RAW FORMAT

WHAT IS RAW FORMAT?

As the name would imply, Raw Format is just a stream of bytes (numbers) describing the color information in a file. The color values are described in binary*, hexidecimal (base-16) format, where 0=black and 255=white. If you don't have a grayscale or index color image, then more than one channel will be used to describe the colors.

HOW DOES PHOTOSHOP SAVE OUT RAW FORMAT?

Number of channels: Photoshop designates the number of channels needed to describe the image plus any alpha channels that are in the file. Grayscale and Index Color images = 1 channel, RGB = 3 channels, CMYK =4. Note: if you save an Index color image in Raw format, you will lose the color information because it is not saved with the image.

Interleaved or Non-interleaved: If you are saving an RGB or CMYK image, Photoshop gives you the choice of interleaved or non-interleaved format. The default is interleaved.

Header: Photoshop allows you to designate the size of the header in bytes. By default, you will have no header (header size =0).

Creator Type and File Type: These can be any 4-character values and will not affect the reopening of the file in Photoshop, but will affect whether other programs will recognize the file.

You will need to remember which of the other values (channels, interleaved vs. non-interleaved, and header size) you used as well as the height and width of your image in order to reopen the file in Photoshop.

WHAT IS INTERLEAVED VERSUS NON-INTERLEAVED?

If you have an RGB file and you save it in interleaved format, then the RGB values for the image will be kept together, so in the file you will have: Red value for first pixel, followed by Green value for first pixel, followed by Blue value for first pixel, followed by color information for 2nd pixel and so on. In a non-interleaved formatted file, you would see all the Red values for all the pixels in an image, followed by all the Green values, then all the Blue values (followed by alpha channel information if there is any).

HOW DO I OPEN A RAW FILE INTO PHOTOSHOP?

To open a file saved in Raw format, you must know if it the information is interleaved or non-interleaved. You also should know the height and width of the file in pixels (range: 1 to 30,000), the number of channels (range:1-16), and the size of the header in bytes. If you are missing one piece of this information, Photoshop can try to guess what it is. Just leave that box blank in the Open dialog box and click "Guess." So, for example, if you know you have a 3-channel, interleaved file with a 0-byte header, you can erase the values for height and width and click "Guess." If the first choice that Photoshop gives you does not work, you can keep clicking on "Guess" and Photoshop will iterate through all the possible height and width scenarios. If your original file was a CMYK image, it will open as an RGB image with an alpha channel. To get it back to its original form, choose Multichannel from the Mode menu, then CMYK from the Mode menu.

HOW CAN SOMEONE ACCESS THE INFORMATION IN A RAW FILE WITHOUT USING PHOTOSHOP?
A raw file can be read into Norton Utilities or similar programs and used by someone who can understand and work with hexidecimal notation.

WHAT'S THE DIFFERENCE BETWEEN THE PHOTOSHOP AND RAW FORMATS?
A Photoshop file is basically saved out in raw, non-interleaved format with the exception that it has information about the channels, rows, columns, bit-depth and mode of the image stored in the resource fork, so Photoshop knows how to open the image properly.   If you save an index color file out in Photoshop format, the color table is described in one of the file's other resources.

WHY DO WE NEED A RAW FORMAT?
The intended use of Raw files is scientific image processing where users may have generated their images on a mini or mainframe and then they want to port their files over to the mac to open them in Photoshop.

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*Raw format is binary-only. If you have an ascii encoded file that you wish to bring into Photoshop, you will need to convert the ascii values to binary before attempting to do so.