



Imaging Equipment Instructions: DT-RG3040 Reprographic System with DT R-Cam, Phase One P40+ and Capture One Software

Iraqi Jewish Archive Preservation Project National Archives and Records Administration

Equipment Start-up:

1. Turn on lights (wait at least fifteen minutes to begin scanning)
2. Start Mac workstation
3. Plug in Schneider Electronic Shutter power supply box (hand-held shutter release, foot pedal, Schneider Shutter Release all connect to this)
 - Connect Kaiser Pro Power supply to Mac via fire wire cable
4. Plug in and turn on Kaiser Pro Power Supply (pneumatic book cradle, foot pedals and electronic column adjustment will all connect to this)
 - Connect Kaiser Pro Power supply to Mac via fire wire cable
5. Plug in compressor and ensure that power knob is on auto
6. Connect fire wire cable from Mac workstation to Phase One P40+ digital back
 - Press power button on camera back
 - Ensure digital back has powered-up and menu has displayed
7. Connect Savant Elite USB Connector to Mac and plug in foot-pedal shutter release if desired
8. Ensure that all cables are not tangled or caught on any components prior to making any adjustments to camera height
9. Turn off overhead room lights

At Mac workstation:

- Launch Capture One software
- Launch Schneider Shutter Release application
 - 'Select Lens' button
 - 'Ext. Release' button
 - Set aperture to F8
 - Minimize application window [green button] and place in desired location within Capture One interface
- Confirm that the camera has been recognized in the *Camera Controls* section of the Capture Tab. If the information is greyed-out, the camera has not been recognized; re-start the camera and software as needed.

Job Set-Up:

All files created will reside within the Capture One Library, and the folder sets stored within the Library for any job captured and processed through Capture One are:

- Capture=Raw Files
- Output=Deliverables
- Trash=Items deleted during capture / processing phases
- Selects=Items flagged during capture / processing phases using Capture One coding features
- .COL50 file=contains session settings

Library Tab

Ensure the correct location of a new session within the Library Tab:

- Session files should be saved to the individual user's Pictures folder on the desktop for later transfer to the server
- Job name displays correctly or as desired

Create a new session:

- Name session, using standard lab job naming protocols

NOTE: A new session can also be created upon launching Capture One, where the user is immediately prompted to select previous / create new session.

Capture Tab

Confirm the following settings in the order they appear within the Capture Tab:

- **Camera section:**
 - Camera: Phase One P40+
 - Format: IIQ
 - Sensor: OFF
 - ISO: 50
- **Next Capture Adjustments section:**
 - ICC Profile: Phase One P40+ Outdoor Daylight
 - All Other: Copy from Last
- **Base Characteristics section:**
 - Curve: Linear Curve (Not available for selection until shutter is triggered)

Exposure and Adjustments:

The standard order that should be followed at the start of a scanning session or anytime the camera height is adjusted is as follows:

- 1) Preliminary composition and focus
- 2) Exposure
- 3) Lens Cast Calibration (LCC)
- 4) White Balance
- 5) Refined exposure with slight levels / curves adjustments
- 6) Determine file naming
- 7) Begin capture

1) Compose image and make initial exposure:

- Basic image composition: operator may wish to use the largest item in the group for composing image and determining target placement [the entire group to be shot at the same camera height]
- Use drop chains to determine correct height and PPI. For non-standard size items, operator can determine the PPI manually using one of two methods:
 1. Measure the scan area (including surrounding white space and target)
 - Divide 7,320 pixel array by the long dimension of the above measurement
 2. Take an exposure with the frame composed as desired
 - View at 100%
 - Select “display in pixels” within crop window
 - Crop in to one inch on the dimensional reference
 - Longer dimension displayed is the PPI as-shot
- To trigger the shutter, select the orange “Capture” button within the Capture tab, or trigger with command / k shortcut.
- Focus image: focus image using one of two methods:
 1. Manually (recommended) using the focusing ring on the Schneider lens
 - Set image view to 100%
 - Move lens incrementally and take exposures as needed to refine focus
 2. Focusing in Live View:
 - Set image view to 100%
 - In Schneider application, adjust lens to wide open (middle icon)
 - Adjust exposure as needed for image to appear in Live View window
 - Adjust focus
 - Close aperture back down to F/8

