1

Understanding Nikon Capture NX 2

Understanding how Nikon Capture NX 2 fits into your digital workflow is essential to having a good experience with the program. It is an amazing piece of software, but it's also limited in its scope. You can complete most important image-editing tasks in Capture NX 2, but you also need to understand when and where to take your images to other software packages.

This chapter is all about understanding how Capture NX 2 works with NEFs, JPEGs, and TIFFs. I'll cover traditional workflow in Capture NX 2, capture formats, output formats, and advantages to working with NEFs in Capture NX 2.

Overview of Workflow in Capture NX 2

Many people want to know where Capture NX 2 fits into their workflow. If you use other software packages such as Adobe Lightroom, Adobe Photoshop, or Apple Aperture, it can be hard to figure out whether you should start working with your images in Capture NX 2 or end with Capture NX 2. In order to figure out where to use the program, it's important to understand what Capture NX 2 does and what it doesn't do.

Capture NX 2 has excellent tools to help you improve color, contrast, and saturation. Figure 1.1 is a great example of how the program can quickly take a lackluster image and produce a winning photo with minimal effort. The photo on the left was the original shot from a Nikon D300. The photo on the right is what the shot looks like after a few quick fixes in Capture NX 2 using a *curve* and a few color control points.

One of the areas where Capture NX 2 doesn't do well is advanced retouching for portraits, skin, and texture because the new Auto Retouch Brush isn't as flexible as other tools that you might find in Photoshop. Also, Capture NX 2 doesn't have a way to copy parts of one image and paste them onto another image. For these types of image fixes, you really need to use another program, such as Photoshop. So, I use Capture NX 2 to improve the colors, saturation, and contrast, and then I use a program like Photoshop to finish off the image if there is more work to be done for retouching, cloning, and compositing. If I don't have to do any of this extra work, then I stay in Capture NX 2. If I do have extra work, then I start in Capture NX 2 and use the Open With command to open my photograph in Photoshop.

see also

Color management is discussed in Chapter 3 and control points are discussed in Chapter 8.

Figure 1.1

see also

The Open With command is discussed in Chapter 3.

Everyone has his or her own workflow, and trying to show a single workflow that fits everyone's style is an impossible challenge. However, there are some general guidelines that you can use to achieve better images.

In general, fix the big problems first and then work your way down to the small details. After managing their files, most photographers commonly start with the global fixes in order to make the overall image look good. Then, they move to the regional fixes to improve smaller areas independently. Next, they move to the pixel level for repairing dust or small discrepancies and then finally work to prepare the image for output. Table 1.1 breaks down the typical workflow for Capture NX 2.

see also

White Balance, Picture Controls, and Exposure Compensation are discussed in Chapter 4.

Global fixes

Global fixes are fixes that affect the entire image. This includes tools such as White Balance, Picture Controls, and Exposure Compensation, because they impact all areas of the image equally. Global fixes typically can't be applied to specific areas of the image.

Regional fixes

Regional fixes are applied to selected areas of your photograph, like the sky or a grassy field or a person's face. You use regional fixes when one part of the image is underexposed or the wrong color. The great thing about Capture NX 2 is that it excels at regional fixes by using the Color Control Points and the Selection Tools. In fact, the Color Control Points and the Selection Tools are the primary reasons why I use Capture NX 2 in my workflow. It is easy to make quick selections and selectively apply fixes to photographs. In other programs, it can sometimes take hours to successfully mask an area of a photograph. Now, with the new Nikon Capture NX 2 U-Point technology, you can almost simply click on the region you want to fix, and voila! Area fixed.

Table 1.1
General Workflow Approach

Step	*Description*	*Tools*
1	Manage Files	Browser, Keywords, Sorting, Filing, Filtering
2	Global Fixes	White Balance, Picture Control, Curves, Exposure Compensation, Highlight Protection, Black/Neutral/White Points, and so on
3	Regional Fixes	Color Control Points, New Steps, Selection Tools
4	Pixel Fixes	Auto Retouch Brush
5	Preparing for Output	Cropping, Sizing, Sharpening, Soft Proofing

Figure 1.2 demonstrates how easy it is to make a selection with a control point and modify the photo. In this case, I converted the image to black and white and then used a Selection Control Point to keep the leaves their original red color. It could take hours to do this using other software packages. In Capture NX 2, it's quick and easy.

note

The U-Point technology has completely changed my workflow. Being able to click a button and then have the software (seemingly magically) select exactly the thing I want to edit is a huge deal for a working photographer. It means that I can spend one minute on a task that used to take ten minutes in other programs. U-Point technology is discussed in Chapter 8.

