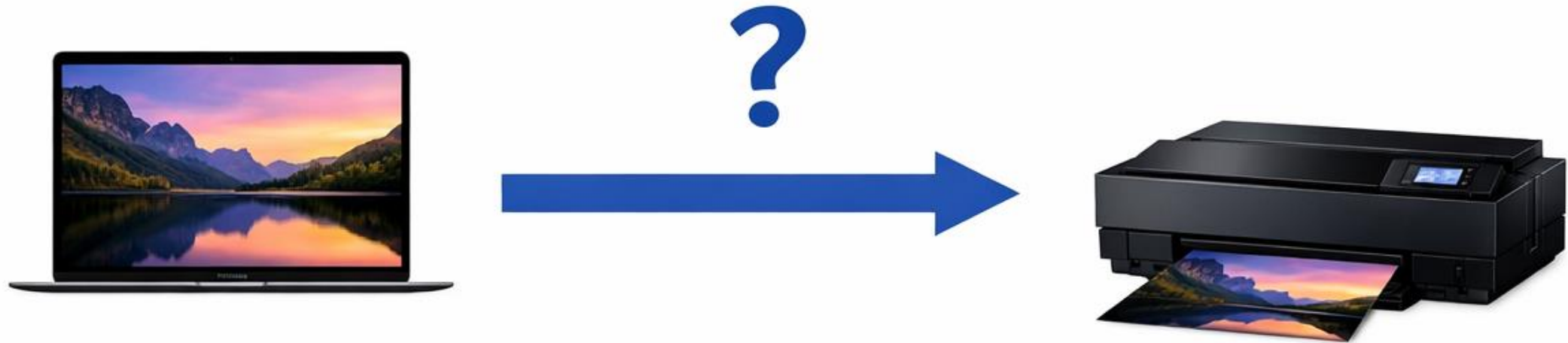


To Print, or Not to Print?



Martin Till ARPS

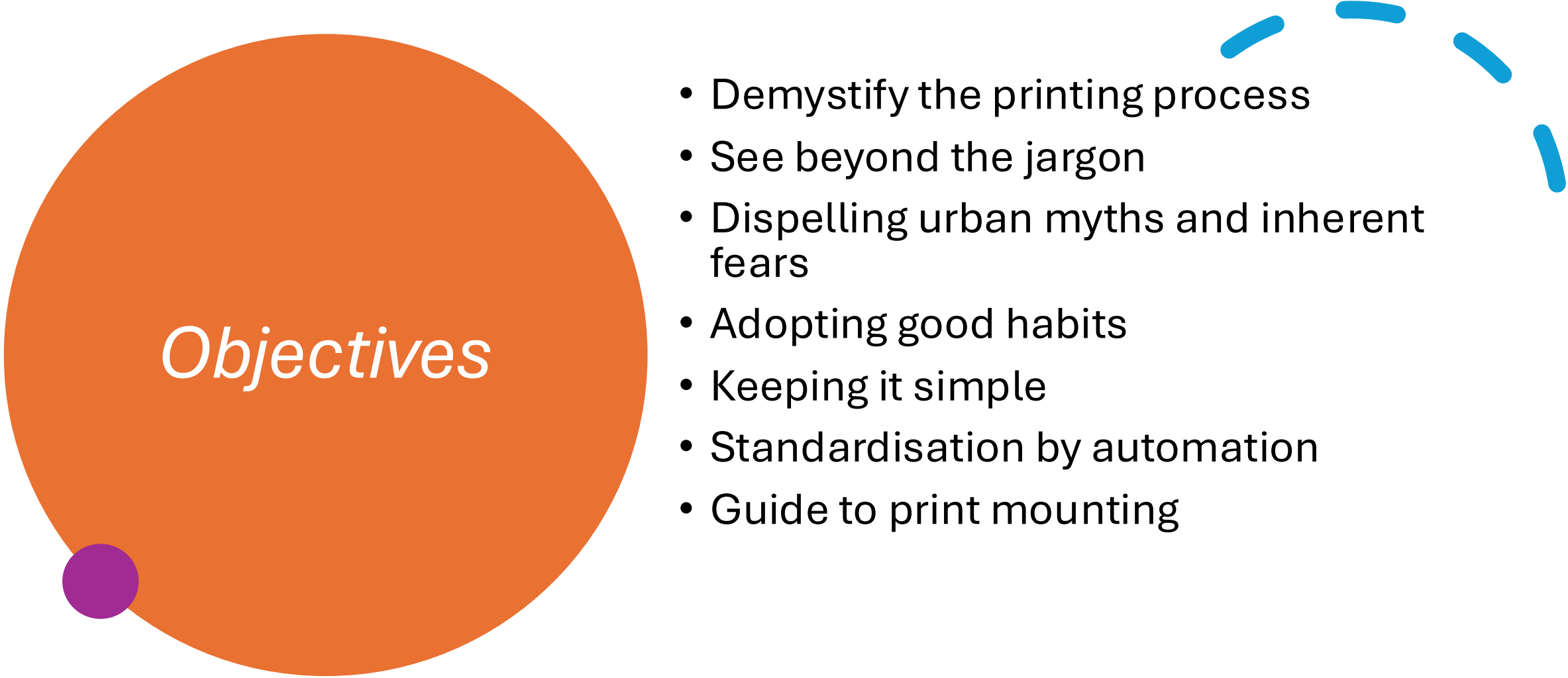


Why make a
print?



I don't have
monopoly on
the truth

- Own experiences and approaches
- Solving problems in different ways
- Different way of expressing our vision
- Develop a framework that works for you



Objectives

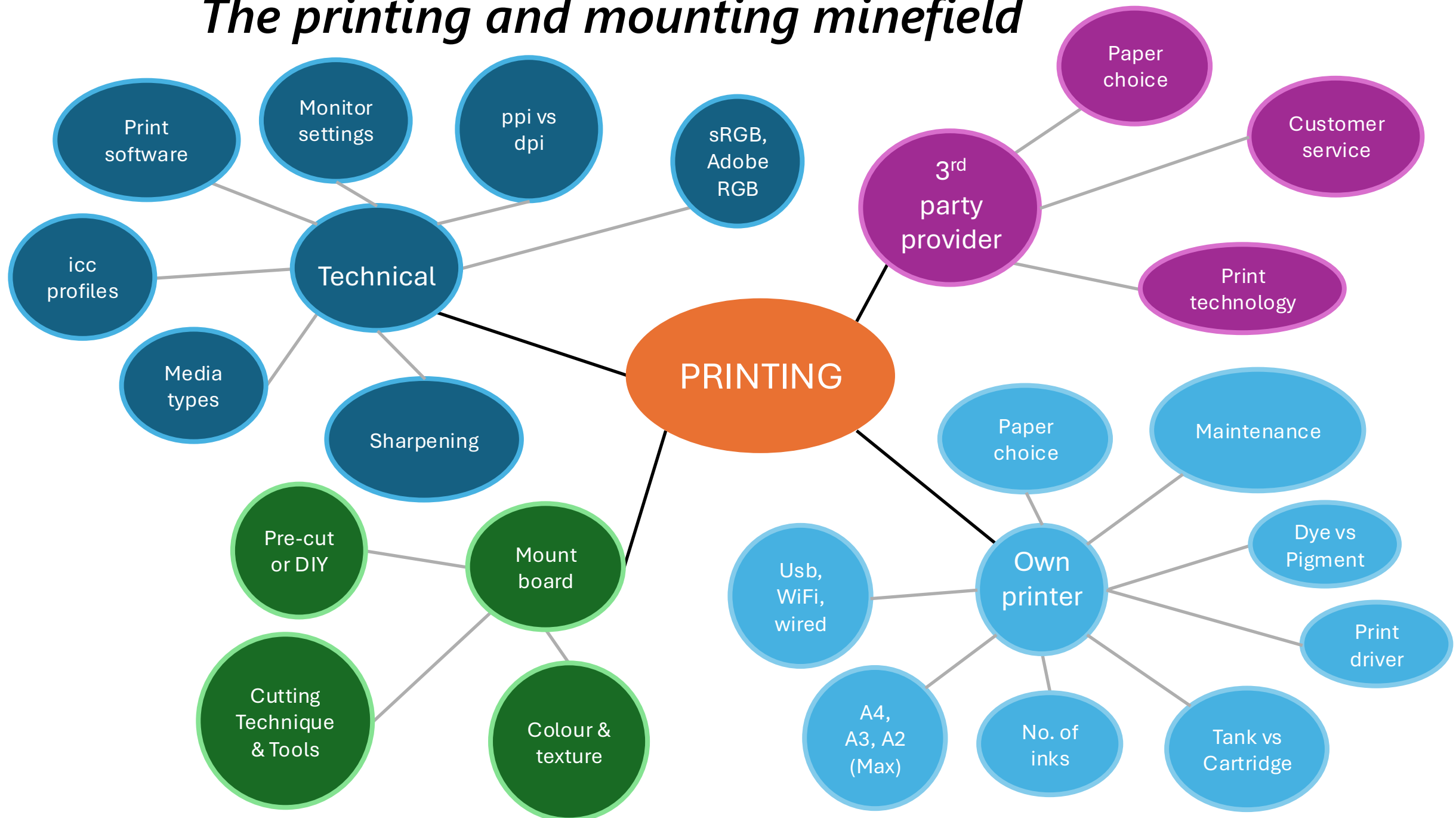
- Demystify the printing process
- See beyond the jargon
- Dispelling urban myths and inherent fears
- Adopting good habits
- Keeping it simple
- Standardisation by automation
- Guide to print mounting



**WARNING: 1st half will
be quite technical**

**If you're still awake: 2nd
half will be practical**

The printing and mounting minefield



Visit: Photo Print Hub

- Presentation
- Epson and Canon Print layout presets
- Media types
- Print icc colour profiles



Members Area

[Members Area home page](#)

[Photo Print Hub](#) 

[Manage my portfolio](#)

[Member sales: 1 item\(s\) listed](#)

[Log out](#)

Martin Till

Q.

You make a
print and it's too
dark and has a
magenta colour
cast

Do you?

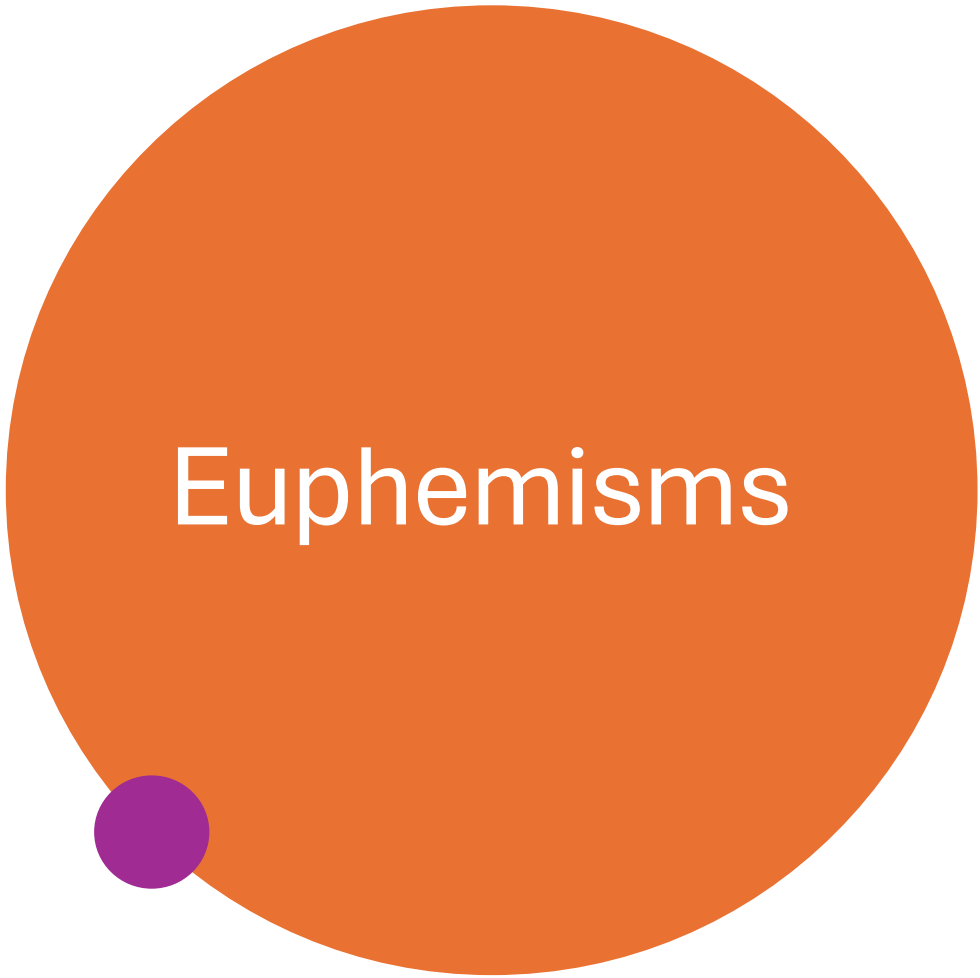
- Print it again in case you made a mistake
- Fix the colour cast in software
- Try different paper(s)
- Try a different paper type
- Raise the exposure a bit
- Print it in B&W
- Throw the printer in the bin

The cost of an A4 mounted print...

Cost of A4 lustre paper	£	0.70	23%
Cost of ink for A4 print (Cartridge)	£	0.40	20%
Cost of 500x400 mount	£	1.70	57%
Total	£	3.00	

Cost of holiday	£1,500
Images printed	5
Cost per image	£305

Depends on your terms of reference...



Euphemisms

- “I don’t like spending time in front of the computer”
 - “I’m not very good at image processing”
- “Printing is just too expensive”
 - “I lack confidence in taking on a new challenge”

What do
these printing
terms have in
common?