Using Composition Mode can be helpful for establishing focus, exposure and composition:

- Rewrites each image made, rather than creating many files to delete, which can be helpful during the refinement stage
- Operator must be sure to reset to OFF when finished set-up and prior to starting job, otherwise files will be continually over-written

If Composition Mode is not used, test exposures can be deleted prior to beginning job:

- Select images for deletion [multi-selection enabled]
- Shift / command / delete all selected images

2) Adjust exposure:

- Ensure that gamut warning icon has been selected for clipping warnings
- Adjust exposure using Schneider application. F8 should remain the default aperture, and adjustments should be made to the shutter speed to arrive at the optimal exposure.

Slight adjustments to the F8 setting are okay using 1/10 increment scale.

Further exposure refinement can be made later, but ensure that exposure is as close as possible, particularly for the white patch, before proceeding, as LCC and white balance will be affected by the exposure.

3) Lens Cast Calibration:

Once a base exposure has been established, remove document, target(s), and white board from table. If using the pneumatic book cradle with the glass top, the LCC analysis should be performed *through* the glass, with the white card inserted into the cradle and *underneath* the glass.

- Replace with the clean white board used only for making LCC profile
- Take exposure of white board (do not make any changes to settings)
- Close lens down by one stop (ex. F-8 adjusted to F-11)
- Take a second exposure of empty white board (this should appear DARKER than previous)

Go to *Lens Tab* to perform Lens Calibration (LCC):

Ensure that the following settings are checked / specified:

- Lens: Generic
- LCC: Color cast (checked); Light falloff (checked)

- Chromatic aberration: none; Light fall off (checked) 100%; Hide distorted areas (checked)
- LCC drop-down menu should display: default-none

Access drop-down menu and select ANALYZE

When prompted to save, input date along with ppi:

- 04-01-2012-600
- 04-01-2012-400

User will see “Saving LCC Profile. Please Wait” during analysis.

NOTE: Several errors can occur during this phase and will result in flawed calibrations, which will affect all subsequent exposures if not corrected:

1. If the lens is not stopped down, an overexposure warning message will appear during the analysis
2. Not removing items from table or accidentally selecting a previous capture with items pictured will result in an uneven calibration; analysis *must* be performed on an exposure of the empty white card

In the event of a mistake, delete the LCC profile out of list and repeat process

4) White Balance:

- Select orange dropper on the **Camera** section of the Capture Tab OR select from taskbar menu:
 - Use 13 patch on Golden Thread target to establish white balance
 - After white balance is established, select "SET" button [above "Capture" button]; this will put white balance command in files, rather than apply it directly after capture

5) Refine Exposure:

- Remove LCC board from table or cradle and store safely to ensure cleanliness
- Replace white board or backing paper; targets; document on table or under glass
- Refine exposure using slight curves / levels adjustments to further refine and achieve aim points: **DO NOT USE PICKERS TO SET BLACK OR WHITE POINTS**
Display readouts on white, black and midpoint patches, and manually adjust in curves / levels
- Required aim points on the Golden Thread Target:
 - 10 patch (white)=235
 - 21 patch (black)=12

- NOTE: Midpoint value will *not* be adjusted
- To save curve / level adjustments:
 - Go to drop-down menu for each adjustment type
 - “Save User Preset”
 - Use date / PPI naming convention:
 - Example: 03-30-2012-600

Tonal adjustments present in Primary Variant will be applied to subsequent exposures until removed or re-adjusted

Double-check exposure as needed

7) File naming:

Specify file name in format box within Next Capture Naming area of Capture Tab:

- Type in file name or enter sub-menu (right side) to select a preset or specify custom identifier
- A number of frequently-used NARA identifiers have been pre-set, including the *IJA Project* naming convention:
 - IJA file naming example: “ija-1234-0000-0001” [see document entitled *VIS Imaging Lab IJA File Naming Protocol* for more detailed information]
- Use “reset capture counter” to reset sequential numbering to “1”
- Numbering increments can be adjusted for recto-verso shooting as needed
 - Set Capture Counter Increment to 2 for bound materials
- Numbering mistakes can be overwritten in the image thumbnail view. Reset Capture Counter to renumber and resume proper sequence

8) Begin Capture:

****If using Composition Mode, be sure to disable it now, as all subsequent captures will overwrite the previous capture****

Uninterrupted capture can now begin. All settings should remain in effect and applied to all exposures and can be expected to remain consistent until changed, or until a camera height adjustment is made.

Settings will need to be checked and re-adjusted for camera height changes or after lengthy breaks in same-day scanning. Focus should be checked periodically, particularly when scanning volumes or items of varying height.

During capture and processing, double-check card-stack icon as changes are being enacted: when the icon is selected and illuminated (orange), changes are enacted on *all* selections; when the icon is de-selected (greyed-out), changes are made only to the single, selected image.

Applying Metadata:

Data can be applied to the entire set of files, or select files as appropriate during the scanning stage or at the time of image processing:

- Fill in appropriate information
- Copy to clipboard
- Select all items to embed with specified metadata (be sure that multi-selection button is enabled)
- Go back to clipboard and select “Apply”

**Metadata can also be saved as part of a style, and applied during scanning process*

Cropping Images:

All cropping and de-skewing should be performed prior to processing derivative files. For documents of equal or similar size, crops can be copied and applied to subsequent captures for ease and greater efficiency.

- Select crop icon from the Cursor Toolbar
- Select unconstrained ratio
- Scroll through captured images in viewer and draw crop box as desired
- To straighten a crooked image, select the rotation tool from the Cursor Toolbar and draw a horizontal or vertical line across the top or side of the pictured document; image will de-skew upon releasing mouse

To apply a crop and/or de-skew setting to one or more files:

- Highlight thumbnail of desired setting to select it as the primary view
- Under main toolbar: Adjustments→Copy Adjustments [or use copy / apply button]
- Select image(s) to apply crop
- Under main toolbar: Adjustments→Apply Adjustments [or use copy / apply button]
- Adjust further by moving or nudging crop box (Apple/arrow keys)

Image Processing:

Process recipes can be created and saved in order to generate the two file types to be created for the IJA project:

1) Master Tiff:

- Saved at actual image size
- 8-bits
- Resolution set as-shot
- Assign RGB profile

