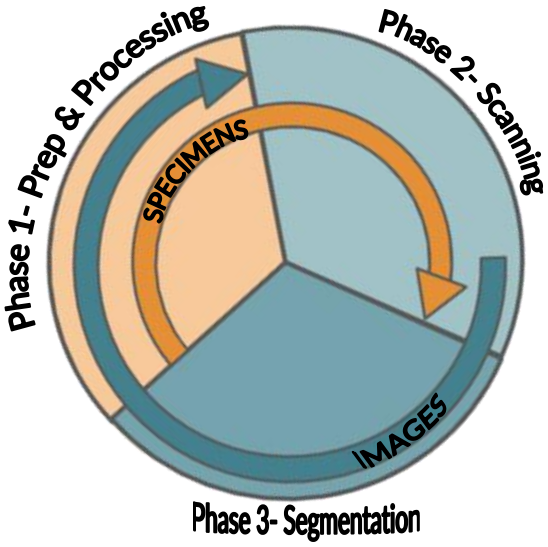
Digital Capture Guide

Slide Scanning

Julia Colby
Milwaukee Public Museum
February 2020

Contents



Setup

Workflow

This workflow is divided into three phases. In the first, preparation and processing, you will clean and barcode slides and process photos through Adobe Bridge for EMu, the Image Repository, and SCAN. The second phase is scanning, where you will scan the newly barcoded and cleaned slides. The third and final production stage is segmentation. In this stage you will use Inselect to segment and rename the scanned images.

Station Equipment

Scanner, Color Card, Slide Tray, Computer

The scanner is an Epson V5500connected to a laptop via USB. You will be using a slide scanning tray to hold the slides for scanning, as well as to hold the color card in place for scanning. ***Please minimize handling of the color card to avoid getting fingerprints and grime on the surface of the color card.*** Other equipment available at this station are barcodes, glue, and slide cleaning supplies.

Storage

Slides are stored in trays or boxes called “holders” and are found in the Mussels lab in a green cabinet or in the wooden slide boxes in the main IZ lab. The holders are labeled with barcodes indicating each holder’s storage location code. The slides in the Mussels lab are currently stored in boxes labeled “Scanned” and “Not Scanned”. You should move boxes into the “Scanned” box as appropriate.

Phase One: Slide Cleaning and Image Processing

A. Slide Preparation

You will need the TPT photo tracking spreadsheet (available in the TPT Team Drive) to complete this portion of the workflow. Other supplies include: alcohol, delicate task wipers, cotton buds, and barcodes.

1. Obtain slide holders from the mussels lab or the slide trays in the IZ lab.
2. Scan the holder location in to the slide tracking sheet.
3. Remove the slides. Reattach any loose labels with methyl cellulose glue.

4. Remove any smudges or fingerprints from the bottoms of the slides with some alcohol and a delicate task wiper or cotton bud, if needed.
5. Carefully remove smudges or fingerprints from the tops of the slides, if required, and clean the area where the barcode will be applied. Do not use alcohol on the mounting medium or on the labels.
6. Add a barcode. Preferred placement is between a label and the coverslip, but if the label does not fit there, it can be applied to the empty side of the slide, as close to the coverslip as possible. Barcodes should be applied with the human readable portion pointed to the top of the slide. **DO NOT cover the specimen or the label information with a barcode**. If you cannot fit a barcode onto the slide,

Preferred placement

Placement Option 2

7. Record the Barcode Range and taxa(on) information in the TPT Photography spreadsheet on the Slide Scanning Group Tracker tab. For holders with multiple taxa, separate the taxa with commas. Record the number of slides. At the end of this step, you should have filled in all the grey columns.
8. Reload the slides in the order that you removed them.
9. At the end of this phase, you should have all the grey boxes filled in for each holder.

Taxa(on)	Holder	Barcode Range	# Slides	# images of holder	Scanning Date	Notes
Ctenocepahlides f. felis ex canis familiaris	23854	ENT84561-EN	25	2	2/14/2020	

Step 2: Scan the holder location here. It should display as a five-digit number.

Step 7: Record the barcode range and the number of slides.

Make sure you are in the Slide Scanning Group Tracker.

Slide Scanning Group Tracker | Slide Processing | Pinned Specimen & Label Photo | Filename Stage Step 1

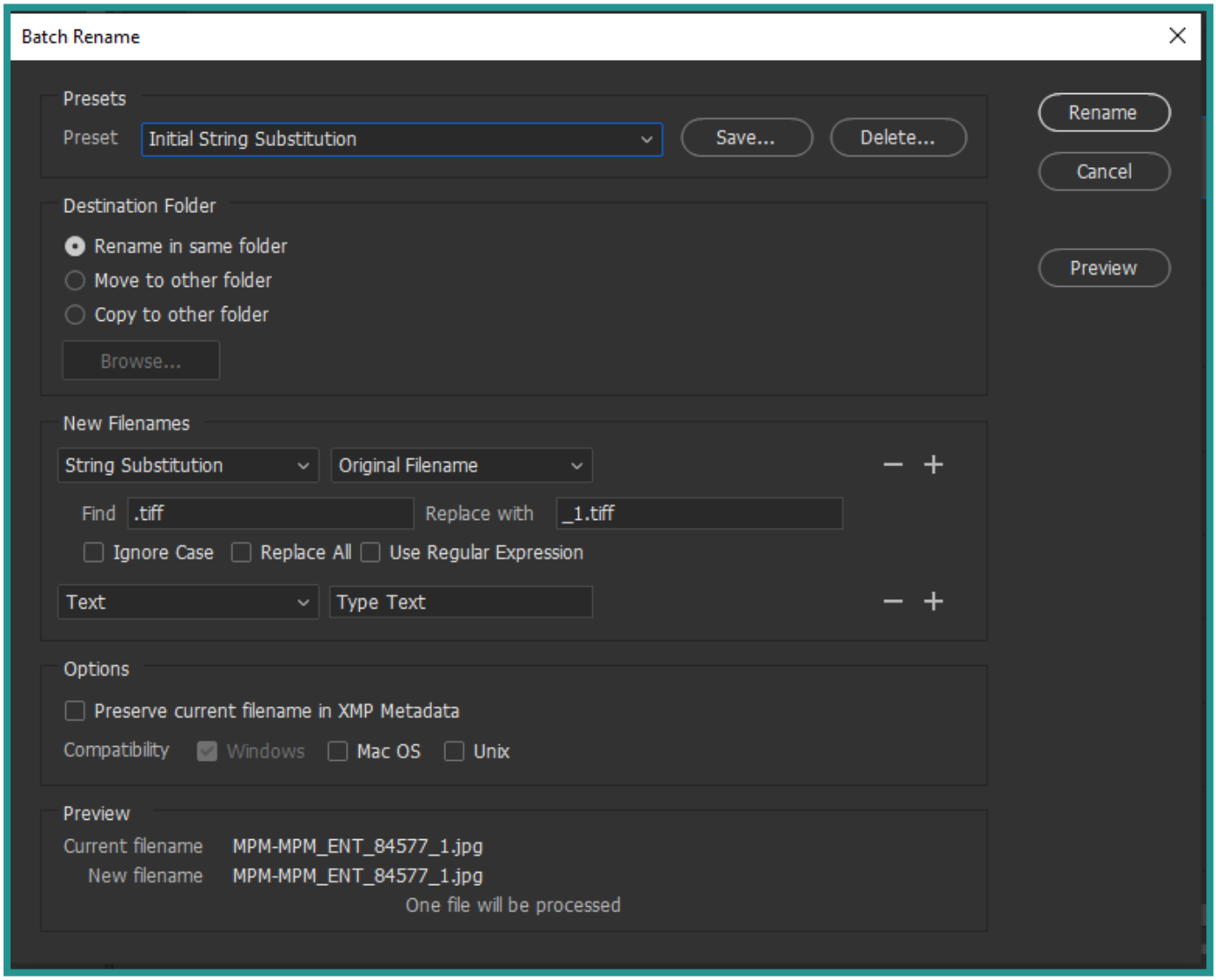
B. Image Processing In Bridge

Before using Bridge for the first time, set up your Metadata template and the various renaming and exporting settings. (see Appendix A.)You will also need to ensure the script is installed- see Julia or Alyssa for more information.

1. Open **Bridge**, and open the first dated folder of crops (you can set the Working Folder as a favorite folder by going to File>Add to Favorites.)

2. Select all slide crops except the color card, and go to **Tools>Append Metadata** and choose your pre-created template from the list. This will apply your metadata template to the images.

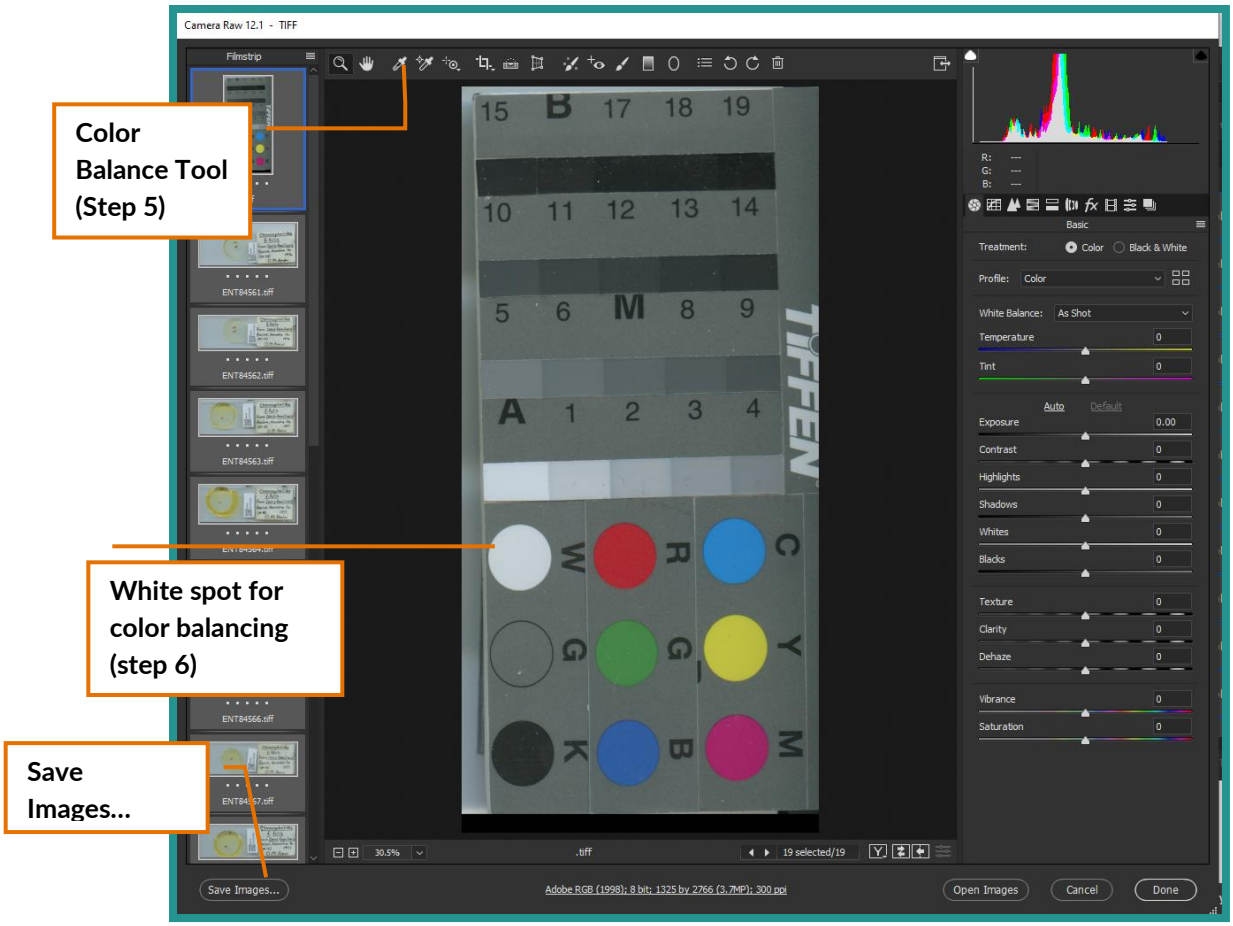
3. While all of the slides are still selected, go to **Tools> Batch Rename…** and choose the "Initial String Substitution" setting that will amend the file name to read "[Filename]_1.tiff."



4. Highlight all the files (including the color card) and right click. On the resulting menu choose "Open in Camera Raw"

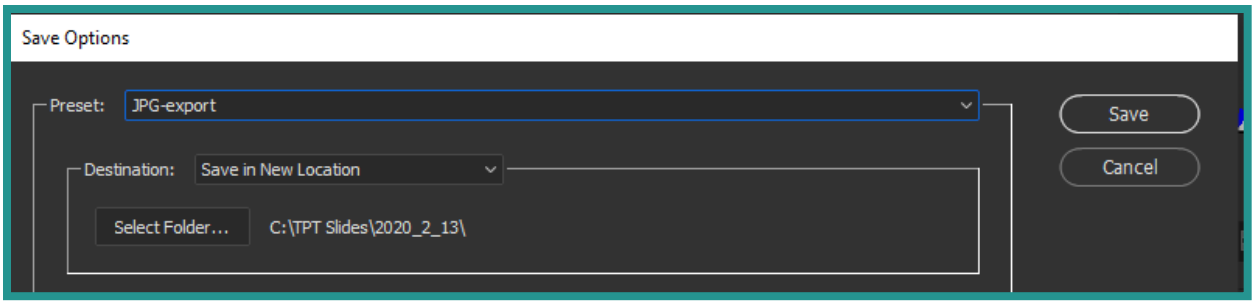
5. Once in Camera Raw, highlight all of the slides and the color card. Select the color balance tool.

6. Hover the color balance tool over the white dot on the color card and click. This will white balance all of the slides.

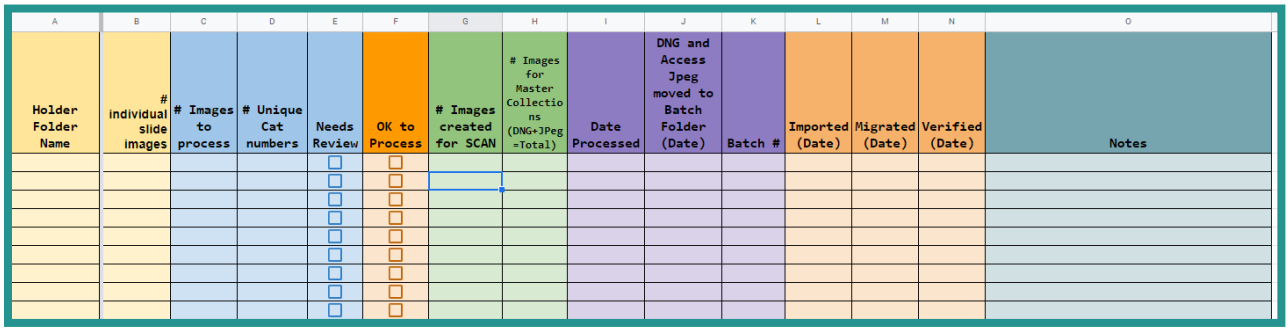


7. Reselect just the slides and click on **Save Images...** in the lower left hand corner. We will now do a series of exports to create the required derivatives.

