Type* of Pdf, Doc, Rtf or Mhtml.
- Working out the file hashes can take a while for large files. A *Computing Audit File Hashes* window shows the progress; **Skip** leaves them out of the report.

What the report contains

Section	What it says
Title block	"Video Analysis Report", the case (number and title) and the examiner.
Case Description	*Summary*: when the case was created and when this report was made, the case number, title and name. *Case Notes*: the notes from Case Properties.
Item Descriptions	One entry per selected item: start time, duration, picture size and frame count, audio sample rate, for an export or render whose VMAF has been computed (in its Session Properties) the VMAF score – mean, minimum and maximum, and what it was measured against – and its *Steps to reproduce* – the whole chain in order, from the import of the original ("Copy of the file … using the following settings") through each later step, such as "Cut the following times from the edit" or "Add a title of duration … with the following text".
Source File Hashes	For each original file: its MD5, SHA-1, SHA-256 and SHA-512 values.
Detailed Descriptions	Further detail, where the items have it.
System Configuration	The product and version that made the report, its build id, the licence id and the vendor.

The case's time zone (Case Properties) decides how times in the report are written, such as the item's start time.

View Item Data (the audit window)

Help > View Item Data opens an *Audit* window for the selected item: a tree of the item's stored fields, such as its `label`, `id`, `createdTime`, `sources` and its `activity` (the step that made it, for example `ActivityEdit`). Open a branch to see what is inside it; **File > Expand All** opens every branch at once. **File > Save Audit** writes the whole tree to a plain text file (`.txt`).

Use the report to explain what was done; use the audit window when you need the exact stored values, for example to check a setting the report states in words.

Filters

Improve the look or sound of a copy of a video, image or audio item, checking the result beside the original before you keep it.

What the window does

A filter changes the pictures or the sound of an item. The Filter window shows the **Input** (the item as it is) and the **Output** (what the filter makes of it) side by side, so you can adjust the filter's settings and see the effect on the same frame. **Save** adds the filtered result as a new item. The original is never changed.

Open it from **Processing > Filter** (or the right-click menu of a video, image or frame) with an item selected; the menu lists the filters that suit it:

- **Video and images:** Grayscale, Sharpen, Equalize, Blur, Levels Adjust.

The window is called **<Filter> Filter: <item name>**, for example **Sharpen Filter: Lobby camera** (CARDINAL Minilab's is **Filter Chain Filter: ...**). It must be closed before you go back to the main window.

The window

- **Two players. Input** on the left, **Output** on the right, each with the usual time slider and play controls. For audio they show the waveform; the output waveform appears once it has been rendered.
- **A toolbar** beside the input for the zoom and region tools (see below), and **sync buttons** between the players.
- **The filter's settings**: sliders, lists and check boxes, which differ for each filter (see The filters). The output updates as you change them.
- **The bottom row: Undo**, **Redo**, the **Name** of the new item, **Save Video**, **Save Image** or **Save Audio**, **Close** and **Help**.

Keeping the two players together

The players start linked: moving either moves both, and only a **padlock** shows between them. Click it to release the link; two arrow buttons then appear, each making one player follow the other (and linking them again).

Limiting a filter to part of the picture

A new window starts with one **region** that covers the whole picture (outlined in green on the input), so the filter applies to everything. To limit it to part of the picture, reshape that region (drag with Square or Circle) or delete it and draw your own. A region you add *alongside* the whole-picture one does not limit anything: the filter still applies to the union of the regions. Deleting the last region brings back a whole-picture one. The toolbar beside the input has:

Button	What it does
Zoom	Drag in the picture to zoom and pan it. Draws nothing. This is the tool the window starts with.
Track	Pressed: the selected region follows the object it was drawn on. Released: it stays put. Disabled with no region selected.
Square	Drag to draw a rectangular region.
Circle	Drag to draw an elliptical region.
Delete	Removes the selected region.
Remove anchor	Removes the selected region's anchor at the displayed frame; enabled only when it has more than one and one is at this frame.

The frame you draw a region on gives it an **anchor**, and with Track on it follows the object from there. Where tracking slips, move the region at that frame to add an anchor. Regions are numbered in order and renumber when one is deleted. A still image has one picture, so its regions do not track. Blur has one extra choice about regions: see Blur.

