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Selections 101

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Selections 101

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Photoshop Conference — Orlando '97

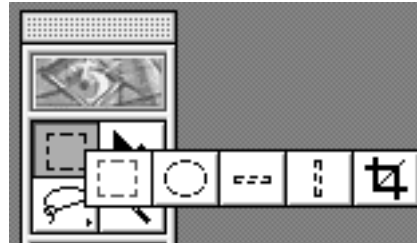
Selections • Alpha Channels • Masks: What's It All Mean?

If you can imagine an image, it can probably be created in Photoshop 4. Images can be manipulated using a wide array of sophisticated editing tools. Areas of an image can be isolated so that changes will take place only in that area. There are several tools and techniques that can be used to isolate or select an area. Once an area is selected, it is defined on screen by “marching ants,” or moving dotted lines. A selection can be saved for use at a later time in a new channel that is often called an alpha channel or mask channel. The mask that is created when a selection is saved can be activated at any time, and will mask off the portions of the image that are outside the selected area. Areas outside the selection that are masked off are protected from any changes that are made in Photoshop.



Selection Tools — Toolbox

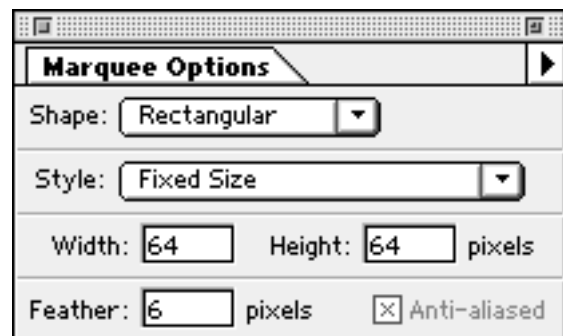
There are three basic selection tools at the top of the toolbox: the **Marquee tool**, the **Lasso tool**, and the **Magic Wand tool**. These tools provide varying methods of isolating or selecting portions of an image.



The Marquee Tool

The pulldown menu of the marquee tool allows you to choose from the

following four different shape options: Rectangular, Elliptical, Single Row, and Single Column. The **Cropping tool** is also accessed under the Marquee tool pulldown menu. Double clicking on any of the Marquee tools displays the Marquee Options palette where several options are available including shape, style, feather, and an “anti-aliased” checkbox. When the elliptical or rectangular shapes are chosen, **Normal**, **Fixed Size**, and **Maintain Aspect Ratio** size options are activated.



The “Normal” option allows rectangular and elliptical selections of varying sizes and aspect ratios to be created. The “Fixed Size” option allows a specific width and height to be specified in pixels. The “Maintain Aspect Ratio” option allows a specific width/height aspect ratio to be specified. When dragging with the rectangular or elliptical marquee tools, holding down the Shift key constrains the selection marquee to a square or circle. Holding down the Option/Alt key drags the selection marquee from the center.



The Lasso Tool

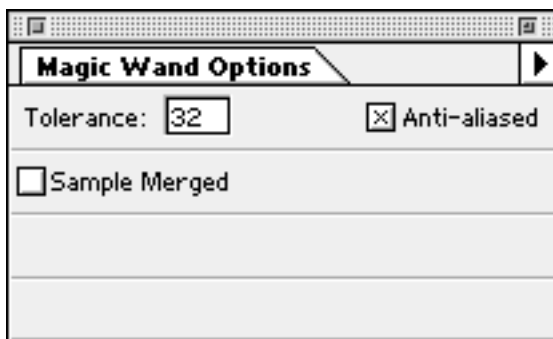
The pulldown menu of the Lasso tool allows you to choose either the Lasso tool or the Polygon Lasso tool.

Double-clicking on either of the Lasso tools displays the corresponding options palette

where the feather and anti-aliased options are available. Dragging with the Lasso tool creates freehand selections. Holding down the Option/Alt key when dragging with the Lasso tool results in a straight edged portion of the resulting selection. Using this technique, often called the rubber band option, allows for the creation of a selection that has both freehand and straight line edges. Dragging with the Polygon Lasso tool creates a selection made up entirely of straight edges, with each corner point of the selection being established by clicking the mouse.

