



Composition

written by Rob Davison
User Guide

ProAction

3QD
DEVELOPMENTS LTD

APDL

Composition

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1. Introduction

About Composition

Compo is an image composition program for the Acorn RiscPC range of computers. With Compo, you combine bitmaps together on a canvas to make a composition. Each bitmap remains completely independent from the rest. Links to art packages such as **ProArtisan24** allow you to edit the images making up your composition and to see the results of your changes immediately. In addition, the program allows a number of effects such as colour correction, shadows, opacity and tinting to be applied independently to each image. Using these effects the images are rendered to the canvas on the fly so the effects do not modify (and therefore damage) the original image data.

Compo is useful not only to the graphics professional, it also allows those users with less artistic ability to produce complex graphical effects such as true shadows and photo montages at the click of a button. Because the images themselves are not modified you can quickly change the effect settings until the desired result is achieved.

Conventions used in this guide

We use the standard Acorn conventions for the mouse buttons:

SELECT is the left button, and the most commonly used.

MENU is the middle button and is used primarily for opening menus.

ADJUST is the right mouse button.

Unless otherwise stated Choose means move the mouse pointer over something and Click on it with **SELECT**

Typographic conventions

- Mouse buttons or keys on the keyboard appear like this - **Return**
- Special terms or jargon appears in italics when first introduced: '...called a *Sprite*.'
- Where there may be confusion between single characters typed and a single key the key in question is surrounded by angle brackets thus: <Esc> This means press the key marked Esc on the keyboard.
- Menu items or icons that can be chosen appear like this: Choose **Select all** This means choose the item called **Select all** from the menu.
- Menu items which lead to submenus have an arrow after them: **Save ->**
- Something important always appears in bold.

Jargon

We have tried to keep the jargon to a minimum. If you find a term you are unfamiliar with please refer to the glossary at the back of this manual.

Three very important terms within Compo -

A *Sprite* is a 32bit-per-pixel, 16 million colour bitmap image.

The *Canvas* is the work area in which a composition is created. Unlike vector based packages the larger the canvas you use, the more memory you will need.

A. *Mask* is a 256 level grey scale sprite used to attenuate an effect on a Sprite. For example, the *Tint mask* is used to control the amount of colour tinting applied to a sprite.

Short cuts

In general, Compo follows normal RISC OS shortcuts whenever possible. Clicking **ADJUST** often has an alternative or opposite effect to **SELECT** and pressing **Shift** or **Ctrl** while clicking a mouse button often modifies an operation. For example, holding down **Shift** or **Ctrl** when clicking on a bump arrow increases the speed of the change made to the related value.

When a dialogue box has a default action icon clicking on the icon with **SELECT** will carry out the action and close the dialogue box. Clicking on the icon with **ADJUST** will carry out the action but keep the dialogue box open.

In this manual, and on the program menus, shortcuts appear beside the icon name or menu item like this -
Copy (Ctrl-C)

This should be taken to mean that pressing **Ctrl-C** when the program has input focus will have the same effect as choosing the **Copy** item from the menu. The program has the input focus when the title bar of a window belonging to it is coloured cream. A full list of short cuts is given in the Appendices.

It is assumed that you have read the Welcome Guide supplied with your RiscPC and are familiar with the RISC OS Desktop environment.

2. Tutorials

This section begins with a tutorial which then carries on into a series of worked examples of some of the program's features. The example files used are on the program CD and should be copied to a 'Tutorials' directory on the hard disc as Compo is installed. If you alter or lose some of the contents of this directory then you can restore them by running the installer program on the CD and ensuring that just **Tutorials** is ticked.

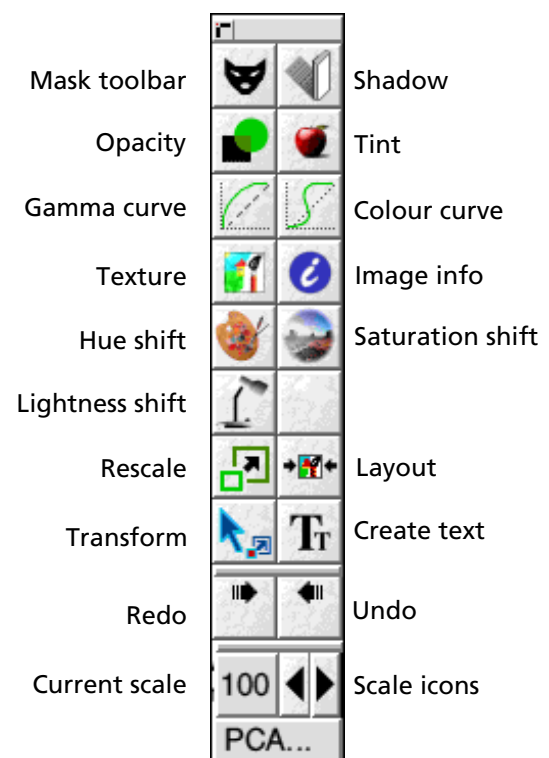
The basics

We do not recommend using the program with the desktop in less than 32 thousand colours. If you have a standard RiscPC with 2 Mb of video RAM select a desktop of 800 x 600 x 16 million colours or 1024 x 768 x 32 thousand. Both of these are useful. The latter gives you considerably more room to manoeuvre, at the expense of some detail in the colour graduations. At a pinch. 256 greys is usually better than 256 colours.