How to

Apply a filter to a whole video

1. Select the video and choose **Processing > Filter** and the filter.
2. Move the input to a frame that shows the problem and adjust the settings; watch the output.
3. Play the output through to check it, then give the result a **Name** and click **Save Video**.

Blur a face or plate

1. Open **Blur** and go to a frame where the thing is clearly visible.
2. Click **Square** or **Circle** and drag a region over it. If a whole-picture region is still there, select it and click **Delete**, or the whole picture is blurred. Select your region, press **Track**, and play forward.
3. Where the region drifts, stop, drag it back (a new anchor), and carry on.
4. Set the **Radius** (it starts at 2 pixels, which is subtle), then **Save Video**.

Filter only part of a video

Each region lists the frames it applies on (for example `frames 1-4195`). Select a part in the main window's player before opening the filter and the starting region covers just those frames, and the window opens at the start of the selection.

Make a still of one frame

Open the filter on an image or a frame, or on a video and **Save Image** to keep the frame shown in the output.

Undo a mistake

Undo and **Redo** cover settings and regions while the window is open; they are separate from the project's undo.

The filters

Filter	Setting	Meaning
Grayscale	Select Channel	Grayscale (the start), Red Only, Blue Only or Green Only: a grey picture of that colour's brightness.
Sharpen	Weighting Value	Strength of the sharpening, Min to Max; it starts at 0, which changes nothing. Its box is read-only. Too much emphasises noise.
Equalize	No settings: spreads the brightness levels of the picture to bring out detail in dark or washed-out video.	
Blur	Radius	Blur strength in pixels, by slider or by typing a value.
	Invert Mask On	**Nothing** (the start): blur the inside of the regions. **Selection**: blur everything *outside* the regions, on the frames they are on. **All Frames**: blur everything outside them, on every frame (not offered for images).
Levels Adjust	Input Range (Minimum, Maximum)	Input pixels darker than the minimum become the darkest output, and brighter than the maximum the brightest, so narrowing the range stretches contrast. Histograms of input and output show the effect.
	Output Range, Gamma	Limits the output brightness, 0 to 255 like the input range; Gamma (1.000 to start with) shifts the middle tones. Each slider has a number box beside it.

Saving and closing

Type a **Name** for the new item (a suggestion is filled in) and click **Save Video**, **Save Image** or **Save Audio**. The result appears in the case beside the original and the report of the new item records the filter and its settings. Save is available until you have saved once, and after that only when you have made further changes; you can keep working and save again for more versions. The window stays open.

Closing with changes you have not saved asks whether to save them first.

Keyboard

Key	Action
`Ctrl+Z`	Undo
`Ctrl+Shift+Z`, `Ctrl+Y`	Redo
`Ctrl+Delete`	Delete the selected region
`F1`	This page

Modify

Make a changed copy of a video, still image or audio item: crop it, turn it, resize it, change its frame rate or speed, fix its fields, or adjust its sound. The original is never touched.

What the window does

Modify shows a live preview of the item as it will be after the changes you tick, so you can see the effect before anything is made. When you click **Save**, a new item is added to the case with those changes. Nothing is copied or re-encoded at that point: the new item refers to the original media and applies the changes when it is played or exported. The original item is not changed, and the new item records which changes were made, so they can be reported.

Open it from **Processing > Modify** with one item selected: a video, a still image or an audio item. For a multi-view item, select one view first (Modify works on a single view at a time).

Other things have their own windows: filters and enhancement (Filter), and converting to a file format (Export).

The window

The title says what is being made: **Create Modified Session from <name>**, or **Modified Still** / **Modified Audio** for those kinds.

- **The player** fills the upper part and shows the preview.
- **The settings** are below it, on tabs when there is more than one kind: **Spatial Properties** (how each picture looks), **Temporal Properties** (frames, rate, speed, fields - video only) and **Audio Properties** (only if there is sound). A still image has only the Spatial tab; an audio item only the Audio tab.
- **The bottom row:** the **Name** of the new item, **Save**, **Close** and **Help**.

The preview updates when you tick a box or finish typing a value (leave the field or press Enter). Boxes that need a value stay greyed out until their tick box is ticked.

