Baltimore Camera Club
July 11, 2024 meeting

Discussion on Printing

Discussion Topics

- On using commercial labs for printing
- Why print your own photos?
- Monitor calibration & ICC profiles
- Photographic Papers
- Printers
- Soft Proofing - Lightroom
- Lightroom Print module settings
- Mount boards and Matting
- Resources

What if you Don't Own a Printer?

- **Several commercial photo labs do a nice job for a reasonable rate**
- **Nations Photo Lab (Hunt Valley)**
  - **$7.50 for 11 x 14 color or monochrome prints on matte or glossy paper, $0.40 extra for color correction (if needed)**
- **BCC members get 20% discount with MPAPRINTS20 code until August 5, 2024**
- **Other labs: National Photo (Pikesville), U-Photo, uphoto.com (beltsville), Miller's Professional Imaging**

Steps for Printing to a Commercial Lab

- **Decide on print size!**
  - **Will you use pre-cut matts? Cut your own? Adhere to matt board? Recall minimum permissible dimension for competitions is 8”; maximum is 20”.**
- **Make sure your image possesses sufficient resolution for a high quality print**
  - **Handy pixel chart: https://www.nationsphotolab.com/pages/pixel-chart?sqr=pixel**

NPL Pixel Chart

nationsphotolab.com/pages/pixel-chart?sqr=pixel

Bookmarks | 13 others | WikiTree: Where ge... | All Bookmarks

I Want To Print :

11" x 14"

3300 × 4200

Pixels needed for **best quality**

1375 × 1750

Pixels are the **minimum requirement**

My Image File Is (Pixels) :

00 × 00

00 × 00

inches is the largest print size recommended for **best quality**

00 × 00

inches is the largest print size recommended for this image size

Not Sure What Your File's Pixel Dimensions Are?

CHOOSE FILE

REFER, GET 30%

Get 25% Off

Help

Search

3:32 PM
7/6/2024

NPL Pixel Chart (Continued)

nationsphotolab.com/pages/pixel-chart?sqr=pixel

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Not Sure What Your File's Pixel Dimensions Are?

