

Image Editing

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IMAGE EDITING

Being able to manipulate and edit images can be a useful tool for many tasks, whether it is to fix up an image, or to help design documentation to get your point across.

Understanding tools to modify photographs or editing illustrations can be useful for a programmer to help plan out a game by creating or modifying images to use as temporary assets.

This handout will show you two common file formats that digital images. We will also look at the basic tools of the professional software Photoshop and some basic tasks, such as resizing and making a transparent background.



Image Editing

IMAGE FORMATS

We will be dealing with images throughout our projects. But what format should these images be? There are dozens of image types, each suited to a specific task.

JPG

- The most common format
- Smallest file size
- Compresses images to achieve small file size
- Compressing images for the JPG format causes them to lose quality
- No transparency
- Works on all devices
- Has three colour channels RGB

JPG's are the most common image format found online, primarily as they are the smallest image format available.

JPG's also work on every modern device that can display standard web pages.

Every digital image is made up of only three colour "channels". Red, Green and Blue.

These channels combine to form complete images. Take any of these channels away and you will have an odd looking image!

Take a look at our fuzzy friend to see how taking a single channel out will affect an image.



Image Editing

PNG

- Common format
- Larger file size than JPG
- Does not compress images
- By not compressing images PNG is known as a "lossless" format.
- Supports transparency
- Has four colour channels RGBA
- Works on all devices

PNG images are used whenever we want to either preserve the quality of an image perfectly or we want our image to have transparency.

PNG's have an additional colour channel that JPG's do not. This additional channel is called the "Alpha" channel.

The alpha channel defines which parts of an image should be transparent and which parts should be solid.

We have our friend the koala showing the additional alpha channel, the alpha channel has allowed us to hide his tree!



Image Editing

BASIC EDITING TOOL

There are many image editing software packages in the world. Photoshop is one of the most used professional packages out there. Gimp (<http://www.gimp.org/>) is a free alternative with a toolset similar to Photoshop.

For this tutorial we will look at the basics of Photoshop, however many of these ideas can transfer to other image editors.

PHOTOSHOP GETTING STARTED

The following page details what tools are commonly used to create the images needed for 2D.

When you open Photoshop you will see that it has tabs to each side and also across the top. On the following page is a screen shot with some indicators that will show you key parts. Following this page is a list of commonly used tools.



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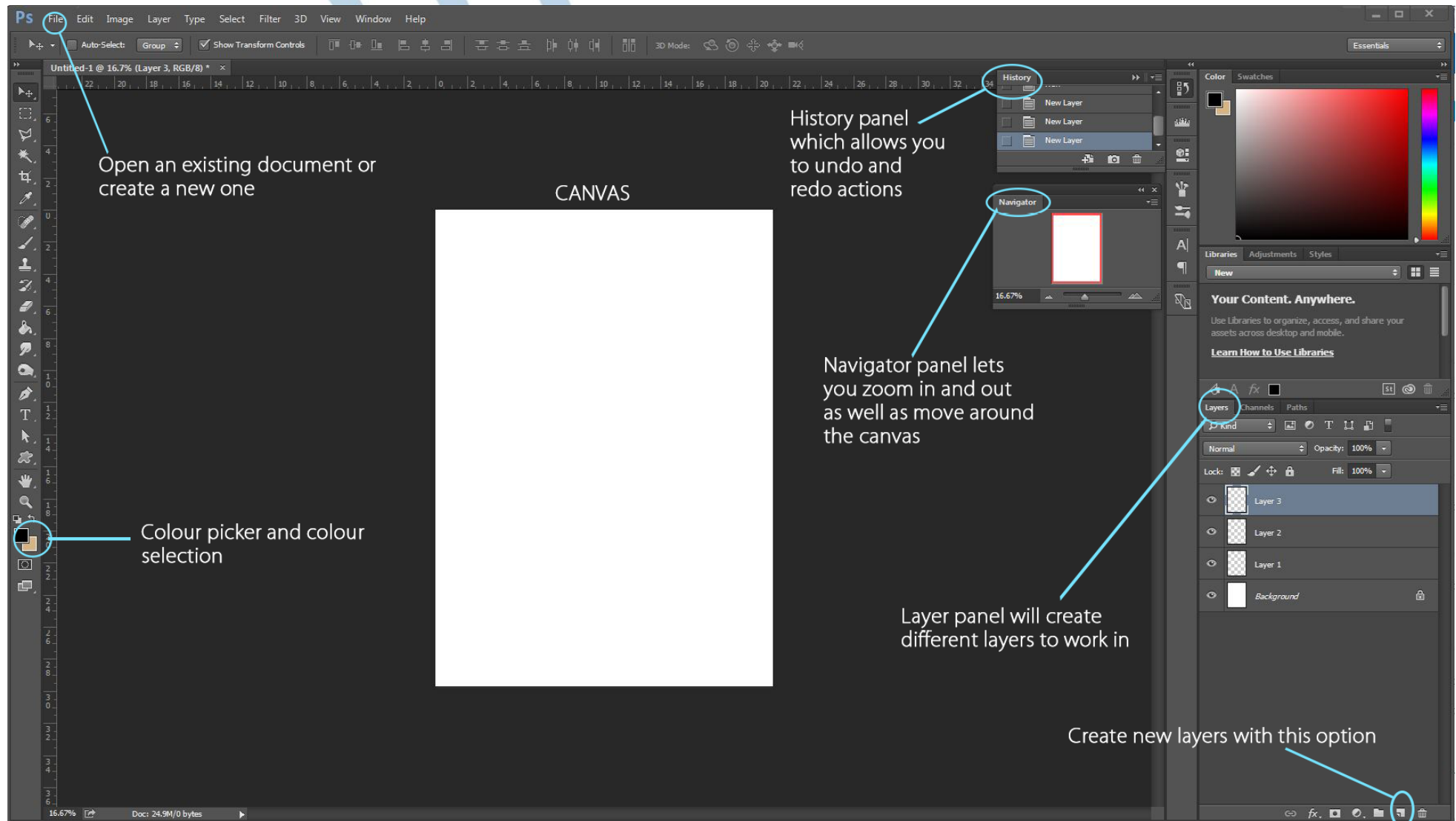