8. In the Save Options menu that pops up, choose the first derivative you are going to create. Ensure that you are saving them to the correct dated folder.
9. Click **Save** and repeat the process to create the other two derivatives. By the end of this process, you should have created the following:
    a. Low resolution access .jpg for EMu
    b. Archival .tiff for the Image Repository
    c. .jpg for SCAN



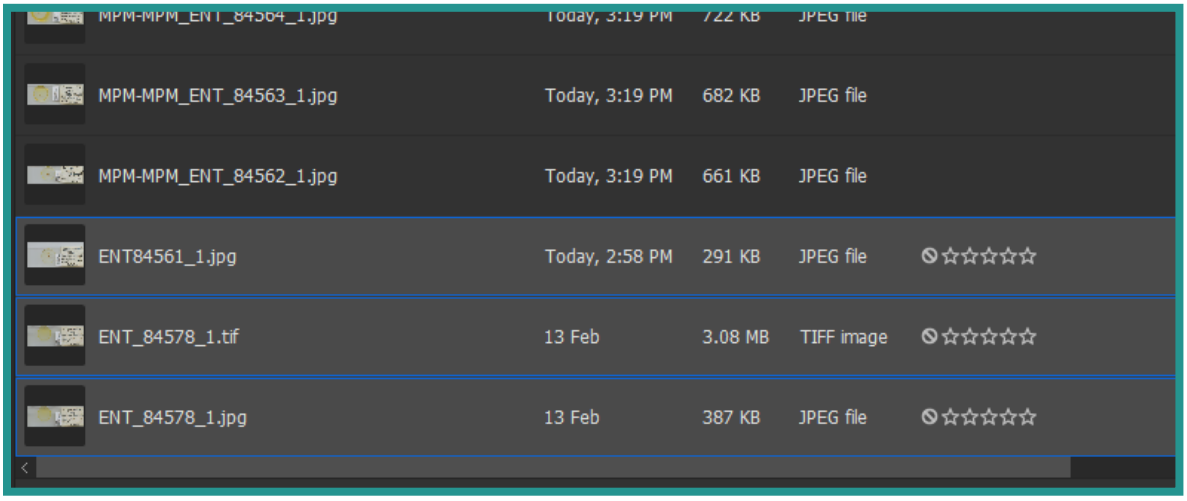
10. Once you finish processing a Holder folder, update the Slide Processing spreadsheet to reflect that you have processed the holder images and how many specimen slide images you have created. By the end of this process, you should have filled in the green columns in the spreadsheet. Note any discrepancies in the Notes Column.



Holder Folder Name	# individual slide images	# Images to process	# Unique Cat numbers	Needs Review	OK to Process	# Images created for SCAN	# Images for Master Collections (DNG+JPeg =Total)	Date Processed	DNG and Access Jpeg moved to Batch Folder (Date)	Batch #	Imported (Date)	Migrated (Date)	Verified (Date)	Notes
				☐	☐									
				☐	☐									
				☐	☐									
				☐	☐									
				☐	☐									
				☐	☐									
				☐	☐									
				☐	☐									
				☐	☐									

11. Continue processing crops as above till you are done for the day or finished with crops.

12. In Bridge, navigate to the **`C:\TPT Slides [Today's Dated Folder]`**.
Sort the slides so that all of the SCAN Derivatives (with the MPM-MPM_ file prefix) group together.



13. Select all the other images (the ones with the ENT_Catalog#_1 file names), and go to Tools>Batch Rename…, and choose the MPM_FileName setting, and hit "Rename". This will rename the archival .TIFF copy and the access .jpg images.

14. Once you have completed renaming, you will need to run a script to write the filename to the title field. Highlight all of the slide crops and go to Tools>Add Filename To Title Field.

15. Back up your work to the LaCie drive.

    a. **To use the LaCie drive: Unplug the scanner and plug in the LaCie.**

    b. Copy and paste the today's dated Folder from **`C:\TPT Slides [Today's Date]`** to **`F:\Processed`**. Use TeraCopy when prompted.

16. Back up your work to the image repository. First, navigate to **`C:\TPT Slides [Today's Date]`**, and sort the files by file name.

    For files with the ENT_[Catalog Number]_1 file names (MPM Derivatives):
    - **a.** Copy the images into **`I:\Digitization\Invertebrate Zoology\Entomology\TPT\Slides\[Today's Date]`**.
    - **b.** Use TeraCopy when prompted.

    For files with MPM-MPM_ENT[catalog number]_1 file names (SCAN Derivatives):
    - **a.** Copy the images into **`I:\Digitization\Data Aggregator Batches\TPT\TPT Slide Batch 1`** (or whatever numbered folder is available.)
    - **b.** Use TeraCopy when prompted.

17. Once you are **completely** finished with all the holder folders **AND** have backed up/moved the files as appropriate, you should delete the original folders and scans in this folder. **Do not delete folders as you go**.

Phase Two: Scanning

If for some reason you cannot assign a barcode to a slide, or assign a barcode and cannot scan that slide (it's broken, there's labels on the back, etc), please leave a note in the notes field of the slide scanning group tracker. Make sure that the discrepancy is reflected in the number slides.

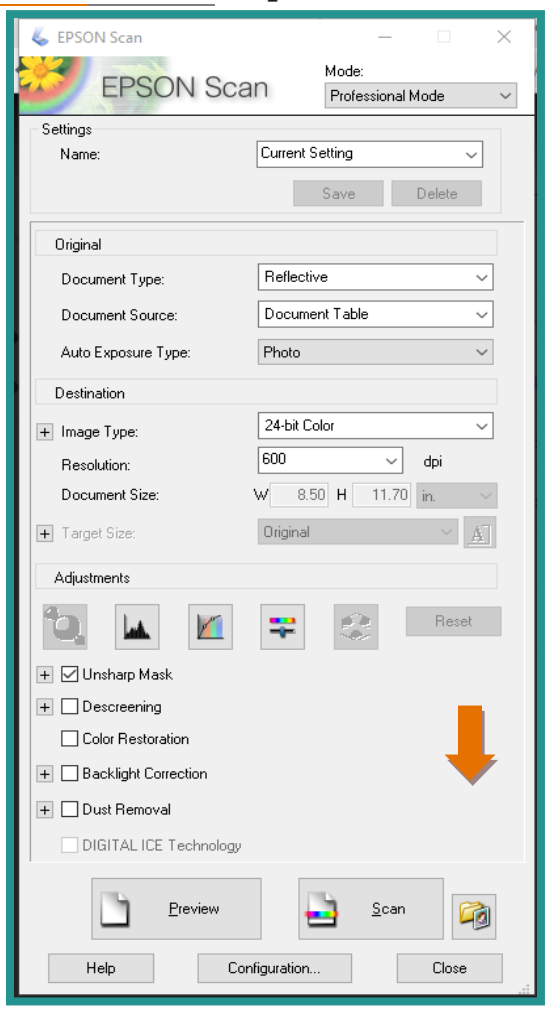
A. Scanning

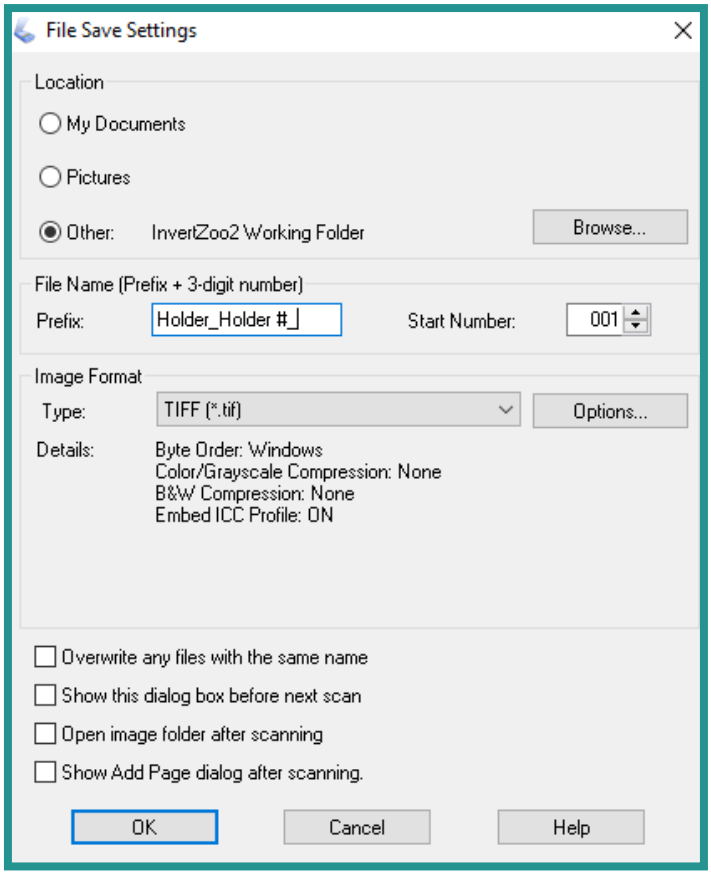
Before each use, make sure the scanner bed is clear of dust and debris, and that the slide tray is free of dust and smudges. **Do not use alcohol on the slide tray.**

To set up the scanner for the first time, follow the steps in Appendix B.

1. Click the **File** icon next to the "Scan" Button.

2. In the **File Save** menu, change the settings to match those below:
   a. **Location:** Other (Browse for **`C:/ InvertZoo2Working Folder/`**). You will need to create a dated folder (YYYY_MM_DD) for each day you scan.
   b. **Image Format Type:** .tiff
   c. **File Names:** The name for the scan should be Holder_Holder#_. The Epson scanner will automatically append a number starting with 001 on the end. **Remember to reset the counter to 001 when you start a new holder**. An example of a file name is: Holder_123456_001. The second scan of that holder would be Holder_123456_002.

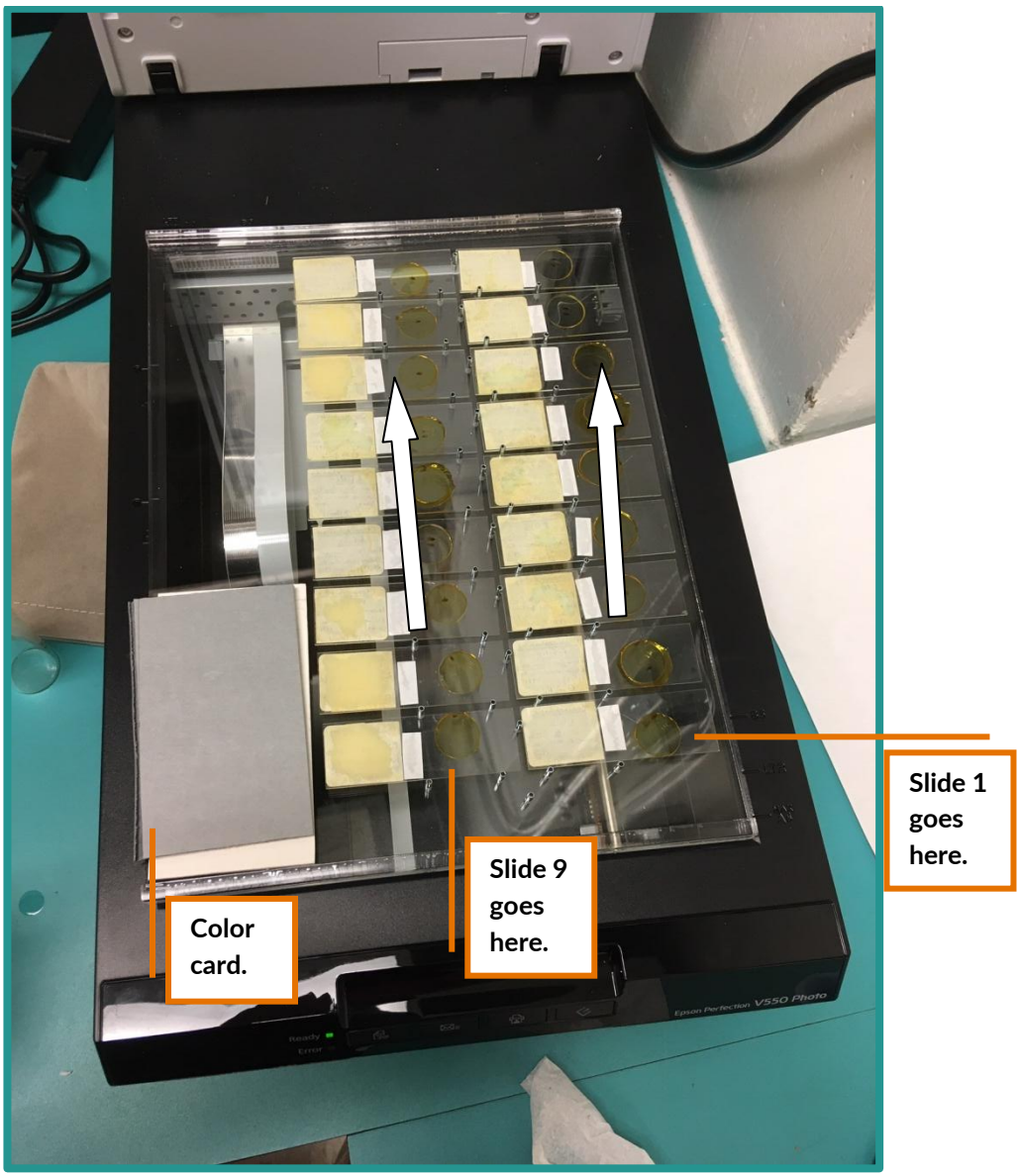




B. Loading the Slides into the Tray & Scanning

While most slide holders contain 25 slides, the slide tray can only hold 18 slides. This means that you will generally scan slides from a single holder in two groups. An easy way to recall where you left off scanning is to place slides in the same order, starting with the first slide in the box. Most boxes have slides that all face the same direction. We consider the direction all the slides face as the front of the box. For slides in metal trays, the slide in tray spot #1 is the first slide.

1. Place the first slide in the first slot on the slide scanner. Continue loading slides down the right side of the slide tray, and start at the bottom of the left side (as shown below).



2. Place color card face down on lower left side of the tray, flush against the bottom lip.

3. Place tray onto scanner bed lined up in the same way each time. Place the tray so it rests as flat as possible and all slides and labels are completely visible.

4. Take the time to square the slides with the pegs. This will make segmentation easier.

5. Carefully close scanner lid so it rests on the pegs.

6. Hit the **Scan** button on the Epson software interface.

7. Continue scanning till you have finished all slides in the holder.

8. Update the Scanning Tracker spreadsheet with the date you scanned the holder, the number of total scans of that holder as well as the number of slides you scanned total for that holder. **Do not scan only part of holder in a given day.** By the end of this phase, you should have filled in the blue sections of the tracking spreadsheet.

A	B	C	D	E	F	G
Taxa(on)	**Holder**	**Barcode Range**	**# Slides**	**# images of holder**	**Scanning Date**	**Notes**
Ctenocepahlides f. felis ex canis familiaris	23854	ENT84561-EN	25	2	2/14/2020	

9. Continue scanning, until you run out of slides or are done for the day.

10. When you are finished for the day, back up your work using TeraCopy (*see Appendix D: TeraCopy*) to **`F:\Original Scans`**.

Note: You will have to unplug the barcode reader to plug in the LaCie Drive.

