How to set up and calibrate your EIZO

INTRODUCTION

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Congratulations!

You've invested in an EIZO monitor.
You've gone through the exciting unboxing process.

Now what?

In this e-book, we will go through step-by-step how to set up and calibrate your EIZO monitor.

By the end of this guide, you will know how to connect your monitor, set up your photo editing profile and set up two types of print proofing profiles (one universal, and one especially for your own environment).

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CHAPTER ONE

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Choosing the
Right Cables

1. Choosing The Right Cables

In this chapter, we'll look at the different cables needed to connect your computer to your EIZO monitor.

IMAGE SIGNAL CABLE

If you're using a Mac, you will have either a mini DisplayPort, HDMI or a USB Type-C port*.

If you're using a PC, you will likely have at least one of the following ports: DVI, DisplayPort, Mini DisplayPort, HDMI or USB Type-C.

Check the specifications tab on the product page to ascertain which cables come with your monitor.

Mini DisplayPort to DisplayPort	USB-C to DisplayPort
USB-C to USB-C	HDMI – HDMI Note - HDMI v1.4 can only comfortably handle 24" resolution. CG319x & CG3145 are HDMI v2.0

DVI Cable	Full size DisplayPort to DisplayPort

If you're unsure which cable will fit your computer, check your user manual to find out the ports available on your computer. Alternatively, you are welcome to take a photograph of your signal ports and email support@eizo.com.au

POWER CABLE AND CALIBRATION DATA CABLE

Next, connect your POWER CABLE and USB A to B CABLE* (the USB cable is required for calibration. Plug square end in to monitor.)

*USB A-B cable is NOT required when a **USB-C to USB-C signal cable** is used – (CG279X only).*

Power Cable (Included in the box)	USB A to B Cable for calibration (Included in the box)
	or

Why is Calibration Important?

2. Why is Calibration Important?

Let's dive into why monitor calibration is important.

Maintaining a level of consistency is crucial in the creative workflow. Whether you're creating for yourself or for a client, you want to ensure what you see on your screen (that you're no doubt spending countless hours on), is what your client will experience.

How many times have you found yourself having to print an image over and over because what you have printed isn't matching what you see on the screen? Or, when you post online & the colours look different to what you intended?

This is one of the biggest frustrations photographers and creatives face in the final stage of the workflow. All of that time, paper and ink -wasted. The frustration of intention not meeting reality.

You should be able to enjoy every aspect of your workflow, including editing and printing. To TRUST what you are seeing on screen is (a) what's held in the image file, and (b) what will eventuate in your final output. This is where monitor calibration comes into play.

The key benefits of monitor calibration and colour management are a significant increase in:

• Accuracy

• Consistency & Quality

• Productivity

Accuracy: With EIZO, you can rest assured that what you're capturing in camera, is being displayed accurately on screen. For example, an image shot in RAW with an Adobe RGB colour space will be reflected on your EIZO monitor displaying a 99% Adobe RGB Gamut.

Consistency and quality: Preventing on-screen colour drift, regular calibration and colour management ensures consistency throughout your workflow. No more working with a moving target!

Productivity: When you utilise colour management and monitor calibration together to create consistency, you will see an increase in productivity. With all devices from start to finish in synchronicity with each other, your trust in what you are creating and seeing will allow for efficiency in your workflow.

Accuracy, consistency, quality and productivity are a result of a colour managed workflow. Calibrating your monitor should be slotted into your calendar as a non-negotiable.

Remember, there will be discrepancies that will influence any colour managed workflow. But, with the right dose of understanding and diligence, managing them will be a piece of cake.

CHAPTER THREE

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How to Calibrate Your EIZO Monitor

How to Calibrate Your EIZO Monitor

Whether you're using an EIZO that is five years old or two months old, EIZO ColorNavigator "hardware calibration" software is a must. ColorNavigator comes loaded with features that will add value and increase efficiency in your workflow. These include –

- Hardware calibration
- Creating an ICC profile
- Adjusting the displayed colours
- Soft proofing (emulate print)
- Match other monitors, projectors, televisions (both EIZO and other)
- Emulate digital devices (iPad etc)

To run ColorNavigator, connect the USB A-B cable between your computer and monitor (square end in to monitor).

ColorNavigator v7 software is a free download from the EIZO Global website and can be accessed here .

PLEASE EMAIL INFO@EIZO.COM.AU IF YOU REQUIRE ColorNavigator v6 INSTRUCTIONS

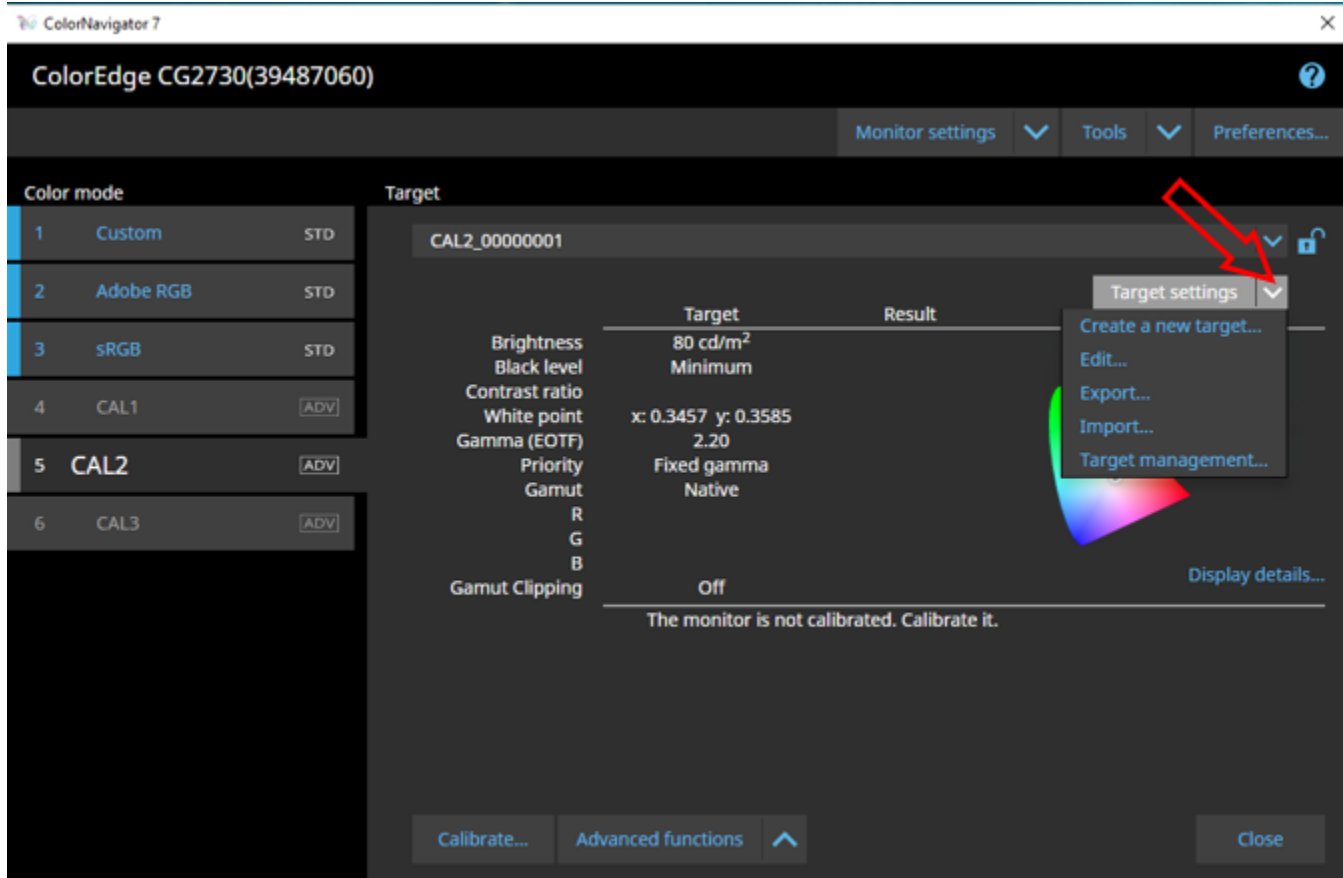Have you installed ColorNavigator onto your computer? Now you're ready to run your first calibration!

To begin your monitor calibration, launch *ColorNavigator7*. (If it doesn't appear on screen after double-click, locate the butterfly icon in your dock (Mac) or task bar (PC), right click, start ColorNavigator).
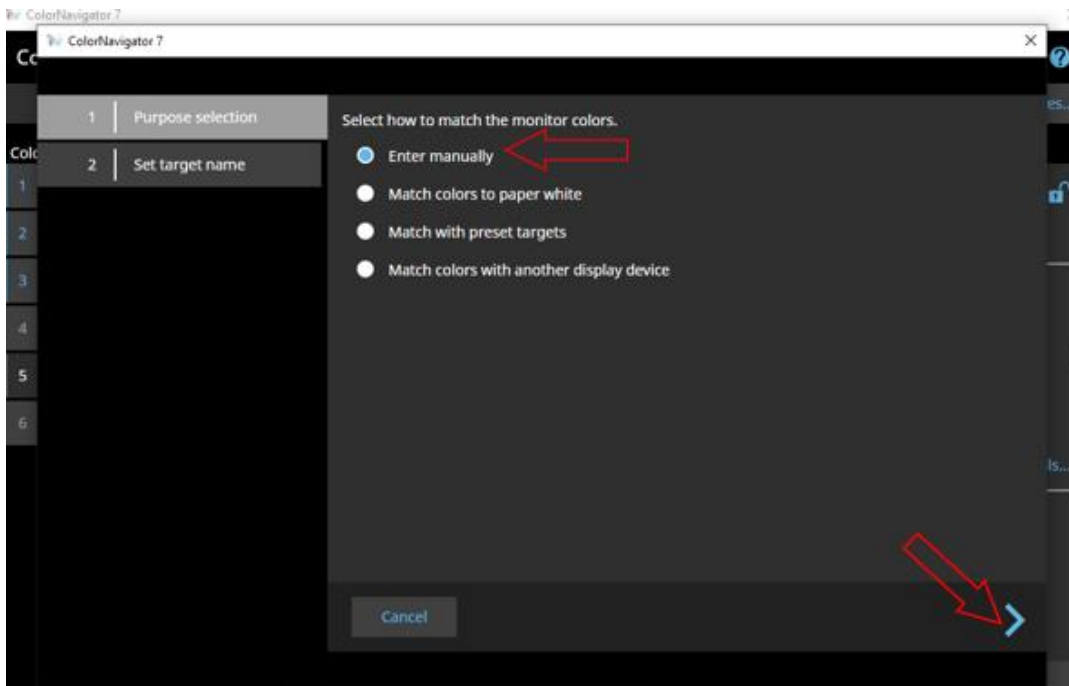
3.1 – Set up and calibrate to your Universal Photographic Editing Target

