MANUAL

EmulLab

how to scan, convert, edit and organize film, task by task.

for	emullab 1.0.1
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latest online	emullab.com/manual

each new version of emullab comes with its own copy of this manual: the version above is the one it describes. © 2026 Frank Lashier III.

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reference

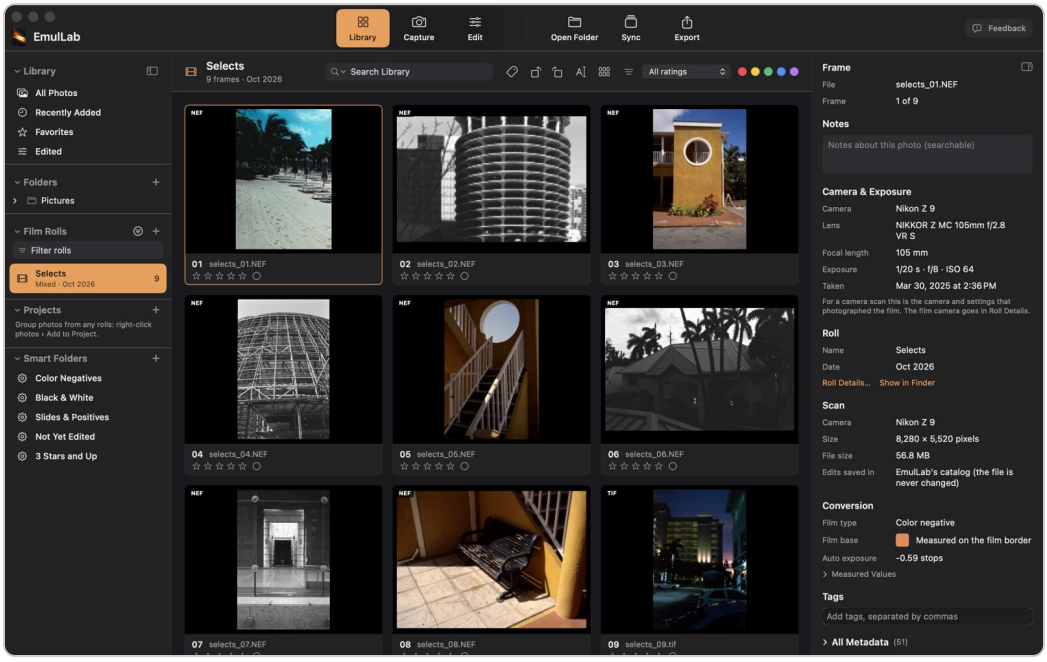
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01 · START

set up and open *your first roll.*

choose where rolls go, then open a folder of scans. nothing is imported, moved or copied.

online: emullab.com/manual/first-roll



open a roll

1. the first time emullab opens, choose a **photo library location** (where new rolls are created; it starts as ~/pictures/emullab) and your **primary workflow**, then click **continue**.
2. choose file › open folder of scans (⌘O), or click **open folder** in the toolbar.
3. pick the folder that holds one roll's scans. it's added under **film rolls** in the sidebar.
4. click **edit** at the top to work on one frame. ← and → step through the roll.
5. click **library** to see the roll as a grid. double-click a frame to open it in edit.

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the welcome screen, and changing it later

- **photo library location**: where new roll (⌘N) creates roll folders. folders you open stay where they are.
- **watched folder**: optional, for a tethering app. see use a watched folder.

- **primary workflow**: camera scans, flatbed scans or lab positives. it sets the first screen: capture for camera scans (only once a camera is connected), library for the others. after that, emullab opens where you left off.
- **scanning light**: with camera scans, the light behind the film when you scan, by name. it gives more accurate color; **not sure** if you don't know. settings › processing changes it, and each roll can have its own (conversion › advanced › **light**).
- **default color space**: what exports start with. srgb to start.
- **use defaults** skips these choices and starts with the standard ones: rolls in pictures › emullab, no watched folder, camera scans and srgb.
- change any of them in settings (`⌘,`): general, capture, processing and export.

first-time tips

the first time you reach capture, conversion, roll analysis and the heal tab, and the first time you open a slide or positive scan, a few short tips point at the controls. click **next** to go on, or **skip** to hide them. each lesson shows once. help › replay training shows them all again; to stop them, turn off **show training** in settings › general.

browse folders without adding them

the **folders** section of the sidebar shows your pictures folder and any folder or drive you add with its **+** button. looking changes nothing. rating, tagging or editing a frame adds its folder as a roll; so does right-click › **add as roll**. for a folder of roll folders (a year of an archive), right-click › **add all rolls inside**: it looks up to eight folders down, leaves out exports folders and system folders, and says so if it stopped before the bottom. right-click › **remove from folders** takes a place off the list, pictures too, and it stays off; **+** adds it back.

which files open

camera raw files (nef, cr2, cr3, arw, raf, orf, rw2, pef, dng and other common ones), plus tiff, jpeg and png. every raw type by maker, and which cameras are checked: camera compatibility.

what happens to your scans

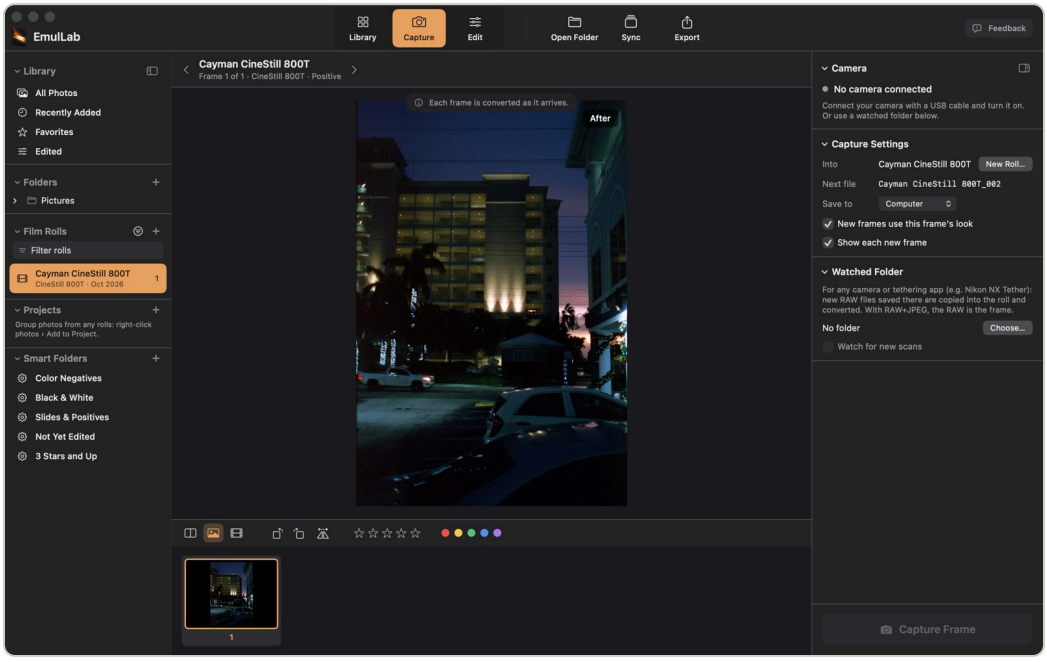
they stay where they are, as ordinary files. edits, ratings, tags and notes are kept in emullab's catalog, never in or beside the photos, and the scans are never changed. you can also open a folder by dragging it onto the sidebar or onto emullab in the dock.