Spatial Properties

Setting	What it does
Crop Frame	Keeps only a rectangle of each picture. A rectangle appears over the preview: drag it to move it and drag its edges or corners to resize it. It cannot be smaller than 16 pixels or go outside the picture. It starts as the top-left quarter of the picture. The preview keeps showing the whole picture with the rectangle on it; the cropping is done when you save.
Change Aspect Ratio Ratio *W* : *H*	Stretches or squeezes the picture to a new shape (for example, to fix video that was stored with the wrong shape). It starts at the picture's current ratio. Both numbers must be above zero.
Rotate Frame Degrees	Turns the picture by the number of degrees you enter.
Invert Frame	Turns the picture upside down (flips it vertically).
Change Frame Size Width, Height	Makes each picture a different size in pixels. Starts at the picture's full size. With **Constrain Pixel Shape** ticked (the usual state; it is greyed until Change Frame Size is ticked), changing the width changes the height to keep the same shape - the shape of the cropped area, if you are cropping - and the other way round. Untick it to set both freely.
Include Subtitles	Only for video that carries subtitles, and ticked by default. Untick it to leave them out of the new item.

Temporal Properties

Setting	What it does
Selected Frames Only (n frames)	Makes the new item from only the frames that were selected in the player when you opened Modify. Greyed out, with no count, if nothing was selected. To use it, select the frames (or a time range) first, then choose Modify.
Resample Frames Rate	Changes the frame rate while keeping the video the same length, by repeating or dropping frames as needed.
Force Uniform Frame Rate	For video whose frames come at uneven intervals (common with security recorders). Gives every frame the same duration. Choose **Source Rate** (the average rate of the original, shown in frames per second; single view only) or **User Rate** and type one.
Change Speed Percent (%)	Changes the average rate by a percentage; 100 leaves it as it is. The preview shows the effect.
Force Interlace Format	For interlaced video that is marked with the wrong field order. Choose **Odd Field Dominant** (odd scan lines show first), **Even Field Dominant**, or **Not Interlaced** (marks it as not interlaced). It starts on the video's current setting.
Split Fields Into Frames	Turns each interlaced frame into two frames, one per field. Greyed out when the video is not interlaced, or when you have forced it to Not Interlaced.

Audio Properties

With the Audio tab selected the player shows the sound's waveform. The boxes are numbered by channel, from 0.

Group	What it does
Channel Order	**Reverse channel order** swaps the order the channels are in.
Sync Adjust	Tick the channels to move, then enter **Seconds**: those channels start earlier or later by that much (the arrows step in small amounts that follow the player's time scale, never less than a millisecond). Use it to line up sound recorded on a separate channel or device with the picture.
Channel Select	Untick a channel to leave it out of the new item. An audio-only item must keep at least one channel. For video you can untick them all, which makes the new item silent.
Channel Mix	**Stereo Balance** (two channels only) moves the sound between left and right with the slider (or the **Left** and **Right** channel percentages). **Mono (equal mix)** mixes all channels into one, equally.

The order the changes are made in

When several changes are ticked, they are made in this order. It matters for crop, because the crop rectangle is measured on the picture after the earlier changes:

1. Selected frames only
2. Force interlace format, then split fields
3. Resample frames, then force uniform frame rate
4. Subtitles
5. Change speed
6. Change aspect ratio
7. Rotate, then invert
8. **Crop**
9. **Frame size** (so it sets the size of the cropped picture)
10. Audio changes (sync, channel select, mix)

So when rotating and cropping together, draw the crop on the rotated picture you see in the preview. If you split fields while cropping, the crop rectangle is adjusted to match the half-height frames.

Saving and closing

Type a **Name** (a suggestion is filled in) and click **Save**. If a value is not usable you are told which: *Invalid User Frame Rate*, *Invalid Speed*, *Invalid Aspect Ratio* or *Invalid Frame Dimensions*, and nothing is saved until you fix it.

The window stays open after a save, so you can change the settings and save another version. Save is available until the first save and after that only when the settings have changed. Closing with changes you have not saved asks whether to save first.

The new item appears in the case beside the original. Because it refers to the original media, do not delete the original if you need the new one; to make a standalone copy, use **File > Make Self-Contained** on the new item.