The following calibration will create a generic photography editing profile target based on ISO 3664 settings. This is the starting point for your image editing. This profile is not referencing any output device, it is a screen based profile – serving up the truest most neutral view in to your image file. This is your 'go to' photo editing mode.
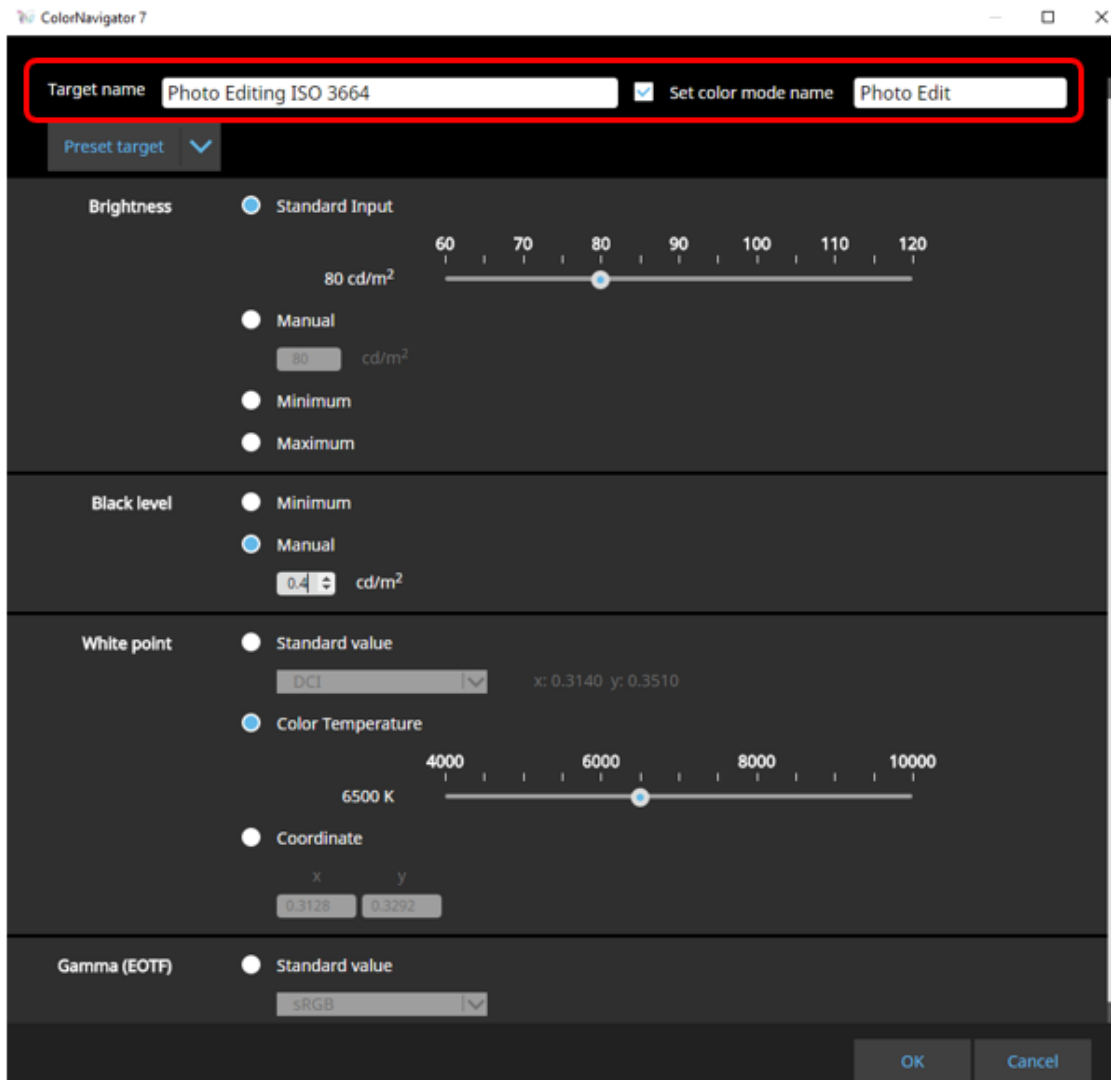
>Target settings > Create a new target…

>Enter manually > Proceed with arrow

Enter both the Target name, and Color Mode name.

Terminology:

Mode name – the mode is like a folder where you can save your profile targets. There can be many profile targets saved to a mode but only one can be active at a time.
Modes can be accessed by pressing the MODE button on the front of the monitor (usually the 2nd button from the left).

There are usually around 6 to 8 mode spaces available (depending on your EIZO model).

Target name – this should really be named "profile target" (the target is the file that contains the monitor calibration settings - colour temperature, gamma, brightness, black point, gamut etc). We calibrate to a target, thus an ICC profile is created and automatically saved to your system folder.

Target name – Photo Editing ISO 3664
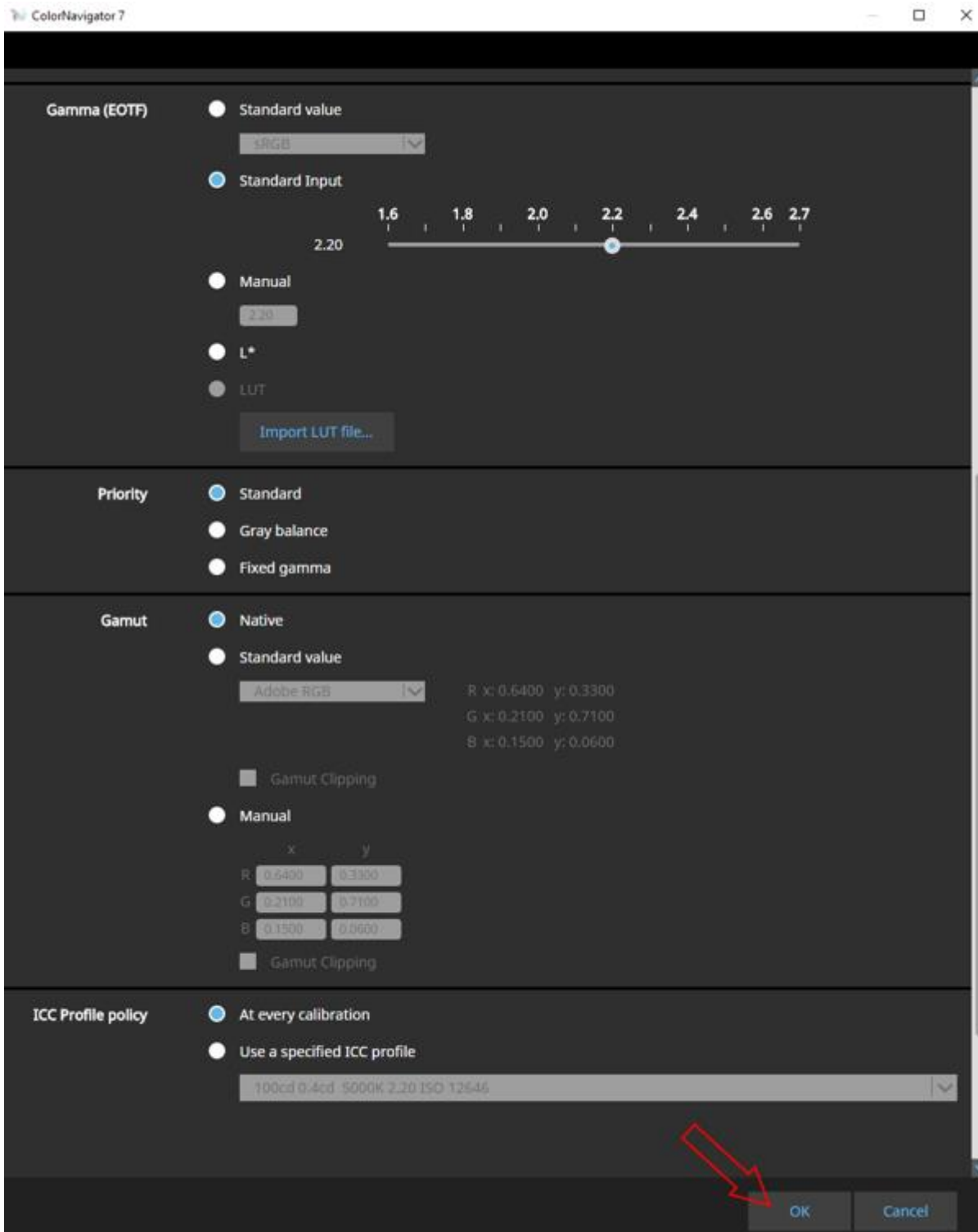Set mode name – Photo Edit
(Ensure that the "Set mode name" checkbox is ticked)

Run through the settings as outlined in the following screen shots (don't forget to scroll down or increase window size to select all relevant settings).
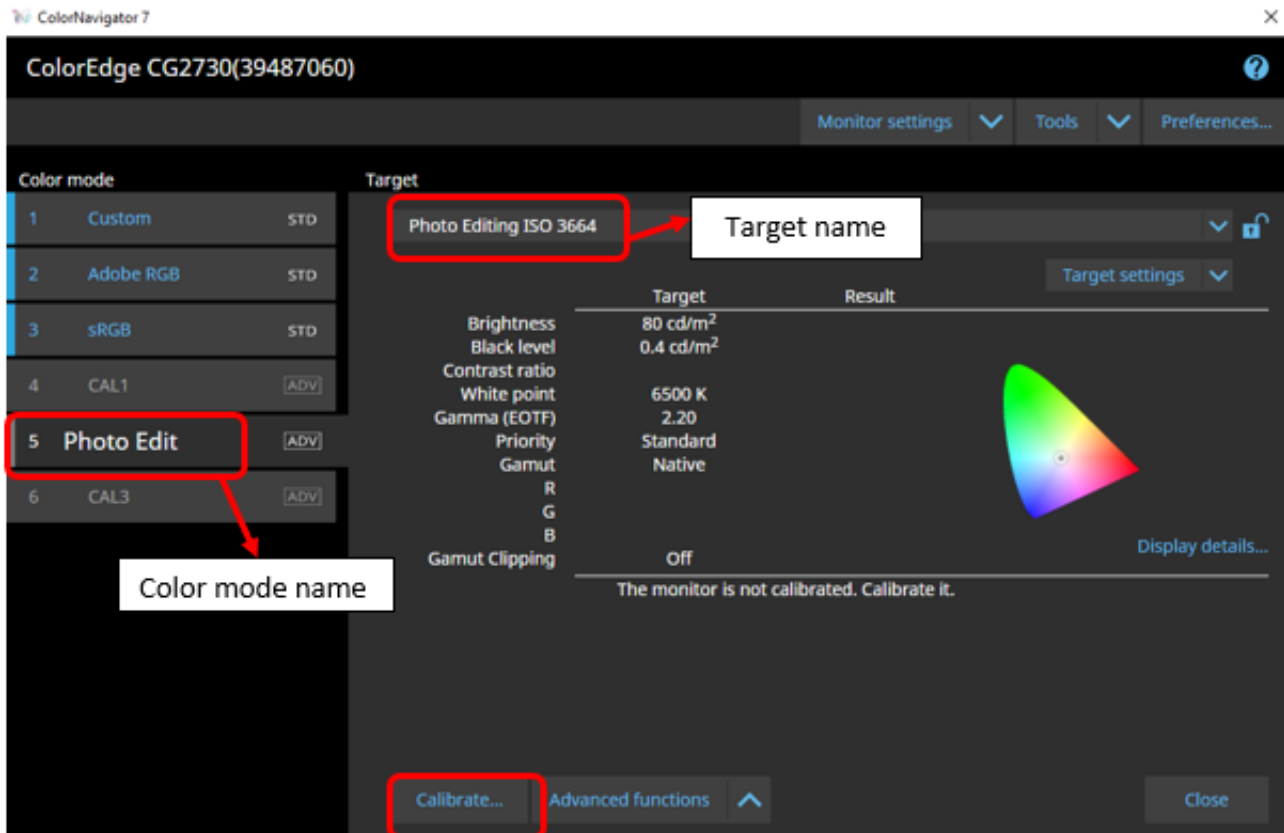
One exception to the recommended settings:

BRIGHTNESS: While we recommend 120cd/m2 for most office environments, if you edit your images in a slightly darkened room with blinds drawn and correct lighting (recommended for photo editing), set your brightness between 80cd/m2 - 100cd/m2.