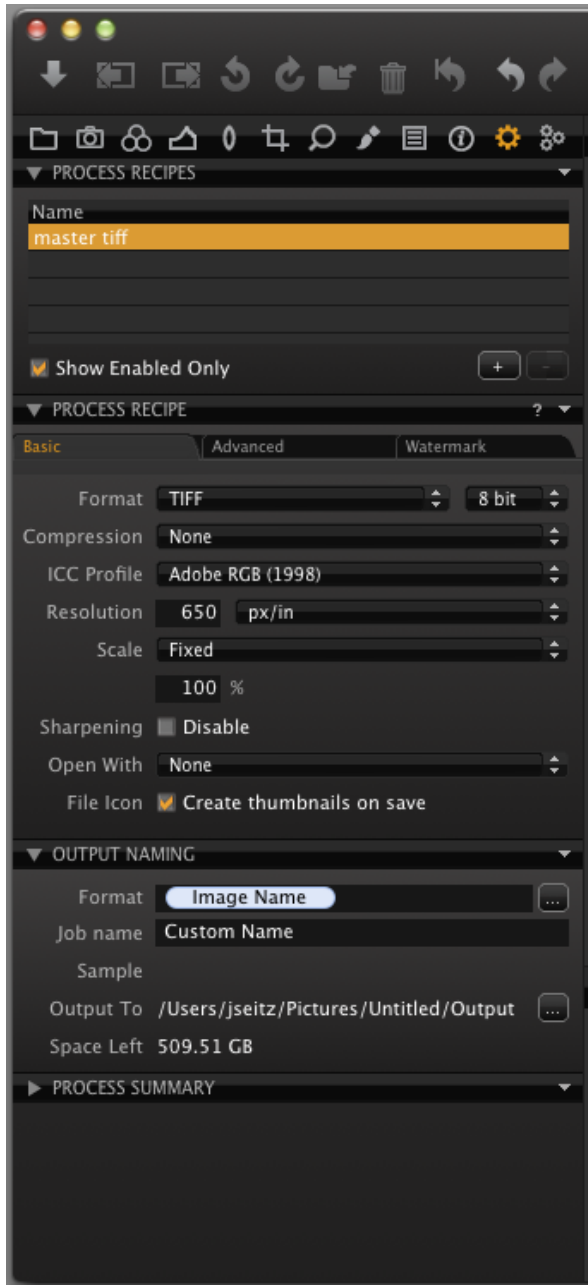
2) Master JPG:

- Saved at actual image size
- Resolution set as-shot
- Assign RGB profile
- 100% quality [no compression]

- Select appropriate process recipe [or make custom]
- Check “show enabled” box
- Input correct PPI
- Confirm tiff or jpg format
- Confirm RGB profile
- Confirm 8-bit file
- Enable multi-selection button and select files for processing
- Select process button to add files to queue and begin processing

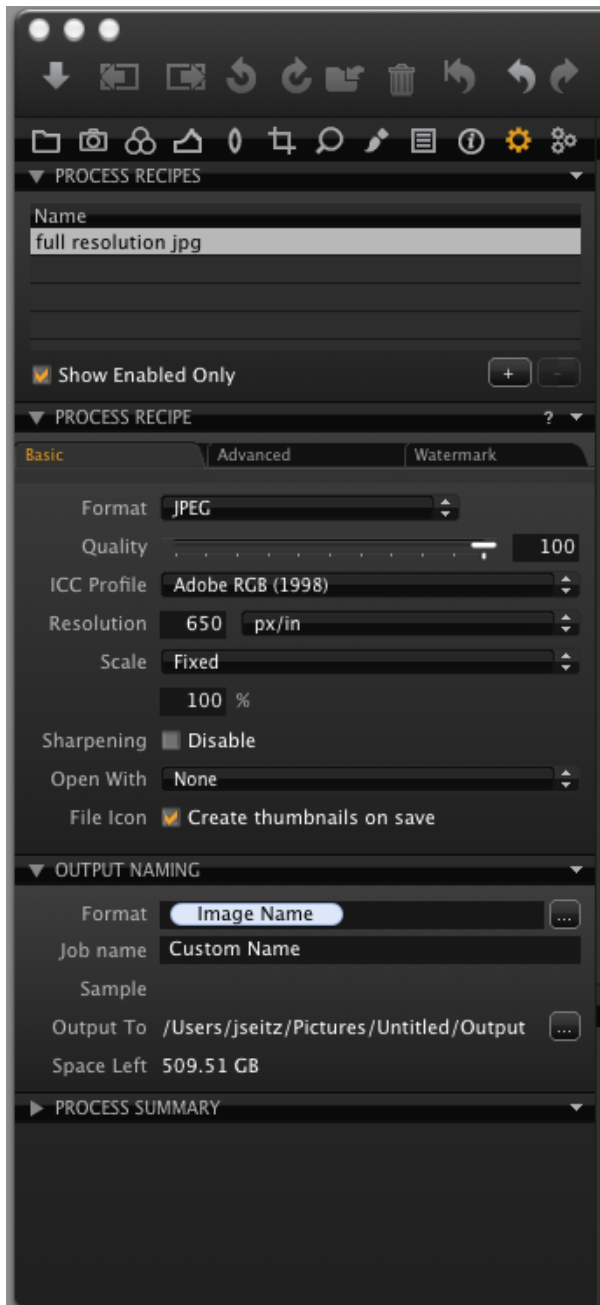
Note that no changes to the file name are required when generating the master file sets. Upon completion, there will be a set of full-resolution tiffs and jpgs, and no naming conflicts should occur due to the different file extensions. An additional derivative set that will require a unique suffix will be created at a later stage [see the *Image Processing in Capture One* document for further information]

