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## The Complete Raw Culling Workflow Tutorial (Video transcript)

*Here we will show you how fast your raw culling workflow can be with FastRawViewer -- starting from a memory card going up until the raw converter. Also, we will demonstrate how FastRawViewer helps one recognize and analyze operator errors so as to improve shooting discipline.*

We are sometimes approached with a request for a video with an example of a basic workflow while culling with FastRawViewer. Let's examine such a workflow, using a casual shoot of the architectural elements of the Washington National Cathedral, Washington DC.

The shoot took place on a sunny day both inside and outside the cathedral. As such, the scenes for all of the shots have fairly wide dynamic ranges.

Some of the series of shots are rather long, but we'll show you that you should not be afraid of shooting long series in raw (*bracketing for the sake of the best possible exposure, HDR, focus stacking, panoramas, or simply catching the right moment*) – using FastRawViewer you will be able to choose the best shots from a series fast and reliably.

Let's launch FastRawViewer.

FastRawViewer can read files from any media, ranging from a memory card to a network server, so there is no need to copy shots from a memory card onto a computer hard drive to start culling.

Simply insert the card into the computer. As you can see, FastRawViewer immediately noticed the inserted card, and is offering to open the most recent folder with the shots.

We're going to do preliminary shot selection. This means that we're choosing shots suitable for further work in a raw converter. Our criteria are the shot's composition and the technical quality of the shot, chiefly its exposure and as such, noise. It's necessary to remember that the higher the exposure, the lower the noise level. Therefore, if we have a series of shots taken with bracketing, we're going to try and choose the shots with both the highest possible exposure, with the only limit being not having important highlights (*and we stress "important" here*) be blown-out. That is the kind of shot that will simultaneously have minimal noise and maximum detail in the shadows, highlights, and everywhere really. It is customary to refer to such shots as properly exposed to the right, or ETTR'ed.

Some raw converters apply hidden (*that is uncontrolled by the user*) exposure correction to every shot, to place the midtone where, according to the logic of this converter, the midtones are supposed to be. Very often (*if this correction has a positive value*), this results in the increased brightness of a shot as displayed in a raw converter, and thus compressed or even clipped highlights.

By default, the brightness of an image displayed in FastRawViewer matches the brightness of the same image in Adobe raw converter. For this, FastRawViewer provides the "Apply hidden Adobe exposure correction" option, which is the default setting in FastRawViewer.

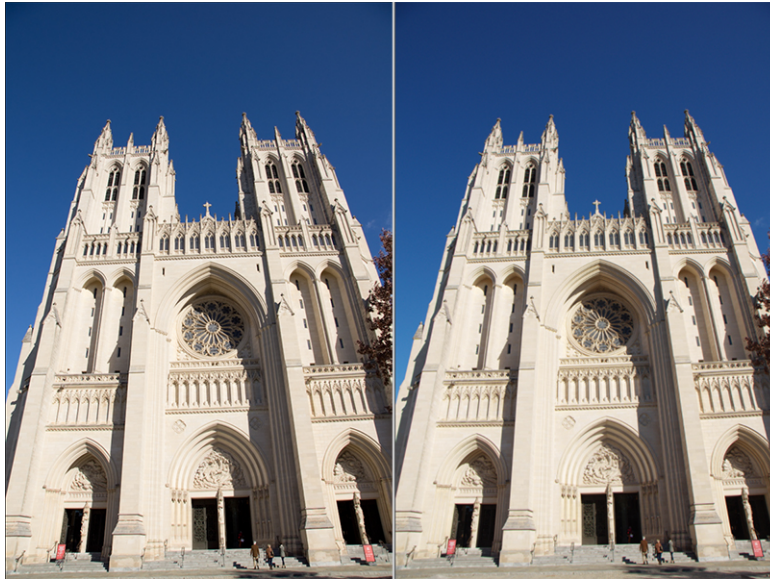


Figure 1. The same shot in FastRawViewer (right) and Adobe raw converter (left): brightness matches

We want to see what actually happened in the RAW and evaluate the actual technical quality of the scene as it is captured, and not look at a "refined" (*cooked*) picture, so we're going to open the Preferences and turn off "Apply hidden Adobe exposure correction."

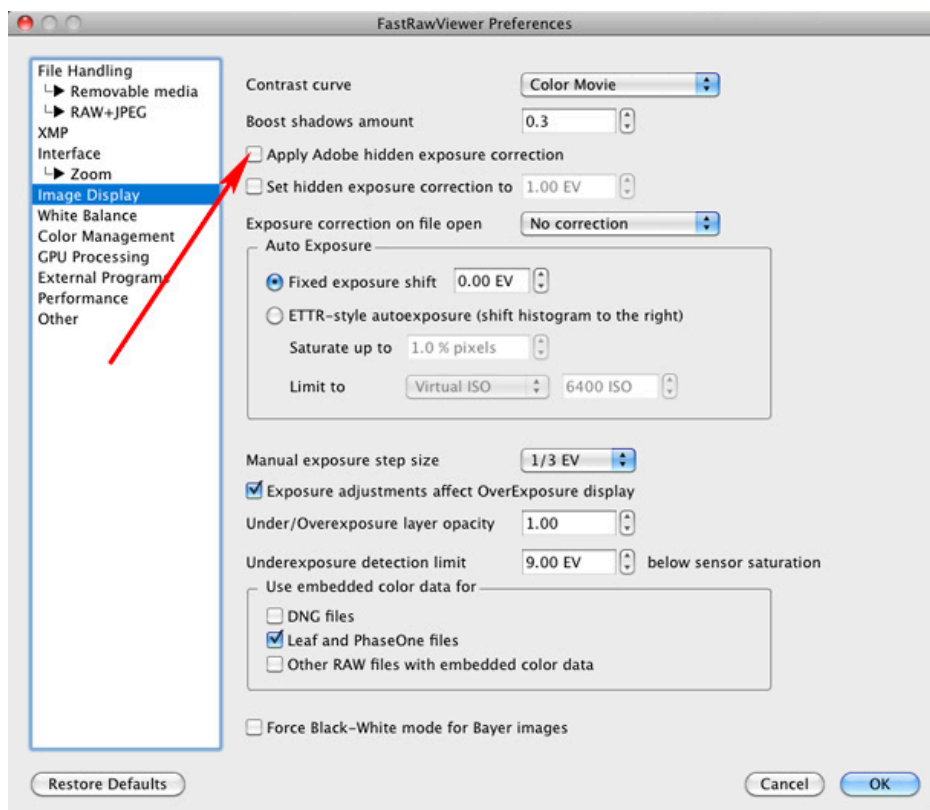


Figure 2. 'Image Display' options tab in Preferences

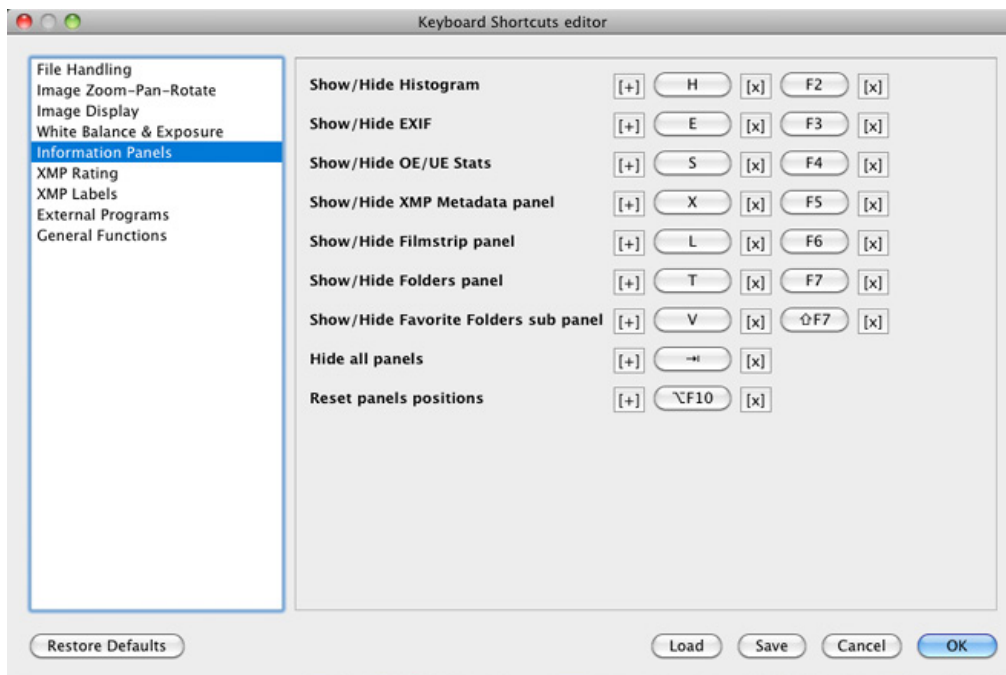
Since we're working with a card, the shots we've picked are going to be copied to a separate folder on a hard drive (*you can use a network drive too*).

**Important Note!** *When working with a card, we do not recommend using the Move function for keepers or for rejected files, because if the hardware glitches while moving the file, you risk losing the originals. It is always safer to treat a card in the computer as read-only, until you are ready to format it.*

For each shot being copied we can choose to either create a folder for the copy (*press C*) or automatically copy it to the same folder as the previous shot (*Shift-C*)

If you prefer to copy the entire shoot from a card to a hard drive, then while choosing files you can use the *Move/Reject* functions. We will discuss it later.

To speed up all of the operations I am going to use keyboard shortcuts as much as possible. I have tuned them according to my habits. So, if the default keyboard shortcuts are not what you are accustomed to, you can assign your familiar combinations through the *Keyboard Shortcuts Editor*.

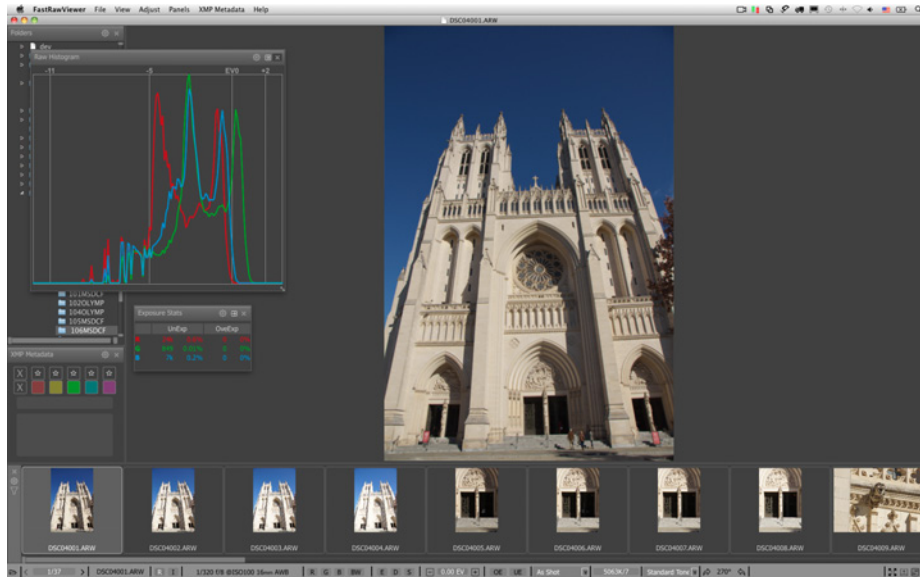


*Figure 3. Keyboard Shortcuts editor window*

For the initial evaluation of the technical quality of a shot, we're going to use the **Raw Histogram** (*toggle F2 by default or H in my set of shortcuts*); **Raw Exposure Statistics** (*toggle F4 by default or S in my set*); **Over-and Under Exposure Indication**, based directly on the raw data (*Toggle O and U consequently*); **Shadow Boost** - an indispensable tool for shadow evaluation, a must-use while culling HDR scenes (*Shift-S*); and **Focus Peaking** (*toggle P*) to evaluate in-focus areas and noise in shadows. *Mode E (edges)* gives one a good overview of the sharp edges in the shot, while for evaluation of noise in shadows you can use *mode D (details)* and watch the density of red dots in deep shadows.

Let's start culling.

Here is a shot that was taken while approaching the cathedral. It has a pretty high dynamic range.

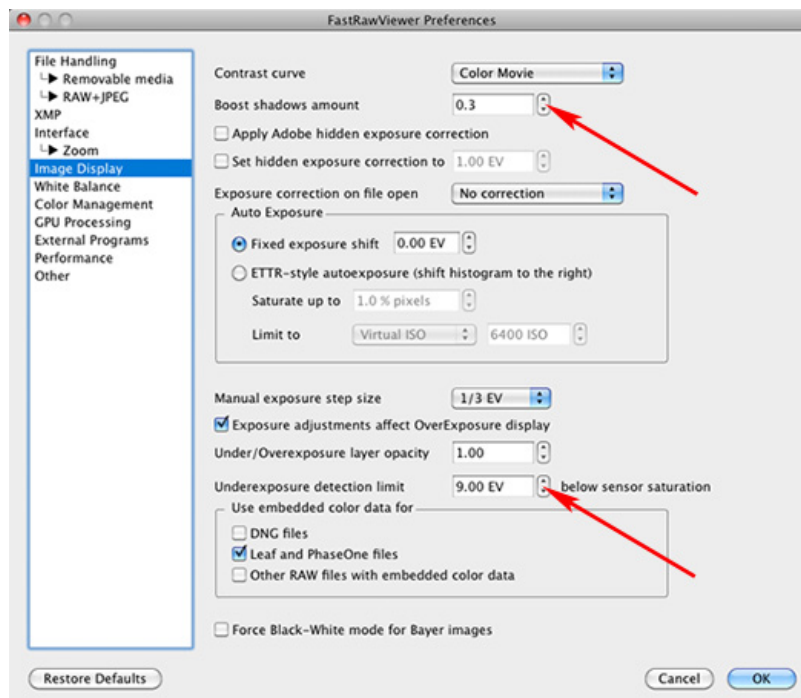


*Figure 4. First scene*

First, let's set the Underexposure Detection Limit and Shadow Boost amounts. Go to **Preferences, Image Display...**

The dynamic range of this camera at the base ISO of 100 is close to 10EV. So we set the **Underexposure detection limit below sensor saturation** to 9EV, to keep it safe and clean.