02 · START

capture
with a camera.

scan straight into a roll: fire a usb-connected camera from the app, or bring in what a tethering app saves to a folder.

online: emullab.com/manual/capture



capture over usb

1. click **capture** in the toolbar.
2. connect the camera with a usb cable and turn it on. its name appears under **camera**, with a green dot when emullab can fire it.
3. under **capture settings**, check **into**: the roll new frames go into. click **new roll** to start an empty one.
4. press **capture frame** or Space.
5. each frame is saved into the roll's folder and converted as it arrives, with the look of the frame on screen.

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save to: computer or camera card

- **computer**: the picture goes from the camera's memory straight into the roll, no card needed. this works with nikon cameras.

- **camera card**: the picture is saved on the card, then copied into the roll. other makes always work this way.
- files already on the card are never imported. with camera card, the button shows **reading card** until emullab has listed them.

use a watched folder

for any camera or tethering app, such as nikon nx tether. under **watched folder**, click **choose**, pick the folder the other app saves to, and turn on **watch for new scans**. new raw files saved there are copied into the roll and converted; with raw+jpeg, the raw is the frame. each copy is named after the roll's folder and numbered after its highest frame (for example `25-031_lake_008.NEF`). the original stays in the watched folder, and the capture status line shows its name. scans saved there while emullab was closed wait for you to click **import** or **ignore**. to start watching every time, turn on **start watching when emullab opens** in settings › capture.

live view (beta, nikon z 9 only)

live view is an early test feature. it works only with the nikon z 9, the one camera it was tested on, and may change. with a z 9 connected, it fills the middle of capture inverted, so a negative shows as a positive. switch to **original** to see the film as it is, and magnify with **1:1**, **2×** or **4×** around the focus box. the box shows where the camera focuses, not whether it's sharp: check the grain at 1:1. click the picture to move the box; magnified, a click moves the view. it's the camera's preview, not the converted raw. if it stops or looks wrong, capture still works.

capture options

- **new frames use this frame's look**: each new frame takes the look of the frame on screen (or the roll's newest), without its dust spots, crop or eyedropper.
- **show each new frame**: the viewer jumps to each frame as it arrives.
- **next file**: the name the next frame will get.
- looking at another roll? new frames still go into the capture roll until you click **capture here**.
- Tab hides the panels; a round shutter button then sits over the picture.

if the camera isn't found or won't fire

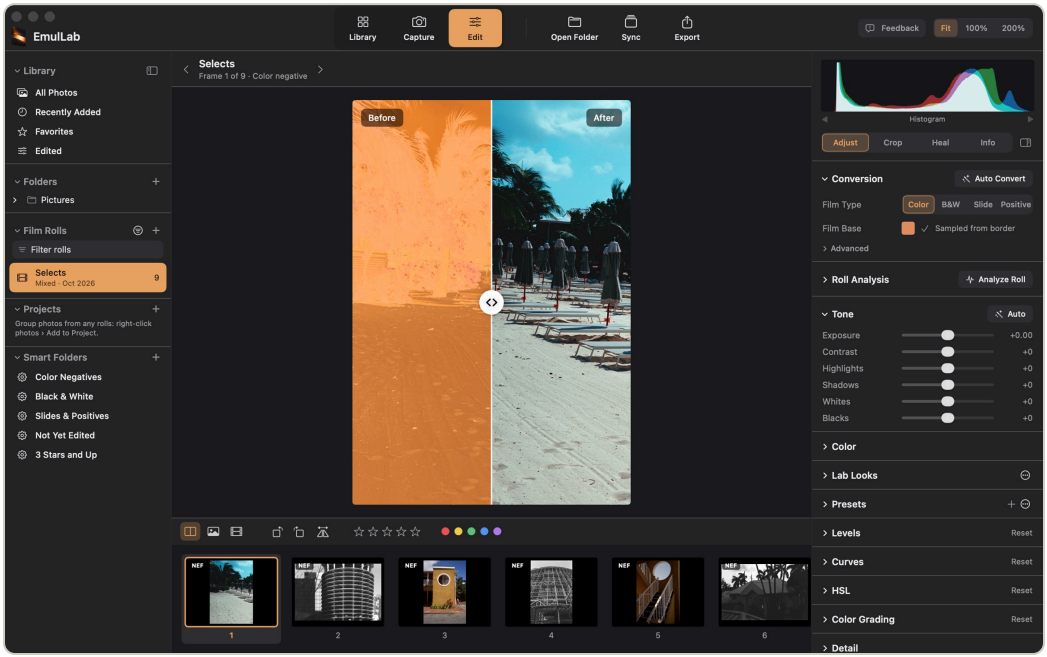
- **no camera connected**: check the cable, and that the camera is on.
- **camera access not allowed**: macos didn't let emullab open the camera. click **open privacy settings**, turn on removable volumes for emullab under privacy & security › files & folders, then click **try again**.
- **couldn't open the camera**: another app (nikon nx tether, image capture, lightroom) may be using it. quit that app and plug the camera in again.
- **connected, but it can't be fired from a mac**: shoot on the camera, or use a watched folder.
- **the camera didn't send a picture**: check focus, a card with space (or that shooting without a card is allowed), then click **try again**.

- **capture didn’t work**: check the cable and that the camera is on and not busy (menus, playback), then click **try again**. if the camera can’t save straight to the computer, click **save to card instead**: each picture is saved on its card, then copied into the roll.

convert
color negatives.

turn a c-41 negative into a positive, with its color balanced off the film border.

online: emullab.com/manual/convert-negatives



convert a color negative

1. open a frame in **edit**. it's already converted; **conversion** is at the top of the **adjust** tab.
2. check that **film type** says **color**. emullab guesses it for each frame; click the right one if the guess is wrong.
3. check **film base**: **sampled from border** means the clear film border was found and measured.
4. fine-tune color in **color**: click the eyedropper, then something in the picture that should be neutral gray.
5. edit opens on the positive (**after**). press `Y` to see the negative (**before**) beside it.
6. gone too far? **auto convert** goes back to the automatic conversion and tone; `⌘Z` undoes it.

tell emullab your scanning light

1. the first time emullab opens, choose your **scanning light** with **camera scans** in the welcome. pick your light by name under **scanning lights** (negative supply, cinestill cs-lite, valoi, skier, kaiser, raleno,

lomography digitaliza, scanlight), **tablet, phone or monitor screen** for any screen, or a kind of light under **other lights**. a few ask one more question, such as the cs-lite's mode. using a film holder? pick the light under it.

2. not on the list, or not sure? choose **not sure**: emullab converts as for a white led, the safe answer; a wrong light costs more than none. settings › processing › **scanning light** changes it for new photos.
3. for a roll, open a color negative from it in **edit**. while no light is set, **conversion** says **scanning light not set**: click **set** and choose one, or choose it from **light** under **advanced**. it applies to the whole roll; `⌘Z` undoes it.
4. making a **flat field** (**new from blank shot** in lens corrections) asks what kind of light is in the blank shot. if the blank shot clearly shows another kind of light than your answer, emullab says so under **light**.
5. each film stock's grays are set for your light. for the 51 camera models emullab has measured, a light you set also brings a color profile for that camera and light, with the roll's film stock set (not under an rgb light or a screen): conversion says **converted with a color profile for this camera and light**.