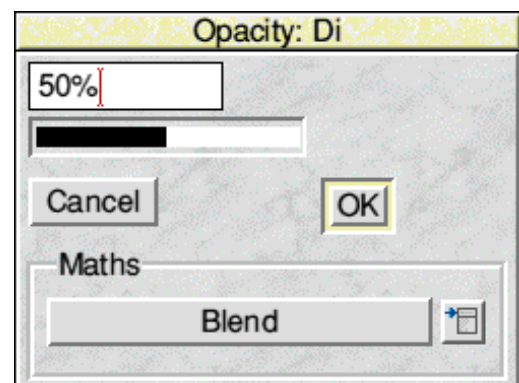
With later machines which do not have the 2Mb video RAM limit you will not be restricted to these screen sizes or resolutions and will be able to use 16 million colours at greater resolution.

Note: Compo runs slightly faster with the desktop at 16 million colours as it stores everything at this colour depth internally.

1. Load Compo in the usual way, by double clicking on the program icon.
2. Click **SELECT** on the the Compo icon bar icon to open a canvas of the default size and colour.
Note: Clicking **ADJUST** on the program icon will open a window allowing you to change the size and colour of the canvas to be created.
Note: Dragging an image onto the program icon before a canvas has been created will create a canvas the same size as the image and then load it. This is useful if there is to be one background image to your composition. However, this also requires double the memory.
3. Open the directory containing the tutorial files.
4. Drag the file called 'Di' into the canvas window.
5. Change the window to full size by clicking on the toggle size window icon
6. Select the image as you would in Draw by clicking on it.
7. Drag the image with **SELECT** to another place within the window. To abort a drag after you have started moving the image press **Esc** with your free hand. Use the arrow keys while holding down **SELECT** for fine positioning.
8. Make a copy of the image by pressing **Ctrl-C** or clicking **MENU** and choosing **Select -> Copy** from the menu.
 The copy will be located to the right of and below the original and will be automatically selected instead of the original - just like Draw.
 With regard to selecting objects, Compo behaves like Draw in many other ways. Anyone who has used Draw will be familiar with most of the available options and shortcuts which will be detailed in the next chapter.

