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FUJILOVE

# GEAR TALK

LET'S DIVE INTO  
SETTINGS AND  
MENUS, LEARN OUR  
FUJIFILM CAMERAS  
AND LENSES, AND  
RAMP UP OUR  
TECHNICAL SKILLS.

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JULY 2020

# POWERING THE X-T4

———— Rico Pfirstinger ————

With USB-C Power Delivery and a brand-new battery type, the X-T4 offers more flexible power options than previous X cameras. This article explains how you can power your new camera effectively with different batteries, power banks and power supplies.

## SPARE BATTERIES AND THIRD-PARTY KNOCKOFFS

The X-T4 is a small, portable camera and the first X camera model using a new type of rechargeable battery: the NP-W235 with a capacity of 2200 mAh. Depending on how you use the camera, a fully charged battery will typically last for 450 to 600 shots.

I recommend setting the camera to one of its three Boost Modes (SET UP > POWERMANAGEMENT>PERFORMANCE

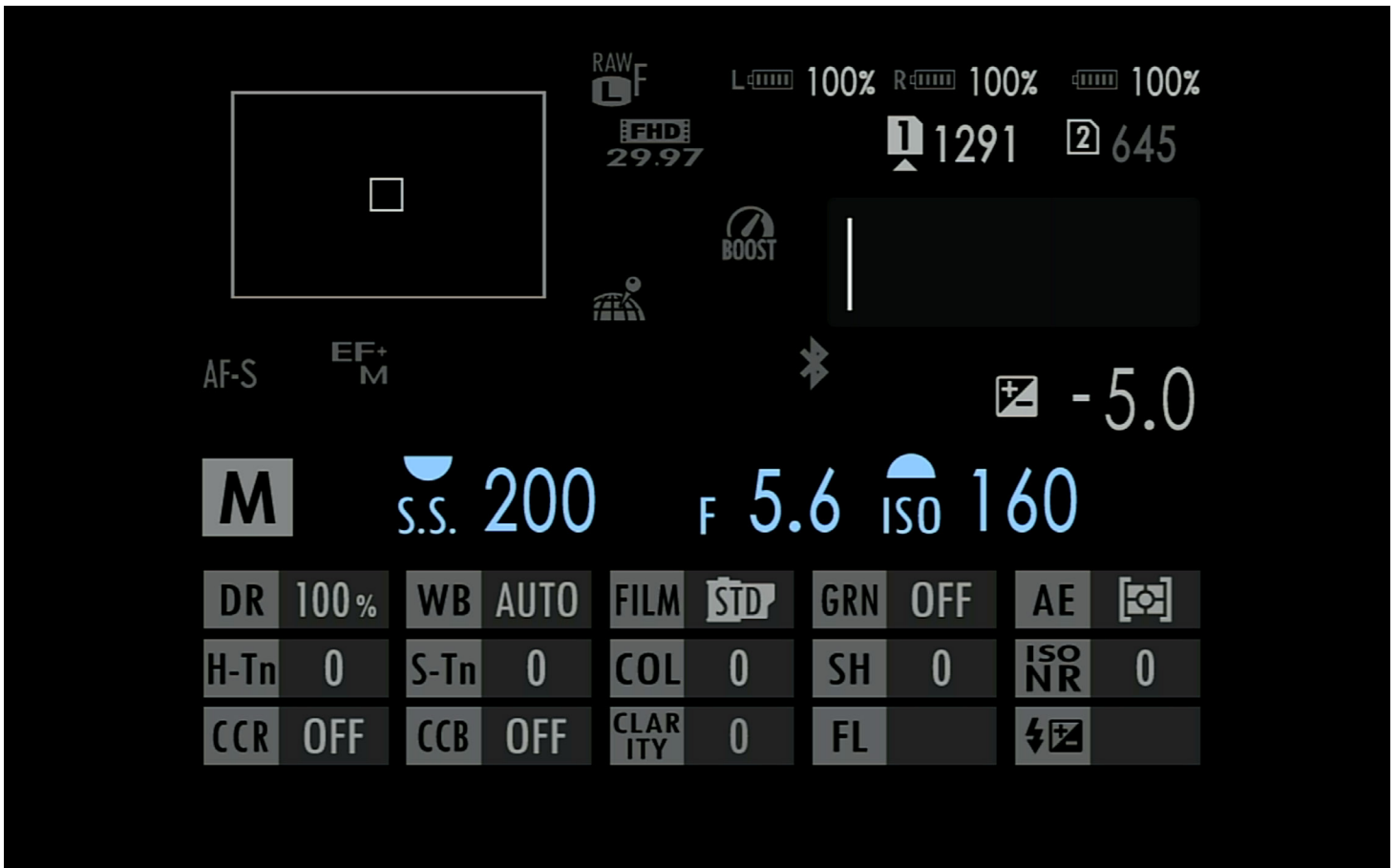
> BOOST) for maximum autofocus speed and the best overall performance.

Please note:

- The X-T4 features an accurate battery indicator with five bars and a percentage display. However, the display's accuracy may depend on using original NP-W235 batteries from Fujifilm.
- In shooting mode, the percentage display is available only in the INFO display. To activate the INFO display,

(repeatedly) press the DISP/BACK button until the INFO display appears. In playback mode, the percentage indicator is also available in the INFO display, which can be accessed with the DISP/BACK button or by pressing the upper selector key (or moving the focus stick upward) to cycle through two extended image information pages.

- When the battery indicator shows one remaining red bar, it's almost time to replace/recharge the battery.



The **INFO display** features an accurate battery life indicator with a percentage display. You can access the INFO display with the DISP/BACK button.

Since your X-T4 uses new NP-W235 batteries, you cannot interchange batteries between the X-T4 and older X camera models. As of today, there is also no adapter that would allow using the smaller NP-W126S batteries from older cameras in the new X-T4.

You can obtain NP-W235 batteries from Fujifilm, or you can use compatible products from third-party vendors. The first third-party options have already popped up, but it's too early to judge

their quality. That said, none of the aftermarket batteries replacing the older NP-W126S offered the same quality and performance as the more expensive Fujifilm originals. With the new NP-W235, I expect the situation to develop in a similar way, because the NP-W235 is a smart battery that communicates with the camera and transmits data about its health status and the number of charging cycles (SET UP > USER SETTING > BATTERY AGE).

Your mileage may vary. You may experience inaccurate battery life displays with third-party offerings, and the camera may unexpectedly switch off due to a depleted battery even though the indicator showed there was still power left. On the other hand, third-party offerings are more affordable; you typically get two knockoffs for the price of one original NP-W235 from Fujifilm.

If you store your camera for several days (or longer) without a charged battery, the X-T4's built-in emergency power source may run out of juice, and all camera and user settings will reset to factory conditions.



A



B



C

Fujifilm's original NP-W235 battery (A) is, without doubt, the benchmark, but it's also more expensive than third-party knockoffs (B and C).



If you don't want to charge your batteries inside the camera, you can use Fujifilm's optional **BC-W235 dual battery charger** with Power Delivery. For optimal performance, you should connect it to a USB-C power supply with an output of at least 30W.



**Third-party suppliers** are already starting to offer chargers for the BC-W235. Be careful, though: models like this dual charger from Baxxtar don't support Power Delivery. Its maximum available charging power is only 10.5W for both slots – about a third of the BC-W235's capability.

### BATTERY CHARGERS AND POWER BANKS

Along with spare batteries, the aftermarket also offers external chargers. At the time of writing in July 2020, the only available external Power Delivery charger for the new NP-W235 battery was Fujifilm's optional BC-W235 dual charger. This charger requires a USB-C input with at least 15W (better use 30W) and Power Delivery (PD), and

since it doesn't come with a power supply or USB charging cable, you are supposed to use the 15W power supply and USB-C data/charging cable that came bundled with your X-T4. This means that if you want to charge batteries in the camera and in the BC-W235 at the same time, you need a different (or second) power supply and an additional USB-C charging cable with Power Delivery.

Let's be clear: the 15W USB-C power supply that came with your X-T4 is the

bare minimum. To get more bang, I recommend a USB-C power supply with a minimum of 30W or 45W. With 30W, you can quick-charge two depleted NP-W235 batteries in the BC-W235 or in the camera in two and a half hours or less. And with 45W, you can quick-charge three empty batteries in the camera (with an attached VG-XT4 battery grip)

in just three hours. My recommendation is to use small but powerful USB-C multiport power supplies with state-of-the-art GaN (gallium nitride) technology. Since the X-T4 supports USB-C with Power Delivery, you can speed up charging two or more batteries by using a USB-C power supply with at least 30W, and a USB-C to USB-C cable that supports Power Delivery.



Powerful **USB-C multi-port power supplies** come in many shapes (A) and sizes (B). For state-of-the-art technology and performance, look out for small and lightweight offerings using GaN technology. Depending on how many devices you need to charge within a given timeframe, make sure to select a power supply with enough juice to charge several batteries at the same time. Multi-port power supplies are also convenient for travelling or on-location charging. Make sure to use USB-C cables that support Power Delivery (PD). Most PD cables support up to 60W, but there are also premium offerings with up to 100W. This means that you can also use these cables to supply power to higher-end laptops.