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how the film base is read

the film base is the clear, unexposed film around the picture. emullab measures it in each frame and balances color off it, so the orange mask goes and the border turns neutral. scan with a little border showing, and don't let it clip to white. a card at the bottom of the photo says when something is off, why, and what to do, with a button (usually analyze roll) and learn more. its arrow folds it to one line, on every frame, until you open it again:

- **no film border found**: analyze roll lends the frame the roll's base. see analyze and sync a roll.
- **film border is near clipping**: scan with a third to half a stop less exposure next time. until then, analyze roll lends the frame the base of frames that aren't clipped.
- **bare light around the film may throw off the film base**: mask the light, or analyze roll.

what auto convert keeps

it resets the conversion, tone, color, look and other adjustments, then sets the tone sliders automatically. it keeps the film type, film base, crop, straighten, rotation, lens corrections and dust spots.

color: eyedropper, sliders and auto color

- **white balance** says film border until you pick a neutral with the eyedropper; **reset** goes back.
- **cyan – red**, **magenta – green** and **yellow – blue** shift the color; **saturation** sets its strength.
- **auto color** (20% to start, 0 with a camera profile; 25% on photos converted earlier): how far each frame moves toward a neutral balance on its own. low keeps the light's color, so a tungsten scene stays warm. the eyedropper replaces it.

advanced conversion settings

under **advanced** in conversion. most frames never need them; a **changed** badge shows when any differs from the default, and **reset** puts them back.

- **method**: modern (balanced), the only one for now.
- **balance**: film border (the default), or auto levels, which sets each color channel's end points on its own.
- **light**: the light behind the film when the roll was scanned, for the whole roll, by name (your scanning light, a screen, or a kind of light). pick **tablet, phone or monitor screen** for any screen, even a very white one. **not sure** converts as for a white led. see tell emullab your scanning light.
- **print**: **paper** (the default) looks like a real darkroom print; **print curve** is punchier, like earlier versions of emullab. for color negatives converted with the current version; a lab look keeps the print it was made on.
- **auto exposure**: how far the frame's brightness moves toward a middle gray. 0 keeps the negative's own exposure.
- **shadow clip** and **highlight clip**: how much of the frame may go fully black or white. too much loses detail.
- **border buffer**: how much of the frame's edge is left out when measuring.

frames converted with an earlier version

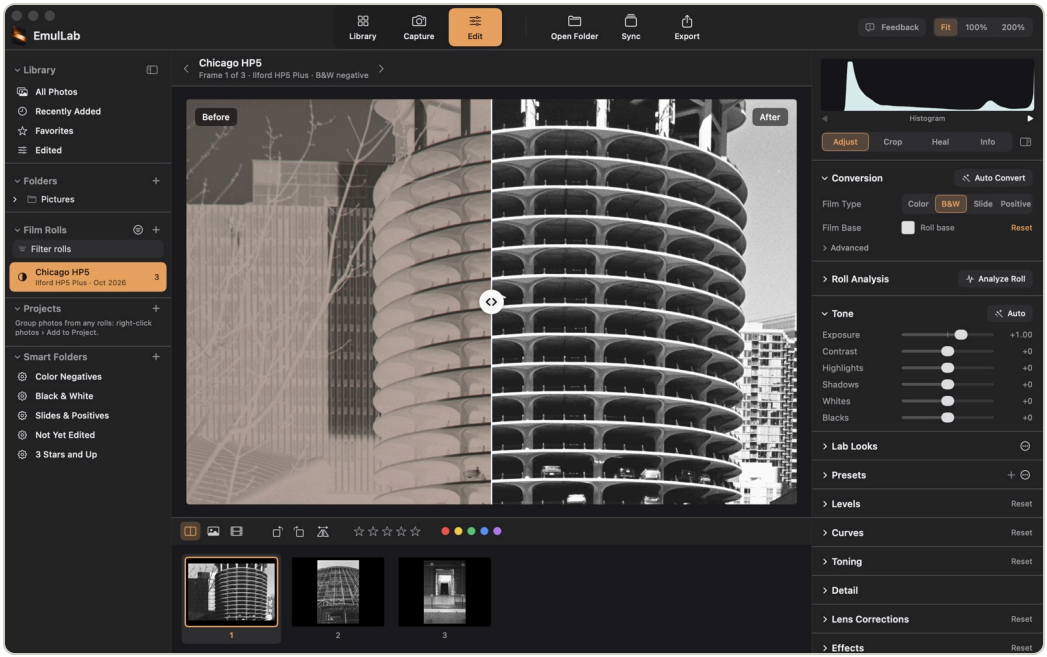
when the conversion improves, frames converted earlier keep looking exactly as they did. conversion shows an **update** button for such a frame, and a roll's right-click menu in the sidebar has **update roll to current conversion**. updating may change the look; `⌘Z` undoes it. more in conversion versions and updating photos.

04 · CONVERT

black and white *negatives.*

convert a b&w negative to a neutral positive and set its tone.

online: emullab.com/manual/black-and-white



convert a b&w negative

1. open the frame in **edit** and set **film type** to **b&w**.
2. check that **film base** says **sampled from border**.
3. in **tone**, click **auto** for a starting point, then set **exposure** and **contrast**.
4. for a print-like contrast, open **curves** and pick a **contrast** preset: less, medium, more or strong contrast, or faded.
5. to tint the picture, use **toning**.

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what changes for b&w

a b&w negative has no orange mask and no colors, so it's measured as one channel. the color and hsl sections are hidden: there are no colors to adjust. color grading is called **toning**: it tints the shadows, midtones and highlights.

dark frames stay dark

for b&w, **auto exposure** under conversion › advanced starts at 0, so a low-key frame keeps its own exposure. raise it to move each frame's brightness toward a middle gray. tone › **auto** brightens a b&w frame at most half a stop, so dark frames stay dark with it too.

exporting b&w

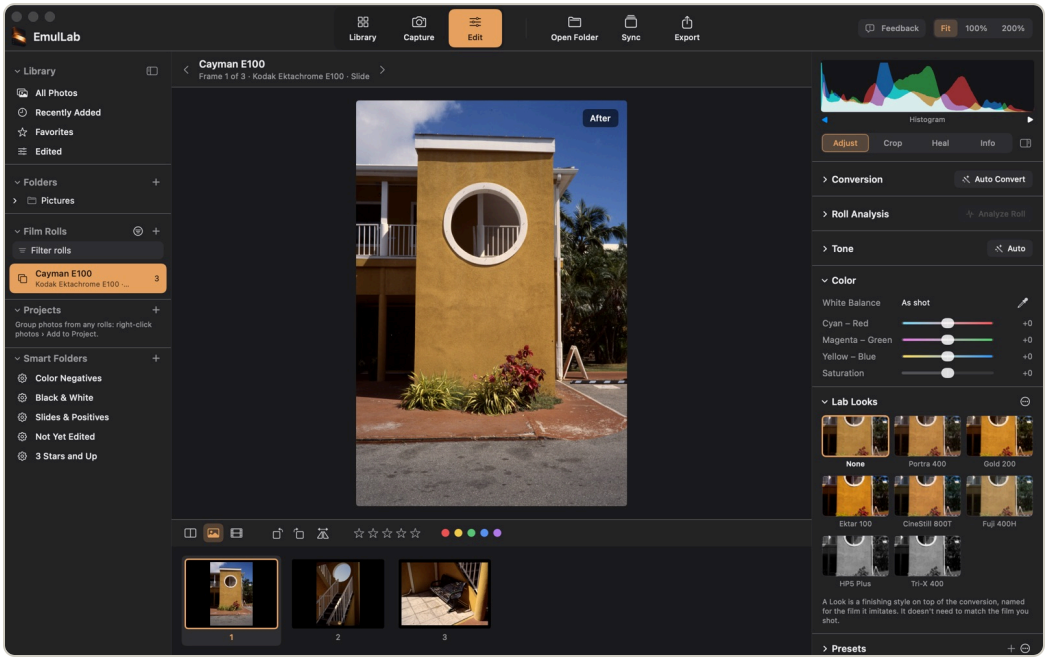
b&w frames export as rgb files for now. a grayscale export is on the roadmap.

