An Introduction to GIMP

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Contact Information

The following table contains MultiGen-Paradigm, Inc. contact information for product support in Addison.

Contact Method	For Product Support:
Email	vega@multigen-paradigm.com
Website	http://www.multigen-paradigm.com
Customer Support and Licensing	877-289-5670 (toll free)
Mail	MultiGen-Paradigm, Inc. 5465 Legacy Drive Plano TX 75024 USA

The following table contains MultiGen-Paradigm, Inc. contact information for product support in San Jose.

Contact Method	For Product Support:
Email	creator@multigen-paradigm.com
Website	http://www.multigen-paradigm.com
Customer Support and Licensing	877-289-5670 (toll free)
Mail	MultiGen-Paradigm, Inc. 2044 Concourse Drive San Jose CA 95131 USA

An Introduction to GIMP

The **GNU Image Manipulation Program** (GIMP) has been included on the Creator installation CD for users who do not have a graphic editor for creating and editing texture patterns. GIMP is similar to Adobe Photoshop® and has many of the same concepts and functions. Users who are already familiar with Photoshop should find using GIMP reasonably easy. For users who are familiar with the Texture Editor in Series II or Creator, this document will describe some of GIMP's basic concepts which may differ from the Texture Editor.

Note that this document is NOT a user's manual. It contains world wide web locations to obtain "how to" information, some key concepts pertinent to using GIMP for creating SGI textures, and a few important notes and examples.

A compiled copy of GIMP can be found in the `/GIMP` directory on the Creator CD. GIMP can also be downloaded from several world wide web sites. `www.gimp.org` lists numerous ftp and web sites (see "GIMP References" on page 14).

Installing and Launching GIMP

GIMP is not automatically installed with the default Creator installation. To install GIMP you must choose **Customize Installation** in the Software Manager and select GIMP from the list of installable modules.

You can launch GIMP from a shell window (from any directory, but you can also associate it with Creator so that it launches automatically whenever you choose **/Edit/ Edit Pattern** in the Texture palette.

To associate GIMP with Creator:

1. Start Creator.
2. Choose **Info/Preferences** and click the **Texture** tab.
3. In the **Texture Editor** field, type in the path and executable file name for GIMP (by default this is `/usr/gimp/bin/gimp`), or browse the file system and select the correct path and executable file, and then click **OK**.

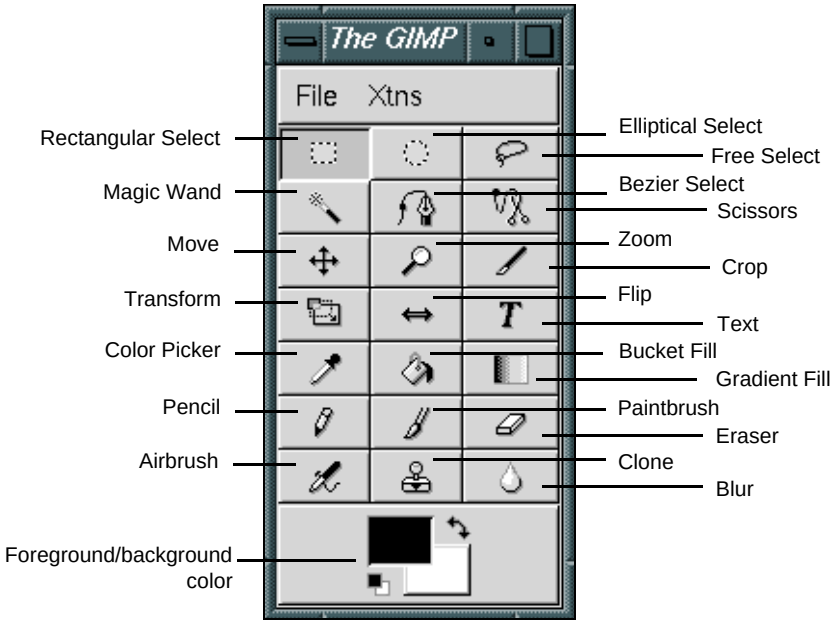
Basic GIMP Concepts

The following sections describe some of GIMP's basic concepts. These will be helpful if you are not familiar with Adobe Photoshop or GIMP.