- ‘Fine art prints’
- ‘Giclee prints’
- ‘Premium papers’
- ‘Museum quality’
- ‘Archival quality’
- ‘High white point’



Marketing plays to encourage us to spend more money

Where do I start?



Let's be clear...



Garbage in, garbage out.

Embed colour integrity in your workflow

**Well-
composed,
focused and
exposed image**

**Sympathetically
processed with
the final print in
mind**

**Printed on
appropriate
paper with
optimum print
settings**



Calibrate



Calibrate



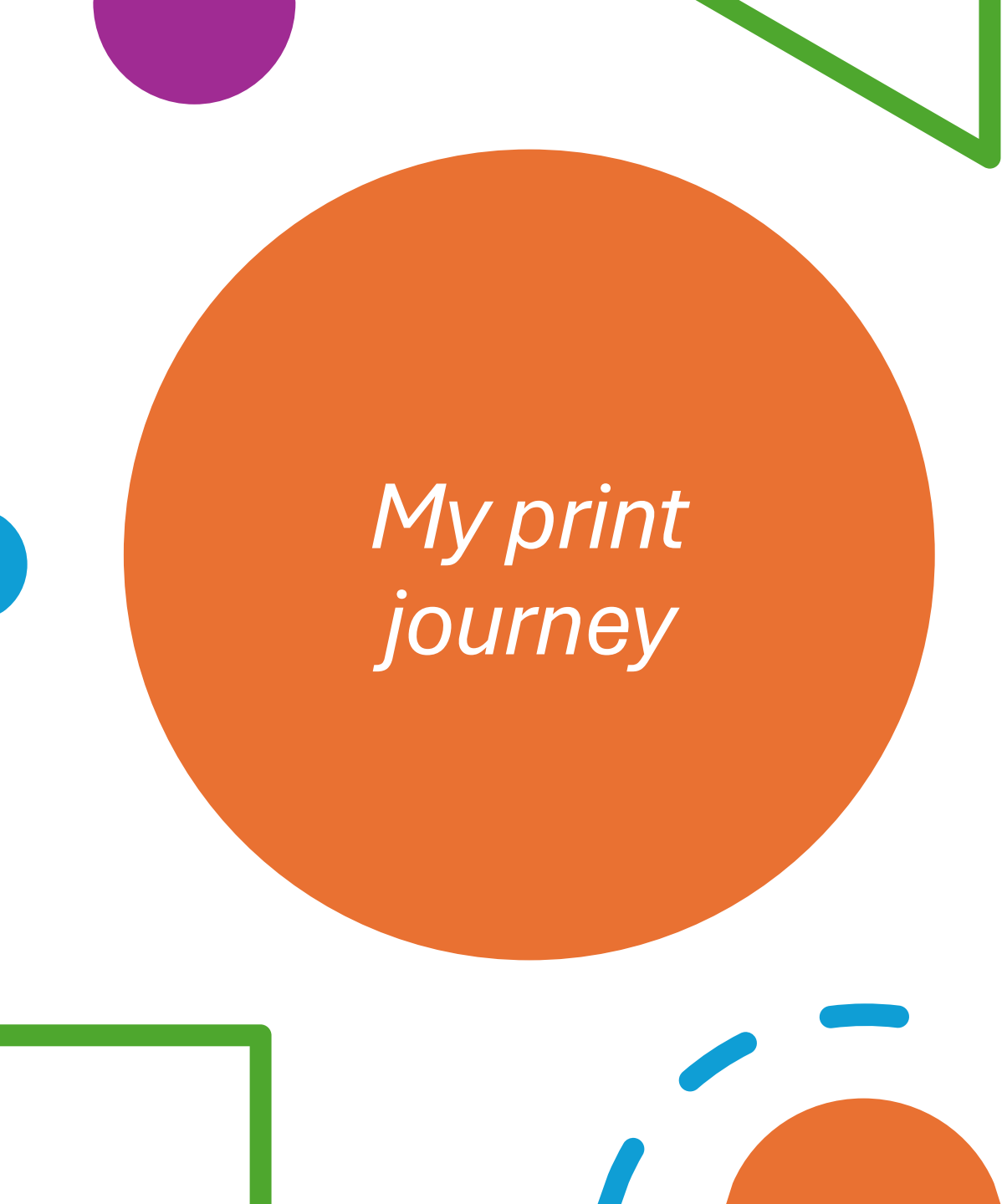
Calibrate





Printed by SIM Imaging

<https://www.simlab.co.uk/best-professional-photo-printing-uk>



My print journey

- **From reluctance...**

- Purchase and running costs
- Office real estate
- Maintenance concerns
- Fear of failure
- 'If it isn't bust, don't fix it'
- *'It's just not for me'*

- **To taking charge**

- Prints have more presence
- Owning the process end-to-end
- It's not bust, but impersonal
- What's the worst that can happen?
- *'I'm up for the challenge'*



Develop a
printing
mindset

Organised

Methodical

Disciplined

Consistent



Repeatable



The baking analogy

Making the perfect Victoria Sponge

- 225g softened unsalted butter (or baking spread)
 - 225g caster sugar
 - 4 large eggs (at room temperature)
 - 225g self-raising flour
 - 1 tsp baking powder (optional if using self-raising flour, but adds extra rise)
 - 1 to 2 tbsp milk (if the mixture is a bit stiff)
 - 1 tsp vanilla extract (optional)
-
- Over temperature
 - Cooking time



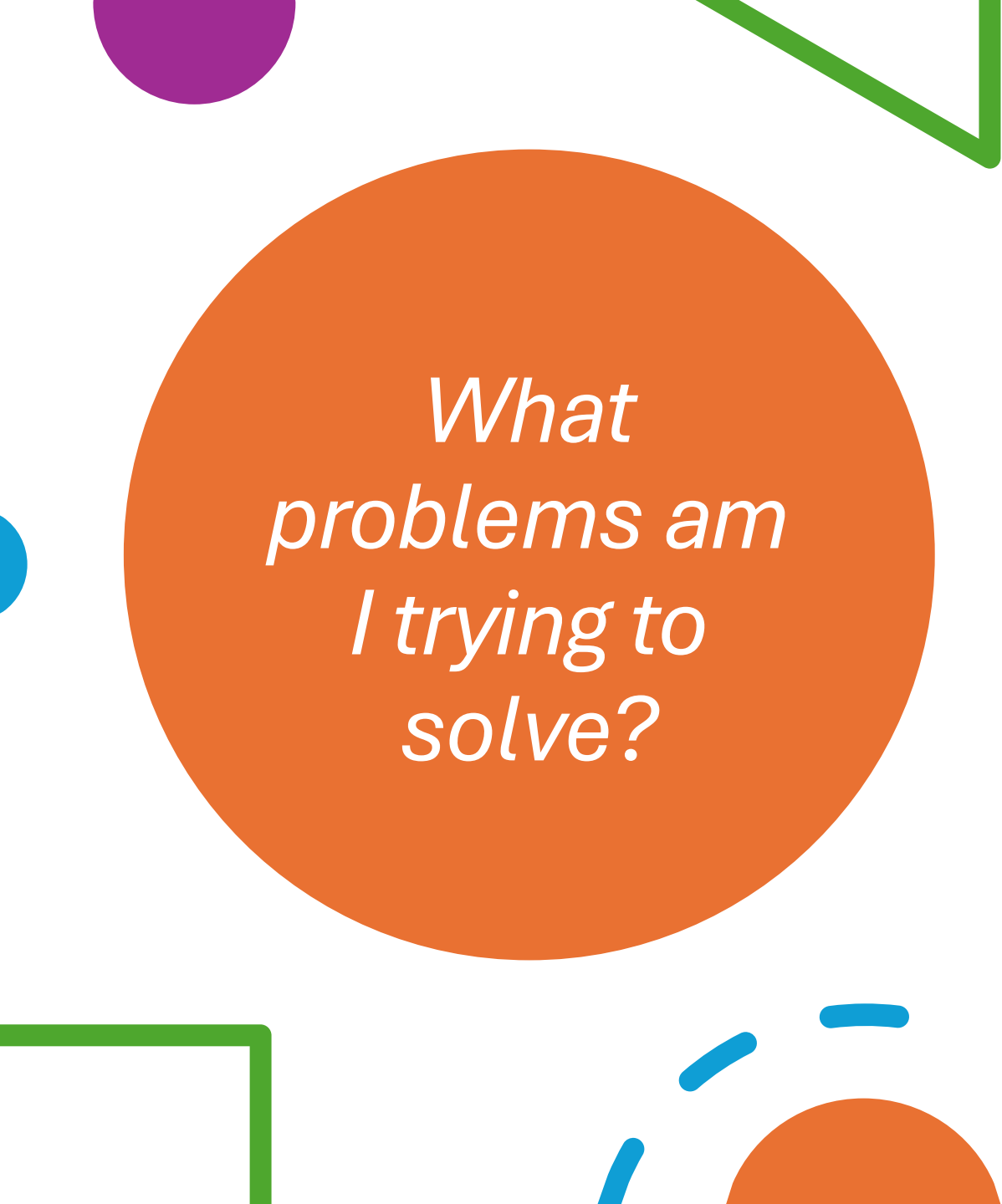
Create and use your own presets

*Two areas where
presets are invaluable*

Exporting
from
Lightroom

Printing
your
images

- Eliminate selection errors
 - Ensure consistency
- 



*What
problems am
I trying to
solve?*

- *Printing photographs is often fraught with issues*
 - *Too dark / bright*
 - *Nothing like your screen*
 - *Wrong colours*
 - *Colour casts*
 - *Banding*
- *Method*
 - *Providing a framework that implements best practice in the printing and mounting process*

Three things to make you a better photographer

Mike Talyor

The three things:

1. Limitations are hard (but work)
2. Process while you work is key
3. Theory is as important as action

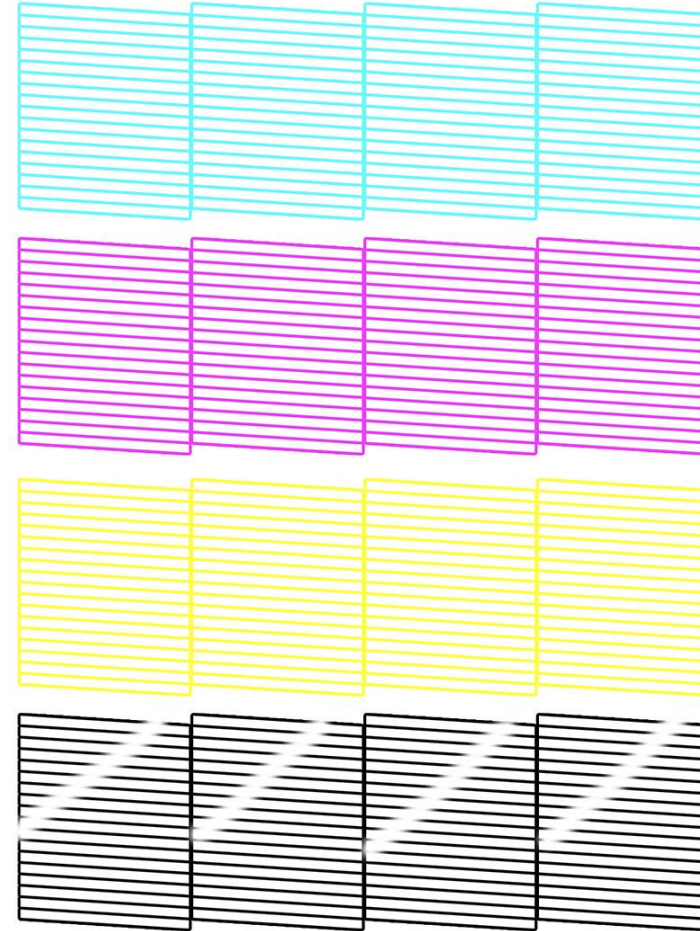
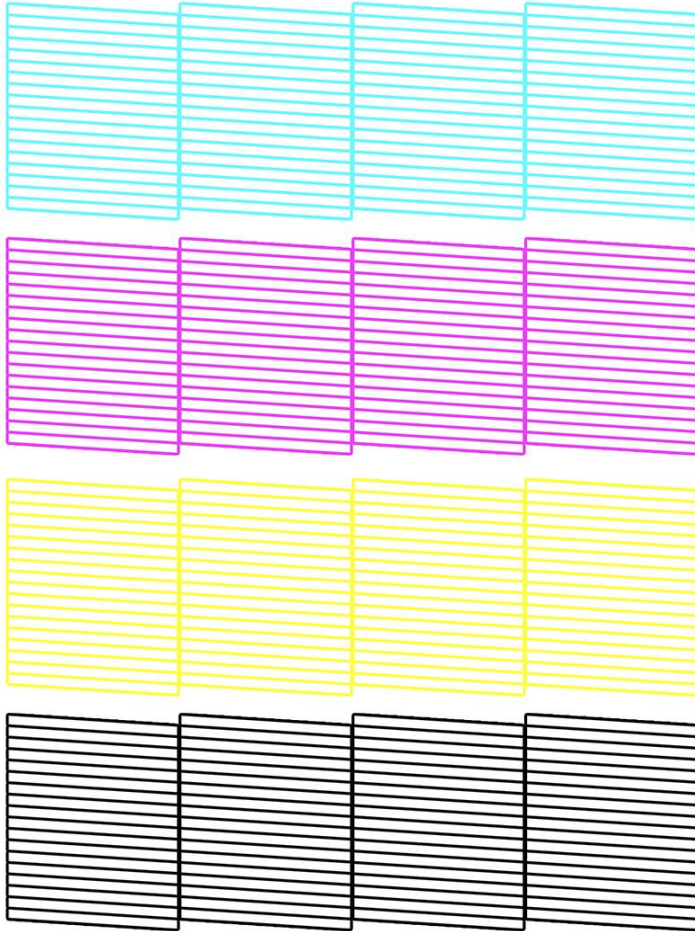
In the printing terms:

1. Limit to one paper and one aspect ratio
2. Extend your photographic rigour to encompass printing
3. Understand the importance of image processing environment, media types and icc profiles as you do aperture, shutter speed and ISO



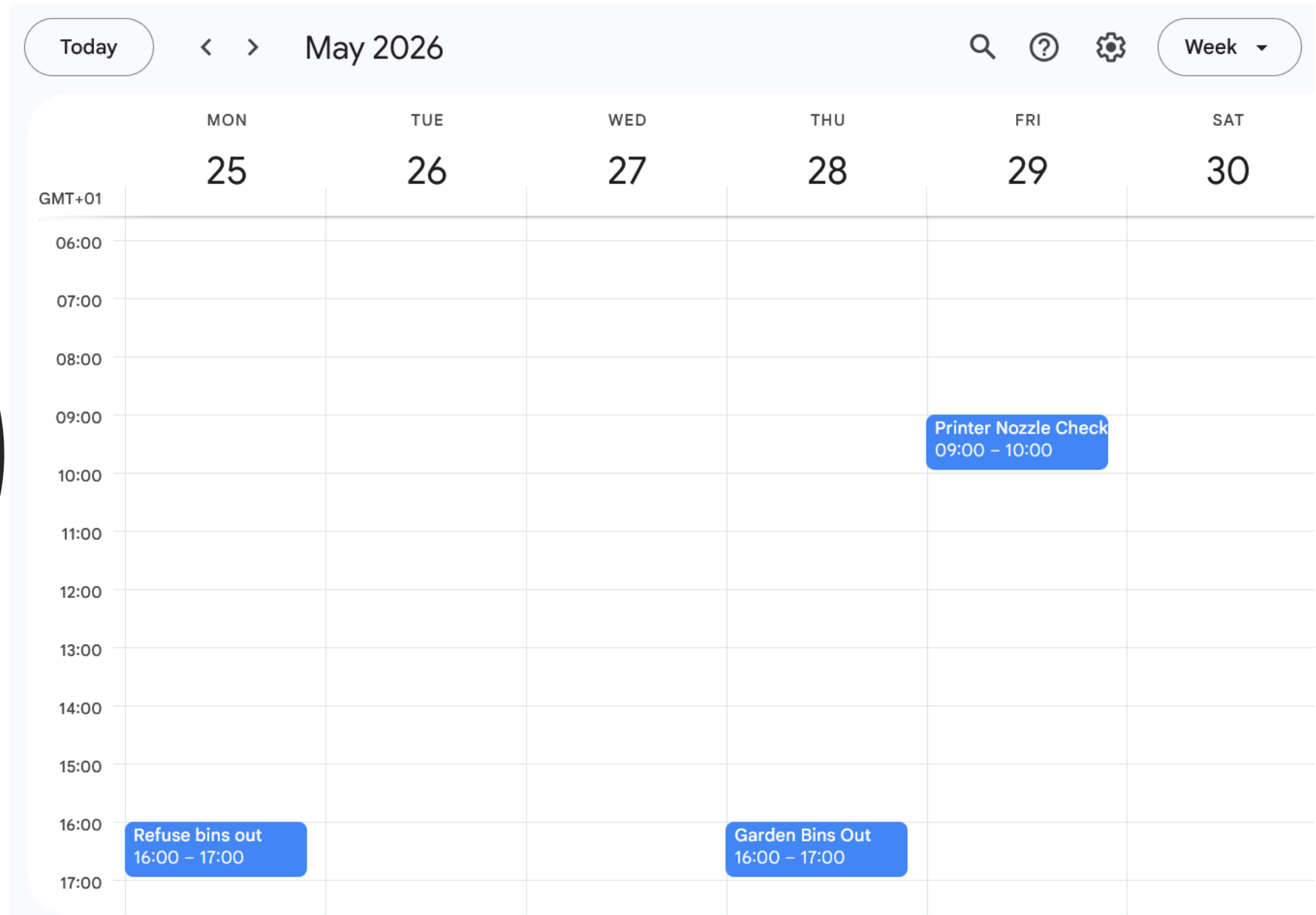
Printer maintenance

Nozzle check



Run a print-head
cleaning operation

Schedule a
weekly
nozzle check
(5 mins)



Software and firmware updates

 Epson Software Updater ✕

New software is available in the table below.

EPSON

EPSON ET-2750 Series

↺↻

Essential Product Updates

Software	Status	Version	Size		
☒  Firmware Updater	Update	07.48.LW27HC	15.48 MB		

Other useful software

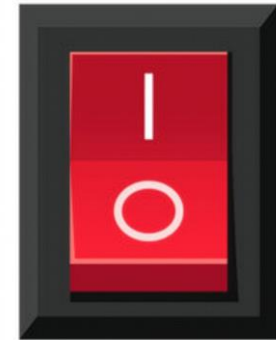
Software	Status	Version	Size		
☐  Epson Connect	New	1.01	0.22 MB		

[Auto update settings](#)

Total : 15.48 MB

Keep your printer turned on

- Avoid unnecessary head-cleaning cycles
- Prevent clogging
- Save ink



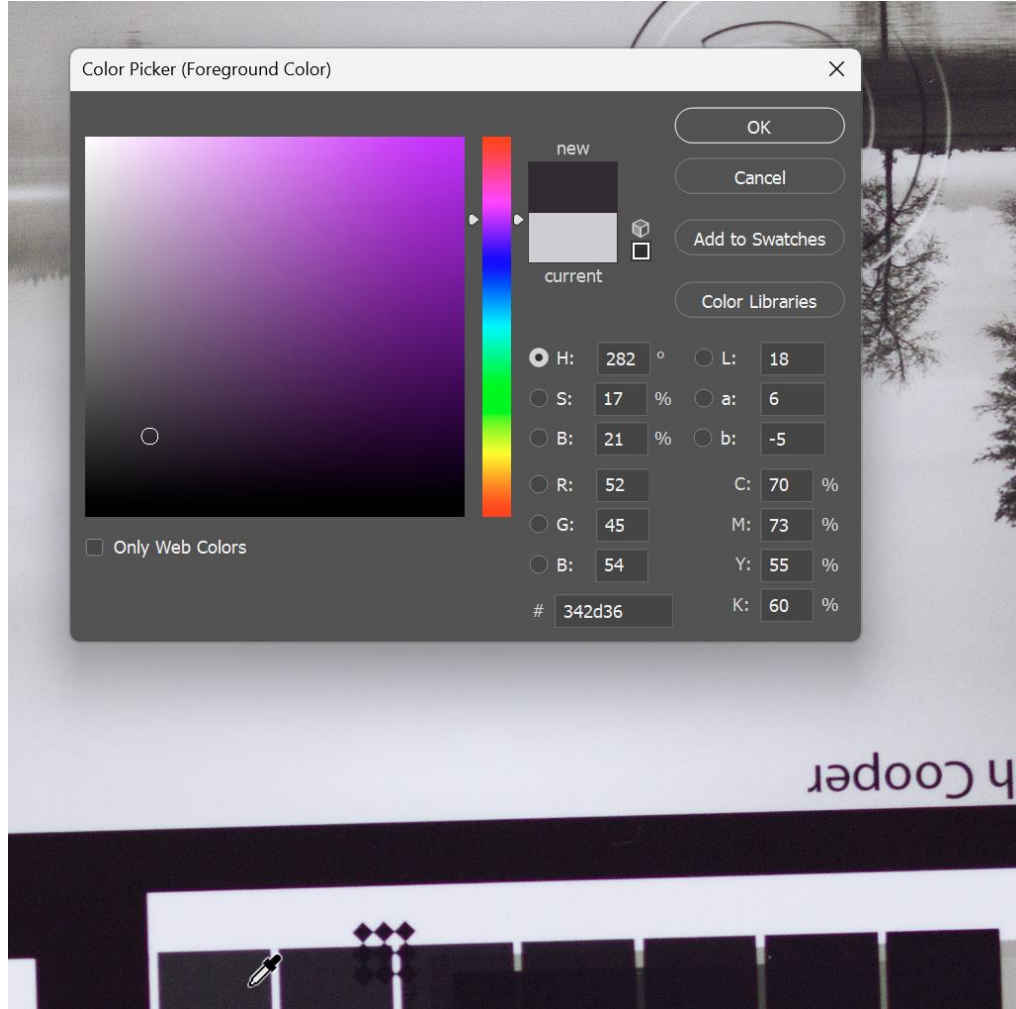
OEM inks and a spare waste tank





3rd party inks

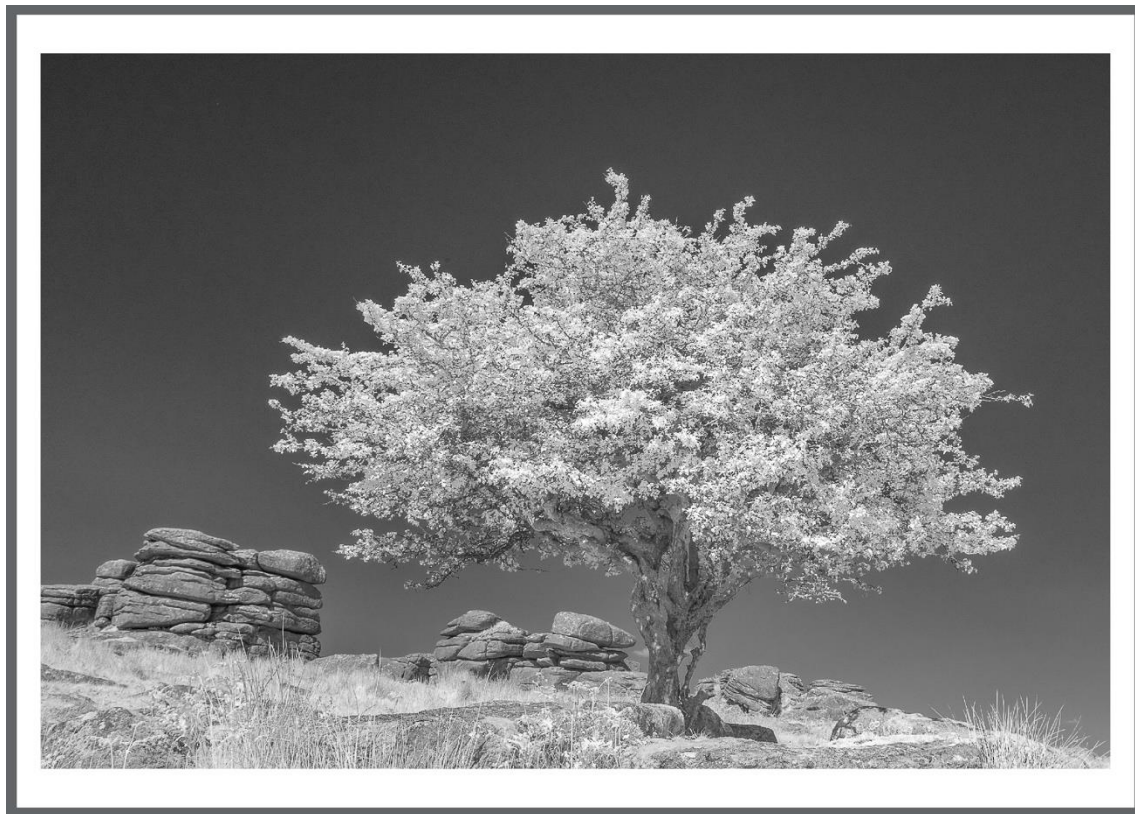
Standard mono printed with 3rd party inks



RGB values

- Red: 52
- Green: 45
- Blue: 54

Avoid printing to the edges of the paper



Greeting cards can be challenging

Relative Importance

Low

High

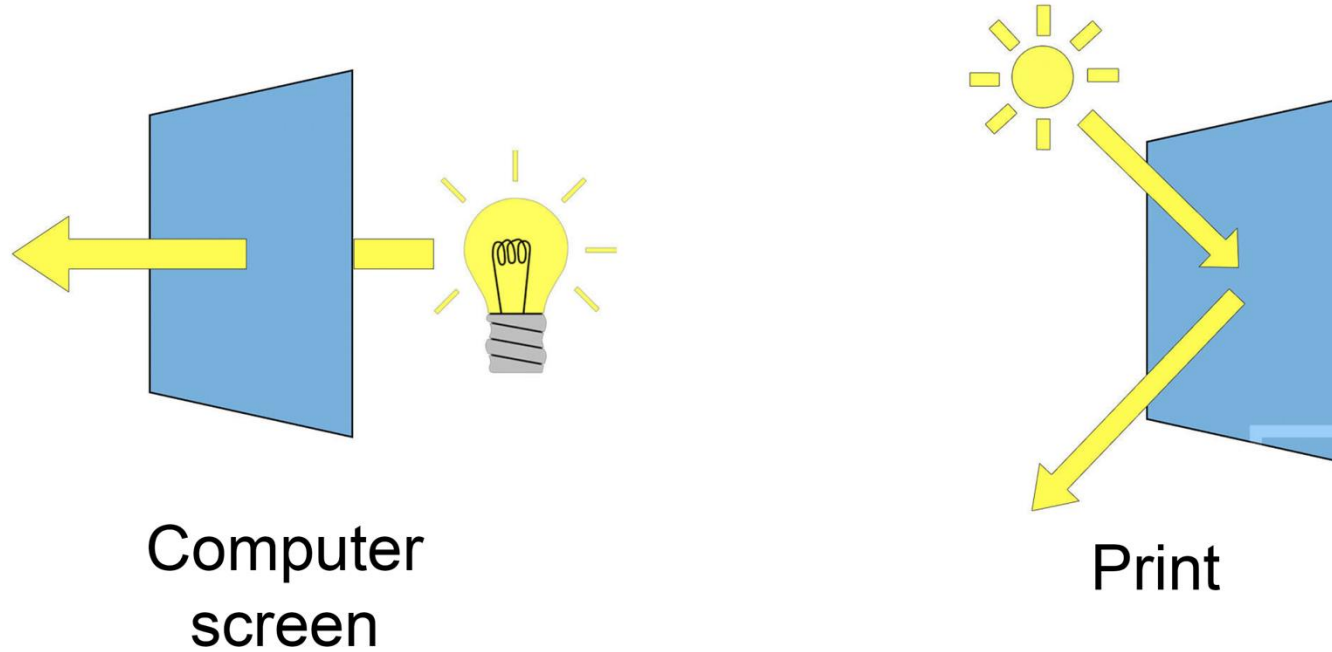


16-bit over 8-bit	OEM printing software	Calibrated monitor
Exact ppi image resolution	Output sharpening	A well exposed, good quality image
Mac or PC	Adobe RGB over sRGB	Robust computer to printer connection
Epson or Canon	Pigment inks for B&W prints	Correct media types for your papers
Fotospeed or Permajet	Paper thickness	Dimly lit room and monitor
JPEG or TIFF		icc profiles for colour prints
		B&W mode for monochrome prints
		Presets to enforce consistency
		Limit no. of papers