Rule of thumb: the monitor must be the brightest point in the room to prevent distractions, but should not be blindingly bright.

>OK>Finish

> ColorNavigator will return to the home page, showing your new target.
You will see your mode name and the associated profile target.
You are now ready to >Calibrate

ColorNavigator 7 — ColorEdge CG2730(39487060)

Monitor settings ⌄   Tools ⌄   Preferences...

Color mode

1	Custom	STD
2	Adobe RGB	STD
3	sRGB	STD
4	CAL1	ADV
5	**Photo Edit**	ADV
6	CAL3	ADV

Color mode name

Target

Photo Editing ISO 3664 — **Target name**

Target settings ⌄

	Target	Result
Brightness	80 cd/m²	
Black level	0.4 cd/m²	
Contrast ratio		
White point	6500 K	
Gamma (EOTF)	2.20	
Priority	Standard	
Gamut	Native	
R		
G		
B		
Gamut Clipping	Off	

The monitor is not calibrated. Calibrate it.

Display details...

Calibrate...   Advanced functions ^   Close

Whether you have decided to utilize your own external sensor, or the sensor built in to the monitor, your sensor <u>should</u> appear in the following list. If it does not appear, uncheck the box, and click in the sensor selection field. All compatible sensors will appear. Select yours.

Troubleshooting tip –
If your sensor does not appear or connect
(a) is your PC and EIZO connected via the USB cable?
(b) is your sensor plugged in to the USB port in your EIZO?
(c) Quit CN, switch off your monitor at the wall & wait for 1 minute, switch the monitor back on, plug in your sensor, launch CN.
(d) Uninstall and re-download/ install CN.

ColorNavigator 7 ✕

1	Measurement device selection	
2	Calibrate	
3	Calibration completed	

Select a measurement device.

☑ Display automatically detected device.

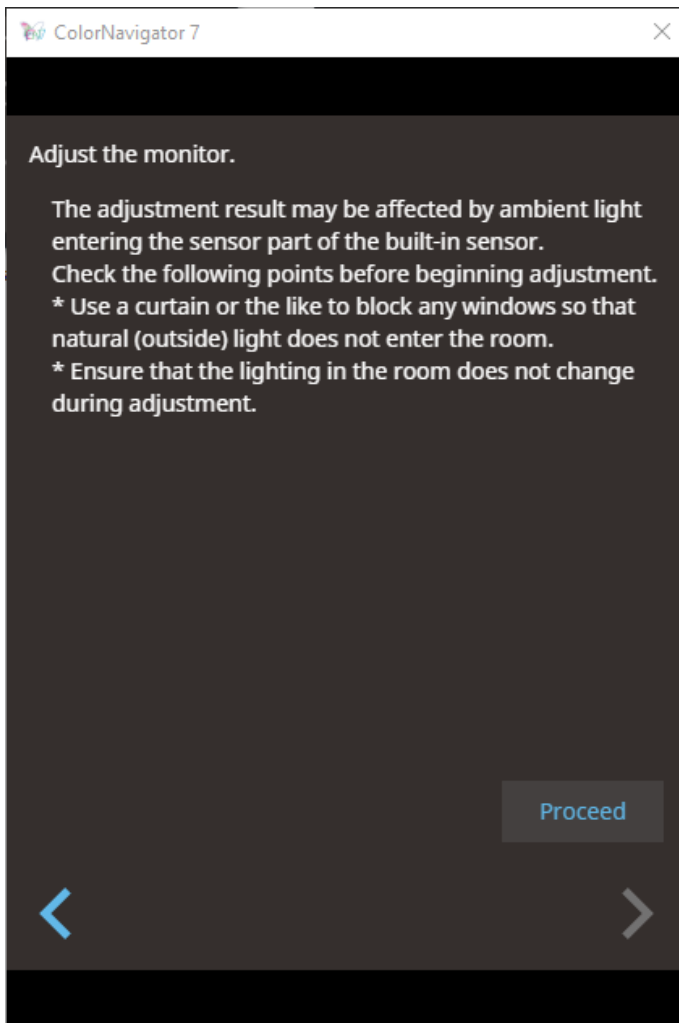**Measurement device** Built-in Sensor ⌄

User calibration   Default

Reference device

Execution date

Cancel   〉

> Ensure that there is no light shining or reflecting directly on to the screen.
Proceed

ColorNavigator 7   ✕

Adjust the monitor.

The adjustment result may be affected by ambient light
entering the sensor part of the built-in sensor.
Check the following points before beginning adjustment.
* Use a curtain or the like to block any windows so that
natural (outside) light does not enter the room.
* Ensure that the lighting in the room does not change
during adjustment.

Proceed

‹   ›

>Finish

Optional* For extra reassurance, you may choose to do a target validation

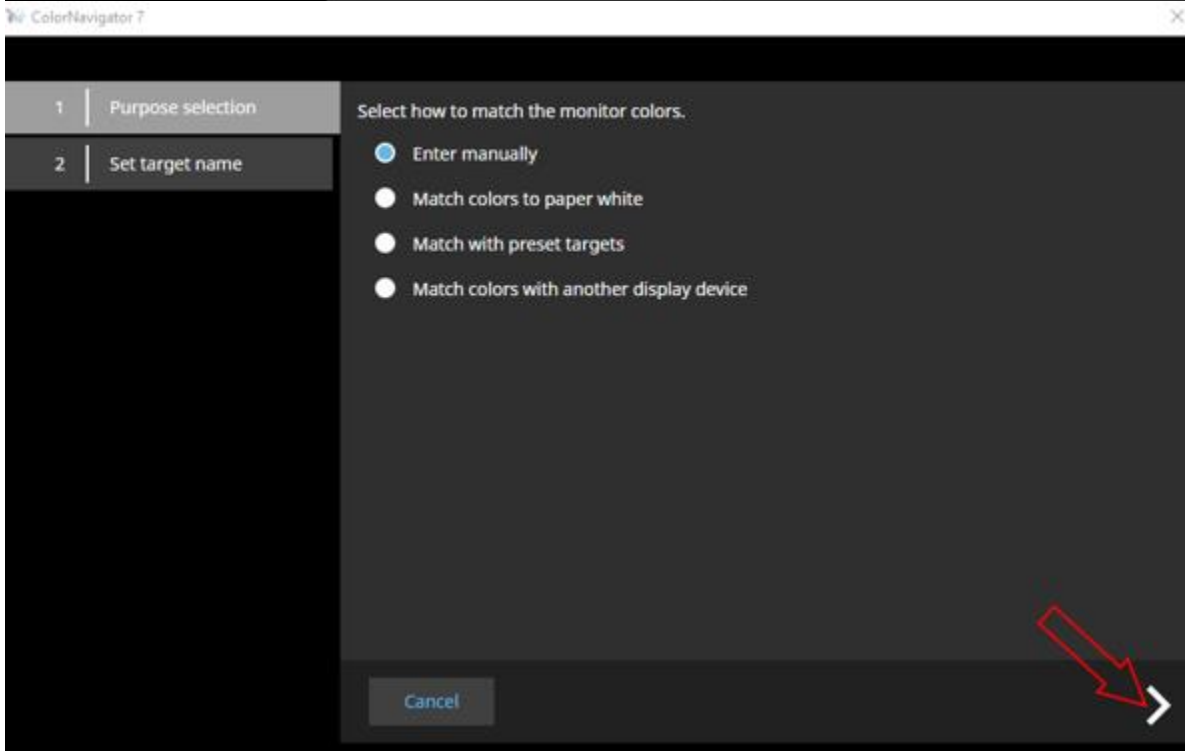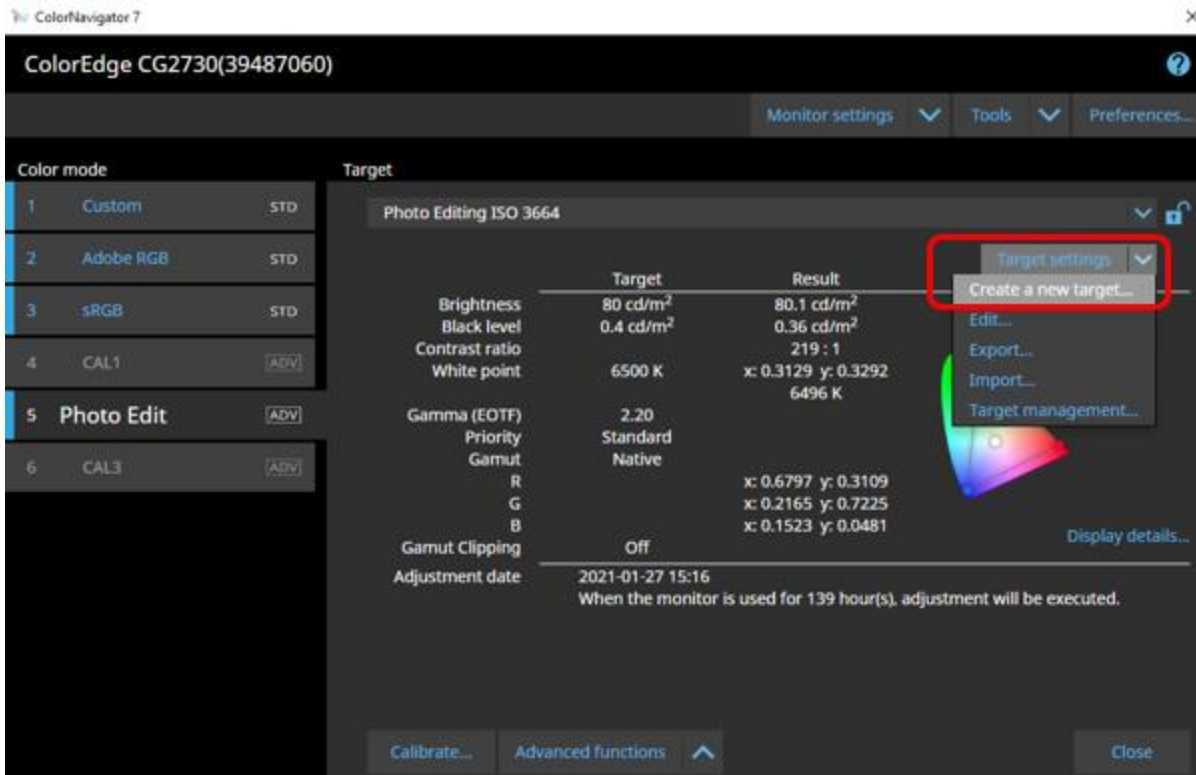## 3.2 Set up a universal Soft Proofing (fine art print preview) profile target

When you have finished your primary edits, you may want to check/tweak your image/s to account for the printer / paper combo. This is where your Soft Proofing colour mode comes in to play.