Tools

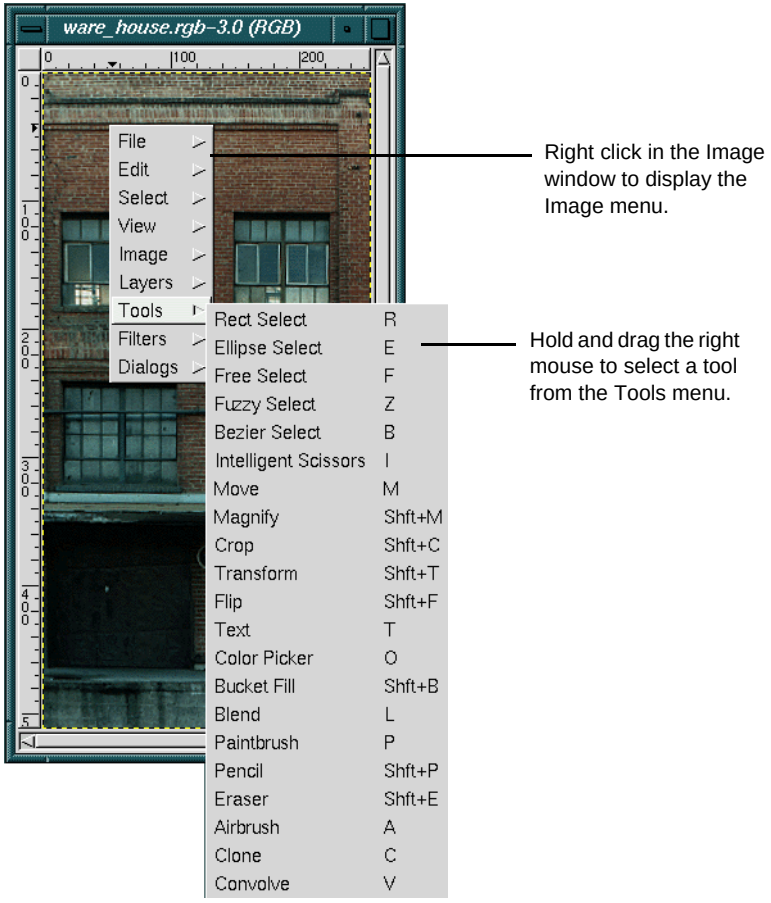
When GIMP opens, a Toolbox opens with a menu above it. You use the Toolbox to create new files, load existing ones, select and edit your image.

To load an existing file, choose **File/Open** and select a file. To create a new image file, choose **File/New**.



When an image file is open, you can choose an editing tool by clicking the tool in the **Toolbox**. Double clicking a tool opens the ***Tool Options*** dialog box for the selected tool.

You can also select tools by opening the Image menu. To select a tool from the Image menu, right-click anywhere in the Image window. Holding the right mouse down, drag the cursor down to the **Tools** menu item and select the desired tool from the secondary menu.



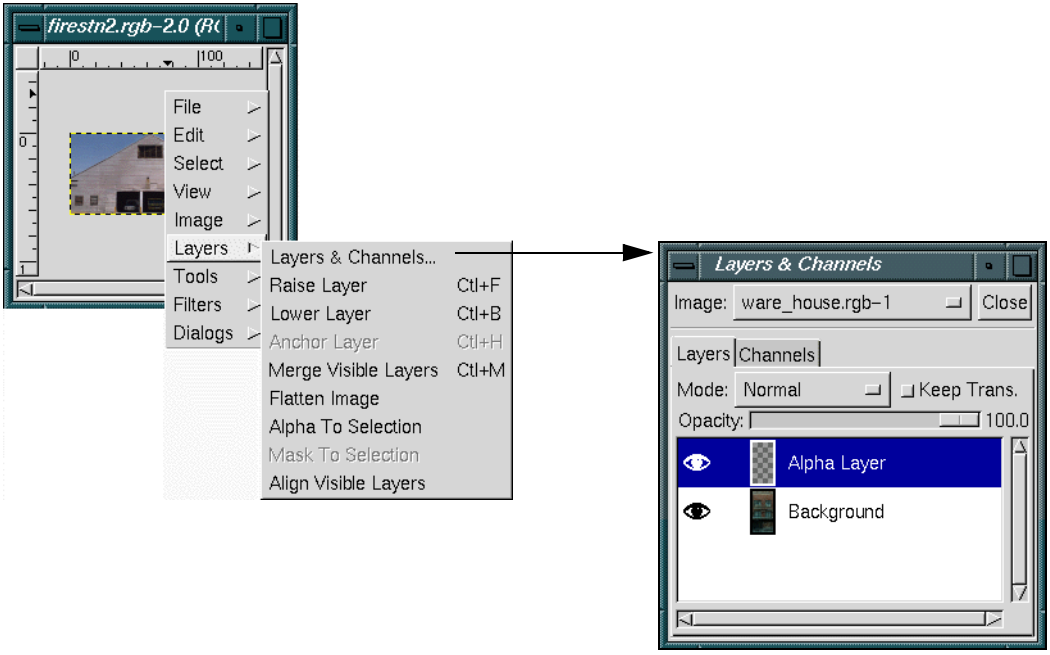
Layers

GIMP utilizes ***layers*** to manipulate image data. Layers are buffers of image data. Texture patterns are created with layers of image data that can each be modified independent of the other layers. This layering processing is generally only used during the creation

and editing process. Once the editing is complete, extraneous layers are deleted and the remaining layers are combined to form a composite image.

