ELMO

Instruction Manual

ImageMate 5

Please read this instruction manual carefully before using this product.

Contents

Contents **2**
Introduction **3**
Greeting 3
Notes 3
Install/Uninstall 3
About the ImageMate5 ..... **4**
Starting ImageMate5 4
Tool Menu 6
Tool Sub Menu 7
Camera Menu 9
Take a still image 10
Record Video 11
View/compare images 12
View recorded video 15
Timer Function 16
Live Setting 18
System Requirement **20**
Troubleshooting **21**
Before Contacting Support 21
Reference **23**
Disclaimer 23
Trademarks 23
License 24

Introduction

Greeting

Thank you for purchasing ELMO Document Camera. This manual will guide you through using Image Mate, the Document Camera controller software.
Please read this manual carefully before using Image Mate.

Notes

- The sample screens shown in this manual may differ from those you see while using the software.

- When using Image Mate, be sure to refer to the instruction manual supplied with the document camera.

- Depending on the OS, Image Mate may not display the correct fonts.

- Your computer must meet the recommended operating environment to use this software. The frame rate of the live display or recording function may drop if the operating environment is not met or depending on the operating conditions of your computer.

- This software can only be used with our document cameras.
Cannot be used with third-party document cameras

Install/Uninstall

[Install]
- Windows users
1. Download the installer file (ImageMate5_installer_***.msi) from our website.
2. Launch the downloaded msi file and follow the on-screen instructions to install.
3. When the installation is complete, the "ImageMate5" icon will appear on your desktop.

- Mac users
1. Download the installer file (ImageMate5_installer_***.pkg) from our website.
2. Launch the downloaded pkg file and follow the on-screen instructions to install.
3. When the installation is complete, the "ImageMate5" icon will appear on the Launchpad.

[Uninstall]
- Windows users
Please run from "Settings" → "Apps" → "Apps & features"* in the start menu.
* "Installed apps" in Windows11.

- Mac users
Drag ImageMate5 from "Finder" → "Applications" and drop it into the Trash.

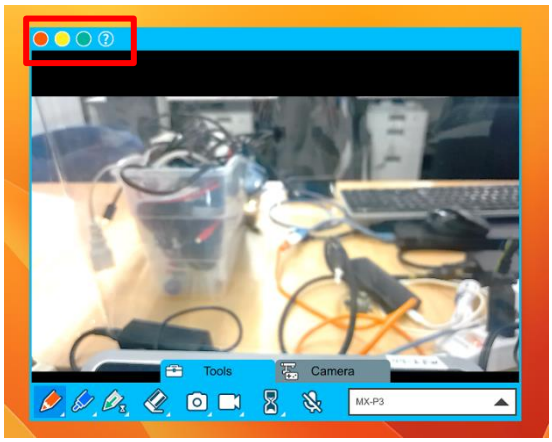
About the ImageMate5

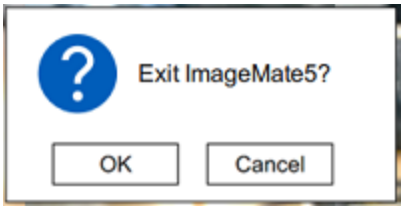
Starting ImageMate5

Launch the desktop (Launchpad for Mac) shortcut icon.

- Start

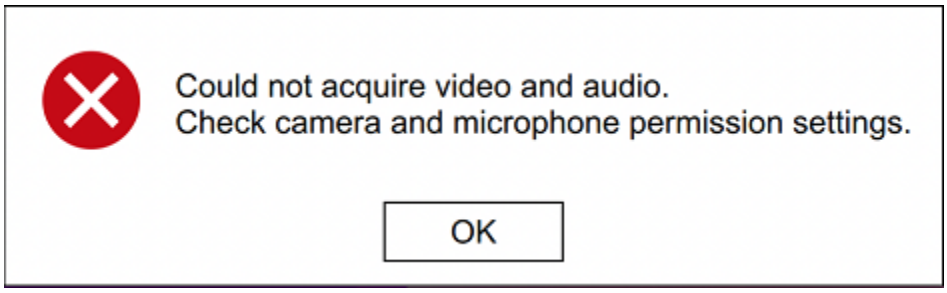
If you connect the document camera to your computer via USB, you can start Image Mate 5 in LIVE mode.



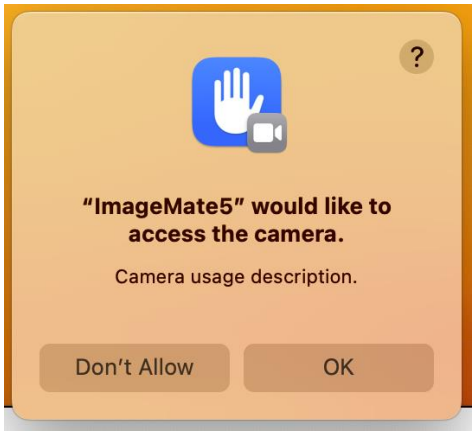
Icon	Name	Function
	View	Displays images from the document camera or recorded images.
	Help	View help documentation.
	Minimize	Minimize the window.
	Maximize	Maximize the window.
	Close	Quit the application. When you select it, the exit confirmation window will be displayed, so select "OK". 

- ImageMate5 for Mac

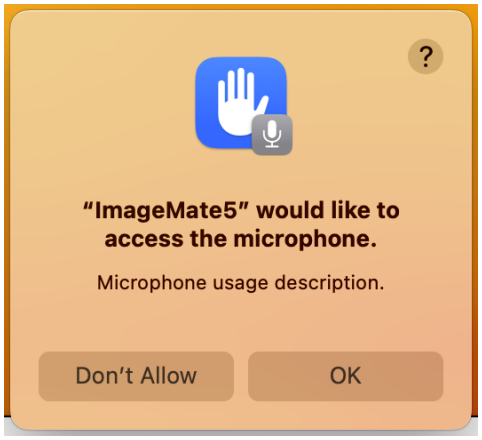
ImageMate5 for Mac is launched for the first time, the following message is displayed because the camera and microphone are not permitted. (It may take some time depending on the environment.)



At the same time, a confirmation message for camera access from Mac will be displayed, so select [OK].



Furthermore, a confirmation message for microphone access will be displayed, so press [OK].



* The notation may differ depending on the version of macOS.