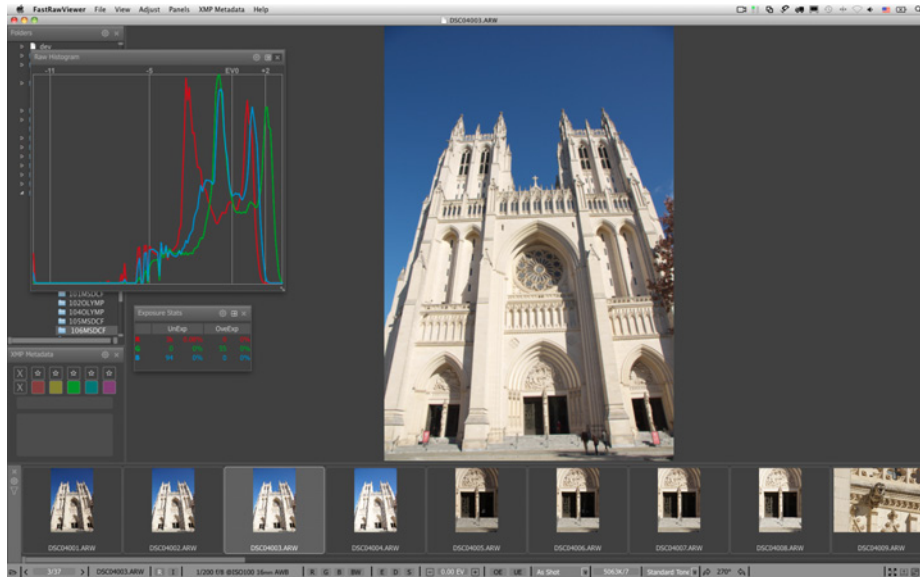
For this type of scene, containing only a limited amount of areas, having not very deep shadows, we recommend setting **Shadow Boost** to 0.3.



*Figure 5. Setting the Shadow Boost amount and Underexposure Detection limit*

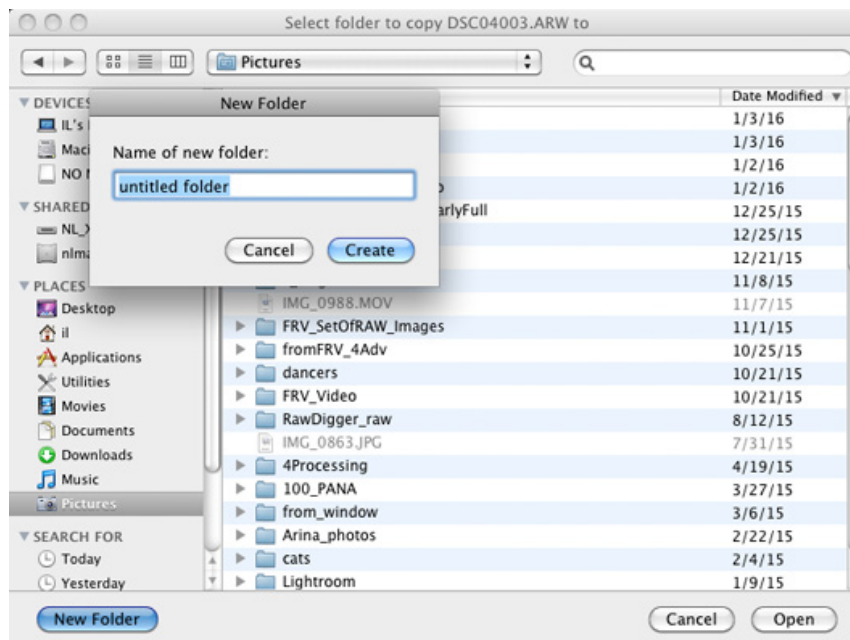


For every shot we look at the RAW histogram, choosing, if possible, the shot where the histogram is reaching but not climbing the right wall. This type of histogram means that this shot has the hottest possible exposure without blown-out highlights, which ensures the lowest possible noise in shadows and full detail in highlights.



*Figure 6. Raw Histogram and Raw exposure statistics are the main tools for initial culling*

It looks like shot 4003 is the best from an exposure point of view, so we'll copy it to the “keepers” folder on the hard drive, which we will create now. We will copy any and all other keepers to the same folder.



*Figure 7. Creating a new folder*

If you were culling your RAW shots using embedded JPEGs, you would decide that this shot is terribly overexposed in the red channel, while the brightness of the embedded JPEG of the shot that in fact is exposed 2/3 EV lower (*shot 4001*) would look close enough to the brightness of the RAW shot exposed by 1/3EV higher than our keeper (*shot 4004*). Embedded and out of camera JPEGs tend to exaggerate the

brightness by about 1/2 to 1 stop, which, if we set the exposure by the in-camera histogram, results in sub-optimal exposure in raw. So much for the reliability of culling RAW based on its JPEG preview.

One more thing: in JPEG, white balance is applied, creating the impression that the red channel is heavily blown here out, while in RAW the red channel has a leeway of about 1 stop.



*Figure 8. Is it worth culling embedded JPEGs if shooting in RAW?*

Next group. Looks like shot 4008 is exposed highest.

Could it be exposed hotter?

Let's add +1/3 **exposure correction** in FastRawViewer. Statistics show significant blowout increase, but still within the manageable margin, below 0.3% (*we will be covering overexposure and underexposure margins as well as exposure correction in considerable detail a bit later*).



*Figure 9. Shot 4008 – original exposure (left), +1/3 EV exposure correction (right)*

Examining the series, we can see how the amount of pixels below our underexposure margin is decreasing. Red channel indicates 11, 8, 6, 4% of underexposed pixels.

Exposure Stats					Exposure Stats				
	UnExp		OveExp			UnExp		OveExp	
<b>R</b>	451k	11%	0	0%	<b>R</b>	304k	8%	0	0%
<b>G</b>	185k	2%	0	0%	<b>G</b>	56k	0.7%	0	0%
<b>B</b>	298k	7%	0	0%	<b>B</b>	162k	4%	0	0%
<b>Shot 4005</b>					<b>Shot 4006</b>				
Exposure Stats					Exposure Stats				
	UnExp		OveExp			UnExp		OveExp	
<b>R</b>	243k	6%	0	0%	<b>R</b>	157k	4%	0	0%
<b>G</b>	24k	0.3%	0	0%	<b>G</b>	4k	0.04%	3	0%
<b>B</b>	111k	3%	0	0%	<b>B</b>	42k	1%	0	0%
<b>Shot 4007</b>					<b>Shot 4008</b>				

*Figure 10. Raw Exposure Statistics for shots 4005 .. 4008*

With 1/3 EV hotter exposure we can expect the number to be around 2%. So, it was worth a shot.

As we see, it would be better if a shot with +1/3 EV was available. But we do not have one. Let's estimate possible problems with the shot we have.

The RAW histogram shows that this shot is underexposed, and the exposure statistics show the percentages of underexposed pixels in every channel.

Let's look at the UE indication. Not very encouraging. However, if we press Shift-S for Shadow Boost, we'll see that we have a lot of details in the shadows, and they can be saved during the raw processing stage. Focus peaking demonstrates that the noise in shadows is not too objectionable.

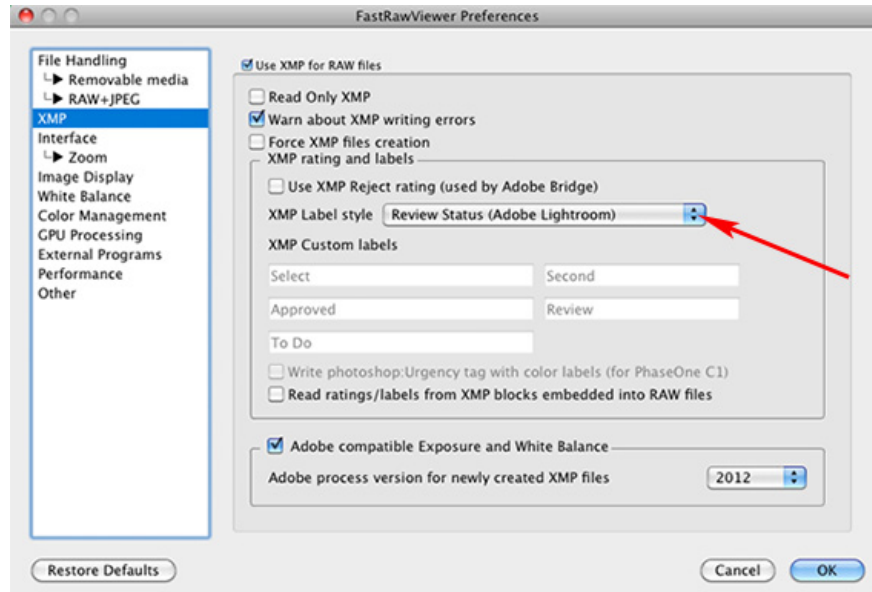


*Figure 11. Shot 4008 – Underexposure indication (left), Shadow Boost applied (middle), Focus Peaking, Detail mode (right)*

We'll keep this shot for raw conversion, realizing that it will need some careful work.



Let's assign a label to this shot... You can choose a Labels and Ratings style in *Preferences/XMP*. From this drop-down list I'll choose **Review status (Adobe Lightroom)**.



*Figure 12. 'XMP' options tab, Preferences*

All label and ratings options have keyboard shortcuts of course, the memory of which you can always refresh through **XMP Metadata** menu, and/or change those shortcuts to your convenience.

We'll give this shot the label "Color Correction Needed." Of course, everyone will use their preferred system. We can also assign some rating to this shot and give it a title and description, which you can edit at any time. All of this XMP metadata will be saved in an XMP sidecar file.

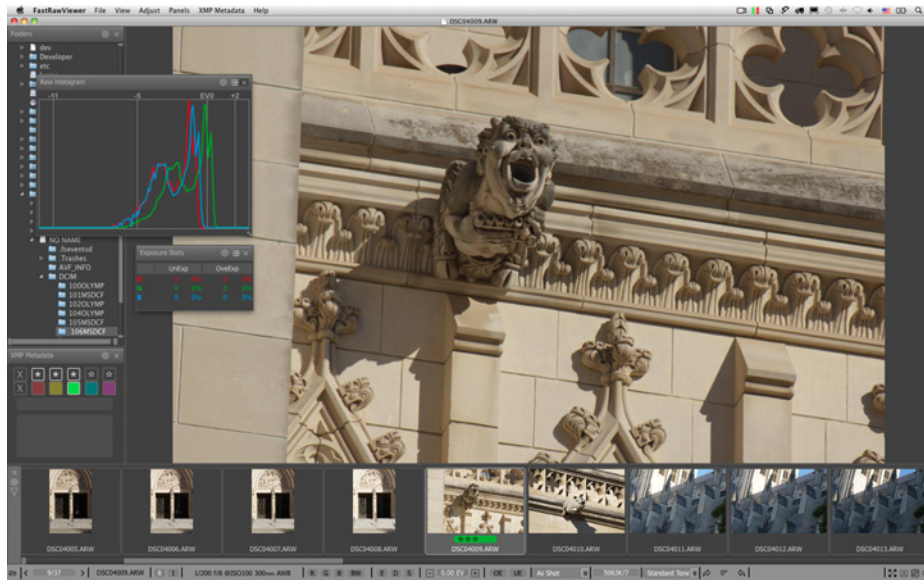
I would like to make one more remark regarding this shot: if a polarizing filter was used for this shot and properly rotated, the glass panel covering the right door wouldn't have reflections on it, thus opening the window for longer exposure to help shadows.



*Figure 13. Reflections on the cathedral door could be suppressed with a polarizing filter*

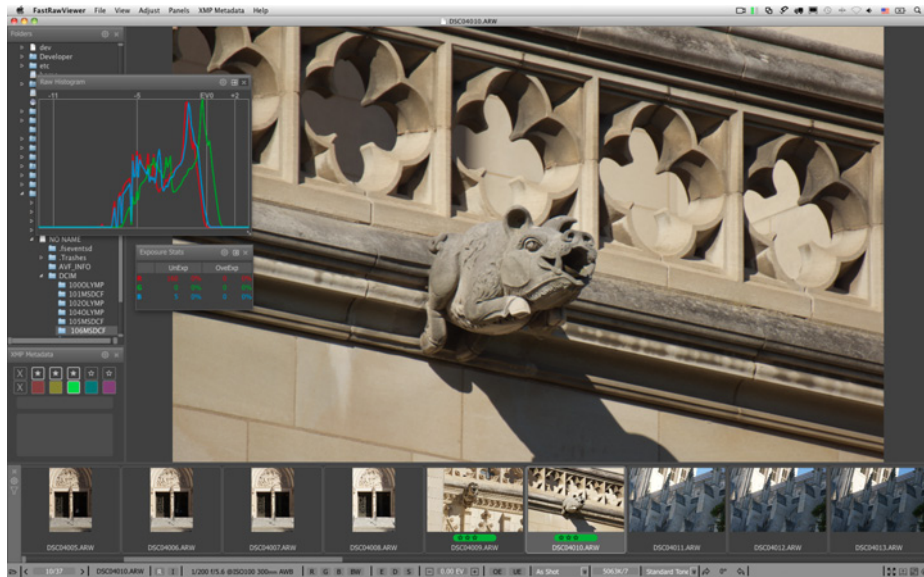


This shot with the gargoyle (4009) is the only one and we need it for some reason, so even if we are not totally happy with the exposure, we'll give it the *Good to Use* label and 3 star rating and keep it (*Shift-C*). We will look at this shot in FastRawViewer once more a little bit later.



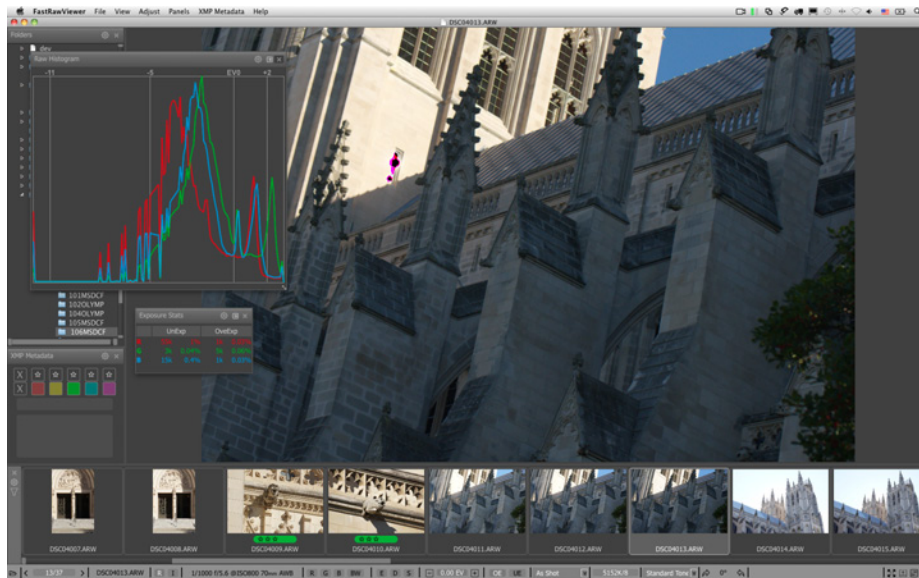
*Figure 14. Shot 4009, gargoyle one*

We'll do the same with shot 4010 – assign it the *Good to Use* label and 3-star rating, and copy it.

