# **Web Development**

(103-192)

### Image Manipulation

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### Paint Shop Pro

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## **Graphics Drawing Programs**

- Paint
  - > Free with Windows
  - ➤ Limited capability
  - ➤ Good for quick changes
- Paint Shop Pro
  - ➤ 60 Day free trial, then \$99 purchase fee (cheaper in magazines)
  - ➤ Includes GIF Animator
  - Strong drawing tools
  - ➤ Interesting special effects
  - Easy file format conversion
  - Older versions still available. Some don't expire (though you should still register it).
- All drawing programs have similar tools. Learning tools in one program prepares you to quickly move to another tool. We'll be using Paint Shop Pro.

Install Paint Shop Pro (if necessary)

Start Paint Shop Pro

Notes Activity **Web Image Formats** Create an image in PSP Web pages can only contain three types of images: GIF, Save as BMP, WMF, GIF JPG and PNG. and JPG formats GIF: Biggest advantage: small image size Compare sizes Decent scaling features, images will become Only graphics format that allows animation and transparent colors JPG: Highest quality images Excellent scaling, images retain quality longer when size increased or decreased Small size (depending on color depth) **PNG** Newest web format: Portable Network Graphics Retains original image color depth (all others change to their preference) High quality images (similar to JPG) Not compatible with older browsers!!! The size of the file for an image depends on its complexity and the format it's saved in. GIFs are not always smaller than JPGs or vice versa. It depends on the image To ensure you use the smallest size image for the website, save in all three formats and use the smallest. Other image formats BMP: Format used by Paint Huge image sizes (never use these in web pages) (no compression) WMF:

Standard graphics format for Microsoft Office

Huge size (no compression)

# **Common Image Manipulation Techniques**

- Changing Image Size
  - Digital photos, scanned images, images from other sources etc. are rarely the correct size for your web page
  - ➤ If you shrink them by dragging them smaller or changing their size in web development software, the underlying image is still the same size.
  - Use drawing program to resize image and save as new size. Make only small changes in size in your web development program
- Cropping
  - ➤ Often you only want a portion of an available picture.
  - Cropping allows you extract the portion you want and save it separately.
- Color Modification
  - Image colors often need modification to meet your needs.
  - Many drawing programs have *color replacers* that allow you to replace one color with another
- Making Backgrounds Transparent
  - Many images have backgrounds that don't match your page's background.
  - Making a image background transparent makes it invisible when inserting into another program.
- Changing and Image's Brightness or Contrast
  - Some images (especially photographs and scanned images) are too dark, to light or of the wrong contrast
  - Most drawing programs allow you to change the brightness and/or contrast of a picture
- Transforming an Image
  - Most drawing programs have special filters that allow you to change the image in often bizarre and interesting ways.
- Changing an Image Type
  - Images that are not GIF or JPG are rarely compressed and shouldn't be included in web pages
  - Most drawing programs can open any image type
  - ➤ Using the Save As... feature, most programs can change to any other format and definitely to GIF and JPG formats.

# **Image Modification Using Paint Shop Pro**

### **Basic Techniques**

#### Color Selection

- Current colors and color palette shown on right side of the screen
- Colored box on top, upper, left shows current foreground color
- Colored box on bottom, lower, right shows current background color
- Use left mouse button to use or change foreground color
- Use right mouse button to use or change background color
- Click (right or left) in color palette to change foreground or background color
- Click on fore- or background color box to open color dialog box for more exact control of colors
- To switch fore- and background colors, click on Lshaped, double-headed arrow below foreground color box
- Another great way to select colors is to use the (eye) Dropper tool to use a color already in an image.
  - Click the Dropper tool
  - Point to the color you want to use
  - Left-click to make foreground color, right-click to make background color

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#### Toolbars

- Tool Palette (first button) should always be on
- Color Palette (third button) should always be on
- Control Palette (second button) allows you to quickly change the size of brushes and other tool features. I turn on as needed.

Change colors in various ways

Change colors using eye dropper

Toggle palettes to see effects and features available

#### Notes

#### • Zooming

Zooming allows you to enlarge sections of the image to gain finer control over individual pixels. PSP always shows you the current magnification level.