For example, when creating an RGB-alpha texture pattern, the RGB image data can be created as one layer, and the alpha data as a second layer. Each layer can be modified as desired. When the editing is finished, the layers are ***flattened*** or ***merged*** to form a single composite layer of RGB-alpha image data and saved as an SGI RGB-A texture pattern file.

Layers are controlled and viewed through the ***Layers & Channels*** window. To open this window, right click in the ***Image*** window to open the Image menu, and then select **Layers/Layers & Channels.** When an image file is open, the ***Layers & Channels*** window displays the layers defined for the image file.



Using the Tools and Menus

The following sections present a few basic concepts and useful tips for using the select and edit tools effectively

Selecting

- You can only select items in the currently selected (active) layer.
- To add to a selection, hold down Shift while selecting an additional region. To subtract from the current selection hold down Ctrl and select the region to deselect.
- When adding to or subtracting from the current selection, you can change selection tools.
- In addition to the selection tools in the Toolbox, the Image menu's Select menuitems contains additional selecting functions, such as Toggle, Invert, Sharpen, and Shrink.

Editing

- You can only edit selected areas. Unselected areas are masked.
- You can edit an entire layer when you choose **Select/All**, or **None** from the Image menu.
- You can only edit the active layer. Edits are applied to the active layer, even when its display is turned off.
- In addition to the tools in the **Toolbox**, the Image menu's **Edit** menuitem contains additional editing functions such as **Cut**, **Copy**, **Paste**, and **Stroke**.

Undo

The **Undo** (Ctrl+Z) function is one that will be used frequently when editing an image file. To undo the last action and return the image to its state before the action was performed, from the Image menu choose **Edit/Undo**, or use the keyboard shortcut, Ctrl+Z. You can specify multiple levels of Undo in the Preferences.

Copy and Paste

You can copy and paste selected image data from one layer to another. You can also copy and paste data from one image file to another, as long as the image format of the copied file is compatible with that of the receiving file. For example, if the receiving file is a grayscale image, and rgb data is being pasted into the file, the rgb data will be converted to grayscale in the receiving file since the file types are different.

Supported Image File Formats

GIMP supports the import and export of the following image formats. Note that GIMP cannot write out to every format that it can read in. If GIMP cannot write out the format you need, you can write the file out to SGI format and then convert it in SGI's ImageWorks.

Format	Read	Write	Notes/Description
BMP / DIB*	X	X	Microsoft bitmap image
CEL	X		
FITS	X	X	Flexible Image Transport System
FLI	X		
FAX G3	X		
GBR	X		
GIF	X		Compuscene image format
GLCON	X		
HEADER		X	
HRZ	X	X	Slow scan TV files
HTML		X	
JPEG*	X	X	
PAT	X	X	
PCX*	X	X	Zsoft IBM PC Paintbrush file
PIX*	X	X	Alias / Wavefront rle format
PNG	X	X	Portable Network Graphics
PNM	X	X	Portable Anymap
PSD	X		Adobe Photoshop
Postscript	X	X	Adobe postscript
SGI	X	X	
SUNRAS	X	X	Sun raster files
SNP	X		
TIFF	X	X	
XCF	X	X	GIMP native format
XWD	X	X	X Windows System dump file
XPM	X	X	X Windows System Pixmap
* Writeable to SGI format			

Converting Images to SGI Format

GIMP converts only BMP, JPEG, PCX and PIX to SGI format. Creator can read and utilize a number of image file formats, but it cannot convert images to SGI format.

To save a file to SGI format, select **Image Menu/File/Save As**. Choose SGI in the **Save Option s/Determine file type** list, or choose **By Extension** and specify the file type by appending a `.rgb` extension to the file name in the **Selection** field.

Saving Work In Progress

GIMP's native image file format is `XCF`, which retains the layer information. This can be utilized as an "in progress" save format. For example, a very complex image with multiple layers may be too complicated to complete in one editing session. Save the file in XCF format to preserve the layers so that you can continue editing in subsequent sessions without losing the layer setup.