# Charging Time

	AC adaptor			Through PC
	15W	30W	45W+	
With Body (NP-W235 x 1)	3.0h	3.0h	3.0h	10h
With BC-W235 (NP-W235 x2)	3.3h	2.5h	2.5h	20h
With Body & VG-XT4 (NP-W235 x 3)	5.5h	3.5h	3.0h	30h

This overview from Fujifilm shows **battery charging times** depending on the wattage of the USB-C power supply (AC adaptor), the charging device in use, and the number of batteries that are charged concurrently.

When travelling, don't forget that different countries use different formats for power outlets, so you may want to carry a suitable travel adapter.

As an alternative to external battery chargers, your batteries can also be charged inside the camera via the built-in USB-C port. In addition to dedicated USB-C power supplies, you can use a USB-A to USB-C or a USB-C to USB-C cable to connect the camera to pretty much any power source with a USB outlet, such as your laptop, phone charger or a regular power bank. Be careful, though – with a weak phone charger, it could take up to 30 hours to refill an X-T4 with three depleted batteries in the body and the grip.

USB chargers and mobile power banks not only charge your X-T4, they can also power your camera while it is switched on and in use. You can find more information on compatible X cameras and batteries in a support document on Fujifilm's [website](#). In this document, Fujifilm recommends power banks from Anker, but there are many innovative

alternatives from other brands. Just make sure that the power supply or power bank in question offers USB-C Power Delivery and enough wattage to quick-charge your device(s). For example, to charge three batteries in your camera and an attached battery grip as fast as possible, you need at least 45W. Please note that even when you power the X-T4

externally, at least one NP-W235 battery must be inserted in the camera or in an attached battery grip.

As a road warrior, you might also be interested in car charging options for your X-T4 or the BC-W235. Once again, Power Delivery is your friend, as there's a wide choice of cigarette-lighter chargers with USB-C PD outputs.

**USB-C power banks** are useful accessories for users who want to power the camera in the field for long exposures, extended video recording, time-lapse photography or interval shooting. Once again, look out for models that support Power Delivery with at least 30W. Personally, I use small and powerful units like this sleek 90W battery.



Most **USB-C car chargers** with Power Delivery feature a modest output somewhere between 18W and 45W, but there are notable exceptions like this 120W monster that won't just power and charge your X-T4 but also power-hungry high-performance laptops like the latest 16" Apple MacBook Pro.



# AUTOMATICALLY ADJUSTING NOISE REDUCTION IN THE NEW LIGHTROOM CLASSIC 9.3 UPDATE

———— Piet Van Den Eynde ————

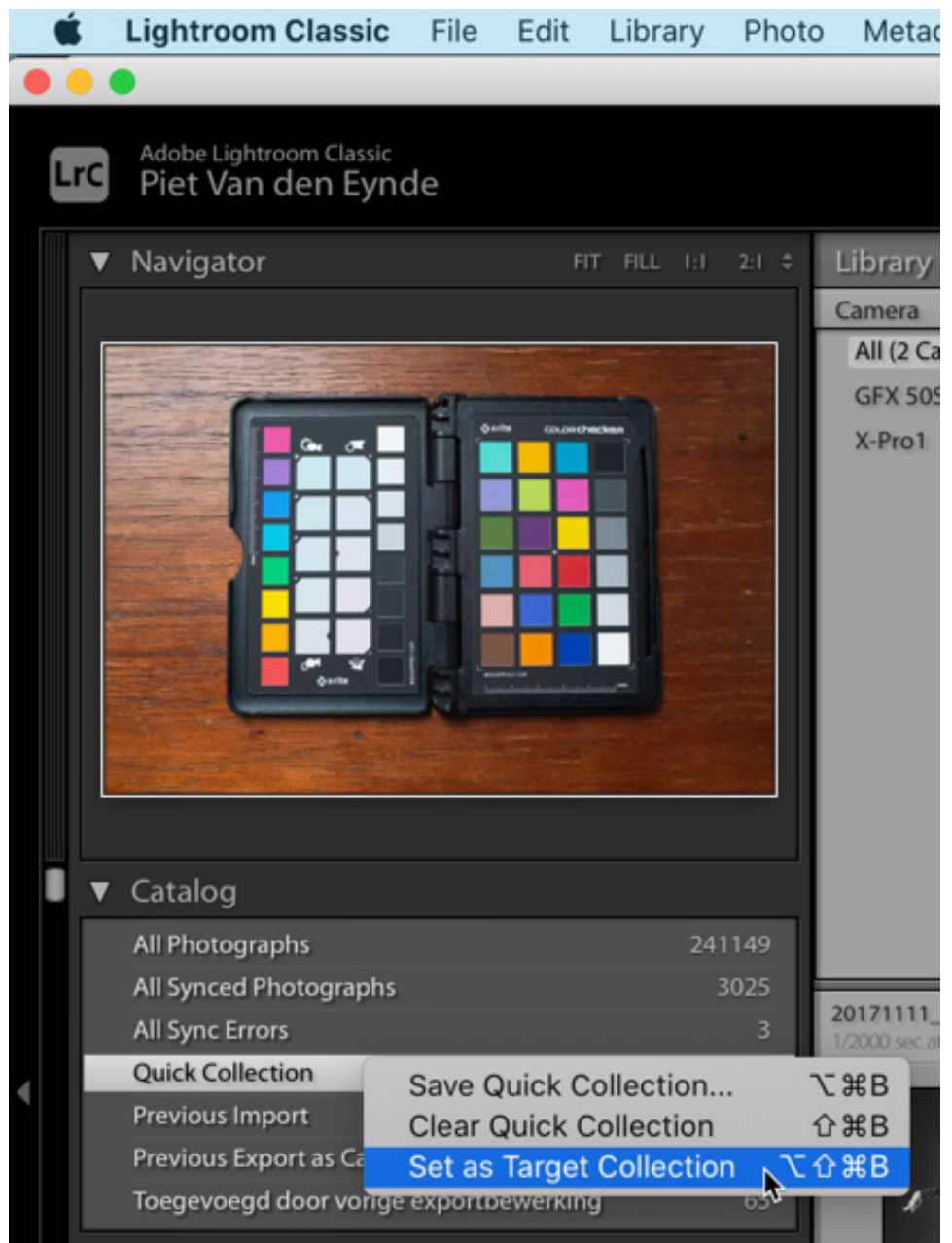
In the April edition of Gear Talk, I walked you through the important changes to the new Default Settings workflow in the Lightroom Classic 9.2 release.

As a recap, the 9.2 update offers a lot more flexibility. You can opt for the old, pre-9.2 system, which is to have Lightroom automatically assign the Adobe Color profile to each RAW file. But you can also have Lightroom apply the specific film simulation that you used in-camera, a preset or even a combination of those. Additionally, you can set different RAW defaults for different camera bodies you might be using, and you can also make those serial number specific.

I highly encourage you to reread that article before continuing with this one. For all its advantages, though, the 9.2 update had one drawback: it did away with the option to have ISO specific defaults. That is to say, it was still possible, but you had to use somewhat of a hack that wasn't really very user-friendly.

This brings us to the 9.3 update, which has a couple of interesting new features, one of which is the subject of this edition of Gear Talk. ISO-specific defaults are back...with a vengeance! You can now create ISO adaptive presets that you can use in the new Default Settings system that was introduced in 9.2. This is even better than before because in the old system, you basically had to create a default for every imaginable ISO setting that your camera was capable of.

In the new system, you create one adaptive preset based on two images with varying ISO values, and the preset will automatically scale the settings if you apply it to an image that has a different ISO value.



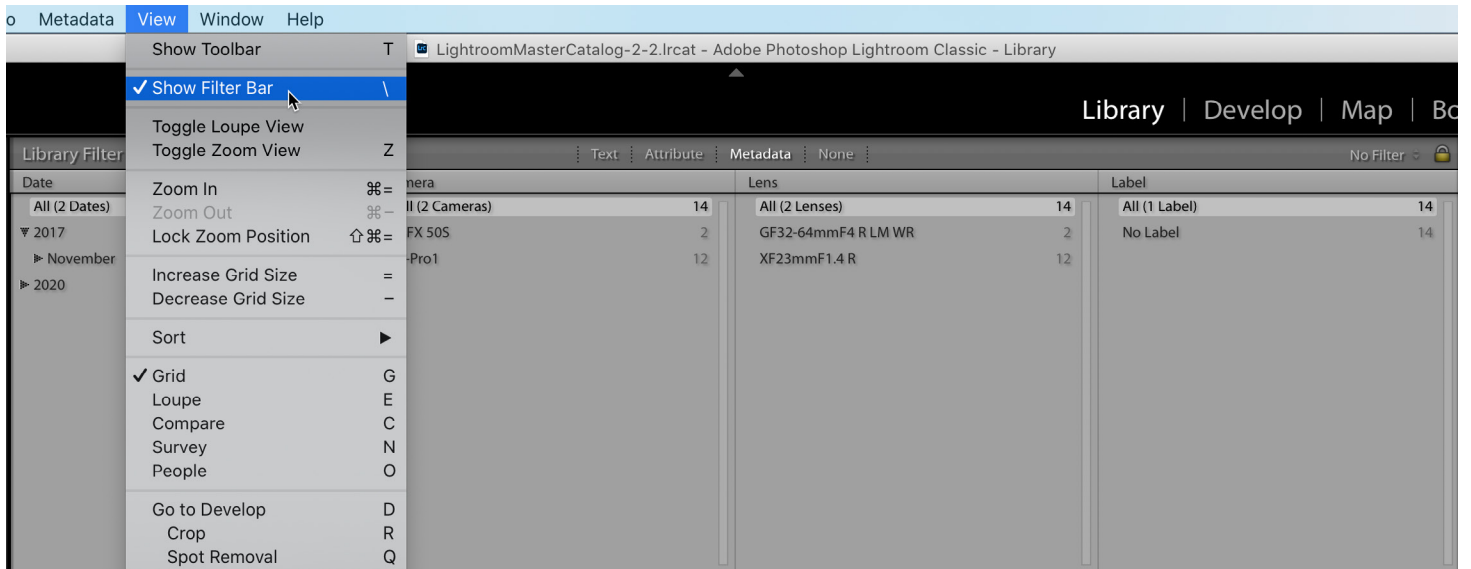
The Quick Collection is a handy way to bring images together that might not be in the same folder, or to temporarily add results to from search queries in the Filter Bar.