CHOOSE FILE

frigatebird.jpg

Your Image Dimensions: **4200 X 3300 Pixels**

You could print a **11" x 14"** image with the best quality

You could print a **24" x 30"** image as the largest size

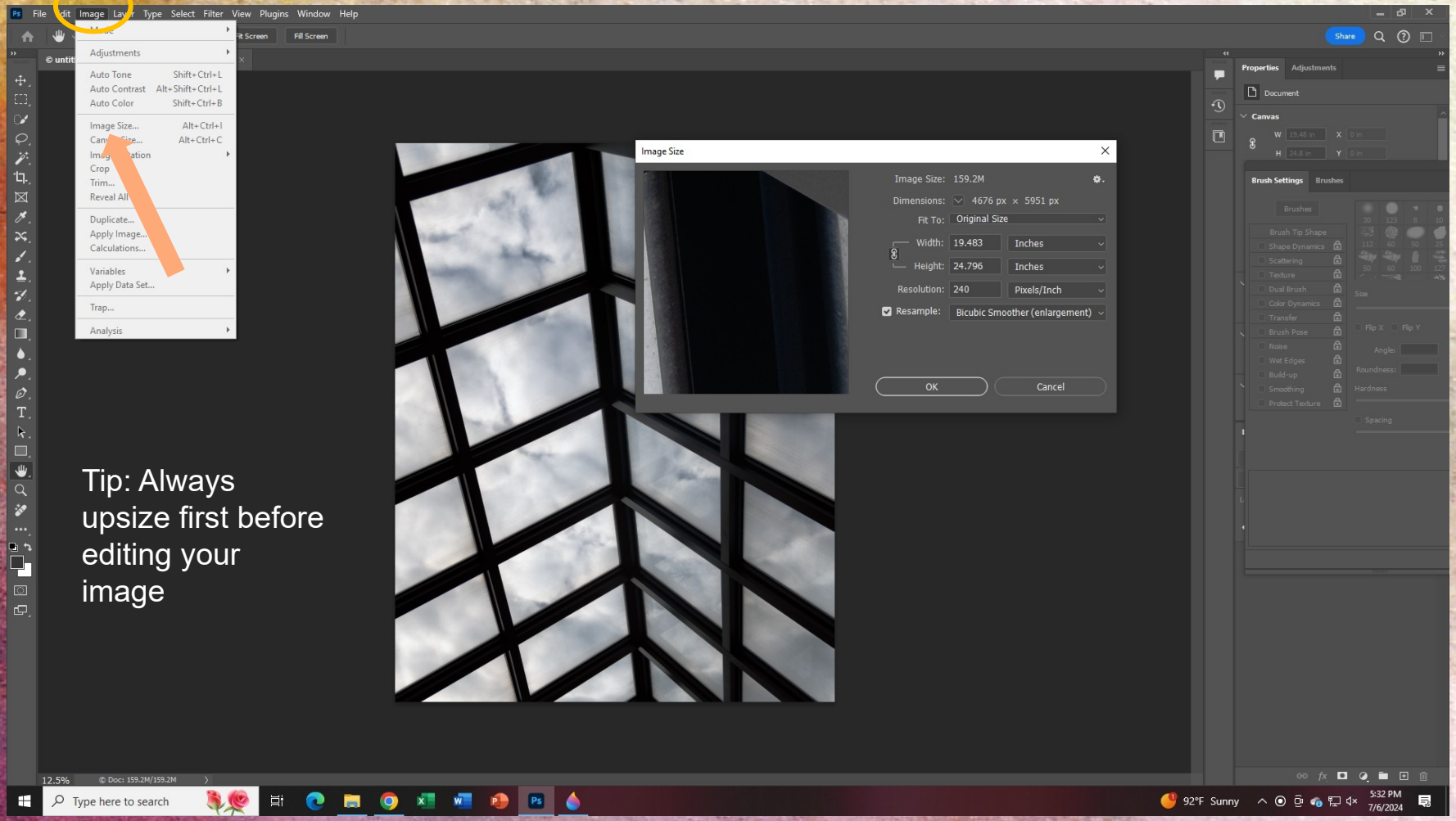
REFER, GET 30%

Get 25% Off

Help

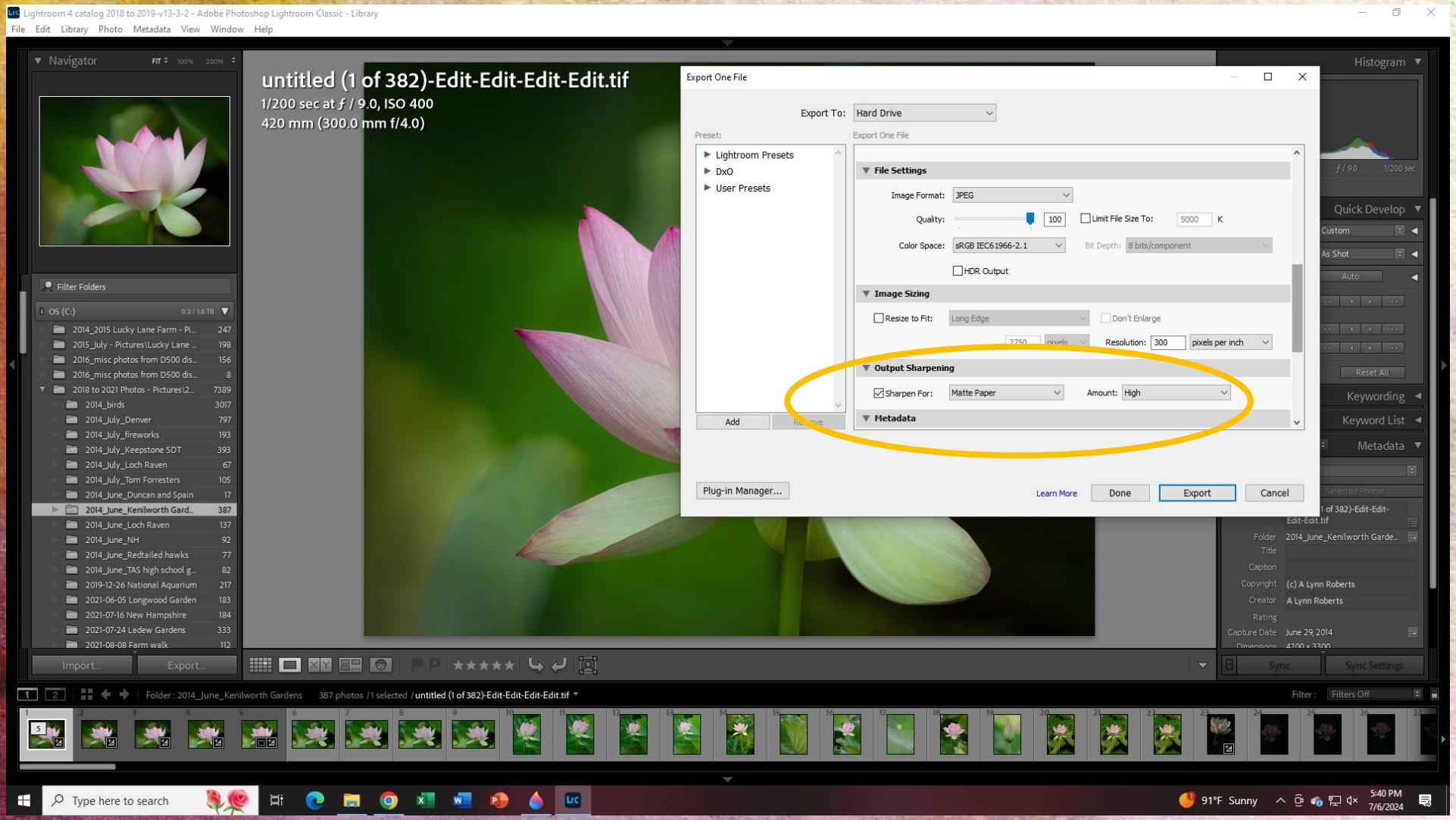
If File is Too Small: Upsize in Photoshop (or Topaz Gigapixel)

- **Image (top menu) > Image Size (choose desired size and resolution)**



Export from Lightroom (Simple Version)

- **Make sure to include output sharpening based on intended paper (matte or glossy)**



- ***Alternatively: Make Your Own Prints!***

- Why Print Your Own Photos?