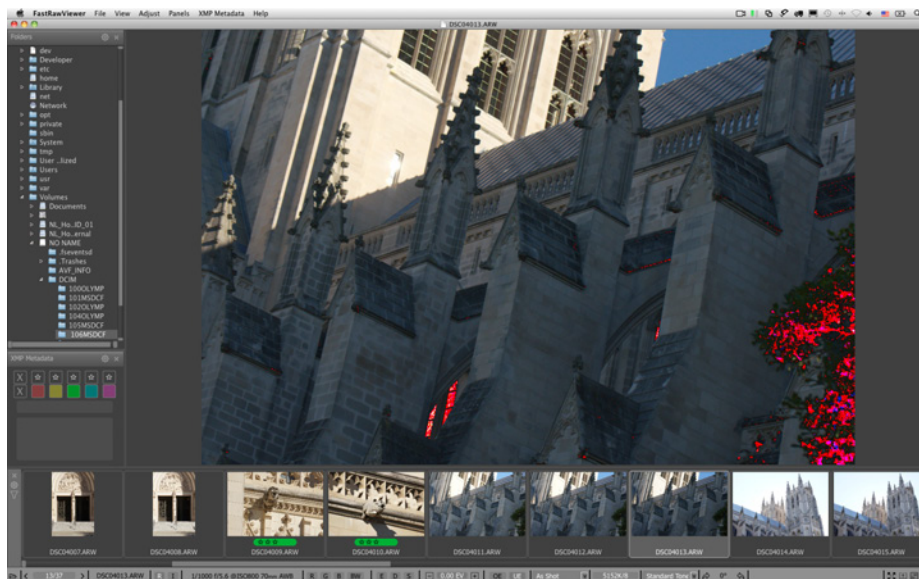


*Figure 15. Shot 4010, gargoyle two*

Next series. Let's immediately turn on overexposure indication. It looks like the best shot here is 4013. We have a clipped highlight only on the sun-lit window; underexposed areas don't seem to have a lot of noise, and they are not significant in any way, size or composition.



*Figure 16. Shot 4013. Overexposure indication is On*



*Figure 17. Shot 4013. Underexposure indication is On*

I don't know why these shots were taken with ISO 800 (we can see basic EXIF information at the bottom bar, and if we want detailed EXIF info, we can press F3 by default or E in my set or whatever keyboard shortcut you assign to the EXIF panel) – looks like it was an operator error.

For this model of camera (*as well as for many other cameras based on Sony sensors that do not employ DR Pix technology*) increasing the ISO higher than 200 won't give you much benefit in terms of decreasing shadow noise. What will be significantly decreased when stepping over ISO 200 is the total dynamic range of the camera.

For all current Canon dSLR cameras, as well as for some Nikon cameras (*especially, those with larger pixels, like D3 and D4 series*) it is reasonable to increase ISO - up to some point, of course, very seldom higher than 1600 - to decrease noise in shadows, but when one shoots in RAW, increasing ISO should be the last resort, used only when the shutter speed is already at its slowest possible for the shooting situation, aperture at its fastest, and more light is not an option, while highlights are not the subject. Increasing ISO inevitably clips highlights, thus decreasing available dynamic range.

So if highlights are not as important as shadows, and you can't increase exposure or add more light, you can increase the ISO. But it is always good to check what the reasonable ceiling for increasing ISO for the specific camera is.

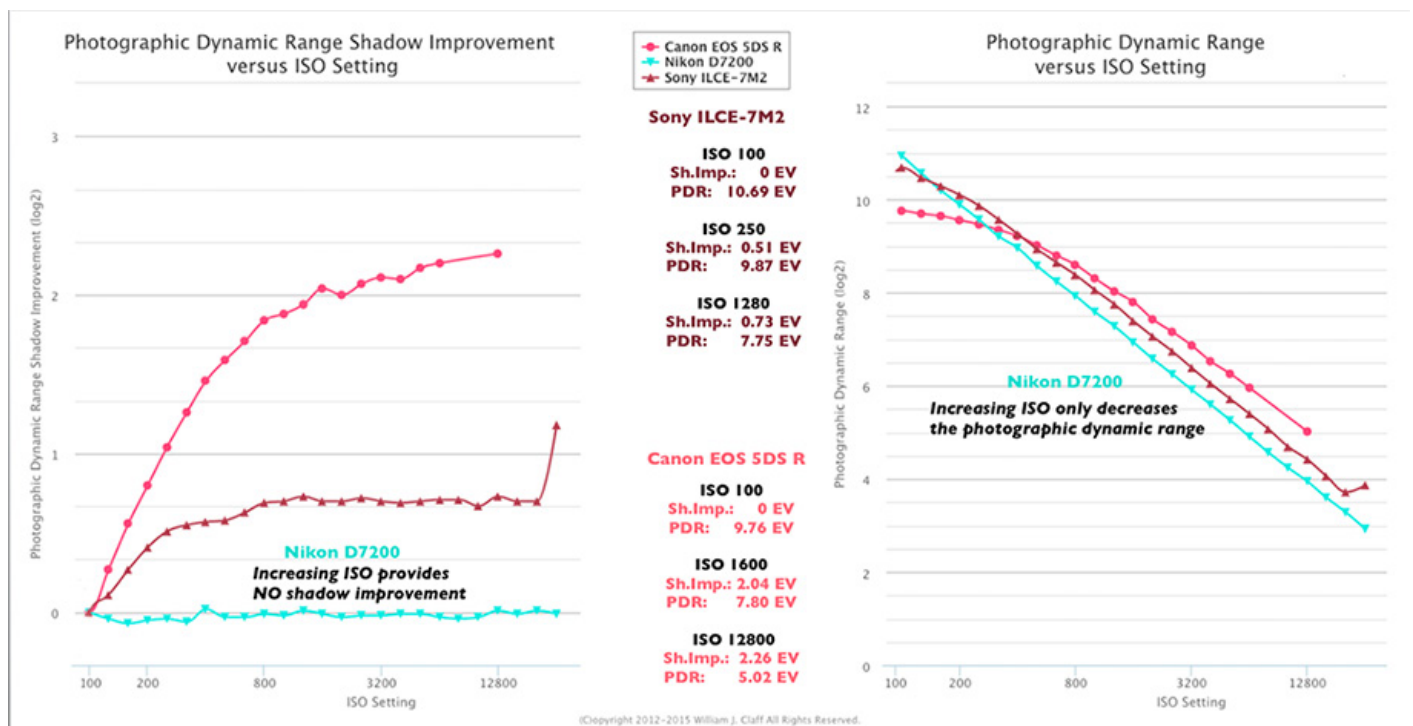


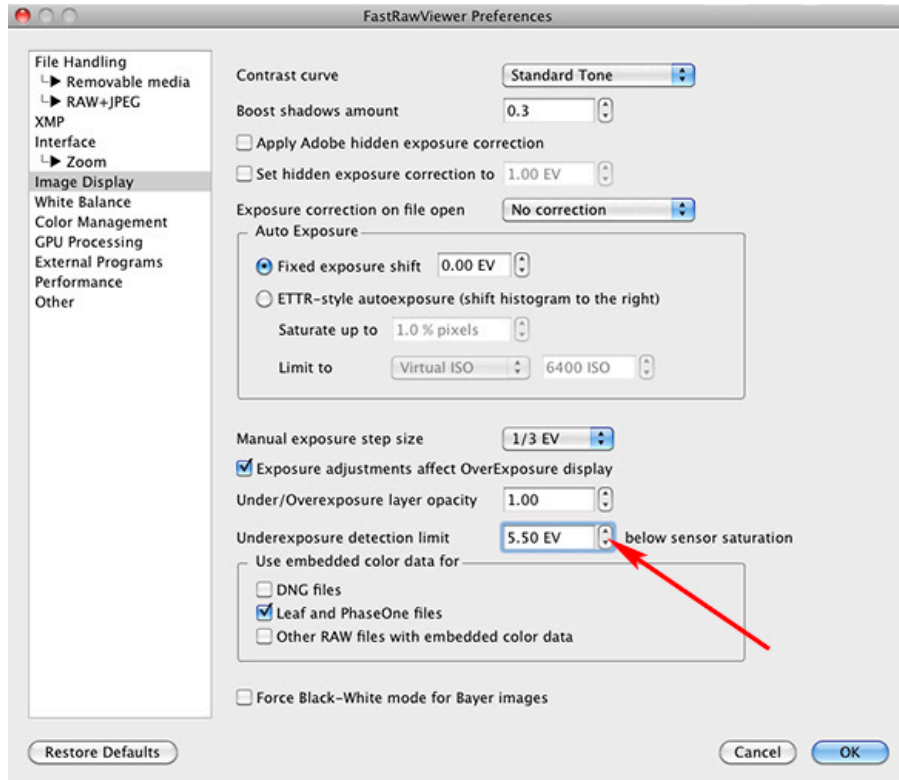
Figure 18. The correlation between ISO setting, Photographic Dynamic Range, and Shadow Improvement

You will find good reference here, thanks to [Bill Cliff](http://www.photonstophotos.net/Charts/PDR_Shadow.htm): ([http://www.photonstophotos.net/Charts/PDR\\_Shadow.htm](http://www.photonstophotos.net/Charts/PDR_Shadow.htm))

Meanwhile, if you have the specular highlights in a shot, let them go -- or you would be choosing a shot about two stops lower in exposure. That could be very dangerous noise-wise. Use the **OE overlay** to see what exactly is blown out in a shot, and if it is only specular highlights and light sources, don't discard the shot and don't look for a "better" exposed one.



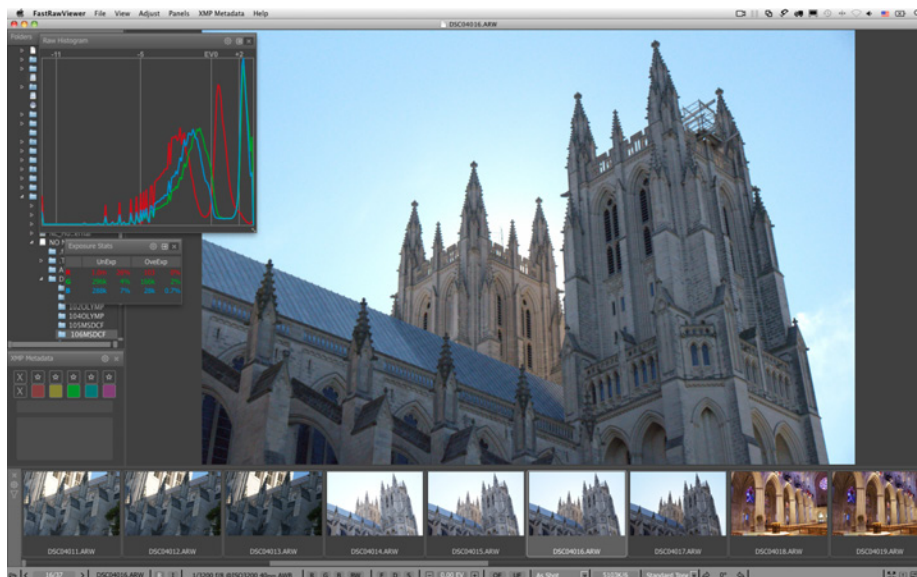
Let's look at the series taken at the odd ISO 3200. We know that the higher ISO the narrower the camera's dynamic range. The dynamic range of this camera at ISO 3200 is approximately 5.5EV. So to get the correct statistics and UE indication we go to *Preferences* and change *Underexposure detection limit below sensor saturation* to 5.5EV.



*Figure 19. Changing the Underexposure Detection limit*

Shot 4015, ... shot 4016, ... shot 4017....

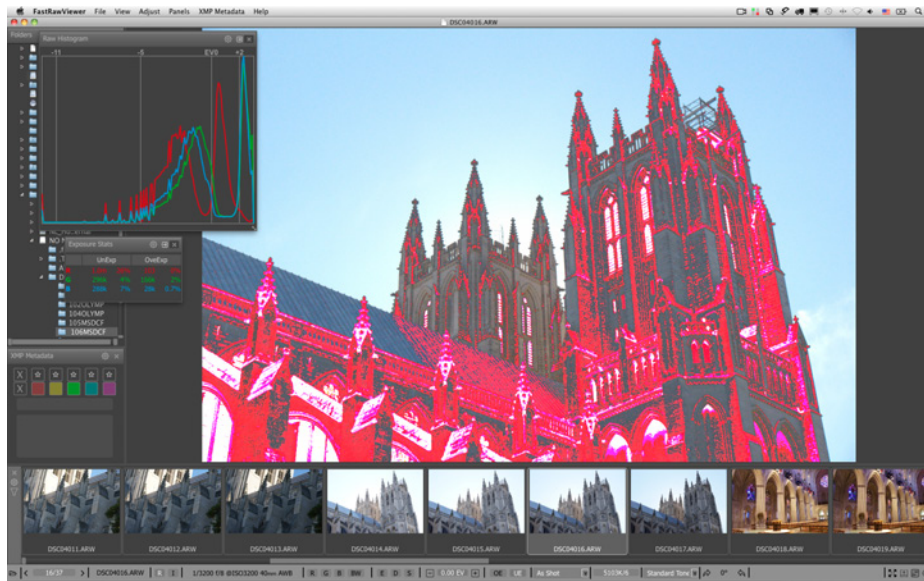
Though shot 4016 looks better than others, we do have 26% of underexposed pixels in the Red channel:



*Figure 20. Shot 4016. Raw exposure statistics show 26% of underexposed pixels in the Red channel*