05 · CONVERT

slides and *positive scans.*

edit e-6 slides from camera scans, and flatbed or lab scans that are already positives, without inverting them.

online: emullab.com/manual/slides-and-positives



slides (e-6)

1. open the frame in **edit** and set **film type** to **slide**.
2. under **slide color**, keep **as shot** to keep the slide's own color: golden light stays warm.
3. or choose **auto balance** to even out the colors. it also removes a cast from the scene's light or a tinted scanning light.

flatbed and lab scans

1. open the folder of tiff, jpeg or png files from your epson, silverfast or lab scanner.
2. set **film type** to **positive**. the scan is edited as it is, not inverted again.
3. adjust tone and color, then export as usual.

where slide color is

slide color shows in conversion for slides converted with the current version. a slide converted earlier shows an **update** button there first; see frames converted with an earlier version.

the eyedropper in **color** works on slides and positives too: click it, then something that should be gray. while a gray is picked, it sets the color; **reset** it under white balance to choose as shot or auto balance again.

no film base, no roll analysis

slides and positives have no film base to measure, so film base isn't shown, and analyze roll leaves them out. on a roll of only slides and positives, analyze roll is turned off. for slides, only border buffer applies under conversion › advanced; a positive has nothing there to change.

contrast on slides and positives

contrast on a slide or positive steepens or softens the tones around middle gray and keeps white and black where they are: more separates the tones while bright areas roll off gently, less softens the picture without turning white gray. a slide converted with an earlier version keeps its earlier contrast until you update it.

positives keep their colors

a positive isn't inverted or rebalanced: its colors change only with your own adjustments. to keep all of them, export in the scanner's color space or a larger one.

if a scan's color profile can't be read, or isn't an rgb one, emullab reads the scan as srgb and a card at the bottom of the photo says so (info shows it under read as). colors may then look duller or shifted. save the scan again from the scanning software with its color profile embedded, and open that; **show in finder** on the card finds the file.

analyze and *sync a roll.*

measure a whole roll together so its frames match, then copy one frame's look to the rest.

online: emullab.com/manual/roll-analysis

analyze a roll

1. open any frame of the roll in **edit**.
2. in the **adjust** tab, under **roll analysis**, click **analyze roll**. every negative in the roll is measured.
3. read the result: a bar for each frame shows its exposure correction. click a bar to open that frame. on a b&w roll auto exposure starts at 0, so no frame is corrected and there are no bars; the report says so.
4. check the lines under it: one film base for the roll, or which frames differ.
5. for a roll shot in one light, leave **same color balance for every frame** and **same contrast for every frame** on.

copy one frame's look to others

1. open the frame whose look you want.
2. for the whole roll, click **sync** in the toolbar or choose edit › sync settings to roll… (or **apply this frame's settings to the roll** in roll analysis). emullab asks first; click **sync *n* other frames**.
3. for some frames, choose edit › copy settings (⇧⌘C), select the frames with ⌘-click or ⇧-click, then choose edit › paste settings (⇧⌘V).
4. to copy only some parts of the look (tone, color…), choose edit › paste settings… (⌥⇧⌘V) or sync settings… (⌥⇧⌘S) and tick them.
5. each frame keeps its own film base, crop and dust spots. ⌘Z undoes it.

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reading the result

- **one film base for the roll**: measured on the frames with a clean border, and given to frames without one. on a roll of color and b&w frames: **one film base for the color frames and one for the b&w frames**.
- **film base varies between frames**: mixed film, or frames scanned at a different camera exposure. it names the frames that differ.

- **film border near clipping**: scan with a little less exposure next time.
- **frames left out**: slides, positives, or files that couldn't be read.
- **only one negative to measure**: there's nothing to match it with. add the roll's other scans to its folder, or capture them, then analyze again.
- **no frame has a clear film border**, or every border is near clipping: the roll's film base is a guess. scan with a little border showing, or with less exposure, then analyze again.
- **same color balance and same contrast need two or more color negatives**: a roll with one keeps that frame's own.
- **frame *n*: the roll's contrast turns *x*% of it white**: the shared contrast clips that frame's brightest parts. click **use its own contrast** to give that frame its own; the others keep the roll's, and analyze roll again leaves it on its own.
- the stops figure is the exposure spread from the darkest to the brightest frame.

when the film bases don't match

emullab asks before locking. **lock** gives the roll's base to frames without a clear border (frames with one keep their own), with the roll's color balance and contrast. **don't lock** leaves every frame as it is. `⌘Z` undoes it.

same color balance, same contrast

- **same color balance for every frame**: best for a roll shot in one light. frames unlike the rest may come out warmer or cooler. frames made with an earlier conversion keep their own color balance until they're updated; the switch shows the current ones.
- **same contrast for every frame**: like printing a roll, one contrast with each frame's exposure set on its own. off stretches each frame to its own range. a frame it clips is named in the result, with a button to fix just that frame.
- on paper, the current version's default print, every frame already prints at the film's own contrast, so roll analysis says so instead of offering **same contrast for every frame** when every color negative of the roll prints on paper.
- both apply to color negatives. some frames can pick up a cast when locked: see known issues.

what sync and paste settings copy

the look: conversion settings, tone, color, lab look, levels, curves, hsl, color grading, sharpening, lens corrections and effects. never the film type, film base, eyedropper gray, crop, straighten, rotation, dust spots or flat field. slide color goes only to other slides. with several frames selected, sync (edit › sync settings to selection, `⇧⌘S`) copies the look of the frame on screen to them without asking. to give every frame the same crop, see apply crop to roll.

conversion versions *and updating photos.*

photos keep the conversion they were edited with. update a photo or a whole roll when you want the newest.

online: emullab.com/manual/conversion-versions

update a photo

1. open the photo in **edit**. a photo made with an earlier conversion says so at the top of **conversion**, in the **adjust** tab.
2. click **update**. the photo moves to the current conversion and keeps your sliders; its look may change.
3. not what you wanted? `⌘Z` puts it back as it was.

update a roll

1. open the roll, then right-click it in the sidebar under **film rolls**.
2. choose **update roll to current conversion**. it's in the menu while the roll has photos made with an earlier conversion.
3. those photos move to the current conversion; the others stay as they are. `⌘Z` undoes the whole roll in one step.

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why photos keep their conversion

emullab gets better at turning negatives into positives, and each improvement is a new version of the conversion, with a number. a photo keeps the version it was first edited with, so an update to emullab never changes how a photo you've edited looks, on screen or in an export. new photos, and photos you haven't edited, get the newest. settings › processing shows which one that is under **new photos get**: **conversion 4, the newest**. with the edit history on, the **history** tab lists an update as **process version**, for example 3 → 4.

what conversion 4 changes

conversion 4 aims for what a correctly made print of the negative looks like. it prints through a model of a real color paper, so colors are as strong as on a print (**print** under conversion › advanced switches a photo to the punchier print curve). with the roll's film stock set in **roll details**, a color negative's grays come out neutral from the shadows to the highlights, the way that stock prints, while the scene's own light stays: a tungsten room on daylight film still looks warm. grays are also set for the kind of light you

scanned with (see tell emullab your scanning light); for the cameras emullab has measured, a light you set also takes out the camera's and the light's own color. **auto color** starts at 20%, and at 0 with a camera profile. slides with a **flat field** (in lens corrections) keep their color as shot without the scanning light's tint, flatbed scans of negatives are inverted in the scanner's own colors, and strong colors that don't fit the export's color space keep their hue. the iphone app, emullab sprint, converts with conversion 4 too.

auto convert updates too

auto convert also moves a photo from an earlier conversion to the current one, and says so. it keeps what it always keeps (film type, film base, crop, rotation, lens corrections and dust spots); `⌘Z` undoes it. see what auto convert keeps.