Image Editing

PHOTOSHOP TOOLS



Move Tool

Marquee Selection

Lasso Selection

Magic Wand Selection

Crop Tool

Eyedropper

Spot Healing Brush

Paint Brush

Clone Stamp

History Brush

Eraser

Paint Bucket

Blur Tool

Dodge Tool

Pen Tool

Text Tool

Path Selection

Shape Tool



RECTANGULAR MARQUEE TOOL (M)

Use this tool to make selections on your image, in a rectangular shape.

This changes the area of your image that is affected by other tools or actions to be within the defined shape. Holding the [Shift] key while dragging your selection, restricts the shape to a perfect square. Holding the [Alt] key while dragging sets the centre of the rectangle to where your cursor started will expand the selection.



LASSO TOOL (L)

This holds the Lasso Tool and also the Polygon Lasso (pictured above). Use this to draw selections in whatever shape you would like. The Lasso tool selects everything you draw around freehand. The Polygon Lasso needs to be closed - either click on the beginning point (you'll see the cursor change when you're on it), or just double-click. When holding the [Ctrl] key, you'll see the cursor change, and the next time you click it will close your selection.



Quick Selection Tool W
Magic Wand Tool W

MAGIC WAND TOOL (W)

Use this to select a colour range. It will select the block of colour, or transparency, based on wherever you click. In the Options Bar at the top, you can change the Tolerance to make your selections more/less precise.



BRUSH TOOL (B)

This paints on your image in whatever colour you have selected, and whatever size you have selected. More advanced work can be done by creating your own brushes.



ERASER TOOL (E)

This is the anti-Brush tool. It works like an eraser and erases information wherever you click and drag it. If you're on a Layer, it will erase the information transparent. If you are on the background layer, it erases with whatever secondary colour you have selected.



COLOUR BOXES

Foreground (in the front). Background (in the back). Click on either one to bring up the colour select dialog box.

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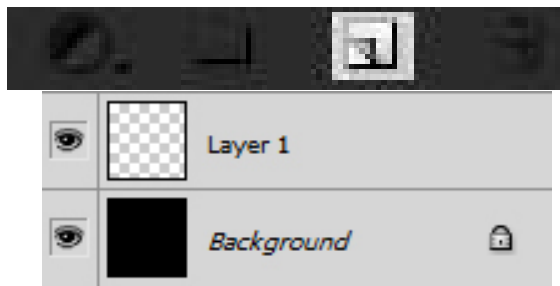
USING LAYERS

When texturing in Photoshop we can make use of layers. Layers give us control over:

- Visibility.
- Opacity (transparency).
- Blending between layers.