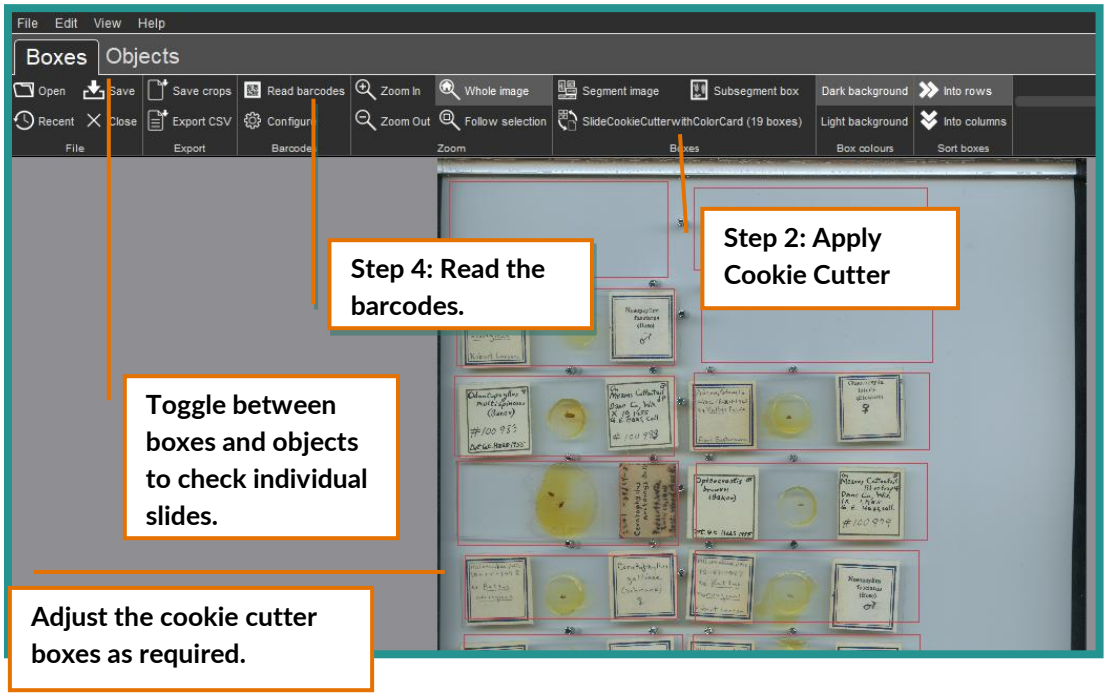
Phase Three: Segmentation and Renaming.

A. Inselect

For first time set up, see Appendix A to setup up the Barcode Reader and the cookie cutter.
You will use Inselect to segment and rename the images of individual slides.

1. Open your first scan. (Open> **`C:/InvertZoo2Working Folder`**)

2. Under the Cookie cutter menu, choose the Slide Cookie Cutter w/the Color Card and apply it.

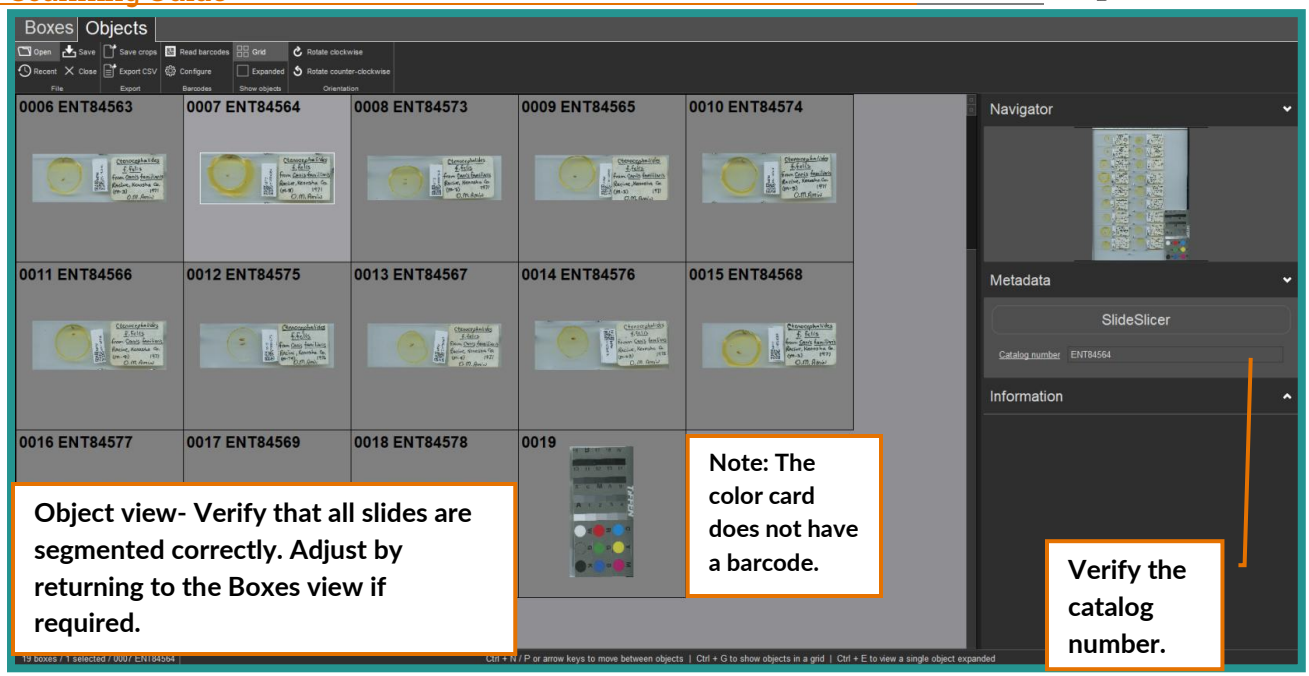


3. Adjust the individual boxes to ensure that the each slide is completely enclosed in the segmentation box. It is better to get some of the pegs in the photo than to clip part of the slide.

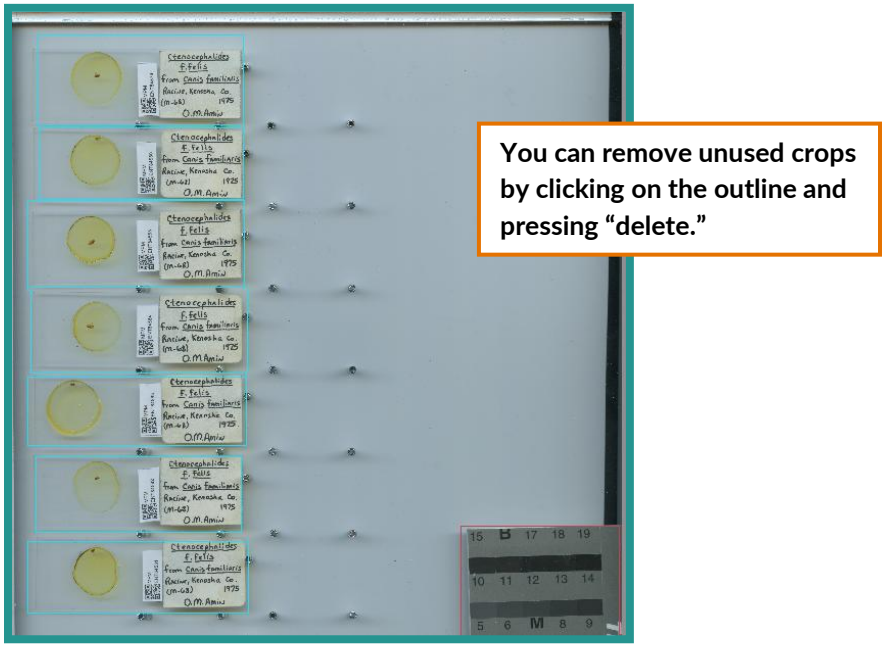
4. Click the "**Read Barcodes**" button.

5. Check each segment to ensure that it the whole slide is visible and that the Program has read and applied the barcode correctly.

Note: Some slides might have IZ catalog numbers. You will need to manually change the "catalogNumber" field in the metadata for these slides. See Appendix D for assistance in recognizing museum catalog numbers.



6. Delete any crops that do not have a slide in them, if needed.



7. Click on "**Save Crops**". You will get an error (the color card does not have a barcode). Click **OK**. Inselect automatically saves the .tiff crops in a batched folder, labeled by holder number.

8. After you finish each original scan, update the Slide Processing worksheet. By the end of this step, you should have filled out the yellow portions of the Slide Processing worksheet.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Holder Folder Name	# individual slide images	# Images to process	# Unique Cat numbers	Needs Review	OK to Process	# Images created for SCAN	# Images for Master Collections (Tiff+JPeg =Total)	Date Processed	DNG and Access Jpeg moved to Batch Folder (Date)	Batch #	Imported (Date)	Migrated (Date)	Verified (Date)	Notes
				☐	☐									
				☐	☐									
				☐	☐									
				☐	☐									
				☐	☐									
				☐	☐									
				☐	☐									
				☐	☐									
				☐	☐									
				☐	☐									
				☐	☐									
				☐	☐									
				☐	☐									
				☐	☐									
				☐	☐									
				☐	☐									
				☐	☐									

9. Continue cropping till you run out of scans.

10. At the end of the day, back up your Cropped Holder Folders to **`F:\Scans and Crops`**, using TeraCopy to copy and paste the images. Please note that you will have to unplug the scanner to plug in the LaCie (F:\) drive.

Appendix A. Setting up Bridge

Metadata template

First, you will need to create a metadata template. You will use this on every image.

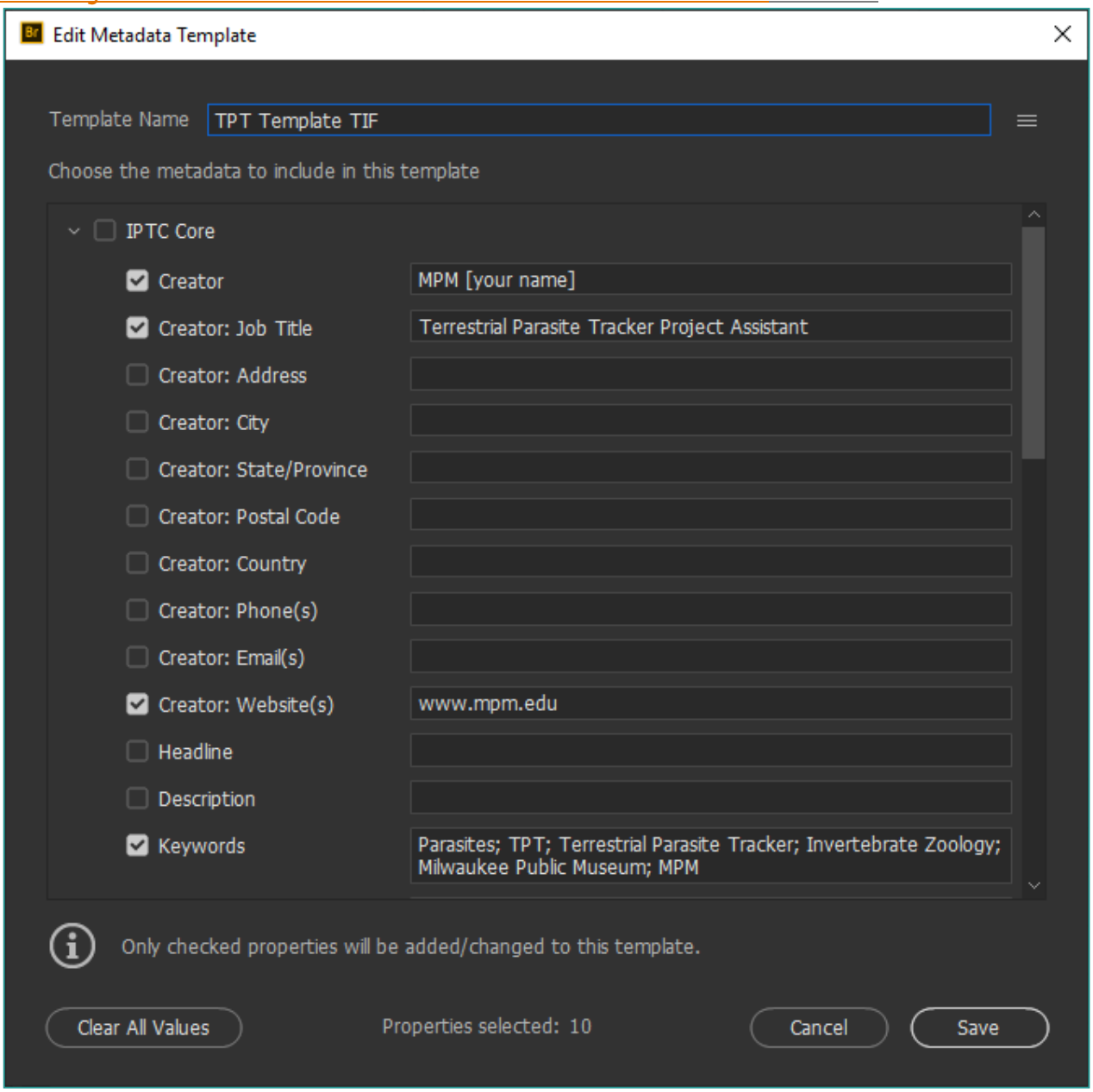
1. Open Bridge, and go to Tools>Create Metadata Template.
2. Under IPTC core, fill in the values in the table below.
3. Save your preset as (your name) slide preset.

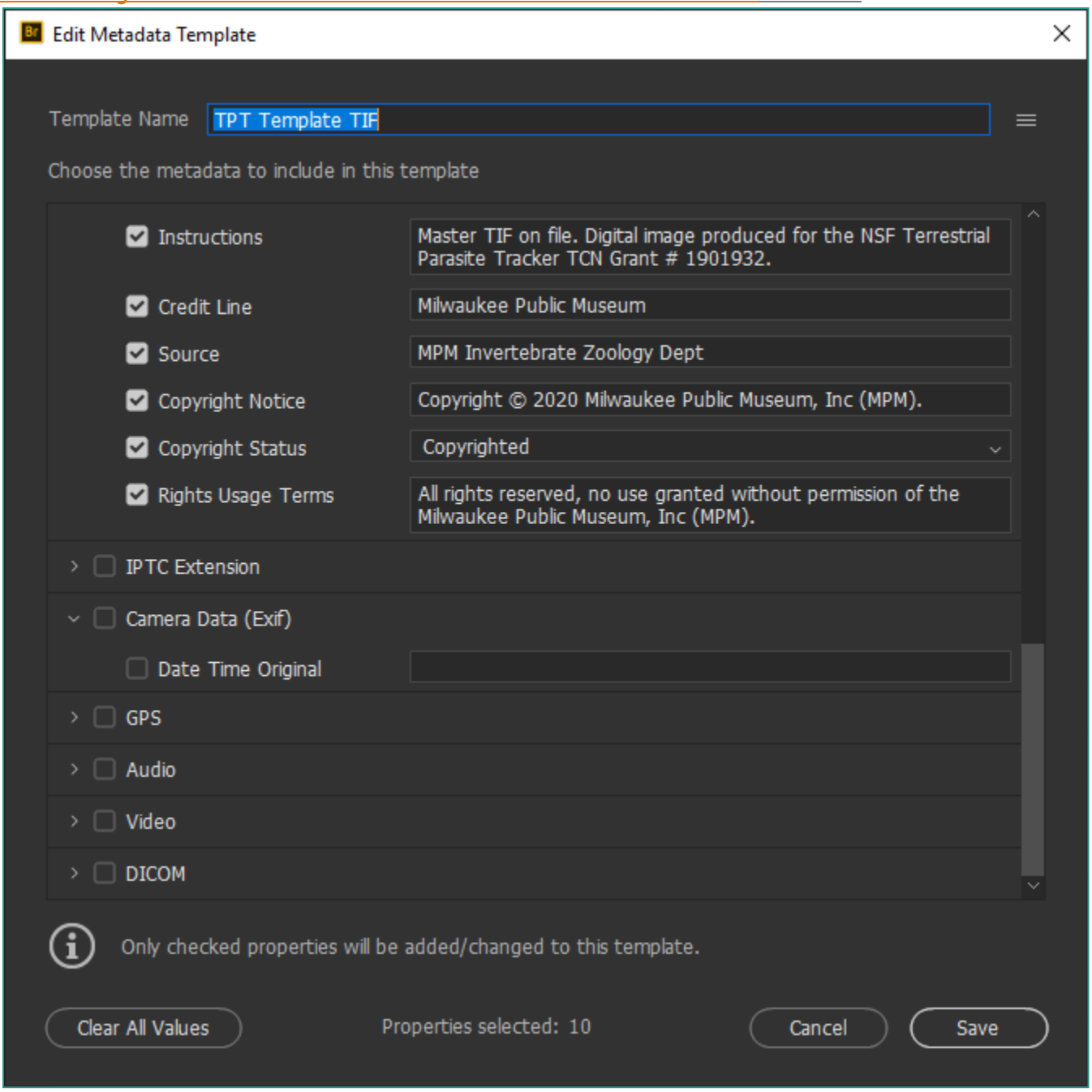
Template Field	Information	Instructions
Copyright	Copyright © 2020 Milwaukee Public Museum, Inc (MPM).	
Copyright Status	Copyrighted	Select from drop menu.
Rights Usage Terms	All rights reserved, no use granted without permission of the Milwaukee Public Museum, Inc (MPM).	
Creator	MPM [Your name]	Please include the brackets around your name.
Creator Website	www.mpm.edu	
Creator Job Title	Terrestrial Parasite Tracker Project Assistant	Use another title if applicable.
Instructions	Master TIF on file. Digital image produced for the NSF Terrestrial Parasite Tracker TCN Grant # 1901932.	If creating a master DNG, substitute the correct file type in the text.
Credit Line	Milwaukee Public Museum	
Source	MPM Invertebrate Zoology Dept	
Keywords	Parasites; TPT; Terrestrial Parasite Tracker; Invertebrate Zoology; Milwaukee Public Museum; MPM	

Note: Press the Alt key and type “0169” to insert the copyright (©) symbol.