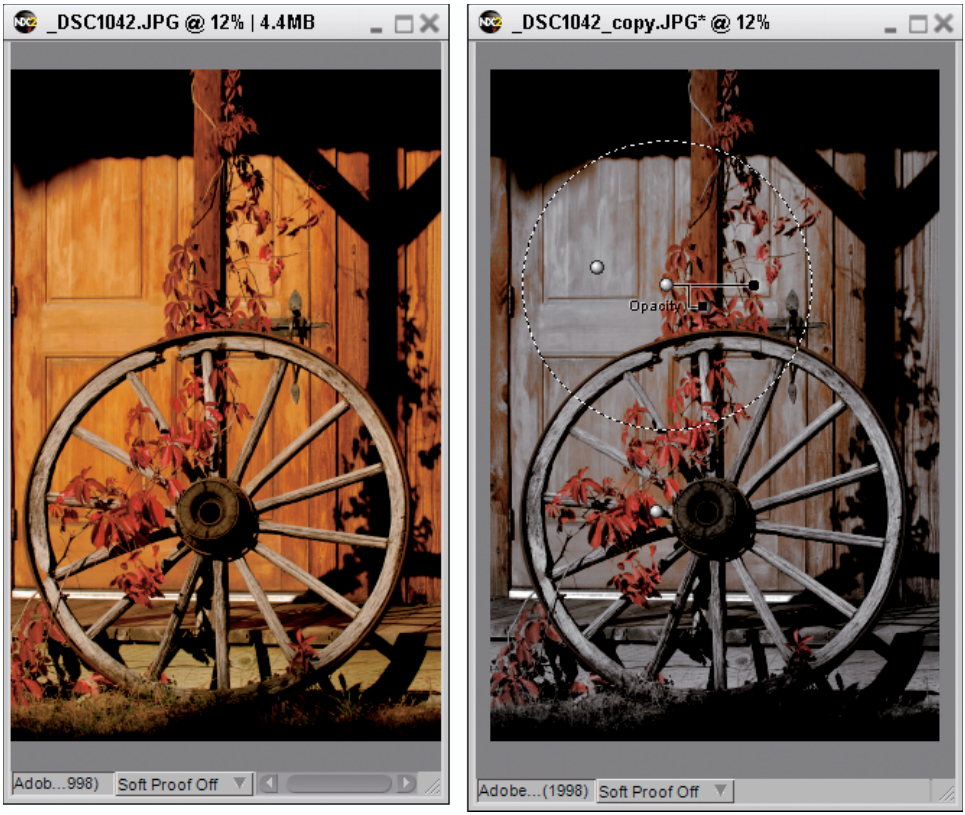

Figure 1.2

Pixel fixes

The next step in your workflow is to fix the small, pixel-level problem areas in your image. *Pixel fixes* are typically used for getting rid of dust in your image. However, there are many other reasons for doing pixel fixes, such as removing acne on a teenager's face, removing a power line from the corner of the image, removing a jet contrail from the sky, or getting rid of trash in your background. Figure 1.3 shows the before and after on an image in which a pixel fix was used to remove the price stickers on some pumpkins at a grocery store. The Auto Retouch Brush did a great job of removing the white stickers and repairing the pumpkin color and texture.

Previous to the release of Capture NX 2, prior versions of Nikon Capture were missing a healing tool or a repair tool. Wisely, Nikon created a new tool called the Auto Retouch Brush that helps solve some of our pixel-level problems.

see also

The Auto Retouch Brush is discussed in Chapter 8.

Preparing for output

Preparing for output is the final step in your workflow, and it requires the use of a number of actions such as cropping, resizing, sharpening, and soft-proofing. Figure 1.4 shows a resizing step in Capture NX 2 that makes the original photograph into a 4-x-6-inch photograph.

Now that Capture NX 2 has the Auto Retouch Brush, you can complete many pixel-level fixes inside NX 2 rather than having to go to Photoshop, which saves significant time. Also, because you're still in NX 2, you can output your document for print right from the program. I would guess that for about half of my images, it is possible to start and end in Capture NX 2. The other half of my photos need to be sent to Photoshop for further work.

see also

Preparing photos for output is discussed in Chapter 9.

Using the right file format can make all the difference with respect to your workflow. Capture NX 2 allows you to work with three file formats:

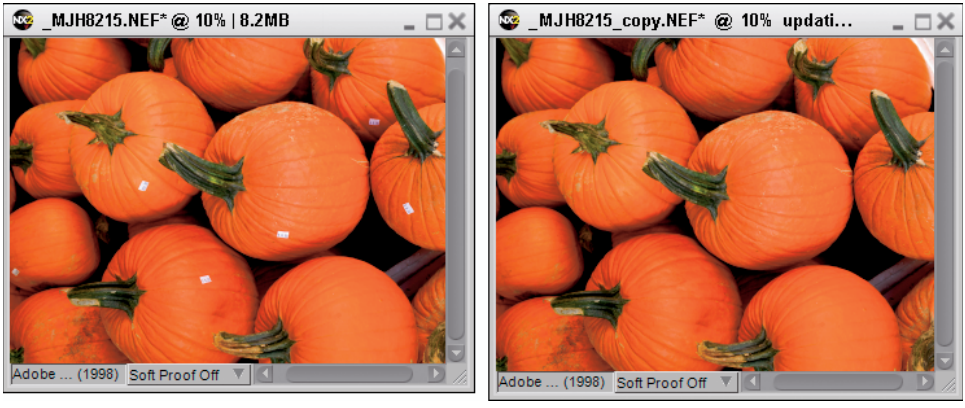

Figure 1.3

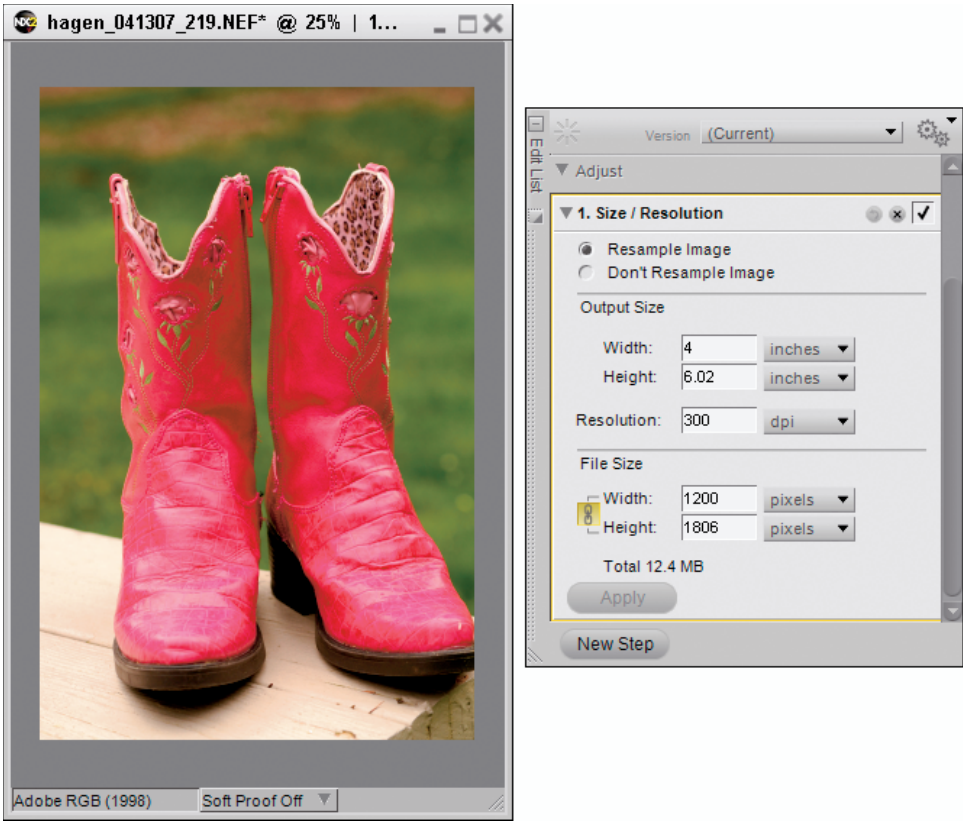

Figure 1.4

- **JPEG.** Joint Photographic Experts Group
- **NEF.** Nikon Electronic Format
- **TIFF.** Tagged Image File Format

There isn't a single file format that is always correct for every job. I lead a large number of workshops every year on digital photography, and at every workshop, I hear people state adamantly that you have to use RAW files in order to be a "real" photographer. I hear just as many other people adamantly defend their use of JPEG files.

The truth is that each file format has its strengths and weaknesses. I use just about all the file formats depending on my current needs for the project I'm working on. NEF (RAW) files are great for when you need ultimate flexibility to modify, improve, or enlarge your images. JPEGs are great for moving fast and creating quick content like slide shows, 4-x-6 prints, Web galleries, and so on. TIFFs are the preferred output format for magazines, books, and large prints.

I encourage you to fully understand each file format and then use the right format for the job. The next section will help you come to a decision about which formats fit your own workflow.

Capture Formats

The general term for the file format that you use when you take a photograph in your camera is the capture format. Don't confuse the terminology here between Nikon Capture NX 2 and a capture format. Capture in this sense is referencing the format you use when you take the photograph.

All Nikon cameras, including point-and-shoots and dSLRs, have the ability to shoot JPEG images. Most Nikon dSLR cameras have at least two file formats, and some Nikon cameras have three. Nikon entry-level and midrange dSLRs like the D60 and the D200 generally give you the choice to capture your images in JPEG mode or NEF. Nikon professional dSLRs allow you to shoot in JPEG and NEF (RAW) mode, as well as in TIFF mode.

Each type of file format can also be configured in multiple ways. For example, a JPEG can be configured to use high-quality compression along with a high pixel count. A RAW (NEF) file can be 12-bit RAW or 14-bit RAW, and each type can be compressed or uncompressed.

Each file format can be chosen inside your camera; in fact, making this decision is probably one of the more important decisions you'll make in your camera. Figure 1.5 shows the typical file format choices in the Nikon D300 camera menu.

Deciding which file type to use can be just about as difficult as figuring out how to use a new software package. I'll give some good recommendations a little later. In the meantime, Table 1.2 breaks down each of the capture file formats available in Nikon cameras.

Table 1.2
Capture File Formats

File Format	*Description*
NEF Lossless Compressed	RAW file using a fully reversible compression. Reduces file size by 20% – 40%. Zero quality loss.
NEF Compressed	RAW file using a nonreversible compression. Reduces file size by approximately 50%. Miniscule quality loss.
NEF Uncompressed	RAW file using no compression. Largest size files and can take longer to write to memory card.
NEF 12-bit	RAW file recorded at 12 bits (that is, 4,096 levels per channel).
NEF 14-bit	RAW file recorded at 14 bits (that is, 16,348 levels per channel). Significantly increases the amount of color data recorded.
JPEG Optimal Quality	Compressed JPEG. 8 bits (256 levels per channel). Allows images to vary file size depending on each scene.
JPEG Size Priority Compressed	JPEG. 8 bits (256 levels per channel). Images are compressed so that each photo maintains the same file size.
TIFF	Uncompressed files at 8 bits (256 levels per channel). Download times are dramatically increased.

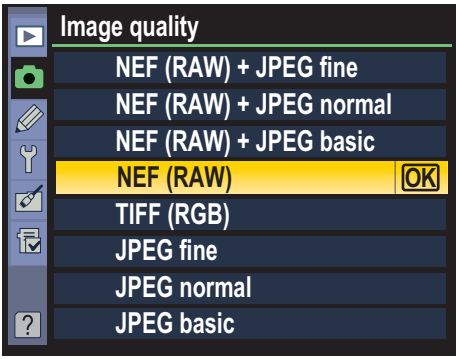

Figure 1.5

NEF files

NEF files are the most flexible of all the image capture formats. Most professional photographers who use Nikon cameras use NEF files because they know that NEF offers the greatest opportunity to create beautiful images after capturing them. The beauty of working with NEFs is that they are a file format that can be infinitely manipulated, but never damaged.

A good way to think of NEFs is to imagine a base image with a bunch of instructions applied to it. The base image would be the photograph (perhaps a mountain scene), and the instructions would be things such as white balance, color mode, tone compensation, and so on. The moment you take the NEF in the camera, the base image is fixed and cannot be altered in any way. However, the instructions can be modified to your pleasing as frequently as you want.

If you are working on an NEF in Capture NX 2, you can change:

- White balance
- Color mode or picture control
- Tone compensation
- Saturation
- Sharpening
- Hue adjustment
- Color moiré reduction
- Auto color aberration
- Active D-Lighting

You can modify these parameters as frequently as you want and never worry about damaging the original file. It is very easy in Capture NX 2 to revert to the original photograph by clicking the Version option and choosing the Original version. Figure 1.6 shows the menu that allows you to move between the currently selected version of the photo (indicated by the check) and the original version. If you save an NEF, then you haven't modified the base photo in any way; rather, you've only modified the instruction set.