Sample GIMP procedures

While this document is not a user's manual, the following sample procedures provide a quick look at GIMP's menus and tools.

Creating an Alpha Texture

The following example procedures will illustrate how to create an alpha texture of your name.

Method A:

1. Choose **File/New.** The ***New Image*** dialog box opens.

2. Enter the following information:

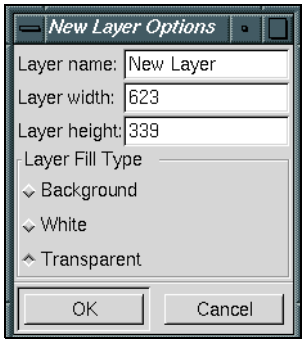
   Width: 256
   Height: 256
   Image Type: RGB
   Fill Type: Background

3. Click **OK**. The ***Image*** window opens with a new blank image.

4. Right click in the Image window to open the Image menu and choose **Layers/Layers & Channels.** Leave the ***Layers & Channels*** window open on your desktop.

5. Click the **Pencil** tool in the **Toolbox** and draw your name in the image. The layer in the ***Layers & Channels*** window shows a thumbnail of the image.

6. Right-click a layer in the ***Layers & Channels*** window, and choose **New Layer** from the menu. The ***New Layer Options*** dialog box opens.



7. In the **Layer Name** field, type Alpha Layer, and set **Layer Fill Type** to Transparent. Two layers will be listed in the ***Layers & Channels*** window. Both are currently displayed, noted by the "**eye**" symbol. Alpha Layer is the current layer and is highlighted in blue.

8. Click **Background** to make it the current layer.

9. Select the **Magic Wand** tool in the **Toolbox**.

10. Select the letters of your name in the image. Hold down Shift while selecting to add to your selection.

11. From the Image menu, choose **Edit/Copy**.

12. In the ***Layers & Channels*** window, click **Alpha Layer** to make it the current layer.

13. Open the Image menu and choose **Edit/Paste.** A **Floating Selection** layer appears in the ***Layers & Channels*** window. This is a temporary layer used in the Paste function. You can reposition the **Floating Selection** in the image, using the **Move** tool, until it is anchored.

14. Right-click in the ***Layers & Channels*** window, choose Anchor Layer (Ctrl+H). The selection will be anchored in the **Alpha Layer** and the **Floating Selection** layer will be deleted.

15. Click the **Background** layer to make it the current layer.

16. Right click the background layer in the ***Layers & Channels*** window, and choose **Delete Layer.** Only **Alpha Layer** should remain.

17. From the Image menu choose **File/Save As.** The ***Save Image*** dialog box opens.

18. Set **Determine File Type** to SGI, enter a file name in the **Selection** field, and then click **OK**. The ***SGI Options*** dialog box opens.

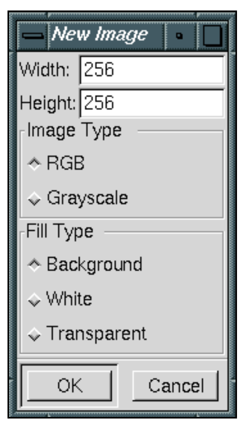
19. Set the **No Compression** option.

20. Open a shell window and type `istat filename.rgba` at the command prompt to check the new file's image statistics. They should look like any normal SGI rgba texture pattern's statistics.

xsize	ysize	zsize	min	max	bpp	type	storage	name
256	512	3	0	0	1	NORMAL	verb	ware_house.rgb

Method B:

1. Choose **File/New.** The ***New Image*** dialog box opens.



2. Enter the following information:

Width: 256
Height: 256

Image Type: RGB
Fill Type: Background

3. Click **OK**. The ***Image*** window opens with new blank image.

4. From the Image menu choose **Layers/Layers & Channels**.

5. Select the **Pencil** tool in the **Toolbox**, and draw your name in the image. The layer mirrors what you draw in the image.

6. Right-click the **Background** layer to open the **Layers & Channels** menu, and choose **New Layer**.

7. In the **Layer Name** field, type Alpha Layer, and set **Layer Fill Type** to Transparent. Two layers will be listed in the ***Layers & Channels window***. Both are currently displayed, noted by the "**eye**" symbol. Alpha Layer is the current layer, and is highlighted in blue.

8. From the **Image Menu**, choose **Layers/Merge Visible Layers**. (Note there is only one layer.)

9. Select the **Magic Wand** tool in the **Toolbox**.

10. Select the letters of your name in the image. Hold down Shift while selecting to add multiple selections.

11. From the Image menu, choose **Select/Invert**. The mask will be inverted so that the letters are masked and the background area is selected.