How to

Crop to part of the picture

1. Select the video and choose **Processing > Modify**.
2. On **Spatial Properties** tick **Crop Frame** and drag the rectangle over what you want.
3. Check the preview, then **Save**.

Make a smaller copy of the part you want

1. In the player, select the range of frames. Choose **Processing > Modify**.
2. Tick **Selected Frames Only**, and on the Spatial tab **Crop Frame** and **Change Frame Size** if you want a smaller picture.
3. Save.

Fix video that plays at the wrong speed

1. Open the **Temporal Properties** tab and tick **Force Uniform Frame Rate** and choose **Source Rate** or type the right rate - or tick **Change Speed** and enter a percentage.
2. Play the preview to check it, then Save.

Keep only one microphone

1. Open **Audio Properties**. Under **Channel Select** untick the channels you do not want.
2. Save.

Export and Save As

Get media out of a case as files: either converted to the format, size and quality you choose (Export), or as an exact copy of the file that is stored (Save As).

Which one to use

You want	Use
A file in a particular format, for example MP4 to email, or a smaller or different-sized copy, or the result of your edits, filters or annotations	**File > Export** - converts the media to your choices.
The same video, with only its container changed, quickly and with no loss	**Export** with **Rewrap** ticked.
To keep the converted result in the case without writing a file	**Export** with the **Render** option.
The original file, byte for byte, as it was imported	**File > Save As** - a straight copy; nothing is converted.

Export converts the media every time, so unless Rewrap is used the result is a new encoding of the pictures, not the original file. For evidence that must be identical to what was imported, use **Save As**.

The menu entries name what is selected: **Export Video**, **Export Audio**, **Export Images** or **Export Media**, and likewise **Save Video As** and so on. They are on the File menu and the right-click menu of the items. Frames selected in the player can be exported the same way (**Export Images**).

Selecting a folder exports the media in it, including the media in folders inside it. Renders kept in the case (exports added with **Add render to project**) are not exported again; use **Save As** for those.

Export: the options window

Choosing Export opens a window titled for what you are exporting (for example **Export Video**). It has one tab for each kind of media selected: **Video**, **Audio** and **Images**. Set the options in each tab, then use the button at the bottom right.

The Export / Render button

The button at the bottom right is named for the choice you used last (**Render** or **Export**) and starts it. Next to it, **More Options** opens a small menu with the two choices, **Export** and **Render**. Picking one from the menu only changes the button to that choice (and, for Export, makes **Add render to project** optional); nothing starts until you click the button. The choice you start with is remembered for next time.

- **Export:** converts the media, then asks where to save the files (see below).
- **Render:** converts the media and adds the result to the case. No file is written.

Cancel closes the window without doing anything. **Help**, at the bottom left, opens this page.

The two tick boxes

- **Add render to project:** also keeps the converted media in the case, so it can be used or saved again without converting again. It can be turned off for Export; for Render it is always on.
- **Open In System:** opens the exported file in the computer's default player when it is finished. Available only when you export a single item.

The options you choose are remembered for next time.

Video options

Option	What it does
Rewrap "No-reencode render using rewrapping (fast)"	Copies the video and audio into a new container without converting them: fast, with no change in picture quality. Offered when at least one of the selected videos can be rewrapped; if none can, the section only says so. When several videos are exported, those that can be rewrapped are, and the rest are re-encoded with the options below: a note under the tick box names them. When every video can be rewrapped, the format, frame size and sample rate stay those of the originals, so those options are greyed out. Because nothing is re-encoded, use Export without Rewrap when the result must show changes made in the case (filters, annotations).
Layout (rows and cols)	Only for a multi-view item. **Default** lays the views out automatically; the other choices give a specific number of rows and columns.
Format	The file type and codecs. A description under the list explains the choice and what it is good for - see the table below.
Frame Size	The size of the pictures in the file. Choose Full HD, HD, SD, or the original size or a fraction of it (the list adapts to the video, for example 1/4 size, 1/2 size), or type your own width and height. **Constrained** is selected to start with. **Letter Boxed** keeps the picture's shape, fitting it inside the size you chose; **Constrained** adjusts the size you enter so that it keeps the picture's shape.
Audio Sample Rate	**Native** keeps the source's rate. Other rates convert the audio.
Attempt GPU encoding	Uses the graphics card to encode, where the format supports it. Usually faster. Off if the format has no GPU encoder, and while Rewrap is ticked and every video can be rewrapped.
Long Frame Recode	Shown only for videos that contain very long frames (for example a security recorder that stores a picture for a long time). Splits them into several shorter frames so that some players do not drop them.

