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## Preparing Content for Digital References and Studies

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### Part IV

Preparation of text and images for use in digital philatelic references and studies (DPS) is a must. With carefully prepared text and images as your building blocks, the assembly of your work will go a lot smoother and result in a much more presentable DPS.

This article discusses how our text and images can be prepared for use in a DPS by going through some step-by-step instructions. These instructions do not cover operating a computer or installing software. The scope of this article must be limited to only the necessary steps to accomplish specific tasks.

Text should be double-checked for spelling or grammar mistakes and saved in the proper format — before being inserted into the study. To ensure the best quality for illustrations, they should be sized appropriately, enhanced for display and in the proper format. We'll begin with steps to prepare text content and then review how to prepare images.

### Text

Most text is put into digital format by typing it into a computer using a word processing program, such as Microsoft Word. There are two additional ways to get your text into digital format: scanning typewritten or printed pages and subsequently using optical character recognition (OCR) software to convert the scan into text or by dictation using voice recognition software. (See page 7 for a review of OCR program that works well with Microsoft Word.)

We'll stick with Word for this exercise, as that is what many people will be using. Three major reasons for using word processors are their spelling, thesaurus, and grammar checking functions. Once you have your text entered into your word processor, use these tools to ensure your text is as correct as you can manage.

If your word processing program doesn't know a specific word, look it up in a dictionary before pressing the *add to dictionary* button. Once you've added a misspelled word, it will continue to accept the misspelling until you edit the *user dictionary* of your program.

The thesaurus is also an effective tool. Ever get stuck for just the right word? Enter a word you might use and see what turns up — it's often the word you had on the tip of your tongue but couldn't remember. Grammar checking is another standard function that

may prove valuable. Leaving grammar check active during your text input will point out things the computer believes may be wrong word usage. You can ignore it of course, but it often makes suggestions you should consider. Using some of the other word processing tools, such as grade level analysis and word count, are interesting, but in the short term, we'll stick with the big three.

Each program uses formatting code embedded in the document to make your text display the way you want it to. The information you enter is not simply text, but rather text with invisible code attached. Word is notorious for including formatting when text is copied and pasted into a document in another application, such as MS PowerPoint. The invisible code gets the credit or blame for the appearance of the application into which it is imported. To prevent this, save the document in a text only format (.txt). This strips the invisible formatting code and leaves only the words. Cutting and pasting sections of a .txt file allows it to be formatted by the other program, PowerPoint in this instance, and introduces no surprises to figure out and frustrate us.

Enter all your text, spell and grammar check it, and then save it as a text only file. Formatting the text will be a function of the PowerPoint template.

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Fig. 1. Saving the file in Text Only format

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### Images

As we're not going to use prepared images or clip art, we'll also need to get our illustrations into digital format. Methods to digitize your images generally include scanning or using a digital camera. Scanning produces good images in general, but using a digital camera can also produce results that in some cases may be superior to scanning due to the quality of the camera's optics and the ability to use its macro features. It depends on your equipment and what your goal is as to how the images are captured.

Image manipulation is also part of this effort and a number of good image processing programs are available. My personal favorite is Adobe Photoshop Elements (version 6 as of this writing) as it has most of the features of full-blown Photoshop, but is priced at less than \$100, a fraction of its big brother. (See page 7 for a review of a free digital image editor, organizer, and browser that works with any digital camera or scanned image.)

The features in Elements continue to expand in number and are more than satisfactory for our needs. We're not sending documents to commercial printers and that's when Photoshop would be required to generate the commercial printer files.

### Factors

The most important factors when preparing images for your study are: file format, resolution (clarity), size, focus, and color optimization. Making images appear on computer monitors correctly sized, with good color, and in focus prevents viewer frustration. This does not mean images should be "doctored" to no longer be a true representation of the original. Rather, they should be modified to display properly using the least amount of digital manipulation while making the reproduction vibrant and clear.

Let's define image terms in plain English.

#### Format

Format of our image files is very important. Photographic images with colors/shades that blend into each other are best displayed in the Joint Photographic Experts Group (jpg) format. Tagged image file format (tiff) is good for photographic images as well, but the file sizes are very large and in most cases prohibitive. Illustrations using line art or large single color areas are best displayed in graphics interchange format (gif) format. This format presents the best option for small file sizes for this type of image.

#### Resolution

Resolution is a measurement of how many dots are contained within a single square inch commonly referred to as dots per inch (DPI). **EDITOR'S NOTE:** Computer programs, including Photoshop, use pixels per inch (PPI), as the standard. DPI refers to printer resolution, while PPI refers to screen resolution. For our purposes, the terms may be used interchangeably.