Then start ImageMate5.

Tool Menu

Move the mouse cursor to the bottom of the view to display the menu.

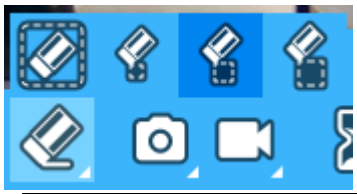
Icon	Name	Function
	Pen1	Select a pen. Pen type, pen color, pen size can be set, and the default is Pen/Red/Medium.
	Pen2	Select a pen. The default is marker-blue-medium.
	Pen3	Select a pen. Default is pointing pen, green, medium.
	Eraser	Select an eraser. You can set erase all and eraser size.
	Capture	Saves the currently displayed content as a still image. The document camera displayed in the background and the lines drawn are recorded. Still image screens and comparison screens can also be recorded.
	Recording/Screen recording	You can record your screen as a video. Recording records only the camera image as a video. Lines drawn are not recorded. Screen recording records the entire PC as a video.
	Timer/Stopwatch	You can use timer and stopwatch functions. The timer can measure the time limit in countdown format. The stopwatch can measure the required time in lap time format.
	Camera Selection	Select the connected camera. Selecting a file displays the file playback screen.

Tool Sub Menu

Press and hold the pen icon to display a submenu for selecting the pen type and color.

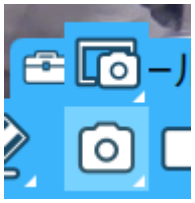
Icon	Name	Function
	Pen	Select Pen as the pen type. A solid line will be drawn.
	Marker	Select Marker as pen type. The drawing will be semi-transparent.
	Pointer	Select the pointer pen as the pen type. Draws semi-transparently and disappears after a certain amount of time.
	Pen color	You can choose the pen color. You can choose from red/blue/green/orange/light blue/yellow/black/white.
	Pen size	You can choose the pen size from small/medium/large.

Press and hold the eraser to display a submenu for erasing all or selecting the size of the eraser.



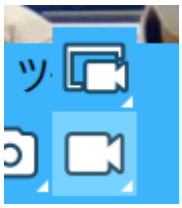
Icon	Name	Function
	All clear	Clears the entire screen. The selected state of the eraser size is maintained.
	Eraser size	You can choose the size of the eraser from small/medium/large.

A long press on the capture will bring up a submenu to switch between capture mode and full screen capture mode.



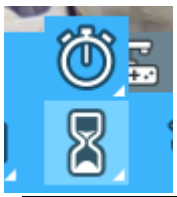
Icon	Name	Function
	Capture （View）	Switch the capture to view mode. If you select after switching, screen capture will be executed.
	Capture （Full screen）	Switch the capture to full screen mode. If selected after switching, full screen capture will be executed. When using dual monitors, both screens are merged and recorded.

A long press on the record will bring up a submenu to switch between timer and stopwatch.



Icon	Name	Function
	Record （View）	Switch the recording to view mode. Select after switching to start recording the camera video.
	Record （Full screen）	Switch the recording to full screen mode. Select after switching to start full screen recording. When using dual monitors, both screens are merged and recorded.

Press and hold the timer to display a submenu to switch between timer and stopwatch.



Icon	Name	Function
	Timer	Select timer mode. If selected after switching, the timer screen will be displayed.
	Stopwatch	Select stopwatch mode. If selected after switching, the stopwatch screen will be displayed.

Camera Menu

Select the camera from the tool menu, and select the camera tab from the menu while the camera image is displayed.

Icon	Name	Function
	Rotate	Rotate the camera image 180 degrees. Drawing lines are not rotated.
	Freeze	Freeze.
	Zoom-	Zoom out.
	Zoom+	Zoom in.
AF	Auto Focus	Focus automatically.
	Brightness-	Darkens the camera image.
	Brightness+	Brightens the camera image.
	Camera Setting	Display the live setting screen.

Take a still image

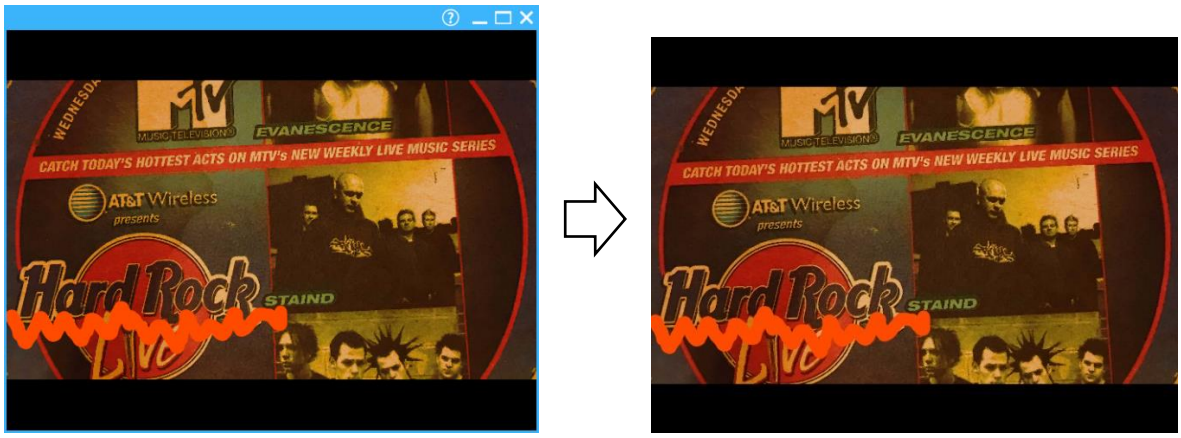
- Take a still image

Press the capture button to take a still image.

Saves the displayed contents, including drawings, in a folder as a still image.

The save path is picture/IM5/image.

The image size is the window size minus the frame width in view mode, and the resolution is 1920x1080 in full screen mode.



Icon is displayed in the upper left while capturing.

Record Video

Press the record button to start recording live video and enter the recording state.

If you press the record button again during recording, it will stop, and the recorded data will be saved in a folder.

The save path is picture/IM5/rec.

In addition to live video, audio can be recorded from the built-in microphone of the document camera.

*In view mode, the recording does not include pen drawings. If you want to record pen drawings, please use full screen mode. The resolution will be 1920x1080.

*Please note that there are some restrictions when saving videos in a folder.