Why Print Your Images

- It is satisfying
- It makes you a better photographer
- It makes you a better editor
- Displays your work to others
- Enables you to give your work away to others in prints and cards
- Cheaper in long run compared to Photo Labs
  - Nations Lab - 11X14 – $7.50; 12X18 - $13.70
  - Personal printer (ink & paper) – 11X14 – $2.77, 13X19 - $4.14

- Monitor calibration & ICM profiles

First a word on Monitors

- Make sure your monitor's specifications can calibrate a color space. Most basic monitors have a color space of sRGB. Not sufficient for printing. You need greater color accuracy.
- Apple, Dell, ViewSonic, Benq, Eizo, Acer, NEC all make monitors specifically geared to photographers and photo editing.
- Factors:
  - Color accuracy – minimum 98% sRGB. Many have 98-100% RGB and P3 accuracy plus it own native color space.
  - Delta E value no greater than 2 – preferably under 2. Input colors are represented accurately on display.
  - Built-in hardware calibration.
  - Can get 24" monitors in the $400 range.

Monitor calibration – Why do it?

- **Reason is to provide a color managed color space & workflow for your monitor, editing software and print output**
  - **Types of color profiles (color space or gamut):**
    - **Adobe (1998)**
    - **ProPhoto RGB**
    - **SRGB**
    - **Display P3 (Apple)**
    - **Native**
- **In a color managed workflow, you should get what you see on your monitor from your printer**

Monitor Calibration – Device & software

- **Common Calibration Devices**
  - **Spyder X Pro $139**
  - **ColorChecker Display Pro $215**
  - **Calibrite Display 123 $120**
  - **Some monitors such as Benq has it own software to use when calibrating**

Calibration Settings or ICM Profile for Monitor

- **Good to have more than one Monitor ICM Profile**
- **Editing purposes**
  - **White point: D65; Luminance: 120 cd/m2 ; Native or RGB if possible; Gamma: 2.2; Blackpoint: Relative or zero; LUT 10 or 12 (if provided)**
- **Printing purpose**
  - **White point: D65; Luminance: 70-80 cd/m2; Gamma: 2.2; Blackpoint: Relative or zero; LUT 10 or 12 (if provided)**

Calibration – Validation Report

Palette Master Element **Validation Report**

General Results

Report summary	**Passed**	Mon May 1 12:59:45 2017
Manufacturer	BENQ	
Model	SW320	
Serial Number	RCG00308SL0	
Profile	SW320 1_D65_AdobeRGB_L120_G22_2017-05-01T11.42.10Z.icc	
Target	D65	

Test	Measured	Status
Average ΔE	0.74	Passed
Maximum ΔE	1.61	Passed

Target				Measured			
Color	Index	RGB	L*a*b*	L*a*b*	xyY		ΔE
	0	255 255 255	100.00 0.00 0.00	100.00 -0.80 -0.00	0.3117 0.3295 119.84		1.17
	1	241 241 241	95.63 0.00 0.00	95.23 0.06 -0.02	0.3128 0.3289 105.66		0.26
	2	228 228 228	91.20 0.00 0.00	90.89 0.15 -0.15	0.3126 0.3286 93.75		0.33
	3	216 216 216	86.71 0.00 0.00	86.67 -0.13 0.39	0.3133 0.3299 83.09		0.43
	4	203 203 203	82.14 0.00 0.00	82.19 -0.07 0.26	0.3131 0.3296 72.67		0.28
	5	190 190 190	77.49 0.00 0.00	77.53 -0.23 0.40	0.3132 0.3301 62.81		0.53
	6	171 171 171	70.54 0.00 0.00	70.64 -0.17 0.13	0.3127 0.3294 49.93		0.29
	7	149 149 149	62.60 0.00 0.00	62.33 -0.48 0.45	0.3129 0.3306 36.90		0.87
	8	128 128 128	53.98 0.00 0.00	54.24 -0.56 0.71	0.3135 0.3316 26.61		1.10
	9	96 96 96	40.67 0.00 0.00	41.22 -0.46 0.56	0.3134 0.3316 14.39		1.00
	10	64 64 64	26.09 0.00 0.00	26.79 -0.21 -0.04	0.3118 0.3292 6.01		0.60
	11	42 42 42	15.44 0.00 0.00	15.97 0.09 -0.66	0.3091 0.3246 2.51		0.75
	12	255 0 0	61.42 89.56 75.15	61.06 89.06 72.70	0.6378 0.3289 35.29		0.82
	13	0 255 0	83.30 -137.97 90.83	83.27 -128.00 90.60	0.2101 0.7092 75.43		1.61
	14	0 0 255	32.98 80.31 -109.38	34.00 80.19 -107.42	0.1553 0.0632 9.64		1.01