We will go through adjusting opacity levels on layers which will help you to add detail when texturing.

You can create a new layer by clicking the below icon in the bottom right of Photoshop. This will create a new layer.



This can be useful when we want to have a transparent background as the Background layer is locked and has a solid background.

SAVING AS A FORMAT

When you save your image you can select which format you want to save your image in. You need to be careful though as when you save it in one format it could affect the quality of the image.

To save go to

File -> Save As...

Underneath the file name is a drop down menu of file types. You can select JPEG or PNG or the native Photoshop PSD file from here.

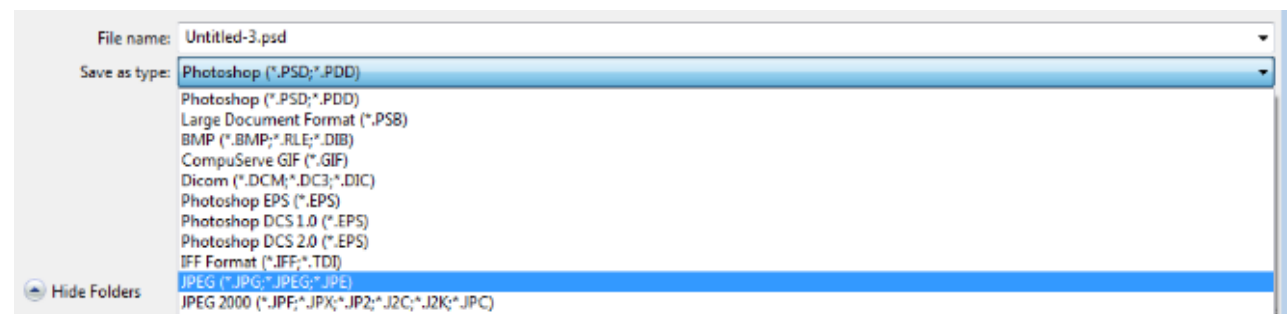
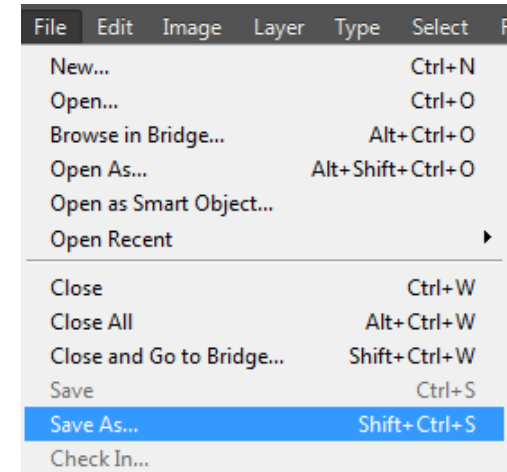


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MAKING A TRANSPARENT BACKGROUND

Prepare image for PNG Preparing an image to be PNG requires us to tell Photoshop which parts of the image should be transparent.

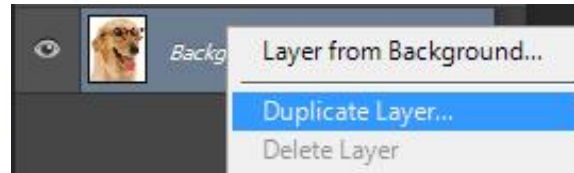
Load the “dog.jpg” into Photoshop from the “convert to png exercise” folder in today’s lesson.



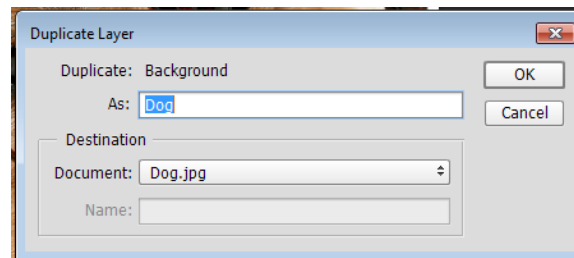
Currently this image has a white background, we want to remove this so it becomes transparent.