Here we will show you how to set up a universal print proofing profile target. Once done, you may want to take it one step further, and tweak it to suit your own environment and workflow (section 3.3). We only recommend this for "closed loop workflows" where you print your own images.

The following settings are based on ISO 12646 recommended settings, but adjusted to suit our experience of real world set-ups.

Brightness: For Fine Art Printing, we suggest 80-100cd/m2, although for those in a very bright fluorescent lit room, you may elevate to 100 or 120cd/m2 for a closer monitor screen to paper match.

>Target settings > Create a new target > Enter manually …Press arrow
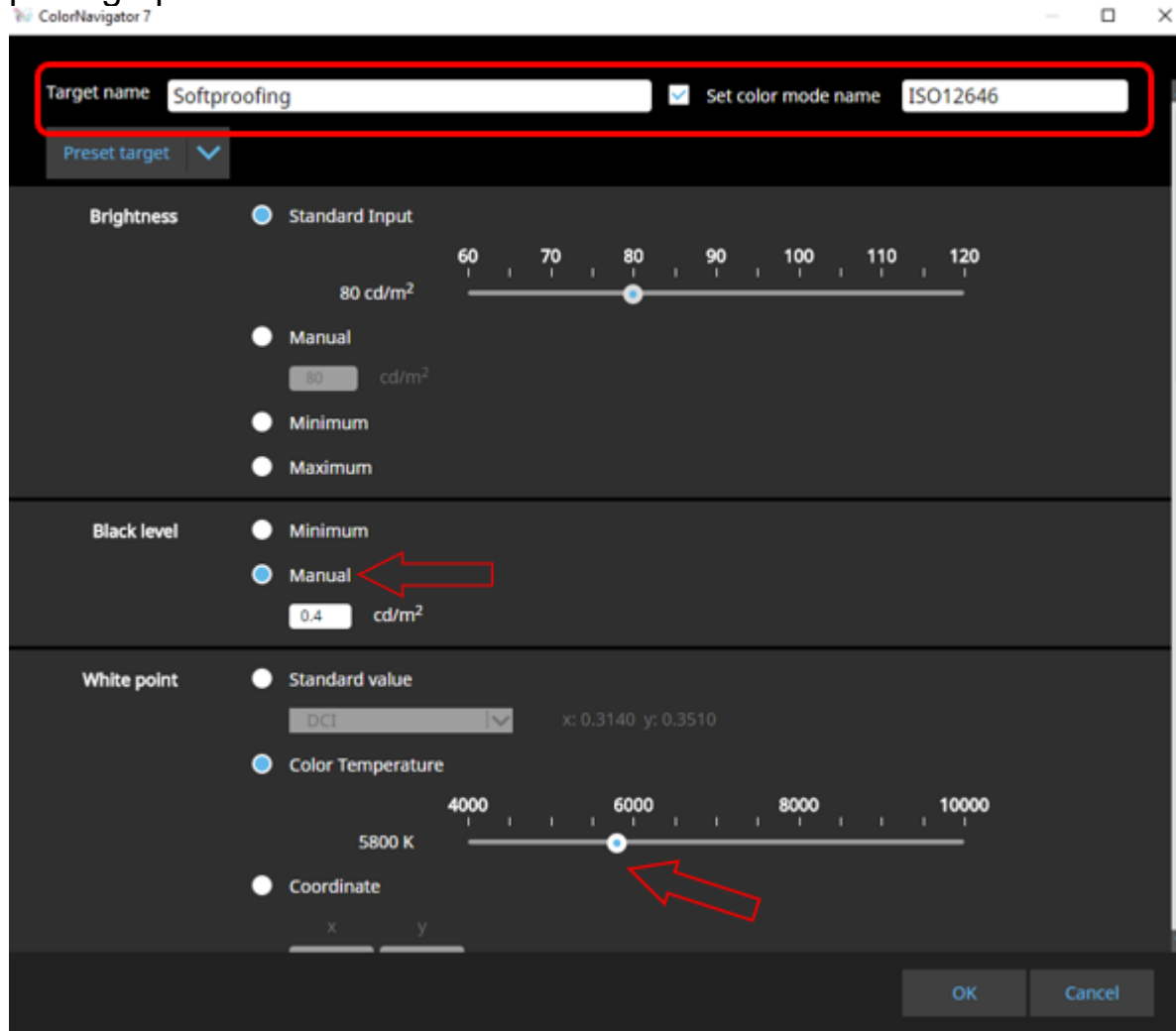

Enter both the Target name, and Color Mode name.

Target name – Softproofing or Lab Printing or something relevant to you.

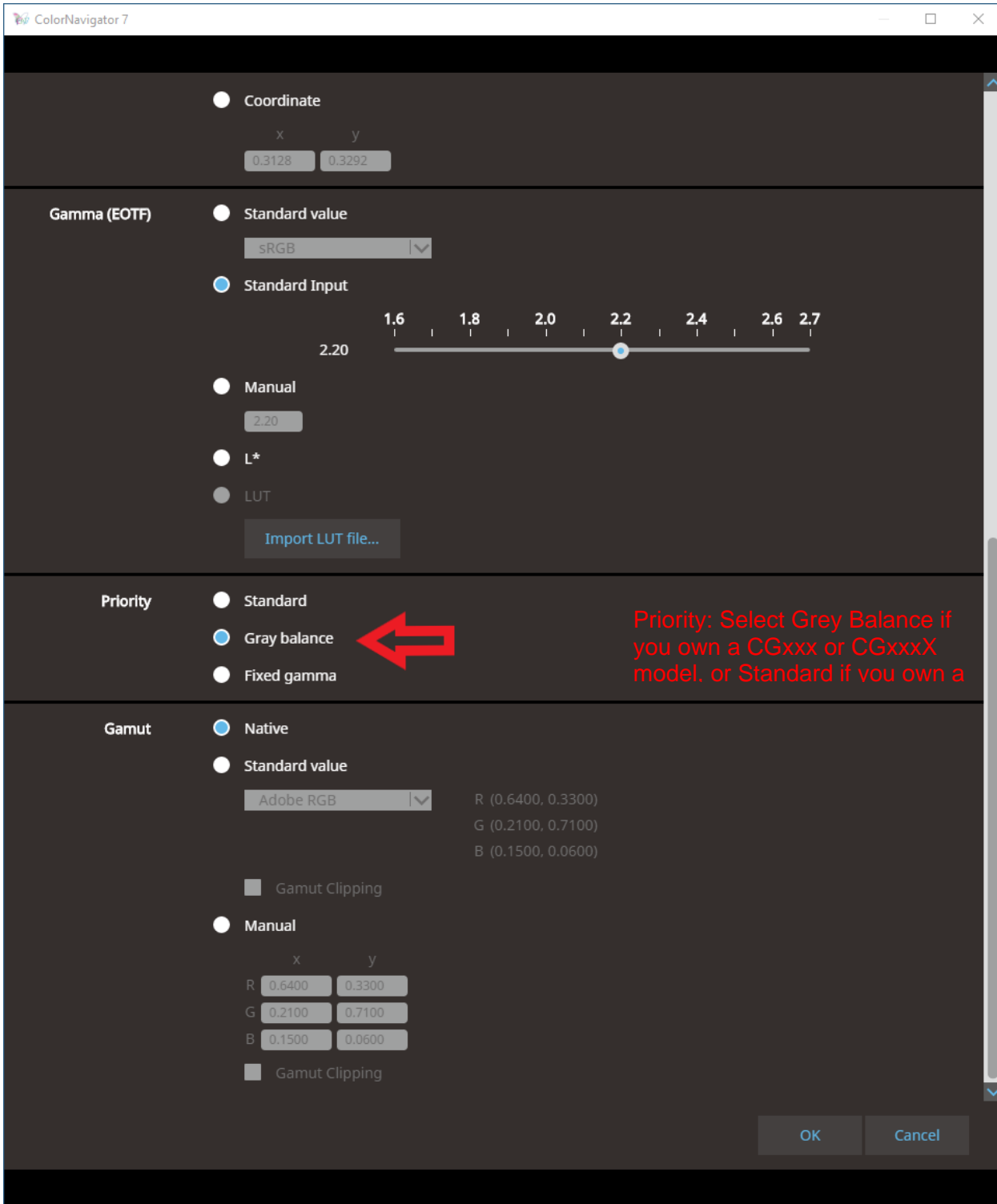Set color mode name – Softproof or Lab or something relevant to you

(Ensure that the "Set mode name" checkbox is ticked)

Run through the settings as outlined below
Note that while ISO 12646 suggests 5000k white point, we have found that 5800k is a more logical starting point for fine art printing, when taking in to account most photographer's media choice and ambient environment.
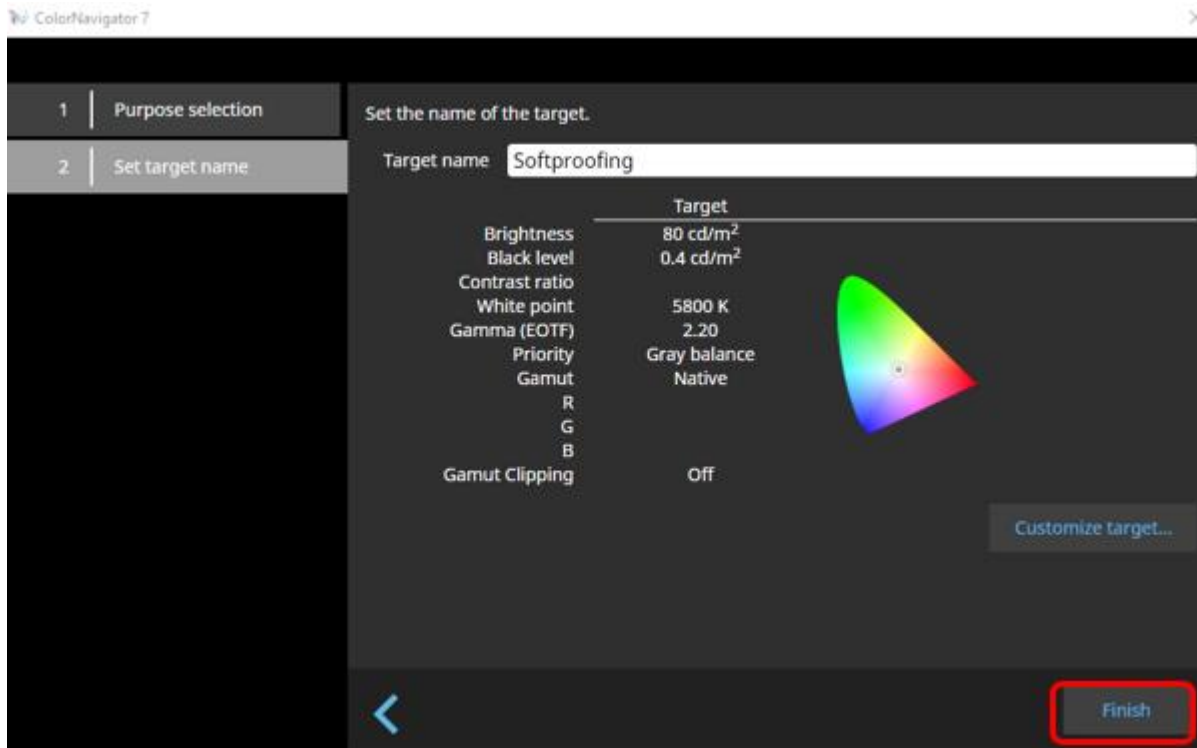