Use the screenshots below as a guide for your metadata template. You may copy and paste into the fields as needed from the “TPT Metadata Template” table in your TPT Project team drive, subfoldered in “Photography.”

You can close sections by clicking the arrow next to the headings.


Edit Metadata Template
Template Name
TPT Template TIF
Choose the metadata to include in this template
IPTC Core
Creator
MPM [your name]
Creator: Job Title
Terrestrial Parasite Tracker Project Assistant
Creator: Address
Creator: City
Creator: State/Province
Creator: Postal Code
Creator: Country
Creator: Phone(s)
Creator: Email(s)
Creator: Website(s)
www.mpm.edu
Headline
Description
Keywords
Parasites; TPT; Terrestrial Parasite Tracker; Invertebrate Zoology; Milwaukee Public Museum; MPM
Only checked properties will be added/changed to this template.
Clear All Values
Properties selected: 10
Cancel
Save



When you have filled out the fields (10 fields, including the Copyright Status), click Save. You should not have more than 10 fields filled.

Note:

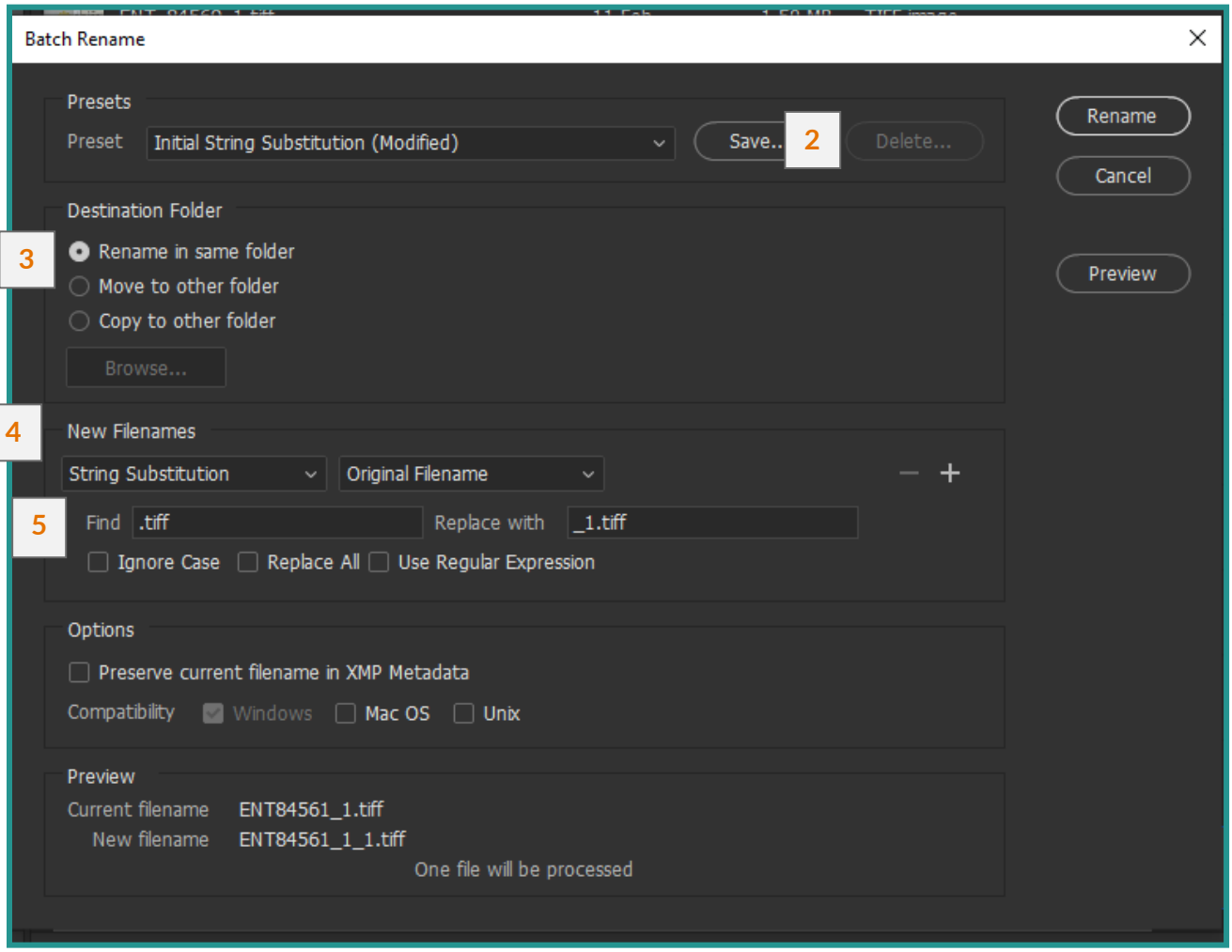
The above template is for appending to tif images. Depending on your processing workflow, if the tif template has already been applied, only the Rights Usage copyright field will need to be applied to jpg derivatives.

You can also create these templates in Lightroom and Photoshop. See the Digitization Manager if you need to add a template in another program.

Batch Renaming

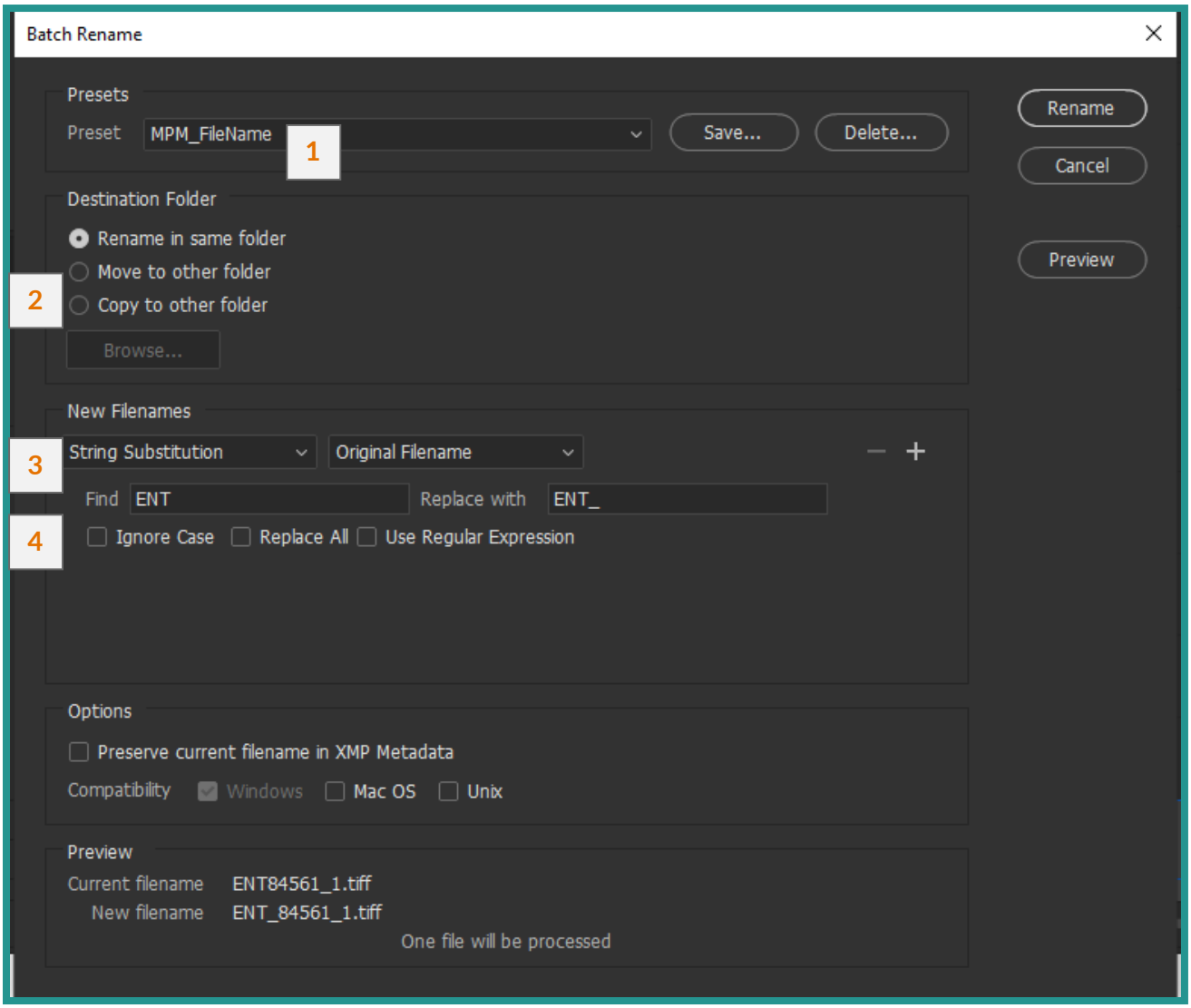
Second, you will need to set up two Batch Renaming settings. The first gets used on all images, and the second gets used on images destined for the MPM Image Repository and EMu.

1. Go to **Tools>Batch Rename…** (or CTRL+Shift+R)
2. Go to **Save** and rename the setting to "Initial String Substitution"
3. Under **Destination Folder**, check "Rename in Same Folder."
4. Under **New Filenames** Choose "String Substitution and "Original Filename"
5. In the **Find** box, type in ".tiff" In the Replace with "_1.tiff". Do not include the quotation marks.



The second string substitution gets used on in-house images. As before, open up **Batch Rename**.

1. First, rename by going to "Save…" and naming the **Preset**.
2. Under **Destination Folder**, check "Rename in same folder"
3. Under **New Filenames**, Choose "String Substitution" and "Original Filename".
4. In the **Find** box, type in "ENT", and in the replace box, type in "ENT_"

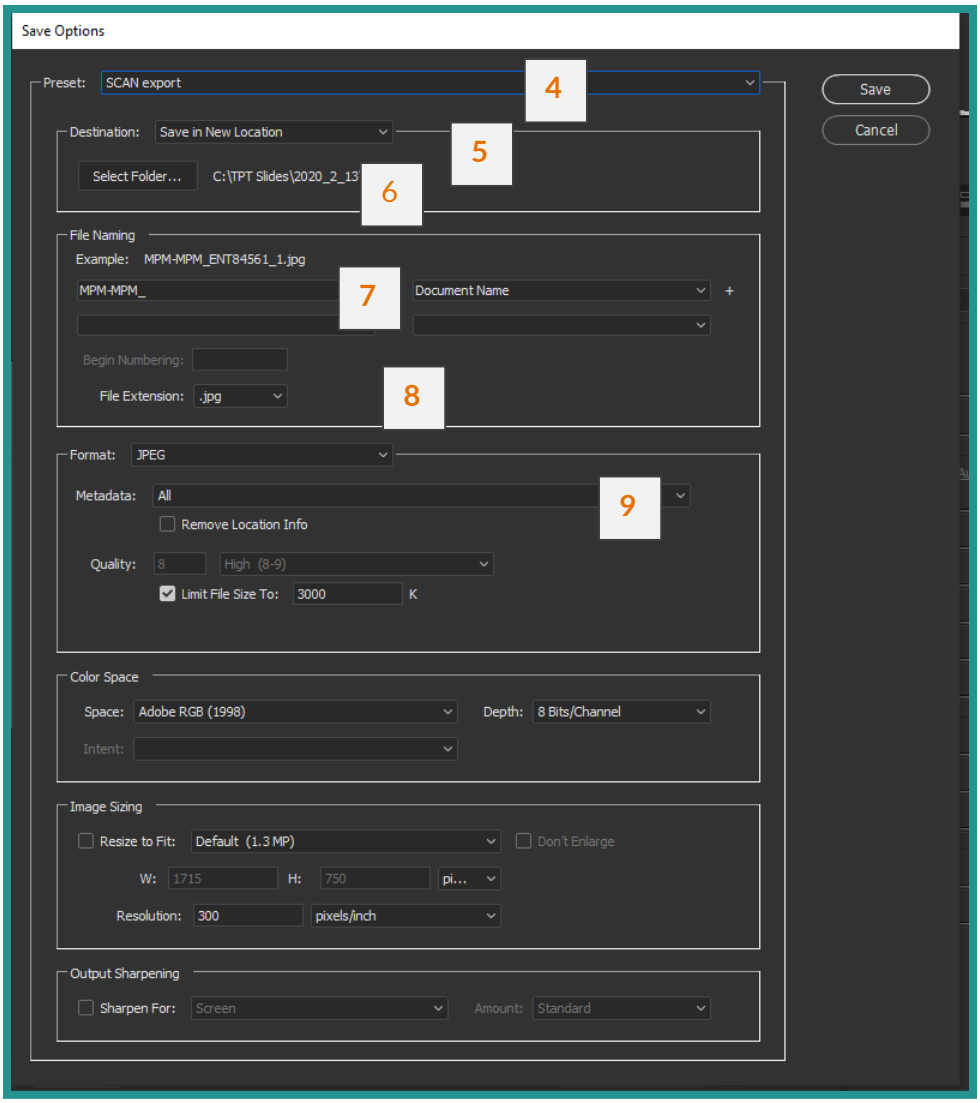


Export Settings

You will need to create three separate export settings for the three derivates: a .jpg for SCAN; the archival .TIFF copy; and the low-res access .jpg image for EMu).