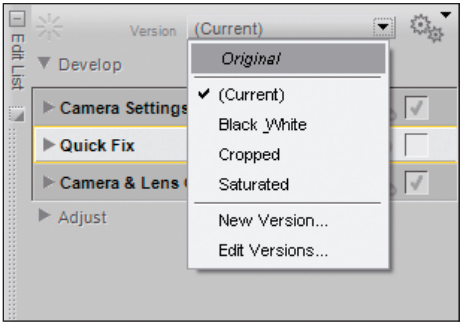

Figure 1.6

Compression

There are three capture parameters to consider with NEFs: compression, bit-depth, and resolution. The first choice you need to make when shooting in NEF (RAW) mode is to decide what compression mode you want to use. As Table 1.2 showed, Nikon provides up to three different compressions:

- **Uncompressed.** The Uncompressed RAW format provides the largest NEF file size while not losing any data due to compression. I know many professional

photographers who use the Uncompressed RAW format because it gives them 100% of the possible information from the camera. The downside of using this format is that the file sizes are much larger, which means they take up substantially more space on your memory cards and storage disks. Additionally, because the files are bigger, the read/write times to your memory card will be longer, which bogs down your camera when taking quick bursts of photographs.

- **Compressed.** Compressed RAW takes your NEF image and runs it through a compression routine that reduces the file size by about half of an Uncompressed RAW. For example, a Nikon D200 image shot as Uncompressed RAW would typically be about 16MB, while the same image shot as Compressed RAW would be approximately 8MB. The obvious advantages to shooting in Compressed RAW are that you can save many more images on your memory cards and that these images download faster. The disadvantage is that you lose a tiny, miniscule amount of quality. Everyone always asks me "how much?" and my answer is that I have never been able to detect any difference between Compressed and Uncompressed NEF files.
- **Lossless Compressed.** This is truly just as the title indicates: a smaller file size with zero quality loss. The compression algorithm is completely reversible, meaning that the file size decreases when you save it to your memory card, and then is fully uncompressed when you open it up again in software. The Lossless Compressed NEF option is only available on the newer high-end Nikon cameras, such as the D300, D3, and D700.

Figure 1.7 shows what these choices look like from the Nikon D300 camera menu. The big question is "which compression method should I use?" On my newer camera bodies (D300, D3, D700), I'm using the Lossless Compressed format, because it gives me the highest quality

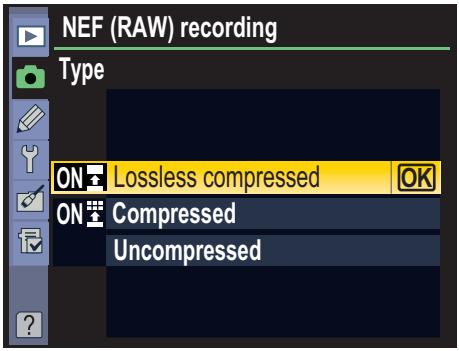

Figure 1.7

images while still reducing the file size. For my other cameras, like the D2X and D200, I'm using Compressed RAW, because I really can't tell the difference between it and Uncompressed RAW. For my entry level and mid-range Nikons, like the D40, D60, D70, D80, and D90, I just select "NEF," because there aren't any further compression options in the menu. The entry level and mid-range cameras are programmed to always record in Compressed RAW mode whenever you shoot in RAW.

note

I don't use Uncompressed NEF files as a capture format because I can't detect any noticeable difference in the quality between Compressed and Uncompressed NEF files. Compressed files are substantially smaller and easier to work with.

Bit-depth

The next choice you have to make when you shoot RAW is what bit-depth to use. Figure 1.8 shows the Bit Depth menu from a Nikon D700 camera.

- **12-bit images.** These record 4,096 levels per color channel. All Nikon cameras have three basic color channels; Red, Green, and Blue. We call the images we get from our

cameras RGB images. A 12-bit image means that there are 4,096 levels to define the red data, 4,096 levels to define the green data, and 4,096 levels to define the blue data. Multiply that out and you get 69 million different possibilities of color available to you. Three channels with 12-bits per channel give us a 36-bit image.

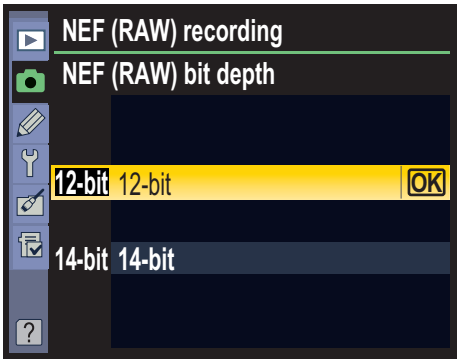

Figure 1.8

- **14-bit images.** These files, on the other hand, record 16,384 levels per channel. Because we have three color channels in our cameras (Red, Green, Blue), we call an image in this format a 42-bit image. Using the same math as above, a 14-bit image will give you billions and billions of different color possibilities. Yikes! Even though you can capture 42 bits of color, the truth is that there aren't many devices out there that can actually show you all this data. Fourteen bits of data is simply overkill for just about everything we do in this day and age. In fact, most printers out there can't use the higher bit-depth data and actually send data to the printer in 12-bit or 8-bit modes. The advantage right now for 14-bit is during the editing process when you need to pull more detail out of the shadow regions of your image. Table 1.3 shows a quick breakdown of Nikon cameras and what bit-depth they support.

note

It won't be long before we have the ability to use all 14 bits of data in our prints. Therefore, I choose to shoot in 14-bit mode if my camera supports it in the hopes that one day we'll be able to use all the information.

Table 1.3
Nikon Cameras and Bit Depth

Nikon Camera Model	*Supported Bit Depth for NEFs*
D40/D40x	12-bit
D60	12-bit
D70	12-bit
D80	12-bit
D2X/D2H	12-bit
D200	12-bit
D300	12-bit, 14-bit
D700	12-bit, 14-bit
D3	12-bit, 14-bit

Another piece in the bit-depth puzzle is understanding how Capture NX 2 handles the higher bit-depth files. Capture NX 2 works in a 16-bit operating environment, which means that it converts your 12-bit or 14-bit RAW file to 16-bit mode while you are working on it. This is the same as other high-end image-editing programs like Photoshop CS3 or Apple Aperture. On the other hand, if you open a JPEG in Capture NX 2, then it only works in an 8-bit editing environment.