Activity

Take screen snapshot, paste into Paint Shop Pro and zoom in and out

- The easiest way to zoom is to use your scroll wheel
- Alternatively, you can use the zoom tool
  - Left-click to zoom in (enlarge). Click on the portion of the image you'd like to zoom in on
  - Right-click to zoom out (shrink)



Click Normal View button on toolbar to remove all zooming

#### Selection Tools

Selection tools allow you to select portions of an image for manipulation. I often use these tools to select a part of the image, copy it to the clipboard and paste into another application.



**Note**: When you're done using a selection, right-click anywhere in the image to remove the selection indicator.

**Note:** When you have designated a selection, all the other drawing tools only work in that selection. Good way to limit the effects of your changes.

#### Selection Box



- Allows you to draw a shape around the portion of the image you'd like to select
- Control Palette (see above) allows you to specific the shape of the selection.
- Feathering includes parts of the image around the part you select to give a blended affect (used with the images to the right).
- Select the tool, then drag around the area you want to select
- Right-click and drag again if you need to respecify the selection.

Select various areas using the selection tools

- Freehand Selection Tool
  - Allows you to select irregular-shaped areas of your drawing
  - Control palette allows you to select 3 shape specification techniques
  - ➤ Default is freehand: you drag around the area you want to select (using left mouse button)
  - Can also do point-to-point:
    - Click where you want selection to begin
    - Move mouse to next point in the selection area
    - Click again
    - Repeat above until entire area is selected
    - Double-click on last point, PSP will connect all the dots
- Magic Wand Selection Tool
   The Magic Wand uses color and logic to try to determine the area you probably want to select.
  - Select the Magic Wand, then click the portion of the document you want to select.
  - Magic Wand will select all neighboring pixels that are the same color (within the tolerance you specify in the Control Palette)
  - Use Shift-Click to add more pixels to the selection

## **Drawing Tools**

**Note:** if these drawing tools don't work, it might be because you still have a portion of the image selected. Click on any selection tool, right-click in the image (to remove all selections), then try the drawing tool again

Experiment with control palette options and draw.

Paint Brushes



- Allow you to do color changes or draw new pixels on the screen
- Control palette allows you to:
  - Specify brush size
  - Specify brush type
  - Brush shape
  - Brush hardness (set to 100 to remove fuzzy edges)
  - Others
- Left-click (or drag) to draw in forground color, rightclick or drag for back ground color



Color Replacer

- I've found this to be one of the most valuable tools in the toolbox
- Replaces all occurrences of the background color with the foreground color
- All other colors are untouched
- Set fore- and background colors
- Set options in control palette
- Drag with left button to replace fore- with background color
- Drag with right button to replace back- with foreground color.
- Double-click to change all the colors in the picture at Duplicate part of an image once.

Another option of duplicating is using selection tools and the clipboard. (See Pasting below)

Replace one color (select with dropper) with another.

Notes Activity Clone Brush Allows you to duplication part of an image to another location Must have 24-bit color (16-million) Click clone icon Adjust control palette options Right-click on part of image that you want to duplicate Point to area where duplicate is to be Paint with left mouse button until image is duplicated Retouch Tool Try it Allows you to apply special effects to portions of an image Select the Retouch tool Set the options in the control palette Drag to retouch image Eraser Try it Erases existing pixels Replaces with background color if erase with left button or foreground color if erase with right. Reverses the effects of the brushes Airbrush Try it Simulates and airbrush painting Flood Fill Fill one area with a new Replaces all contiguous pixels of one color with color another. Pixels connected at corners are **not** contiguous Select Flood Fill tool Specify control palette options Left- or right-click to fill area with fore- or background color Little plus sign on cursor is the pointer Use caution: gaps between pixels (attached at corners) can cause filling into unwanted areas **Undo** to restore.

Notes Activity Line and Shapes Tools Draw some Select tool Set Control palette options ➤ Use AntiAlias option to soften edges Drag (left or right) to draw line/shape Add name to image Text Tool Allows addition of text to image Select Text tool Set foreground color (no background option available) Click in image where text is to appear Set text options Specify text to insert Click OK > Drag to reposition text Right-click to remove selection Rotate, etc. **Tip:** Before removing selection, try some of the options under the Image menu item.