SCAN Export

1. Open **Camera Raw** by selecting an image (any image will do), right click, and select "Open in Camera Raw"



2. Go to "**Save Image...**" in the lower left hand corner.
3. In the resulting Menu, fill in the following settings:
4. **Preset**: "New Save Options Preset" and call it "SCAN export."
5. **Destination**: Save in New Location
6. **Select Folder**: **`C:\TPT Slides\Today's Dated folder (YYYY_MM_DD)`**

7. File Naming: In the first box, Type in "**MPM-MPM_"** and in the second box, choose "**Document Name**

8. File Extension: .jpg

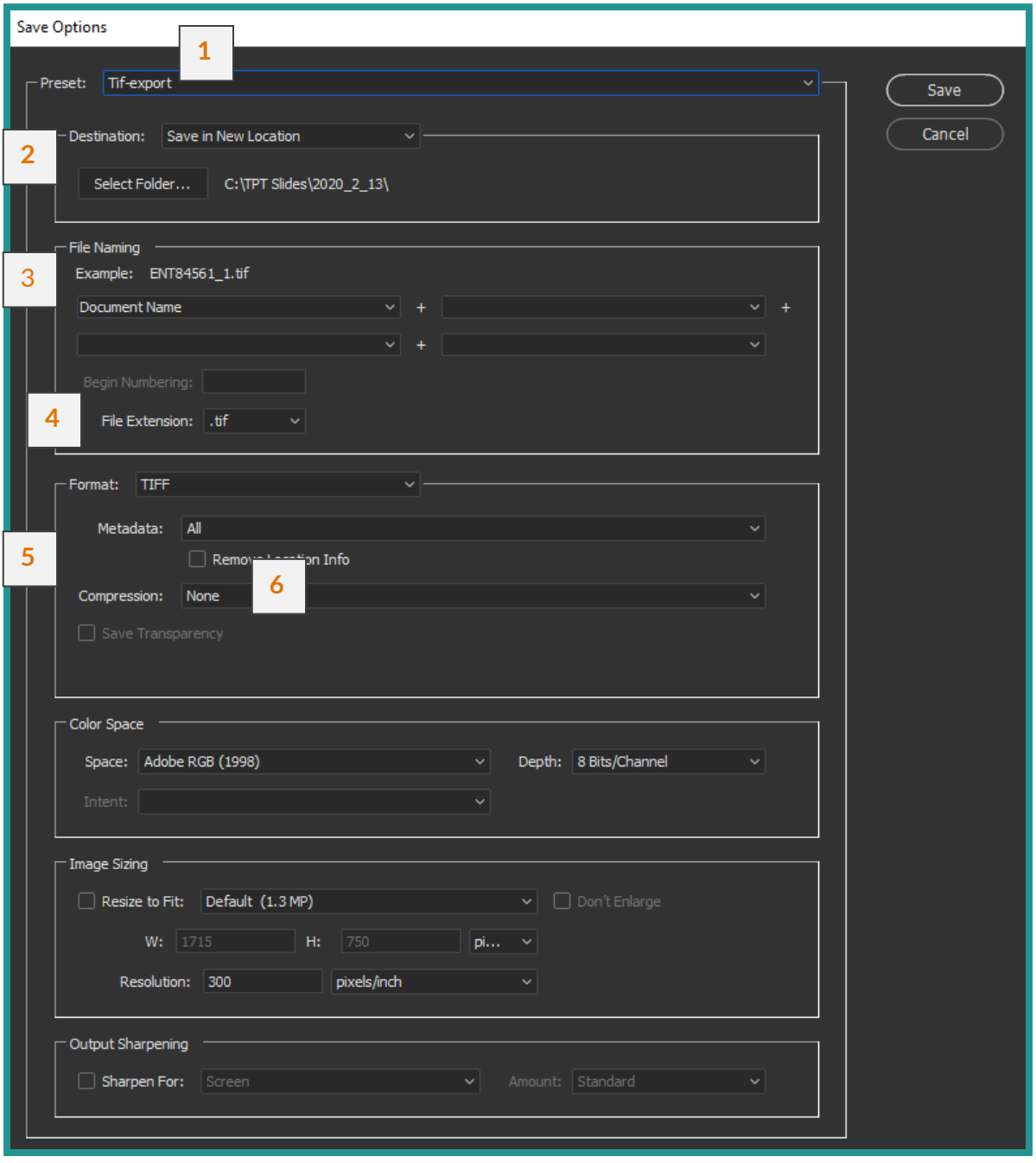
9. In the next section, ensure that the pull down box next to **Metadata** says "All".

10. Quality: Check "Limit File Size To" box and enter 3000 for the size

TIFF Export

This export creates Tiff images for the MPM image archive.

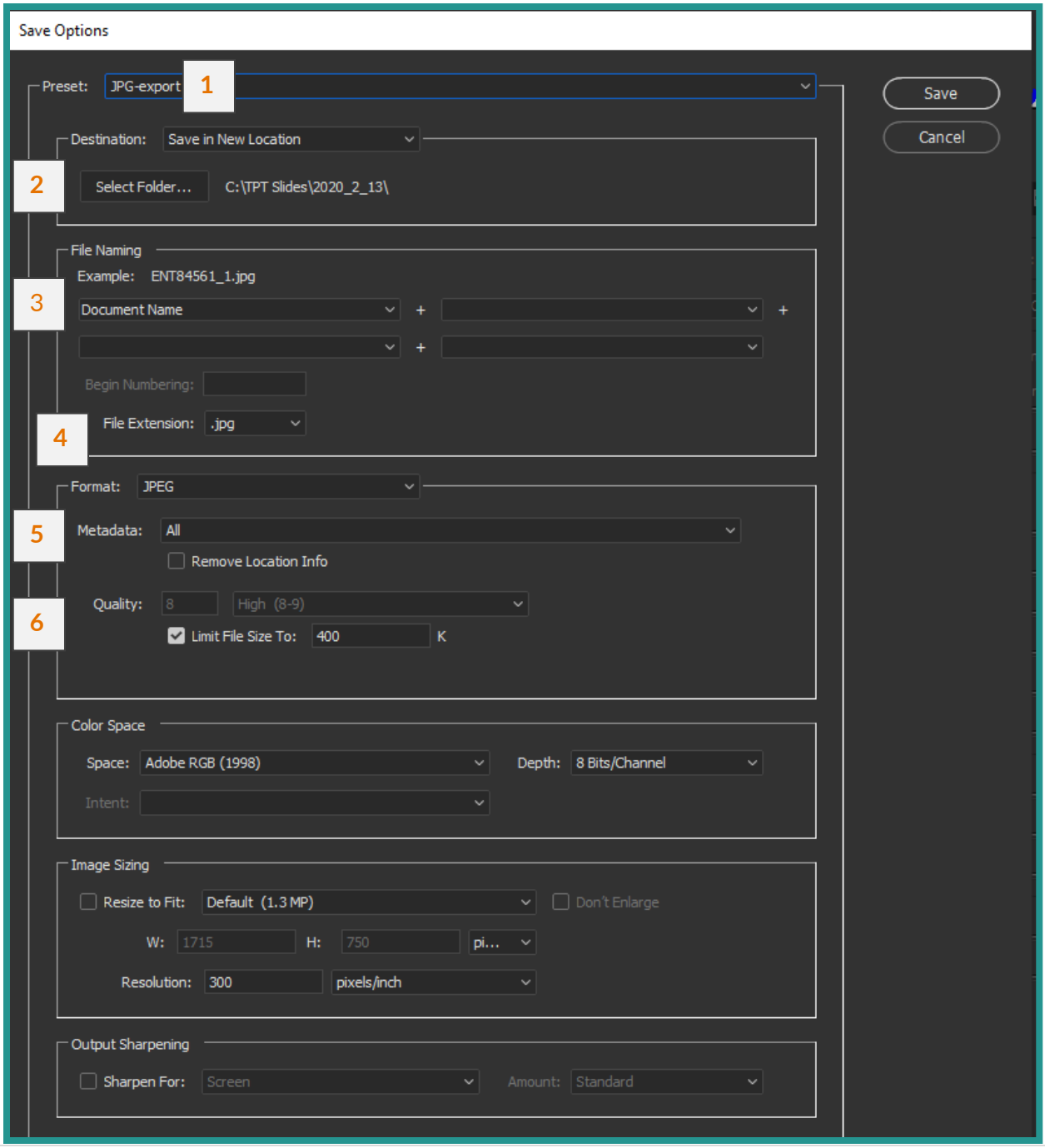
1. **Preset**: “New Save Options Preset” and call it “Tiff Export”
2. **Folder: `C:\TPT slides\ Dated Folder`**
3. **File Naming:** Document Name
4. **File Type:** .tif
5. **Metadata:** All
6. **Compression:** None



JPG Export

This export creates access (thumbnail) images for our EMu database.

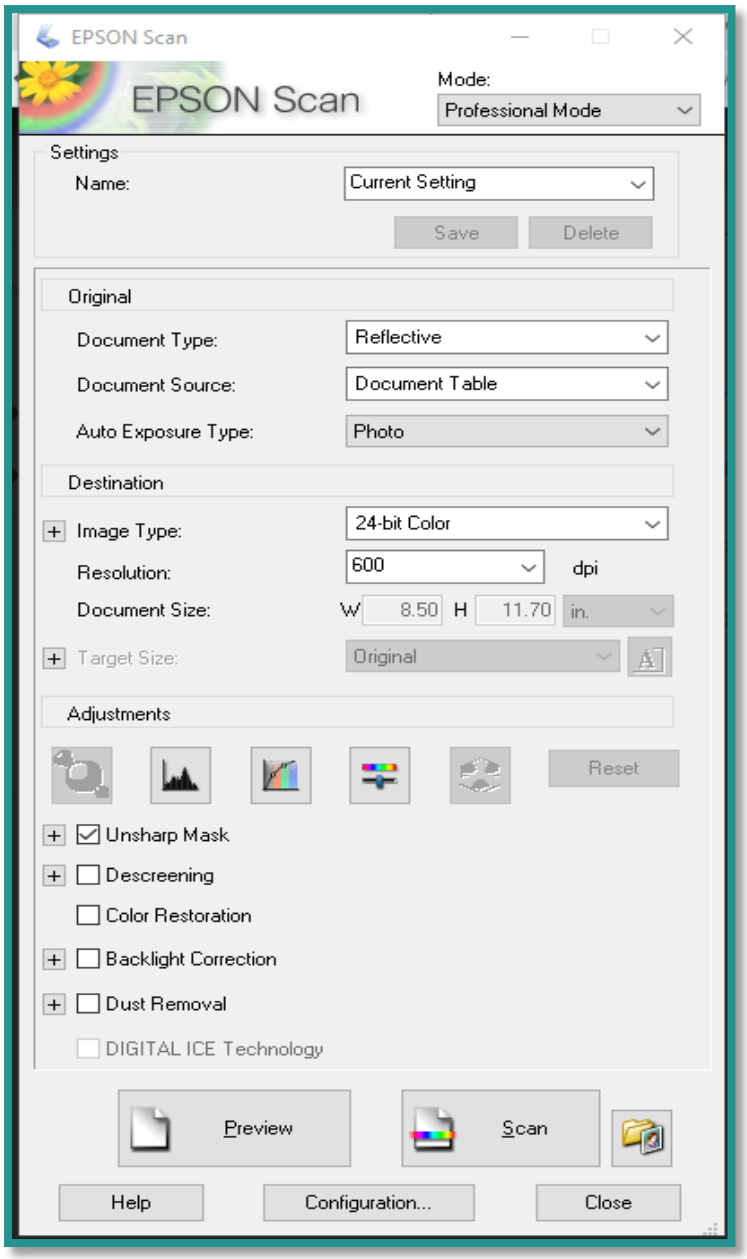
1. Name the **Preset** "JPG-export"
2. **Destination:** Save in New Location & Select Folder…: **`C:\TPT Slides [Dated Folder]`**
3. **File Naming:** Document Name
4. **File Extension:** .jpg
5. **Metadata:** All
6. Check the "**Limit File Size To**" box, and enter 400 as the size limit.



Appendix B. Initial Scanner Setup

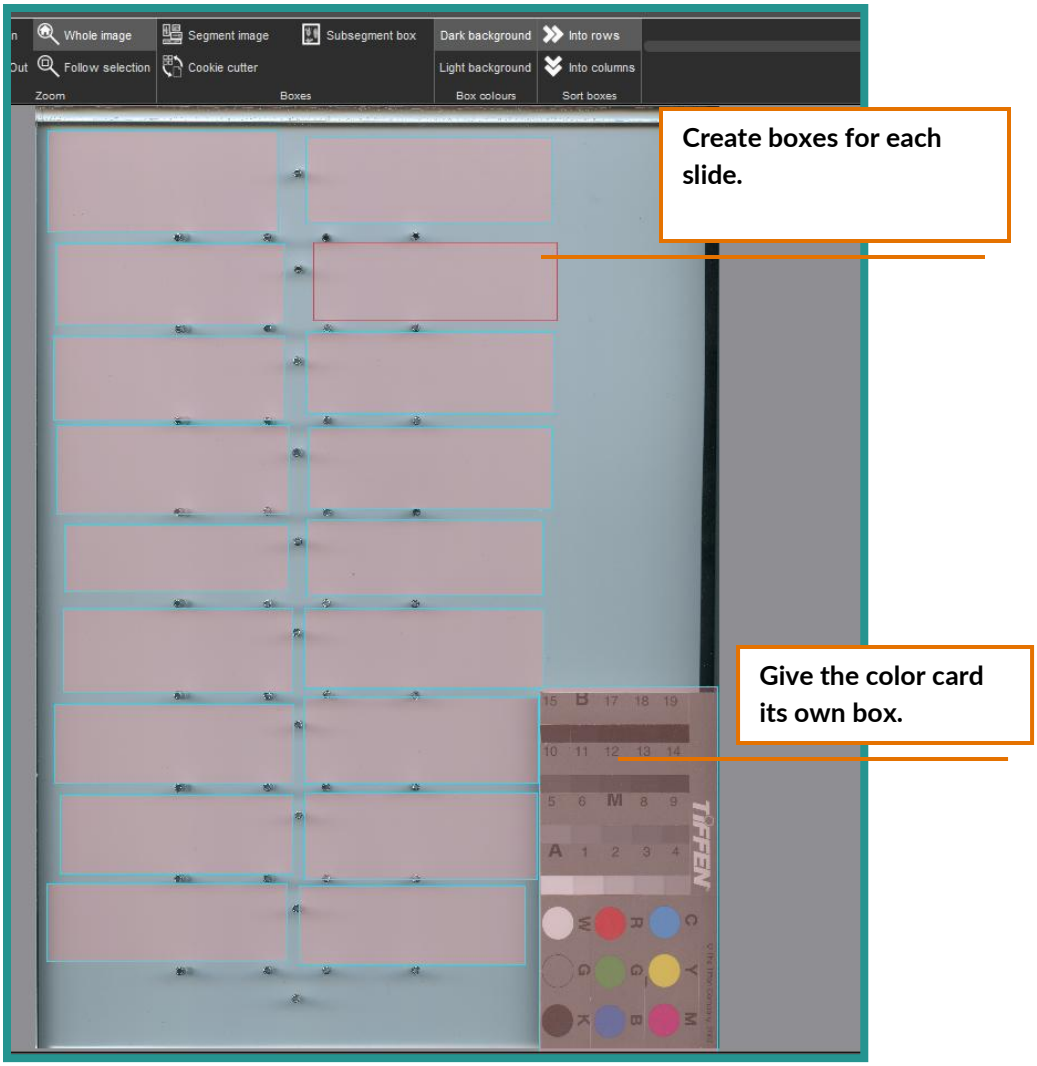
1. Turn on the scanner. The power button is located on the right side of the scanner, near the back.
2. Open the **Epson Scan Software**.
3. Change the settings to match those below:
    - **Mode**: Professional Mode *(top right drop menu)*
    - **Document type:** Reflective
    - **Image type:** 24-bit
    - **Auto Exposure type:** Photo
    - **Target Size:** Original
    - **Resolution:** 600 dpi
    - **Document size:** 8.5 x 11.7 (the default)
    - Check the "**Unsharp Mask**" box near the bottom.