Notice: Delta E values under 2

Where are ICM profiles stored on your computer

- **Monitor ICM profiles and photograph printer paper ICC profiles are stored at:**
  - **MacOS:\library\colorsync\profiles or youruserfolder\library\colorsync\profiles**
  - **Windows PC - windows\system32\spool\drivers\color**

Post Editing Software – profile

- **Set RGB preference to Adobe (1998) or ProPhoto RGB or wide gamut**
- **Save your edited work in the above except digital work to be displayed on the internet - sRGB**

- Photographic Paper

Photographic Paper

- **For first time printers, might want to use paper designed by your printer company**
- **Popular Paper companies:**
  - **Epson**
  - **Canon**
  - **Red River**
  - **Canson**
  - **Moab**
  - **Hahnemuhle**
  - **Ilford**

Describing Photographic Paper

- **Finish**
  - **Glossy - high reflectivity and smooth texture**
  - **Satin or Semi-gloss – in between reflectivity of Glossy & Matt (if textured – Luster/Lustre or Pearl)**
  - **Matt(e) – rougher texture and lower reflectivity**
- **Material –**
  - **Cotton (best quality) Fine Art Paper – Lasts 50 years**
  - **Alpha-cellulose (second tier)**
  - **RC (resin coated) most common (wood pulp & plastic polyethylene layers**
  - **Specialty papers – rice, mulberry, bamboo, canvas, metallic**

Describing Photographic Paper - Continued

- OPA – Optial brightening agents vs Natural (no brightening agent)
- Paper white points – bright, off-white, cream
- DMax value - deepest shade of black that a paper is capable of rendering – Matte is usually <2 and glossy is >2
- GSM- weight of the paper
- Important:Download paper company's ICC profiles to use when printing on their paper

- Printers

Printers

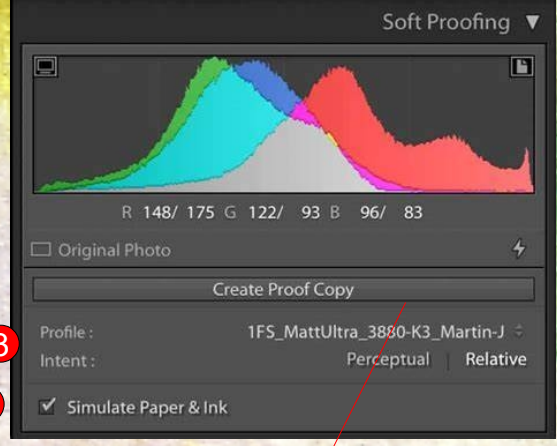
- **Only two brands to consider - Epson or Canon Buy a printer that takes at minimum 13” wide paper. Example of a few printers**
  - **Canon PIXMA PRO-200 – 8 cartridges $490 – ink replacement $105**
  - **Canon imagePROGRAF PRO-300 – 10 cartridges $840 – ink replacement $122**
  - **Epson EcoTank ET-8550 6 cartridges $743 – ink replacement $85**
  - **Epson SureColor P700 10 cartridges 2-inch core roll feeder for creating panoramic prints $720-819 – ink replacement $400**

- Soft Proofing

Soft Proofing in Lightroom

- **Purpose of Soft Proofing: Simulates how your photo will look when printed**
  - **Matches printer, ink, paper**
  - **Shows what colors are out of gamut**
  - **Shows what you need to correct through additional editing**
- **<u>Note:</u> Soft proofing is only available in the Develop module. Check box at bottom left of screen or type the shortcut "S"**

Steps to soft proofing



1) In Develop Module, Select Soft Proofing or press "S"

2) Click on the "Create Proof Copy" button

3) Select the Profile to match the paper and printer combination

4) Tick the Simulate Paper & Ink option (Gamut warnings should be off)

5) Display the Master Photo and Soft Proof side by side

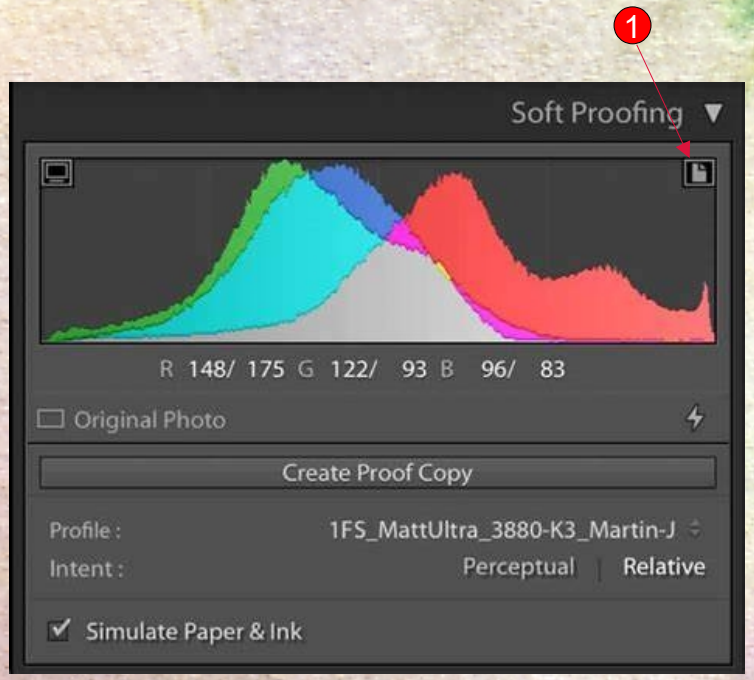
6) Made adjustments to soft proof to match the original image