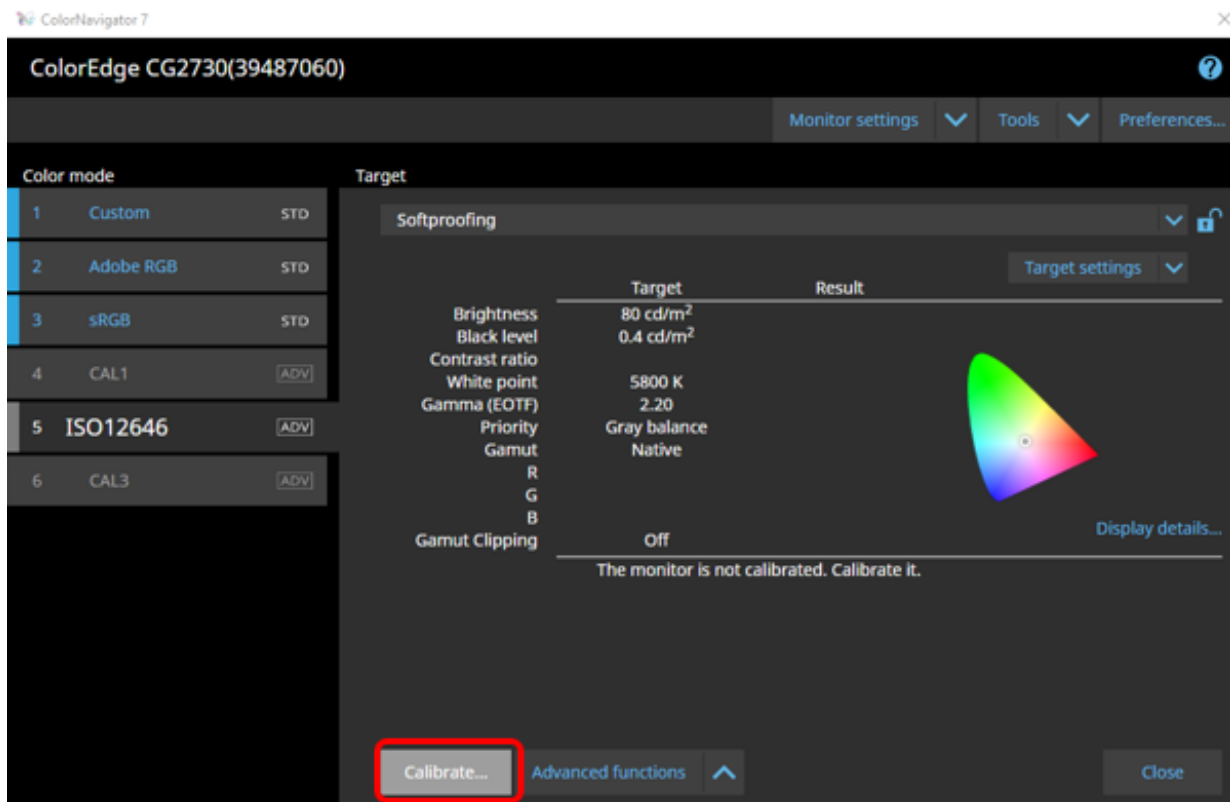*Remember to scroll down to complete all profile target settings.*

ColorNavigator 7 — □ ×

○ Coordinate

x   y
0.3128   0.3292

Gamma (EOTF)   ○ Standard value

sRGB ▼

● Standard Input

1.6   1.8   2.0   2.2   2.4   2.6 2.7

2.20 ——————————○————————————

○ Manual

2.20

○ L*

○ LUT

Import LUT file...

Priority   ○ Standard

● Gray balance   ⬅ Priority: Select Grey Balance if
you own a CGxxx or CGxxxX
○ Fixed gamma   model. or Standard if you own a

Gamut   ● Native

○ Standard value

Adobe RGB ▼   R (0.6400, 0.3300)
G (0.2100, 0.7100)
B (0.1500, 0.0600)

☐ Gamut Clipping

○ Manual

x   y
R 0.6400   0.3300
G 0.2100   0.7100
B 0.1500   0.0600

☐ Gamut Clipping

OK   Cancel

>OK > Finish

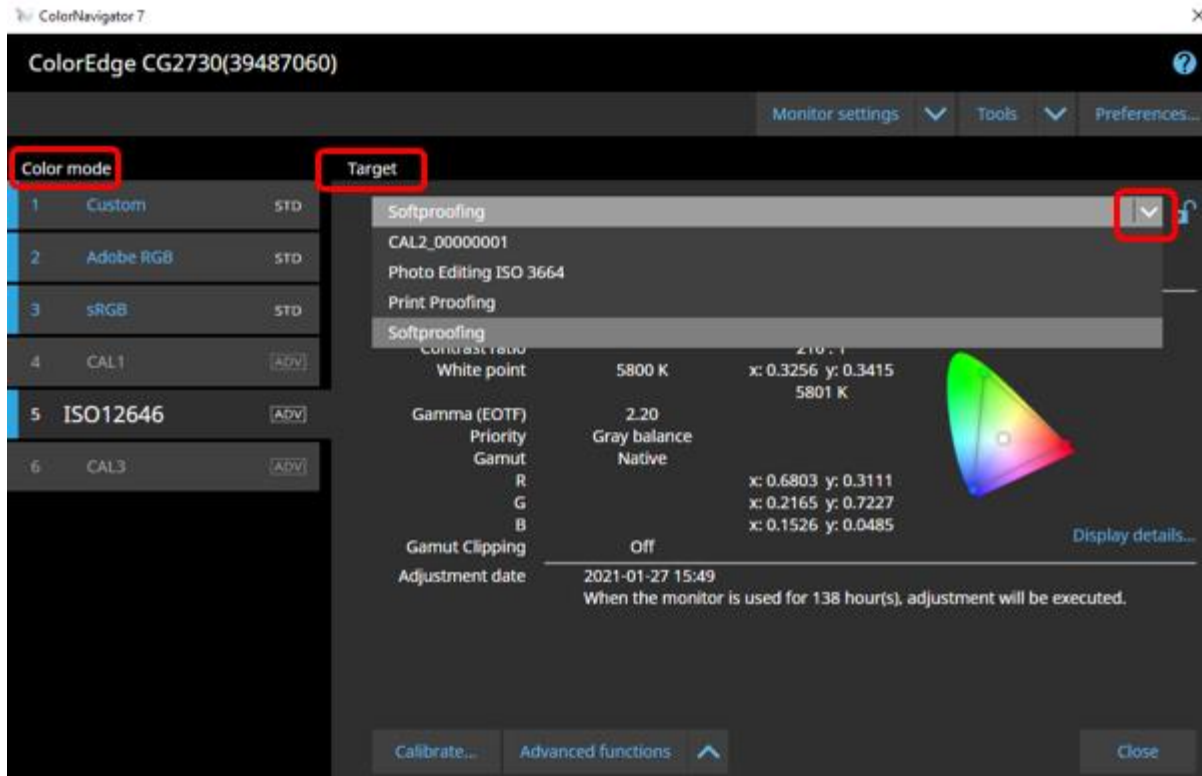You will be reverted to the main target window.

Now, Calibrate the target

Press Next arrow > Proceed > Finish

To scroll through the different targets in a color mode, select the drop down menu. This will let you change easily between different targets that have been created.

When you select the Soft proofing target, the colour mode will automatically be renamed to the colour mode name that you set up earlier (ISO12646):

Congratulations! You have now completed your
Universal Photo Editing profile and
Universal Fine Art Soft Proofing profile

Continue on only if you would like to tweak your Universal Fine Art Soft Proofing profile to match your own paper type and ambient environment even more precisely.

This is only for advanced users who:

1) Have a quality print viewing lamp or lighting (CRI >90)

2) Print your own images in-house, or print your images with a regular (and colour managed) lab. IF you print at multiple labs, or labs who are not strictly colour managed, please skip this step.

3.3 Tweak your Soft Proofing "Profile Target" to match your environment*

This will result in the closest possible monitor screen-to-print match BUT is only for those who
(a) print their own images, or
(b) use a trusted colour managed photo lab.
If you do not have control over the final printed output, we recommend you stop here and use the 3.2 Universal Soft proofing Profile.

OPEN a blank white page in your photo editing software

COMPARE it to a blank piece of your fine art photographic paper.

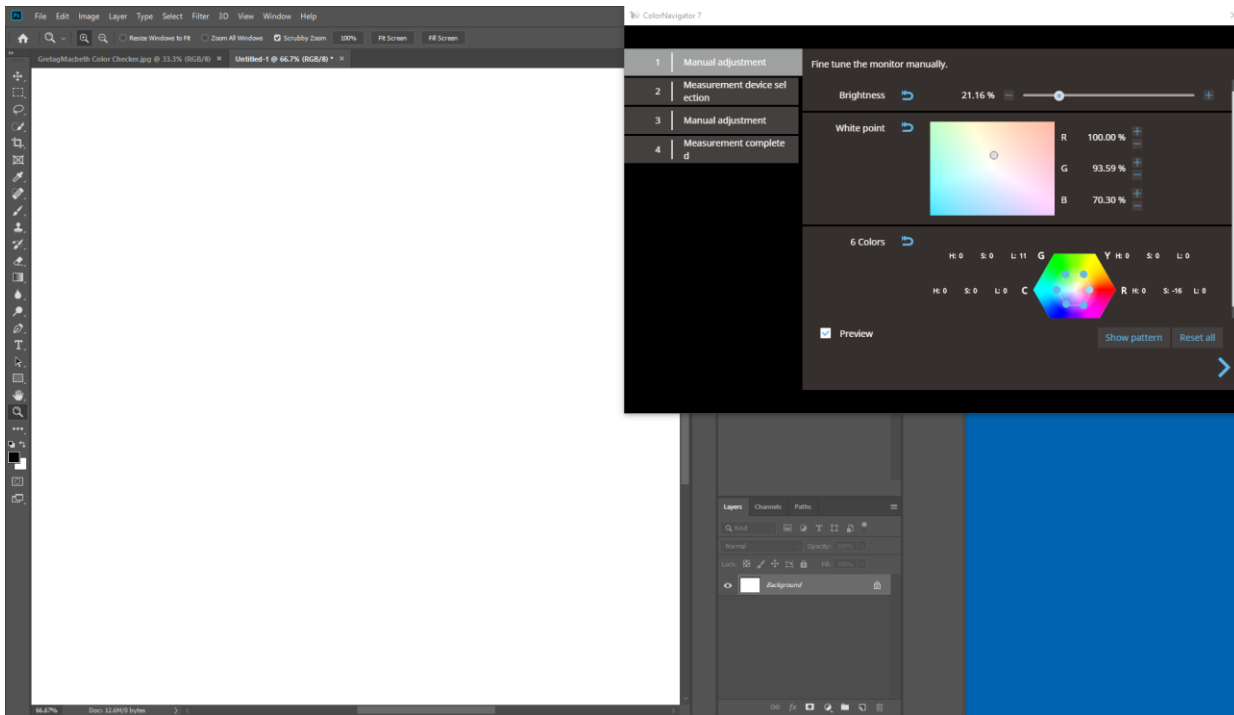SELECT the existing Photo Edit target (refer to Chapter 3 if you have not yet created this target

SELECT Advanced functions > Manual Adjustment

ADJUST the white point & brightness until you are satisfied.