4. After initially changing settings they will remain the same when you reopen the software. Additionally you can save this as a setting under Settings> Name> (Type in a new name such as "Slide Scans") and hit **Save**.

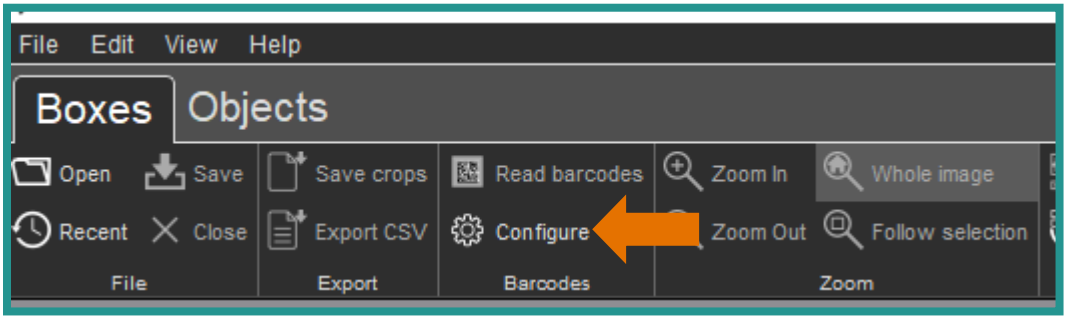


Appendix C: Setting Up Inselect

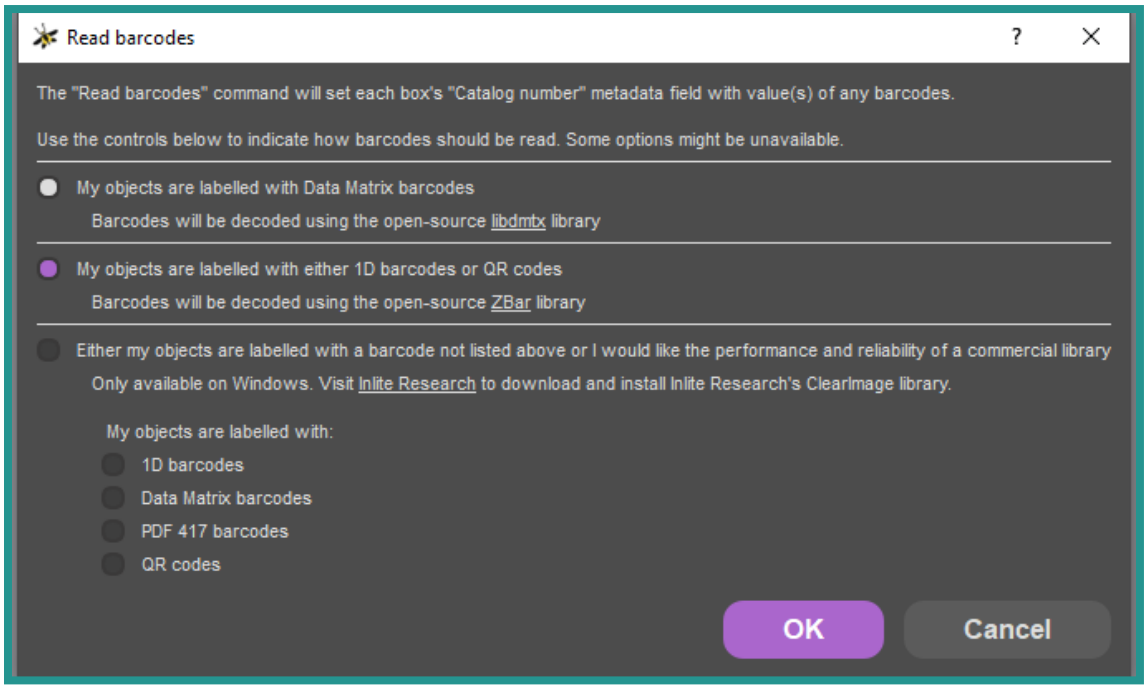
1. Scan the blank tray with the color card in place.
2. In **Inselect**, open the image you have just scanned.
3. Right click and drag the mouse to create bounding boxes in each of the slide holder spots. Create a bounding box around the color checker as well.
4. Go to the "**Cookie Cutter**" Menu option, and at the bottom select "**Save Boxes to a New Cookie Cutter**"



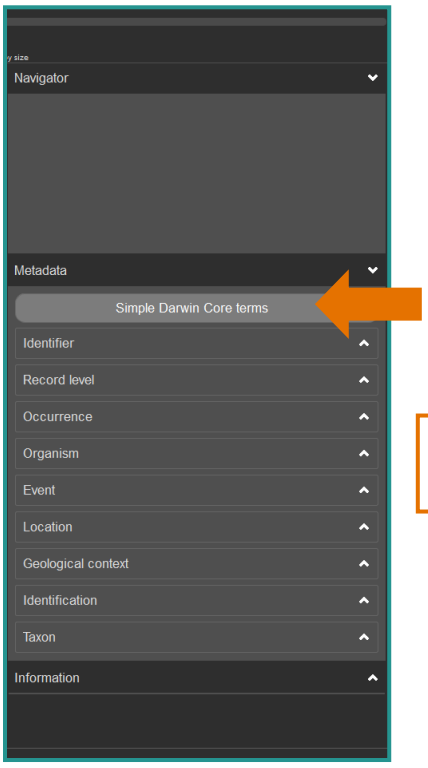
5. Go to the "**Configure Barcodes**" menu:

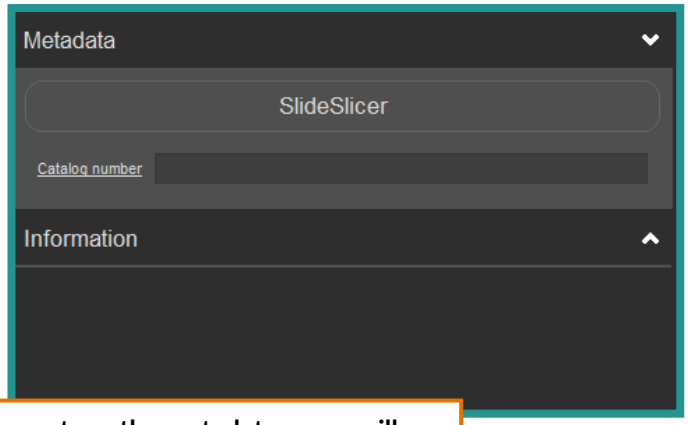


6. Select "**My Objects are labeled with either 1D barcodes or QR codes**," and hit "**OK**".



7. On the right side menu, click on the bar that says "**Simple Darwin Core Terms**" (*note: you may need to expand the metadata section to access this menu*). Select "**Choose**" in the menu that pops up, and navigate to **`C:\Inselect Documents`**. Choose the document called "**sialadae**". Inselect will now rename files based on their barcodes, and will export the final images as a .tiff file.



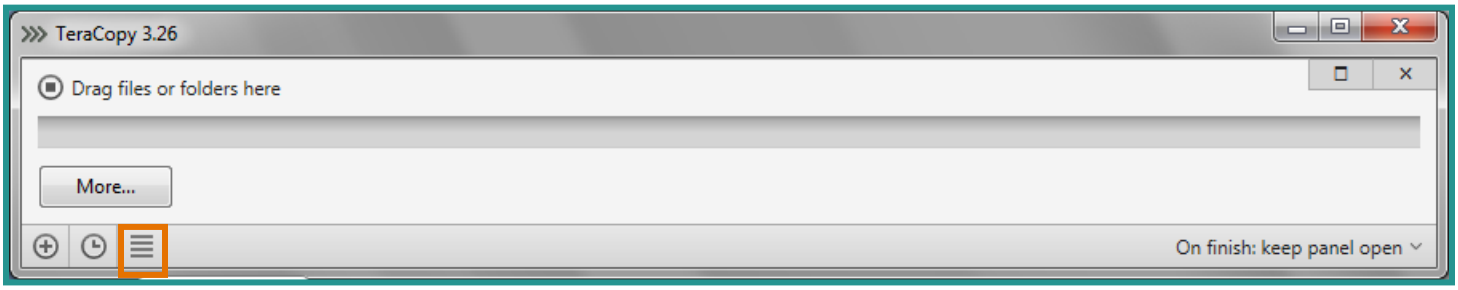


Once set up, the metadata menu will look like this.

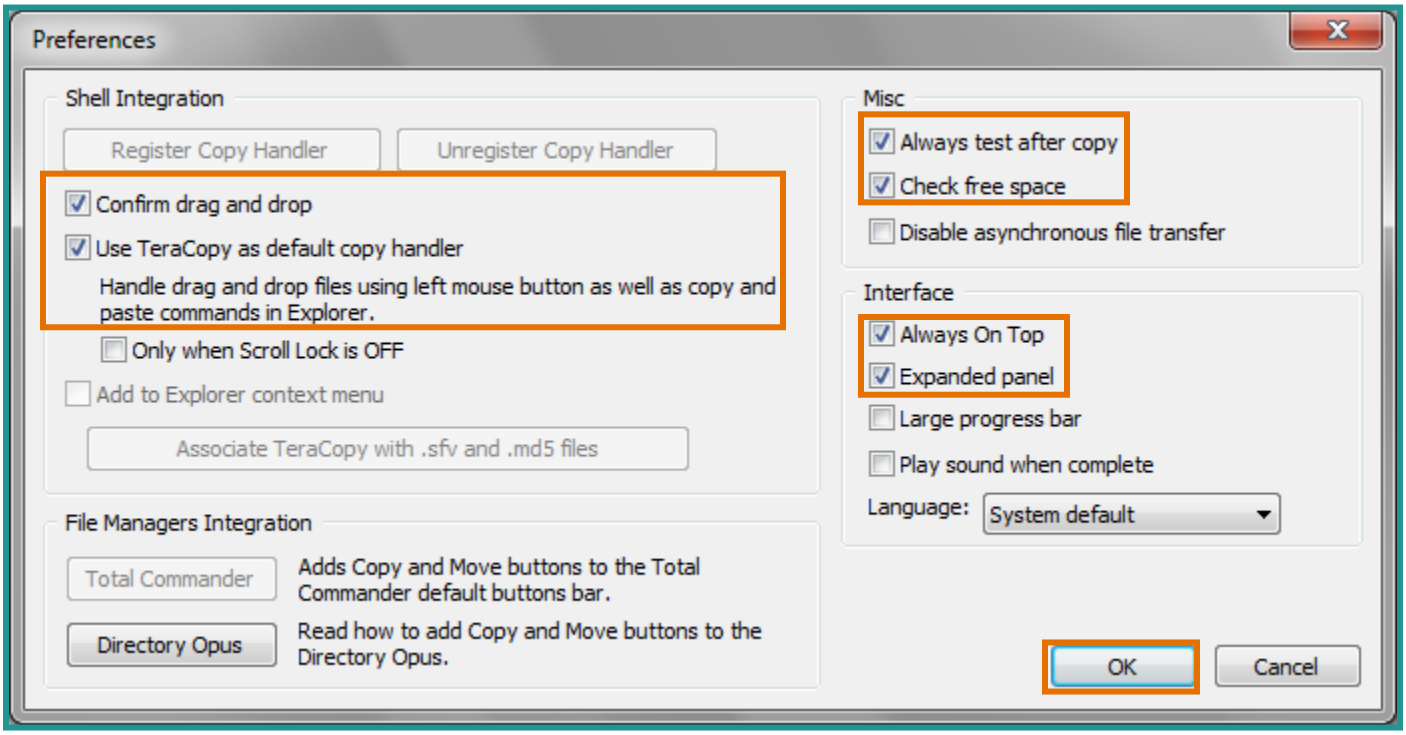
Appendix D. TeraCopy

TeraCopy is our preferred program for file copying and transferring images between hard drives and the network drive. To set up TeraCopy for the first time:

1. Open **TeraCopy**.
2. You will see a long window with a progress bar. Click the menu button in the left hand corner of the window:



3. Select "**Preferences**."

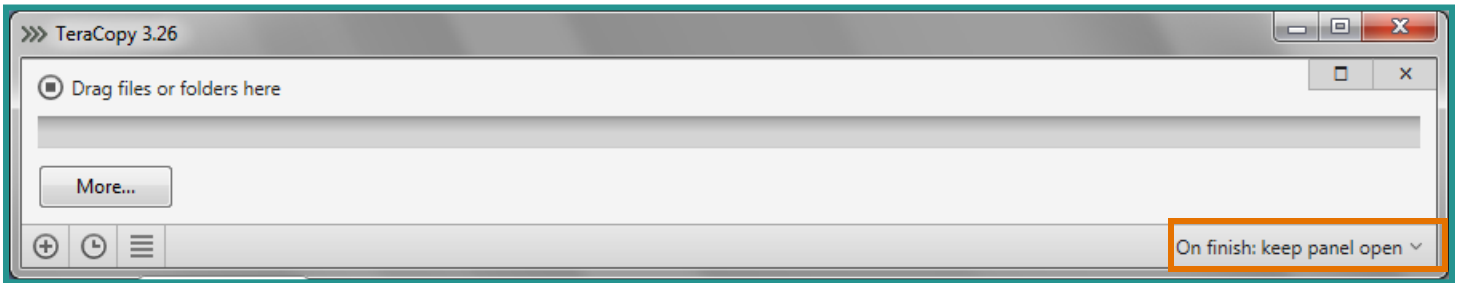


Check:

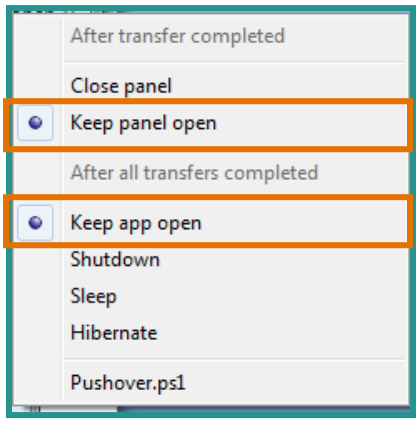
- ☐ Confirm drag and drop
- ☐ Use TeraCopy as default copy handler
- ☐ Always test after copy
- ☐ Check free space
- ☐ Always On Top
- ☐ Expanded Panel

Click "**OK**." These are now your default settings.