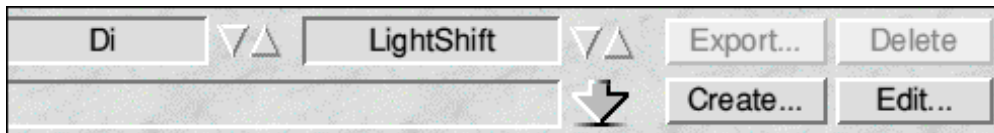


The main Compo toolbar



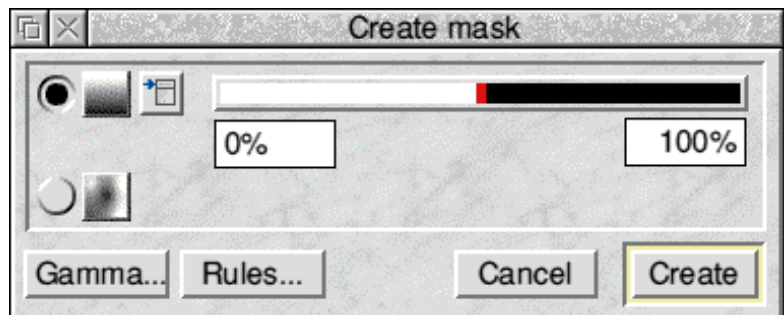
i-

9. Ensure that the the second copy of **Di** is selected (the one on top) and click on the **Opacity** icon in the toolbar to open the Opacity dialogue box.
This dialogue box may also be opened by clicking **MENU** and following **Effects -> Opacity ->** on the menu or, more quickly, by pressing **Ctrl-O**.
We will normally describe using the toolbar (shown on the right) to open dialogue boxes. If you prefer to use key shortcuts or menus then do so.
10. In the Opacity dialogue box drag the slider to alter the opacity of the image
 - Click on **OK** to update the changes.
 - Choosing **OK** with **ADJUST** will keep the dialogue box open. Choosing with **SELECT** will close it.
 - If you drag the slider with **ADJUST** rather than **SELECT** the image will update as you drag. This system is used in most parts of the program when a value can be altered by slider.
 - When working with large images it is best to use **SELECT**-drag and then **OK** rather than **ADJUST** dragging.
11. **ADJUST** drag the slider until the opacity reaches 50% and choose **OK**. The top copy of **Di** is now 50% transparent. Check that you can still move it around. Choose the opacity icon again and return the opacity to 100%.
12. Ensure that the top copy of **Di** is still selected and click on the **Mask** icon at the top left of the toolbar. A horizontal toolbar, shown below, known as the *Mask toolbar* will open at the bottom of the canvas window.



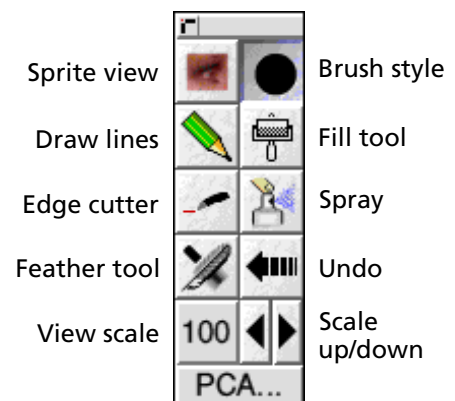
13. Choose **Create...** in this toolbar to open the Mask dialogue box (right) which lets you create a number of simple masks. Using **ADJUST** choose **Create** in the dialogue box to create the default, a simple vertical fade.

The sprite will fade from completely transparent at the bottom to completely opaque at the top. Play with the sliders in the dialogue box to discover their relationship to the fade. You can **ADJUST** drag the sliders to create the mask as you go. Experiment with the other fades provided by clicking on the menu opener, choosing a fade from the menu and choosing **Create** once more.



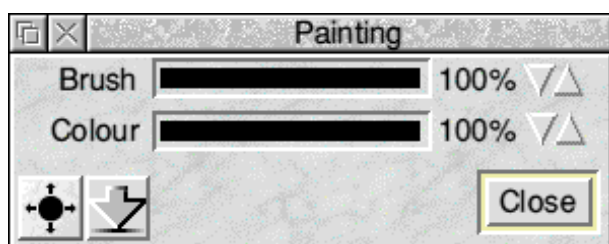
14. Choose the **Edit...** button in the mask toolbar. This opens the mask editing window. displaying the Blend mask for **Di**. The blend mask controls the transparency of the sprite - as you have discovered. Pixels in the mask which are black equate to completely transparent pixels in the sprite. Areas of the mask which are white are completely opaque. Grey pixels range between the two extremes.
15. Click **MENU** over this window and choose **Clear to -> Black**. The mask will clear to black and the sprite will apparently disappear from the canvas.
16. Move over the mask edit window and drag the mouse across it. As you paint in the mask using the default circular drawing tool, related areas of the sprite will appear in the canvas. Drag with **ADJUST** over the mask to remove areas of the sprite.

Most of the tools in the Mask edit toolbar (shown on the right) have a small dialogue box associated with them which allows you to change the characteristics of the tool. Open a dialogue box by clicking **MENU** over a tool.



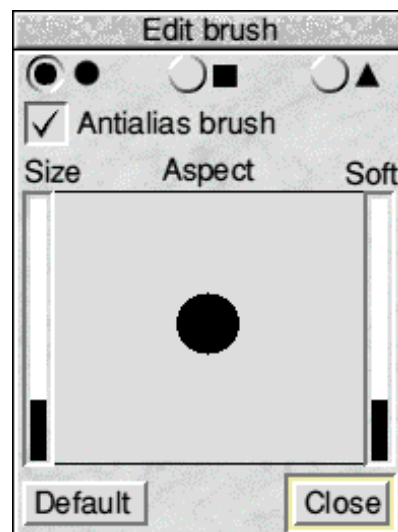
The Mask Edit toolbar

For example, click **MENU** over the **Brush style** tool and the window shown below (left) will open. this lets you set the characteristics of the mask, and by clicking on the button at the bottom left of this window the window shown below right will open where you can choose the shape and size of the brush.