Sounds exciting? Let's have a look at how to get this up and running.

1. First of all, make sure you've installed the Lightroom Classic 9.3 update.
2. To get the best results, you would have to repeat this procedure and create a different ISO adaptive preset for every

camera that uses a different sensor and/or processing. After all, it doesn't make sense to apply a noise reduction preset you created for your venerable X-Pro1 to your state-of-the-art GFX 100 as the latter needs a lot less noise reduction at the same ISO settings than the former.

3. Make sure you are in grid view in the Lightroom library module. In the Catalog panel, right click on the Quick Collection and choose Set as Target Collection. The reason for this will become clear later.



If the Filter Bar isn't visible after choosing Library > Enable Filters, choose View > Show Filter Bar.

4. Lightroom's Filter Bar can help you find images that were taken with the same camera but with different ISO values. Go to All Photographs in the Catalog panel and choose Enable Filters from the Library menu. The Filter Bar has the annoying property that it can be active without being visible. If you don't see it, choose View > Show Filter Bar or hit the \ key.



Clicking on the filter criterium of any of the four filter columns displays a dropdown list from where you can change that criterium. I want the first column not to be 'Date' but 'Camera'.

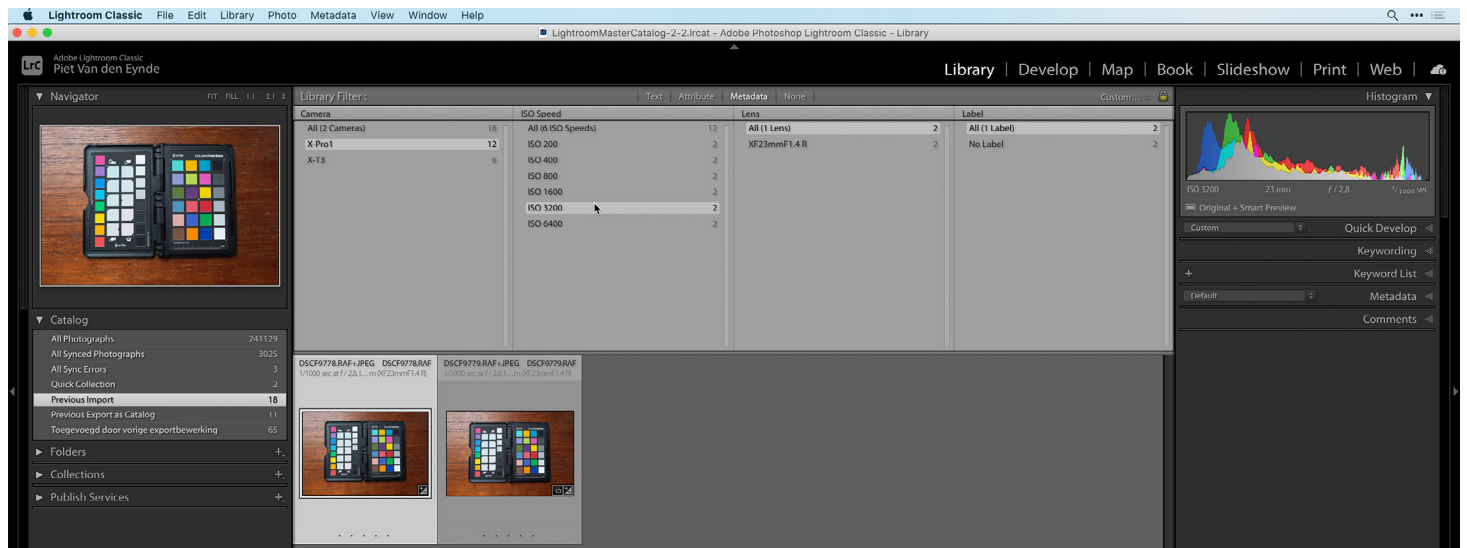
5. You should now see the Library Filter appear at the top of the interface. Click on the Metadata tab so that it lights up and, if necessary, click on the Text and Attribute tabs so they look greyed out. You should now see four columns appear. Click on whatever heading the first column has and change it to Camera from the drop-down list. You will see the list populate with all the cameras that Lightroom encounters in your catalogue. I bet you didn't know you've already gone through so many of them, did you? Click on the camera that you'd like to create an ISO adaptive preset for.

Camera	ISO Speed	Shutter Speed	Aperture
X-E1	5829	All (15 ISO Speeds)	10232
X-E2	5060	ISO 100	23
X-E2S	3	ISO 200	4670
X-H1	2631	ISO 250	293
X-M1	296	ISO 320	47
X-Pro1	10232	ISO 400	1462
X-Pro2	18516	ISO 500	251
X-T1	26473	ISO 640	145
X-T2	4228	ISO 800	1541
X-T3	6565	ISO 1000	200
X-T30	874	ISO 1250	21
X-T100	473	ISO 1600	887
X10	4489	ISO 2000	191
X20	372	ISO 3200	441
		ISO 4000	7

One of the weird side effects of the Filter Bar is that it can send you off on a trip down memory lane, when you see how many different cameras you've been using over the past years.

6. Next, select the second column and, if necessary, change its filter criterium to ISO Speed. Click on the ISO setting that corresponds to the base ISO of your camera. Scroll through the images in grid view and pick one that is representative for your style of shooting and is also properly exposed. When you find one, select it and hit the B key. This will add it to the Quick Collection in the Catalog Panel.

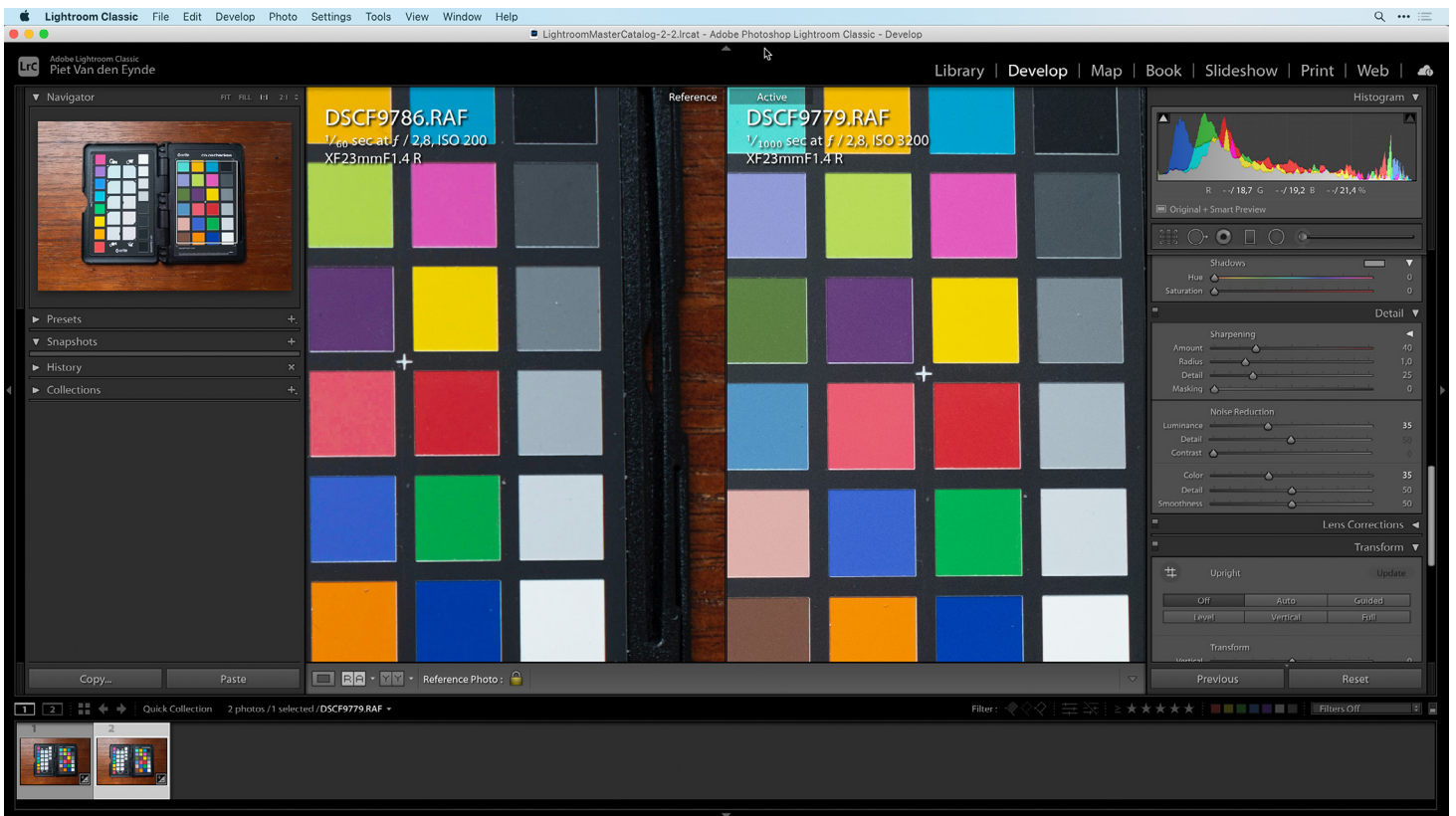
7. In the ISO Speed filter column, click on one of the higher ISO settings such as ISO 3200 and repeat the procedure: select a representative image and press the B key.