4. Click on "**On Finish**" in the lower right corner.

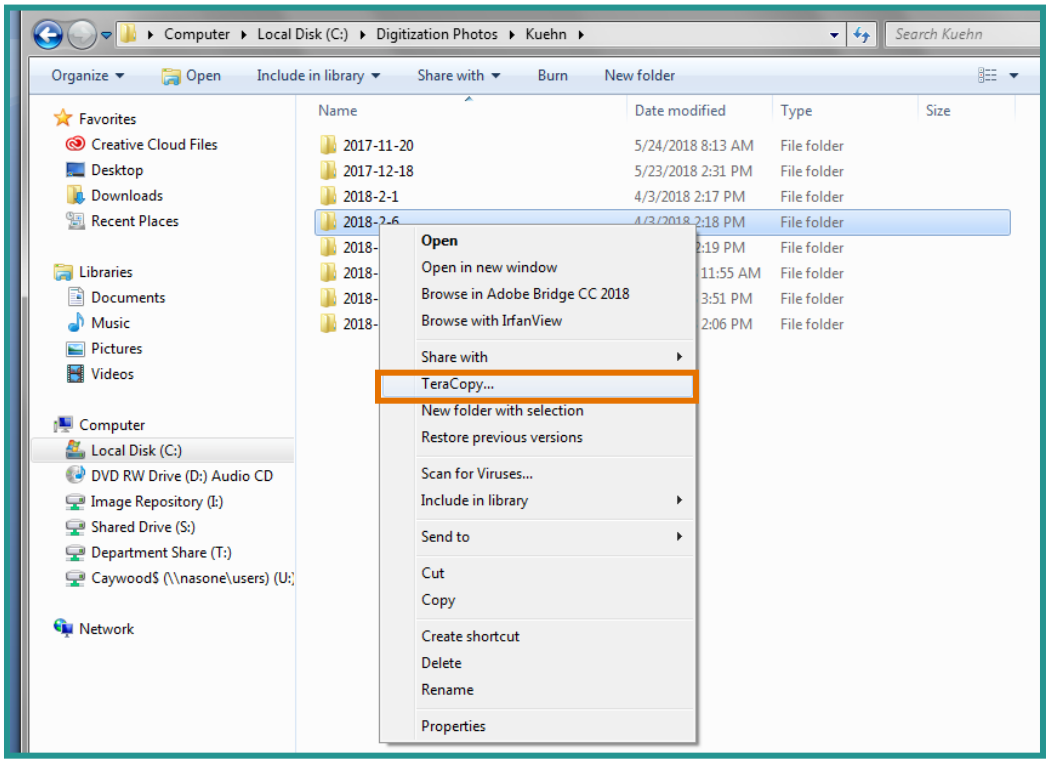


Select " Keep panel open" and "Keep app open."



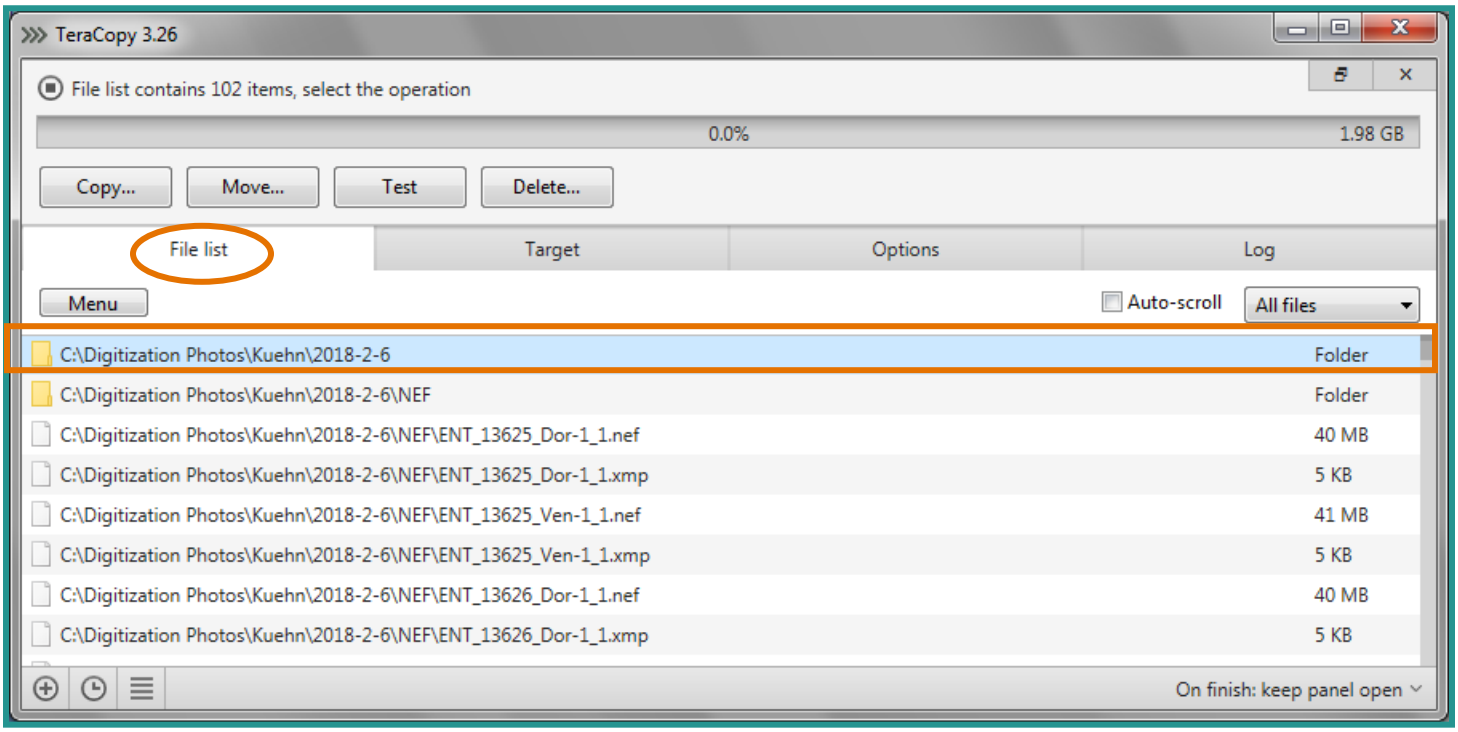
To use TeraCopy to copy files:

5. Find the folder(s) you wish to copy from the C: Drive. Right click and select "TeraCopy…" from the menu options.

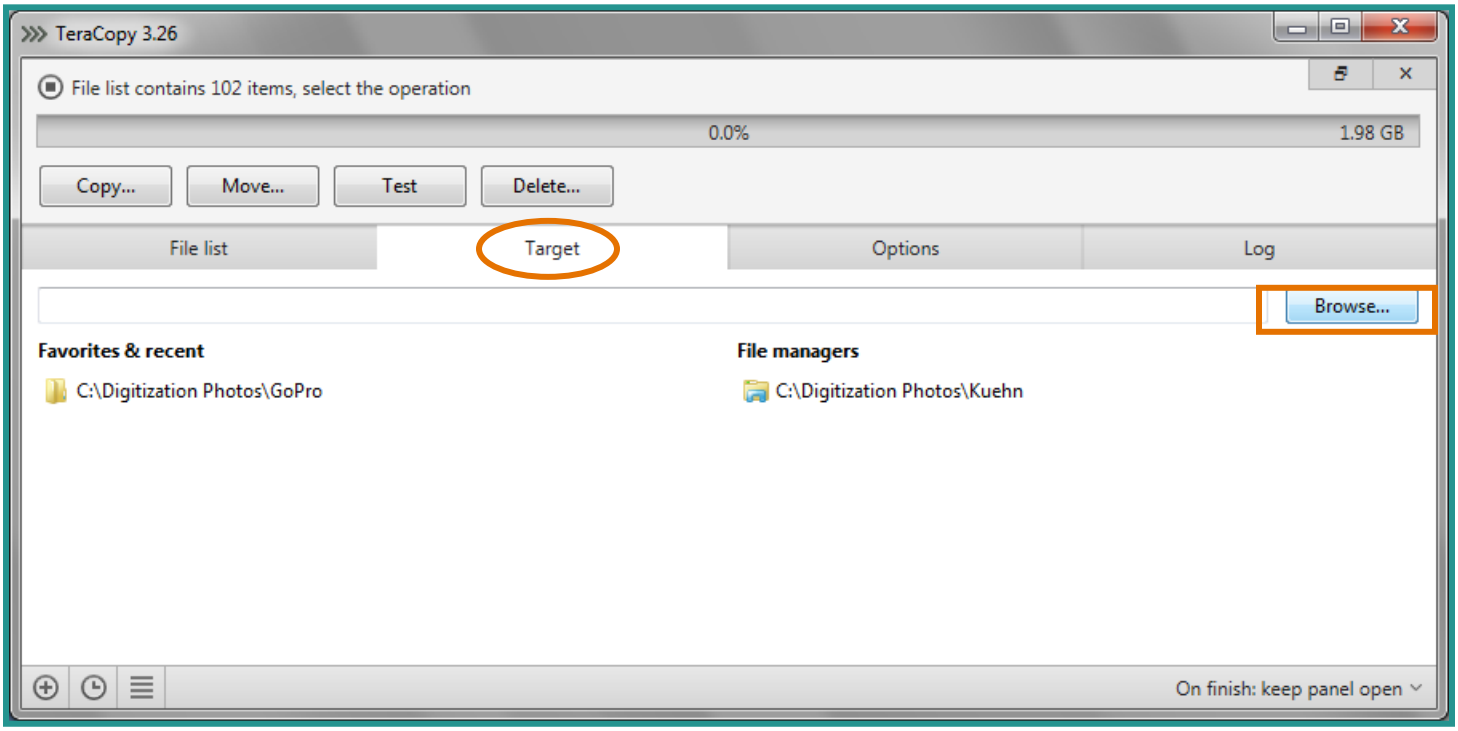


A window will open and you will see a progress bar, four buttons, and four tabs.

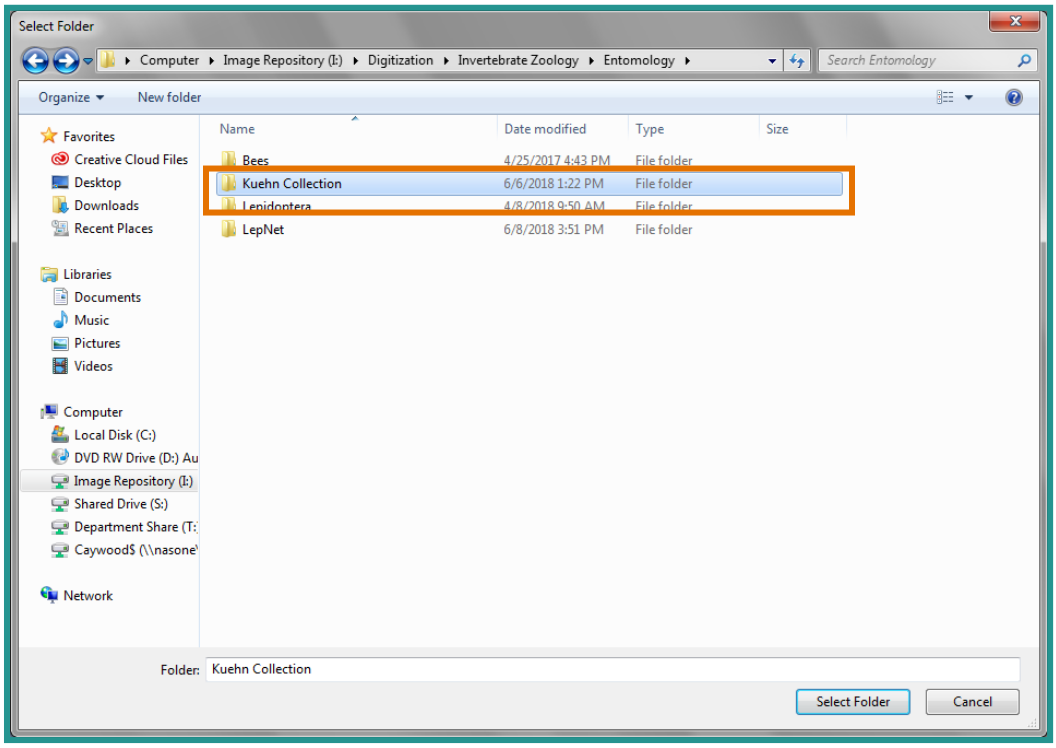
6. Find your folders in the first tab, “File list.”



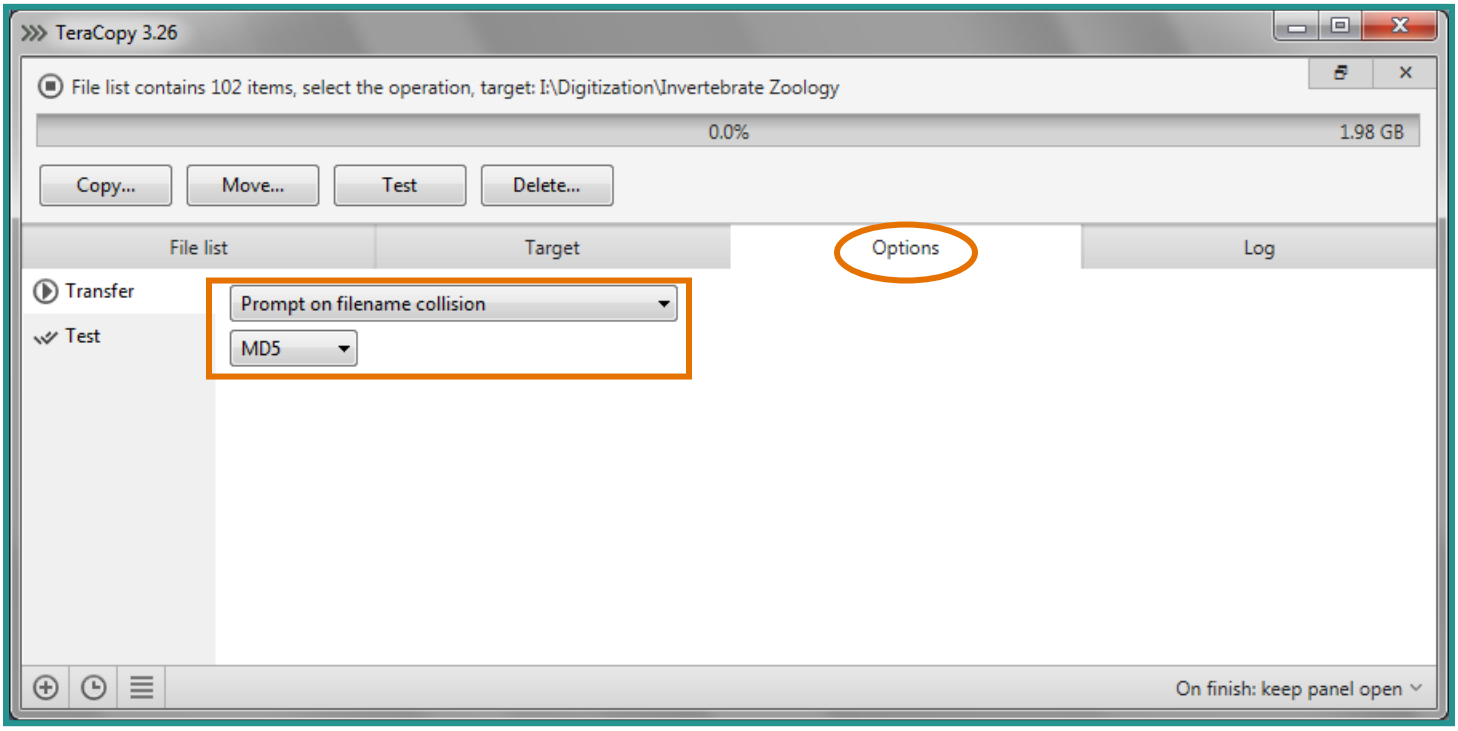
7. Click on the “Target” Tab. Click on the “Browse” button.