Brightness should not be set higher than 120cd/m2. Please dim your print viewing light or move it further from your print if required.

For more on setting up a correct print viewing environment, visit:
https://www.dropbox.com/s/botq2rzc1a153cb/Lighting_Theory.pdf?dl=0

NEXT – we must match the colours

DOWNLOAD the Gretag MacBeth Colour Checkr or any target of your choice. You can download the Gretag target from Dr Les Walkling's site: https://bit.ly/2GDfPYF
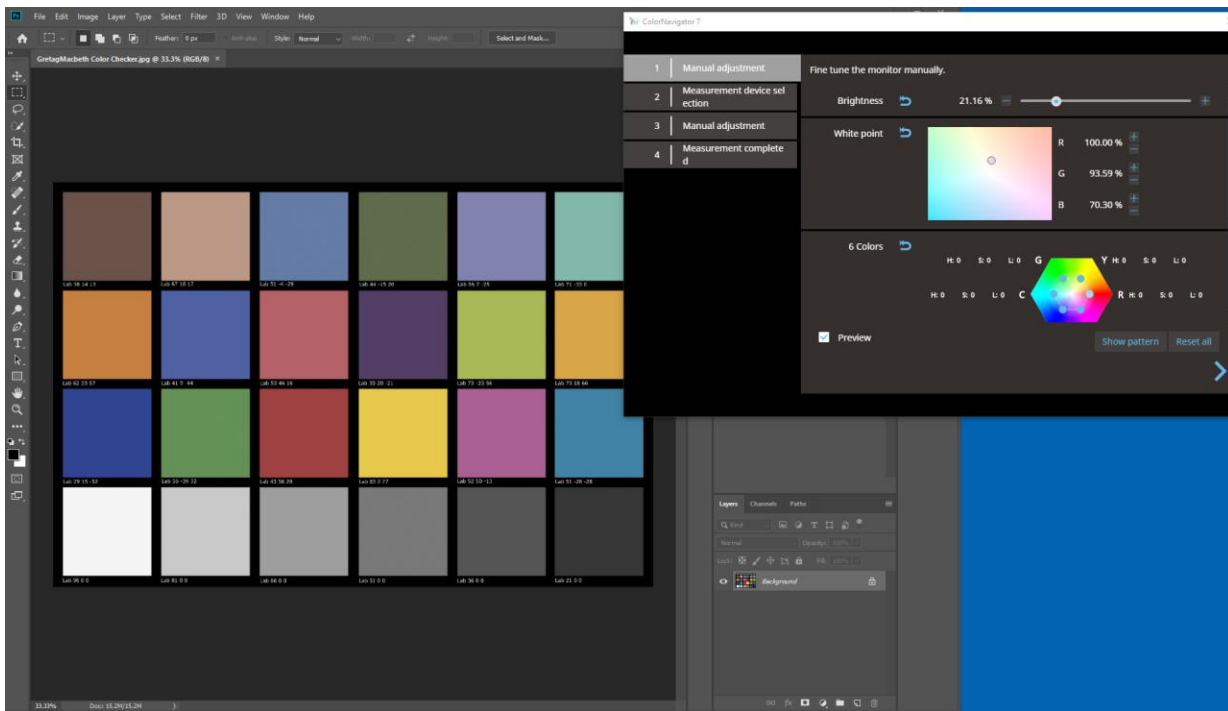
PRINT the target on to your preferred photographic paper (or have your lab print for you if you do not print your own)
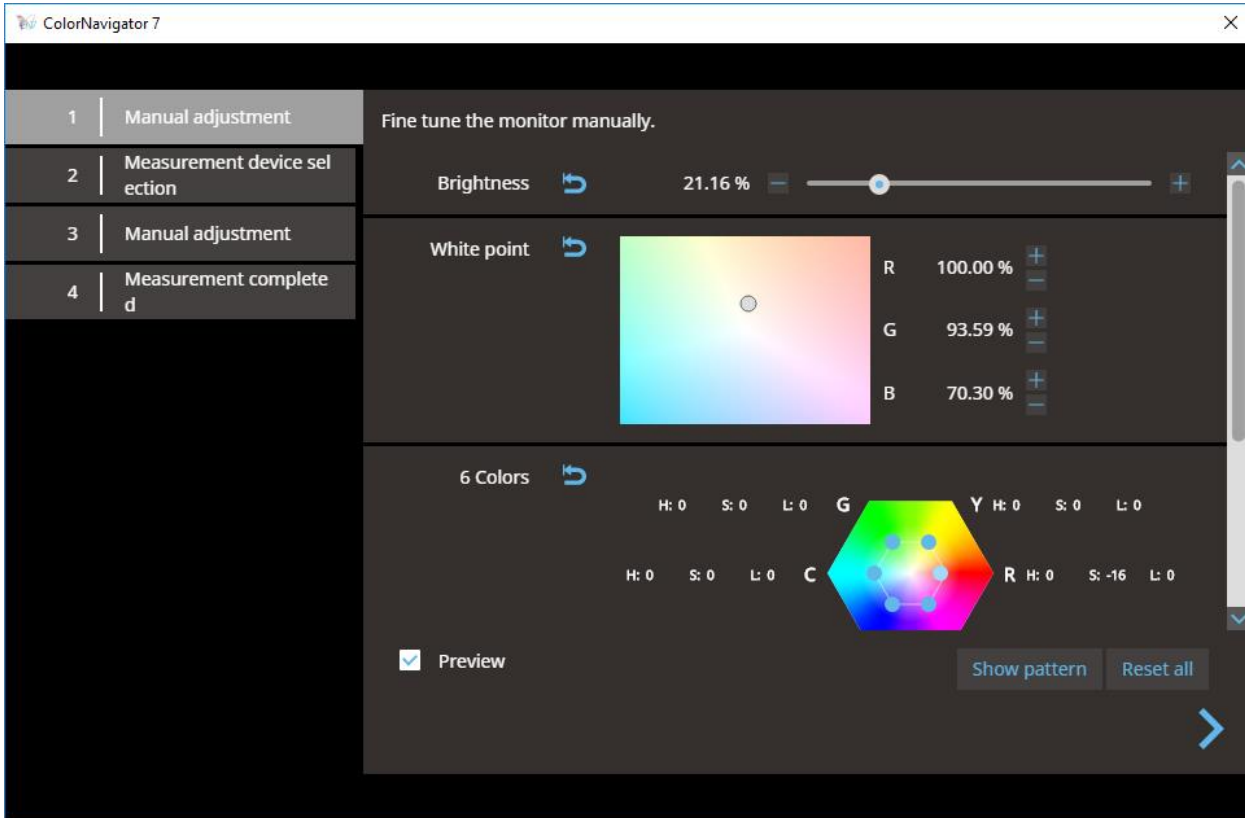
PLACE print in your print viewing area

DISPLAY same image in your Photo Editing software in your Adobe RGB colour working space
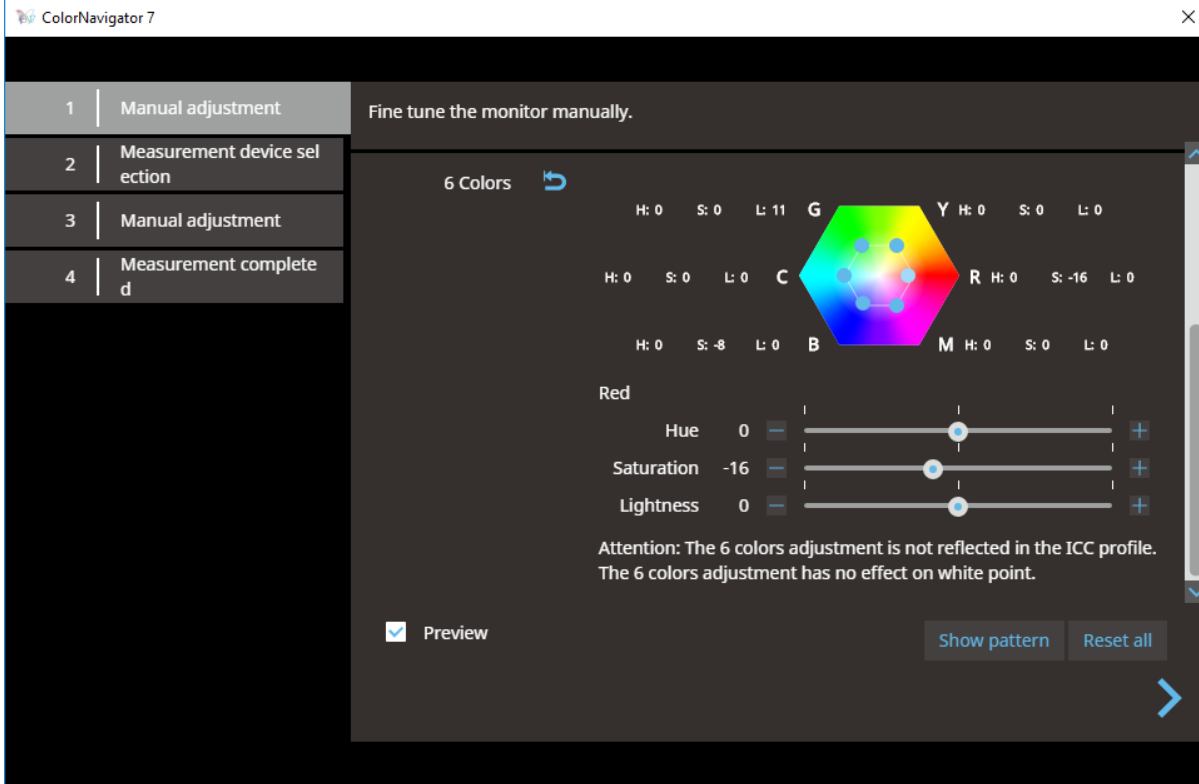
While comparing screen to print, **scroll down** using the right-side scroll bar to make your adjustments to 6 Colour Hue, Saturation, Lightness.

To adjust each color, select the blue dot in the colour hexagon and then adjust the hue, saturation and lightness below the hexagon (scroll down).

ColorNavigator 7

1	Manual adjustment
2	Measurement device selection
3	Manual adjustment
4	Measurement completed

Fine tune the monitor manually.

Brightness   21.16 %   — ●————————— +

White point

R   100.00 %   + −
G   93.59 %   + −
B   70.30 %   + −

6 Colors

H: 0   S: 0   L: 0   **G**   **Y** H: 0   S: 0   L: 0
H: 0   S: 0   L: 0   **C**   **R** H: 0   S: -16   L: 0

☑ Preview   Show pattern   Reset all

Don't forget to scroll down!

ColorNavigator 7

1	Manual adjustment
2	Measurement device selection
3	Manual adjustment
4	Measurement completed

Fine tune the monitor manually.