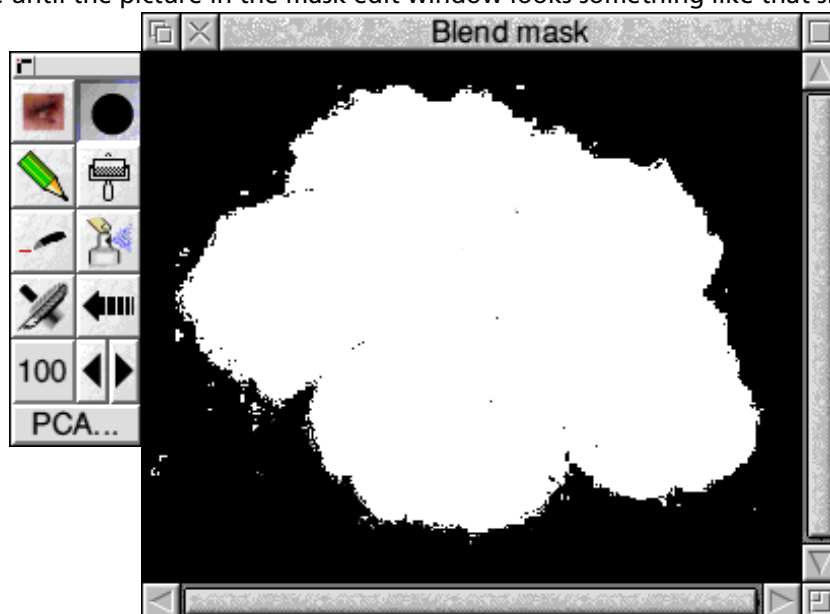
To undo the last operation on the mask choose the **Undo** button on the mask edit toolbar. Depending on the number of undos configured, it may be possible to undo more than one operation by clicking on this icon again.

Note: If you are very short of free memory or the mask undo option in the preferences window is turned off then this button may do nothing.



Cutting out objects - masking

1. Drag the file **'Flower5'** into the main window. Select it and position it suitably.
2. Choose the **Edit...** button in the mask toolbar. The program will create a default (black) Blend mask and open the **Mask edit** window onto it.
3. Choose the **Eye** icon at the top left of the mask edit toolbar to open the *Sprite view* window.
4. Move over the flower in the sprite view window and click **SELECT** to add pixels of a similar colour to the one you clicked on to the mask. You will see the flower shape build up in the mask edit window, and simultaneously, the flower will appear in the canvas window.
Move around the flower, clicking on the differently coloured features on it's surface. If parts of the background appear in the mask ignore them and carry on until most of the flower is selected, paying particular attention to its edges.
5. Move over the background surrounding the flower and click **ADJUST** to remove pixels from the mask. Continue until the picture in the mask edit window looks something like that shown below.



6. Use the circular brush in the mask edit window to white out the few remaining black pixels within the flower. Use the same tool or the edge cutters (see later) with **ADJUST** to remove white pixels remaining in the background.

7. To smooth the transition between the flower and what it is on top of, paint with the feather tool around the edges of the mask or click **MENU** and choose **Anti alias -> Smooth -> All levels**
8. Close the mask window and move the flower over the **Di** image you loaded in the first tutorial. Try adjusting the flower's opacity.

Simple composition

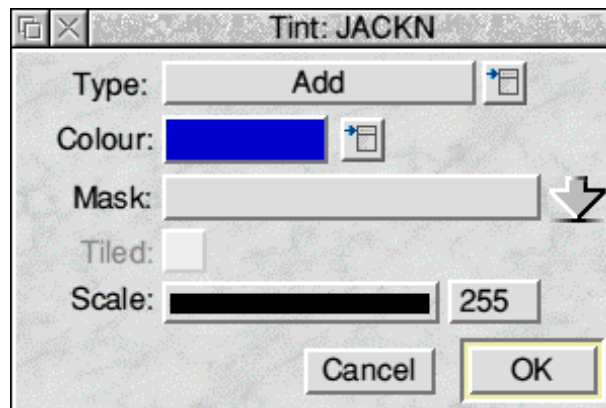
1. Load the **Bridge** file into the main window.
2. Select it and press **Ctrl-I** to open the info window. Enter **0** into each of the writable position icons and press **Return**.
3. Load the **Bears** file and position it below the bridge as shown on the right.
4. Choose **Edit...** in the mask toolbar.
5. Choose the **Eye** icon in the Mask edit window toolbar to open the Sprite view window.
6. Click over the bears in the view window until they appear solid in the mask. Remove any of the background from the mask with the drawing tools and/or by **ADJUST** clicking over it in the sprite view window.
7. Select the Feather tool and Click **MENU** over it. Decrease the feather size to 8 pixels using the bump arrows and choose '**Silk**' strength by clicking over the menu icon and choosing it from the menu which appears. Choose **OK** to close this dialogue box. Drag around the top edge of the bear shapes in the Mask edit window to smooth the edges of the mask. If the relevant area of the canvas is visible you will be able to see the results of your changes as you work.