7) Switch to the Print module and select the print options for your Proof Copy

Images from https://lenscraft.co.uk/photo-editing-tutorials/what-is-soft-proofing-in-lightroom/

Other soft proofing considerations

1) There is another step you can apply in making adjustments to you proof before sending it to print.
You can click on the gamut warning to see if any areas of your print will be out of gamut and decide if you want to make adjustments



Images from https://lenscraft.co.uk/photo-editing-tutorials/what-is-soft-proofing-in-lightroom/

Out of gamut

- Lightroom Print module settings

Lightroom Print Module Settings

Three Main Areas of the Print Module

1) Printing options and apply any output sharpening

2) Configure printer settings and page settings

3) The Print buttons which initiate the printing

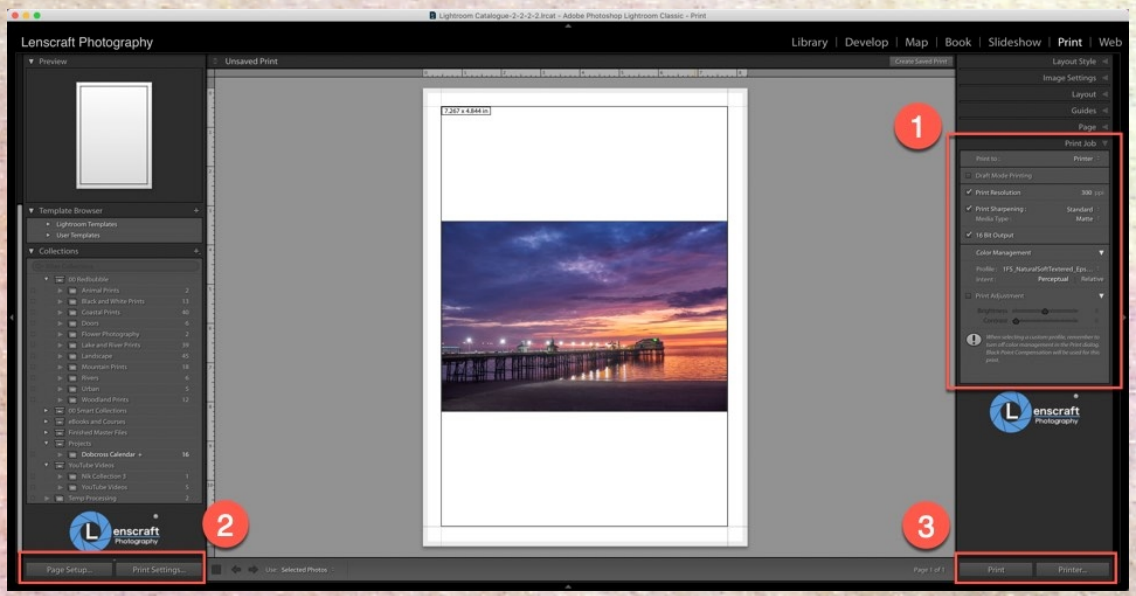


Image from https://lenscraft.co.uk/photo-editing-tutorials/tutorial-printing-from-lightroom/

Lightroom Print Module Settings

1) "Print to" – select file or printer

2) "Print Resolution" – set 360 ppi for Epson printers; 300 ppi for other printers

3) "Print Sharpening" – Select "Glossy" or Matte and the amount Low, Standard, High (Low or Standard preferred)

4) Select the ICC paper profile you will use **Intent** will be mentioned on the next slide

5) Do not make any print adjustments here

6) Make paper and printer adjustments & print. Let photograph dry for 24 hours.