08 · EDIT

adjust
tone and color.

set brightness, contrast and color, then finish with curves, a lab look or a preset of your own.

online: emullab.com/manual/tone-and-color

adjust a frame

1. in **edit**, under **tone** in the adjust tab, click **auto** for a starting point.
2. adjust **exposure**, **contrast**, **highlights**, **shadows**, **whites** and **blacks**.
3. in **color**, set the white balance with the eyedropper or the three color sliders, and the **saturation**.
4. try a **lab look**: click a tile, then set its **amount**.
5. refine with **levels**, **curves**, **hsl** and **color grading** if you need to.
6. to use the result again, click **+** in **presets** and save it.

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what auto does

it sets the six tone sliders for this frame: brightness moves toward a middle gray, and contrast, highlights and shadows change only when the frame is very flat, harsh, clipped or crushed. on b&w it brightens at most half a stop, so dark frames stay dark. `⌘Z` undoes it. each section's **reset** sets that section back.

levels, curves, hsl and color grading

- **levels**: black, midtones, white, output black and output white, for rgb or one channel.
- **curves**: the **contrast** menu sets a starting rgb curve. click to add a point, drag to move it, double-click or drag it off to remove it.
- **hsl**: hue, saturation or luminance for eight colors, red to magenta.
- **color grading**: pick shadows, midtones, highlights or global, then drag in the color wheel (or set hue, saturation and luminance) to tint those tones. blending and balance set how the tints meet.

lab looks

a look is a finishing style on top of the conversion, named for the film it imitates. it doesn't need to match the film you shot; **none** removes it. the section's **…** menu imports and exports looks as .emullook files. importing a look you already have adds nothing. a different look with a name you already use is added with a number ("portra 400 2"); emullab's own looks are never replaced.

presets

+ saves this frame's settings: name it and choose which groups to include. a preset never changes a frame's film base, crop, dust spots, eyedropper gray or film type. click a preset to apply it to the selected frames. right-click one to update, rename, export or delete it; **…** imports .emulpreset files.

sharpening, lens corrections and effects

- **detail**: sharpening, radius and masking. masking keeps sharpening to edges, sparing smooth areas and grain. judge it at 100%.
- **lens corrections**: vignetting, distortion and chromatic aberration. for uneven light, shoot your light source with no film (same lens, aperture and focus), then choose **new from blank shot** from the **flat field** menu. it applies to the whole roll.
- **effects**: vignette and grain. grain is sized for the full-resolution photo: judge it at 100%.

compare and zoom

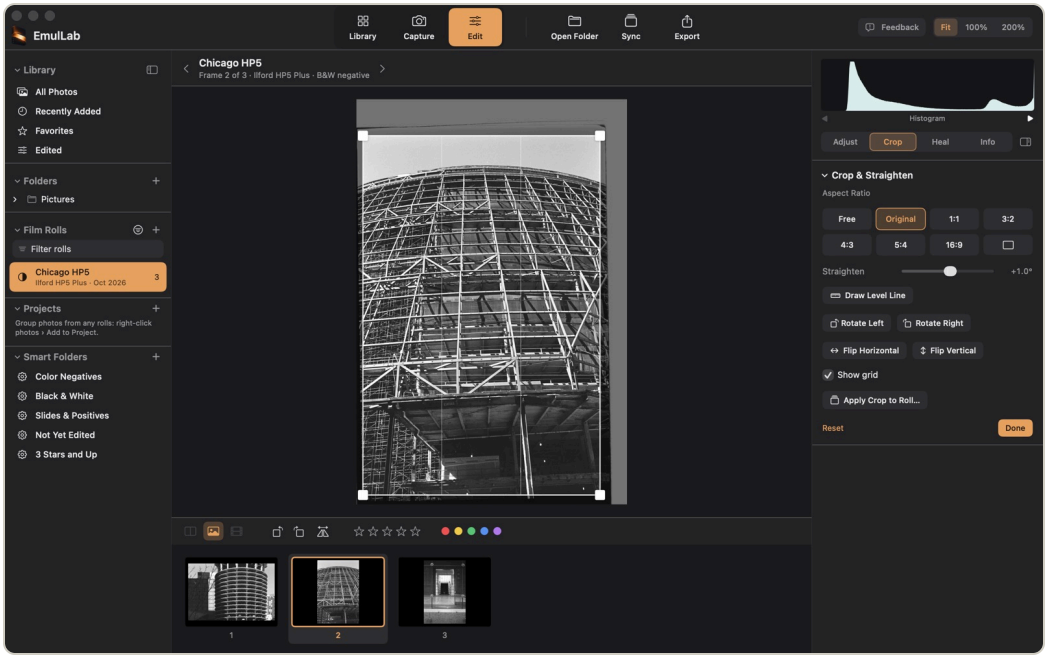
edit opens on **after**, the result. `Y` shows **before** and **after** side by side: drag the handle all the way to either edge to see all of one. `\` shows before alone: the scan as it is, with no heals, so you can see the dust you removed. press the key again to go back to after. **fit**, **100%** and **200%** are in the toolbar. zoomed in, before and the split view go back to fit; crop and heal show after only. on the photo: `Double-click` for 100%, `Scroll or pinch` to zoom, `Space-drag` to move around.

09 · EDIT

crop, straighten *and rotate.*

frame the picture, level the horizon, and turn or flip frames.

online: emullab.com/manual/crop



crop and straighten

1. in **edit**, click the **crop** tab. the whole frame shows with a crop box.
2. drag the box's corners, or drag inside it to move it.
3. to keep a shape, pick an **aspect ratio**: free, original, 1:1, 3:2, 4:3, 5:4 or 16:9. the rectangle button switches portrait and landscape.
4. drag **straighten**, or click **draw level line** and drag along something that should be level or upright.
5. click **done**.

---

rotate and flip

rotate left (⌘[ ), **rotate right** (⌘]), **flip horizontal** and **flip vertical** are in the crop tab and the photo menu. in library, right-click to turn every selected frame at once.

one crop for the whole roll

frames scanned in one holder often share a crop. click **apply crop to roll** in the crop tab or the photo menu; emullab asks first. with several frames selected, it applies to those instead. only the crop and straighten are copied; `⌘Z` undoes it.

the automatic crop

frames start with an automatic crop that leaves out the film holder; with the current conversion, a negative is cropped to the picture inside the film border. **reset** in the crop tab goes back to it, with no straightening.

grid

show grid lays a rule-of-thirds grid over the crop box.

heal dust, hairs *and scratches.*

remove specks by hand, or let emullab mark likely dust for you to check first.