When you have gone around the edges of both bears click **MENU** over the feather tool again, set the strength to **Deluge!** and the size to 32 pixels. Wipe the pointer repeatedly across the bear's reflection at the bottom of the mask to darken and blur it. Finally, Click **MENU** over the feather tool again and Choose strength **Darken**. Drag over the land at the left of the mask a few times to darken and blur the edge.

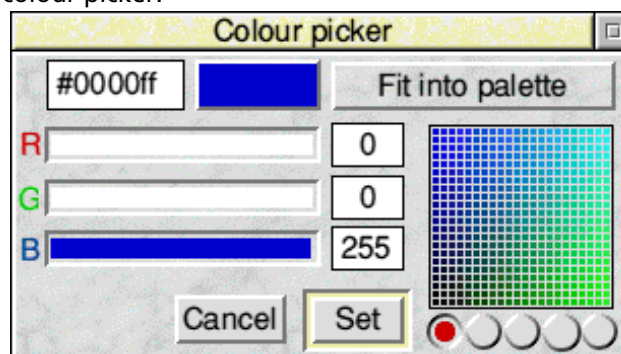


Tints

1. Open a new canvas and load the file called **JackN**. Select it and position it conveniently.
2. Choose the **Apple** in the main canvas toolbar to open the **Tint dialogue** box for this sprite.

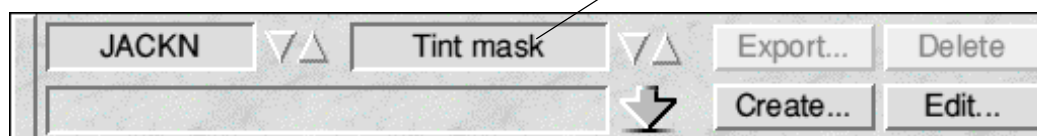


Click on the the menu button beside the Colour icon to open the **Colour Picker** which is similar in operation to the standard Acorn colour picker.

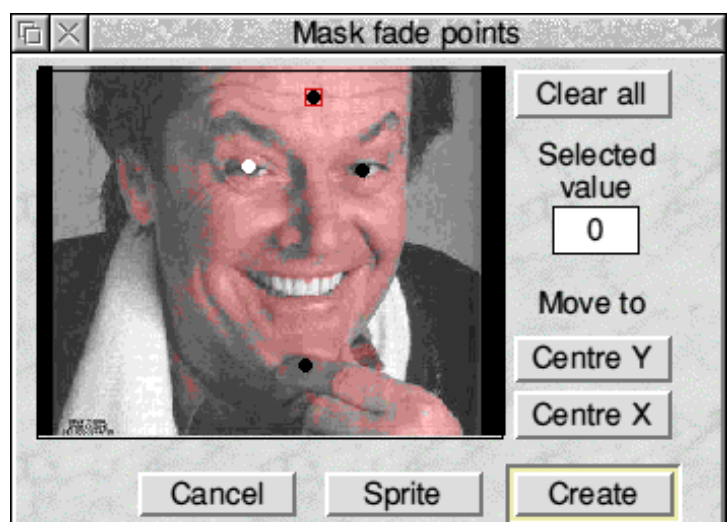


3. Choose **blue** from the default palette and click on **OK**. The sprite will be strongly tinted towards blue
4. Click on the Mask icon and change the mask to be modified to **Tint mask** by clicking on the appropriate icon in the Mask toolbar. Choose **Edit...** This allows you to view the mask which will be created.

Click here until the words
'Tint mask' appear



5. Choose the **Create...** button to open the default fades dialogue box.
6. Choose the **Points** icon (the lower one) in this dialogue box. The **Mask fade points** dialogue box will open. Choose the **Sprite** button in this dialogue box to display a *greeked* version of the sprite. By default, there is one fade point in the middle of the area. If you choose **Create** (with **ADJUST** to keep the dialogue box open) a simple circular fade is created in the tint mask.



You can drag the fade point around, double click in the area to create more points and click **ADJUST** over a point to toggle it from white to black. Black points 'pull down' the mask at that point. When you choose **Create** the mask made is determined by the position and colour of the points in this window. If it is difficult to see the points over the sprite then click on the **Sprite** button again to hide the sprite.

7. To concentrate the tint around his eyes (for example) move the point already present to the left eye, double click **SELECT** over the right eye, double click **SELECT** over his chin and then click **ADJUST** over this point, double click **SELECT** over the middle of his forehead and then click **ADJUST** over this point.
8. Finally, choose **Create**.

More flexible fades may be created by using the Graduated fill tool in the Mask editing window. See Chapter 3, *The Toolbars*.