1. We need to duplicate the background layer as background layers can’t be edited for transparency in Photoshop.

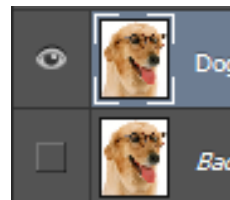
2. Duplicate the background layer by right clicking on it and selecting “Duplicate Layer”.



3. Call it “dog”



4. Turn off the visibility on the background layer.



To remove the white background from our dog image we can make use of Photoshop’s “magic wand” tool. This tool selects a single colour in one easy click.

1. Select the magic wand tool from the tools panel.

2. Click anywhere on the white of the canvas around the dog.
3. Click delete.
4. Go to the Select menu
Select -> Deselect
This clears the magic wands selection.



You should have a similar result to the below image.



The checkers in Photoshop represent transparency, so anywhere you see checkers in an image within Photoshop will become transparent in software such as Flash, 3D packages such as Maya and game engines like UDK.

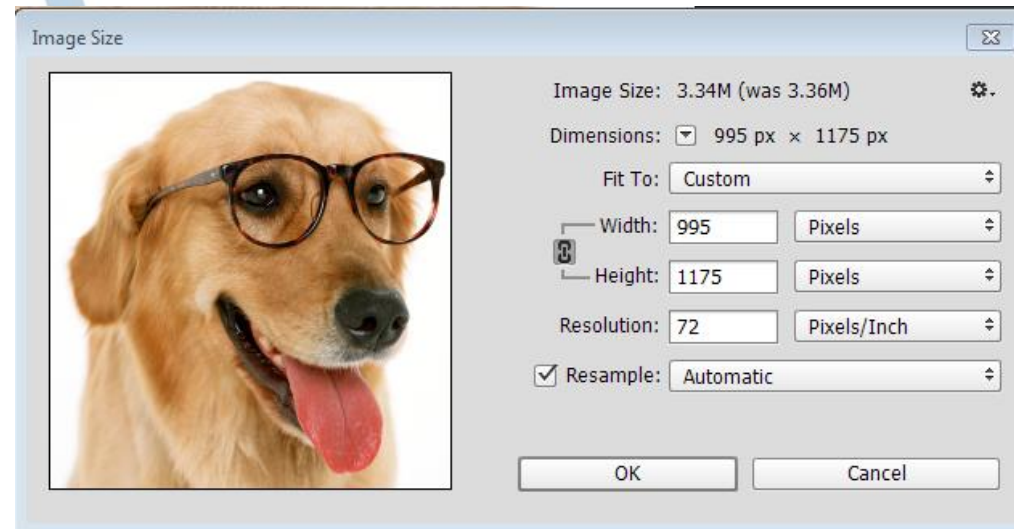
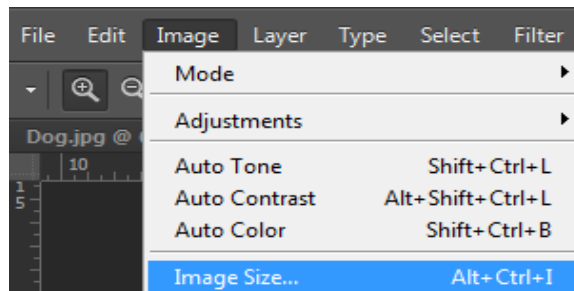
Image Editing

RESIZING IMAGE

Sometimes your image is very large in size. This can be bad when you want to keep the file size of your image down.

We can change the size of the image by going

Image -> image size



From here you are able to change the Width and Height of the image

The Resolution is also important. It says how many pixels can be stored in an inch of an image.

If you want to print a poster the higher the resolution the better but it also increases the file size. 300 is a good size for a basic poster.

For the internet and for our game, a resolution of 72 is said to be the best and is the standard.

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ADDING IMAGES TO A FILE

Sometimes we want to add other images to our file

If you copy an image on another page you can past it into the page you want to.

With this image of the moustache, we want to select the mustachio but not the white border. But to get that we still want to select our boarder

1. Grab the magic want tool and select the white boarder

You will now have it selected. However, if you look closely, not all the white spots have been selected.

We can fix this by de-selecting the Contiguous tickbox in the options

In the menu below the menu bar

Un-tick Contiguous.

Select again

You will notice that all the white space is selected now.