How a print is perceived

- Nobody really cares, or knows...
 - What camera you used to take the photo
 - Whether you processed on a Mac or PC
 - Which processing software you used
 - Whether it was printed on a Canon or Epson printer
 - The exact paper it is printed on
- What aids positive perception?
 - A well composed, pleasing image
 - Well controlled and reproduced colours and tones
 - Sympathetic choice of paper type
 - Size printed at
 - Complementary mount board colour/texture

My print looks nothing like the image on the screen



- *They will never look the same!*
- *Focus on making a good print, not matching your screen*

Lighting for viewing prints

- Brightness:
 - 400 - 500 lux
 - Measure with S8608
- Colour temperature
 - 5000 – 5600 Kelvin
- S8608 light meter
 - £15
- Calibrite GrafiLite lamp
 - £90



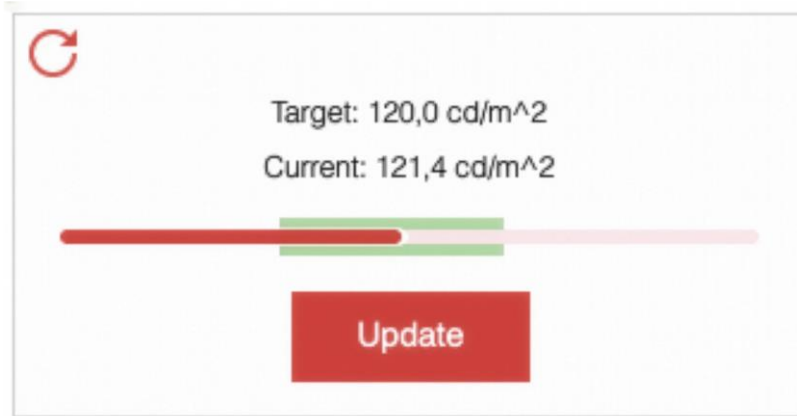
Dark prints

- My prints are too dark!
- No. Your screen is too bright!

Set your screen brightness during calibration process



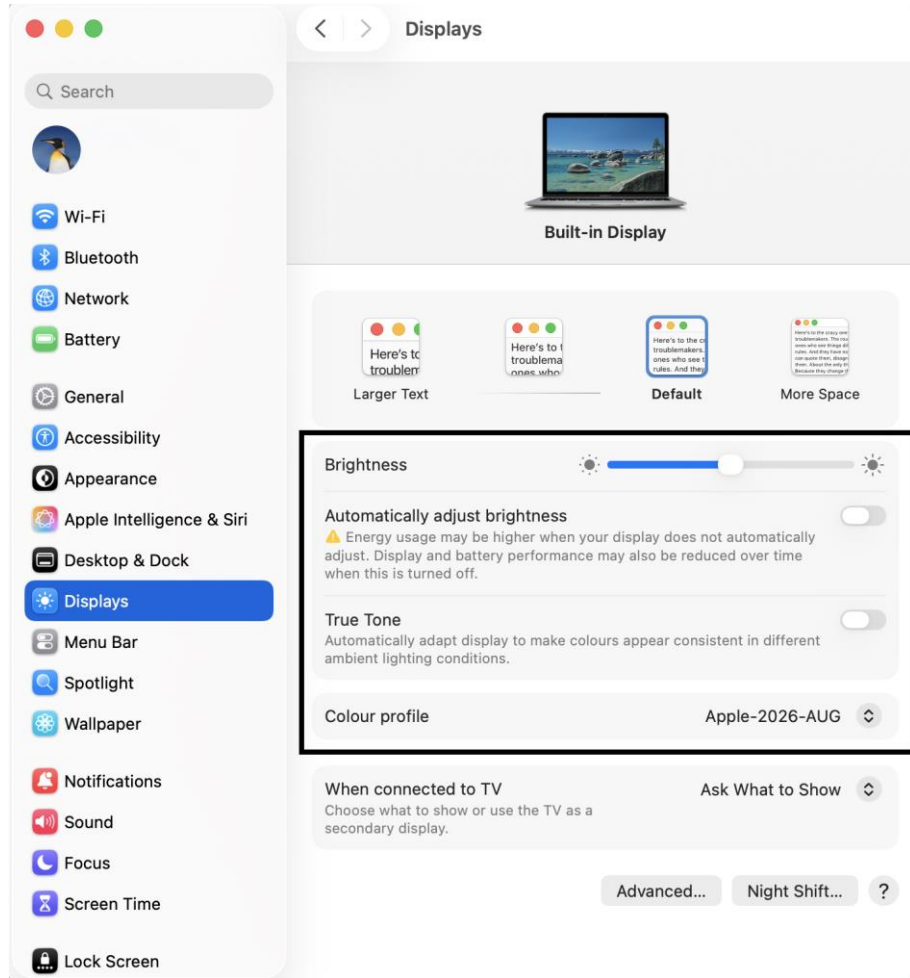
Screen calibration software suggests 120 cd/m²



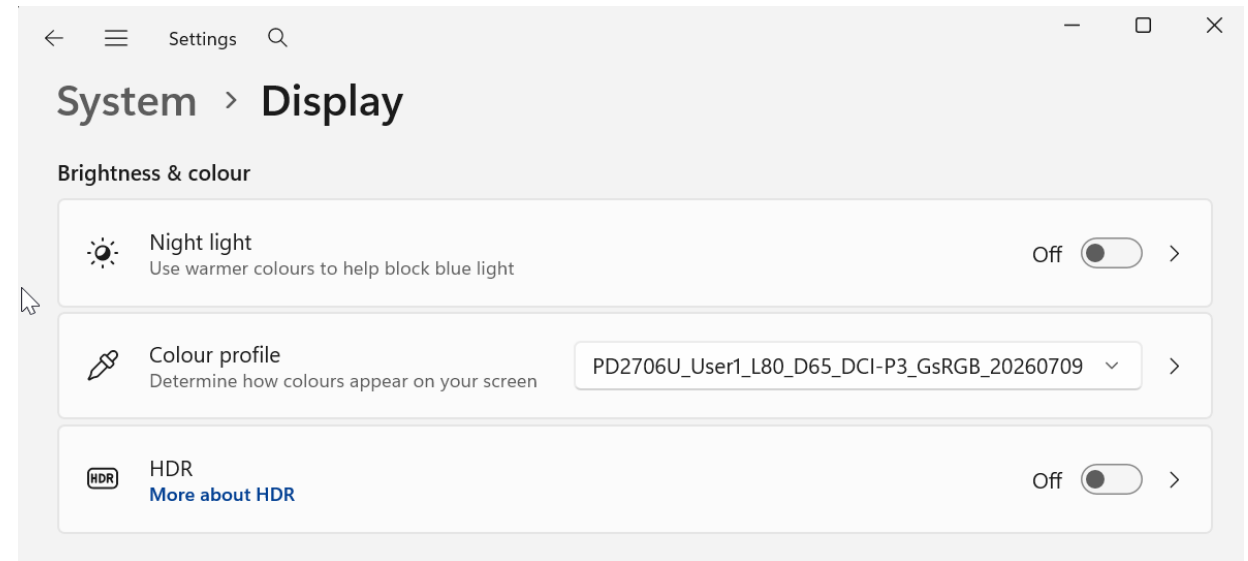
I strongly recommend a value in the 80-100 range

It will seem dark to start with, but will improve print brightness

Turn off brightness and tone controls



MacOS



Windows

Top tips

- Turn down the brightness of your computer's display to 80-100 cd/m²
- Make sure you are working in a room with minimal lighting, making use of curtains or blinds; ideally in a room with north-facing windows
- If working in the dark, use white-balanced peripheral LED desk lights to work under

**If your monitor seems too dark,
then the ambient light levels in
your room may be too high**

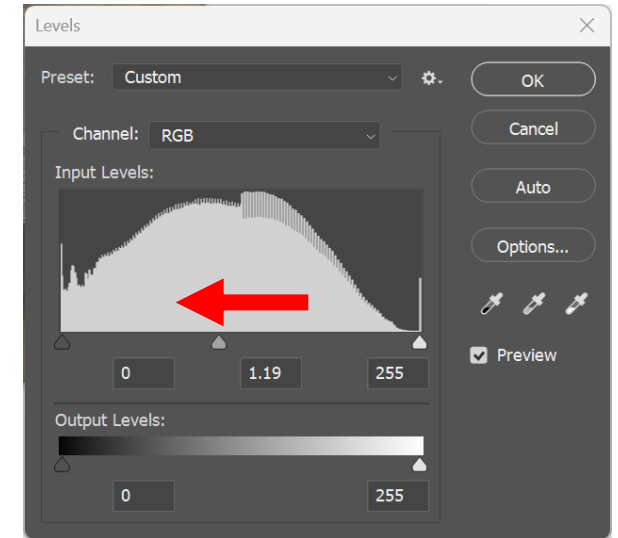
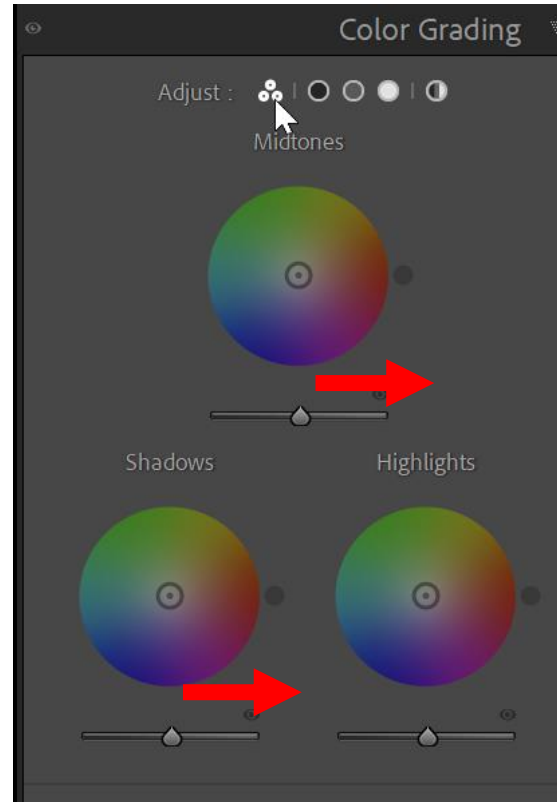
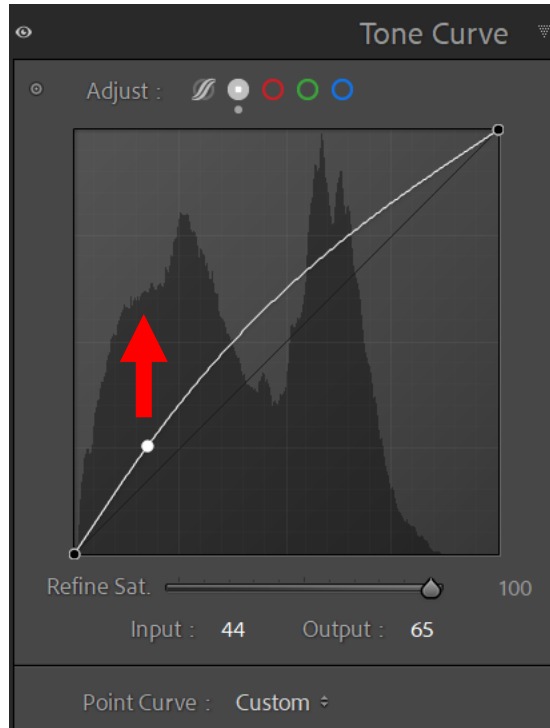