Shadows

1. Load the **Leafy1** image and move it to the bottom left of the canvas.
2. Load the **Horse** image. Because a suitable mask called **Horse_msk** exists in the same directory it will automatically load to the Horses blend mask.
3. Position the horse on the path near to the bottom of the image.
4. Press **Ctrl-S** to turn on a simple shadow effect.
5. Choose the **Shadow** icon at the top right of the main toolbar to open the shadow dialogue box.
6. Turn on the **Pseudo 3D** option and click on **OK** with **ADJUST**
7. Alter the writable **X shear** value using the bump arrows or keyboard to **0.50**
8. Click **OK** with **ADJUST**.
9. Use the bump arrows to reduce the **X** and **Y** offsets to zero.
10. Click on the **Colour** menu icon to open a colour selector, choose a darker grey and then click **OK** with **SELECT**.



Text

1. Load the **MDHB** image, and, if necessary move it to the bottom left of the canvas as detailed in Tutorial 3 above.
2. Choose the **Text** icon in the main toolbar.
3. Choose **Create** in the text dialogue box to create the default text (the word 'Compo') at the bottom left of the canvas. Move the text until it is partly over building and partly over the sky behind. You will notice that Compo anti aliases text on a pixel by pixel basis. Use the Zoom icons in the main toolbar to examine the effect in detail before returning to normal size by clicking **ADJUST** on the **Current scale** icon.

Note: Change to a 16 million colour mode to see the full image quality.
4. Give the text a shadow by pressing **Ctrl-S** or by using the Shadow dialogue box as described above.
5. Open the **Opacity** dialogue box and **ADJUST** drag the slider down to **50%**. The shadow appears behind the partly transparent text giving a 'Glass text' effect.

Text/Tints

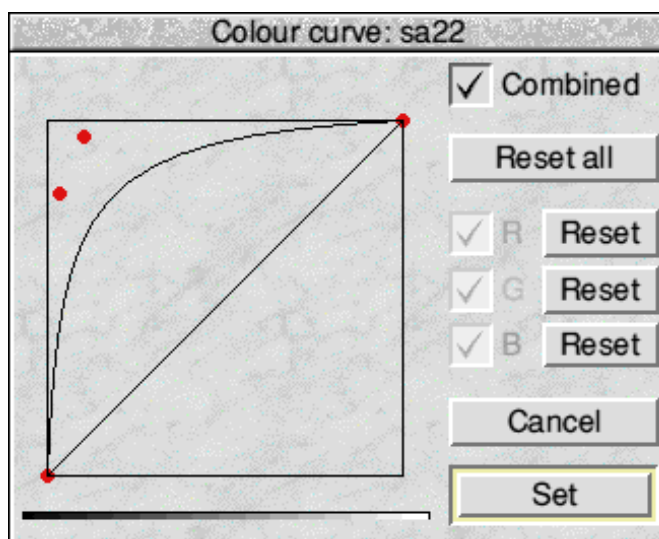
Following on from the previous example:

1. Choose the **Text** icon in the main toolbar to open the text dialogue box.
2. Change the Text colour to Black.
3. Change the Text size to 100 point.
4. Choose **Create new**. The new text is positioned in the bottom left of the canvas.
5. Select the newly created text and open the Tint dialogue box by choosing the Apple in the main toolbar.
6. Choose a red tint and click on **OK**.
7. Change to the Tint mask in the Horizontal mask toolbar.
8. Choose **Create....** Select the Vertical fade from the menu if it is not in use and then click on **Create** in the Create mask dialogue box.
9. Repeat with the Circular fade.
10. Hold **Ctrl** down and drag **SELECT** over the text in the canvas to move the Tint mask around behind the text.

Experiment with text. (Different angles, fonts, with a shaded box etc.)

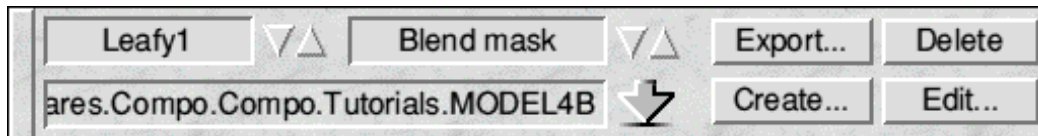
Colour correction

1. Load the image called **sa22** which is one of those supplied with your computer. You will find it in Images.00-49 on your hard disc.
1. Select this image.
3. Click **MENU** and follow **Effects -> Scale ->**
4. Select the first **By** item, enter **0.5** into the dialogue box and click on **Scale**.
Note: Compo's Scale feature uses **ChangeFSI** to re-sample from the original image file. This provides a very high quality rescale at the expense of some speed and with the requirements of enough free memory and hard disc space. It is felt that image quality is of paramount importance in Compo and that a fast rescale on the fly would not produce high enough image quality. Scale is one of the very few effects in Compo which modifies the image data in memory directly and therefore, has several important consequences which will be discussed later in this manual.
5. Press **Ctrl-A** to create a copy of the rescaled image.
6. Position the images side by side and select the right one only.
7. Choose the **Colour curve** icon in the main toolbar or press **Ctrl-V**.
8. Modify the curve to that shown below by moving the red control points.
9. Click on **Set** to see your changes. Select **Reset all** to restore the default.