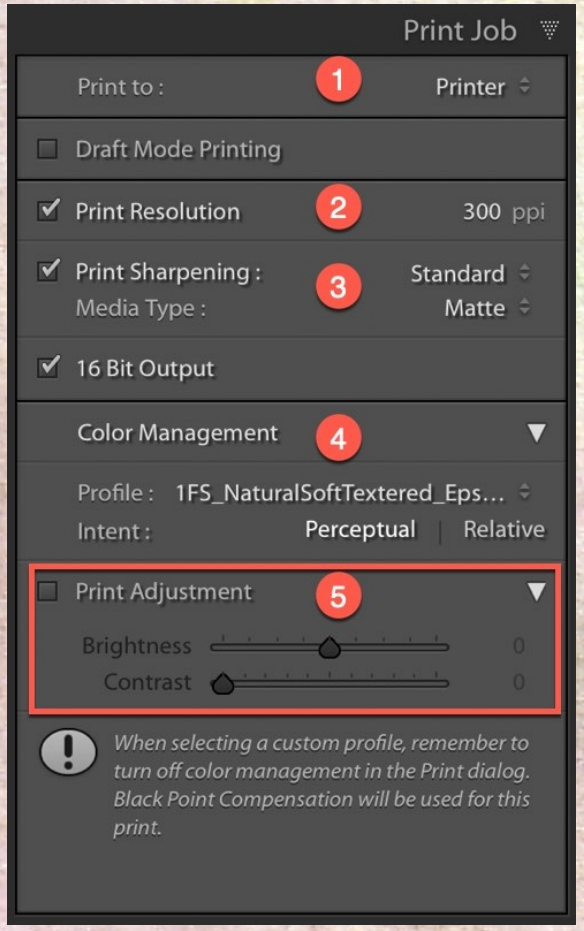
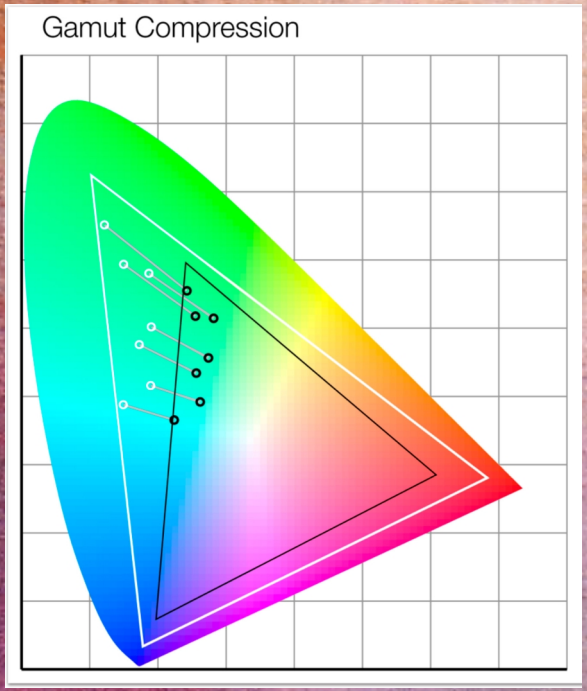


Image from: https://lenscraft.co.uk/photo-editing-tutorials/tutorial-printing-from-lightroom/

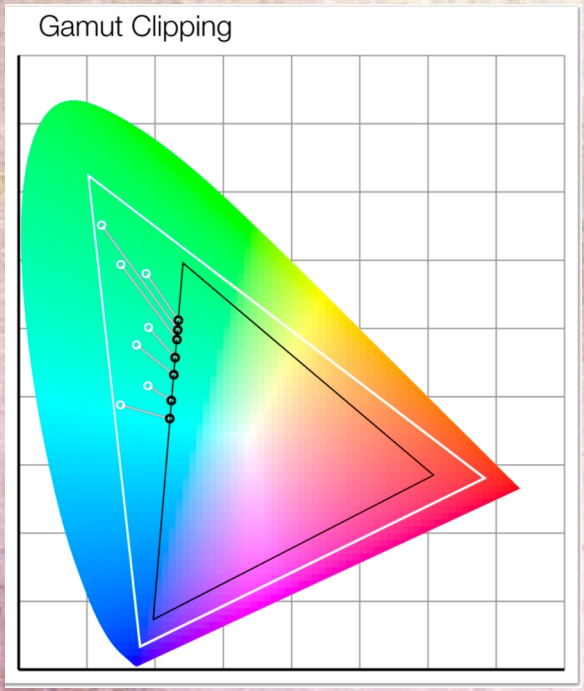
Lightroom Print Module - Intent

Intent refers to how out of gamut colors are handled

Perceptual will compress or expand the full gamut of colors and maintain balance.



Relative does not allow colors which are in gamut to be changed or altered. It only alters out of gamut colors



Lightroom Print Module - Intent Continued

- **Perceptual Intent is best used if both saturation and the relationship between colors is most important**
- **Used for images that contain many out-of-gamut colors**
- **Saturation may be lost to a degree**
- **Relative Intent is often used if tonal relationships are more important to us in the image then the exact colors**
- **Black and white prints often work well with Relative intent**