Set your editing application workspace to WHITE

Common mistakes made in fixing dark prints

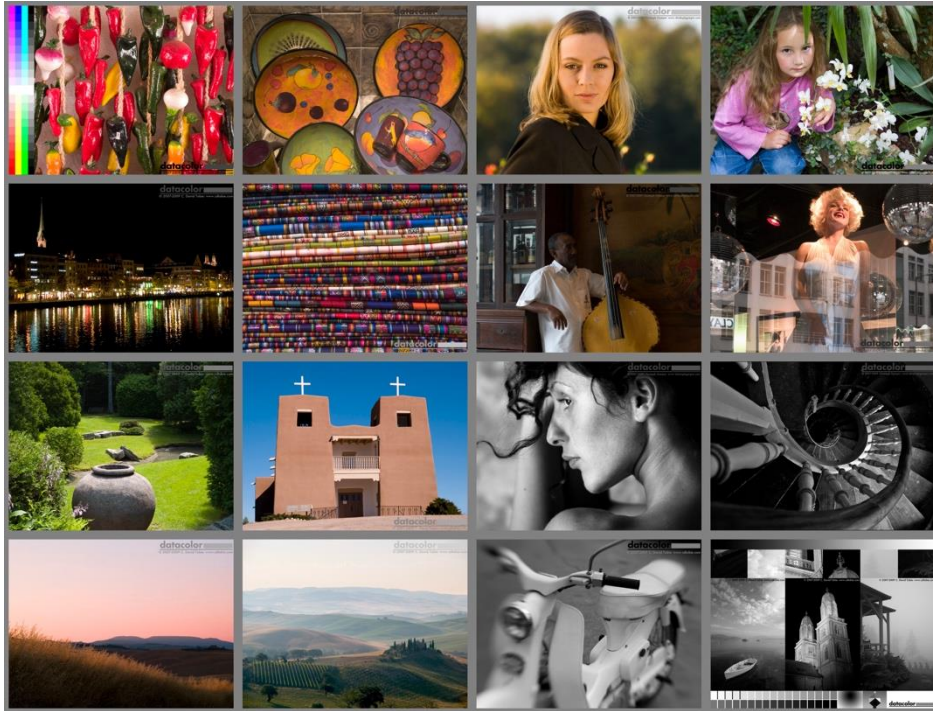
- Raise the image exposure
- Raise the image brightness
- Try a different paper
- Try a different profile

Raising mid-tones and shadows



Experiment and find a method that works for you

Print a test image



[Download \(zip\)](#)

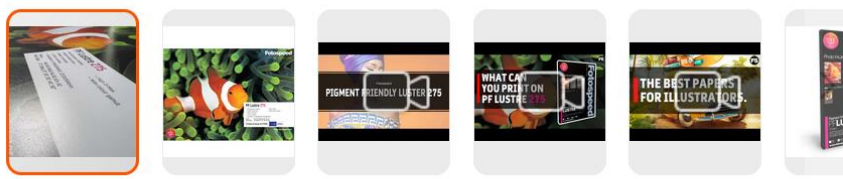
[Reference video](#)



[Download \(zip\)](#)

Courtesy of Northlight Images

Print small



Fotospeed PF Lustre 275

★★★★★ 43 reviews ▾

PF Lustre 275 is a flat, stiff, middle-weight paper with a lustre finish. The paper has a bright white base and an instant dry, micro-porous, coating. This multi award-winning paper's wide colour gamut and high D-MAX delivers beautiful images, both in colour and B&W. Compatible with both dye and pigment inks. [Read More](#)

CODE: Fotospeed PF Lustre 275

[Download free printer profiles](#)

Size

Choose an Option... ▾

Pack size

Choose an Option...

6x4"

5x7"

8x10"

A4

A3

A3+

A2

£23.99

✓ In Stock

Order within 29

–

1

+

Dispatch

Print multiple (*contact sheet*)



BrowseSettings

PresetCurrent Settings

PrinterSC-P700 Series(Network)

Media TypeVelvet Fine Art Paper

Paper SizeA3 297 x 420 mm

Paper SourceRear Paper Feeder

QualityMax Quality

Black Enhance Overcoat

Gloss Smoothing

Bottom Edge Print Quality Priority

App Paper Settings Priority

TypeTemplate

OrientationLandscape

Expansion

Template4-up

Background Color

Show Entire Image

TypeAdvanced B&W Photo

Color ToningFine Adjustment

ToneNormal

Y

R

G

B

C

M

+

Horizontal0

Vertical0

Brightness0

Contrast0

Shadow Tonality0

Highlight Tonality0

Max Optical Density0

Highlight Point ShiftOff

The background features several abstract geometric elements: a large orange circle on the right, a purple circle in the upper left, a blue circle in the top right, a green L-shaped line, a blue dashed line, and a green square outline. The text is centered within the orange circle.

*Media Types
&
ICC profiles*

Media types

A series of paper *families*,
e.g.

- Gloss
- Semi-gloss
- Lustre / Pearl / Oyster
- Byrata
- Cotton
- Matte

Tell the printer

- How to lay down the ink
- How much roller pressure to apply
- Check with the paper supplier

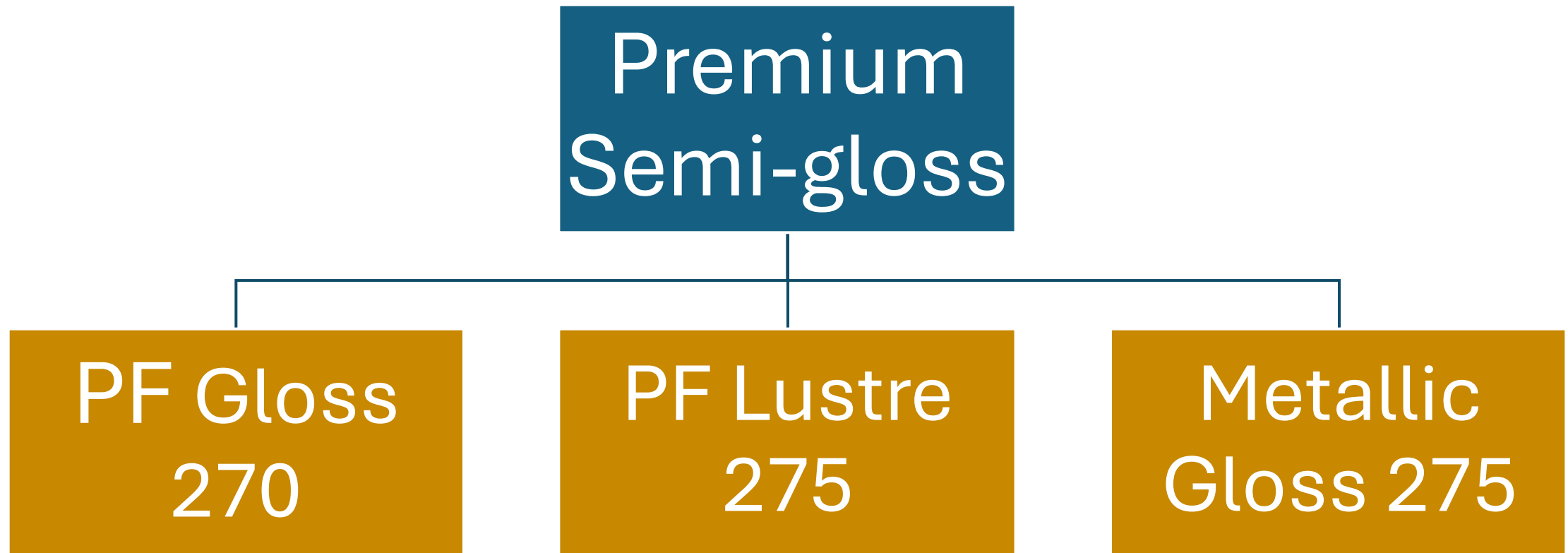
Media types

InkJet Paper Printer Settings

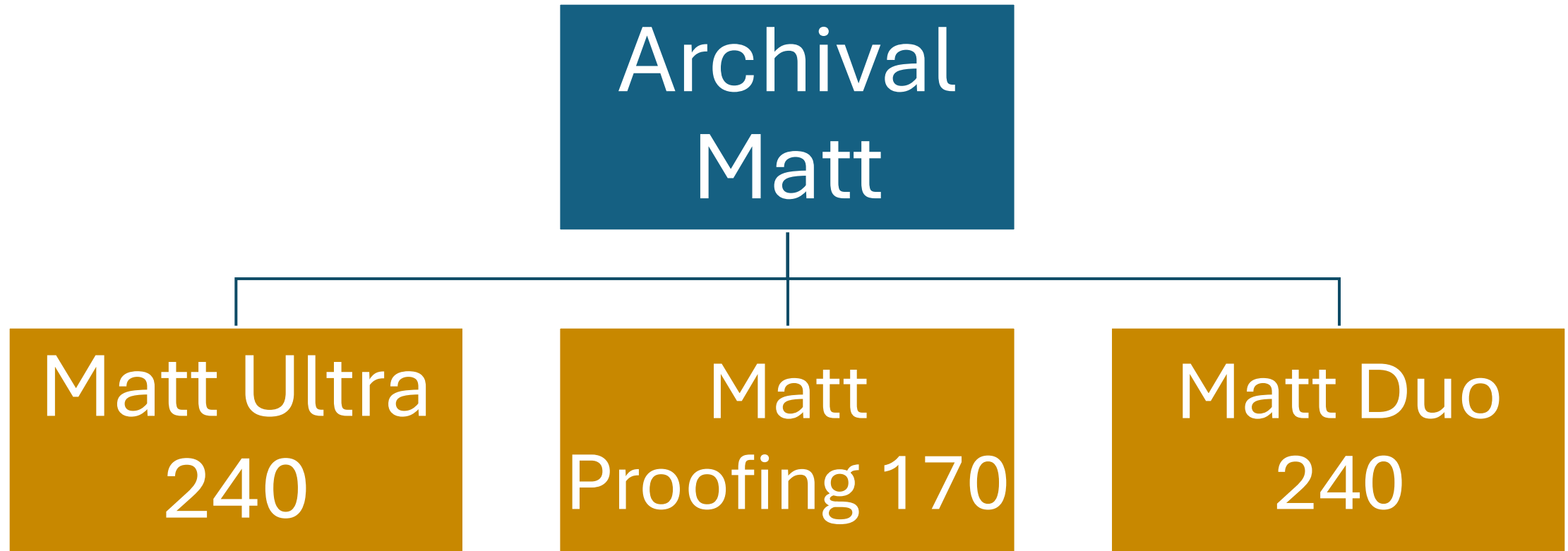
Fotospeed
for every print

Paper	Weight (gsm)	Media Type -Epson	Media Type -Canon	Black Ink	Extra Info
NST Bright White 315	315	Epson Archival Matt/ Velvet Fine Art*	Matt Photo Paper/ Heavy Weight Art*	Matt Black	100% cotton, very gentle texture, bright white base, high D-MAX & wide colour gamut.
NT Bright White 315	315	Epson Archival Matt/ Velvet Fine Art*	Matt Photo Paper/ Heavy Weight Art*	Matt Black	100% acid free. Full, rounded texture, bright white base, suited to artistic images or watercolour reproductions.
Platinum Cotton 305	305	Epson Archival Matt/ Velvet Fine Art*	Matt Photo Paper/ Heavy Weight Art*	Matt Black	100% OBA free and 100% cotton. Acid free paper with a natural white base. Smooth matt surface. High D-Max.
Cotton Etching 305	305	Epson Archival Matt/ Velvet Fine Art*	Matt Photo Paper/ Heavy Weight Art*	Matt Black	100% cotton and acid free. Textured matt surface with a high D-Max and wide colour gamut. White base.
Xpressions Smooth 300	300	Epson Archival Matt/ Velvet Fine Art*	Matt Photo Paper/ Heavy Weight Art*	Matt Black	100% cotton and acid free. White base. Smooth fine art matt surface. designed for artists, photographers.
Xpressions Textured 300	300	Epson Archival Matt/ Velvet Fine Art*	Matt Photo Paper/ Heavy Weight Art*	Matt Black	Acid free. White base. Textured fine art matt surface.
Studio Etching Rag 285	285	Epson Archival Matt/ Velvet Fine Art*	Matt Photo Paper/ Heavy Weight Art*	Matt Black	100% cotton and acid free. Natural White base. Soft grain textured matt surface. designed for artists, photographers.
Platinum Etching Rag 310	310	Epson Archival Matt/ Velvet Fine Art*	Matt Photo Paper/ Heavy Weight Art*	Matt Black	100% cotton and acid free. Natural White base. Soft grain textured matt surface. designed for artists, photographers.
Studio Matt Textured Rag 310	310	Epson Matt Canvas*	Matt Photo Paper/ Heavy Weight Art*	Matt Black	100% cotton and acid free. Natural White base. Soft grain textured matt surface. designed for artists, photographers.
Baroque Matt Canvas 350	350	Epson Matt Canvas*	Canvas Matt*	Matt Black	Poly-cotton canvas, matt surface, natural white. Crack resistant surface is great for stretching & framing.
Graffiti Matt Canvas 340	340	Epson Matt Canvas*	Canvas Matt*	Matt Black	Poly-cotton canvas, available in cut sheet and rolls, bright white. Crack resistant surface is great for stretching & framing.