Experimenting with masks

1. Press **Ctrl-A** and then **Ctrl-X** to select and delete all of the sprites.
2. Load the **Leafy1** image.
3. Select it, and ensure that the Blend mask is selected in the Mask toolbar.
4. Drag the file called **Model4B** into the long box in this toolbar. After you have done so its filename will appear within the box as shown below



Notice how the **Leafy1** image is restricted to the shape of the woman's head. Click on **Edit...** in the Mask toolbar to see how the mask is constructed.

Compo can use just about any image as a mask. To load a file into a mask simply drag its icon into the box in the toolbar. If the image you drag is not suitable (a 256 grey level sprite) then Compo will load it and convert it for you. Compo can recognise Sprite, TIF, GIF, JPEG, TGA, PCX, PhotoCD and Clear files. You can, of course, load an image to the Tint mask instead of the Blend mask though the effect of this will not appear until there is a tint applied to the sprite.

Images masked in this way often look good with a slight tint or shadow to enhance details in the mask.

3. The Toolbars

This section describes all the toolbars used by the program and the dialogue boxes associated with them.

General points

Pressing **Tab** while using the program will hide all of the toolbars and editing windows apart from the canvas window - this can be useful for viewing the composition without the clutter of toolbars etc. Press **Tab** again to reopen the toolbars. All of the toolbars may be moved by dragging their title bar in the same way that normal windows are moved.



Scale icons

These are essentially the same in all of the programs toolbars and are therefore described here. The left and right arrows scale the size of the attached window down and up respectively.

ADJUST may be used to scale in an opposite direction to the norm. If **Shift** is held down the scale will change by 50% for each click, otherwise the scale change is 25% for each click.

The icon displaying the current scale is writable and a new scale may be entered using the keyboard. **ADJUST** clicking on the current scale will toggle between 100% and the last value used which was not 100%. This is an easy way of moving between two scales.

Scale on load

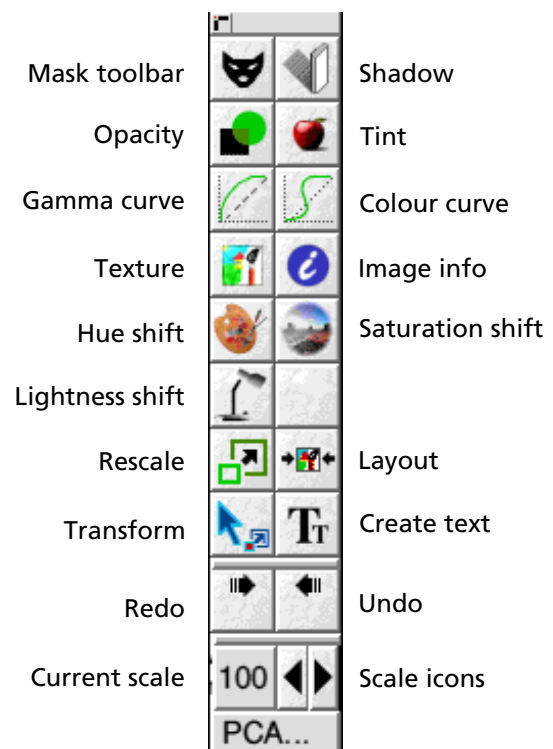
If you hold down **Shift** whilst loading an image a modified Scale dialogue opens allowing you to scale the image during loading.

Main toolbar

The main toolbar is attached to the main canvas window and is shown on the right. These will now be detailed one by one. If more than one sprite is selected then the sprite modifying buttons allow you to make the same adjustments to all of the selected sprites. The values displayed initially in a dialogue box will be those for the last sprite added to the selection.

Selecting Sprites

Compo's sprite selection functions are modelled on those of Draw. Click **SELECT** on a sprite in the canvas window to select it; click **ADJUST** on a sprite to toggle it in or out of the selection. Double click **SELECT** on a sprite to move through the 'depth stack' in order to select sprites which are behind another one. In a departure from Draw, double clicking with **ADJUST** with **Shift** held down will always add sprites to the selection while moving through the depth stack. Use this function to select layered sprites under the pointer. In addition the menu items and key shortcuts **Select -> All (Ctrl-A)** and **Select -> Clear (Ctrl-Z)** are available.



Mask icon

Clicking on the mask icon toggles display of the horizontal mask toolbar - see later in this chapter.