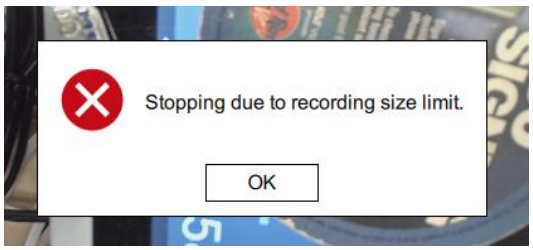
Resolution		Live Video	Recording
4:3	3M	2048x1536 30fps	1920x1440 30fps
	13M	4160x3120 21fps	1920x1440 30fps
16:9	720P	1280x720 60fps	1280x720 30fps
	1080P	1920x1080 30fps	1920x1080 30fps
		1920x1080 60fps	1920x1080 30fps
	4K	3840x2160 30fps	1920x1080 30fps

Caution

- Recording may not be performed correctly depending on the performance of your computer or the network condition.
- The performance may be degraded when connecting with the USB2.0.
- OX-1's 3264x2448/2592x1944 and 3264x1840/2048x1536 resolutions are also limited to 1920x1440 and 1920x1080 respectively.
- When recording with audio on macOS, audio lag may occur depending on the environment.

icon blinks while video recording.

When the recording size reaches 4Gbyte, a warning message will be displayed, and recording will stop.

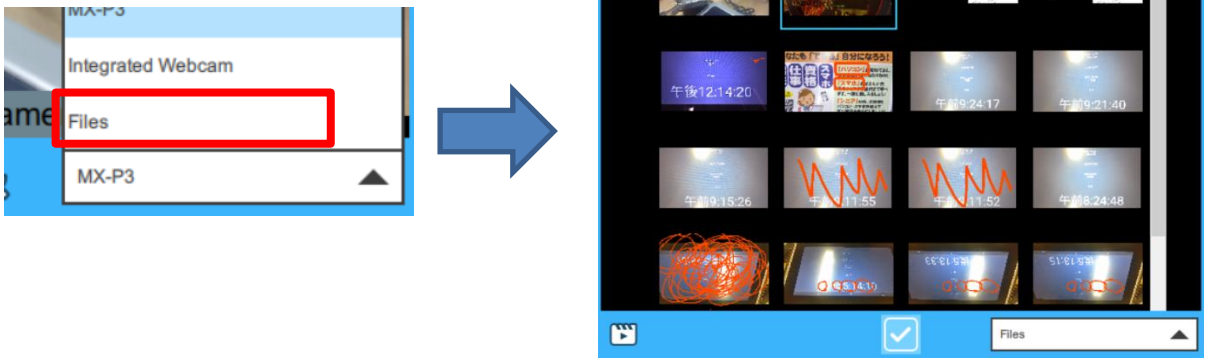


View/compare images

If you select File from the Contents list box in the Tools menu, Thumbnails of the captured image data are displayed.

- Thumbnail screen

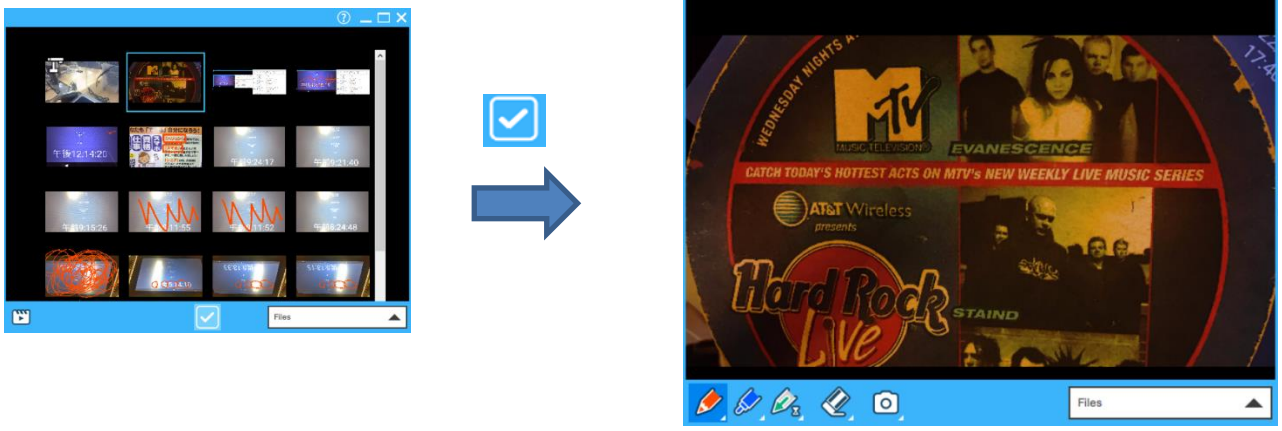
select files



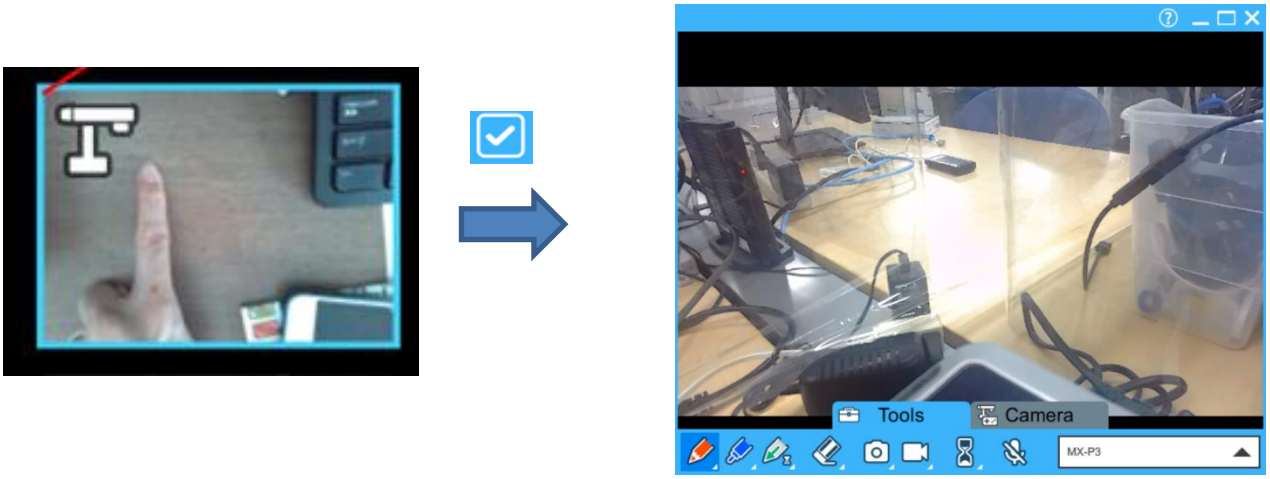
Icon	Name	Function
	Thumbnail list	Thumbnails of images are displayed. If it wraps according to the width of the window and cannot be displayed, a vertical scroll bar is displayed. Up to 9 images can be selected. Thumbnails are displayed in order of file update date and time, starting with the newest file.
	Video Folder	Open the rec folder where the video file is saved. Windows: C:¥Users¥(Username)¥Pictures¥IM5¥rec Mac: /Users/(Username)/Picture/IM5/rec Video playback can be played on the player associated with the PC.
	Compare	If you select a thumbnail, it will be enabled, and if there is one selection, the selected image will be displayed, and if there are multiple selections, the image comparison screen will be displayed.
	Display content select	Select a camera to switch to the live screen When [File] is selected when displaying images or comparing images, the thumbnail list will be displayed again.