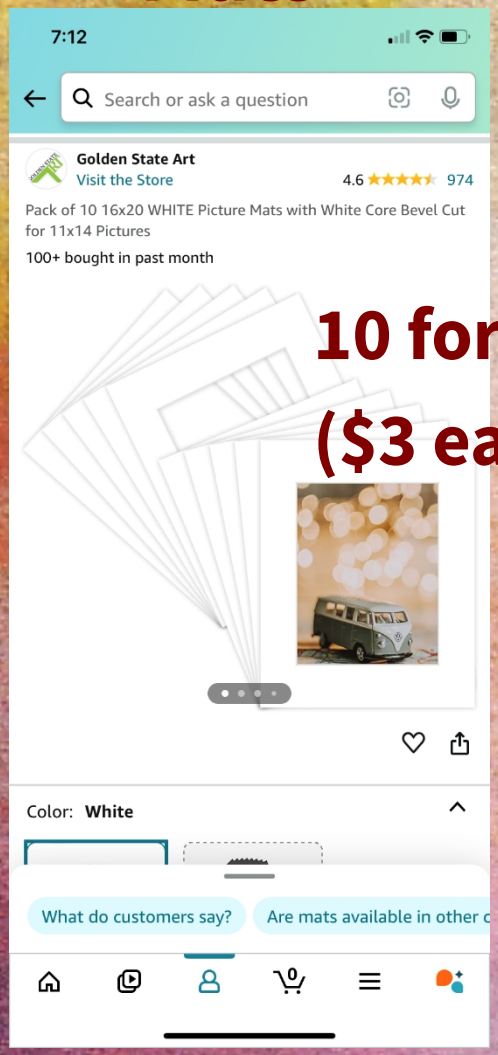
- Mount Boards and Matting

Mount Boards and Matting

- **Simplest: tape (double-sided tape) print to matt board.**
  - **Pro: no constraints on print aspect ratio**
  - **Con: can’t remove print without damaging it**
- **Less simple: use pre-cut matts and backing boards.**
  - **Pro: can re-use matts**
  - **Con: forces you to common sizes (e.g., 11x14, 12x12)**
- **Most complex: cut your own matts**
  - **Pro: maximum flexibility in print sizes**
  - **Con: need tools to cut matts if you want nice bevels**

Sources: Amazon or Michaels

Mats



10 for $29.99

($3 each)

Backing Boards

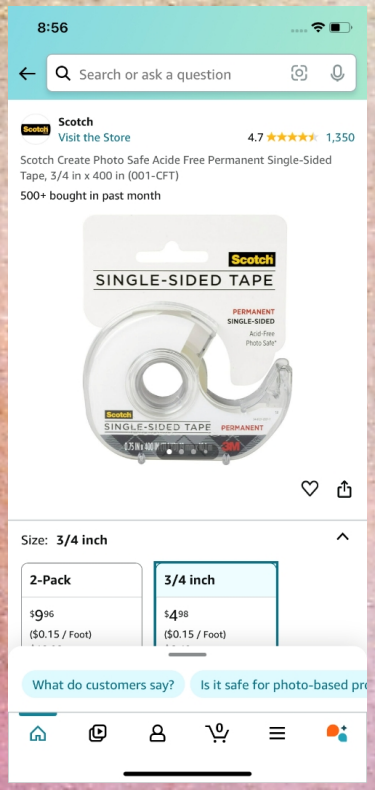
25 for $41.49

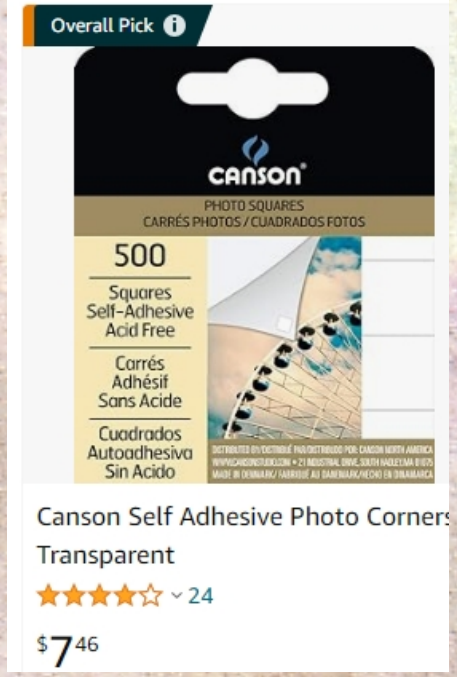
($1.66 each)

(vs 16 x 20 mats for 11 x 14” prints: $6.99 at Michaels)

Additional Supplies

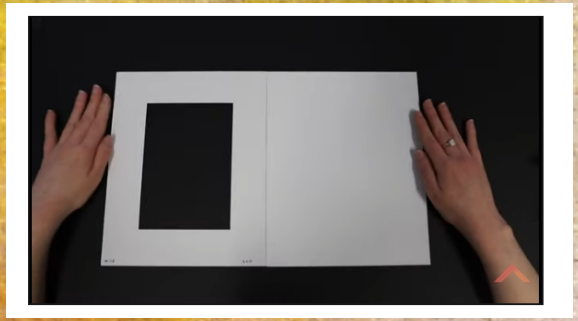
- **Linen Hinging Tape ($16.99; 0.49/ft)**
- **Acid-Free Tape ($4.98)**
- **Double-Sided Tape (2 for $6.99)**
- **Canson Photo Squares $7.46**