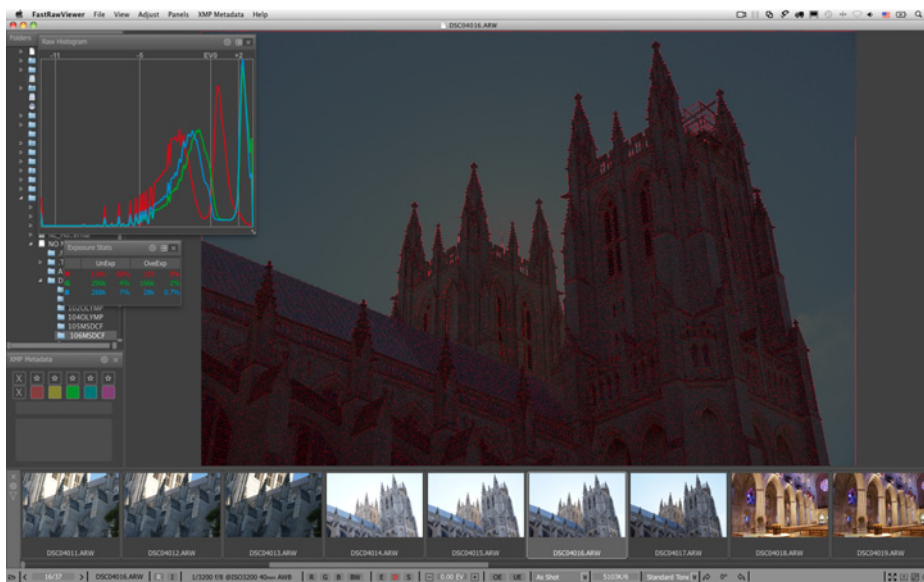
Look also at the area covered with UE indication:



*Figure 21. Shot 4016, Underexposure indication is On*

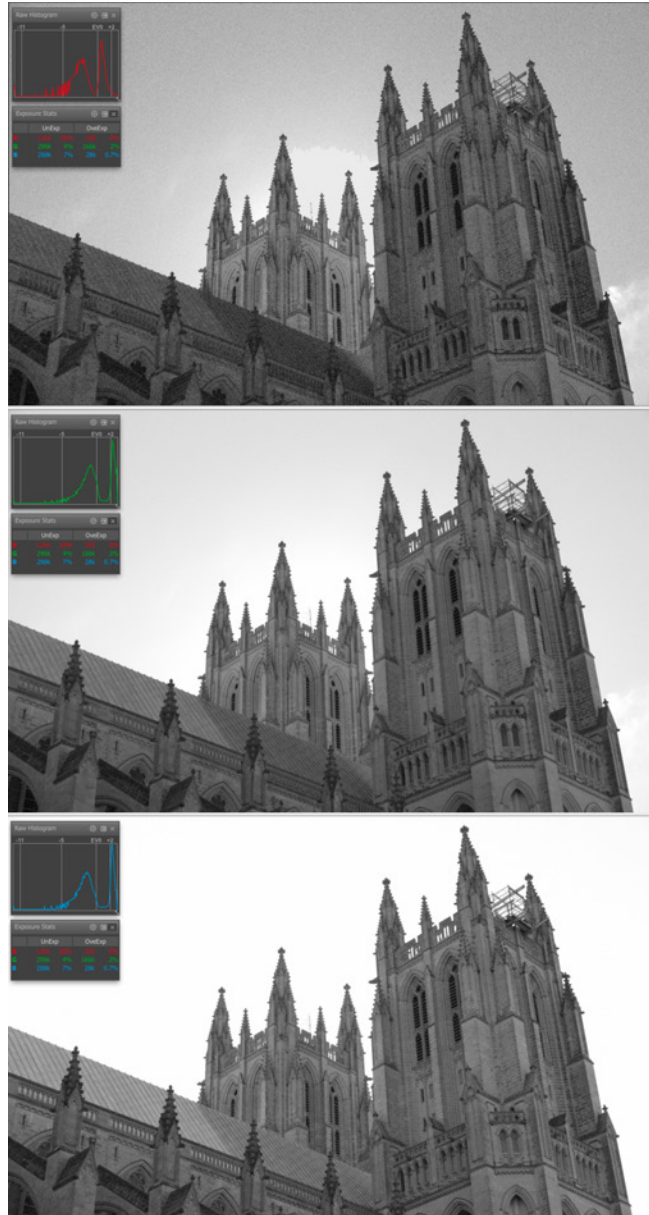
Such an amount of underexposed pixels means rather high noise, at least in the red channel.

This is exactly what we will see in 'D' mode of Focus Peaking. These red ants, covering the cathedral's walls, are noise.



*Figure 22. Shot 4016, Focus Peaking, Detail mode*

We can also see that we have a rather high level of noise by looking at channels separately - red, blue, green. While blue and green don't have visible noise, the red channel doesn't look so good.



*Figure 23. Shot 4016, per-channel views*

If we want this shot anyway, we'll keep it, but we will remember to never use such low exposure for this camera, and also remember that bumping ISO here is not an answer – it only results in limiting our exposure choices through the clipping of highlights.

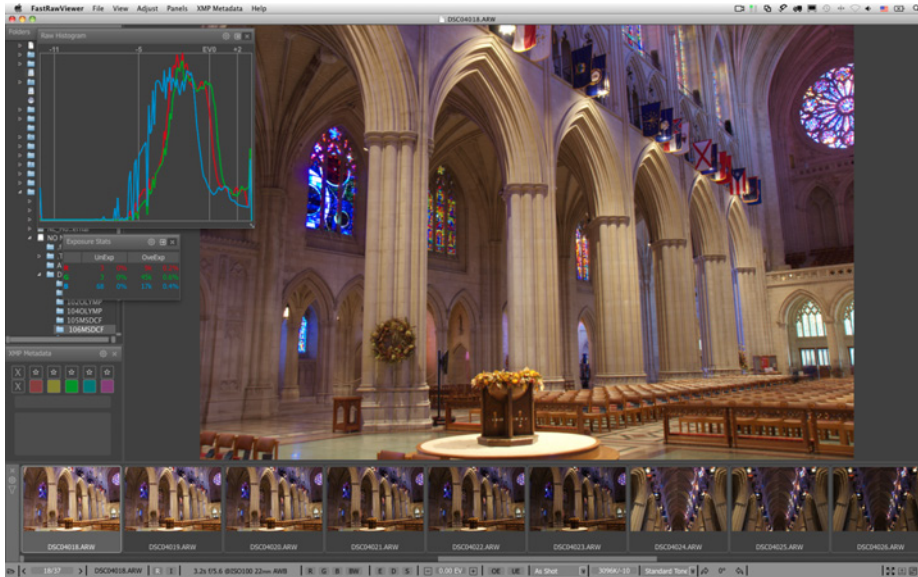
We assign the label *Retouching Needed*, and give it some **Title** and **Description**.

Were this series taken at ISO 200 and a shutter speed of 1/200th of a second (*no problem with handholding for a 40mm lens with this shutter speed*), the noise would be significantly lower as the exposure for 1/200th of a second is 16 times higher than for 1/3200th of a second. Compromising on the exposure "only" 8 times higher, we could have used 1/400th of a second for the shutter speed, still much less noise and no blown-out highlights at all.

Let's now move inside the Cathedral.

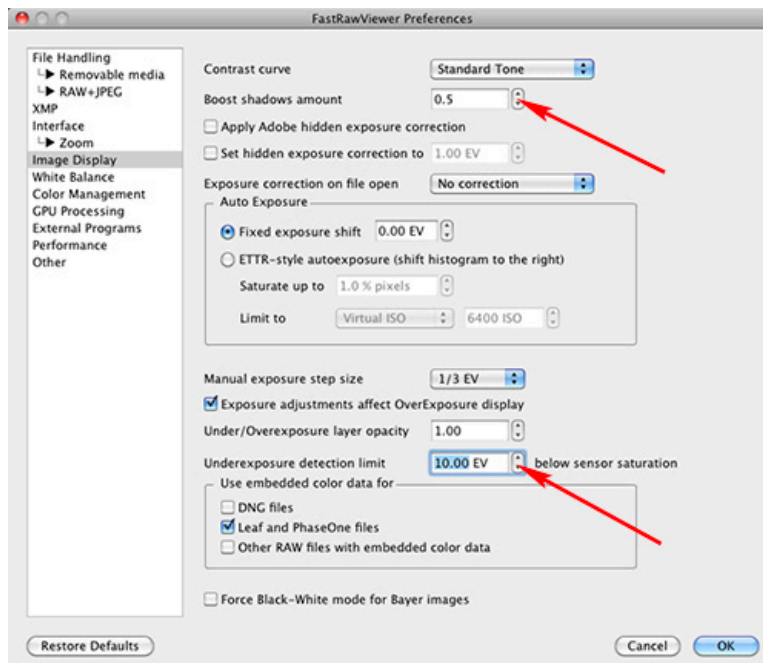
The scenes inside a cathedral typically have deeper shadows compared to the scenes shot outdoors.

Here we have a series of shots of a scene with an even higher dynamic range - we have both sun-lit stained-glass windows and more or less deep shadows, which are important for the composition of the shot and need some level of details. This means that we will probably always have some over- and some under-exposed pixels.



*Figure 24. Inside the Cathedral*

First of all we need to adjust the Shadow Boost accordingly. We recommend setting the Shadow Boost amount for such scenes to 0.5. So we did. Also, we're going to set the *Underexposure detection limit below sensor saturation* to 10EV, because the ISO is 100 again.



*Figure 25. Changing the Shadow Boost amount and Underexposure Detection limit according to the scene's dynamic range*

Let's try to pick the shot where we have an acceptable exposure balance: exposed to the right as much as possible but with the percentage of blown out pixels not exceeding 1% in every channel (*better if less*). With 1% of blown-out pixels we still have a good chance of highlight recovery to do a decent job in raw conversion. Nevertheless, limiting the blown-out pixels to 1 channel only, and not in excess of 0.3% to 0.4%, is recommended for non-neutral subjects. However, as a routine, overexposure and clipping are ignored for any specular highlights, direct light sources, subjects to be cropped off, and insignificant parts of the composition. Watch the OE overlay in addition to the statistics to see what parts of the image exactly are clipped due to overexposure.

We can formulate the exposure balance criteria in a different manner: we will consider the exposure to be the best available if on a less exposed shot shadows are significantly worse while the shot doesn't provide any significant improvement in the highlights: and vice versa, a "hotter" exposed shot resulted in the significant increase of the number of blown-out pixels in important areas of the shot, while not providing any significant improvement in shadows.

For this series we will show that when choosing a keeper we also must take into consideration what we are going to do with the image in further processing.

We will move from shot to shot and look at RAW statistics and over- and under-exposure overlays.

Shot 4018 fits the first part of our criteria "not more than 1% overexposed pixels", but is a little bit outside of the second part, "limiting the blown-out pixels to 1 channel only, and not in excess of 0.3% to 0.4%". Let's turn on the overexposure overlay... This hotspot on the table might be recovered at the raw conversion stage. The only problem I see here is that we've nearly lost the colors on the left-most stained-glass window - they are heavily blown-out. So if we are ready to rely on the highlight recovery mechanisms in a raw converter, and are ready to touch-up the stained-glass windows, we can keep this shot. But let's see what we got by decreasing the exposure.

We turn on *Underexposure overlay* - to immediately see which areas are affected - and continue to move forward...

For shot 4019 (-1/3EV) we see some improvements in the highlights – a decrease in the percentage of overexposed pixels (*from 0.6% to 0.3% in green channel*) and teeny-tiny increase in the percentage of underexposed pixels (*0.01% in blue channel*). Shot 4020 (-2/3EV). We again decreased the percentage of overexposed pixels a little bit (this time in the red and blue channels) and again increased the percentage of underexposed pixels by a teeny-tiny amount (*to 0.05% in blue channel*). The underexposure indication shows that the underexposed areas are really insignificant.



Moving to shot 4021 (-1 EV) we see that the percentage of overexposed pixels is insignificantly changed and only in the green channel, while the percentage of underexposed pixels starts to increase substantially (*from 0.05% to 0.3% in blue channel*). This means that shot 4020 is a threshold - decreasing exposure won't make any good in highlights but will definitely worsen the shadows.

Exposure Stats					Exposure Stats				
	UnExp		OveExp			UnExp		OveExp	
<b>R</b>	3	0%	9k	0.2%	<b>R</b>	4	0%	8k	0.2%
<b>G</b>	3	0%	45k	0.6%	<b>G</b>	1	0%	28k	0.3%
<b>B</b>	68	0%	17k	0.4%	<b>B</b>	476	0.01%	15k	0.4%

Exposure Stats					Exposure Stats				
	UnExp		OveExp			UnExp		OveExp	
<b>R</b>	14	0%	6k	0.1%	<b>R</b>	170	0%	4k	0.1%
<b>G</b>	5	0%	23k	0.3%	<b>G</b>	32	0%	17k	0.2%
<b>B</b>	2k	0.05%	13k	0.3%	<b>B</b>	11k	0.3%	10k	0.3%

Figure 26. Raw exposure statistics, shots 4018 .. 4021

Let's use Shadow Boost to determine what we have in shadows. We see that we have plenty of details in shadows both for shot 4019 and 4020.

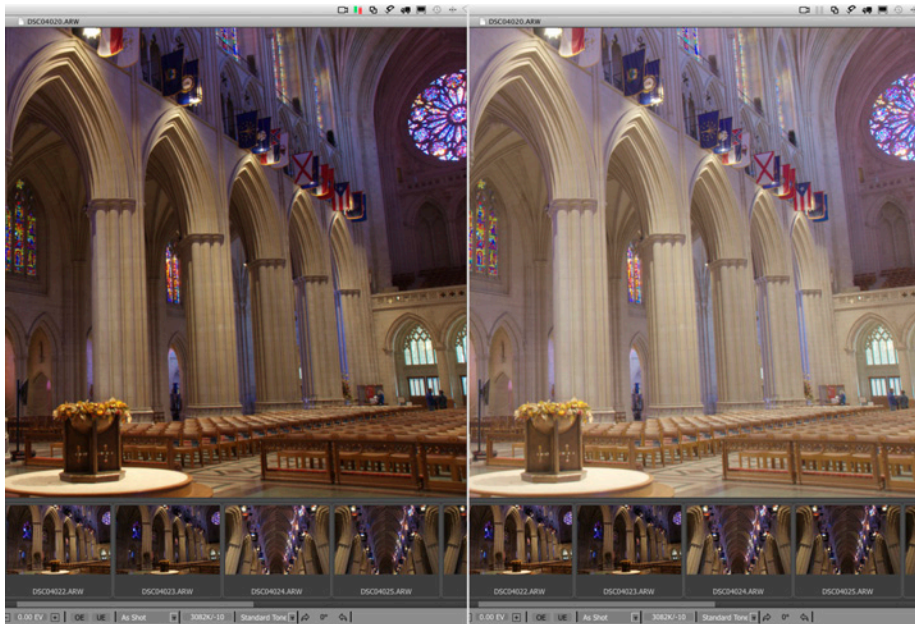


Figure 27. Shot 4020 – untouched (left), Shadow boost applied (right)

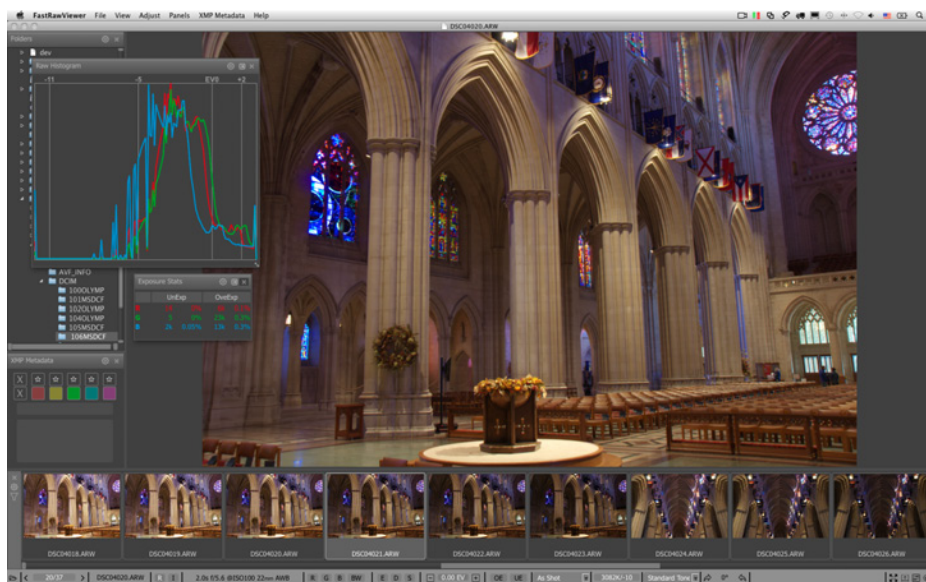
As for the noise, it is mainly in the blue channel (*let's zoom, and switching per channel views...*) See? The red and green channels don't have any noise, while the blue channel has some. Not of any significance though.