6 Colors

H: 0   S: 0   L: 11   **G**   **Y** H: 0   S: 0   L: 0
H: 0   S: 0   L: 0   **C**   **R** H: 0   S: -16   L: 0
H: 0   S: -8   L: 0   **B**   **M** H: 0   S: 0   L: 0

Red

Hue   0   —   ————●———   +
Saturation   -16   —   ———●——   +
Lightness   0   —   ————●———   +

Attention: The 6 colors adjustment is not reflected in the ICC profile.
The 6 colors adjustment has no effect on white point.

☑ Preview   Show pattern   Reset all

When you are satisfied with your match, select **>** to proceed with the calibration.
*Make sure you **scroll down** and **tick the box** at the bottom **to save your manual adjustments as a new target**. Name the target something meaningful (eg: Archival Matte)*
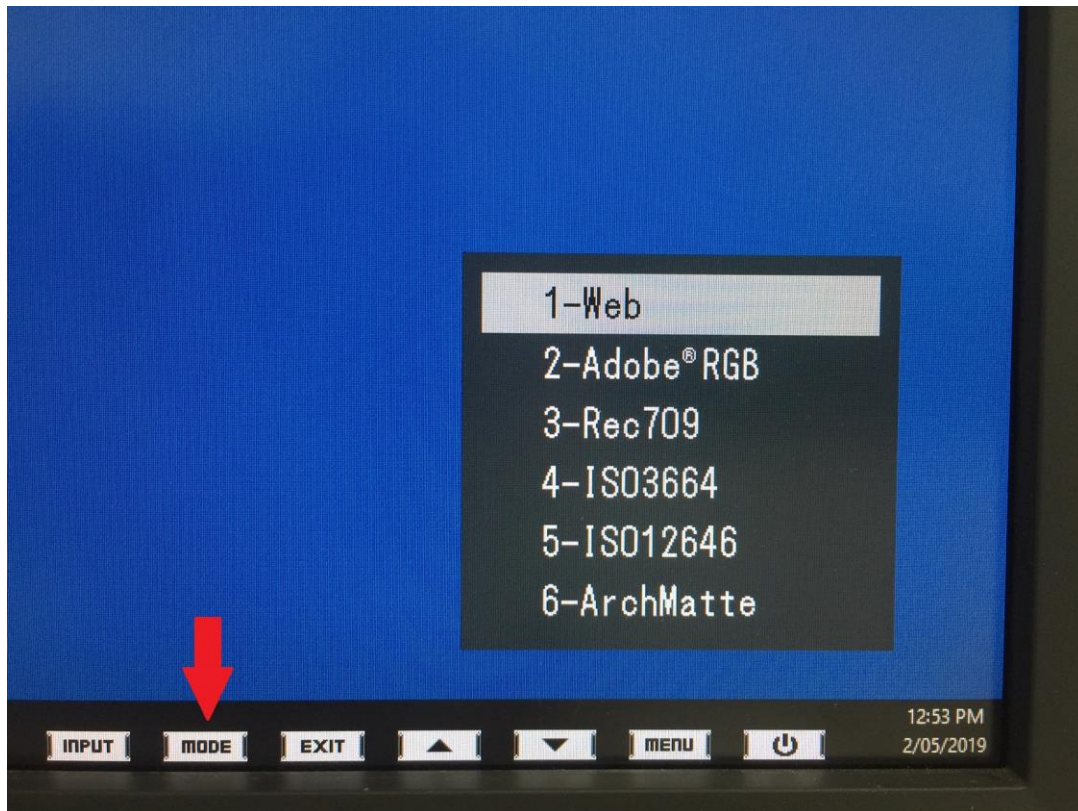

>Finish

You have now matched your monitor to your own ambient environment/paper selection.
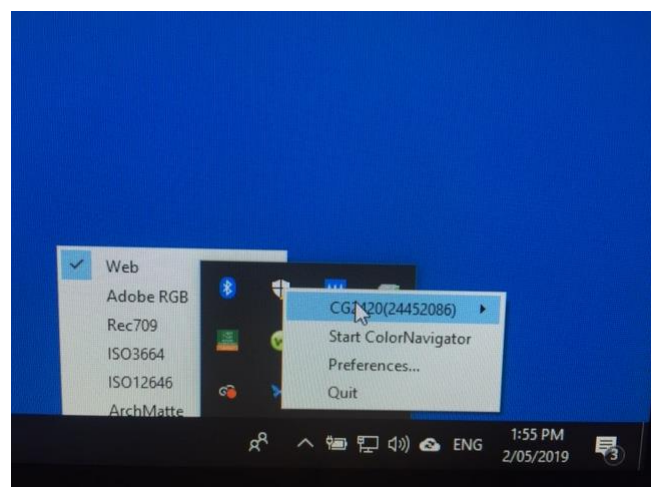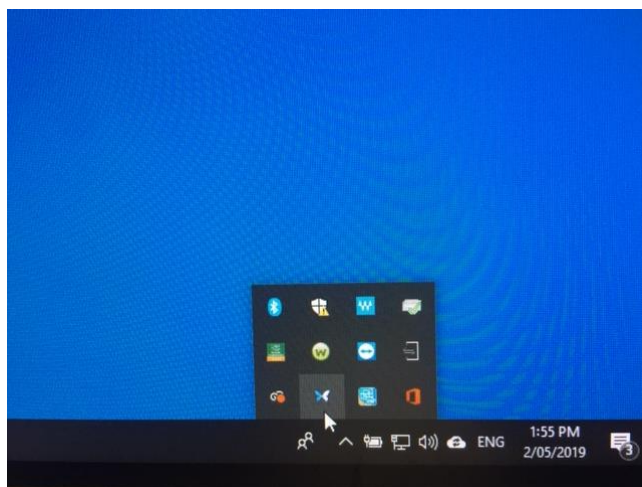
See following instructions on how to jump between your profiles…

3.4 To jump between your editing and soft proofing profiles, you can

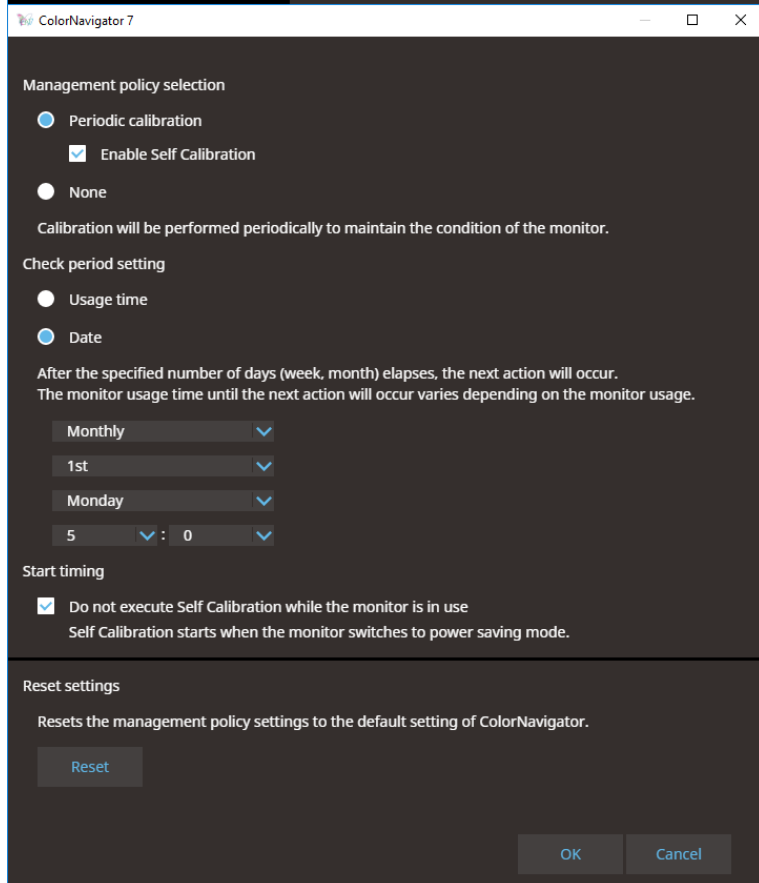a) Use the MODE button on the front of your monitor
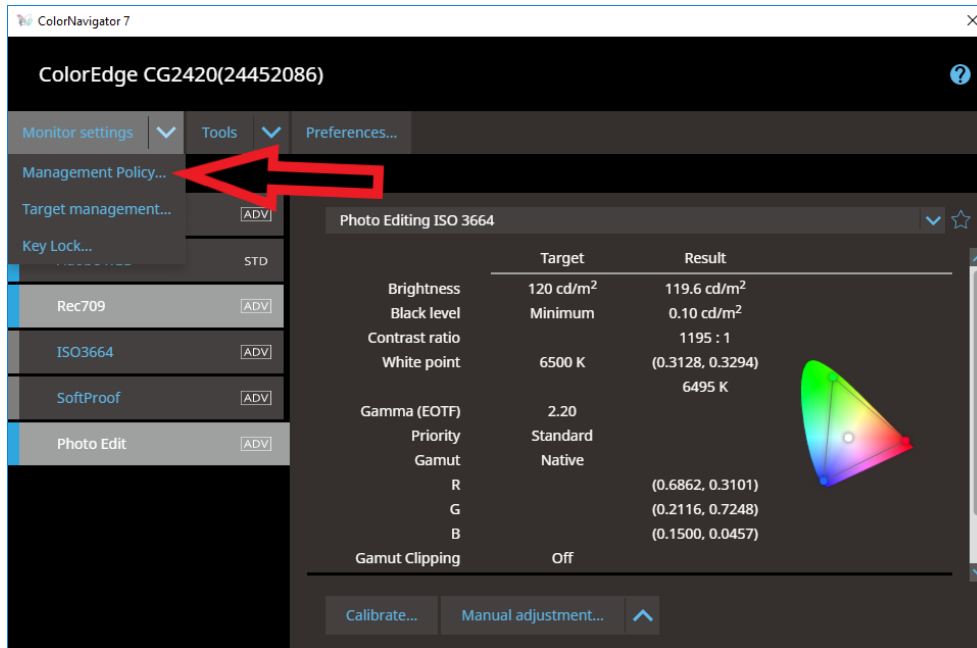

b) Right-click on the CN7 icon (butterfly) in task bar or dock

3.5 Schedule the Self-calibration

Don't forget to set your calibration schedule – we recommend monthly as a minimum. The monitor will switch itself on at the scheduled time, warm up, self-calibrate, then power back down. Settings as follows:
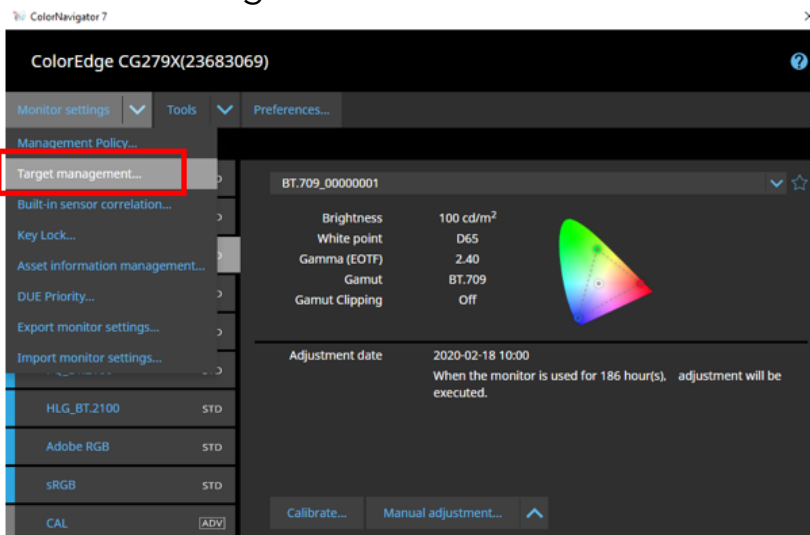
3.6 Exporting & Importing Targets

If you have more than one EIZO CG monitor (same model/year) you may like to export your manually adjusted target and apply it to your other EIZO CG monitors.