The Magic Wand Tool

There is no pulldown menu for the Magic Wand tool. Double clicking on the magic wand tool displays the Magic Wand Options palette where the **Tolerance**, **Sample Merged**, and **Anti-Aliased** options are available.



The Magic Wand tool makes a selection of similar colors based upon the brightness values of the pixel clicked on. The range of similar colors selected is determined by the tolerance setting used. In a grayscale image, the value of the pixel clicked on is determined, and the tolerance setting is applied to select both lighter and darker pixels. If a tolerance setting of 10 is used, pixels in a range from ten values lighter to ten values darker will be selected. In a color image, the brightness values in each color

channel are evaluated to establish which pixels will be selected.

Feather

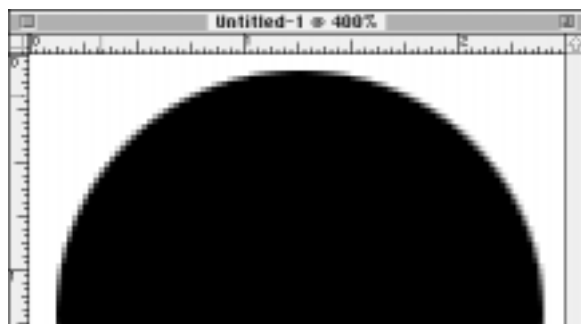
When using the Lasso tool or any of the four shape options of the Marquee tool, a **Feather** can be specified in pixels. Applying a feather to a selection will soften or gradually fade out the edges of the selected area. The softening or fading of the edges will start inside the selected area and end outside the selected area. For example, if a 12-pixel feather is applied, the softening will begin six pixels inside the selection, and will end six pixels outside the selection.

Anti-Aliased

When using the Lasso tool, the Magic Wand tool, or the elliptical option of the Marquee tool, **Anti-Aliased** can be activated in the options palette. When anti-aliased is activated, Photoshop 4 uses bicubic interpolation to soften the edges of a selection by creating intermediate brightness values to “fill-in” jagged edges or stair steps. The resulting image appears cleaner with no apparent jagged edges.



Anti-aliased inactive!



Anti-aliased active!

Modifying Selections

Moving a Selection

A selection border can be moved to enclose a different area of an image. With any selection tool active, clicking within the selection and dragging will reposition the selection. When the cursor is positioned within an existing selection with a selection tool active, the cursor changes into the “selection pointer” indicating that clicking and dragging will reposition the selection. To control the movement of an existing selection, use the following techniques:

- Hold down the shift key after you have begun dragging a selection to constrain the direction of movement to a multiple of 45 degrees.
- Use the keyboard arrow keys to move the selection one pixel at a time.
- Hold down the shift key and use the keyboard arrow keys to move the selection 10 pixels at a time.

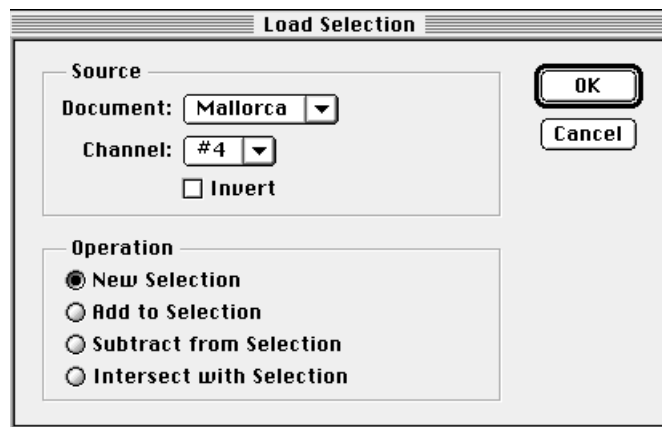
Saving a Selection

Selections can be stored as masks in alpha channels so that they can be edited or used in the future. The easiest method of saving a selection is to click on the **Save Selection** button at the bottom of the Channels palette. This will create a mask of the selected area in a new channel using the default settings. The name and display options of a channel can be changed by double clicking on the channel name in the Channels palette. Additional options are available by choosing the Save Selection command located under the **Select** menu.