*Figure 28. Shot 4020 – per-channel view (left), per-channel Focus peaking, Detail mode (right)*

So if we do not want to work on the highlights in a raw converter, we will, probably, choose shot 4020.

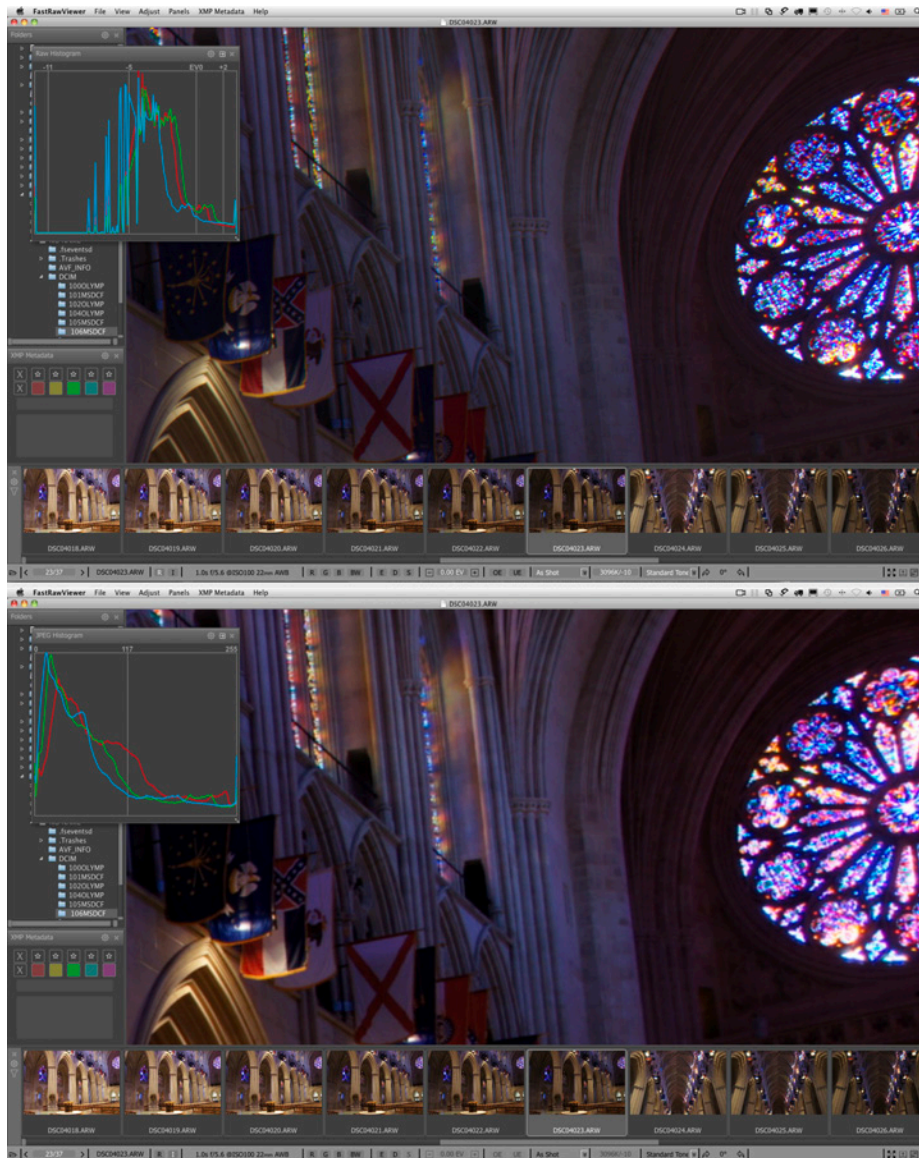
If we are going to compose an HDR we will keep shot 4018 with 0% of underexposed pixels and shot 4023 with minimal available percentage of overexposed pixels.



*Figure 29. Shot 4023*



But if we were using embedded JPEGs for culling RAW we would probably disregard shot 4023. Why? Let's zoom this shot and look at the stained glass window above the entrance door. Of course, it is not the best possible sharpness, but it is a useable situation. Now look at this window on the embedded JPEG. Impressive blur. Would you keep this shot based on JPEG preview? I doubt it.

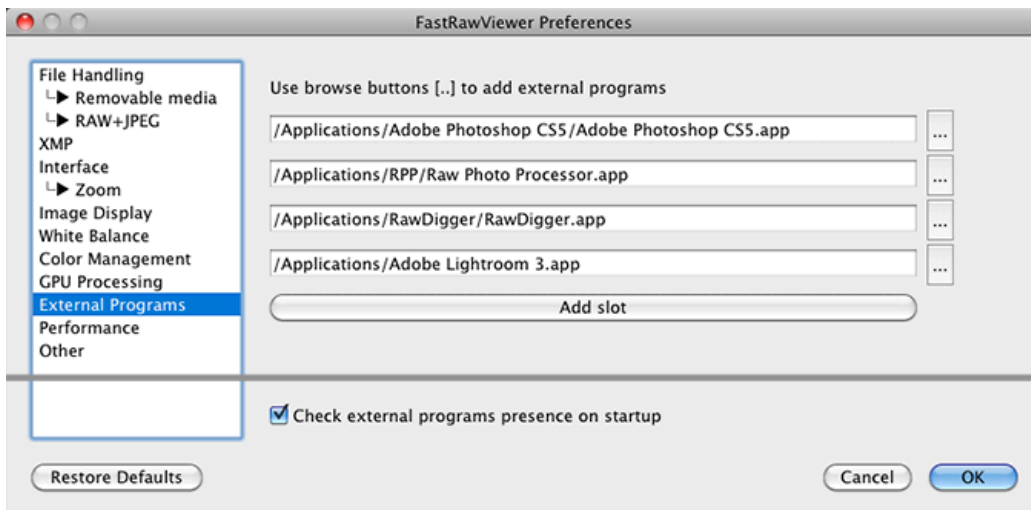


*Figure 30. Shot 4023, zoomed in – RAW (top), embedded JPEG (bottom)*

This JPEG "unsharpness" (*while the original RAW is sharp enough*) is most dangerous with SONY cameras, where the embedded JPEG has 1616 pixels along the longest dimension, less than many of today's monitors. So when you are zooming into such a JPEG, it gets more and more blurred, providing the wrong impression of RAW, which in fact might be quite sharp.

For this scene I would prefer the shot without people in it, and I am not going to compose an HDR here. But if I am going to recover highlights in a raw converter, will the final quality of the image be satisfactory? I can check that immediately – just run a raw converter directly from FastRawViewer.

Yes, we can run external program directly from FastRawViewer. Upon launch FastRawViewer detects raw converters, such as Adobe Lightroom, Adobe Photoshop, CaptureOne, on your computer and automatically sets them as available external programs. You can change them any time and/or add up to the total of 10 external programs.



*Figure 31. Choose up to 10 external programs to run directly from FastRawViewer*

Also you can set you preferred shortcuts to run each of these programs.



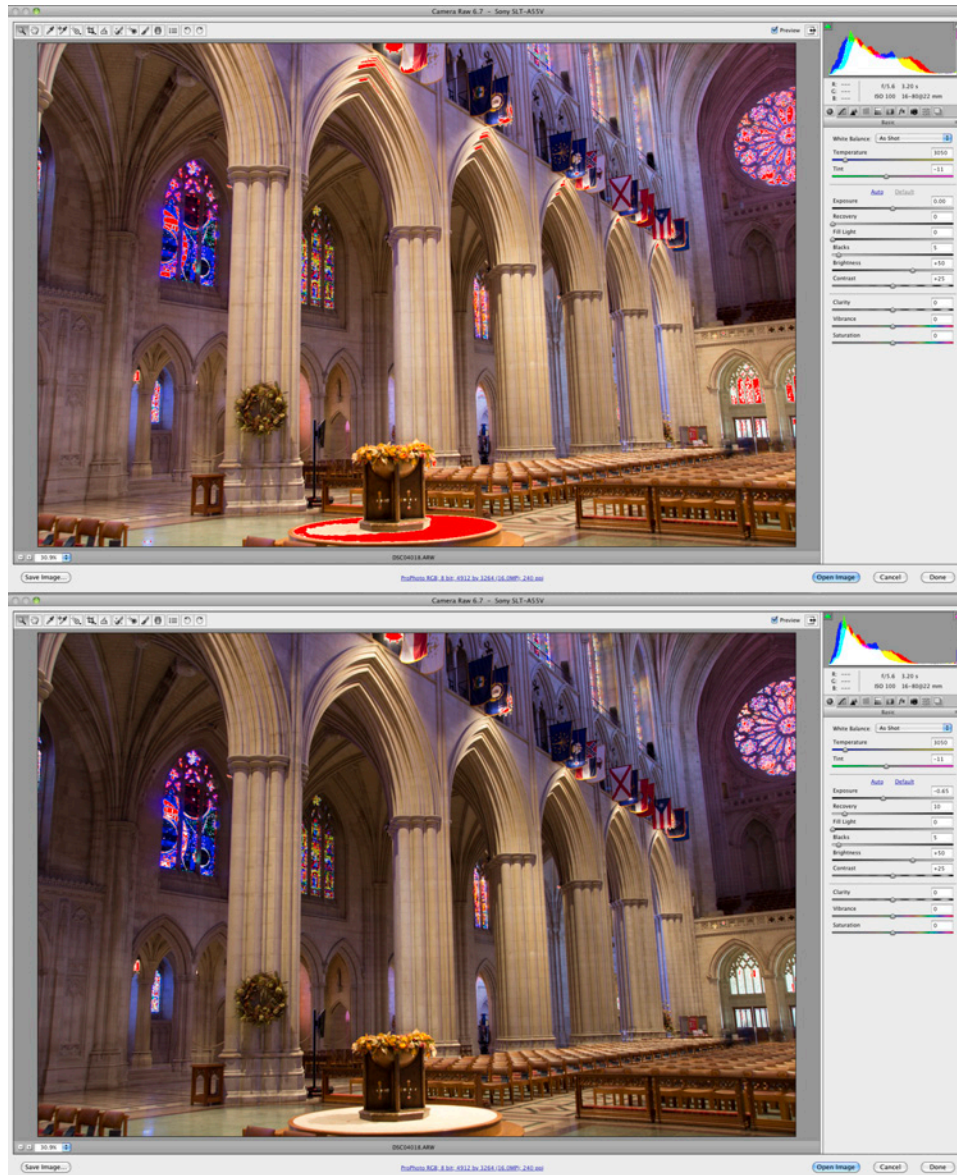
*Figure 32. Setting shortcuts to run external programs*

If I want to immediately check what can be done with some shot in a raw converter or evaluate this shot further in RawDigger, then while the shot is opened in the main window, I can just press the shortcut assigned to the desirable program.



In this case, when you're just checking one image in a raw converter, we recommend using a converter that doesn't create catalogs. I use Adobe Camera Raw or RPP. We need to counteract Adobe's hidden exposure correction, and also let's set Recovery to 10.

It looks like we can recover the highlights here with decent quality.



*Figure 33. Shot 4018. Recovering overexposed highlights in ACR*

So, I'll assign shot 4018 the Color Correction Needed label and keep it.

We would like to stress here one more thing. If we look at the RAW histogram, we'll see that the blue channel is behind the red and the green, which is typical for incandescent warm light. This means that the blue channel was exposed lower than the red and green channels.



*Figure 34. Shot 4018, Raw histogram, blue channel is lagging behind red and green channels*

Furthermore, per-channel view shows that the most of the details are in the red channel. If the shot was taken with a cyan filter on the lens, this filter would back off the red channel, and we would be able to increase exposure without the risk of blown-out pixels in the red channel (*figure 31*). So we would have gotten the green and blue channels exposed hotter, reducing the noise in shadows. Incidentally, longer exposure also helps blurring visitors. It may sound a little odd, but when shooting while having people in the scene, sometimes it is best to shoot when they are moving, to get that blur...

Next series. Here we want to preserve the way the light coming through the stained glass plays on the wall – right here, at the top of the hall. Of course we understand that by decreasing the exposure in order to preserve lamps' hotspots we win very little – look at the overexposure indication. This is typical for light sources and specular highlights. There is no point in saving them here; they are not the subject of the shot.



*Figure 35. Shot 4024*

Shot 4024 is the hottest one we have, and after recovering highlights in a raw converter it will be quite OK. Shot 4025 is a threshold – there is no point to move further along the way of decreasing exposure: we won't improve the situation with the highlights, but we will significantly worsen the shadows.

Exposure Stats		UnExp		OveExp	
R	1	0%	14k	0.3%	
G	0	0%	34k	0.4%	
B	229	0%	10k	0.3%	

**Shot 4024**

Exposure Stats		UnExp		OveExp	
R	89	0%	12k	0.3%	
G	0	0%	28k	0.3%	
B	2k	0.05%	9k	0.2%	

**Shot 4025**

Exposure Stats		UnExp		OveExp	
R	2k	0.04%	9k	0.2%	
G	31	0%	22k	0.3%	
B	13k	0.3%	8k	0.2%	

**Shot 4026**

Exposure Stats		UnExp		OveExp	
R	4k	0.1%	9k	0.2%	
G	247	0%	21k	0.3%	
B	25k	0.6%	7k	0.2%	

**Shot 4027**

*Figure 36. Raw exposure statistics for shots 4024 .. 4027*

We'll use Shadow boost again to make sure that shadows on both 4024 and 4025 are not all that noisy. They look quite safe.