Image 1: *Capture One Process Tab: Master tiff process recipe*



*Resolution of master files will vary depending on dimensions of original material

Image 2: *Capture One Process Tab: Master jpg process recipe*



After processing is finished, ensure completeness of derivative set and transfer to appropriate partition on server. No further image processing should be required.

Appendix: Miscellaneous Settings

Capture One Preference Settings:

NOTE: *The following settings will likely be selected already, though should be confirmed at the beginning of a scanning session, or anytime a re-start is necessary due to a system crash to ensure settings have not defaulted.*

Image 1a: Capture One Preferences: General



Image 2a: Capture One Preferences: Appearance

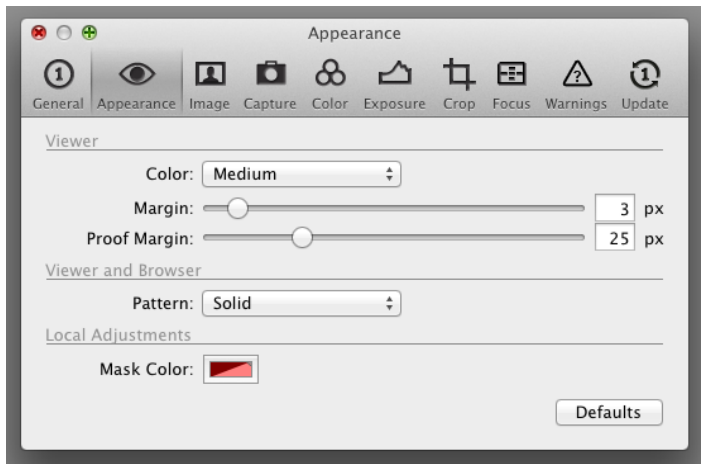


Image 3a: Capture One Preferences: Image