Your ISO adaptive preset will only be as good as the underlying images you base it on, depending on how representative they are. In this example, I opted to do a test shoot with an X-Rite ColorChecker Passport. I worked in Manual Exposure mode, kept the aperture constant and increased my ISO and my shutter speed simultaneously.

8. Up to now, we were using existing images to base our ISO adaptive preset on. But you could also do a specific test shoot that is representative for the type of images you generally photograph. For example, if you're a wedding photographer, you could do a high ISO test shot inside of a church and a low ISO test shot outside with different cameras if you have more than one. If you often shoot things with fine detail, be sure to include images with fine detail in the two images that you will base your ISO adaptive preset on, as the noise reduction settings will also impact the rendering of the fine detail. A third option would be to photograph a test card like I did with this Colorchecker passport from X-Rite.

9. Regardless of which option you took, your Quick Collection should now contain two images taken at different ISO settings.

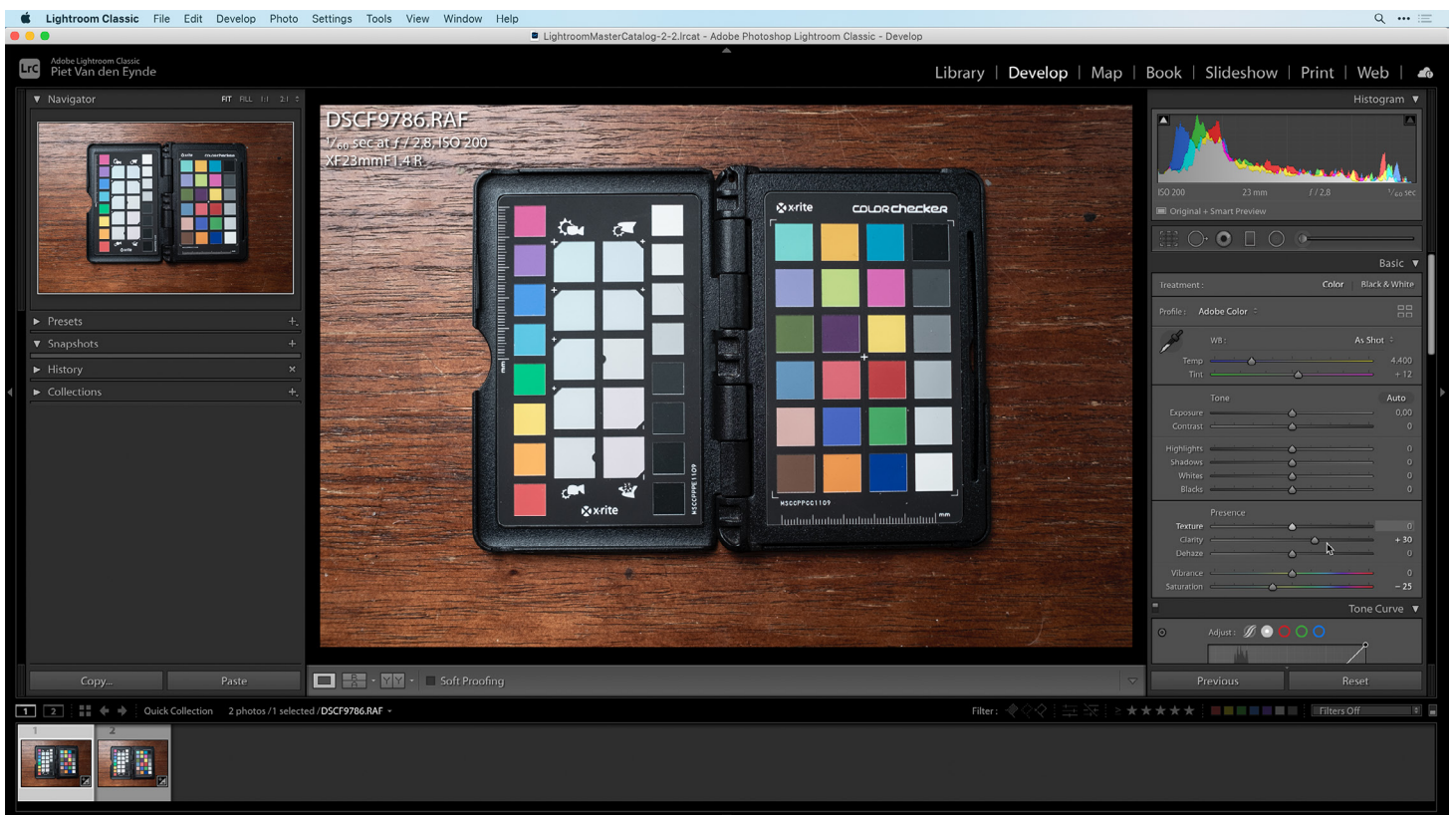


Lightroom's Reference View comes in really handy when you want to create an ISO adaptive preset.

**10.** Select the image with the lowest ISO and go to the Details Panel in the Develop Module. Zoom in to 1:1 view, and adjust the Sharpening and Noise reduction sliders until the image looks the way you want. Bear in mind that it's a trade-off: increasing Sharpening will make noise more visible and increasing Noise Reduction will make your image look a little softer. I find that on the low ISO settings, I rarely need to change anything.

11. Then, select the high-ISO image and repeat the procedure. You can use Lightroom's Reference View to set the low-ISO image as a reference and try to adjust the noise reduction on the high-ISO image to match the look of the low-ISO image as much as possible, knowing that a complete match will obviously be impossible because of the aforementioned trade-off. Lightroom usually does a very good job of reducing

the Color Noise at the default value of 25. In this example, when comparing the base ISO image to the ISO 3200 image, I found I mainly had to adjust the Luminance Noise Reduction. Note that only the main Luminance and Color Noise sliders and the Sharpening Amount slider will be interpolated, not the other sliders in the Sharpening and Noise Reduction panel.