Computer monitors typically display images at 72 or 96 DPI as a standard. If you magnify a standard DPI image on the computer screen, the image tends to become a bit fuzzy. That's the result of the white space between the dots becoming more visible to the human eye. Make the image smaller and the dots squeeze closer together, making the image appear clearer.

If an image is prepared at 150 DPI, it will hold its clarity better

than the standard DPI image when magnified slightly. The bottom line is: higher DPI levels allow greater levels of magnification while maintaining clarity. This is also a factor in file size as higher DPI images are larger and require more disc storage space than lower DPI images.

We'll work with tiff images to produce the best image possible before converting the image to a jpg or gif format to optimize the file size. That means it takes less disc storage space and appears quicker on the viewer's computer monitor. The opposite side of the coin of course is image quality. There is always a trade-off when optimizing file size versus image quality. We'll opt for a slightly larger file size but we'll also get higher quality images that can be magnified slightly and provide the viewer a closer look at image detail.

#### Size

Physical size of the image is simple. How many inches wide or high is the image? (This is not file size.)

#### Focus

Focus is perhaps the most important factor. If the image is not in focus to begin with, the viewer has difficulty determining what you're trying to illustrate and automatically questions the image's accuracy. Image focus is a function of the care taken when obtaining the original image. When using a camera to obtain images, ensure the item is in sharp focus.

Scanning images is less problematic in that the item being scanned is on a flat surface and the focus distance is predetermined. However, ensure the item is placed flat against the glass of the scanning table or you may develop focus issues.

#### Color

Displaying color on a computer monitor has become less of an issue as modern monitors display millions of colors. The human eye cannot distinguish the millions of shades modern monitors can display and reducing the number of colors in the image may help to reduce the overall file size of the image. Color may also vary depending on the age and/or calibration of the monitor, scanner or printer; a subject for another article.

#### Color Optimization

Correctly optimizing the color of an image will provide us with a more vibrant display on a computer screen. The optimization we'll be doing is setting the black and white points of the image – adjusting what's referred to as "levels". Essentially, it's how black is black and how white is white. It's simpler than it sounds and helps to reduce image file size as well as making images more vibrant on computer displays.

**Note:** In performing the following image manipulation, we are not modifying the digital image such that it no longer represents the original philatelic item being depicted. (No pixels were harmed in the testing and production of these images!)

**Caution:** Before beginning to edit anything — text or images — ensure you've saved your files to a source folder on your hard drive. You may move a file from one folder to another. That does not necessarily mean the file was copied into the new folder, it may have simply been moved. Copies of your original files should be the only ones worked on.

Back-up the entire folder with all your files to a different media storage device such as a compact disc (CD) or memory stick. Ensure you always have the original files in a safe place that is

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not easily accessible — prevent the accident before it happens; it's only a matter of time otherwise.

### Getting It Ready To Come Together

There are only a few basic steps involved in preparing images to make them ready for use in your DPS. If you do not follow the sequence as outlined below, image quality may suffer. (We'll look at simple image manipulation within PowerPoint at a later date.)

I'll note the menu commands and sequence using Photoshop Elements to perform these functions. Actions are in san-serif typeface and an arrow (▶) denotes a subsequent selection from the menu. These screen shots were made on a Macintosh, but should look very similar in Windows.

#### Source Location

Make a folder on your hard drive to hold all your images and text files. Ensure all your files are placed or saved into this folder. **Note:** You may also have sub-folders, which contain original images, text files, etc. depending on your organization methods. The important thing is that all the files are in the same area and easily found.

#### Capturing a Digital Image (Scanning)

1. Turn your scanner *on* and open your image software program.
2. Place the item in your scanner as squarely as possible and close the lid.
3. Selecting **File ▶ Import ▶ Select Scanner Type**.
4. Set the *Resolution* to 300 DPI.
5. Press the *Preview* button to view the image.
6. Select the area of the image to scan.

**Note:** Always select a scan area larger than the item being scanned. Doing this provides margins that are used when making further adjustments to the image through cropping, etc.



Fig. 2. Scanning an image with Elements

7. Press the *Scan* button.
8. The scanned image appears in the window.
9. Press *Save*.
10. Ensure the *File Name* and *Location* are correct.
11. In the *Format* box, select *tiff*.
12. Press *Save*.
12. In *tiff Options*, select the following: *Compression = none*; *Pixel Order = RGBRGB*; *Byte Order = IBM PC*.
14. Press *OK*.



Fig. 3. Selecting an image area to scan

#### Straightening an Image

1. Open the image file: **File ▶ Open ▶ Choose your Image**.
2. Select the *Straighten* tool in the tool bar.
3. Draw a line parallel to a horizontal or vertical straight line in the image.
4. The image will rotate to position itself along the new axis.
5. Press *Save*.