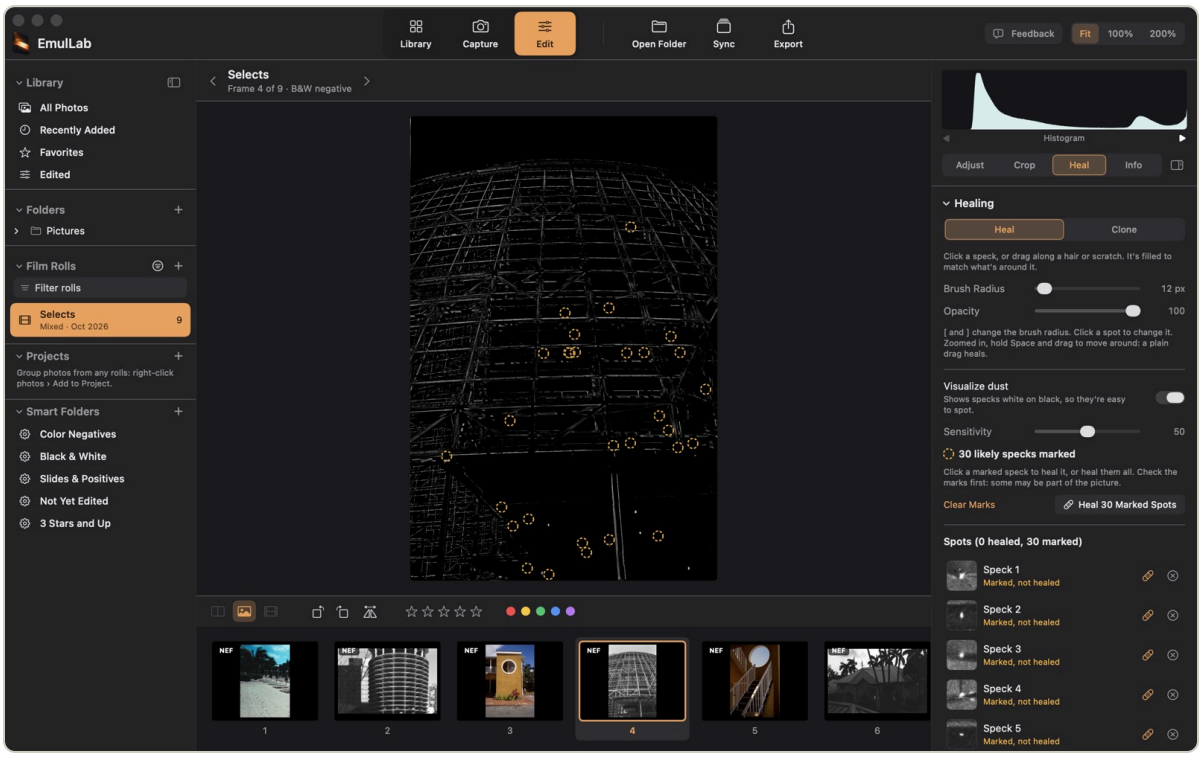
online: emullab.com/manual/heal

heal a speck or a hair

1. in **edit**, click the **heal** tab. click **100%** in the toolbar (or scroll over the photo) to see it at 100%; in the heal tab a click on the photo heals.
2. choose **heal** at the top of **healing**.
3. make the **brush radius** a little larger than the speck (it starts at 12 px, from the circle's center to its edge): `[ ]` make it smaller or larger.
4. click a speck, or drag along a hair or scratch. it's filled to match what's around it.
5. each heal is listed under **spots** with a close-up. click one to change it; `Delete` removes it.

find likely dust

1. click **find likely dust**. likely specks get a dashed circle.
2. check the marks: some may be part of the picture. unmark those with **×** in the list.
3. click a marked speck to heal it, or click **heal *n* marked spots** to heal them all. the panel then says how many were healed; click **find likely dust** again to look for more.
4. **sensitivity** sets how faint a speck gets marked. if too few or too many are marked, move sensitivity, then click **find again** beside the marks: it marks at the new setting in place of the old marks. spots already healed stay.



`heal · visualize dust` find likely dust has marked specks for review; visualize dust shows them white on black.

clone

choose **clone** to copy another part of the picture as it is. first ⌥-click (or control-click) where to copy from, then click or drag; later spots keep the same offset. **feather** sets how soft the edge is. Esc forgets the source.

visualize dust

turn on **visualize dust** to show specks white on black, so they're easy to see. **sensitivity** changes how faint a speck shows. turn it off to see the photo again.

change, hide or remove a spot

click a spot on the photo or in the list to select it. drag it to move it, drag its knob to resize it, and for a clone, drag its dashed circle to copy from elsewhere; the panel's sliders then change that spot. the eye button hides a heal so you can compare. on the adjust tab, before (\) shows the frame with no heals at all. the **…** menu changes heal to clone or back, or removes it. **clear all** removes every spot. Esc or **done** goes back to the brush.

good to know

- heals are part of the frame's edits: the scan itself is never changed. before shows the scan without them; after and exports have them.
- each frame keeps its own spots: sync and presets don't copy them.

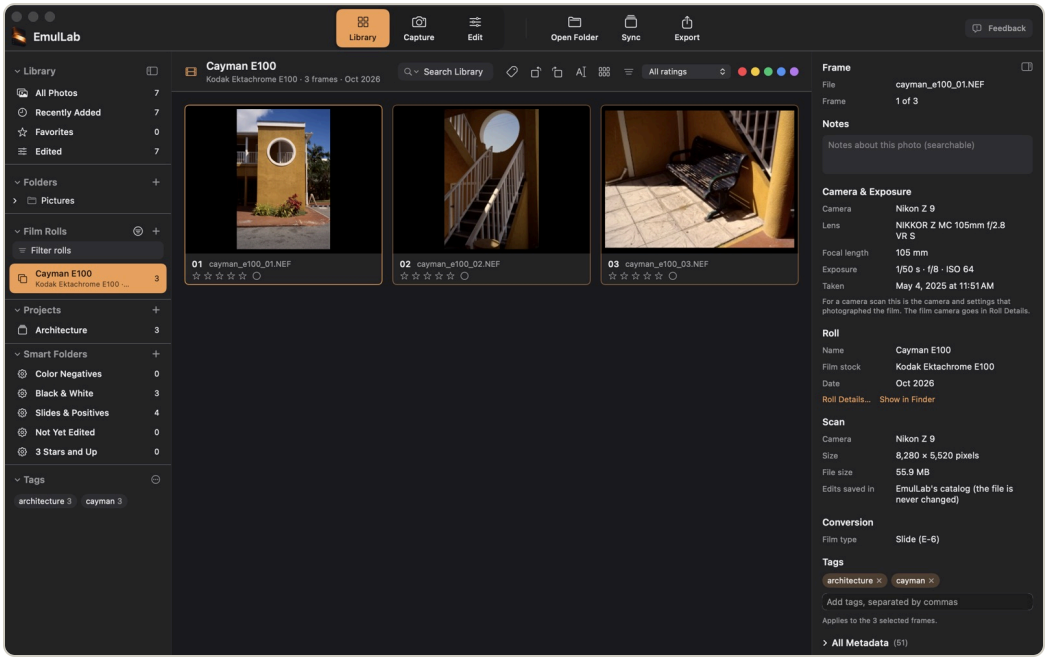
- find likely dust can miss specks and mark texture or edges: check before you heal them all. it marks up to 120 specks (400 on slides) and says when it stops. see known issues.
- zoomed in, hold space and drag to move around (a plain drag paints a stroke).
- `[]` work on any keyboard layout, including ones where you type them with option.