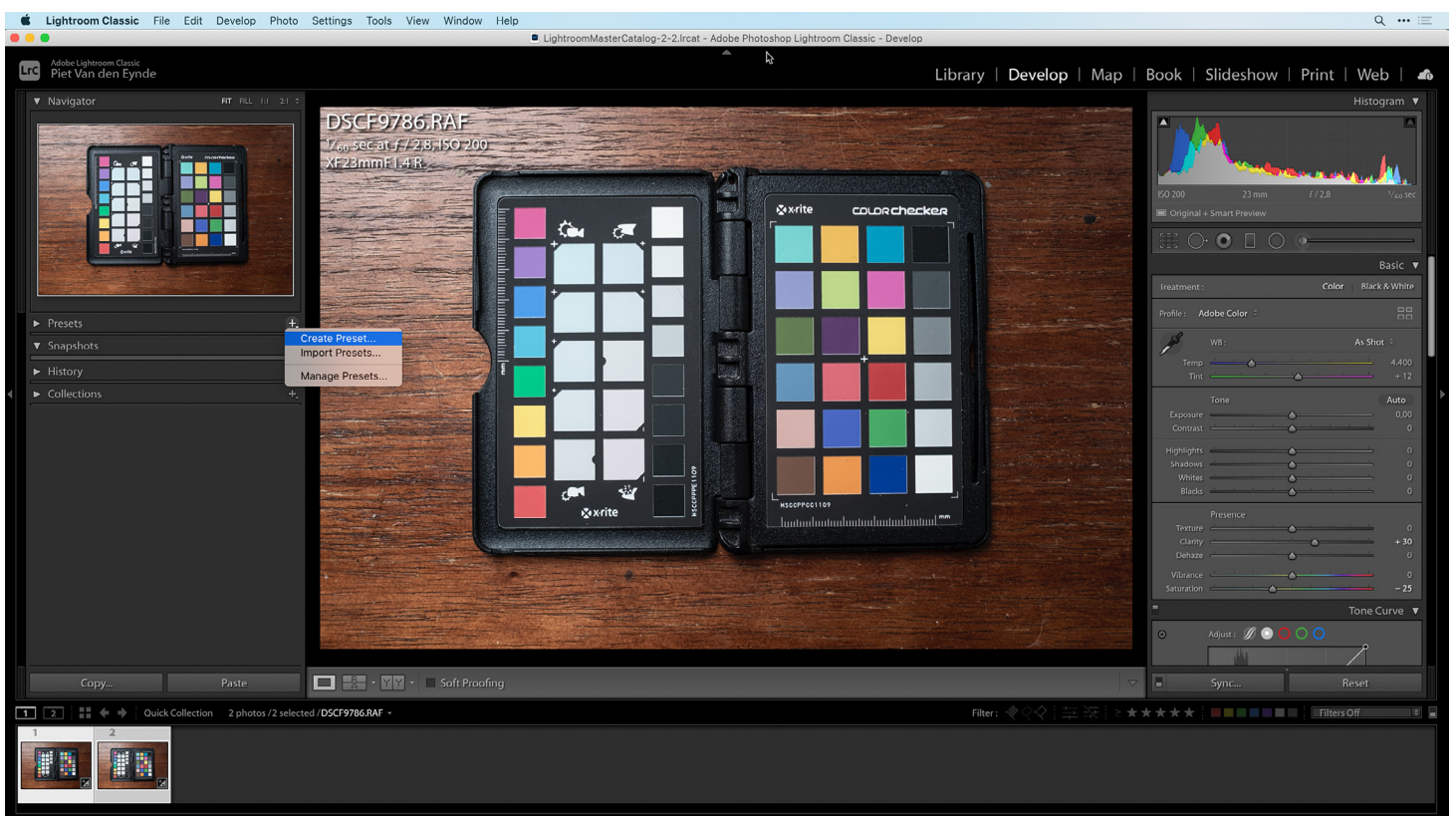


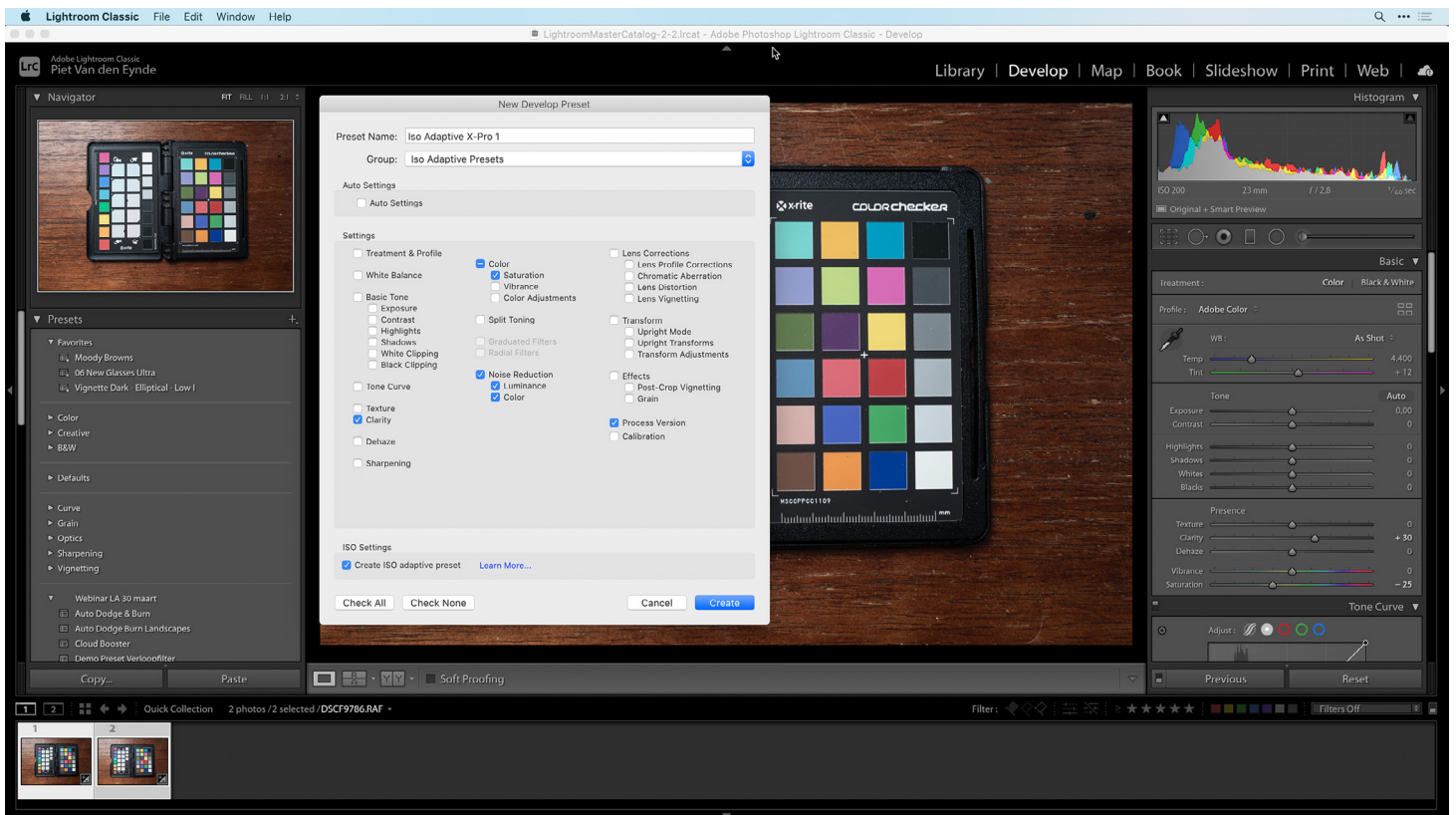
If you want your preset to include other settings as well, but you don't want those settings to be interpolated across the different ISO values, make sure to apply them to both the high and the low ISO image.

**12.** Now comes the tricky part: if there are other settings that you would want your preset to include but you don't want these to change with the ISO, then apply the same setting for that specific slider to both images. For example, you might like a gritty, slightly desaturated look on your images and for that, you want the Clarity slider at +30 and the Saturation slider at -25. In that case, make sure to apply those identical values to both your high ISO and your low ISO image.

**13.** The way this ISO adaptive preset system works is that Lightroom will automatically scale the different values that it encounters in the preset according to the actual ISO value of the image you apply to preset to, but it will keep the unchanged parameters the same.

Make sure to select both images before you click on the + icon in the Presets Panel and click Create Preset.



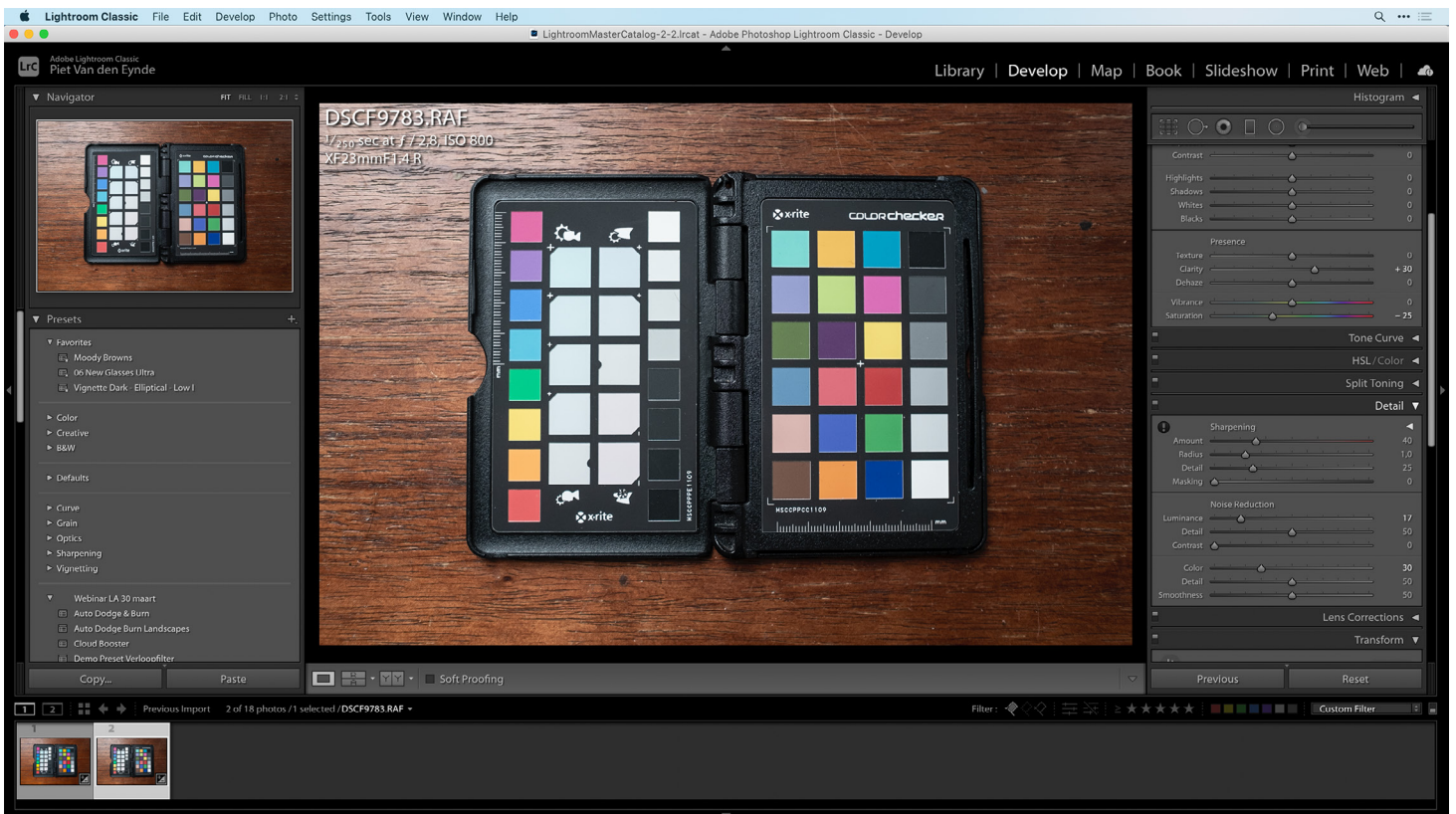


Make sure to check the new Create ISO adaptive preset checkbox. This will only be clickable if you have two images selected.