- Playback screen

If you select and display only one image, the selected image will be displayed on a single screen.

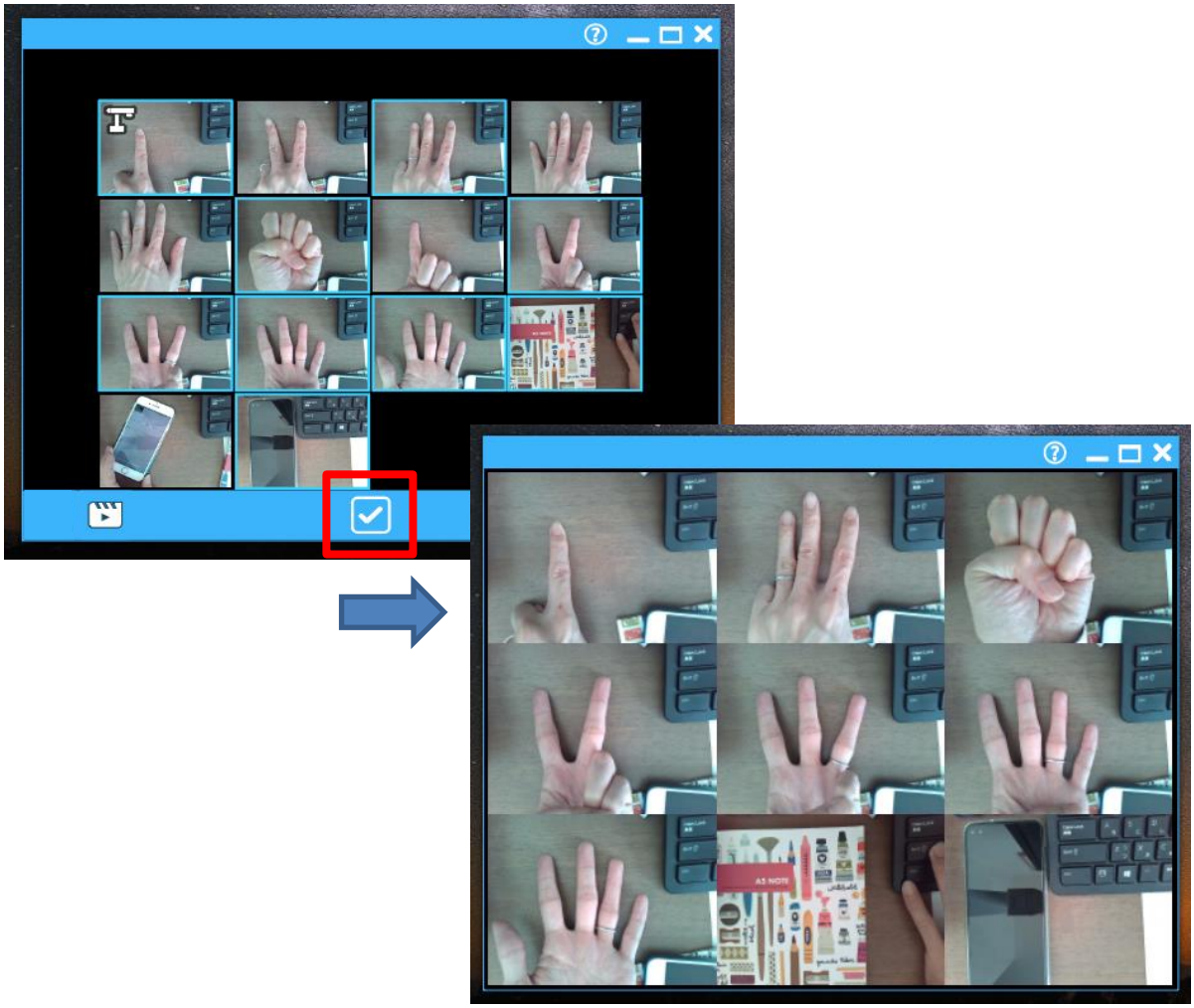


If the document camera is selected by itself, the screen returns to the camera screen.

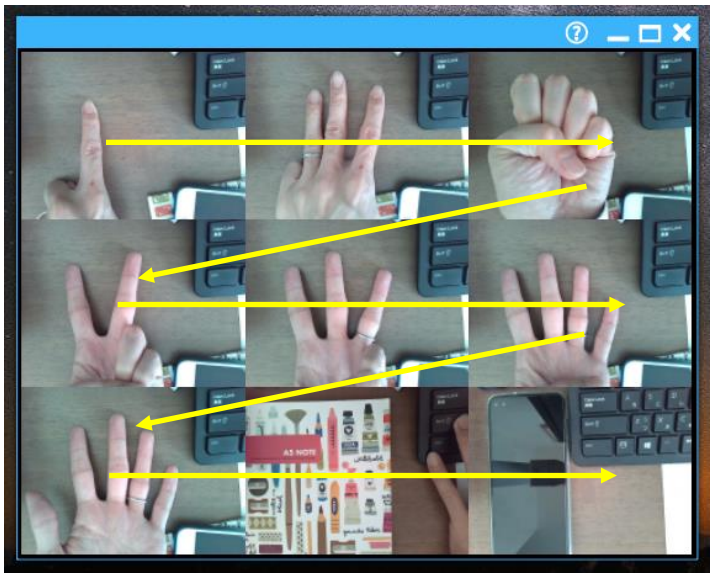


- Image comparison

If you select multiple images, the image comparison screen will appear.