Video formats

Format	Use it for
Uncompressed video and audio in a MOV (RGB, BGR or BGRA versions)	Archive and editing tools. No loss, very large files. Choose RGB for Premiere on Windows, BGR for Apple tools, BGRA for VLC.
Uncompressed video and audio in a AVI	Archive, if AVI is needed. Very large files.
MJPEG video and uncompressed audio in a MOV	Archive when disk space rules out uncompressed. Large files.
H264 video and AAC audio in a MP4 (the starting choice)	Sending a copy by email or uploading. Most compatible. Smaller files, with some loss.
H265 video and AAC audio in a MP4	The same, with smaller files for the same quality, but not every player opens it.
Windows Media video and audio in a WMV	Small copies for people who use Windows Media players.
Media metadata in a JSON file	Support and debugging when the media itself cannot be shared: writes a description of the media, not the pictures.

The list a machine shows can differ a little with what is installed.

Audio and image options

Audio tab

Format and **Audio Sample Rate**, as for video.

Format	Use it for
WAV, 32-bit float	Archive of audio. The recommended choice. Moderate files.
WAV, 16-bit	Archive of audio. Moderate files.
MP3	General distribution when no more processing is expected. Small files, with some loss.

Images tab

Format and **Frame Size**, as for video.

Format	Use it for
PNG	Lossless; the choice for the internet and for other tools.
TIFF	Lossless; compatibility with other tools.
BMP	Lossless; compatibility with Microsoft tools.
JPG	Compressed, with some loss; the smallest files.

Choosing the files

When you Export (not Render), and for every Save As, a file window opens, titled for the items (**Save Video As**, **Save Audio As**, **Save Images As**, **Save Media As**, or **Save <name>** for one item).

- Choose the folder. The window opens in the folder you used last for this case.
- For one item, type the file name. For several items each is named after the item, and the names cannot be edited. A name that would clash with an existing file gets a number added.
- The right file ending is added if you leave it off.
- **Report Type:** optionally also writes a report about the exported items - **Pdf**, **Doc**, **Rtf** or **Mhtml** - next to the files. **None** writes no report.
- **Open In System:** opens the file when done. With a report chosen it opens the report. With several items and no report it is unavailable.

If a file already exists you are asked whether to replace it: **Yes**, **Yes to all**, **No** (skip that file) or **Cancel**. Click **Save** to start. A progress window shows the name of each file as it is written and has a Cancel button.

If an export fails with a message about the frame size, choose a smaller size or a different format; some formats and systems cannot make very large pictures.

Save As: an exact copy

File > Save As (for example **Save Video As**) does not convert anything: it copies the file stored in the case to where you choose, byte for byte, so the copy is identical to the original. There are no format, size or sample rate options, only the file window described above.

It is available for:

- media imported from a file and not changed since, and
- an export that was added to the case (Add render to project).

It is not available for items created by editing in the case - a clip, a filtered or annotated video and so on - because there is no stored file to copy. Export those instead.

A Report Type can be chosen here too, for a record of what was saved, when the items support one. When you save an imported original, the Report Type box is greyed out.

How to

Email-sized copy of a video

1. Select the video and choose **File > Export Video**.
2. On the Video tab choose **H264 video and AAC audio in a MP4** and a smaller **Frame Size** such as HD.
3. Click **Export**, choose a folder and name, and click **Save**.

A faithful copy of what was imported

1. Select the video and choose **File > Save Video As**.
2. Choose the folder and name; optionally set a **Report Type**. Click **Save**.

Change the container without converting

1. Select one or more videos, choose **File > Export Video** and tick **Rewrap**. With several videos, any named in the note under it are re-encoded instead.
2. Click **Export** and save.

Export frames as pictures

Select the frames in the player and choose **Export Images**. Pick PNG or TIFF for no loss, and a frame size.