In the real world, working in a higher bit-depth environment means that you have a little extra room to tweak your images without having the image fall apart. For example, if you are making a Levels change to your image and move your control sliders to the extremes, you will notice that an 8-bit image might start to appear grainy or noisy. If you do the same thing with a 14-bit image, then you can go to greater extremes before the image begins to degrade.

Figure 1.9 shows the advantages of working in higher bit modes. Look at the difference in the shadows. The top photograph is the as-shot image taken at Montana de Oro State Park in California at sunset. The bottom photograph shows the same photo brightened up in Capture NX 2 with a Levels adjustment painted in with the Selection Brush. Look at all the detail that exists in the shadows that you might otherwise consider to be gone if you had shot in JPEG mode. Because you have 12 bits or 14 bits of data to start with, the gaps between levels are much smaller, and it is much easier to brighten up a dark image without severe degradation.

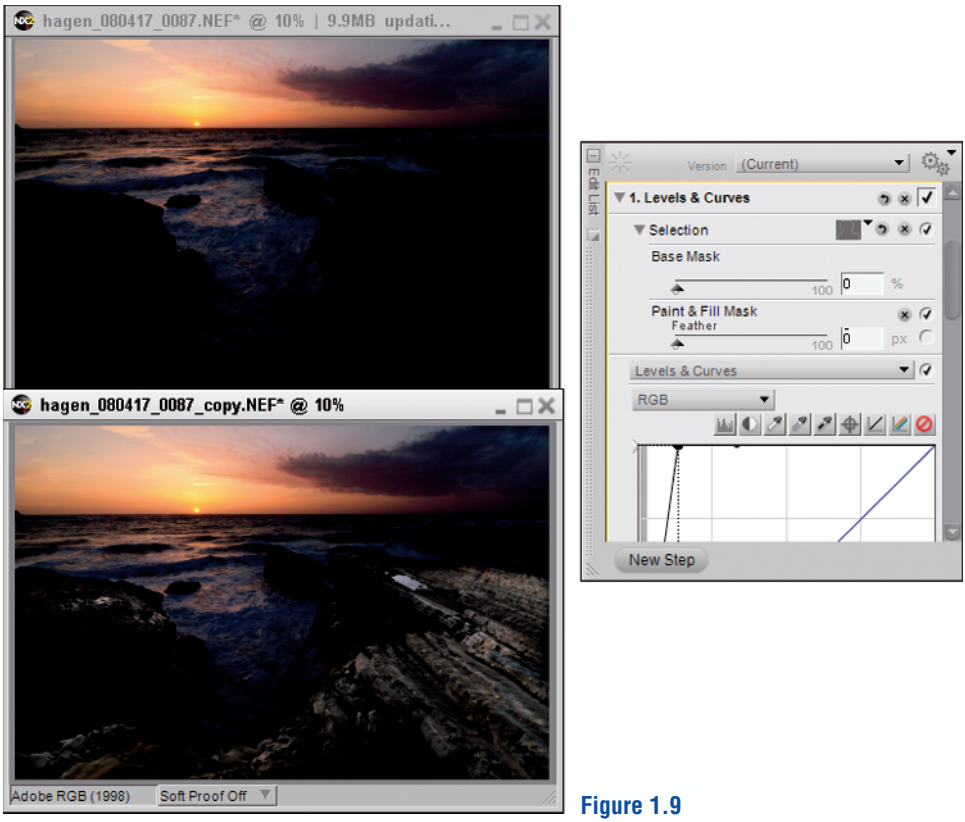

Figure 1.9

Resolution

The last item I'll mention about NEF images here is that they are always captured at the camera's native resolution. So, if you have a Nikon D300, then all the NEF images will have a resolution of 12 megapixels. Unlike a JPEG, there isn't any way to directly modify how many pixels you use in your NEF files.

JPEGs

All JPEGs are created as 8-bit files in the camera, and you don't have any option to change that. Additionally, JPEGs are opened in Capture NX 2 in an 8-bit working environment. An 8-bit image has 256 levels per channel, which means that it can produce a total of 16.7 million colors. I've made many side by side comparisons between JPEGs and NEFs, and it is sometimes difficult to distinguish a difference between the final prints. This assumes, of course, that you have done an excellent job of exposing for the JPEG.

The upside to using JPEGs is that they are very small files and therefore are quick to open, save, and send over the Internet. The downside is that they are far more limited for what you can do in post-processing. Because there is substantially less data in a JPEG, the image starts to break down if you want to perform big changes to brightness or saturation. However, if you nailed your exposure in the camera, then a JPEG can be one of the best and fastest file formats to use.

With a well exposed JPEG, you can snap the photograph, download to your computer, and then print. Workflow with JPEGs can be exceedingly fast and refreshing. In fact, I use JPEGs all the time in my professional portrait work and I get fantastic prints from them. The key is that you have to be close to perfect with your exposure and your white balance. If you make any major mistakes, you'll quickly be wishing that you had taken the photographs in NEF format!

Compression

There are two types of JPEG compression methods that you can use:

- **Optimal quality**
- **Size priority**

Figure 1.10 shows what this selection looks like on a Nikon D700. Size priority makes all your JPEGs the same size. It naturally follows that the Size priority setting will use a more aggressive compression (that is, lower quality) for more complicated photographs and less aggressive (higher quality) compression for simple photographs. For example, say you are taking two photos: one of a sandy beach and another of a city skyline. The sandy beach photograph is fairly simple without much detail, while the city skyline is complicated with many colors, shapes, and textures. Size priority forces both photographs to be the same size and applies more compression to the city skyline. The city skyline photograph would be slightly lower quality than the sandy beach photograph.