Loading a Selection

A saved selection can be activated or reloaded into an image by selecting the appropriate alpha channel and clicking on the **Load Selection** button at the bottom of the Channels palette. Command/Control-clicking an alpha channel in the Channels palette will also load that selection. To add a saved selection to an active existing selection, hold down the Command/Control+Shift keys and click the channel in the Channels palette. To subtract a saved selection from an active existing selection, hold down the Command+Option/Control+Alt keys and click the channel in the Channels palette. To load the intersection of a saved selection and an active existing selection, hold down the Command+Option+Shift/Control+Alt+Shift and click the channel in the Channels palette. Additional options are available by choosing the Load Selection command located under the **Select** menu.



Adding to a Selection

(also see Loading a Selection above)

An existing selection can be added to, or more than one area of an image can be selected at a time. To add to an existing selection, hold down the Shift key and use any selection tool.

Subtracting from a Selection

An existing selection can be subtracted from by holding down the Option/Alt key and using any selection tool. The newly selected area will be removed from the original selection.

Selecting a Portion of an Existing Selection

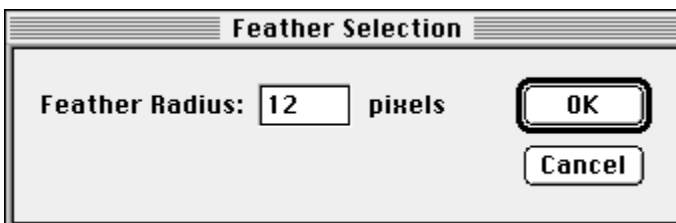
A portion of an existing image can be selected by holding down the Option+Shift/Alt+Shift keys and using any selection tool. The newly selected area will remain selected, with the remainder of the original selection being removed.

Inverting a Selection

Inverting a selection results in all of the image pixels outside of the original selection being selected, and all of the image pixels inside the original selection being de-selected. This can be useful when attempting to select a complex object against a simple background. Select the simple background and invert the image to achieve a selection of the complex object. To invert an existing selection, choose **Inverse** from the **Select** menu.

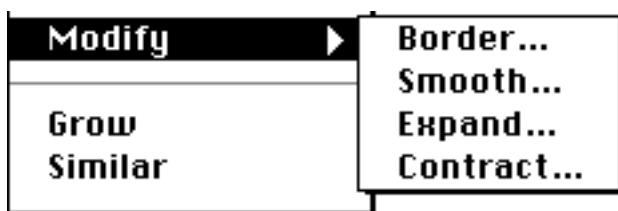
Feathering a Selection

The edges of an active selection can be softened by applying a feather to the selection. Applying a feather to a selection will soften or gradually fade out the edges of the selected area. The softening or fading of the edges will start inside the selected area and end outside the selected area. For example, if a 12-pixel feather is applied, the softening will begin six pixels inside the selection, and will end six pixels outside the selection. To apply a feather to an existing selection, choose **Feather** from the **Select** menu and indicate, in pixels, the radius of the feather to be applied.



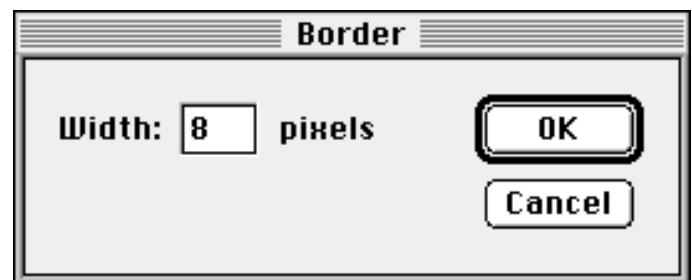
Modifying A Selection

When a selection is active, the following four **Modify** commands become available in the **Select** menu:



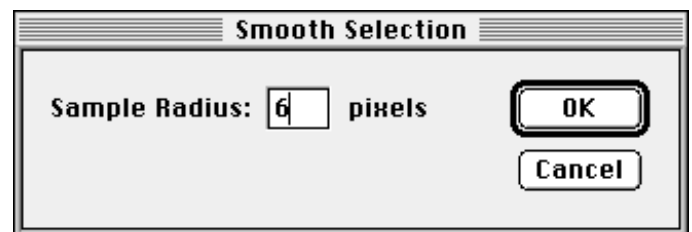
• Border

The **Border** command produces a selection of the area around the perimeter of the original selection. The width of the new border selection is specified, in pixels, in the Border command dialog box. If a border width of 8 is specified, the resulting selection will extend four pixels inside and four pixels outside the original selection perimeter. The Border command can be useful for isolating the edges of objects that look cut-out when composited. Select a border around the composited object and blur within that border to replace the cut-out look with a more realistic blending of the object and its surroundings.