The Media Type – icc Profile Hierarchy



The Media Type – icc Profile Hierarchy



icc print profiles

Printer- AND paper-specific

- Download the supplier's standard icc profile
- If this doesn't look right, consider getting a custom profile made for you

Tell the printer

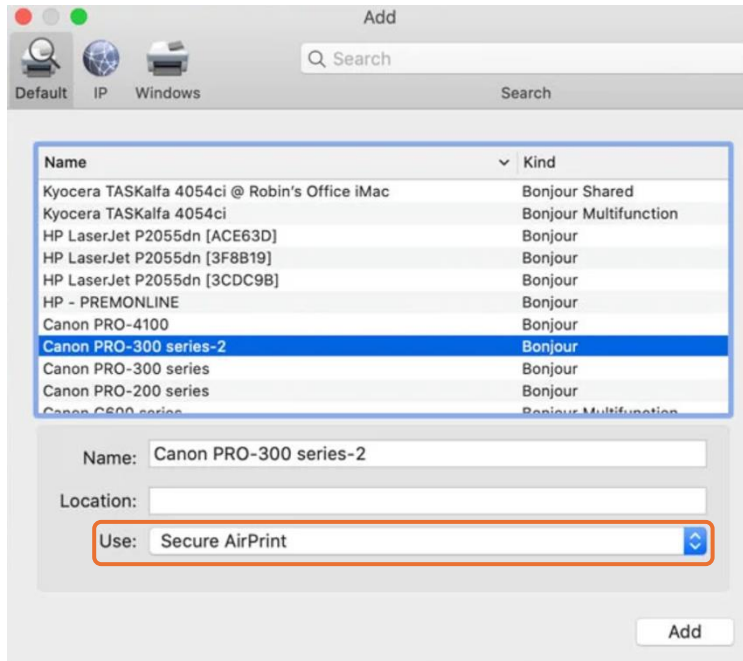
- How to adjust the print to the prescribed colour standard



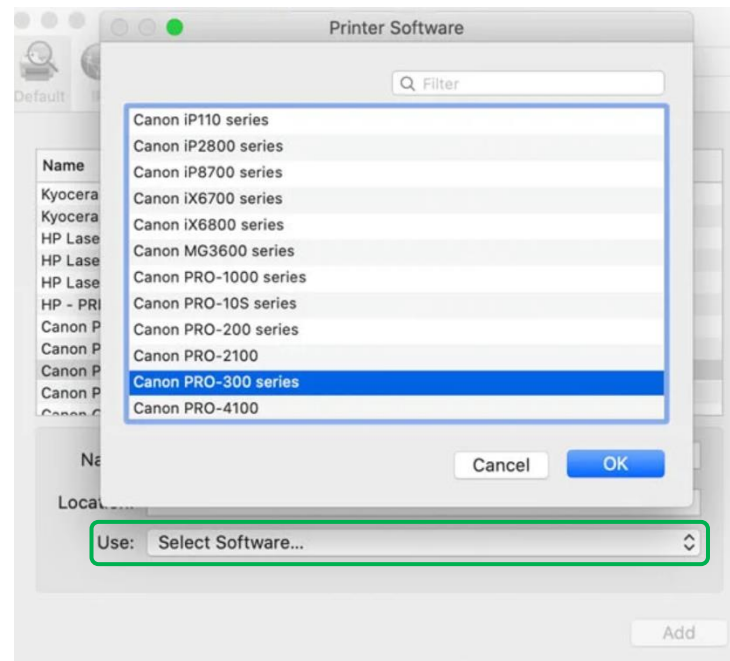
Installing the printer driver MacOS

- 
- Take care not to install the AirPrint driver as it does not use the icc profile effectively!

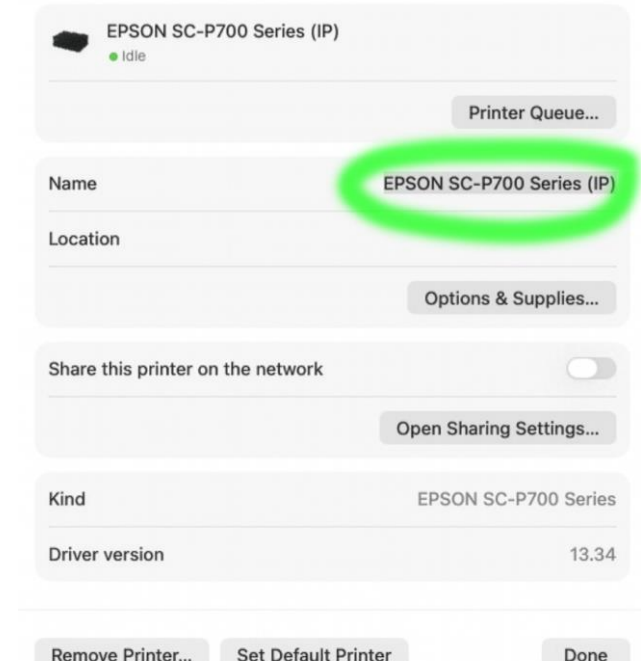
Print driver (MacOS) – IMPORTANT



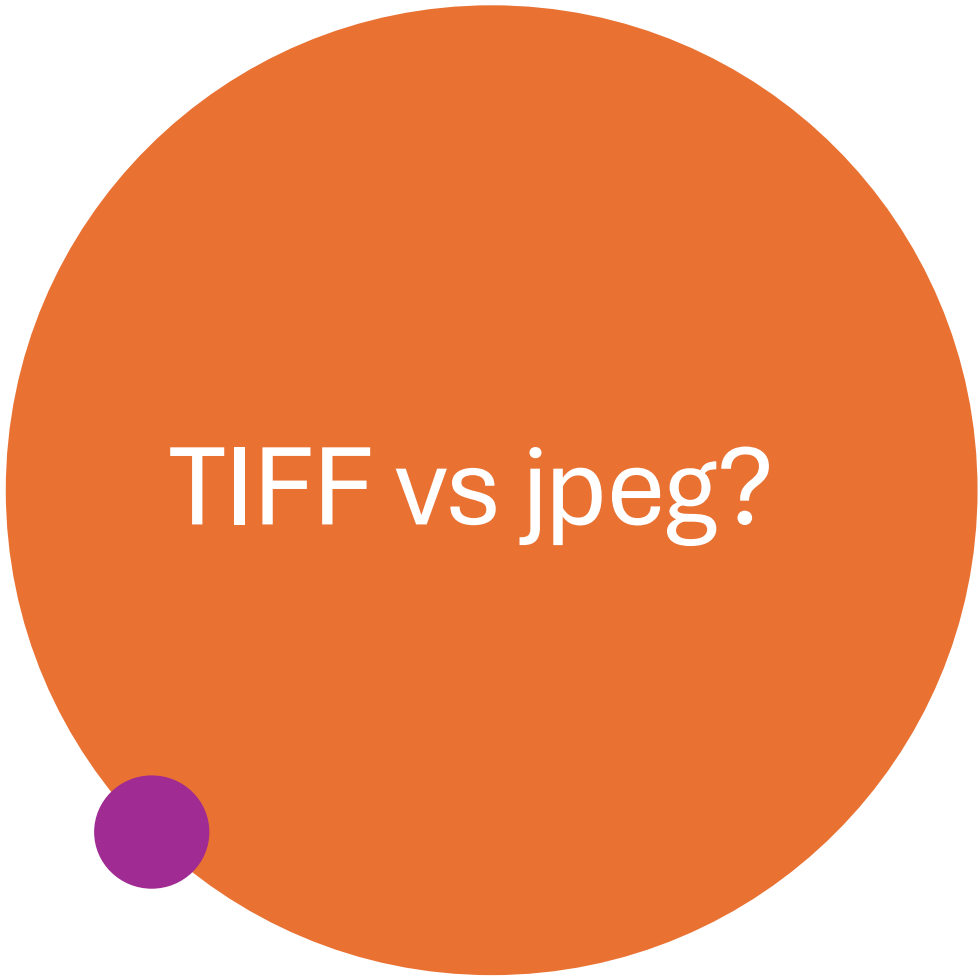
**Under no circumstances
select the default AirPrint
driver**



**Use: Select Software
Select your printer by name
OK**



Set Default Printer



TIFF vs jpeg?

- In most instances JPEGs are just fine
- Where there is subtle colour grading across a part of an image, jpeg artefacts may be visible, but this is extremely rare

Paper choices - Dmax

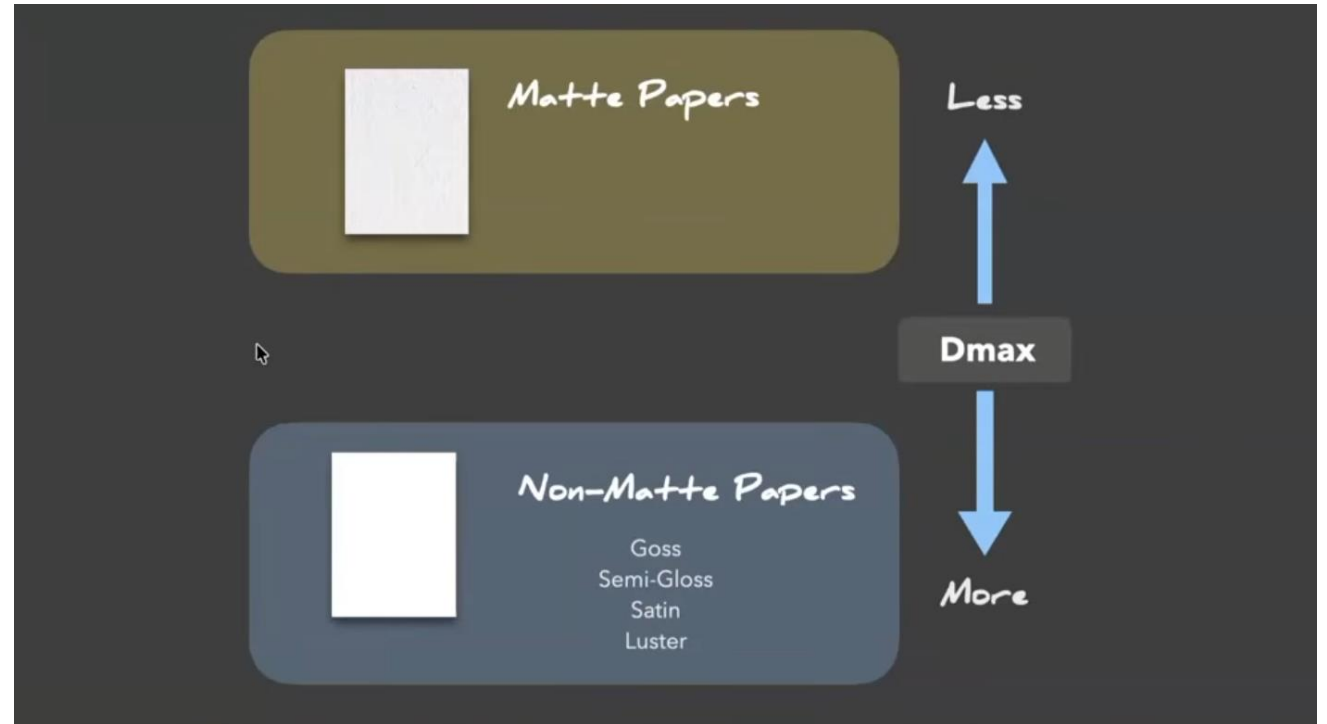
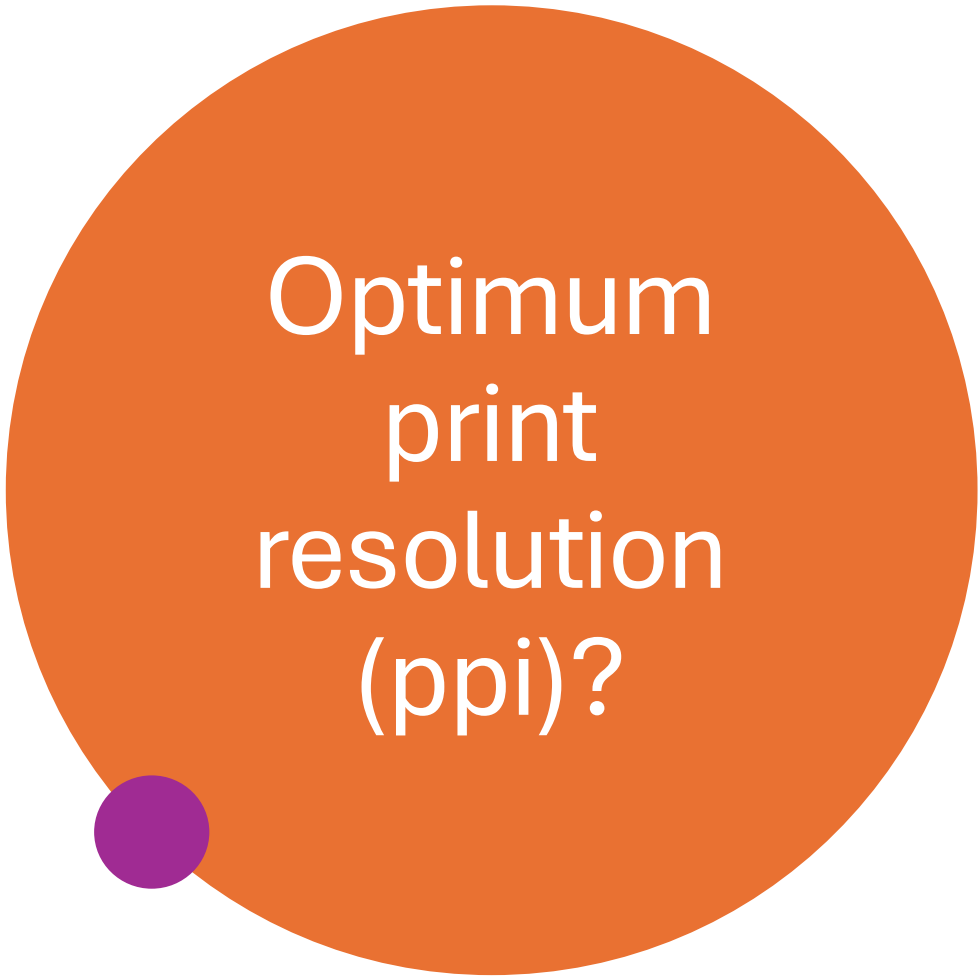