## **Cropping an Image**

Cropping allows you to select a portion of the image and then remove all of the image all of the image outside the selection.

Crop portions of an image using both methods

- Method 1
  - Use any of the selection tools to select the area of the image to want to keep
  - ➤ Select Image | Crop to Selection from the menu
  - This process can be undone
- Method 2

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- Choose the Crop tool from the Tool palette
- > Drag (left) a box around the area you want to keep
- Touch the sides of the selection box and drag to adjust the size of the selection
- > Double-click inside the area to complete the cropping
- This process can be undone

Notes Activity

Changing an Image's Size Retrieve a large image and shrink its size.

Most images you want to use in your web page are not the correct size. You can resize the image in your web development program or in HTML; however, when you do this, only the displayed version of the image is smaller—the original image is still what's stored with the web page, with its original size.

Compare file sizes of original and shrunk version.

To save space and download times you should resize (normally shrink) and resave the image in the appropriate size.

- Open the image you want to resize.
- Choose Image | Resize from the menu
- Specify the size of the image
  - Always leave *Maintain aspect ratio* option checked (unless you want to distort the image proportions)
  - Modify image size by a percentage
  - > Specify an exact image size in inches.
  - > Specify an exact image size in pixels.

## **Changing a Image Type**

Much of the clipart you will want to include in your web pages will originally be stored in a non-compressed format (BMP, WMF, WPG, etc). You'll want to convert these to one of the compressed formats so they take up less space (**much** less space) on your web pages.

- Open the image to convert
- Choose File | Save As from the menu
- Specify file location and file name
- Change Save as Type... option to one of three web graphics types (GIF, JPG, or PNG)

Convert any uncompressed image to a compressed type.

## **Change Image Transparency**

Often you'll want to remove an image's background color so you can paste it into any page and have that page's background continue to show through.

At the writing of these notes, I am no PSP expert. The following in the only way I've discovered to remove a background color from an existing image.

- Open the image whose background you want to remove.
- If necessary, change the background color of the image to a color that is not used within the image.
  - This will ensure only the background is transparent and not other parts of the image.
  - The Flood Fill tools simplifies this process.
- Select Colors Set Palette Transparency from the menu
- If your image has more than 256 colors (not a gif image),
   PSP will inform you that conversion to 256 color is required. Click the Yes button to start the conversion.
   Click the OK button in the **Decrease Color Depth** dialog that appears next. Note: these dialog boxes only appear if more the 256 colors are being used.
- In the Set Palette Transparency dialog box, choose the second option (Set the transparency value to the current background color).
  - You can click the **Proof** button to see the affects of the change on your image.
  - The checkerboard pattern designates the transparent areas of your image.
- Click the OK button to accept the changes or the Cancel button to leave the image as it is.
- The image now has a transparent color, but PSP does not automatically show it because it makes further image editting a little harder. To always show the transparent color, select Colors
   View Palette Transparency from the menu.
- Save the new, transparent image.

Create a red ball on a green background.

Copy the ball to a transparent image.

# Changing an Image's Brightness/Contrast

When images are scanned or come from a digital cameral, their colors are often a little off. Changing an image's contrast and/or brightness can make a big difference very quickly.

Open an image and experiment with brightness and contrast settings.

- Open the image that needs to be modified
- Choose Colors | Adjust from the menu
- Choose Brightness/Contrast
- Drag the sliders to adjust the brightness and/or contrast of the image.
- Click proof to see the results in your actual page
- Set values to zero (0) to return to original

## Transforming an Image

Most drawing programs coming with tools to change an image's appearance. Trying to describe these tools is very difficult. I suggest you locate these tools and experiment with them to see if you can find the image transformation you like.

Load an image and experiment with the transformations

**Tip:** Not all image editing programs have the same transformation tools. If you can't find the transformation you want in one tool, try another.

Transforming images in PSP:

- Change the image color depth to 16 million colors (Colors | Increase Color Depth on menu)
   All PSP transformations require this color palette.
- Select Image from the menu
  - ➤ Deformations, Effects and Filter Browser contain transformation tools. Experiment with them.
- Select Colors from the menu
  - Negative Image, Posterize and Solarize are transformation tools. Experiment with them.