Image 4a: Capture One Preferences: Capture

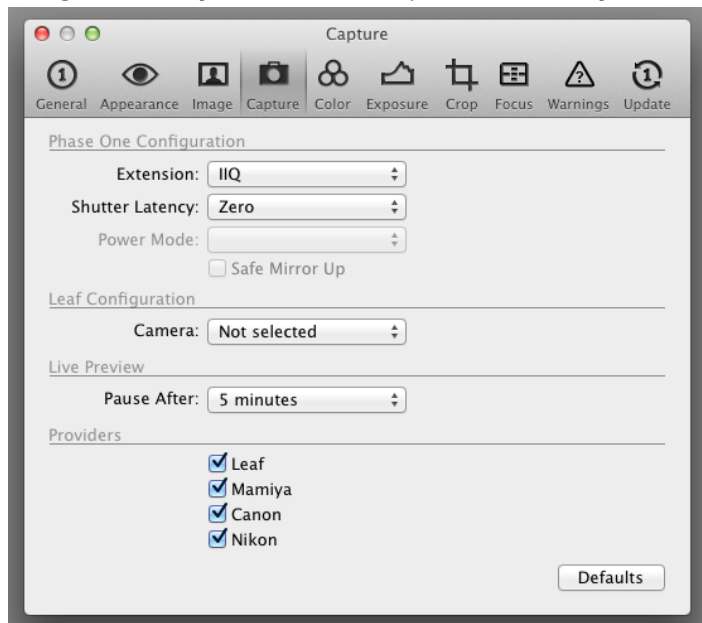


Image 5a: Capture One Preferences: Color

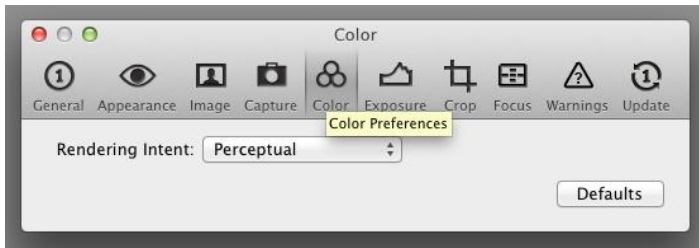


Image 6a: Capture One Preferences: Exposure

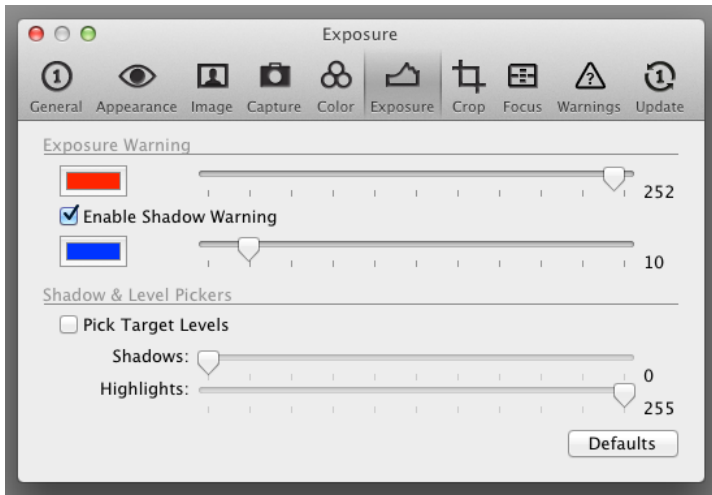


Image 7a: Capture One Preferences: Crop

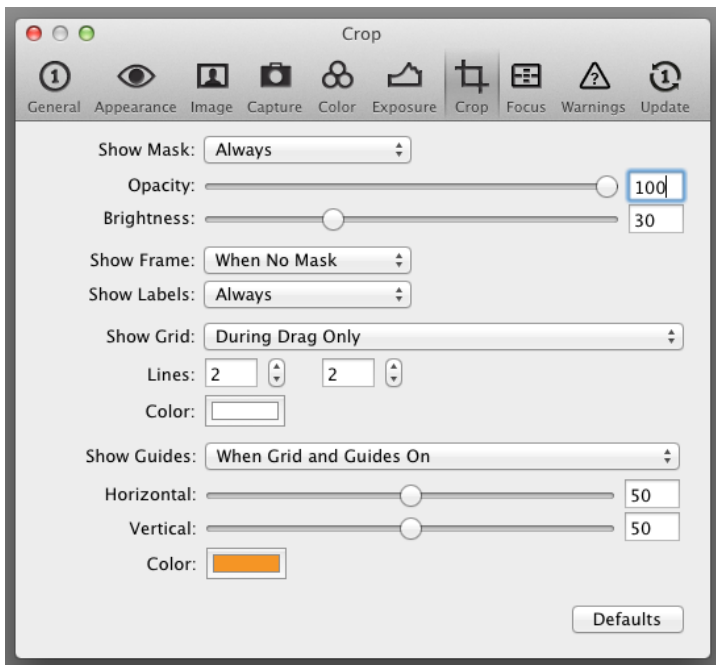


Image 8a: Capture One Preferences: Focus

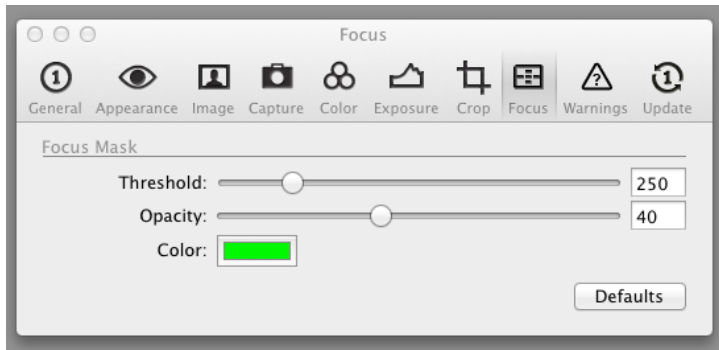
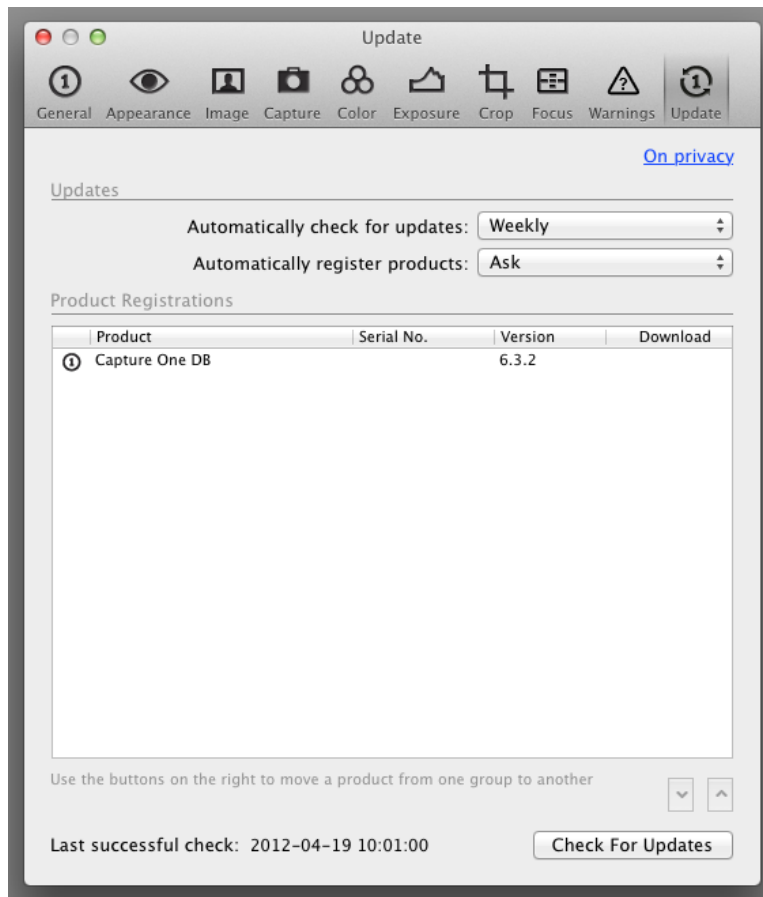


Image 9a: Capture One Preferences: Warnings



Image 10a: Capture One Preferences: Update



**Note: The Update tab is not applicable, as the Mac workstations in B411 are not connected to the internet.*

Shutter Trigger Methods:

The shutter can be triggered one of several ways:

- 1) Schneider application (not recommended for general scanning): Select “Release” button to fire shutter
- 2) Capture One software: Select orange “Capture” button within Capture Tab
- 3) Cable release:
 - Change mode on camera back from Mode 1 to Normal
 - Ensure cable is attached to power box
- 4) Foot pedal:
 - Change Mode on camera back from Mode 1 to Normal

- Ensure pedal is attached to power box

Helpful Shortcuts:

Items within Cursor Tools:

- To view an image at 100%: press 'h' key to use hand tool; double-click hand tool to return to normal size view
- To toggle between horizontal and vertical screen view configurations: shift / command / b
- To make small, incremental movements or nudge image: command / arrow keys
- To remove all settings except the white balance from an image: command / r
- To hide tools from view: command / t
- To find and re-open a session in Capture One: command / o