**14.** Knowing that, it's time to create the actual preset. Make sure you select both images and click on the + sign in the Presets panel and click on Create Preset from the flyout menu. Next to Preset Name, give your preset a logical name, e.g. X-Pro1 Adaptive Preset.

**15.** Check all the settings you want to include in the preset. In our example, that's the Noise Reduction checkbox, and the Clarity and Saturation checkboxes. Note how I don't check the Sharpening checkbox, as I haven't changed this from the default and I also don't want it to be ISO-specific. You might decide otherwise, of course – this is just an example. The most important thing not to forget is to also check the new Create ISO adaptive preset checkbox at the bottom of this dialog box. If you want, next to Group, you can choose to create a new group to store all your ISO adaptive presets.

**16.** When you're done, click on the Create button and your preset will show up in the Presets panel under the group you selected or created.



An ISO 800 image after applying the preset. Note how it got the same +30 Clarity and -25 Saturation Adjustments. Also note how Sharpening stays at the default of 40 (because it wasn't included in the Preset) and how the values for Luminance and Color Noise Reduction are in between those of the two images we based this ISO adaptive preset on, which means it works!

**17.** Now, it's time to test your preset. Select an image taken with the same camera but with a different ISO setting, e.g. ISO 800 or 1600. Apply your newly created preset to it and inspect the results and the corresponding panels. Following this example, what you should see is that the values for Clarity and Saturation are 30 and -25 respectively but the values for Noise Reduction should be in between the extremes you defined for the low ISO image and a high ISO image that you based the adaptive preset on.

**18.** If this is working the way it should, you can now apply this preset automatically to all images that you shot with this specific camera by creating a camera specific default the way we explained in the April issue of Gear Talk.

One final thing to bear in mind is that when you apply the preset to an image

that had a higher ISO value than the highest value you based yourself on when you created the preset, Lightroom will apply that upper value to that image. It won't scale the settings beyond that. So, in this case, if I shoot a lot at ISO 6400, I might want to include an ISO 6400 image as well in my images that I base the preset on because you can use more than two images to create the ISO adaptive preset. This way you can create fairly complex adaptive presets. For example, say you have three images you base the preset on: an ISO 200, ISO 1600 and ISO 6400 one. Now assume that you keep the Sharpening value the same on the ISO 200 and ISO 1600 one, but you increase it on the ISO 6400 one, then Lightroom would keep the sharpening the same on images between 200 and 1600 but prorate it on images shot between 1600 and 6400! Pretty powerful stuff!



**ROSE WITH FLASH IN STUDIO SETTING**

*X-T3 + XF80mmF2.8 at f/4, 1/250 sec, ISO 160 (Profoto A1x with dome and bounce card as flag)*

# FLOWERS WITH FLASH

————— Bobbi Lane —————

Flash three ways: outdoor fill flash, flash as main light studio setting,  
and balancing ambient and flash outdoors.

Lighting is the key to everything in photography, not just exposure, but by defining the subject, mood and texture. All light has three major aspects: direction, quality and depth, and by depth, I mean the darkness of the shadows. Each aspect is controlled separately and has its own purpose. The key to a good or great photo is understanding how to blend all three of these together to match and enhance the concept of the photo. The direction of light defines the form of the subject by placing the highlights and shadows.

We live in the three-dimensional world and photography is a flat medium. We create the illusion of depth by highlights, which visually appear to be coming forward, and shadow, which creates the illusion of going away. Direction of light also impacts the mood since more light on the subject gives a happier, brighter feeling and more shadow is more evocative and theatrical. The quality of light helps define the texture of the subject since hard light has more detail, contrast and saturation, and soft light has less detail and texture. Quality also contributes to the mood since softer light is a sweeter feeling. Lastly, the depth or darkness of shadow does only one thing: it controls the drama. The darker the shadow, the more dramatic the feeling.

Everyone has a flash, yet not everyone knows how to use it well, so a lot of photographers don't like it. The portable flash is an amazingly sophisticated and powerful device that helps us control the impact of our image. The portable flashes of current times are masters of engineering and actually are much simpler to use than in previous generations. Learning how to harness the power and ability of this instrument will help the quality of your images skyrocket! For this article, I will demonstrate how to use your built-in flash as fill flash, and how to use a portable flash off-camera in a controlled studio environment and also balancing flash light and ambient outdoors. For the fill flash demo, I am using the Fujifilm X100V with the built-in flash and wide-angle lens. For all the other images, I used my trusty X-T3 with the XF80mmF2.8 and the Profoto A1x for Fuji with the Profoto Air Remote.

### FILL FLASH

Let's start with fill flash. Fill flash is useful when there already is ambient light, but maybe the light isn't descriptive of the subject or the shadows are too dark. The flash doesn't overpower the ambient, and in normal circumstances the best option is to put the flash on TTL at -1. Then you can adjust as you need, so if the shadows are

too dark, then push the power up, or if the image looks too 'flashy' then turn it down. Remember that "everything depends upon everything" (my favorite saying in photography and life!), so there are no formulas that will work perfectly every time. The amount of fill flash is subjective, so it's a creative decision about how much to use.

I am the proud owner of the X100V and, in my opinion, it's the best of the X100 series. My first was the S, then the F, but the V is fabulous. DP Review said of it, "The most capable prime-lens compact camera, ever." I've been delighted with how smart the camera is and how it almost reads my mind about how I want something to look. It focuses extremely close (4in) and is sharp and clear wide-open at f/2. The 23mmF2 lens is improved from the previous version and it retains good contrast wide open, unlike the previous one, which could look hazy. The X100V also has a 26MP X Trans CMOS IV sensor, slightly larger than the previous. The leaf shutter is incredible, working up to 1/2000 at all apertures and 1/4000 from f/4.5 to f/16. Here's the kicker: the flash synchronises at all shutter speeds! This is important and useful in so many circumstances, as I'll show in the next photos.



**SINGLE LADY'S SLIPPER ORCHID IN WOODS**

*X100V at f/2, 1/950 sec, ISO 500 (built-in flash on TTL, no adjustment)*



**SINGLE LADY'S SLIPPER ORCHID IN WOODS**

*X100V at f/2, 1/950 sec, ISO 500 (no flash)*

I live in a rural area filled with woods and cranberry bogs. In the spring, there are a wide variety of wildflowers, including the rare Lady's Slipper Orchid. I got down low so that I would have more greenery in the background instead of the dead brown leaves on the forest floor, and also so that the other flowers would be fading off into the background. I had my ISO set at 500 since I was in the shade, but probably didn't need to be that fast since I wanted to shoot at f/2 for the bokeh. This was the first time I used the built-in flash, so I went into the menu and just set it at TTL, figuring I would need to adjust as necessary. Boom!

The first photo is perfect at balancing the amount of flash with the ambient light. I expected that since I was so close, it would look flashy, but it's just right. The second image is using natural light only and the flower looks mottled. You can see that the fill flash provides better colour and contrast. Please be aware that I was hand-holding, using the articulating screen and looking down. I may not have matched the images exactly or have perfect focus.



**TINY PINK WILDFLOWER IN THE WOODS**

*X100V at f/2, 1/250 sec, ISO 500 (built-in flash on TTL, no adjustment)*



**TINY PINK WILDFLOWER IN THE WOODS**

*X100V at f/2, 1/350 sec, ISO 500 (no flash)*

The next example is a set of images of a tiny wildflower as close as I could focus. In this case, I manually set the exposure to f/2 and 1/250s based on the meter reading. I set the flash on TTL again and wondered if the camera had the capability to pull back the power enough so that it didn't overexpose, as I

was four inches away. The flash effect is subtle, but important. The highlights are a touch brighter, giving more contrast and separation in the tones, and notice that the light areas in the middle of the leaves have more separation as well. The fill flash just gives the image a bit more life.

Here is a behind-the-scenes setup of the X-T3 with flash on camera (Profoto A1x for Fujifilm)



### OFF-CAMERA FLASH IN THE STUDIO

Next up is using the flash off camera with a radio remote in a studio setting. A studio can be anything where the ambient light can be controlled or turned off. In this case, I used my dining room, which is painted a vibrant red – perfect as a background colour for yellow red-edged roses. My flash of choice is the Profoto A1x with the Profoto Air Remote for Fujifilm. I can't tell you how much I love this flash for its brilliant engineering, ease of use and quality of light. In this controlled setting, the photographer has full choice over the three aspects of light: direction, quality and shadows. The quality of light straight out of the A1x is already miraculous compared to every other flash I've used. The head is round and has a thick plastic cover over the lighting element, so the quality of light is broader and softer than a smaller rectangular style flash head. I chose to use the frosted dome attachment (Profoto makes amazing flash modifiers, using

the magnetic system to attach) to soften and spread the light more. You will see in the behind-the-scenes photos that there is also the bounce card attached and layered on top of the dome. I'm not using it to bounce, I'm using it as a flag to prevent flare from the light hitting the front of the lens.