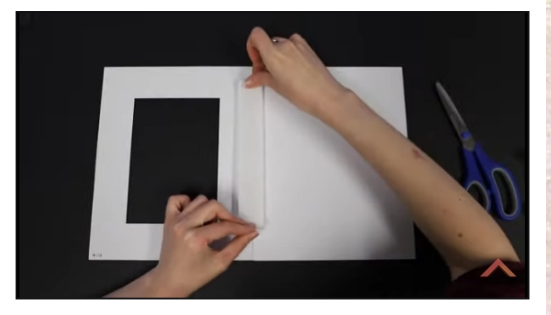


Using Linen Hinging Tape to Mount Mat

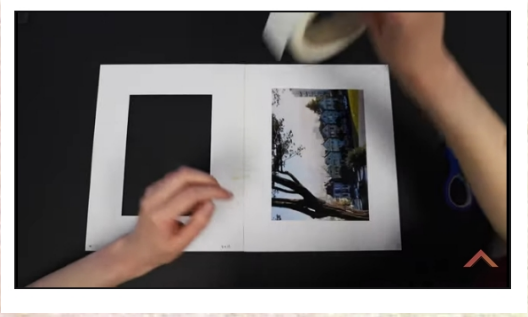
No. 1 Put back of mat next to backboard



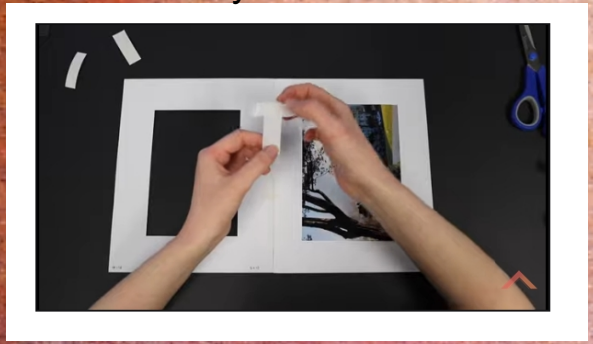
No. 2 Place hinging tape along the seam of mat and backboard



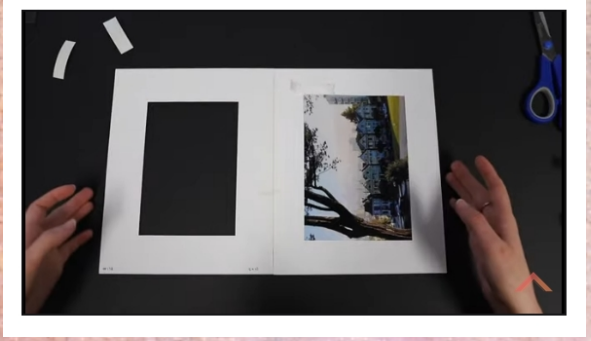
No. 3 Place image centered on backboard



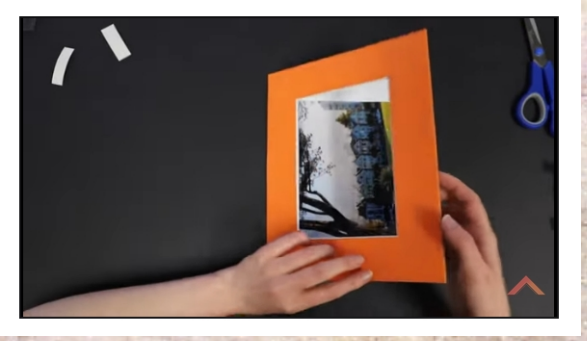
No. 4 Make 4 sets of a T from hinging tape-vertical sticky side up and horizontal sticky side down

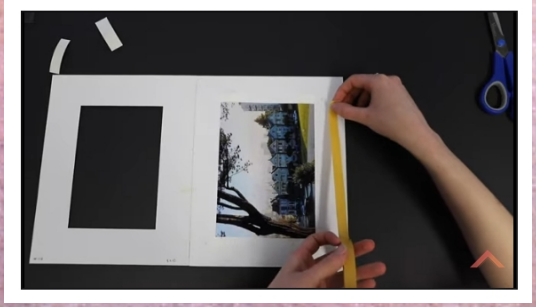


No. 5 – Place 1 T lightly on top left edge of image. Vertical side of T goes underneath image



No. 6 – Close mat over image and position image correctly under mat





No. 7 – Fixate remainder of T's on the other 3 corners. Apply double-sided tape on edge and close mat and burnish to apply

https://www.youtube.com/watch?

Changes to the dimensions of digital images in competitions this Fall

- Horizontal (landscape orientation) images: size your images to 1920W (max) X 1080H
- Vertical (portrait orientation) images: maximum height should be 1080
- Square images: 1080 X 1080

Lightroom can resize your images as follows.
Within Lightroom:

- Click – Export and put in your settings:
- File format: JPEG
- Color Space: sRGB
- Quality 100%
- Image size: resize to fit – width & height
- 1920 X 1080

You might be concerned lest this 1920 x 1080 ratio (equivalent to a 16:9 aspect ratio) compress or "stretch" some of your images if you had cropped them to a different aspect ratio, but Lightroom is clever enough to have figured out how to use this one "image size" option to work without distorting or cropping your images. You can find an excellent video https://www.youtube.com/watch?v=CFHcFAi8gCo on how to set up a preset in Lightroom to accomplish this for all of your images by clicking on the link.

Resources

- **Nations Photo Lab: https://www.nationsphotolab.com/**
- **Pixel chart: https://www.nationsphotolab.com/pages/pixel-chart?sqr=pixel**
- **Golden State Art: 16 x 20 precut picture mats (for 11 x 14 pictures) and 16 x 20 backing boards**
- **Les Picker – free print ebook https://fineartprintebook.com/**
- **Keith Cooper – reviews, tutorial, articles https://www.northlight-images.co.uk/keiths-photography-blog/**
- **Plaza Art Materials and Framing – Towson, MD https://www.plazaart.com/stores/towson**