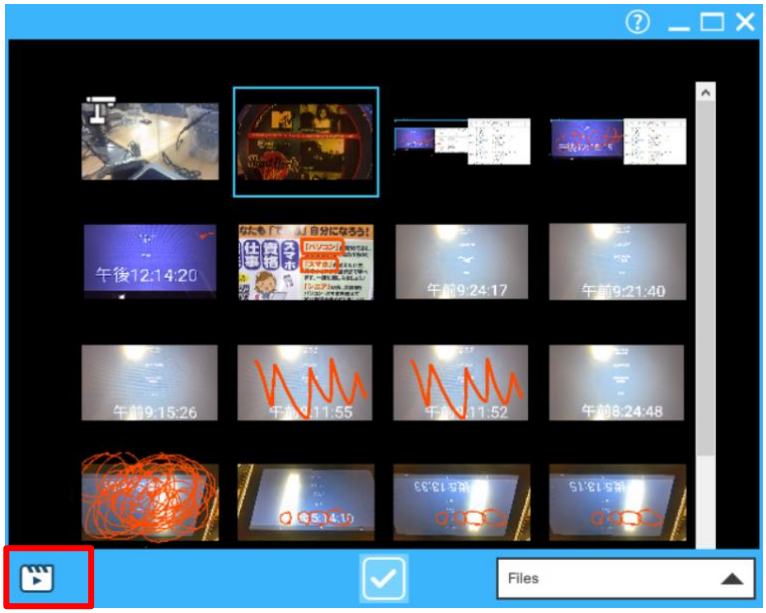


The images are displayed in order of date updated.



View recorded video

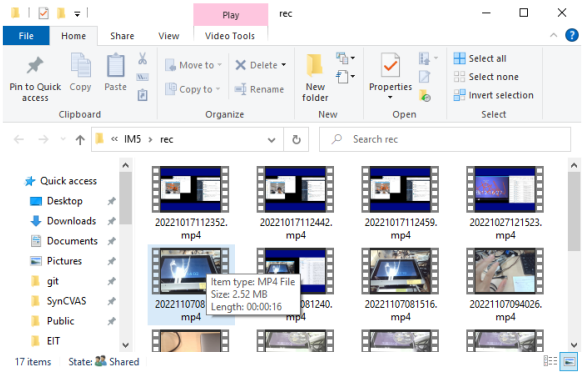
To view the recorded video, select the icon at the bottom left of the file selection screen.

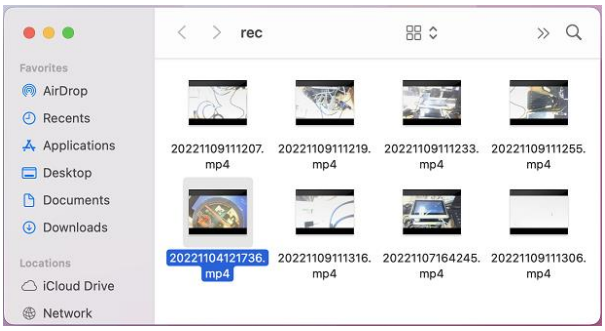


It is the same as browsing with Explorer on Windows and Finder on Mac.

A thumbnail will be displayed if the recording is successful.

(If the list display is selected, select icon display from the display menu.)





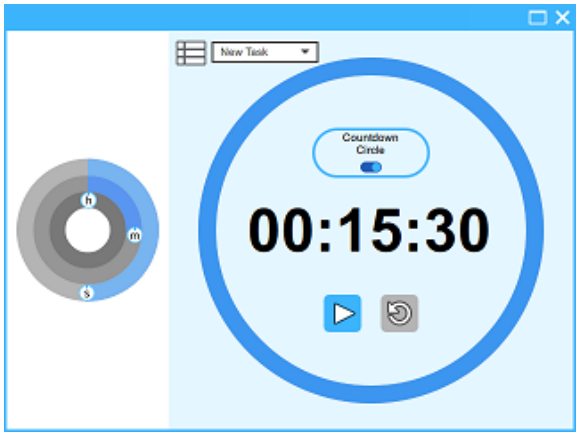
By default, it will be played with standard PC playback software (Movies & TV for Windows, QuickTime for Mac). Please refer to the help of each OS for the operation method.

*The playback player may differ depending on the computer environment.

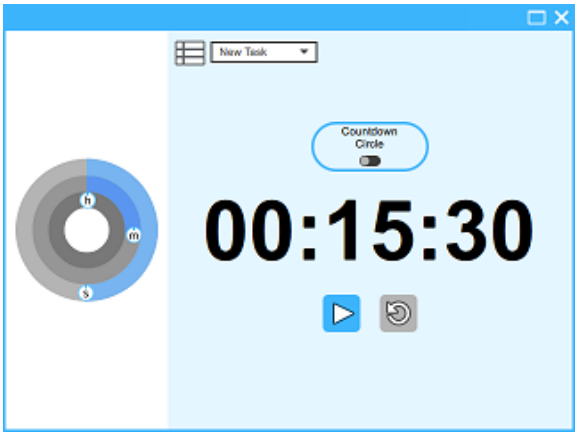
Timer Function

- Timer

Select the timer icon to display the timer screen.



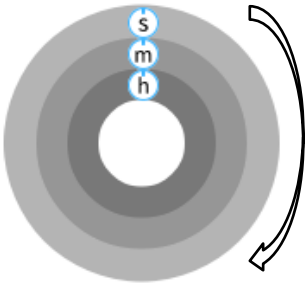
with circle



no circle

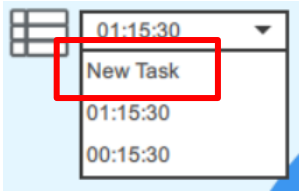
Icon	Name	Function
	Start	Start the countdown.
	Pause	Pause the countdown.
	Reset	Stop counting and return to the timer screen.
	Circle ON/OFF	Switch the circular indicator ON/OFF.
	History	You can select the count value set in the past from the list from the combo box on the right.