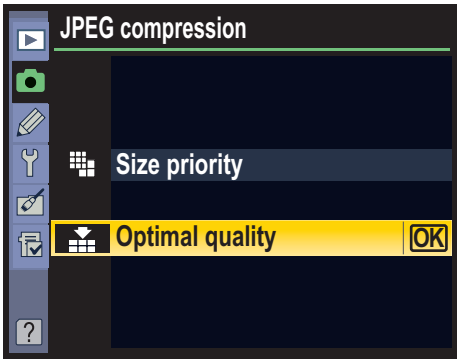

Figure 1.10

The Optimal quality setting allows each of your photographs to be as big or as small as necessary, regardless of how much detail is in the photograph. In the sandy beach and city

skyline examples, both images use the same high-quality compression. I use Optimal quality JPEG compression because it allows the files to be as big or small as necessary to achieve the highest quality.

The next choice you need to make in your camera when you shoot JPEGs is the Compression Ratio. This is different from the compression method just described. There are typically three compression ratios—fine, normal, and basic—and they all have to do with how small the camera makes the final image files.

Table 1.4 shows each of the JPEG compression modes and the subsequent compression levels. The compression ratios are based on an uncompressed NEF file. If your uncompressed NEF is 10MB, then a JPEG fine reduces the size to approximately 2.5MB. This is a 1:4 (1-to-4) compression ratio. A 1:8 compression ratio (JPEG normal) gives you a 1.25MB image. The highest quality JPEG image results from the fine compression setting. This also results in the largest JPEG file size.

Image file sizes

The final part of JPEG setup is determining how many pixels you want to use. If you have a camera like a Nikon D60, then that camera will shoot a maximum of 10MP (*megapixels*). Your Nikon camera gives you the option of shooting 10MP, 5MP, or 2.5MP images. Nikon calls these Large, Medium, and Small image sizes. Table 1.5 summarizes image size.

The best combination for JPEG shooters is to use JPEG+Fine+Large with Optimal quality compression. This gives you the highest quality JPEG and shoots with the most pixels.

Table 1.4
JPEG Compressions

Compression Level	*Ratio*
JPEG fine	1:4 compression
JPEG normal	1:8 compression
JPEG basic	1:16 compression

Table 1.5
JPEG Image File Sizes

Name	*Description*
Large	Uses all your camera's pixels (10MP for a Nikon D60)
Medium	Uses half your camera's pixels (5MP for a Nikon D60)
Small	Uses one quarter of your camera's pixels (2.5MP for a Nikon D60)

NEF + JPEG

Most Nikon dSLRs allow you to capture RAW and JPEG files together (Figure 1.11). This option is useful when you want quick access to JPEGs for making prints at the drug store or when you want to send them via e-mail to your grandmother. This also allows you to access the RAW files when you want to work up a masterpiece print for wall art.

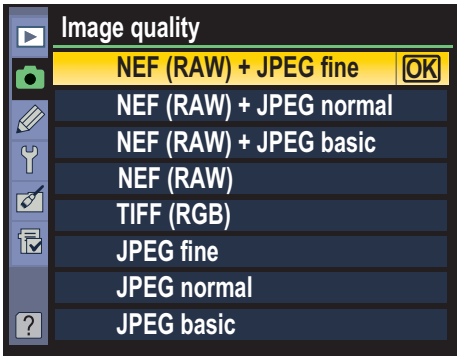

Figure 1.11

The downside to shooting images in NEF + JPEG simultaneously is that you now have to manage two files for every photograph you own. Also, this method takes up a lot of space on your memory card.

see also

The Nikon Capture NX2 browser has a method for managing two files, which is covered in Chapter 2.

TIFF

The last capture format you can select in your camera is TIFF (Figure 1.12). There are just a few high-end Nikon cameras (such as the D2X, D3, and D700) that allow you to choose TIFF as an Image quality option. Lower-end Nikon cameras such as the D60 or D90 don't offer this option. TIFF images are very hard to work with as a capture format because of their large size and slow transfer rates.

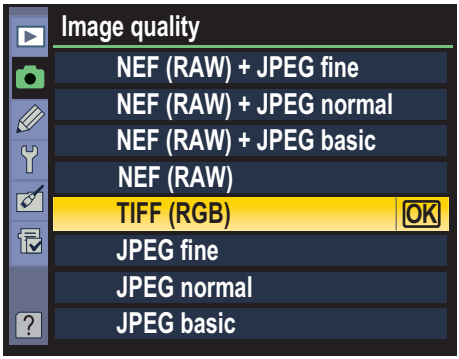

Figure 1.12

Depending on your memory card speed, TIFFs can take an inordinate amount of time to download from your camera to your CF card. In fact, if you take a burst of images in TIFF mode and your camera's internal memory buffer fills up, then it can sometimes take up to 10 minutes for the buffer to completely empty.

For these reasons, I don't recommend shooting in TIFF mode in your camera. Stick with NEF or JPEG depending on your needs. In the Output Formats section, I talk about TIFFs as a great output format, but I encourage you to stay away from them as a camera capture format. Table 1.6 summarizes my recommendations for file formats.

caution

TIFFs captured in your camera are only 8-bit files. This means that they don't capture all the bit depth that your camera is capable of capturing.

Table 1.6
Capture File Format Recommendations

Photographic Subject	*File Format Suggestion*	*Why?*
Family vacation	JPEG+Fine+Large	Simple to use; quick to print.
Stock photography	NEF	Highest quality for customers and clients.
Nature/landscape	NEF	Highest quality for prints and artwork.
Sports (youth, college)	JPEG+Fine+Large	Simple to use; quick to print; easy to sell to parents and newspapers.
Portraiture	NEF or JPEG	JPEG if you are doing high-volume portraits; NEF if you have time available to work on each image.
Weddings	JPEG+Fine+Large	Allows you to do your post-processing very quickly. Shoot NEF if you aren't very consistent with exposures and white balance.
Fine art	NEF	Highest quality for artwork.