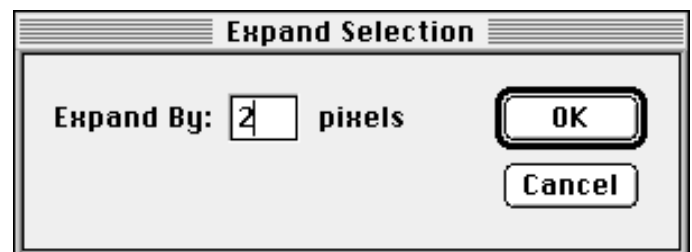
• Smooth

The **Smooth** command adds or subtracts stray pixels from the edges of a rough or jagged selection. The radius of the area to be affected is specified, in pixels, in the Smooth command dialog box.



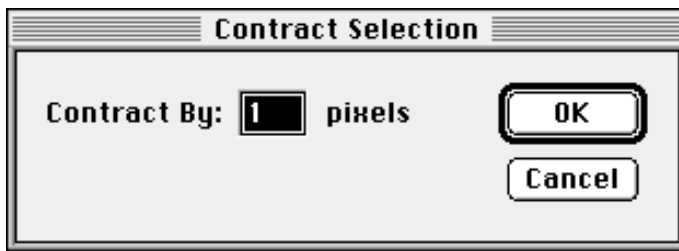
• Expand

The **Expand** command increases or grows the size of a selection by the number of pixels specified in the Expand command dialog box.



• Contract

The **Contract** command decreases or shrinks the size of a selection by the number of pixels specified in the Contract command dialog box.



Using the Grow Command

The **Grow** command expands an existing selection to include adjacent pixels that fall within the tolerance range specified. The Grow command uses the tolerance range specified in the Magic Wand tool Options palette. To apply the Grow command, first specify a tolerance value in the Magic Wand tool Options palette, and then choose **Grow** from the **Select** menu.

Using The Similar Command

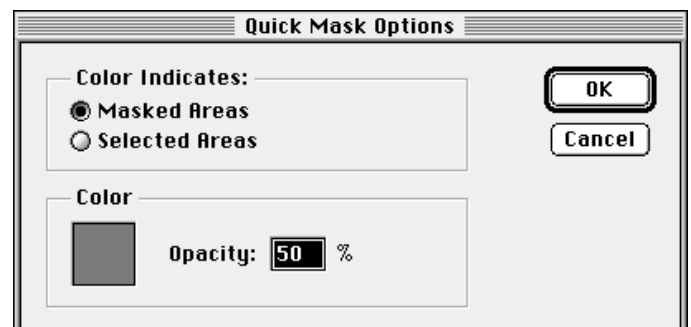
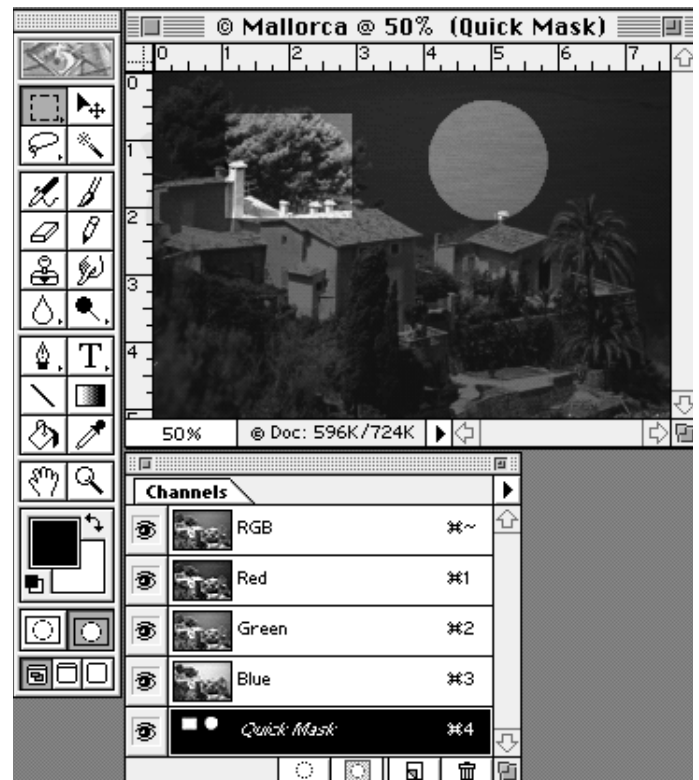
The **Similar** command expands an existing selection to include pixels throughout the image (not just adjacent pixels) that fall within the tolerance range specified. The Similar command uses the tolerance range specified in the Magic Wand tool Options palette. To apply the Similar command, first specify a tolerance value in the Magic Wand tool Options palette, and then choose Similar from the Select menu.