Once you have downloaded and installed ColorNavigator 7, you can export/import a target by following the instructions below.

Download ColorNavigator 7 here:
https://www.eizoglobal.com/support/db/products/software/CG2730#tab02)
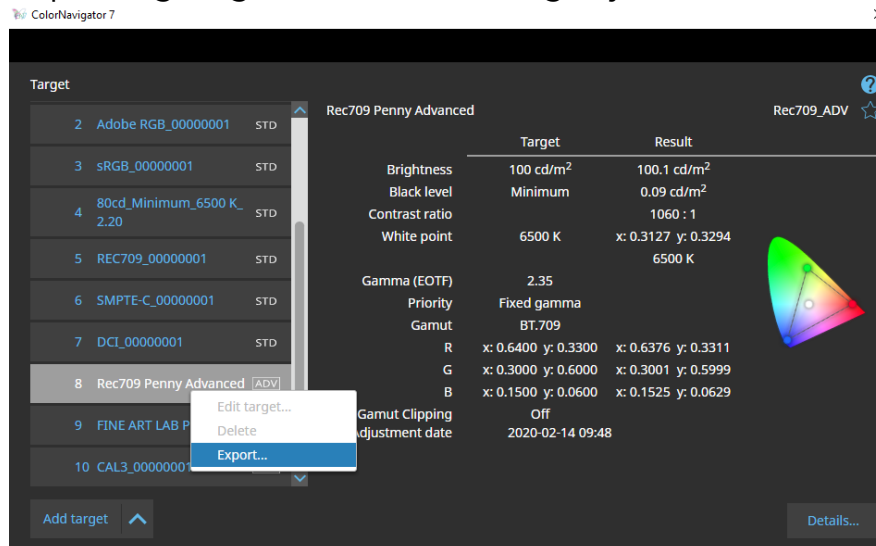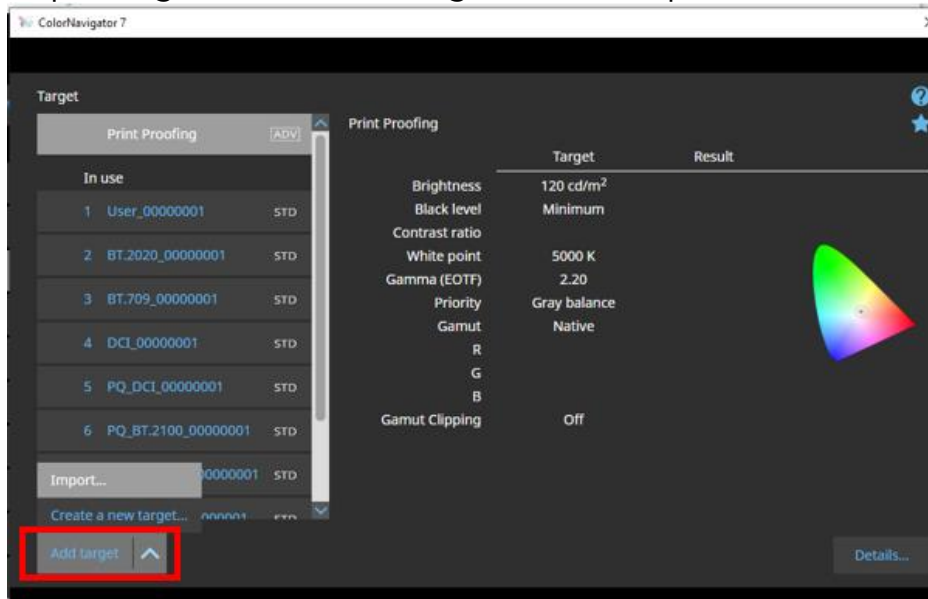
1) Launch CN7 and select 'Target management' from the drop-down menu under 'Monitor Settings'.

2) Exporting: Right click on the target you would like to export.

3) Importing: Select 'Add target', then 'import'

4) Select the target you wish to import from your files

5) The target will be added to the target management window. Close this window.

6) Select a colour mode tab that you don't use, e.g. sRGB, then select the imported target from the drop down box to the right.

The name of the colour mode should change to the imported target
E.g. sRBG → BT.709

Calibrate your target.

Frequently Asked Questions

4. Frequently Asked Questions

Q. Does the power ON/OFF operation shorten backlight life?
A. No, as long as the power ON/OFF operation does not exceed about 25 times per day, it does not affect backlight life.
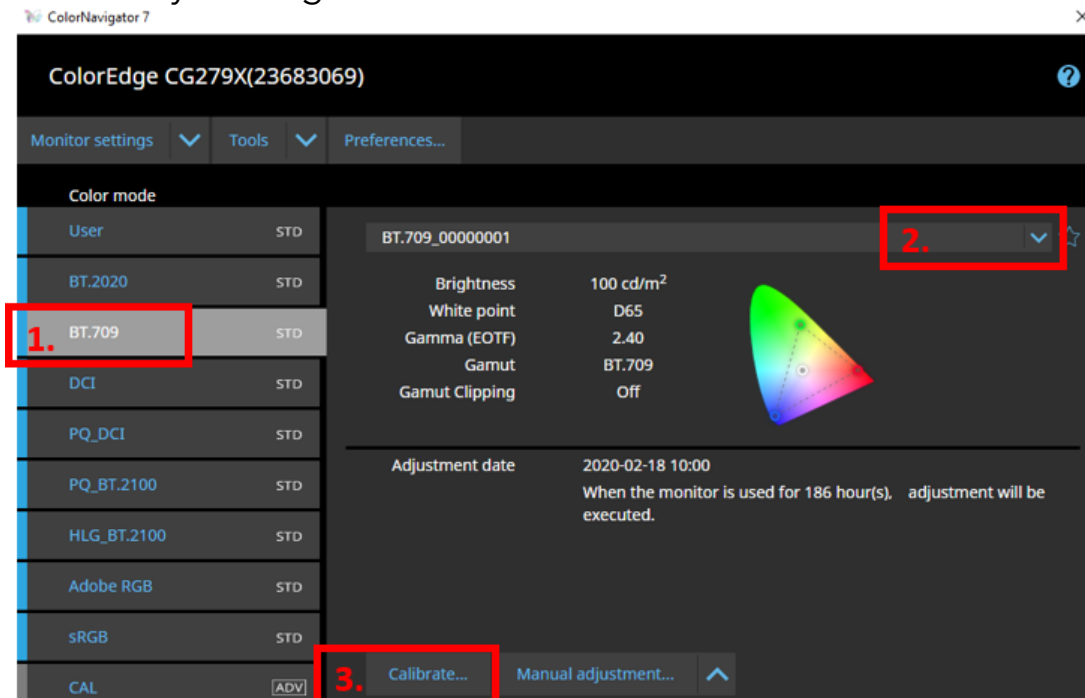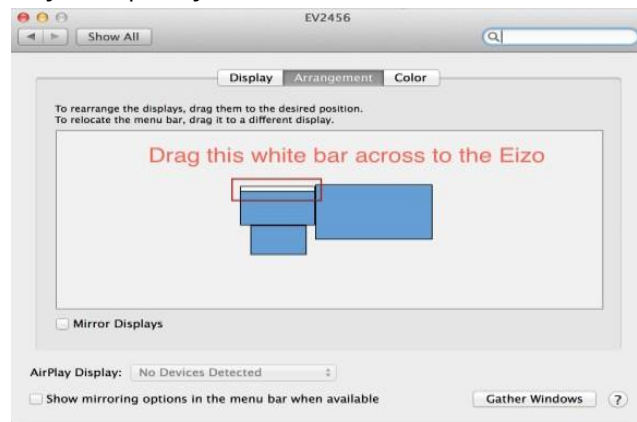
Q. My monitor is set to ISO 3664 for general editing and then I switch it to ISO 12646 when I am ready to print. When I switch to the ISO 12646 it then looks different because of the shift in white point. Does that mean I should then make the changes to the image? Or would you normally use 12646 profile to start with, if the image is to be printed?
A. ISO 12646 is the basis of your print profile. Yes, you're right. You will see a difference when you switch between the two profiles. The aim is to edit in ISO 3664 to make all of your main adjustments and manipulations in whatever program you chose to use. Once you're ready to print (if this is your final step and intention for your work), switch profiles to ISO 12646, however you may have to make further changes based on the paper you chose to use. The reason why ISO 12646 is your universal standard for print proofing is based on standard paper stock (including luster and matt paper). Within this profile, you can refine your profile based on colour matching your screen to match the paper.

Q. I have my Mac connected to my EIZO and sometimes it looks like the quality of the screen isn't sharp or lacking saturation. This is always the case, it seems like it happens when I'm in Photoshop or sometimes it does it on its own!
A. Ensure that the EIZO monitor is set as the primary monitor (go to system preferences, displays, arrangement, and drag the white bar over to the EIZO monitor icon (if it isn't there already). Do this before you open your Adobe software.

Q. How often should I calibrate my monitor?

A.   We recommend every 100 hours, or once a month.

Keep an eye on your environment and surroundings. If you decide to move your monitor or desk to another room with different lighting conditions, we recommend you recalibrate. A brighter room requires a higher brightness number, and vice versa. Dark room - 80cd/m2; Brighter room up to 120cd/m2.

Q. Can I calibrate my monitor without purchasing expensive equipment?

A. The CG models in the ColorEdge range are self-calibrating, so there is no need for a third party sensor. However, if you are using a CS model or an older EIZO without the self-calibration, you can invest in a calibration device that range from few hundred dollars to over a thousand dollars. You can view the list of compatible sensors on our website.

Q. In some applications, tone characteristics and the colour of the image are not displayed correctly causing low tones to appear lost.

A. This may be solved by changing the profile policy of ColorNavigator or the application's settings.

- If the application has Rendering Intent settings (e.g.: Photoshop)

Choose 'Perceptual' or 'Relative' and uncheck 'Black Point Compensation' in the pull-down menu under Rendering Intent.

- If the application does not have Rendering Intent settings (e.g. Preview (Mac), Phocus (Hasselblad))

Uncheck 'Reflect black level in tone curve' in ColorNavigator's profile policy setting menu.

Q. I edit photos in AdobeRGB & then change profile to sRGB before sending. Should the monitor be calibrated to sRGB or AdobeRGB?

A. If you're shooting in Adobe RGB and setting your Image Quality to RAW, you will want to maintain that consistency through to your monitor too. You can make your final changes such as file type, size, colour gamut in your final output, however, this is also entirely up to you. If you decide to calibrate your monitor to sRGB, keep in mind that you will not have as many bright colours available to you as you would in Adobe RGB.

Additional Resources

For more information about monitor calibration or colour management, check out the following links –

[Dr Les Walklings Website (including ColorNavigator 6 how-to videos)](Dr Les Walklings Website)

EIZO Global colour management resources

EIZO APAC blog

EIZO®

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