*Figure 37. Shot 4025, Shadow Boost applied*

So, I'll assign shot 4025 the Color Correction Needed label and a 5 star rating, and copy it.

Next scene.

We have a scene with large areas of very deep shadows and extremely important bright highlights. If we want to get a good picture of the stained-glass window, preserving highlights even by means of sacrificing

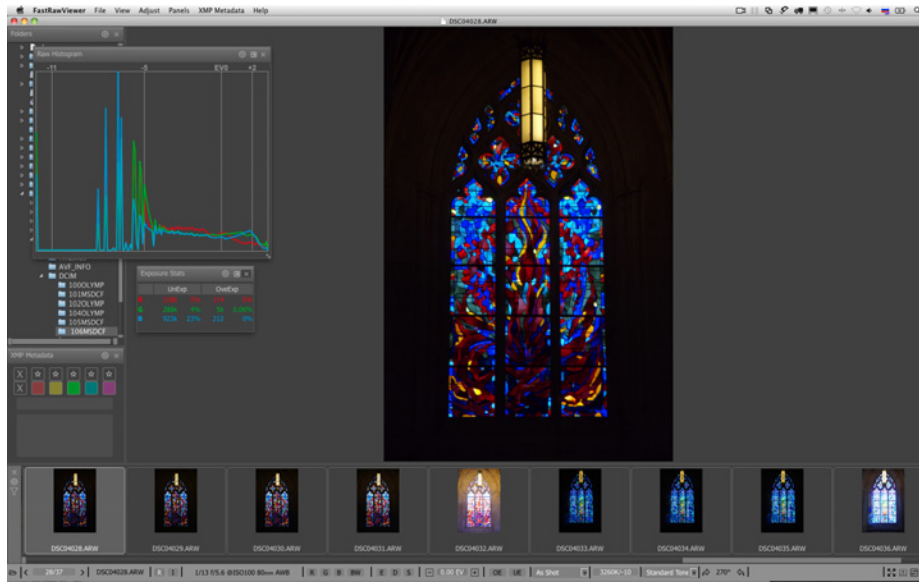


the arches' details in the shadows is crucial. Here we will adjust the shadow boost once again. For such scenes with big areas of very deep shadows we recommend setting the Shadow Boost to 0.8.

Here again we'll have to decide how we are going to deal with this scene later - are we going to get as much as possible from only one shot or we are going to keep a couple of shots and to compose HDR in Adobe Photoshop or another photo editing application.

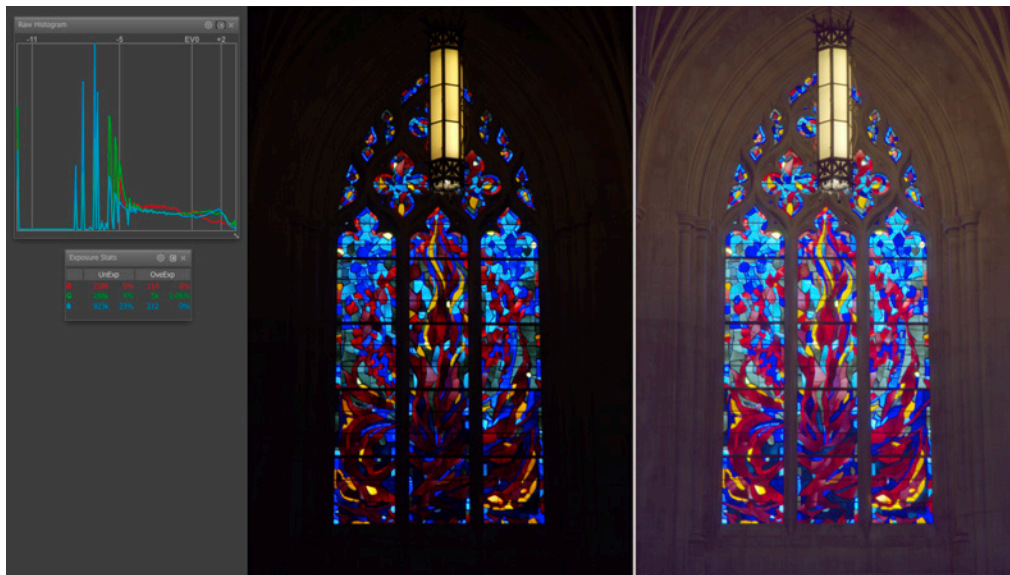
Let's move from file to file, looking at the RAW Exposure Statistics.

On shot 4028 the highlights are completely preserved – the histogram reaches the wall and is just slightly touching it, and Exposure statistics show close to 0% of overexposed pixels.



*Figure 38. Shot 4028*

The problem here is that in deep shadows white balance is distorted so it would be difficult to balance this shot properly. We can see that by using Shadow boost.



*Figure 39. Shot 4028 – untouched (left), Shadow boost applied (right)*

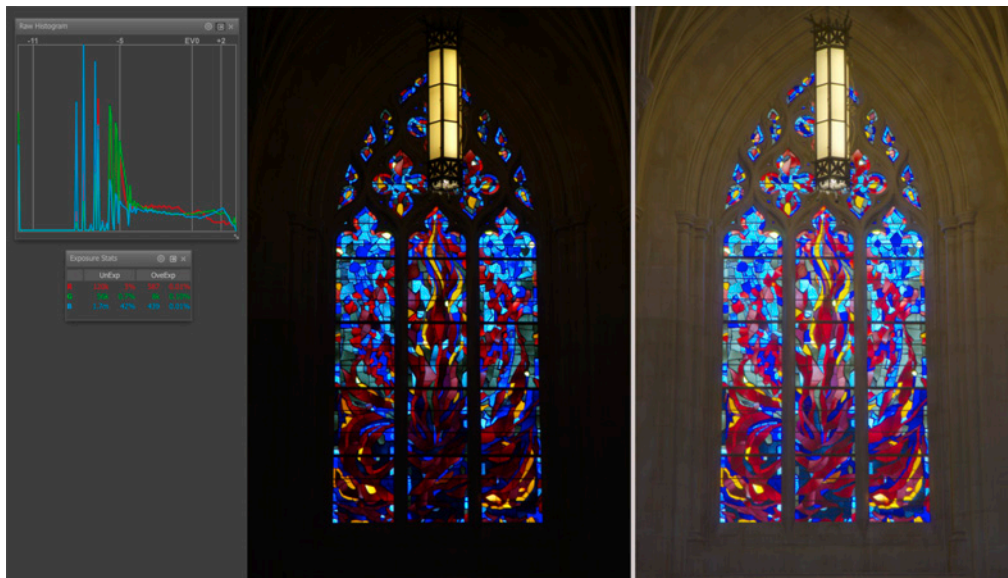
Deep shadow recovery is often limited by the irregular white balance, not just noise.

If we are planning to pick just one shot (*no HDR composing later*) shot 4029 is the best; the histogram is touching the right wall. Exposure statistics shows negligible percentage of overexposed pixels (*0.01% in red and blue channels and 0.1 in green channel*), the stained glass thus is captured in the full detail. But as you can see, the underexposure on the arches is huge.



*Figure 40. Shot 4029 – as it is opened (left), Underexposure indication is On (middle), Overexposure indication is On (right)*

Lets use shadow boost. We see that in reality we have a lot of details in shadows, and focus peaking in "detail" mode indicates that these shadows are not too noisy. So we can recover them somewhat during raw processing. We do not want them to stand out anyway, just enough to re-create the atmosphere.

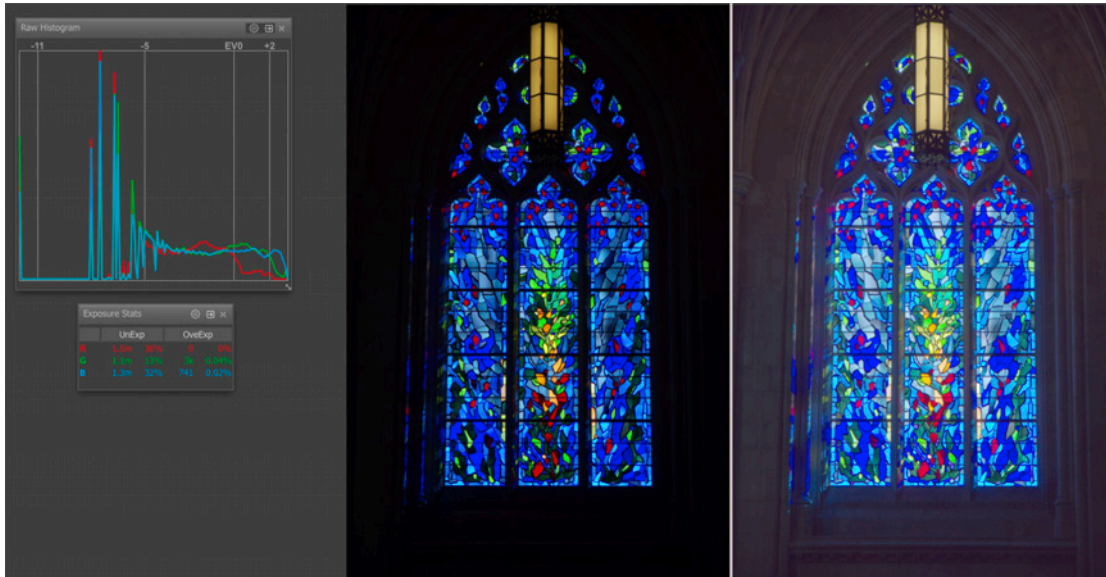


*Figure 41. Shot 4029 – Shadow boost applied (right)*



If we are going to compose an HDR, we will keep shot 4028 with the highlights and colors of the stained glass completely preserved, and also shot 4032 taken with 2s shutter speed with completely blown out highlights but 0% of underexposed pixels. I'm not going to make an HDR here, so we'll keep shot 4029.

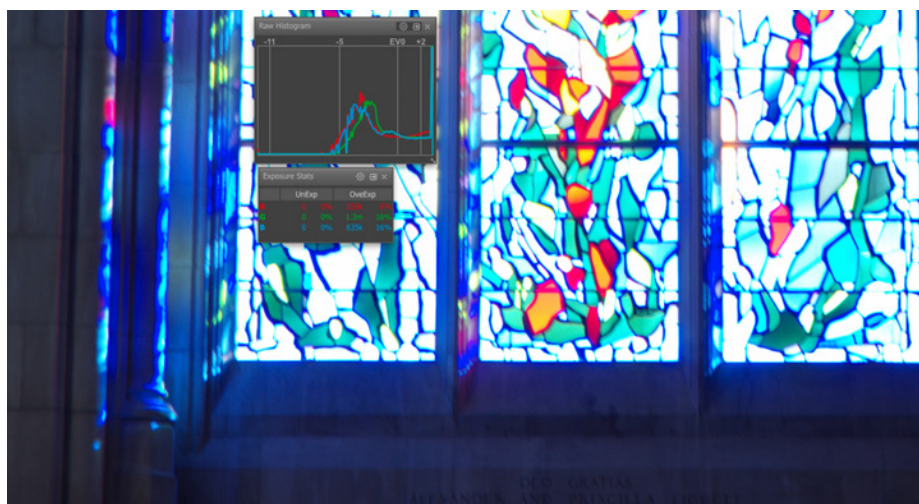
The situation is the same with the next stained-glass window. We keep the shot with the smallest percentage of overexposed pixels (4033). Shadow boost shows that we also have a lot of details in the shadows and not too much noise.



*Figure 42. Shot 4033 – untouched (left), Shadow boost applied (right)*

But let's keep 4036 too – in case we decide to compose an HDR from those two shots.

Note that we can't really use a hotter exposed shot (4037) because with higher exposure we are starting to get too much flare on the surrounding stone walls.



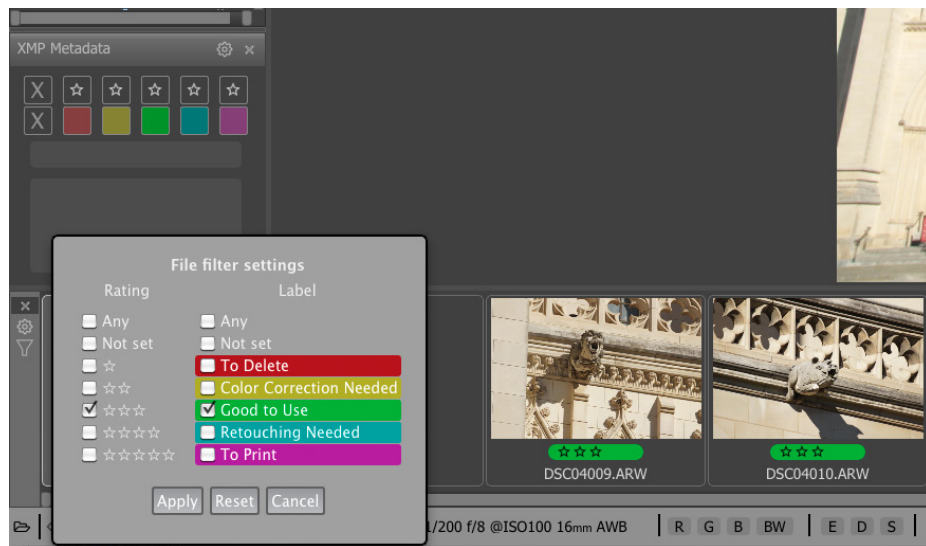
*Figure 43. Shot 4037, flare on the stone walls*



We now have a folder containing the results of the preliminary culling. We will open this folder and demonstrate a couple more raw-based tools allowing one not only to evaluate what can be done with the shot at raw conversion stage but also to speed up that stage.