Other Selection Tools and Techniques

Editing in Quick Mask mode

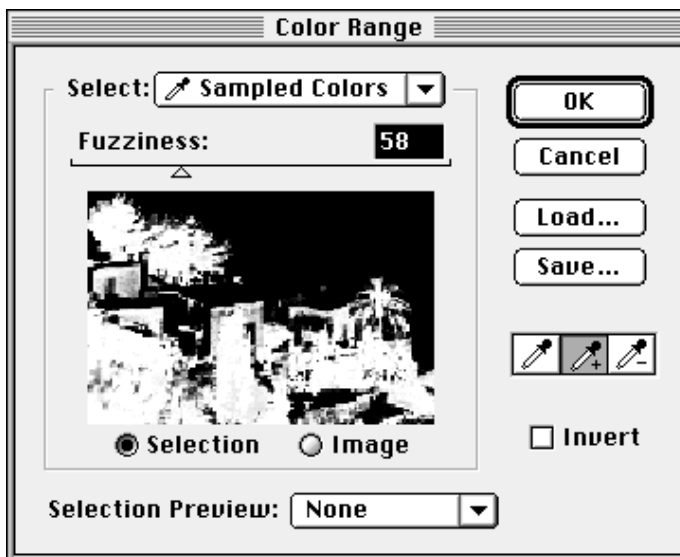
Selections can be viewed, altered, or created in the **Quick Mask** mode. When working in the quick Mask mode, a selection is saved temporary as an 8-bit grayscale mask in the Channels palette. When an image with an active selection is viewed in the Quick Mask mode, the unselected areas of the image are covered by a visible mask, and the selected areas are viewed normally. In the Quick Mask mode, the mask and image are viewed simultaneously, and the mask can be edited using any painting tool. When editing the 8-bit mask, you are limit-

ed to grayscale values only. By default, painting with black adds to the mask, resulting in a reduction in the size of the selected area. Painting with white subtracts from the mask, resulting in an increase in the size of the selected area. Painting with a gray value produces a semi-transparent mask.



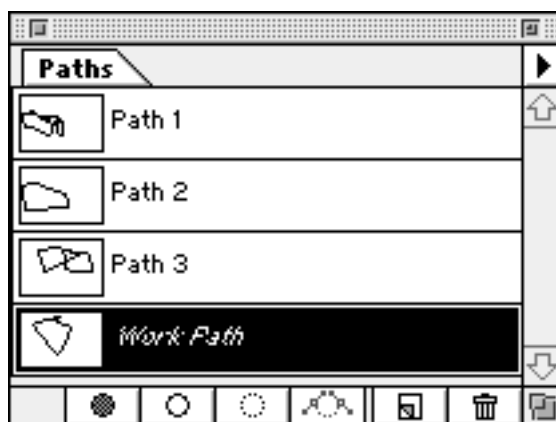
Selecting Using Color Range

The **Color Range** command produces a selection based upon either a color sampled from an image, or from a preset range of colors. To make a selection based upon color, choose **Color Range** from the **Select** menu. The range of color to be selected can be increased or decreased by adjusting the **Fuzziness** slider in the Color Range dialog box.



Selecting Using the Pen Tool

The Pen tool can be used to create line and curve segments that combine to make up a path. A path defines a shape or area using a smooth anti-aliased outline. Paths can be used to save simple masks that can be converted into selections. Paths can also be used to “clip” areas within an image for exporting to other applications.



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