Fig. 4. Straightening an image

**Note:** It will be easier to straighten or perform other functions on images if the on screen image size is increased with the *Zoom* tool.

#### Set Working Format (if format is jpg, gif, or png)

1. Open the image file: **File ▶ Open ▶ Choose your Image**.
2. Change the image format, **File ▶ Save As**.
3. Ensure the *File Name* and *Location* are correct.
4. In the *Format* box, select *tiff*.
5. Press *Save*.
6. In *tiff Options*, select the following: *Compression = none*; *Pixel Order = RGBRGB*; *Byte Order = IBM PC*.
7. Press *OK*.



Fig. 5. Converting the file format to tiff

**Note:** We'll only modify our *Working Image* — the tiff file.  
**Set Working Image Resolution**

1. Open the image file: **File** ► **Open** ► **Choose your Image**.
2. Select **Image** ► **Resize** ► **Image Size**.
3. Deselect *Resample Image* (box should not be checked).
4. In *Resolution* box, enter 150.
5. Press **OK**.

**Note:** 72 or 96 DPI is standard, 150 DPI is used if a zoom function is desired.

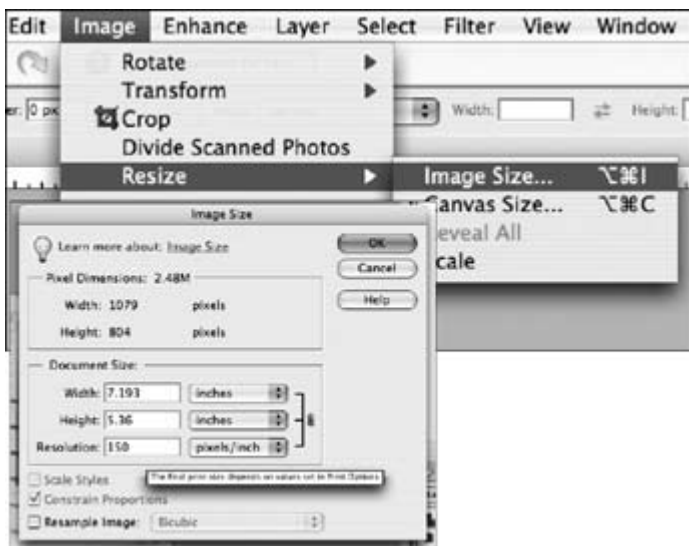


Fig. 6. Changing the image resolution

### Cropping an Image

1. Open the image file: **File** ► **Open** ► **Choose your Image**.
2. Select the *Crop* tool in the left tool bar.
3. Draw a rectangle around the area of the image desired.
4. Double click on the new image — or — select **Image** ► **Crop** in the main menu.
5. Press **Save**.

### Set Working Image Size (only for reductions)

1. Open the image file: **File** ► **Open** ► **Choose your Image**.
2. Select **Image** ► **Resize** ► **Image Size**.
3. Select *Resample Image* (box should be checked!) *Bicubic*.
4. In the *Document Size* box, select *Inches*.
5. Enter *Width* and *Height* in inches desired.
6. Press **OK**.

### Sharpening Reduced Size Working Image (only if the image is better)

1. Open the image file: **File** ► **Open** ► **Choose your Image**.



Fig. 7. Cropping an image

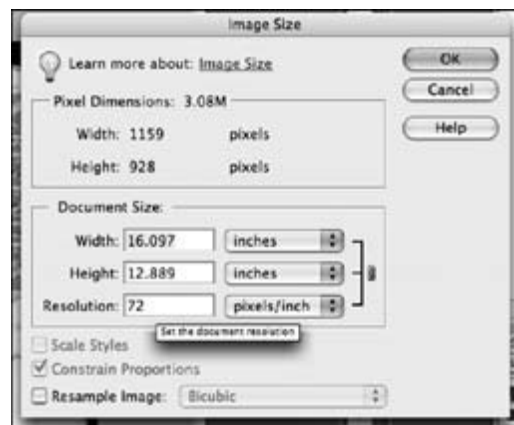


Fig. 8. Reducing image size

2. Select **Filter** ► **Sharpen** ► **Unsharp Mask**.
3. *Amount* = 50%, *Radius* = 1.0 pixels, *Threshold* = 0 levels.
4. Press **OK**.