Output Formats

One of the neat features of Capture NX 2 is that you can start with your photo in any one of the three supported formats (JPEG, NEF, TIFF) and then resave it into any other of those three formats. For example, you can start with a JPEG and then save the file to a TIFF or an NEF. The big advantage here is that if you make a bunch of improvements to a JPEG in Capture NX 2 and want to come back to modify them in the future, you can save that JPEG as an NEF and come back to it at any time while still having access to all the new steps you created.

The general workflow for saving images in Capture NX 2 is to choose File➞Save As.

The following sections will help you understand what happens in the background of each of the output formats.

tip

An alternative to using the menus to select the Save As command is to use the keyboard shortcut Ctrl+Shift+S (⌘+Shift+S).

JPEG

Saving any file to a JPEG will automatically down sample it to 8-bit mode. Thus, if you start with a 16-bit NEF/TIFF and save it to a JPEG, you will lose a significant amount of color information. As mentioned in the previous sections, JPEGs are lossy files in the sense that you lose information when they are compressed to a smaller size. However, I don't want to scare you away from using the JPEG file format. It is very common to work on an image as an NEF and then save it to a JPEG for printing at the pro lab or the corner drug store.

Saving

Note that if you make a number of adjustments and edits to an NEF and then save it as a JPEG, you will then lose the ability to come back and modify those edits in the future. Saving your image to a JPEG flattens all your adjustments onto the image. Saving as a JPEG should be done at the very end of your process and should only be done once in that image's life. In other words, you don't want to keep resaving a JPEG on top of itself because each time you do so, the JPEG is recompressed and you lose image data. My workflow is to make all my adjustments on a JPEG in one session, and then save it once as a new JPEG file at the end of the process.

After you choose File➙Save As, you need to type a new name for your file. The next step is to set your options for the Save Options Dialog shown in Figure 1.13. The goal here is to set the quality of your JPEG based on the intended use for your photograph. If you are going to print your photograph, then click the Quality drop-down list and choose Excellent Quality. If you are posting the image to the Internet, you can use a lower quality setting, such as Good Balance.

Figure 1.13

Quality settings

There are three ways to adjust your JPEG quality settings:

- **Click the drop-down menu in the Save Options Dialog box.**
- **Click and drag the Quality slider to your desired value**. Zero percent is the lowest quality setting, and 100 percent is the highest. Unfortunately, there isn't any way to determine how big your file will be when you set the Quality slider, as in other programs.
- **Type the quality percentage in the text box**.

Here's a list of the JPEG quality settings and when to use them:

- **Highest Compression Ratio.** Use when sending low-quality images as e-mail attachments
- **Good Compression Ratio.** Use when posting your images to the Web
- **Good Balance.** Use when posting images to the Web
- **Good Quality.** Use when printing images around 4 inches x 6 inches or 5 inches x 7 inches
- **Excellent Quality.** Use when printing large images for reproduction in other print media (magazines)

The last JPEG Save As option is Embed ICC profile. Select this option if you have a color-managed workflow. Selecting this option embeds your current color space into the metadata of the photograph. If you are working in Adobe RGB (1998) and select this option, then the Adobe RGB (1998) color profile will be embedded into the image.

see also

Color profiles and setting up system preferences are discussed in Chapters 9 and 10.

It is important that you understand what will happen if you choose the wrong profile. For example, if you are printing your photographs at the laboratory, then you want to make sure that your image is imbedded with the sRGB profile. Imbedding it with Adobe RGB or Pro Photo RGB will mean significant color shifts from the lab.

note

I've made some very big prints from JPEG files and can personally vouch for their capability as an effective output format. Don't let all the naysayers scare you away from JPEG. It is a great file format.

I convert all my files to JPEGs when I send my prints to a commercial laboratory like MPix (www.mpix.com) or Costco (www.costco.com) for printing. A typical JPEG is 5MB to 7MB and is much easier to send over the Internet than a 60MB TIFF.

NEF

As mentioned earlier, starting with an NEF is generally considered the best way to begin your digital workflow. Using Capture NX 2, you can start with an NEF created from your Nikon dSLR camera and then save it as an NEF after you finish working on it. This has the advantage of preserving all your steps and adjustments so that you can return to the original image at a future date.

Printing

If you do all your printing from Capture NX 2 (rather than sending your files to another program like Photoshop), there really isn't any reason to save your images as anything else. In other words, start with your photo as an NEF from the camera, edit it in Capture NX 2 as an NEF, print it from Capture NX 2 as an NEF, and then save it when you are finished as an NEF. This workflow preserves the quality of the photo, as well as all your editing steps.

If you print from another program, such as Photoshop, or if you output at a commercial printing lab, then you'll want to save your images as TIFFs or JPEGs.

Editing

A neat feature of Capture NX 2 is that if you open a TIFF or a JPEG in the program, you can save it as an NEF. It is important to note, however, that this new NEF can't be edited in other software such as Adobe Camera RAW, Lightroom, or Apple Aperture. The reason is that this new NEF is a Capture NX 2 NEF and is different from an NEF you created in your camera. The NEF you create from a JPEG is written in a format that only Capture NX 2 can translate.

This may seem like an oversight by Nikon, but this approach to image editing is the same if you start with other programs like Lightroom. For example, if you make changes to your image in Lightroom, such as curves, black-and-white conversion, and so on, then those changes are only visible in Lightroom—not in Capture NX 2.

The way to get around this limitation is to save your image as a TIFF or a JPEG after you finish the editing steps. Then you can open that JPEG/TIFF file in Photoshop, Lightroom, or Aperture to work on it some more.

Saving

One final thing about NEFs: When you start with an NEF from your camera, then make some changes in Capture NX 2 and save it as an NEF, there are no options available to you from the Save dialog box. This is because all the changes you make to an NEF are always reversible. By its very nature, NEFs are designed in such a way that all your edits are nondestructive, so don't be afraid of saving your work over the top of the existing file. You can always get back to the original image.