Lighting is an art and in order to create effective images, you first must understand the nature or 'essence' of the subject, and what kind of mood you want to set. The petals of the rose are in layers, and showing off the edges with highlights and shadows is important to give a description of the flower. Moving the flash mounted on a stand allows for great freedom in exploring the options of chiaroscuro. The first image of the single rose is with the A1x mounted on the camera on TTL. Since it's a vertical shot, the flash is actually to the right of camera centre, so it's not completely flat but it's pretty much straight-on lighting, not rendering much shadow dimension.

**ROSE WITH FLASH IN  
STUDIO SETTING**

*X-T3 + XF80mmF2.8 at  
f/4, 1/250 sec, ISO 160  
(with Profoto A1x flash  
on camera, TTL)*



The next three images are the same camera position on the single rose, but with the light in three different positions. The first image has the flash lower than the rose to camera left, resulting in a dramatic, almost 'monster lighting' kind of feeling, with just the top edges of the petals in the light. This is minimal light, more shadowing, and so lots of drama, especially with the light falling off in the background making it darker. The next shot has the flash position still to camera left, but higher, so there is much

more light on the rose and the background is lighter. It shows off the dimension and form of the flower and it's a good 'product' shot of the rose. The last one has the light from a much higher angle, pointing down and slightly behind the rose, so the edges of the petals are lit and shadows fall on the front petals. It really pops the texture. This is equivalent to a 'beauty' or 'butterfly' lighting pattern, and creates a more glamorous feeling.



**ROSE WITH FLASH IN STUDIO SETTING**

*X-T3 + XF80mmF2.8 at f/4, 1/250 sec, ISO 160 (Profoto A1x with dome and bounce card as flag, flash position low and camera left)*



**ROSE WITH FLASH IN STUDIO SETTING**

*X-T3 + XF80mmF2.8 at f/4, 1/250 sec, ISO 160 (Profoto A1x with dome and bounce card as flag, flash position from camera left and above rose)*



**ROSE WITH FLASH IN STUDIO SETTING**

*X-T3 + XF80mmF2.8 at f/4, 1/250 sec, ISO 160 (Profoto A1x with dome and bounce card as flag, flash position camera right, slightly behind the rose and high above it)*



#### THREE ROSES WITH FLASH IN STUDIO SETTING

*X-T3 + XF80mmF2.8 at f/2.8, 1/250 sec, ISO 160 (Profoto A1x with dome and bounce card as flag, flash high and directly above roses, slightly behind them)*



#### CLOSE-UP OF ROSE WITH FLASH IN STUDIO SETTING

*X-T3 + XF80mmF2.8 at f/8, 1/250 sec, ISO 160 (Profoto A1x with dome and bounce card as flag, flash high and directly above roses, slightly behind them)*

I did switch to manual Exposure on the flash because I wanted the consistency of the light. Sometimes if you move the camera position to include more or less subject or background, the TTL will slightly alter the amount of light emitted from the flash. So, the group of three, and the many variations I did, were all shot on M on the flash and the power adjusted for the aperture.

For this next shot, the light is directly overhead, and just slightly behind the roses so that the shadows are in the front, still keeping in the glamorous feeling. This is also great to move in for a close up.



Here is the behind-the-scenes setup of the X-T3 with the Profoto A1x for Fujifilm

## BALANCING FLASH AND AMBIENT LIGHT OUTSIDE

Those of you who have followed my articles will know that I do a lot of dragging the shutter, balancing flash and ambient. I decided to use this technique on my gorgeous hibiscus on the porch. I put the A1x on a stand, with the dome, to side light from the left of the flower because I wanted to emphasise the texture and detail of the pistil and stamen.

The ISO is 160, as I'm using the flash outdoors, and I selected f/5.6 because I wanted to make sure I had enough depth of field. It's a bit tricky sometimes to find the right balance between the aperture, which is determined by the flash, and the ambient background, which is controlled by the shutter speed.

The flash doesn't hit the background, only the flower.

My first shot (see next page) is at f/5.6 and 1/60s. You can see that the light is great is bringing up the detail and texture. The background looks a little dark, too dramatic, so the next shot is at 1/30s. This brings the background tonality up and the shadows blend a little with the ambient. The next one has the shutter speed at 1/15s because I wanted a paler green background. However, the problem here is that there is just as much ambient light on the flower as there is on the background, so the flower now has lost the effect of the flash. I turned off the flash in the next image, shot at the same exposure, and it's almost impossible to tell the difference between the two.



Here is the behind-the-scenes setup of the X-T3 with flash off-camera outside



**HIBISCUS WITH FLASH OUTSIDE**

*X-T3 + XF80mmF2.8 at f/5.6, 1/60 sec, ISO 160 (Profoto A1x with dome and bounce card as flag)*



**HIBISCUS WITH FLASH OUTSIDE**

*X-T3 + XF80mmF2.8 at f/5.6, 1/30 sec, ISO 160 (Profoto A1x with dome and bounce card as flag)*



**HIBISCUS WITH FLASH OUTSIDE**

*X-T3 + XF80mmF2.8 at f/5.6, 1/15 sec, ISO 160 (Profoto A1x with dome and bounce card as flag)*



**HIBISCUS WITH NO FLASH**

*X-T3 + XF80mmF2.8 at f/5.6, 1/15 sec, ISO 160*

I changed the exposure to f/4 at 1/60s for a couple of reasons: I wanted more bokeh in the background and 1/15s was too slow to stop movement from the wind. I liked the tones of the pink flower against the paler green, so I need to adjust everything. By the way, the flash was also set on manual for consistent light.

Using that exposure for the background tonality meant that the flower was then overexposed from the ambient. I pulled out a reflector and held it over the flower to block the ambient light, so it would only be lit by the flash. These two exposures were the same but the second one has the reflector blocking the light on the flower. There was no flash used in either of these. You can see that the background tone stays the same.



**HIBISCUS WITH NO FLASH**

*X-T3 + XF80mmF2.8 at f/4, 1/60 sec, ISO 160*



**HIBISCUS WITH NO FLASH AND REFLECTOR BLOCKING LIGHT**

*X-T3 + XF80mmF2.8 at f/4, 1/60 sec, ISO 160*



This is behind the scenes with Bobbi holding a reflector above the flower.



I turned the flash back on using the same exposure settings and found the right balance between the flash and the background tones.

**HIBISCUS WITH FLASH OUTSIDE**

*X-T3 + XF80mmF2.8 at f/4, 1/60 sec, ISO 160 (Profoto A1x with dome and bounce card as flag, holding reflector above flower to block the ambient light)*



We end with a final shot: a close-up with water droplets and a faster shutter speed for drama.

I hope this demonstrates how light makes such a huge impact on the description of your subject. It's not hard to do this, but it does require understanding of the three aspects of light.

**HIBISCUS WITH FLASH OUTSIDE**

*X-T3 + XF80mmF2.8 at f/4, 1/125 sec, ISO 160 (Profoto A1x with dome and bounce card as flag, holding reflector above flower to block the ambient light)*

Why was the aperture of f/4.5 chosen here? Why not f/11? Why not f/1.4?



# ONE APERTURE TO RULE THEM ALL

————— Dylan Goldby —————

I was recently sitting at a table with a few photographers when I heard a comment that absolutely perplexed me. It went exactly like this: “f/7.1 is the best aperture. I never use anything else.” I was dumbfounded.

**D**ozens of questions began flowing through my head. If f/7.1 is the best, why do we have other aperture values? What does it do that other values do not? What is it about f/7.1, not f/8, that makes it so special? Should we all be using f/7.1 for all our images? What if f/1.4 was the best aperture? What do I do then if I

own the XF50-140mmF2.8 and it doesn't have the best aperture? Is it an inferior lens?

In this article, we're going to look into how we go about choosing our aperture value. We'll take a look at what the aperture is, how it works and what it is used for creatively. We'll then circle back

to the original statement, look at why it's not entirely misconceived and try to rephrase it so it becomes more useful to us.

### WHAT IS APERTURE?

Before we get going, let's understand what aperture is. While we won't dive deep into the optics and mathematics of it, let's get a basic understanding so we can get some clues as to why it behaves the way it does.

The term aperture, literally meaning 'hole' or 'opening', is used in photography

to describe the cavity in a lens that allows light to pass through to the recording medium (in the case of Fujifilm digital cameras, the sensor). The size of this aperture can be changed on most lenses. Possible changes have been arranged on a scale with values we refer to as 'stops'. A 'stop' references an amount of light that is either double or half another value. It is a generic term that has no more meaning than a temperature scale. It is simply a way for us to understand relative amounts of light.

This is the aperture of the 7 Artisans 23mmF1.8. Note that several 'blades' come together to make a relatively perfect circle for light to pass through.



“UNFORTUNATELY, WITH DIGITAL PHOTOGRAPHY, SHARPNESS HAS BECOME SOMEWHAT OF A RELIGION FOR MANY PHOTOGRAPHERS AND ANYTHING-BUT-PEAK SHARPNESS IS OFTEN PERCEIVED AS INHERENTLY BAD.”

For our purposes, aperture is a way for us to control the amount of light that makes it to our sensor when we record an image. However, aside from simply controlling the brightness of our images, the aperture value can have several other effects on the resulting image. Some are technical and some are creative, and all can be weighed up by the photographer to create an image that suits the purposes of the image.