12. Select the **Eraser** tool, and erase the selected area around the letters.

13. From the Image menu choose **File/Save As.** The ***Save Image*** dialog box opens.

14. Set **Determine file Type** to SGI, enter a file name in the **Selection** field, and then click **OK**. The ***SGI Options*** dialog box opens.

15. Set the **No Compression** option.

16. Open a shell window and type `istat filename.rgba` at the command prompt to check the new file's image statistics. They should look like any normal SGI rgba texture pattern's statistics.

```
xsize ysize zsize   min   max bpp  type      storage   name

  256   512     3     0     0   1  NORMAL    verb      ware_house.rgb
```

Creating Repeating Textures

The Texture Editor enabled 3x3 pattern display and editable wrapping borders for creating repeating textures. While GIMP does not have these features, you can achieve the same effect using the **Offset** function to wrap an image across its borders. The following procedure illustrates using the **Offset** feature to create a simple camouflage texture pattern.

> **Note:** A more extensive tutorial for creating repeating textures can also be found on the `www.gimp.org` website under `Documentation/Tutorials/Easy Patterns`.

1. In the **Toolbox**, choose **File/New.** The ***New Image*** dialog box opens.

2. Enter the following information:

   Width: 256
   Height: 128
   Image Type: RGB
   Fill Type: Background

3. Click **OK**. The ***Image*** window opens with a new blank image.

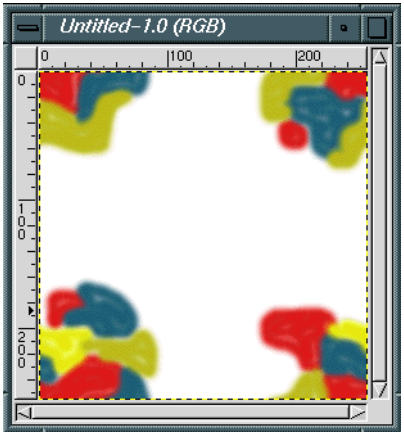
4. In the **Toolbox**, click the Foreground color to open the **Color Selection** tool and select a new color.

5. Select the **Paintbrush** tool and draw some random shapes in the central area of the image. Do not draw out to the image border.

6. Repeat steps 4 and 5 one or two more times using other colors.

7. From the Image menu**,** choose **Image/Channel Ops/Offset**. The ***Offset*** dialog box opens.

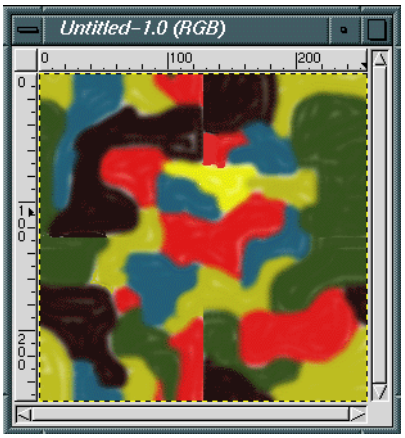
8. Set the **Wrap Around** option, click the **Offset By (x/2,y/2)** button (the **Offset X** and **Offset Y** fields will be updated), and then click **OK**. The image will be re-centered so that the center of the image contains the image data that was at the 4 corners.



9. Use the **Paintbrush** tool to complete or connect the various shapes.

10. From the Image menu, choose **Image/Channel Ops/Offset.** The ***Offset*** dialog box opens.

11. Set the **Wrap Around** option, click the **Offset By (x/2,y/2)** button, and then click **OK**. The image will be re-centered so that the pattern is set back to its original position.



12. From the Image menu choose **File/Save As.** The ***Save Image*** dialog box opens.

13. Set **Determine file type** to SGI, enter a file name in the **Selection** field, and then click **OK**. The ***SGI Options*** dialog box opens.

14. Set the **No Compression** option.

GIMP References

User Documentation

Numerous sites on the world wide web provide various levels of GIMP documentation. Some useful sites include the following:

- www.gimp.org
- manual.gimp.org
- www.rru.com/~meo/gimp/Tutorial
- linuxguide.automatedshops.com/GimpGuide

www.gimp.org is the GIMP home page. It contains a variety of useful information as well as links to other useful sites.

Miscellaneous Links

Listed below are references for other image editing programs.

`www.imagemagick.org`	ImageMagick freeware image manipulation and conversion tools
`imgworks`	SGI image manipulation and conversion tool