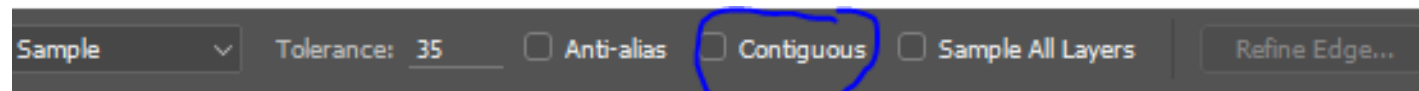


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We still have the outer area selected, we want to select the moustache

2. In the menu, select
 - a. Select -> Inverse

This will flip the selection around. So What was once selected is not, and what was not is now selected

3. Copy the image
 - a. File -> Copy
4. Open up the image you want to paste it in
5. Paste the image
 - a. File -> Paste

It should create a new layer and paste the image onto the screen

Though it is looking a little big. We should resize the moustache image

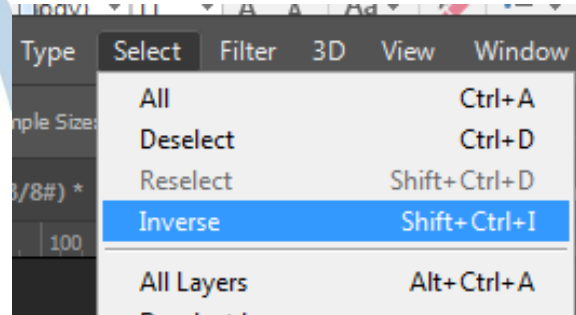


Image Editing

RESIZING A SELECTION/LAYER

To resize a selection or layer we are on we can edit its size and rotation using, Free Transform

1. Make sure you have selected the moustache layer
2. Select **Edit -> Free Transform**

A box should surround the layers' image

With the small boxes placed around the large box, you can use it to pull and stretch the size of the image.

Depending on where the mouse in depends on how the image is pulled. The icons to your right indicate the direction it will be pulled

You can hold the **shift** key to keep everything uniform

If you go out a little distance in the corners your mouse will turn into a rotation icon. This will allow you to rotate the image

3. Move and position the Moustach so it is underneath the dogs nose, and is a good size and rotation.
4. When you finished transforming. Hit the **Enter** key

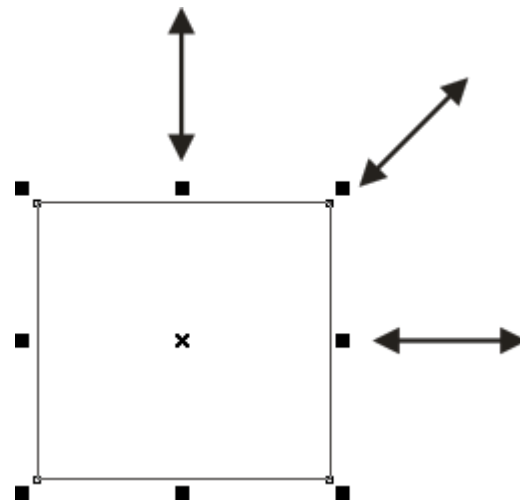
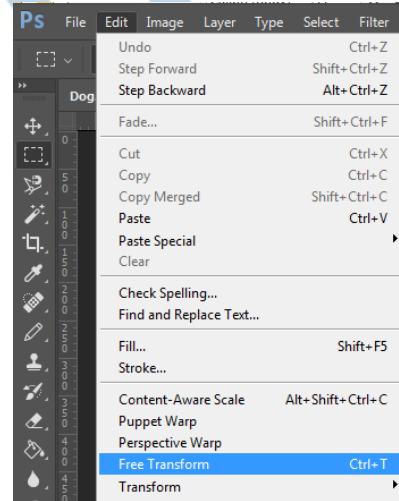


Image Editing

ADDING TEXT TO A FILE

It is not that difficult to add some text to your image.

1. Select the T icon on the icon bar
 - a. Either click on the image screen, or click and drag to create a text box

This will create a text layer that you can write in.

If you just clicked your text will keep going across the screen until you press the enter key

If you clicked and dragged, then it will create a box that the text will be confined too. If it goes past the bottom of the text, it will leave the screen

You can change the size, font, style and positioning of the image in the context menu below the menu.