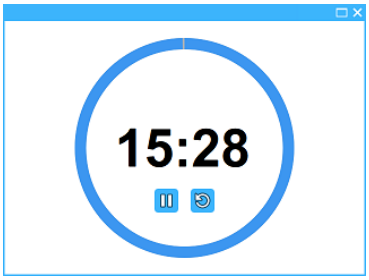
First, set the countdown time from the left operation panel.
Rotate the seconds (s)/minutes (m)/hours (h) knobs clockwise.
Rotating increases the value.



After setting, press the play button to start the countdown.

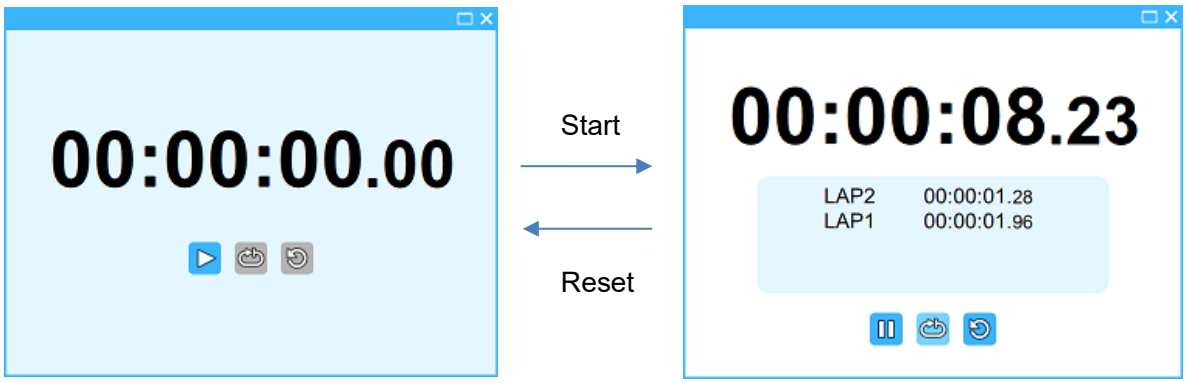
Press the reset button to return to the standby screen.
When I select New Task in the history combo box
A control panel will appear, allowing you to set the countdown time.





- Stopwatch

Select the timer icon in stopwatch mode to display the stopwatch screen.



Icon	Name	Function
	Start	Start measurement.
	Pause	Pause the measurement.
	Lap time	Displays the lap time since the last press.
	Reset	Stops measurement and returns to the timer screen.

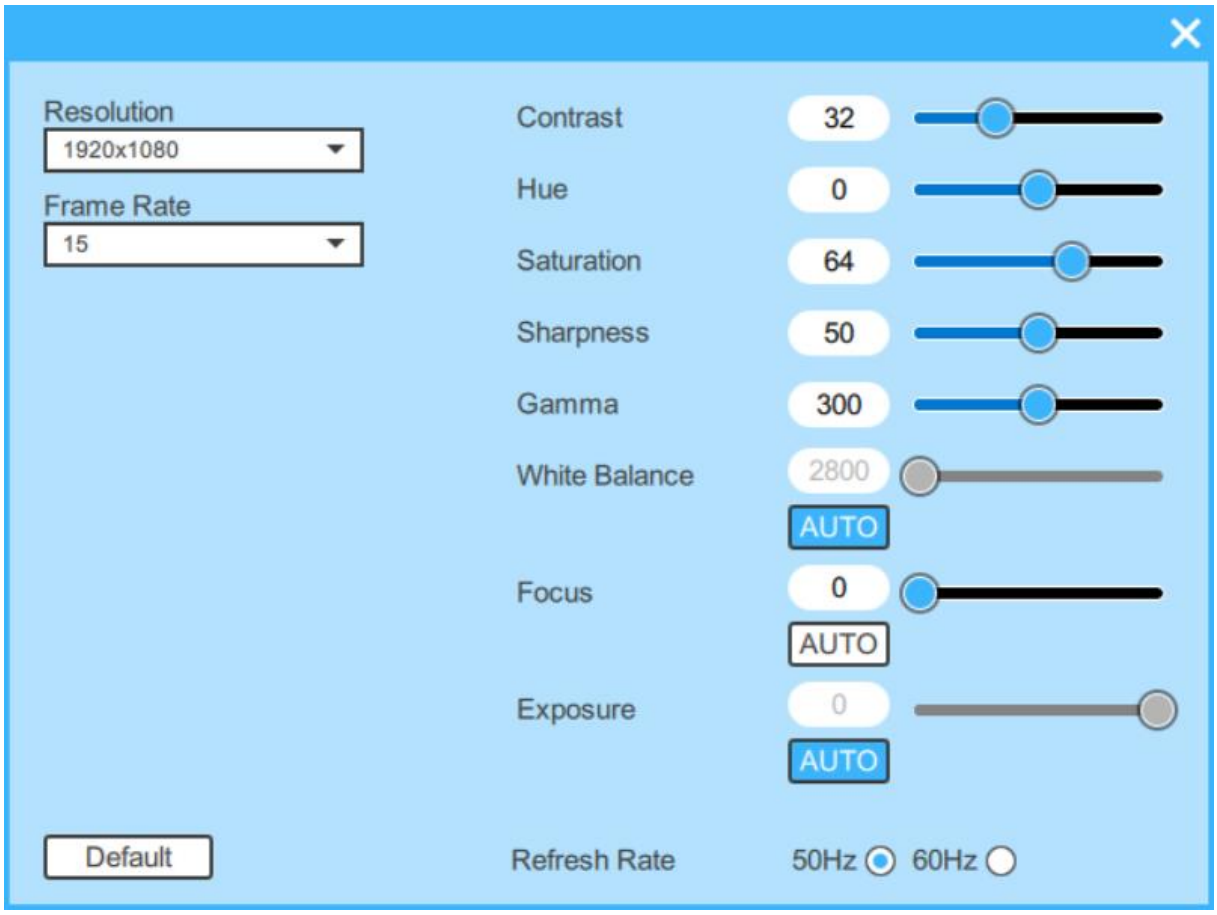
Press the start button to start count the time.

If you press the lap time button while starting, the lap time will be displayed in the center window.