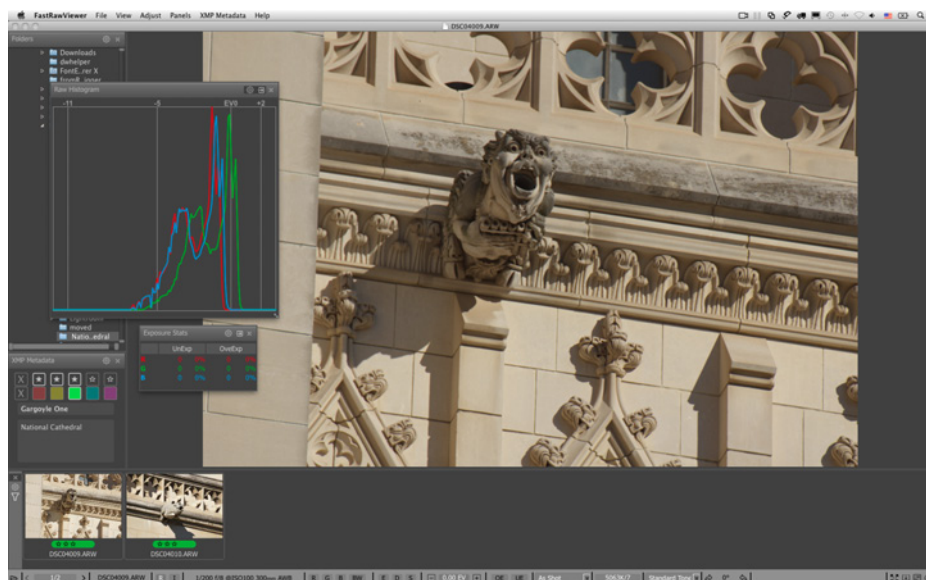
Do you remember the shots with gargoyles we were planning to have another look at – the ones that were underexposed but we kept them since we didn't have a better exposed ones? We assigned them the Good to Use label and a 3 star rating.

Since we don't have that many shots now, we can see all of them in the filmstrip. However, if we had a huge amount of shots, we could use a filter to select the shots we now want to work on. Press *Shift-F* and check the "Good to Use" field in the Label column and 3 stars in the Rating column in the opened panel. Press Apply...



*Figure 44. File filter settings*

Now we will be presented only with those files, which have both a *Good to Use* label and a 3 star rating.



*Figure 45. File filter is applied*

Here I want to show how to use another very useful tool provided by FastRawViewer, called **Propagation**. It allows you to apply the **Exposure Correction**, **White Balance**, and/or **Orientation** adjustments made to the first shot of a series to all proceeding shots of the series, significantly reducing the time used for processing a series of similar shots, such as panoramas, HDRs, different views of the same scene/object etc.

To propagate White Balance, we go to the **Preferences/White Balance**, from the drop down «White Balance for next file (same camera)» menu choose *Same as Previous*, and check «Keep custom white balance for next file (same camera)».

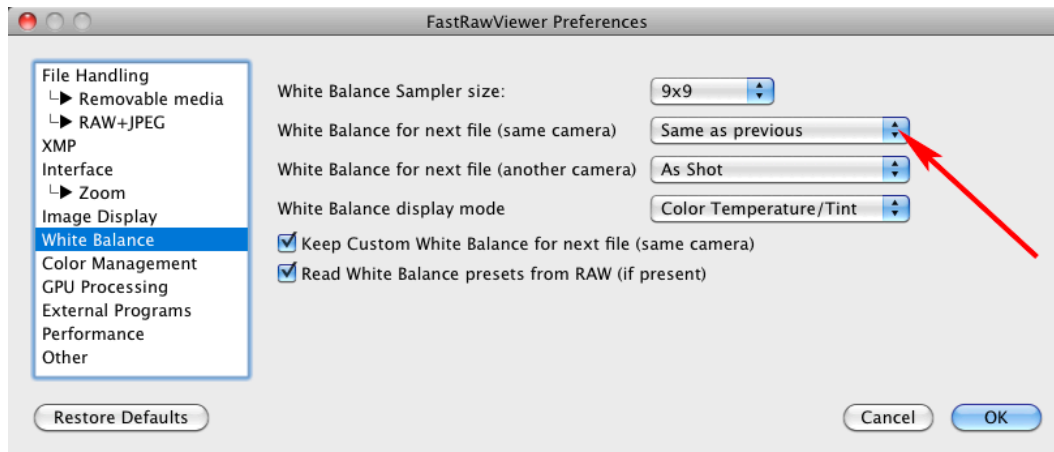


Figure 46. Propagation of White Balance settings

If we wanted to propagate Exposure Correction as well, we would open **Image Display** tab and from the drop-down «Exposure Correction on File Open» menu choose *Keep from Previous file*.

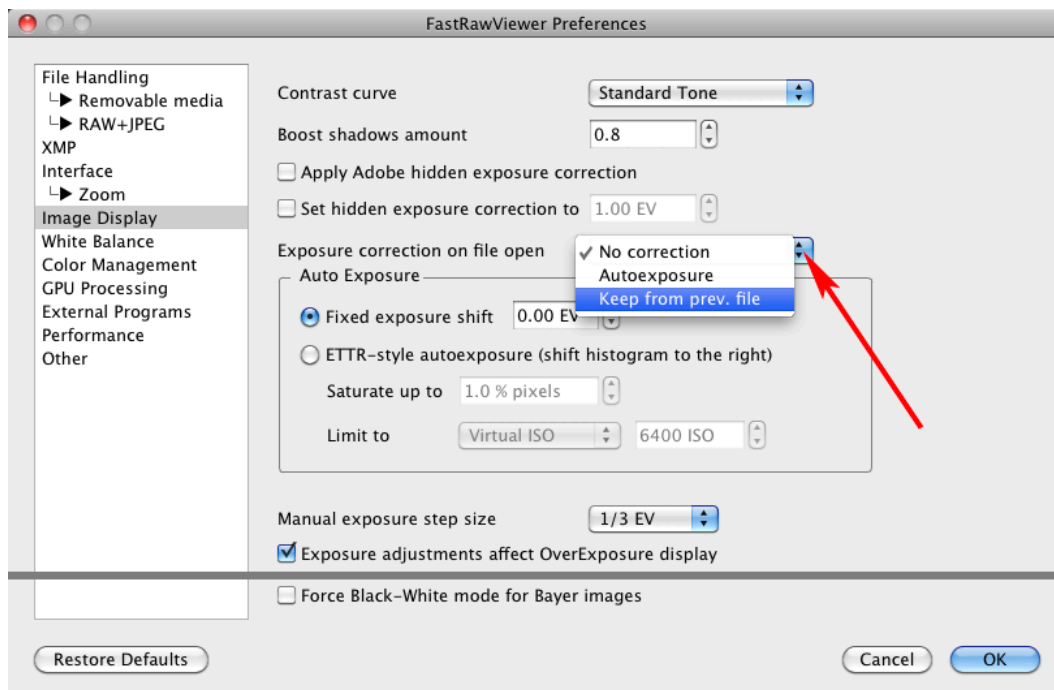


Figure 47. Propagation of Exposure Correction settings

Using the exposure correction tool, lets increase the overall brightness of shot 4009. While increasing exposure correction we look at the exposure statistics, paying attention now to the 'OE + Corr' column. By default this column appears when you start using the exposure correction tool, but you can change settings so that it will be always present (*just click on the gear icon and choose this option*). We increase exposure correction value (*Alt++ or here at the bottom bar*) according to the same rule as we had to a basic OE statistic – that is until the percentage of overexposed pixels in the 'OE + Corr' column in every channel does not exceed 1%. It is important to note – the raw data is not changed, and all the corrections can be easily undone – not only in FastRawViewer, but also in a raw converter.

We see that with an exposure correction of +1 1/3 EV we got exactly what we were aiming for.

Exposure Stats					Exposure Stats								
	UnExp		OveExp			UnExp		OveExp					
<b>R</b>	0	0%	0	0%	<b>R</b>	0	0%	0	0%				
<b>G</b>	0	0%	0	0%	<b>G</b>	0	0%	0	0%				
<b>B</b>	0	0%	0	0%	<b>B</b>	0	0%	0	0%				
<b>0 EV</b>					<b>+1/3 EV</b>								
Exposure Stats					Exposure Stats								
	UnExp		OveExp			UnExp		OveExp					
<b>R</b>	0	0%	0	0%	<b>R</b>	0	0%	0	0%				
<b>G</b>	0	0%	0	0%	<b>G</b>	0	0%	0	0%				
<b>B</b>	0	0%	0	0%	<b>B</b>	0	0%	0	0%				
<b>+2/3 EV</b>					<b>+1 EV</b>								
Exposure Stats					Exposure Stats								
	UnExp		OveExp		OE+Corr			UnExp		OveExp		OE+Corr	
<b>R</b>	0	0%	0	0%	0	0%	<b>R</b>	0	0%	0	0%	0	0%
<b>G</b>	0	0%	0	0%	135	0%	<b>G</b>	0	0%	0	0%	437k	5%
<b>B</b>	0	0%	0	0%	0	0%	<b>B</b>	0	0%	0	0%	0	0%
<b>+1 1/3 EV</b>					<b>+1 2/3 EV</b>								

Figure 48. Shot 4009 – Raw exposure statistics for different exposure correction values

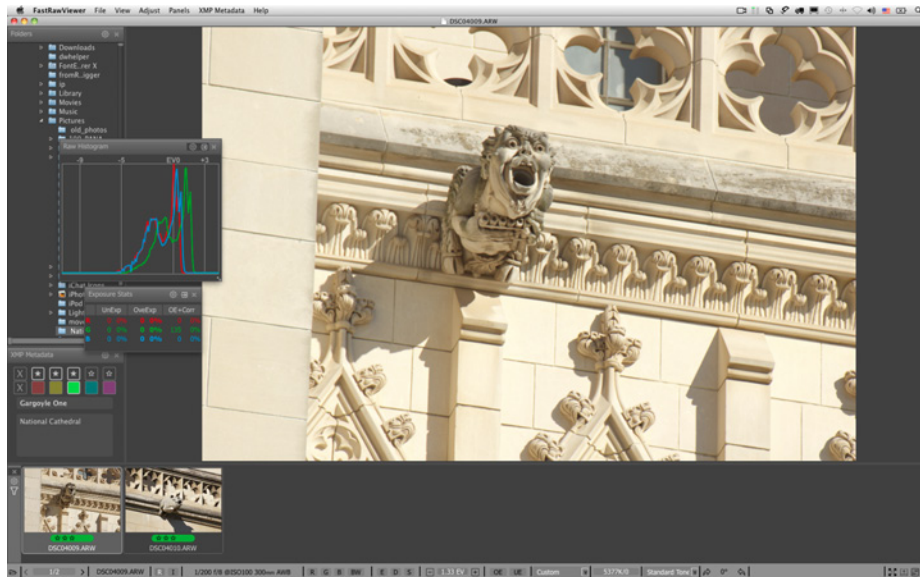
This exposure correction will be saved in an XMP file, so that the Adobe raw converter, or any other raw converter that honors XMP, will start from the corrections done in FastRawViewer, and we won't have to do it again.

Saving XMP files is the default option. You can always decline it by changing the settings in the Preferences.

Now we can apply white balance to this shot – we can try one of the *presets*, for example Daylight, also we can choose using *Color Temperature and Tint* (or *Color Temperature and Mired* if you prefer – just make the necessary adjustments in the Preferences).



I prefer to apply **custom white balance** to this shot – that is, *Alt-Click* on the area I know to be neutral.

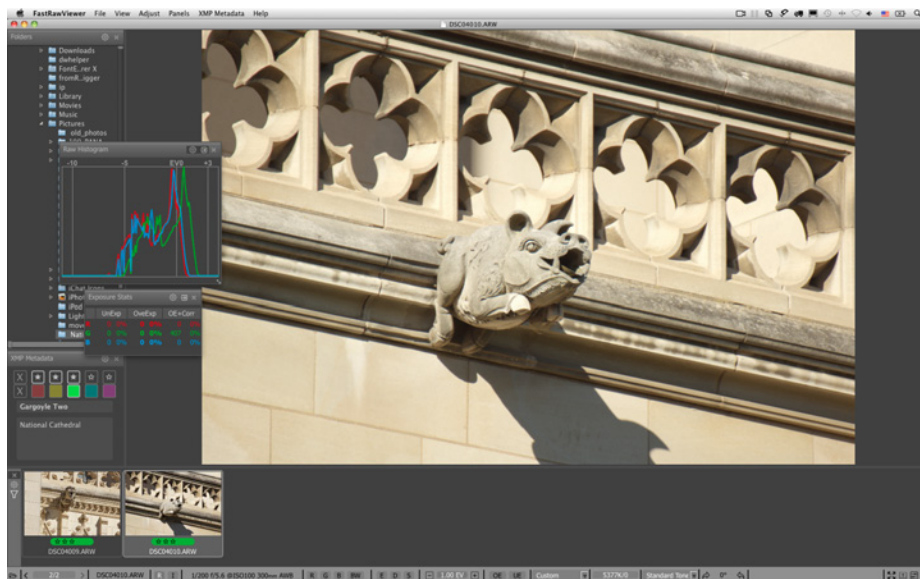


*Figure 49. Shot 4009, custom white balance applied*

This custom white balance will also be saved in the XMP file, and the shot will be opened in raw converter with this white balance setting.

And we add a Title and a description... As you can see I'm just giving an example of how one would go about doing this.