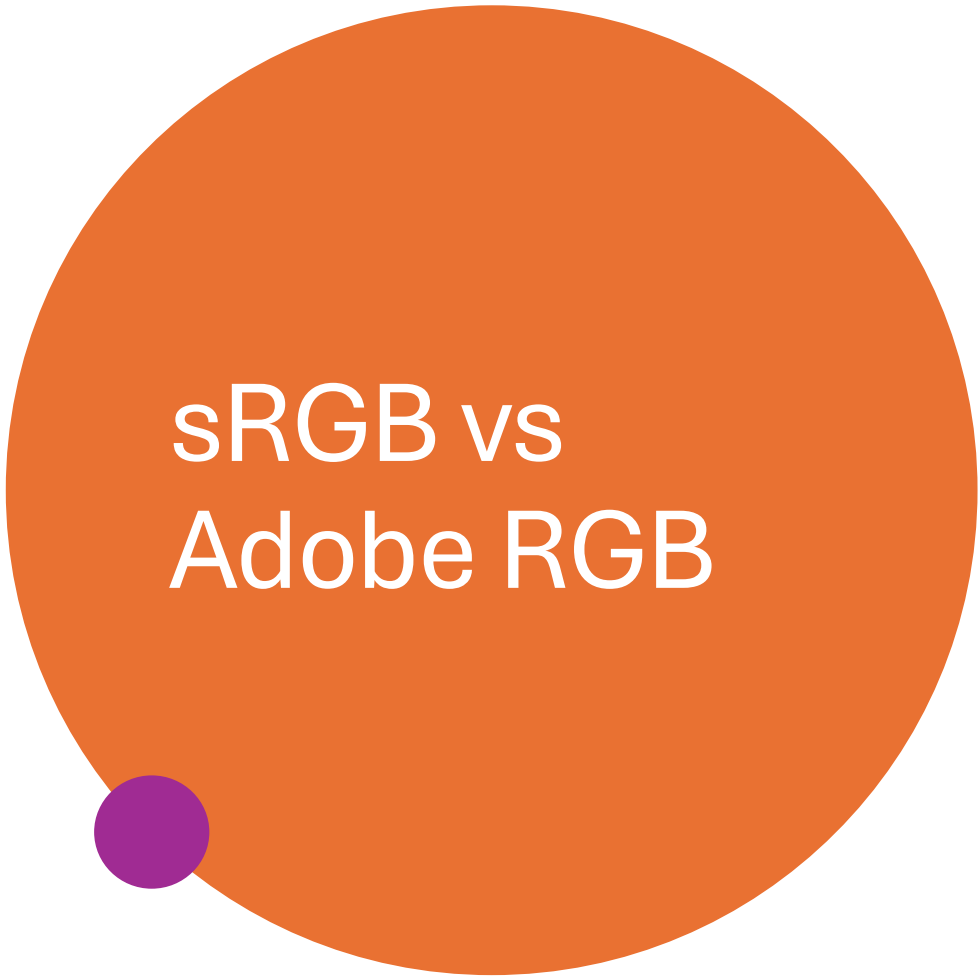
Image sharpening for print

- High-resolution images from modern equipment require little or no sharpening
- Prints can take more sharpening than digital images without degradation
- Standard output sharpening for print from Lightroom is generally adequate
- Experimentation encouraged to find optimal settings



Optimum print resolution (ppi)?

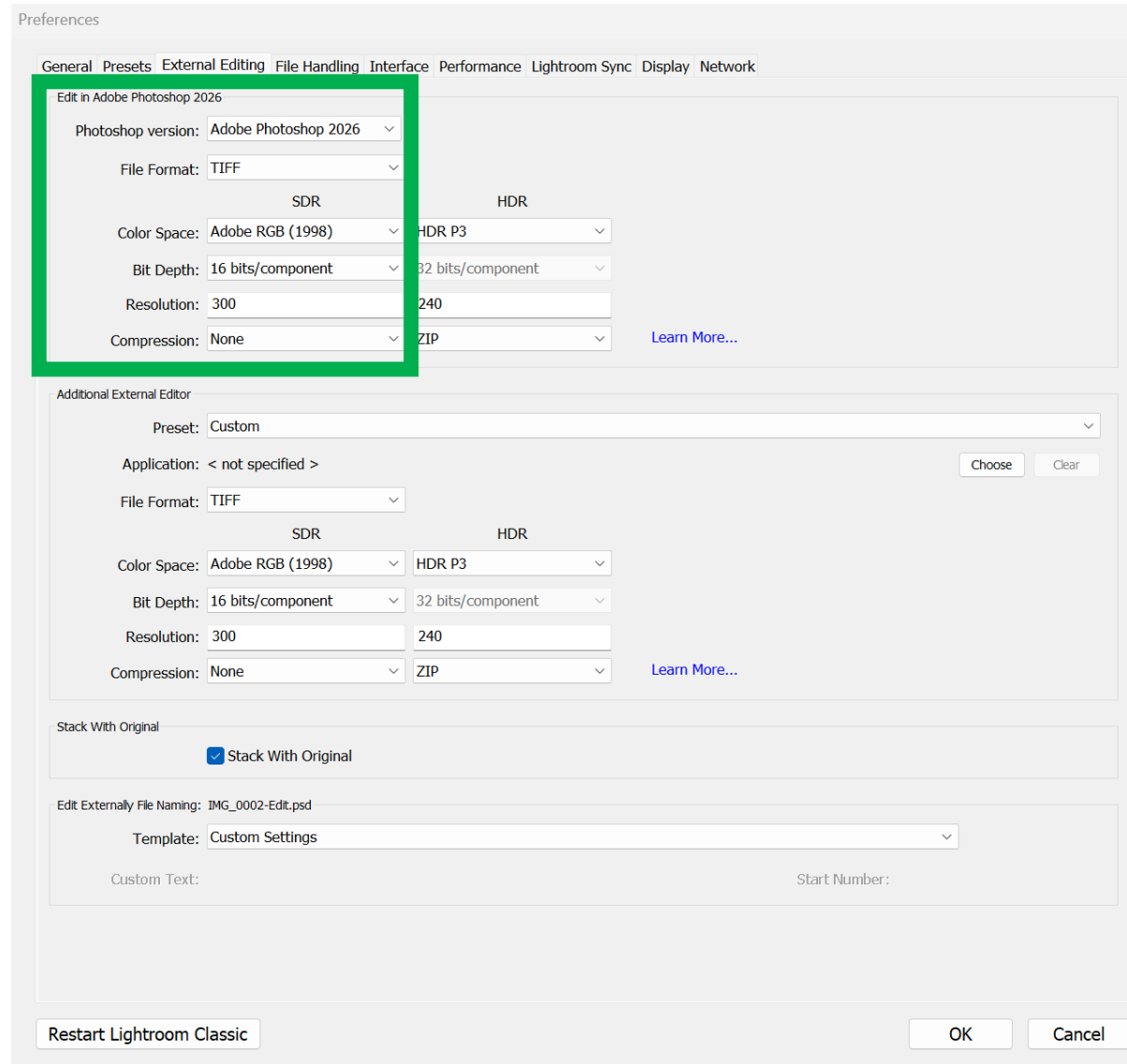
- 300+ ppi will be fine on all printers
- If <240ppi consider upscaling, with a small amount of additional sharpening



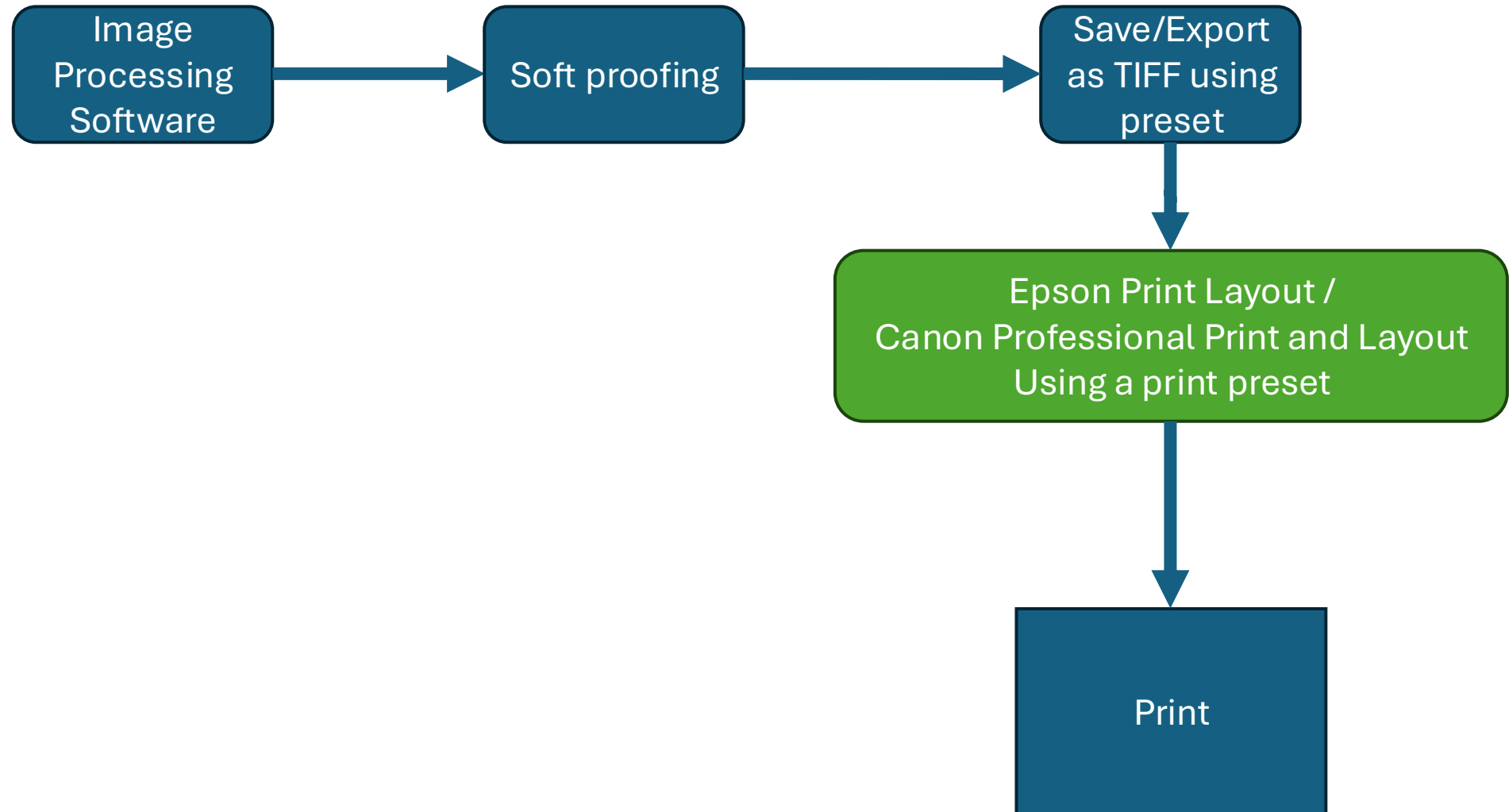
sRGB vs Adobe RGB

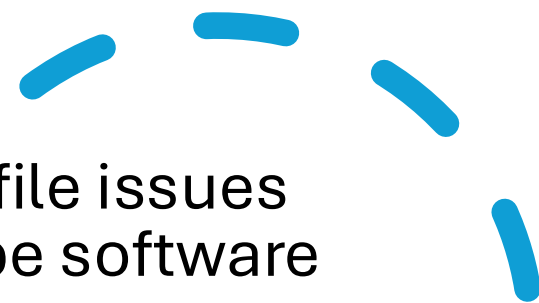
- Files to be displayed digitally should be in 8-bit sRGB colour space
- Files for printing should be in AdobeRGB colour space

Lightroom preferences - set once and forget



My print workflow





Why print using Canon or Epson printing software?

- Eliminates potential profile issues when printing from Adobe software
- MacOS and Windows updates can interfere with profiles
- Have their own dedicated black and white printing mode
- Easy to use via Lightroom and Photoshop plug-ins
- Create and use presets for all your papers and print sizes
- A wide choice of print templates

Printing Summary

- A poor image will make a poor print
- You don't need an expensive, dye-based multi-ink printer to get good prints
- Never turn your printer off; run a nozzle check once a week
- Work flat uniformly lit with a dull monitor
 - 80-100 cd/m²
 - 5* brightness setting on a Mac display
- Set your LR/PS workspace to white
- Print from printer manufacturer's software
 - Use correct media types for your paper
 - Use custom icc profiles for colour prints; B&W mode for monochrome prints
 - Create presets to maintain consistency
- Limit the number of papers you use – start with a lustre/semigloss/pearl
 - Choose papers and learn how to process to get the best results for each one
- Limit the aspect ratios to reduce requirement on mount boards
- Run print iterations using contact sheets or 6x4 paper