Press the reset button to return to the standby screen.

Live Setting

Change resolution settings/ camera settings.



・Resolution Settings

Resolution	Frame Rate		Description
	USB3.0	USB2.0	
VGA - 640x480	30fps	30fps	The image quality increases in the order as indicated by the arrow, while the network load also increases. As the network load increases, the image distortion tends to occur, preventing smooth video playback.
XGA - 1024x768	30fps	30fps	
720p - 1280x720	60fps	30fps	
	30fps		
QVGA - 1280x960	30fps	30fps	
1080p - 1920x1080	60fps	30fps	
	30fps		
3.0M – 2048x1536	30fps	18fps	
4K – 3840x2160	30fps		These settings are not available when connecting with the USB2.0.
13.0M – 4160x3120	21fps		

*The available frame rate varies depending on the model and the selected resolution.

*The low frame rate setting may not be applied in the Mac version.

* Only OX-1 can select specific resolution.

Resolution	Frame Rate
3264x2448	15fps
3264x1840	15fps
2592x1944	15fps
2048x1536	15fps
1920x1200	15fps
1600x1200	30fps
1280x800	30fps
800x600	30fps

Camera Settings

Item	Description
Contrast	To adjust the level of contrast of texts and lines.
Hue	To adjust the color tone of the image.
Saturation	To adjust the saturation of the image.
Sharpness	To adjust the clarity of the image.
Gamma	To adjust the image characteristics of the input/output devices.
White Balance	To adjust the level of red color and blue color in the image manually.
Focus*	To adjust the focus.
Exposure*	To adjust the exposure level.
Refresh rate*	When you notice a light flickering, set this value same as the power frequency of your area.
Default	Camera settings will be initialized.

* If you remove the tick from the check box of "AUTO" under the setting items, you can set the value as you wish.

System Requirement

This software can be used in the following environments.

Operating system (OS)	Windows 10 (32 / 64bit) / Windows 11 macOS 10.15 Catalina / macOS 11 Big Sur / macOS 12 Monterey / macOS 13 Ventura
CPU	Windows: Intel Celeron more macOS: Intel Core i5 / Apple M1 more
RAM	4GB more
Resolution	1024 x 768 more
USB	USB 2.0 more (For document camera)
Input	Touch panel compatible *Multi-touch operation is not supported.
Compatible Document Camera	MO-1/ MO-1w / TT-12iD / L-12tx / TT-X1 / TT-L1 / TX-1 / LX-1 / MX-1 / MX-P/ PX-10E / PX-30E / MO-2 / MA-1 / MX-P2 / MX-P3 / OX-1 / TT-12F / TT-12W / TT-12G *PX-10E / PX-30E / L-12F does not support UAC *TT-12iD application modes are not supported. *TX-1 WiFi connection is not supported.

Note

If the sound device cannot be used, some functions may not work.

Operation is not guaranteed in all PC environments.

Troubleshooting

Before Contacting Support

Symptom	The document camera is not displayed in the display content select.
Remedy	Camera not detected. Remove the USB cable and insert it again. Or restart the app.

Symptom	Camera image is not displayed. will be disconnected.
Remedy	- The power supply from the PC may not be sufficient. Try changing the USB port or changing the cable, In the case of the MX series, use the supplied power cable to supply power. - The camera may be in use by another app. Please close the app in use or select another camera. - You may not have permission to use the camera. Check the access authority in Windows [Settings]-[Privacy]-[Camera]. - The USB connection may have been temporarily disconnected due to entering sleep mode, etc. Please restart the application or select the camera again from the camera selection of the tool menu.

Symptom	There is a delay or decrease in the frame rate.
Remedy	If other applications are running, please close them. Also, if the Windows update is in standby mode, finish the update, reboot, and try again. Your PC specs may be insufficient. Try lowering the resolution or try changing your PC.

Symptom	Recording fails or freezes in the middle.
Remedy	Recording requires CPU performance and a lot of memory. Try lowering the resolution or use a PC that meets or exceeds the operating environment. Please do not start other apps.

Symptom	There is a distortion in the Live video.
Remedy	Try lowering your resolution or frame rate. If it does not improve, restart the camera or PC and try again.

Symptom	4K video images cannot be displayed.
Remedy	Outputting 4K video requires CPU performance and a lot of memory. We recommend that you prepare a PC spec of Corei7, 16MB.

Symptom	ImageMate5 does not start.
Remedy	Check if ImageMate5 is already running. Double activation is not possible. The app itself or the library may have been damaged for some reason. Please re-install. If you start it on a PC with Windows 8.1 or earlier, an error message will be displayed, and you will not be able to start. Please use a PC with Windows 10 or later.

Symptom	The built-in camera is displayed by switching the resolution. Processing state never ends.
Remedy	The camera may be in an invalid state. Turn off the camera and turn it on again. If it does not improve, the driver may be in an invalid state, so please restart the PC.

Reference

Disclaimer

The contents of this manual and Image Mate 5 are subject to change without prior notice.
Our software may not function as intended due to compatibility issues with the peripheral devices and existing software installed in your computer.
ELMO Co., Ltd. cannot be held responsible for either direct or indirect damages suffered by users while using our software.

Trademarks

ELMO is a registered trademark of TECHNO HORIZON Co., Ltd.
Image Mate is a trademark or registered trademark of TECHNO HORIZON Co., Ltd.
Intel is a registered trademark of the Intel Corporation.
Mac and macOS is a trademark of Apple Inc., registered in the US and other countries.
The full title for Windows® 10 is the Microsoft® Windows® 10 operating system.
The shortened form of the OS name is used in the text.
The full title for Windows® 11 is the Microsoft® Windows® 11 operating system.
The shortened form of the OS name is used in the text.
Microsoft and Windows are registered trademarks of Microsoft Corporation in the U.S. and other countries.
This product is licensed under the AVC Visual Patent Portfolio License (AVC Video) for the personal and non-commercial use of a consumer to
(i) play AVC Video that was recorded by a consumer engaged in a personal and a non-commercial activity and/or,
(ii) play AVC Video that was obtained from a video provider licensed from MPEG-LA, LLC.
(iii)Additional information including that relating to promotional and commercial uses may be obtained from MPEG-LA, LLC.
All other company/product names described in this manual are trademarks or registered trademarks of their respective companies.