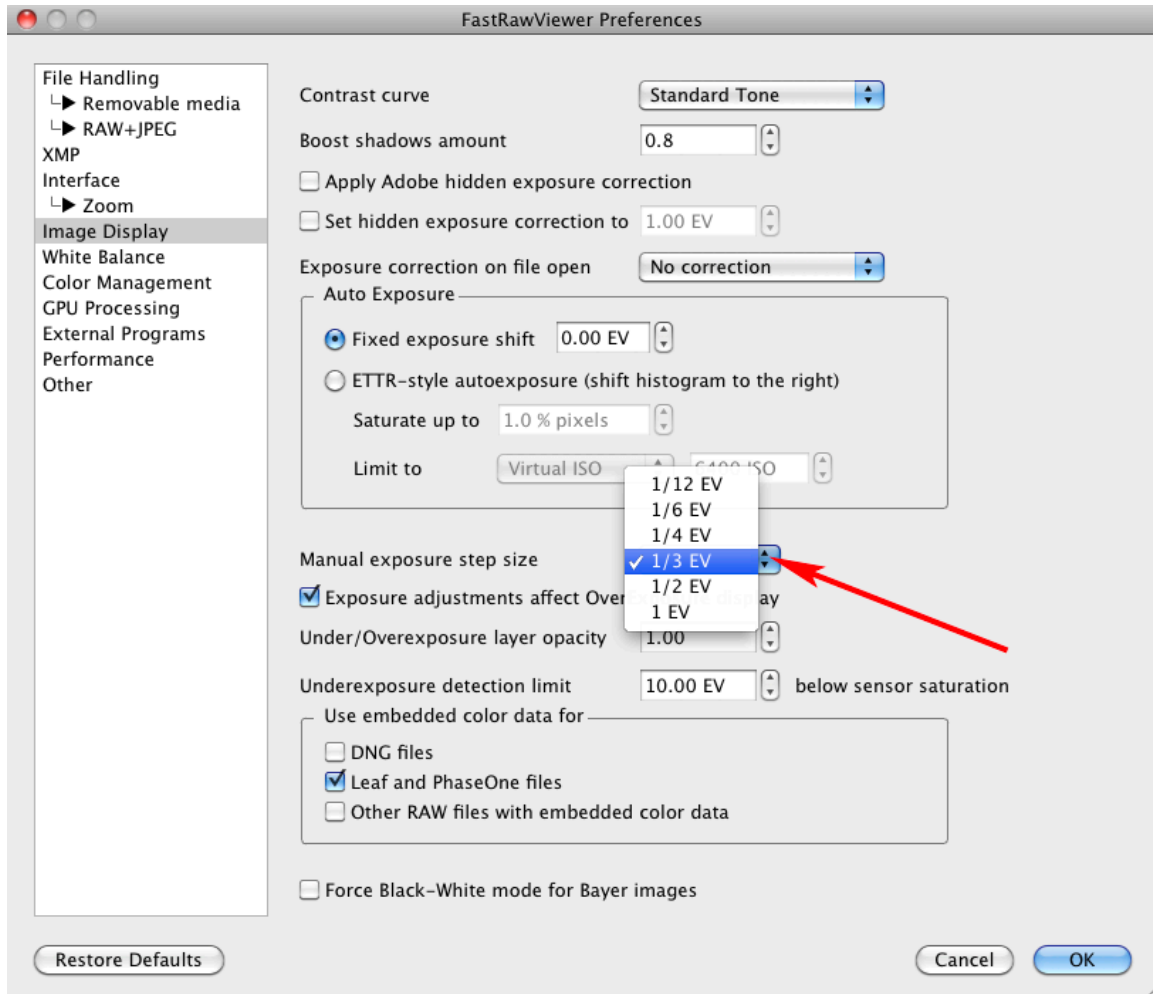
Let's do the same with shot 4010.



*Figure 50. Shot 4010. White balance is propagated (copied) from 4009*

Since we allowed White Balance propagation, the shot is opened with the same custom white balance as the previous one. So we need to choose proper exposure correction.

By the way, exposure correction step size you can change in the Preferences...



*Figure 51. Manually setting the exposure correction step*

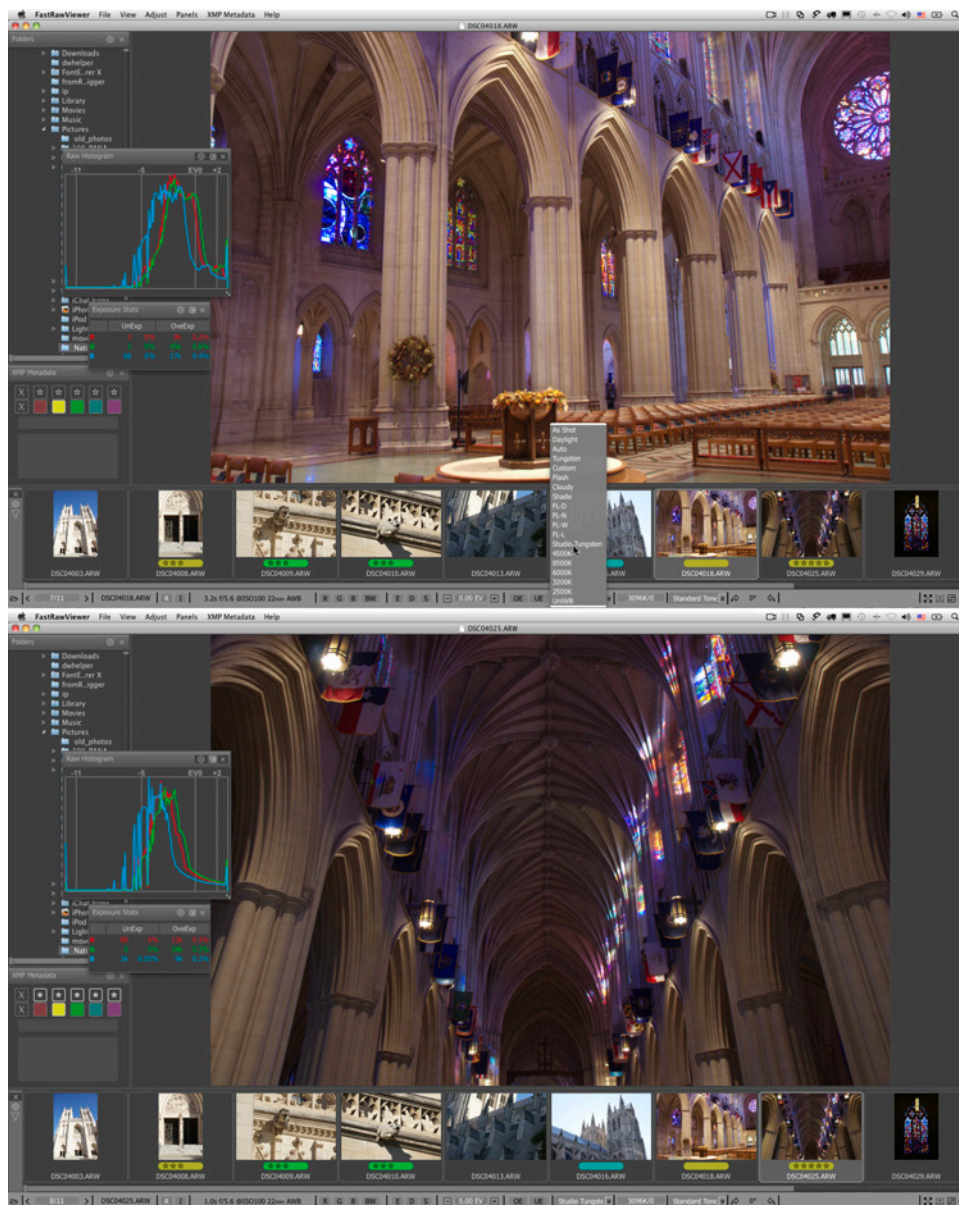
And add title and description...

As we can see, we can make basic adjustments – such as exposure correction, white balance, orientation if necessary – to all keepers.

We clear the filter settings, and going through keepers apply white balance and, if necessary, exposure correction.

Lets do this for shots 4018 and 4025.

We choose White Balance for shot 4018 and the same White balance will be propagated to shot 4025.



*Figure 52. Applying White balance to 4018, propagating to 4025*

Of course, if you have a limited number of keepers, you can apply white balance and exposure correction during the preliminary culling, but when I have a very large amount of shots, I prefer to do it in 2 steps, so as to not get bogged down.

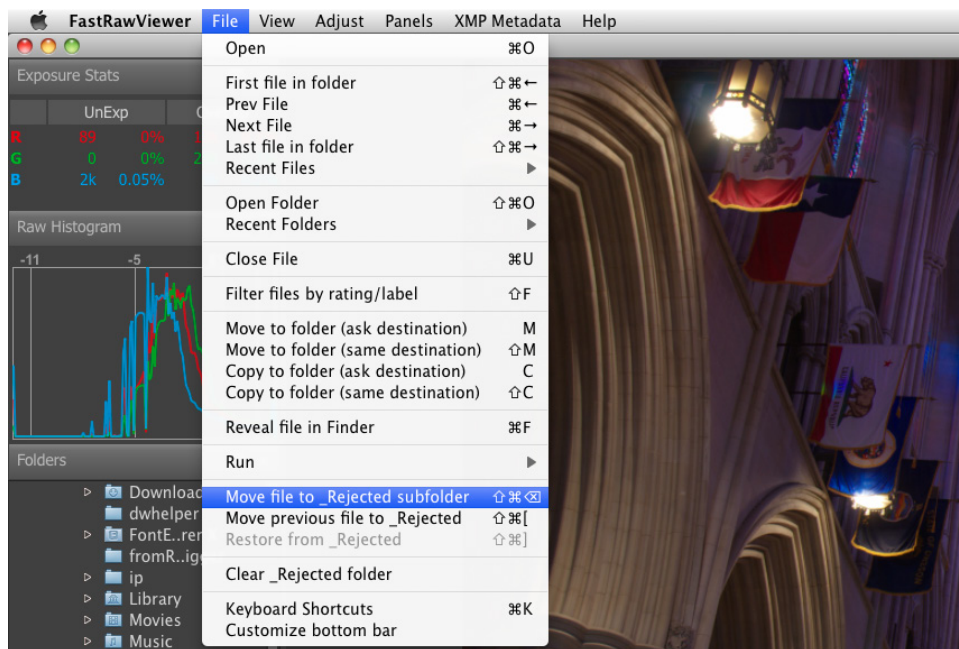


Since we have those files on the hard drive, we can safely move (*not only copy*) some of them into another folder.

You can move keepers to other folders. Same as for copying, for each shot being moved, you can choose or create a folder for the move (*press M*) or automatically move it to the same folder as the previous file was moved to (*Shift-M*).

Also since we are working with a hard drive we can move some shots, which we decided not to keep, into the ***\_Rejected subfolder***. This subfolder is created inside the folder we are working with.

As you can see the main operations with the ***\_Rejected*** subfolder also have keyboard shortcuts, which, as always, you can modify to your convenience. Any time later you can access the files moved to the ***\_Rejected*** subfolder, check them again, move out of ***\_Rejected*** those files that you decided to keep, and only when you are absolutely sure that you don't need files, which are left in ***\_Rejected***, you can Clear the ***\_Rejected*** subfolder.

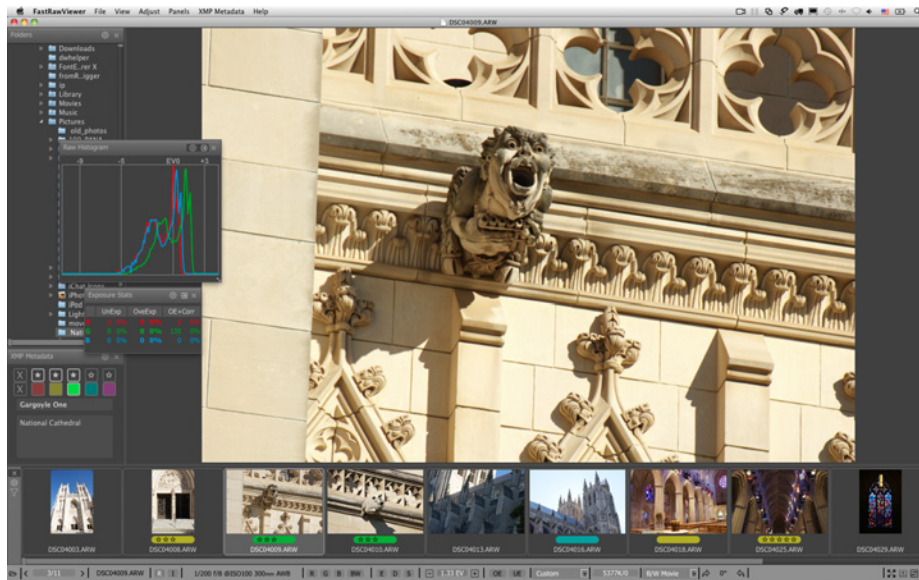


*Figure 53. Working with the ***\_Rejected*** subfolder*

When you clear the ***\_Rejected*** subfolder, the files therein are not deleted but rather moved to the Trash bin. This provides an additional security measure against accidental deletion.

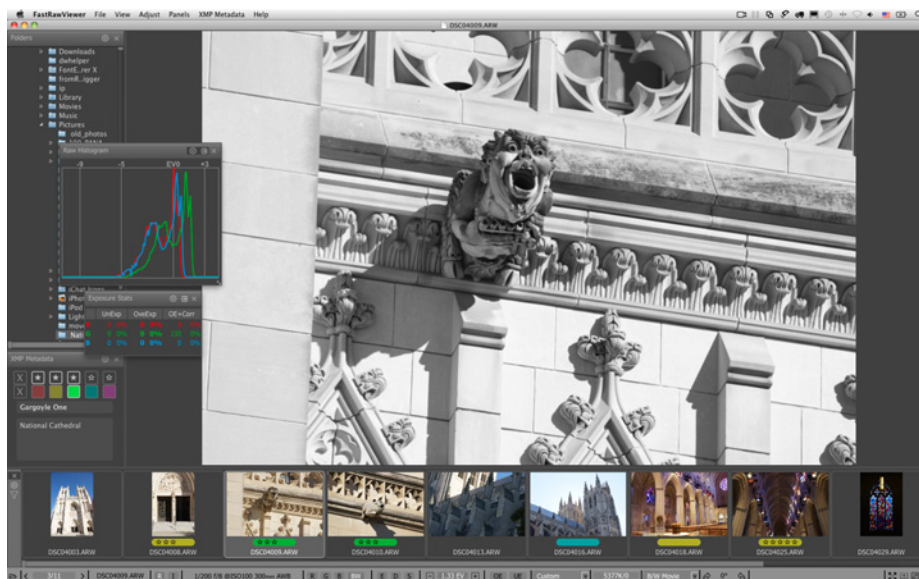
One more thing. We often hear that it is impossible both to see and to show RAW files, without converting them to another format - like JPEG, TIFF, etc. With FastRawViewer you can not only see and evaluate your RAW shots. You can present them to your customers, family or friends immediately. You can make some adjustments to an image display...

For example you can apply a **Contrast (tone) curve** to one of gargoyles – shots 4009 or 4010. As you see there are a lot of different presets here. I chose *Black and White Movie* because I'd like to add some contrast to the scene, or, if you want it a little bit softer, we can use *Standard Tone*.



*Figure 54. Shot 4009, contrast curve applied (Black and White Movie)*

Or look at the shot in **Black and White Mode**.



*Figure 55. Shot 4009, in Black and White mode*

So together with your customer you can choose and agree on the style of post-processing.

Finally we can import the folder with the keepers to Adobe Lightroom. Given that we have significantly reduced the quantity of files needing to be imported, and for the most of them we have already done some basic adjustments – exposure correction, white balance, orientation if necessary, XMP metadata – we have dramatically reduced both time and hardware resources, both necessary for processing files from the shooting session and dealing with catalog optimization later.

And please remember: when you are just starting with a new camera or you are shooting under such conditions that it is quite difficult to set the correct shooting parameters on-the-fly, you might need to shoot long series to choose the correct shot later. With FastRawViewer you can be sure that not only you will choose the best shot of the series but also that you will be able to do it fast.

Thank you for watching our video. And if you have any questions feel free to contact us:

**email:** [support@fastrawviewer.com](mailto:support@fastrawviewer.com)

**forum:** <http://www.fastrawviewer.com/forum>

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