11 · FINISH

organize *your rolls.*

rate, label and tag photos, gather them into projects and smart folders, and find them again.

online: emullab.com/manual/organize



rate, label and tag

1. click **library** in the toolbar and select photos: ⌘-click or ⇧-click to select more.
2. press 0 – 5 to rate them, or 6 – 9 for a red, yellow, green or blue label. or right-click › **rating** or **label**.
3. press ⌘K (photo › tags) and type tags, separated by commas.
4. write notes about a photo under **notes** in its info, beside the grid.

find photos

1. type in **search library** at the top of the library. every word must match: tags, notes, file names, roll names and film stocks. capitals and accents don't matter.
2. with a roll or folder open, click the magnifier and choose **this folder** to search it and every folder inside it on disk, including scans not in your library yet.
3. click **save as smart folder** to keep a search in the sidebar. it updates itself.

projects

a set of photos picked from any rolls: a portfolio, a print queue, an album. right-click photos › **add to project**, then a project or **new project from selection**; or click **+** beside projects. photos stay in their rolls with their edits; deleting a project deletes only the set. in a project, each photo's tile names its roll.

smart folders and library views

click **+** beside smart folders and set the words, film type, rating, label, edited or not, and when the roll was added. it fills itself with every photo that matches, now and later. right-click one of yours to edit or delete it; only the rule goes. the library views above it: **all photos**, **recently added** (rolls added in the last 30 days), **favorites** (5-star photos) and **edited** (photos you changed yourself; analyze roll doesn't count).

tags and filters

click a tag in the sidebar to find its photos in every roll; its **…** button renames, merges or deletes tags. in the library header, the rating menu and the colored dots show only some photos. they're filters: right-click a photo to rate or label it.

roll details

click the film icon in the library header, or right-click a roll › **roll details**: the roll's name, film stock, camera, lens, rated iso, when and where, and how it was developed. the folder keeps its name. the roll list, the library header and info show a roll by its folder's full name, or by the name you give it here. a roll inside another roll's folder (outtakes) shows that roll's name under its own, and rolls with the same name say which folder they're in. a roll's date comes from its folder's name (2025-07 …, 06-2024 …, 25-028_…). if that has none: a year in **when / where** (july 2025), else a folder it's in (2023/…), else when the folder was made, which only sorts the roll and isn't written into exported files. the **filter rolls** field and its menu narrow the roll list by film type, stock, year or camera. right-click › **remove from catalog** deletes its photos' edits, ratings, labels, tags, notes and history from the catalog and takes them out of every project; it can't be undone. the photos stay on disk.

rename frames

file › rename frames (⇧⌘R) renames the selected frames' files, or the whole roll's, to a name and a number, with a preview first. it renames the files in the roll's folder (and any .xmp files beside them); edits, ratings and tags stay with each frame. edit › undo renames them back. it works in a roll, not in a project, a smart folder or search results, and it says so first if the roll's folder is read-only.

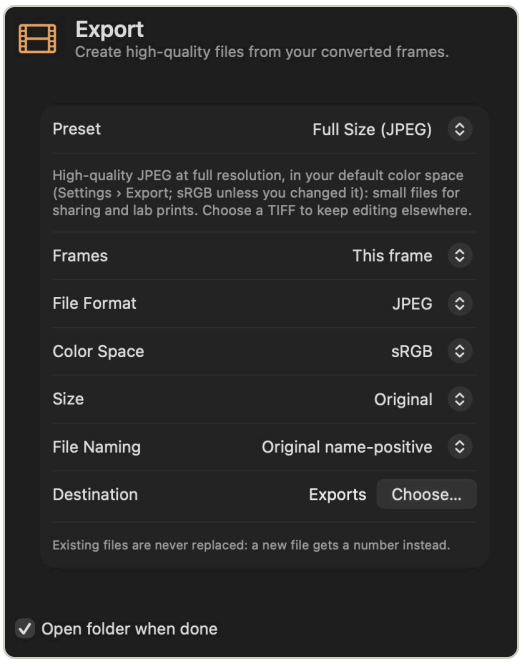
edit history

turn on **show each photo's edit history** in settings › editing to add a **history** tab: every saved change to a photo. click a version to see it, **restore this version** to make it current, and name the versions you want to find again.

export photos *and contact sheets.*

make finished files from one frame, a selection or the whole roll, and lay a roll out on a contact sheet.

online: emullab.com/manual/export



export frames

1. choose file › export (⇧⌘E), or click **export** in the toolbar.
2. pick a **preset**: full size (jpeg), high resolution (print), archive (prophoto tiff), web (jpeg 2048 px) or social (jpeg 1350 px).
3. under **frames**, choose this frame, the selected frames, the ones the library filter shows, or the whole roll.
4. check **file naming** and **destination**: to start, an exports folder inside the roll's folder.
5. click **export *n* frames**. progress shows above the filmstrip in edit; you can keep working.

make a contact sheet

1. choose file › export contact sheet (⇧⌘P). with several frames selected, the sheet shows those; otherwise the whole roll.

2. choose the **paper**, **orientation**, **columns** and **background**, and what the captions show.
3. choose **pdf** or **jpeg**. the preview shows each page.
4. click **save**.

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format, color space, size and names

- **file format**: tiff (16-bit), jpeg or png (16-bit).
- **color space**: srgb, display p3, adobe rgb (1998) or prophoto rgb, embedded in each file. the default is set in settings › export (srgb to start); full size (jpeg) and custom start with it, and picking a preset never changes it.
- **size**: the original, or a long edge of 4000, 2048 or 1350 px.
- **file naming**: the original name with “-positive”, the original name, or the roll name and frame number.
- changing the format, color space or size switches the preset to custom.

what goes into the files

the capture date, camera, rating, label and keywords are written into each file, with the color profile. existing files are never replaced: a new file gets a number instead. exports saved in the roll’s own folder would show up as extra frames next time; the exports folder inside it avoids that.

if an export doesn’t finish

emullab says which frames weren’t exported and why. if the disk is full, free some space or choose a folder on another disk. if emullab isn’t allowed to write there, choose another folder, or choose the same one again to allow it. **choose another folder** exports the missing frames there. if a scan itself can’t be read, the folder is fine: **show scan in finder** shows which file, and a frame can’t be opened says what to do. one export runs at a time.

contact sheet options

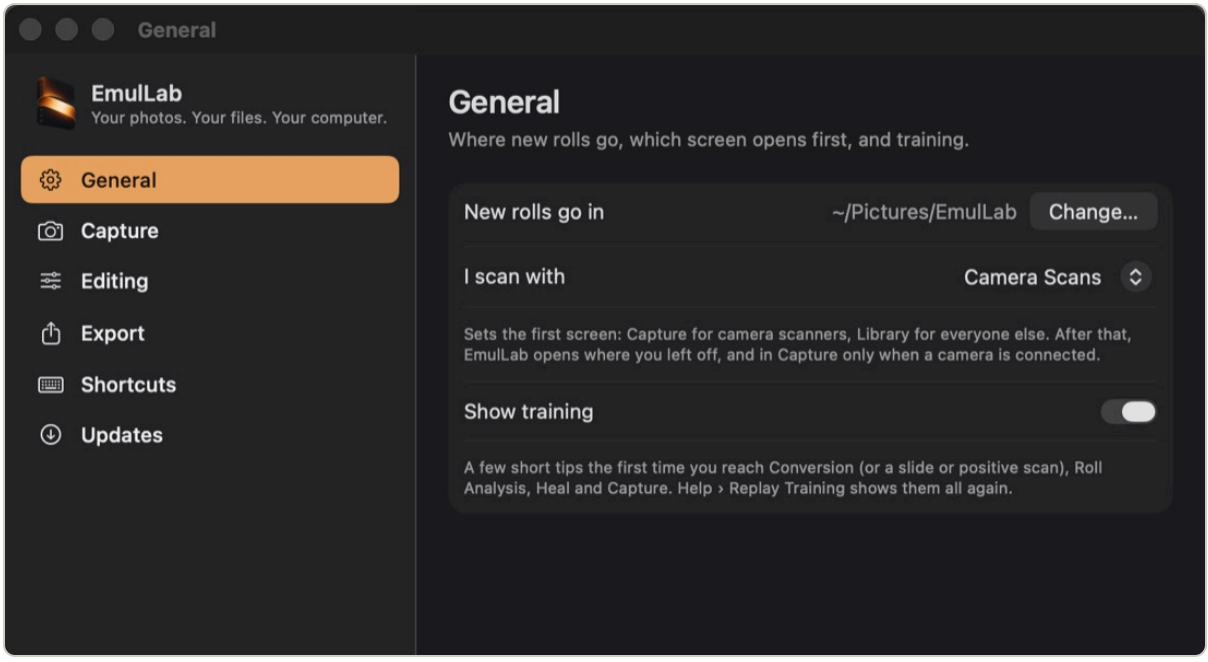
paper is us letter, a4, tabloid or a3, with 2 to 8 columns on white or black. captions can show stars and labels and file names, and a header the film stock and roll name. the sheet is rendered at 300 dpi. a jpeg sheet of several pages is saved as one file per page, in a folder you choose. there’s no print module yet: print the pdf from preview or another app.