TIFF

Earlier in the chapter I stated that you shouldn't use TIFFs as a capture format because they are slow and hard to use in the camera. That recommendation doesn't apply to using TIFFs as an output format. In fact, TIFFs are a great output format because they are completely lossless when you save them.

I use TIFFs in my workflow when I am finished working on an image in Capture NX 2 and I want to bring it into Photoshop to do some additional work. In this scenario, I export the image as a 16-bit TIFF to retain all the color and contrast data so that Photoshop has the most information to work with.

Saving

To save an image as a TIFF, follow these steps:

1. **Choose File → Save As. The Save Options Dialog box appears.**
2. **Choose TIFF from the Save as type drop-down menu.**
3. **Name the file and click OK.**
4. **Now you can make your other selections for the Save Options dialog box.**

The first choice you make in the Save Options Dialog box is whether to save the document as an RGB or CMYK file. Almost everything photographers do revolves around RGB files, so you should generally select the RGB option. Choose CMYK if you are printing your images on a commercial printing press.

The next choice is to select either 8 bit or 16 bit. If you are exporting to another program to do more work on the image, then I highly recommend saving the file as a 16-bit image. If you are sending the TIFF to a lab to print, then an 8-bit image may be required in order to keep the file size smaller. Be sure to check with the lab before you send the file so that you know what format they require.

Compressing

Next, choose what compression to apply to your TIFF. Selecting None means that you will save an uncompressed TIFF that will be very big. It could be up to 60MB or more! Most of the time, I recommend selecting LZW compression in order to reduce the file size. LZW is a lossless compression scheme that is supported by most software packages on the market today. You can feel secure in knowing that if you save your TIFF in LZW compression, you'll be able to open it in most other professional image editors. Finally, choose whether to embed the ICC profile, and then save your changes.

Advantages of Working with NEFs in Capture NX 2

If you haven't figured it out by now, working with NEFs is probably the best way to maximize your workflow options. All changes you make to an NEF are reversible in the sense that you can always get back to the original image. Additionally, you can save different versions of the image and can quickly get back to them with a click of the mouse. Editing NEFs is nondestructive and is truly the professional way to work on your files.

Nondestructive editing simply means that all your edits do not change the basic properties of the original image. For instance, if you perform a black-and-white conversion on an image and then save it as a JPEG or a TIFF, you actually lose the color data for the photograph. If you do the same thing on an NEF, the black-and-white image is only a version of the original NEF file. You can easily get back to the color image by reverting to the original file.

Another advantage to working with NEFs is that you can save multiple versions of the same image and not substantially increase the file size. For example, you can save the original version of a photo, a version with enhanced color saturation, a black-and-white version, and a sepia-toned version to a single NEF file. All these versions can be toggled on or off with the click of your mouse. The size increase to the NEF is very small in comparison to saving four additional JPEGs or TIFFs as independent photographs.

see also

Curves and saturation are discussed in Chapter 5.

tip

Another neat thing about Capture NX 2 is that you can start with a JPEG, make some changes to the image in the form of New Steps, and then save the image as an NEF. The changes you make to these NEFs are only visible in Capture NX 2, but the advantage is that now all your JPEG files can be edited in a non-destructive workflow. That's a major shift from a traditional JPEG workflow. New Steps are discussed in Chapter 6.

For all the advantages of working with NEFs, there are also some disadvantages. The biggest is the lack of cross-compatibility with other programs. If you make changes to your image in Capture NX 2 and resave the file as an NEF, those changes are typically only visible in Capture NX 2.

For example, if you convert an NEF to black and white and then save the image, you cannot see the black-and-white conversion in a program like

Adobe Lightroom or Apple Aperture. Figure 1.14 shows this discrepancy. The left side of the figure shows the black-and-white version in Capture NX 2, while the right side of the figure shows the image as it looks in Adobe Lightroom.

The reason for this discrepancy is that the changes you make in Capture NX 2 are stored inside the NEF as instructions. Adobe Lightroom can only see the RAW data that was captured in the camera, such as white balance and exposure information. Also, if you make a bunch of changes to your NEF in Adobe Lightroom, then those changes are not visible in Capture NX 2. Lightroom uses its own protocols for nondestructive editing that other programs cannot access.

So the big question is: How do you make your changes visible between programs? The answer is that you have to output a JPEG or a TIFF from Capture NX 2 so that the changes are applied to the image. The Photoshop term for this process is flattening. In other words, you flatten all your layers so that all the enhancements are applied to the image. In Capture NX 2, you either choose File ➞ Open With or you simply save your photograph as a JPEG or a TIFF.

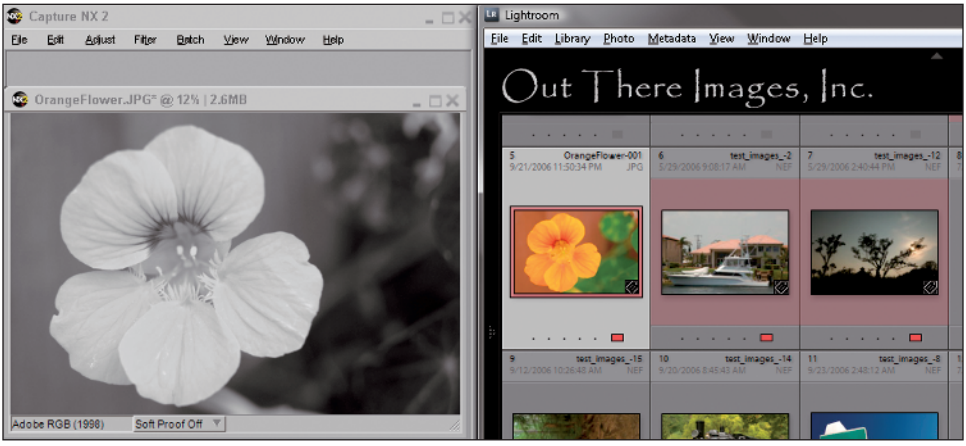

Figure 1.14