### TECHNICAL QUALITIES

A few technical image qualities are affected by your aperture choice. All lenses are compromised of physics when they are made and all lenses exhibit some level of optical ‘degradation’. These typically become most visible at the extremes of the

aperture range. We can avoid these aberrations when necessary and use them to our advantage when we want to. As a user of lenses, not a lens designer, it is good to understand what to look for, what might be causing it, and how you can compensate for it when you desire to.

### SHARPNESS

Sharpness is a term we use to describe how the contrast produced by a lens renders detail in our photographs. If a lens is ‘sharp’, it renders very good fine detail. If it’s not sharp, we may lose details that we want recorded in our photographs.

Unfortunately, with digital photography, sharpness has become somewhat of a religion for many

photographers and anything-but-peak sharpness is often perceived as inherently bad. For most of us and for most outputs, the detail rendered by any modern lens at any aperture is plenty for our purposes. But, since we’re here to discuss sharpness, let’s jump in.

Lenses are typically sharpest in the middle of the aperture range. This is what often gets referred to as ‘the sweet spot’ of a lens. For example, the XF56mmF1.2 is a very sharp lens. It renders plenty of detail and contrast for most purposes even wide open. However, we’ll see it perform at its technical best between f/5.6 and f/8. If we require the most detail possible out of the resulting image, stopping down a little will help us along that path.



Let's continue with the example of the 56mm lens. When used wide open at  $f/1.2$ , we get the ability to work in very low light (wider apertures allow more light to hit the sensor for a given exposure time). We can also create extremely narrow depth of field, and render backgrounds and foregrounds completely without detail. However, the technical sharpness of the resulting images does suffer at this aperture.

Consider this: is a loss in sharpness necessarily a bad thing? Does that bother you in your work? Does it bother you enough to miss out on that lovely background blur? That's a decision you can make for yourself and on an image by image basis.

Would this image really benefit from stopping down to  $f/2.8$  for extra sharpness? Would her smile be that much more impactful if there were more detail?

*X-T3 + XF35mmF1.4 at  $f/1.4$ ,  $1/250$  sec, ISO 160*

As a portrait photographer, you might appreciate a slight softening of features that lends to a more flattering rendition of skin. If you're a landscape photographer using the same lens, you might want more fine detail than f/1.2 can offer you. Sharpness isn't necessarily good or bad. It is a tool we can make use of.

## DIFFRACTION

At the other end of the aperture range, we will start to see a different kind of degradation. When your aperture gets too small, light rays struggle to converge within the sensor's tolerance (the circle of confusion) and we see the image start to lose sharpness again. Although every aperture value exhibits some level

of diffraction due to light striking the edges of the aperture blades, it does not perceptibly affect sharpness until we stop down towards the end of the aperture range.

On an APS-C sized sensor such as the Fujifilm X Series cameras, most lenses will show some visible loss of sharpness from f/11 onwards. Again, this may or may not affect the photography we do and is not a design flaw in any lens. This is simply physics that we cannot get around.

One of the benefits of the larger sensor in the GFX bodies is the ability to work with smaller apertures before diffraction begins to have an effect. With the GFX, most lenses will exhibit a small loss in sharpness after f/22. This may

make the GFX a better choice for certain types of photography, like long exposures during daylight hours.

Thankfully, the programming wizards who develop our post-production software have included ways to somewhat correct for this (as have Fujifilm in the "Lens Modulation Optimizer" setting in camera). For example, going into the Lens Correction tool in Capture One and turning on "Diffraction Correction" will perform a type of sharpening on the image designed specifically to counteract diffraction. So, if you really need to use f/16 on a Fujifilm X camera and still want extremely sharp images, you can always add a little sharpness back in during post-production.

Half of this image has Capture One's "diffraction correction" applied. At the size you're viewing it, can you tell which half?

*X-T3 + XF16-55mmF2.8 at f/16, 27 secs, ISO 160*





A portrait without vignette correction. Did you even notice the vignette? Did it bother you?

*X-T2 + XF35mmF1.4 at f/1.4,  
1/900 sec, ISO 200*

Even with the loss in sharpness, there are reasons you might want to stop your lens down beyond the point where diffraction sets in. If you look at the image on the previous page, you might notice that the streetlights all have star shapes bursting out from them. This is caused by stopping down to a very small aperture. This aperture also allowed me to get the extremely long exposure that smoothed out the water in this photograph. For this image, those are a worthy trade-off for a little sharpness in my book.

### **VIGNETTE**

At the extreme ends of the aperture range, we're also likely to see a vignette (a darkening of the corners of the image) appear in our photographs (see above). Lens profiles in modern software, and even Fujifilm's own in-camera JPEG processing, often correct for this automatically. However, if these functions are turned off in software or you use a lens that doesn't have a profile, you will see the corners of your images getting darker at wider and tighter apertures.

Again, you can make use of your aperture or software to correct for it. That decision is yours. Does the vignette draw attention to your subject in a positive way? Perhaps you want to keep it, then. Does it obscure part of your subject or draw too much attention to the dark corners of your image? Maybe you want to correct for it. Software will allow you to do this to the degree you choose. Just remember that you'll see more darkening at the extreme ends of your aperture settings.

The darker vignette caused by the TCL-X100. Does this bother you? Would you correct for it in this case?

*X-100F + TCL-X100 at f/8, 1/680 sec., ISO 200*



## CHROMATIC ABERRATION

Chromatic aberrations (CA) in their most distracting form can be seen along lines where light and dark meet in out of focus areas. Fujifilm lenses are generally very good at correcting for this and software lens profiles will take care of the rest in most cases. When they do show up, it's usually at wider apertures. Stopping down your aperture can help to remove them if you find them distracting. However, they can usually be dealt with easily in software and it's not always a good idea to sacrifice other qualities in your image just to remove these at the time of photography.



Some chromatic aberrations can be seen around the lights in ceiling. Is it worth spending the time to correct these?

*X-T2 + XF23mmF2 at f/2, 1/180 sec, ISO 1600*

## CREATIVE QUALITIES

### Depth of field

The most obvious change we can see in our images as we change our aperture value is depth of field. Depth of field refers to the area in front of and behind our point of focus that appears in focus to us. While this is certainly a result of physics and is, thus, a technical 'limitation' of our lenses, it is much better viewed as a creative tool in most cases.

When we open our aperture wide, such as to  $f/2$ , relatively little in front of or behind the thing we focus on will appear in focus. Conversely, at  $f/11$ , relatively more will be in focus. Note that I say relatively here. Depth of field also depends on how close to the camera we focus. Focusing closer to the camera decreases depth of field and focusing further away from the camera increases depth of field.

By focusing on a person quite close to the camera and opening our aperture wide, we are able to achieve very shallow depth of field and an out-of-focus background. Conversely, stopping the aperture down to something like  $f/16$  and focusing on an object further away will allow much more of the scene to be in focus. How we do this, however, is nowhere near as important as why we do this.



What does the shallow depth of field here help to say in this image? What does it help the viewer to focus on?

*GFX 50S + GF110mmF2 at  $f/2$ , 1/1000 sec, ISO 100*

What changed about your  
experience of the  
photograph with the deeper  
depth of field here?

*GFX 50S + GF110mmF2 at f/8,  
1/60 sec, ISO 100*



When choosing depth of field for a particular image, we should always consider what we want the image to say. Take, for example, an environmental portrait of a fisherman with his boat and some storm clouds in the background. If you choose a shallow depth of field and just keep his eyes sharp while completely blurring everything in front of and behind him, you tell a story more about his eyes and face as they are in focus and draw the viewer's attention. If you choose a medium depth of field where enough detail is also retained in the foreground and background for them to

be legible, you tell a story primarily about the man but also offer hints about his work and environment. If you choose a depth of field that keeps the fisherman, his boat, and the sky sharp, you are offering the viewer even more to explore visually.

None of the above is inherently right or wrong. Each has its merits and issues that need to be overcome. Which you choose depends heavily on your personal preferences and desired results. It's always good to consider what you want the viewer to look at when choosing your depth of field.



Would this image benefit from more or less depth of field in your opinion?

*GFX 50R + GF45mmF2.8 at f/2.8, 1/100 sec, ISO 1600*

## Feeling or mood

If we take technical or copy photography out of the equation, it can be said that all photographs are ways to convey a mood or feeling to the viewer. This could be done with light, subject choice, colour, and, yes, even your choice of aperture. The combination of sharpness, vignetting and depth of field can help us to relay the feeling we want to our viewers. It is possible for an image to suffer because too much is sharp just as much as it is for that image to suffer for a lack of sharpness? The important thing when choosing your aperture value is to understand the visual effects it will have and choose it because it helps to create the image you want to make.

## SO, WHAT IS THE BEST APERTURE?

I hope by now I've drilled home the point that all aperture settings have a place and that if we understand the effects of changing them, we can be

creative in our photography. f/7.1 is no more the 'best' aperture than a helicopter is the 'best' way to get to work. Choosing your aperture is all about what you are trying to achieve and which setting will help you to achieve it. Don't forget to pay attention to the technical qualities that will help you to achieve the image at hand, though. Levels of sharpness, vignette, chromatic aberration and diffraction are also the result of your chosen aperture value.

So, to get back to our original statement, we can express the best aperture only in the relative sense. By saying "f/7.1 is the best aperture for the image I am trying to achieve right now," you would be absolutely correct. As with everything in photography, intent is the most important ingredient in making gear decisions. Choose the aperture that allows you to express what you want to in the way that you want to, and you have chosen the best aperture.