13 · FINISH

updates, backups *and troubleshooting.*

keep emullab current, know where your edits are kept, and what to do when something goes wrong.

online: emullab.com/manual/troubleshooting



get updates

1. emullab checks for a new version about once a day. to check now, choose emullab › check for updates.
2. when there's one, it shows what changed and asks before installing.
3. after an update, emullab shows what's new once. help › what's new shows it again.
4. to stop the daily check, turn off **automatically check for updates** in settings › updates.
5. to get each new version early, as a test build, turn on **get test builds early** in settings › updates. test builds can have bugs.

back up your edits

1. your edits, ratings, tags and notes are kept in emullab's catalog, not in your scans.
2. emullab copies the catalog once a day, when it opens and while it stays open, and keeps the last ten. copies made with file › back up catalog now on one day count as one: the newest is kept, so earlier

days are never pushed out. before an update changes the catalog, a copy of it as it was is kept too (`catalog-before-update-…`, the last three).

3. before a big change, choose file › back up catalog now. finder shows the new copy.
4. file › show catalog in finder shows the catalog and its backups folder (inside a folder named `Emulsion Pro`, emullab's earlier name). back up your scans yourself, too.

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put a backup back

1. choose file › show catalog in finder and open the catalog folder it shows. then quit emullab.
2. move `Emulsion Pro.catalog`, and any files next to it whose names start with it (ending in `-wal` or `-shm`), to another folder. keep them until you're sure.
3. open the `Backups` folder and pick a copy by its date modified. the daily backups are named `catalog-` and a number (the largest number is the newest); `catalog-before-update-` copies are the catalog as it was before an update changed it. copy the one you want next to `Backups`.
4. rename the copy `Emulsion Pro.catalog` and open emullab.

edits made after that backup are not in it.

what emullab writes to disk

edits never change a scan file. emullab writes new files only when you capture (into the roll's folder), watch a folder (copies into the roll), or export (never over an existing file). it renames files only when you use rename frames, and edit › undo renames them back.

a frame can't be opened

the viewer says which file and why:

- a raw file emullab can't read: if it opens in other apps, it may come from a camera newer than this version. save it as a 16-bit tiff in the camera maker's software and open that, and tell us the camera with send feedback. if it doesn't open anywhere, the copy is damaged.
- an empty or damaged file: the copy didn't finish. copy it again from the card or scanner.
- a merged dng (hdr or panorama, such as a lightroom merge) or a jpeg xl dng: open the original raw files.
- a missing file: connect the drive or card, or open the folder it was moved to.
- a roll whose folder can't be found shows as offline in the sidebar: right-click › **locate**. if it's the roll you had open, emullab says so when it opens, with **locate**; connect the drive and the roll opens.

a photo edited in a newer version

a photo you edited in a newer version of emullab (a test build, or a later version on another mac sharing the catalog) shows a lock and the message **edited in a newer version of emullab**. this version can't read those edits, so it shows the camera's own preview instead of drawing the photo, and doesn't let it be

edited: sliders, paste, sync, presets, rotate, analyze roll and the roll's settings all leave it as it is, and export and contact sheets leave it out and say so. its rating, label, tags and notes still change. nothing of the newer edit is lost: open the photo in the newer version to change it or export it.

the catalog couldn't open or save

a bar under the toolbar says what happened. if the disk is full, free some space, then quit and reopen emullab. if it says the catalog was made by a newer version of emullab (for example after going back to an older version), nothing in it was changed: update emullab and everything is back. otherwise quit and reopen it; if the message comes back, send feedback with what it says. **show catalog** shows the catalog in finder.

camera, conversion and dust problems

- the camera isn't found or won't fire: camera problems.
- a card at the bottom of the photo about the film border or a color profile: how the film base is read.
- what doesn't work well yet: known issues (also help › known issues).

send feedback

choose help › send feedback, or click **feedback** in the toolbar. choose bug, request or question, describe it, and click **send by email**. the report always says which emullab and macos you have. you can add your mac's model, chip and graphics, the frame's file name and edit settings, and a crash report if emullab quit unexpectedly; photos are never attached. the report opens as a new email in your own email app, so you see everything before you send it, and we reply to the address you send from.

the report is also copied to your clipboard, and the window stays open. if no email appears (for example, you use gmail or icloud in a browser), write to support@emullab.com and paste the report (`⌘V`); **copy report again** and **copy address** help. more ways to reach us: contact.

keyboard *shortcuts.*

the same list as help › keyboard shortcuts in the app. ⌘ command, ⌥ option, ^ control, ⇧ shift.

file

new roll	⌘N
open a folder of scans	⌘O
export not while an export is running	⇧⌘E
export a contact sheet	⇧⌘P
rename frames	⇧⌘R
close the window	⌘W

edit

undo	⌘Z
redo	⇧⌘Z
cut in text fields	⌘X
copy in text fields	⌘C
paste in text fields	⌘V
select every frame of the roll in a text field, selects its text	⌘A
copy settings	⇧⌘C
paste settings onto the selected frames	⇧⌘V
sync this frame's look to the selected frames with one frame selected, asks first, then the whole roll	⇧⌘S
paste only the parts of the copied settings you tick (tone, color…)	⌥⇧⌘V
sync only the parts of this frame's look you tick (tone, color…) with one frame selected, the whole roll	⌥⇧⌘S
sync only some parts of the look the toolbar's sync button; right-click it for the same choice	⌥-click Sync
crop: put the crop and angle back as they were when crop opened (again: back to adjust) crop tab, not while typing	Esc

photo

rotate left	⌘[
rotate right	⌘]
tags	⌘K
previous frame not while typing	←
next frame not while typing	→
rating: none, or 1 to 5 stars not while typing, not in capture	0 – 5
red, yellow, green or blue label (again to remove it) not while typing, not in capture	6 – 9

view

hide or show both side panels not while typing or with a sheet open	Tab
hide or show the sidebar	^⌘S
hide or show the inspector	⌥⌘I
show or hide the filmstrip	⌥⌘F
full screen not while typing or with a sheet open	F
before/after split (again for after) not while typing, nor on the crop and heal tabs; zoomed in, back to fit to show it	Y
before: the scan as it is (again for after) not while typing, nor on the crop and heal tabs; zoomed in, back to fit to show it	\
your saved workspaces, first to ninth once you've saved workspaces	^1 – ^9

viewer

100%, and back to fit not on the heal tab, where a click heals: use the toolbar's 100%, or scroll	Double-click
zoom in or out at the pointer	Scroll or pinch
move around the zoomed photo also option-scroll; not in capture	Space-drag

library

open the photo in edit	Double-click
add a photo to the selection, or take it out also in the filmstrip	⌘-click
select every photo up to this one also in the filmstrip	⇧-click
rate or label every selected photo not while typing	0 – 9

heal

smaller or larger brush (or the selected spot) heal tab, not while typing	[ ]
clone: set where to copy from also control-click	⌥-click
remove the selected spot heal tab, a spot selected	Delete
deselect the spot, or forget the clone source heal tab	Esc

capture

capture frame capture only, not while typing	Space

app

settings	⌘,
hide emullab	⌘H
hide the other apps	⌥⌘H
minimize the window	⌘M
open the emullab manual on the website	⌘?
quit emullab	⌘Q