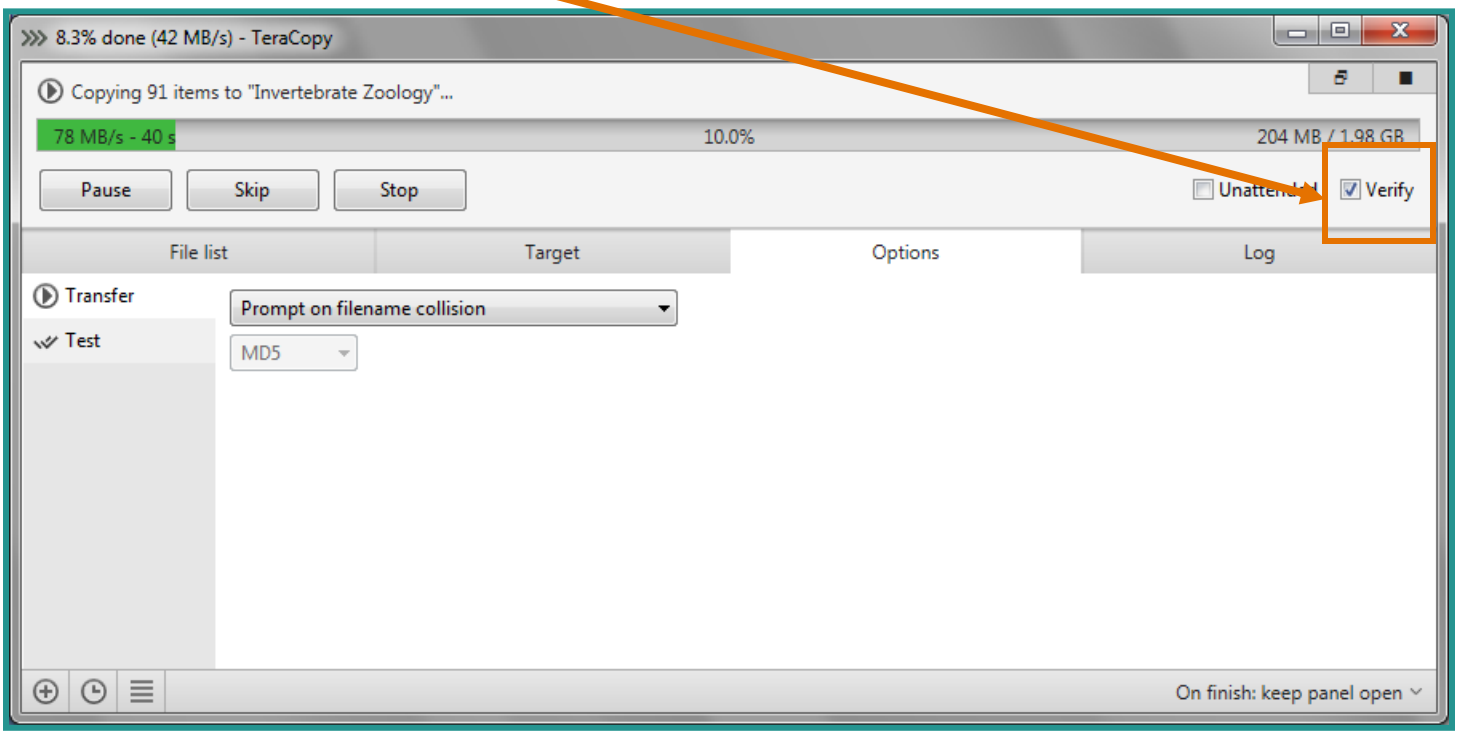
8. Choose the destination folder for the copied images.



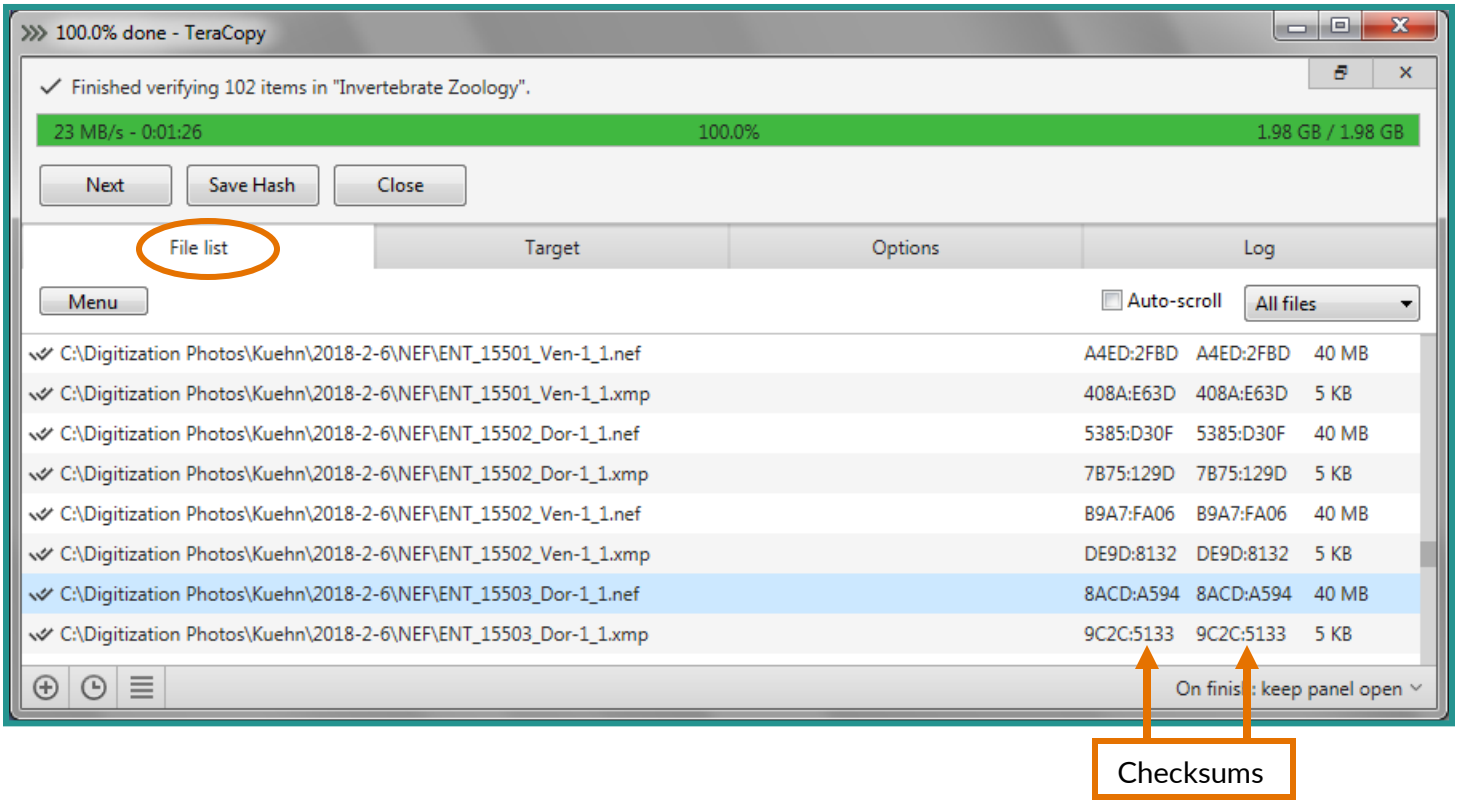
9. In the "Options" tab, select "Prompt on file name collision" and "MD5."



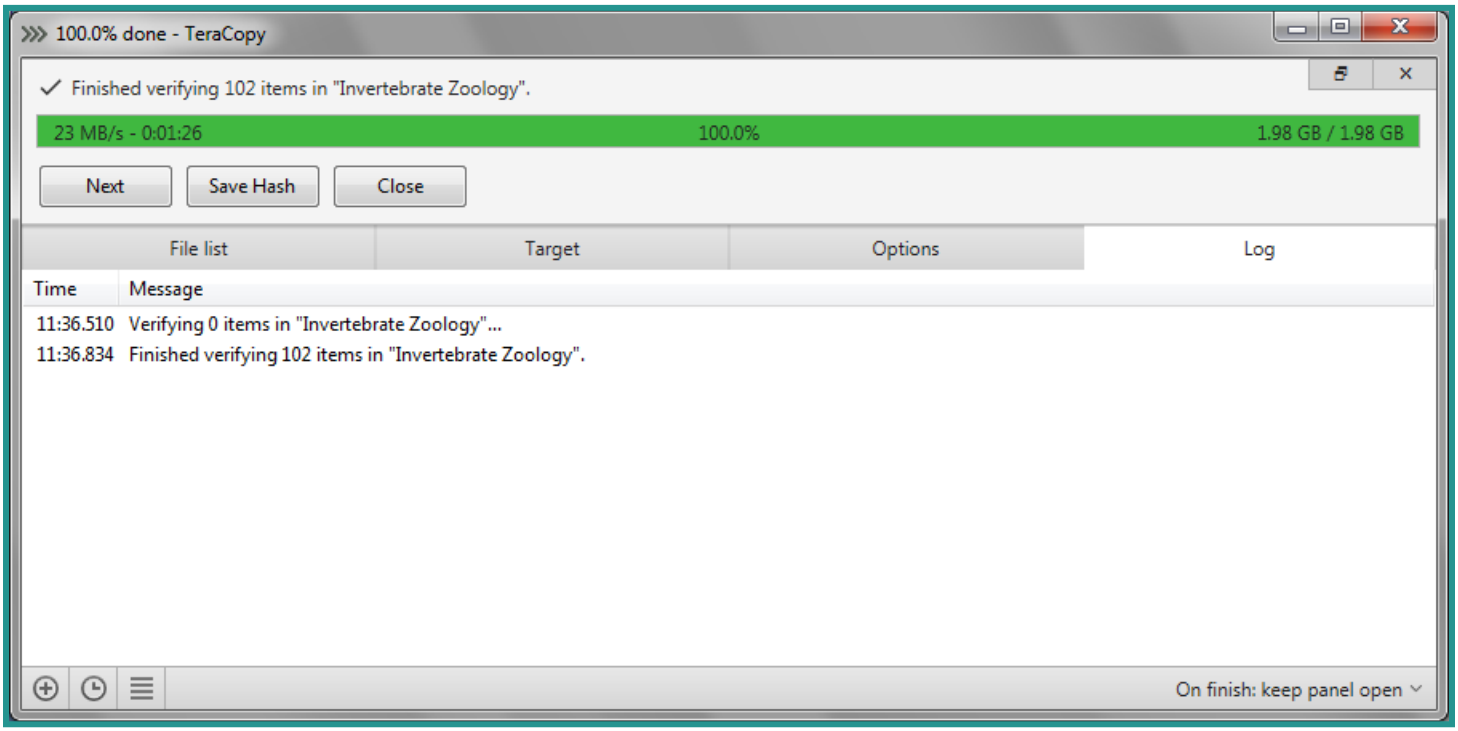
10. Click on "Copy." Click the "Verify" box (this box will stay checked during future operations).



You will see the progress bar fill twice—once for the copy, then for the verification. The file list will include two columns of checksums—one for the original file, one that will appear as each copied file is verified.



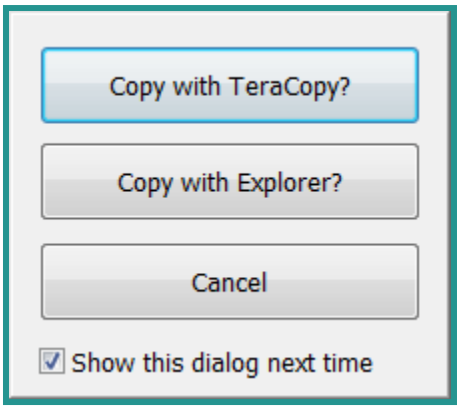
In the log, you will see the report. ***In the unlikely event there is an error in the copying process, contact the Digitization Manager for further instructions.***



11. If all files are verified without error, click "Close."

Note! After creating your default settings you may use TeraCopy through Windows Explorer:

1. Copy the file(s)/folder(s) you wish to copy as you normally would in Windows.
2. Go to the destination folder in Windows Explorer.
3. When you right click to paste, you will be prompted to choose Windows Explorer or TeraCopy. Select TeraCopy.
4. TeraCopy will open. Be certain the "Verify" box is checked.
5. If all files are copied and verified without error, click "Close."



Appendix E. Museum Numbers

When museums accept an object or specimen into their collections, each object or group of objects is associated with identifying numbers. At MPM, there are three important numbers:

- Accession number
- Catalogue number
- Barcode number

Accession number

The accession number is a unique number assigned to a group of objects or specimens when the group is accepted by the museum and formally added to the permanent collection. This number is associated with an accession record, which contains information related to the ownership and acceptance of one object or group of objects from one source (donor, expedition, etc) at one time. There may be additional information regarding the material or materials included in the accession. These groups of objects can be one or many of the same type of object, or a group of diverse objects. For example, one accession could be a single ground stone tool or a group of 200 potsherds. Another accession could be from an expedition where ethnographic materials, botanical, and zoological specimens were collected.

Catalogue Number

Once objects are accessioned, they are organized with specific catalogue records about each group or lot of related objects. A unique identifying number is assigned to each of these objects and added to their record. Historically, many museums kept these records in ledger books or on file cards, and while we no longer use ledgers for these records, we continue to refer to objects as belonging to a particular catalogue. For natural history specimens, a catalogue record contains descriptive information about the specimen including taxa name, collector, collecting data, and locality. Artifact and object records contain descriptive information including object names, dates, makers, and culture or country of origin. Each catalogue number can be assigned to a single object, or to a "lot" of similar objects (potsherds, crayfish collected from the same location, etc). To aid in the organization of these objects, catalogue numbers have three parts: a prefix, a number, and an optional suffix.

Part 1: Prefix

The numbers will always have a prefix referring to the catalogue ledger. These catalogues may refer to a whole discipline, such as Botany, or one part of a discipline, such as the Minerals catalogue in Geology:

- Anthropology= A
- Botany= B
- History= H
- Minerals= Mi

Invertebrate and Vertebrate Zoology organize specimens in multiple catalogues based on general taxonomic groups, such as:

- Reptiles and Amphibians= RA
- Fishes= Fi
- Mollusks=Mo

For the Wisconsin Bees, those pre-2016 specimens recorded in the Invertebrates (IZ) ledger will have a "IZ" prefix for their catalog numbers. For 2016 and after, bee specimens will have an "ENT" (Entomology) prefix for their catalog numbers.

Part 2: Number

The number—from one to six digits long—assigned to an object or lot is unique within a catalog ledger. Combined with the department/ledger prefix, the number becomes unique within the museum. "511" by itself can refer to one of six objects, but A511, B511, N511, E511, P511, and INV511 are unique to very different objects.

Part 3: Suffix

Historically, how catalogue numbers are assigned to individual objects or lots was not standardized across disciplines at MPM, leading to some variation in how suffixes are used in cataloguing objects. The suffix is used when a lot or group of objects is assigned a catalogue number, or when one object is made of more than one part, or as in the case of certain paleontological specimens, there are multiple taxa in the rock matrix . The suffix allows each part to retain its association with the group of objects, but also have a unique identifier and, if necessary, a separate record. The suffix may be alpha (upper or lowercase) or numeric. For example:

P511A, P511B, P511C
E6221a, E6221b
N11298.1, N11298.2

Barcode Number

Barcodes are used as scannable tracking numbers within the museum and may be assigned to objects and specimens as well as specific storage locations. Generally, the barcode is generated from pre-existing information—the storage location's name or the catalogue number assigned to the object.

Invertebrate Zoology assigns barcodes to both catalogued and currently uncatalogued specimens during the digitization process. Where specimens have an existing catalogue number, the barcode will only be a tracking number. In absence of an existing catalogue number, the barcode will become the catalogue number for those specimens. Like catalogue numbers, barcodes for objects have catalogue prefixes to allow for a museum-wide unique identifier.
For the Wisconsin crayfish, most of the specimens will not have been catalogued, so their "INV" prefixed barcode number will be their new catalogue number. For entomology specimens, anything that has been catalogued prior to 2016 will have an IZ prefix; anything after that date will have an ENT prefix to the catalogue number.