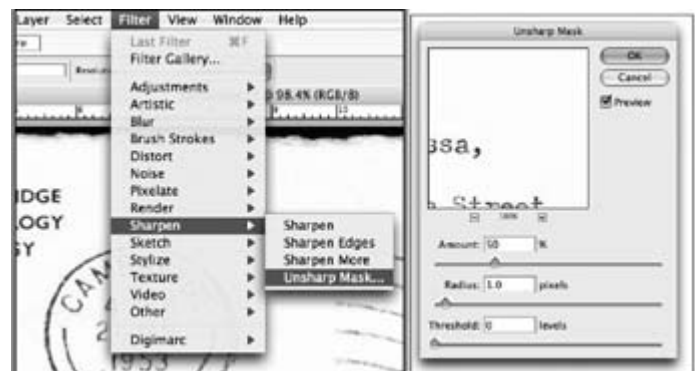


Fig. 9. Sharpening an image

### Set Working Image Size (only for enlargements)

1. Open the image file: **File** ► **Open** ► **Choose your Image**.

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2. Select *Image* ► *Resize* ► *Image Size*.
3. Select Resample Image (box should be checked!) *Bicubic*.
4. In the *Document Size* box, select *Percent*.
5. Enter *110* in the width box.
6. The *Height* changes proportionally automatically.
7. Press *OK*.



Fig. 10. Enlarging an image

**Note:** Enlarging images must be done as a series of 10 percent steps, not all at once. The computer adds dots throughout the image based on the dots in nearby proximity. This small increment produces better results as the computer has to guess less at how many dots of what shade, etc. to add.

### **Balancing Color Levels (only if required)**

The window with the curve indicates the white and black points of the image. We only need to ensure our triangles match the beginning and end of the curve.

1. Open the image file: *File* ► *Open* ► *Choose your Image*.
2. Select *Enhance* ► *Adjust Lighting* ► *Levels*.
3. The curve window opens and a graphic depiction of the image colors appears.
4. Ensure the Channel = *RGB*.
5. Move the *Black Triangle* to the right to the curve base.
6. Move the *White Triangle* to the left to the curve base.
7. Press *OK*.

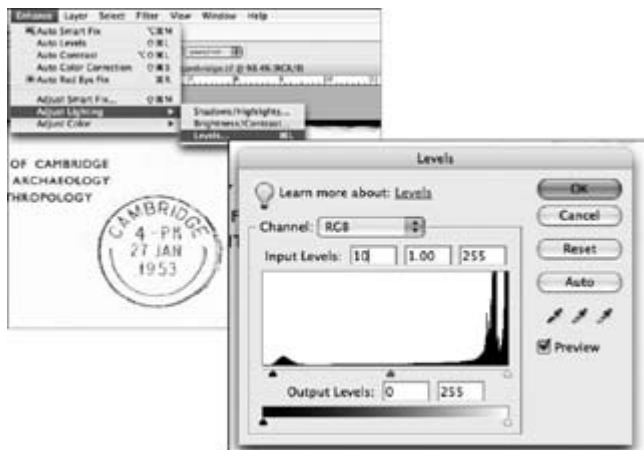


Fig. 11. Balancing image levels (black & white points)

## Optimizing Images

1. Open the image file: *File* ► *Open* ► *Choose your Image*.
2. Select *File* ► *Save for Web*.
3. Select *jpg* as the format and a *Quality* setting.

**Note:** The higher the quality setting, the larger the file size.



Fig. 12. Optimizing an image

4. Press *OK*.
5. Ensure the file name and destination are correct.
6. Press *Save*.

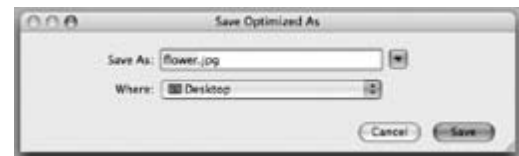



Fig. 13. Saving the optimized image

## Other image modifications

Photoshop Elements provides users with many more tools to modify images. One option is the use of layers, which are like a stack of transparent sheets of paper with drawings on them. An example use of this function might be to reconstruct a faded or incomplete cancellation for illustration purposes. The original scan will be on the bottom sheet. If you trace over the cancellation on the top sheet, it will be much clearer, eliminating the texture or color of the original envelope in the bargain. Throw away the bottom layer (or make it invisible) and a clear version of the cancellation is the result.

The possibilities associated with image modification are endless. That's the basic reason the philatelic community is so slow to adopt electronic exhibiting. Fakes and manufactured items could be a serious issue.

## Conclusion

The satisfaction of seeing the finished product essentially appear before your eyes as you add elements into the study is unrivaled. This is where the *magic* will take place and being well prepared by having all your building blocks ready is the key. Get your building ready as we'll start developing a structure next. 

## Thanks

My sincere thanks are extended to Alan Campbell and Richard Maisel for their continuing support in reviewing drafts of these articles and suggesting subjects for discussion.