SOFTWARE LICENSE AGREEMENT

-- IMPORTANT --
READ THIS AGREEMENT CAREFULLY BEFORE USING THE SOFTWARE.
This is a license agreement (the "AGREEMENT") between you and TECHNO HORIZON CO., LTD. ("ELMO").
IF YOU DO NOT AGREE TO THE TERMS AND CONDITIONS OF THIS AGREEMENT, DO NOT USE THE Image Mate 4 (COLLECTIVELY, THE "SOFTWARE").
1. This product is licensed for the personal and a non-commercial use of a consumer.
2. ELMO grants you a non-exclusive right to install and use the SOFTWARE on one or more computers only for the purpose of using with the main unit.
3. ELMO cannot be held responsible for providing maintenance or support for use of the SOFTWARE.
4. ELMO cannot be held responsible for either direct or indirect damages suffered by users while using the SOFTWARE.
5. It is prohibited to copy, sell, alter the SOFTWARE.
6. This software can only be used with our document camera. It cannot be used with other companies' document cameras.

Compiled using Qt6.2.4 licensed under the GNU Lesser General Public License (LGPL).

ffmpeg-msvc-build

MIT License

Copyright (c) 2017 Matthias C. M. Troffaes

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

FFmpeg

License

Most files in FFmpeg are under the GNU Lesser General Public License version 2.1 or later (LGPL v2.1+). Read the file `COPYING.LGPLv2.1` for details. Some other files have MIT/X11/BSD-style licenses. In combination the LGPL v2.1+ applies to FFmpeg.

Some optional parts of FFmpeg are licensed under the GNU General Public License version 2 or later (GPL v2+). See the file `COPYING.GPLv2` for details. None of these parts are used by default, you have to explicitly pass `--enable-gpl` to configure to activate them. In this case, FFmpeg's license changes to GPL v2+.

Specifically, the GPL parts of FFmpeg are:

- libpostproc
- optional x86 optimization in the files
    - `libavcodec/x86/flac_dsp_gpl.asm`
    - `libavcodec/x86/idct_mmx.c`
    - `libavfilter/x86/vf_removegrain.asm`
- the following building and testing tools
    - `compat/solaris/make_sunver.pl`
    - `doc/t2h.pm`
    - `doc/texi2pod.pl`
    - `libswresample/tests/swresample.c`
    - `tests/checkasm/*`
    - `tests/tiny_ssim.c`
- the following filters in libavfilter:
    - `signature_lookup.c`
    - `vf_blackframe.c`
    - `vf_boxblur.c`
    - `vf_colormatrix.c`
    - `vf_cover_rect.c`
    - `vf_cropdetect.c`
    - `vf_delogo.c`
    - `vf_eq.c`
    - `vf_find_rect.c`
    - `vf_fspp.c`
    - `vf_histeq.c`
    - `vf_hqdn3d.c`
    - `vf_kerndeint.c`
    - `vf_lensfun.c` (GPL version 3 or later)
    - `vf_mcdeint.c`
    - `vf_mpdecimate.c`
    - `vf_nnedi.c`

- `vf_owdenoise.c`
- `vf_perspective.c`
- `vf_phase.c`
- `vf_pp.c`
- `vf_pp7.c`
- `vf_pullup.c`
- `vf_repeatfields.c`
- `vf_sab.c`
- `vf_signature.c`
- `vf_smartblur.c`
- `vf_spp.c`
- `vf_stereo3d.c`
- `vf_super2xsai.c`
- `vf_tinterlace.c`
- `vf_uspp.c`
- `vf_vaguedenoiser.c`
- `vsrc_mptestsrc.c`

Should you, for whatever reason, prefer to use version 3 of the (L)GPL, then the configure parameter `--enable-version3` will activate this licensing option for you. Read the file `COPYING.LGPLv3` or, if you have enabled GPL parts, `COPYING.GPLv3` to learn the exact legal terms that apply in this case.

There are a handful of files under other licensing terms, namely:

* The files `libavcodec/jfdctfst.c`, `libavcodec/jfdctint_template.c` and `libavcodec/jrevdct.c` are taken from libjpeg, see the top of the files for licensing details. Specifically note that you must credit the IJG in the documentation accompanying your program if you only distribute executables. You must also indicate any changes including additions and deletions to those three files in the documentation.
* `tests/reference.pnm` is under the expat license.

External libraries

FFmpeg can be combined with a number of external libraries, which sometimes affect the licensing of binaries resulting from the combination.

Compatible libraries

The following libraries are under GPL version 2:
- avisynth
- frei0r

- libcdio
- libdavs2
- librubberband
- libvidstab
- libx264
- libx265
- libxavs
- libxavs2
- libxvid

When combining them with FFmpeg, FFmpeg needs to be licensed as GPL as well by passing `--enable-gpl` to configure.

The following libraries are under LGPL version 3:
- gmp
- libaribb24
- liblensfun

When combining them with FFmpeg, use the configure option `--enable-version3` to upgrade FFmpeg to the LGPL v3.

The VMAF, mbedTLS, RK MPI, OpenCORE and VisualOn libraries are under the Apache License 2.0. That license is incompatible with the LGPL v2.1 and the GPL v2, but not with version 3 of those licenses. So to combine these libraries with FFmpeg, the license version needs to be upgraded by passing `--enable-version3` to configure.

The smbclient library is under the GPL v3, to combine it with FFmpeg, the options `--enable-gpl` and `--enable-version3` have to be passed to configure to upgrade FFmpeg to the GPL v3.

Incompatible libraries

There are certain libraries you can combine with FFmpeg whose licenses are not compatible with the GPL and/or the LGPL. If you wish to enable these libraries, even in circumstances that their license may be incompatible, pass `--enable-nonfree` to configure. This will cause the resulting binary to be unredistributable.

The Fraunhofer FDK AAC and OpenSSL libraries are under licenses which are incompatible with the GPLv2 and v3. To the best of our knowledge, they are compatible with the LGPL.

uvc-util

The MIT License (MIT)

Copyright (c) 2016 Jeffrey Frey

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.

VVUVCKit

The MIT License (MIT)

Copyright (c) 2014 Vidvox, LLC

Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.

OpenCV

Apache License

Version 2.0, January 2004

http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes

of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work

by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

http://www.apache.org/licenses/LICENSE-2.0

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.