Reference
section



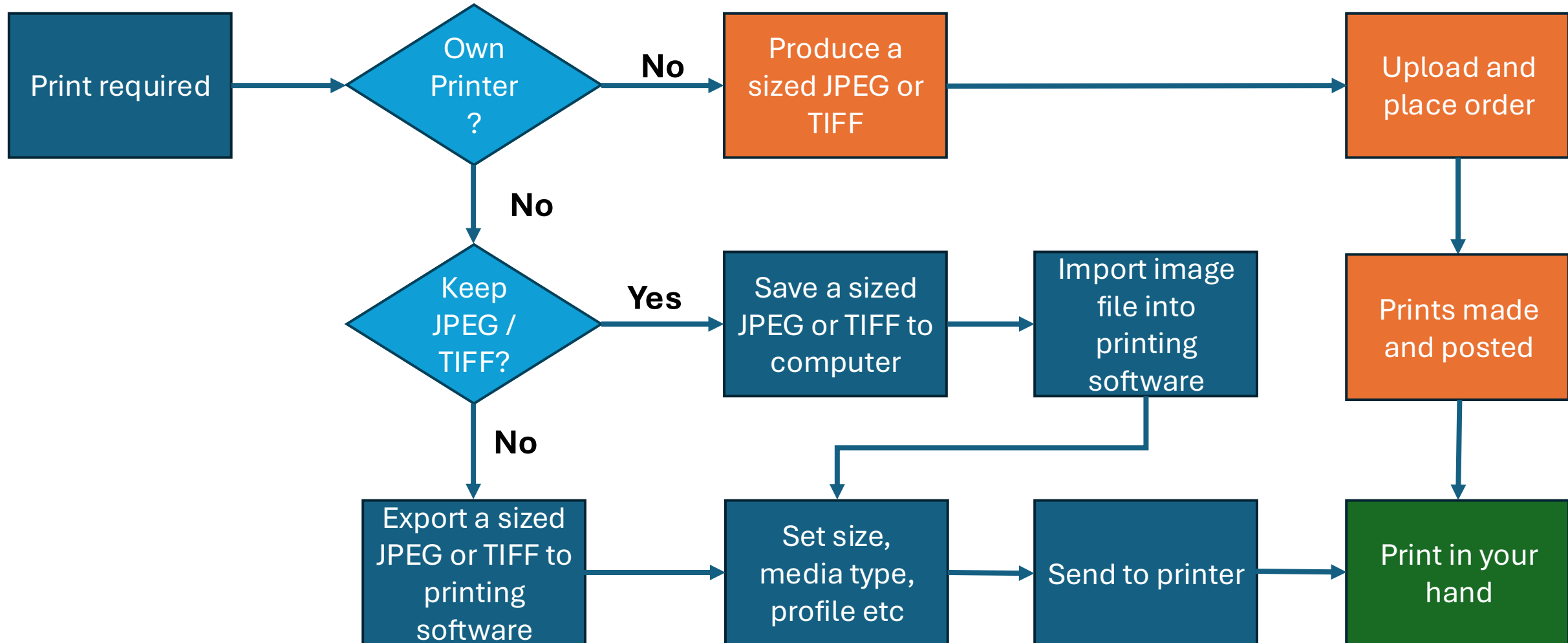
Native print resolutions by sensor resolution

Camera resolution (MP)	PPI at A4	PPI at A3	PPI at A2
10	322	227	161
20	455	322	227
30	557	394	278
40	643	455	322
50	719	509	360
60	788	557	394

Maximum Useful Print Resolution vs Viewing Distance

Print size	Typical usage	Maximum PPI required
10–12 in (25–30 cm)	Books / magazines	~300 PPI
2–3 ft (0.6–0.9 m)	Desk & small prints	~150–200 PPI
4–6 ft (1.2–1.8 m)	Wall prints	~100–120 PPI
8–10 ft (2.4–3 m)	Large wall art	~60–80 PPI
20–30 ft (6–9 m)	Billboards	~10–30 PPI

High level print workflow



Connectivity choices

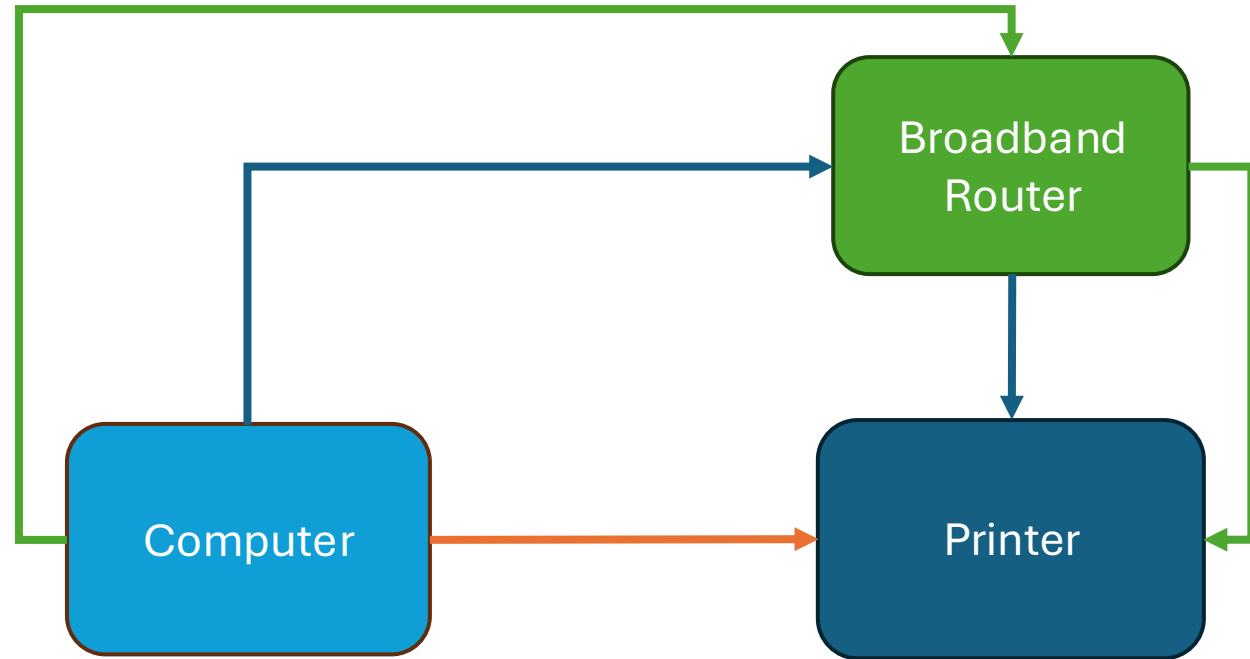
1. Wired Ethernet



2. USB



3. WiFi



Wired Ethernet is the most reliable method and 1st choice to connect your printer

USB is 2nd choice, but always connect directly to your computer's USB3 port, and not via a hub

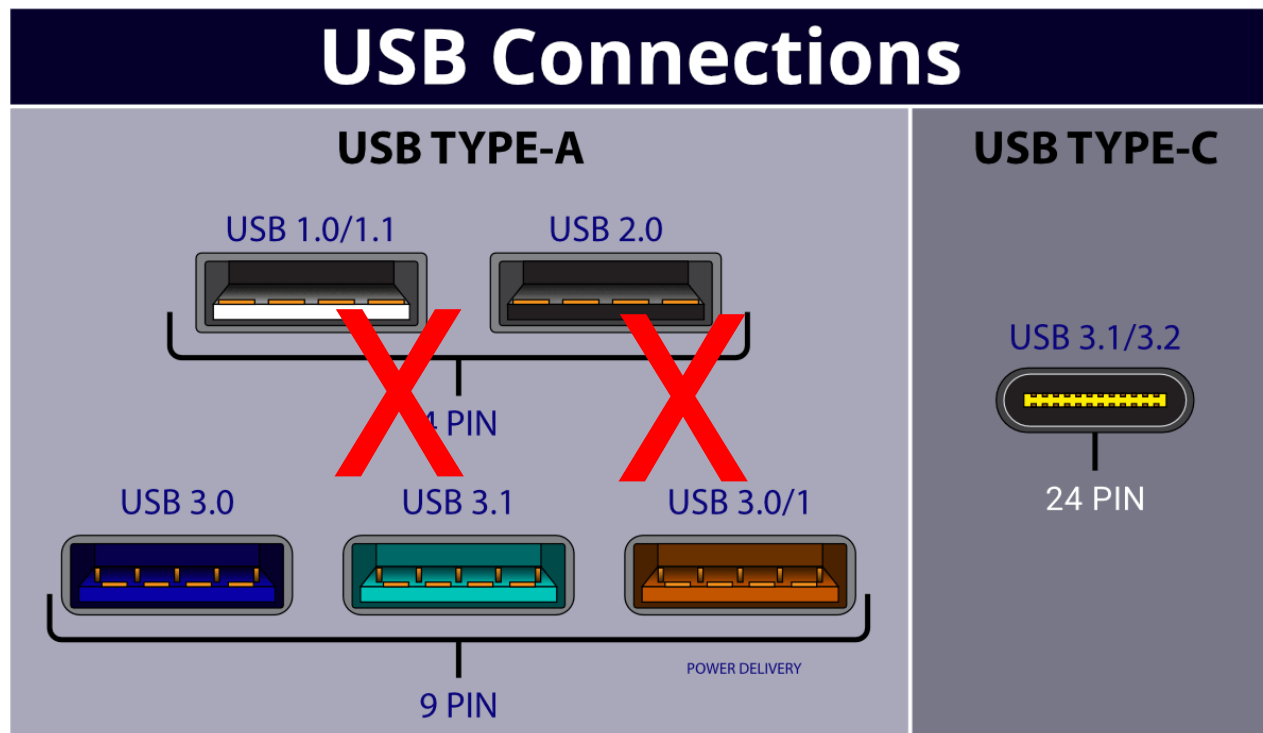
3rd choice is Wifi, which can work well if you have a strong signal strength in the house

Using the right USB port on your computer

USB ports are colour coded

Type 1 and 2 Ok for keyboards, mice etc

Ensure you use a USB 3.x port for your printer!



USB 3.2		20 Gb/s
USB 3.1		10 Gb/s
USB 3.0		5 Gb/s
USB 2.0		0.48 Gb/s
USB 1.0/1.1		0.012 Gb/s

Image aspect ratios for pre-cut mount boards



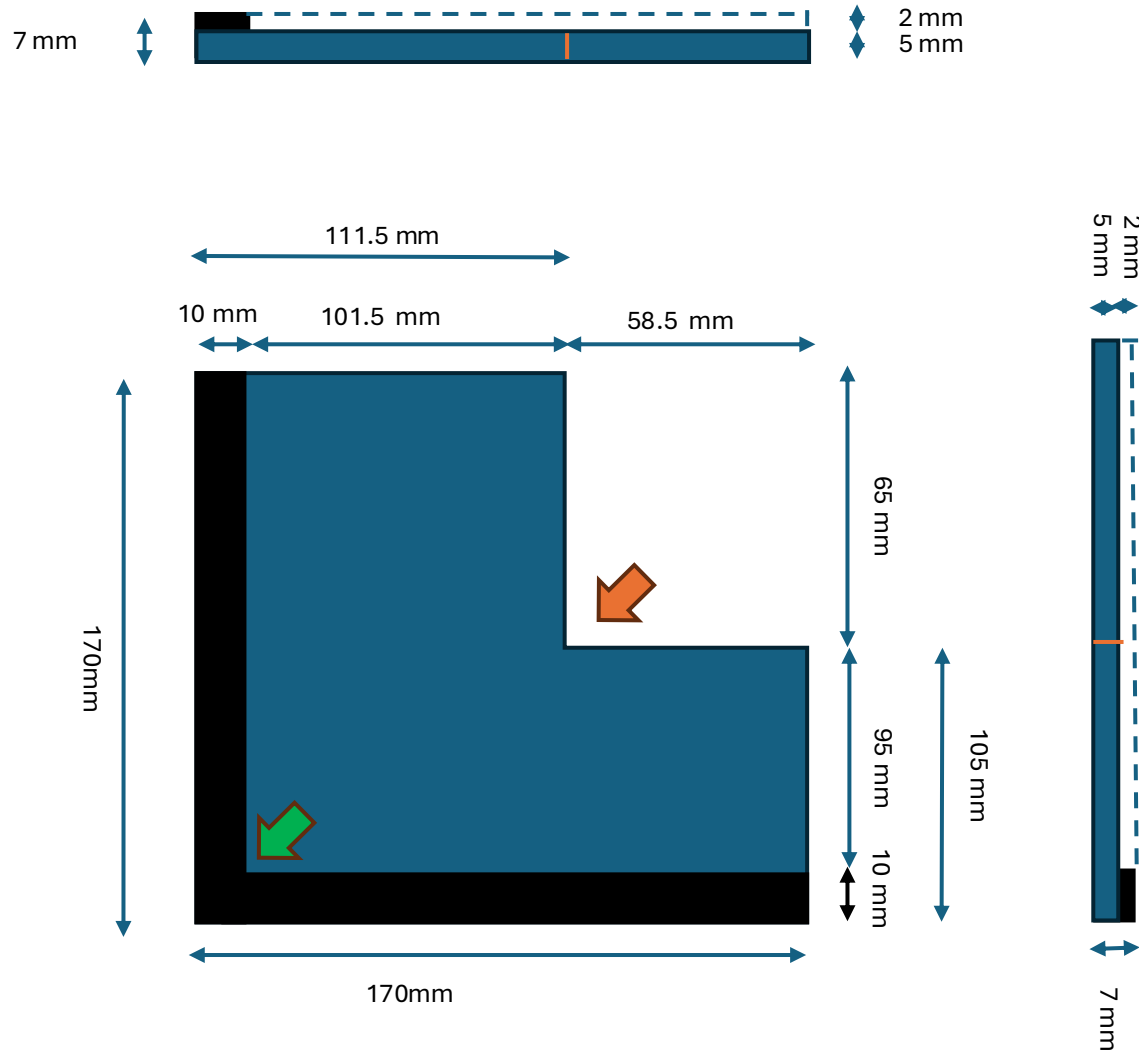
Mount board: 500x400mm

Aperture: 280x190mm

6mm border around print

Print size: 278x178mm

Print mounting guides



-  The angle at the point of the **orange arrow** needs to be pure right-angle, as this is where the corners of the print paper will sit.
-  The angle at the point of the **green arrow** needs to be pure right-angle, as this is where the corners of the mount board will sit.

Guides in-use

1. The mount board will be placed on a work surface, face down.
2. The guides – **turned upside down** - will be placed on the top two top corners of the mount board, with the corners of the board fitting into the angle shown with the green arrows.
3. With both guides in position, the paper will be positioned such that the top two corners of the paper fit into the corners of the guide indicated by the orange arrows