Shadow (Ctrl-shift-S)

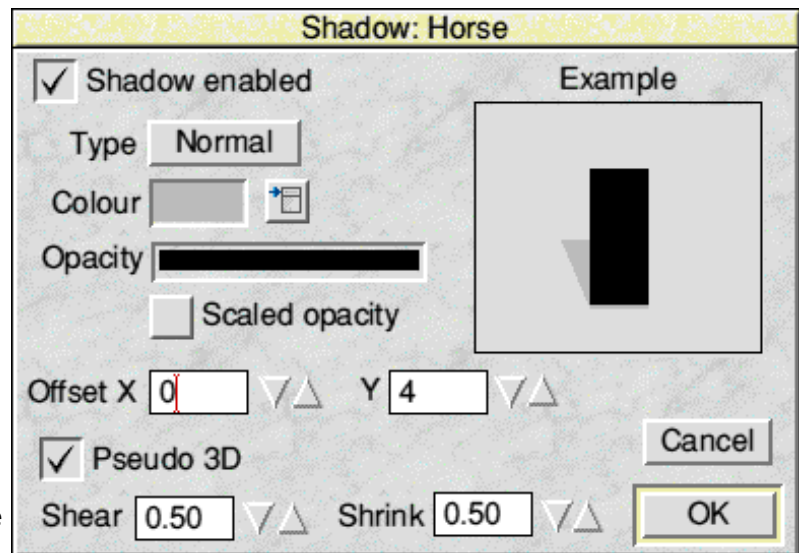
Clicking on the **Shadow** icon with **SELECT** opens the **Shadow dialogue box** if at least one sprite is selected. If no sprites are selected then clicking on the **Shadow** icon does nothing. Clicking on the **Shadow** icon with **ADJUST** opens the **Mask edit window** for the last selected sprite's Shadow mask. If a Shadow mask has not previously been edited for the sprite then a copy of the sprite's **Blend mask** is automatically placed in the Shadow mask for you.

Shadow dialogue box

Shadow enabled controls display of shadows for the selected sprites. For the shadow to be visible, the sprite must have a Blend mask.

The **X and Y offset** values define the number of pixels to the right and below the object by which the shadow will project. Negative values may be used to project the shadow up and to the left. The **Opacity** slider allows you to set the opacity of the shadow.

The **Pseudo 3D** option, when on, distorts the shadow to produce a pseudo three dimensional effect. The example box at the right of the Shadow window provides a visual indication of what a particular set of values looks like.



The **Colour** option allows you to change the 'colour' of the shadow using a standard colour picker box. Normally you will use one of the greys but if you think a green shadow would look realistic. See Chapter 4 - *Using Compo* for more information about Shadows.



Opacity (Ctrl-O)

Clicking on the **Opacity** icon with **SELECT** opens the **Opacity dialogue box** if at least one sprite has been selected. If no sprites are selected clicking on the **Opacity** icon does nothing. Clicking on the **Opacity** icon with **ADJUST** opens the **Mask edit window** for the last selected sprite's Blend mask.

Opacity dialogue box

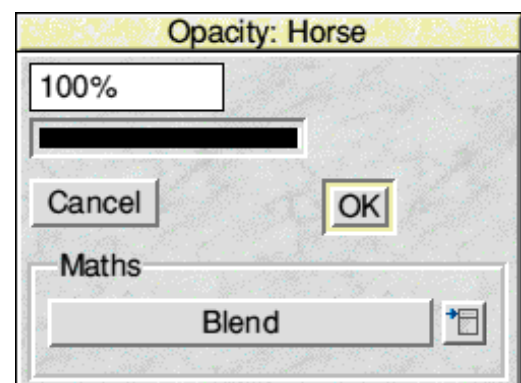
When you first open this dialogue box the bottom half is not visible. To display it, click on the toggle size icon at the top right of the dialogue box.

Drag the slider to change the opacity of the selected image(s) or enter a value into the writable icon and press **Return** to do the same. **ADJUST** drag the slider to change the opacity interactively.

Maths

Maths lets you change the way in which the selected image(s) are integrated with the canvas. The default, **Blend**, is most commonly used. The **Opacity value** and **Blend mask** (grey level of pixels) control the amount of effect the following functions have on the canvas.

For example **Add** takes the red value of the pixel being written and adds it to the red value for the pixel being overwritten. The same happens for the green and blue component of the pixel. All three values (red, green and blue) are then scaled down by the combination of the Opacity and Blend Mask settings before being plotted to the canvas. In the case of **Multiply** the RGB values of each pixel to be written are multiplied by the RGB values of the pixel being overwritten. They are then scaled down by the combination of the Opacity and Blend Mask settings before being plotted to the canvas.



Experiment whilst reading the descriptions below:

Blend	mixes the sprite with whatever is underneath it.
Add	adds the sprite to whatever is underneath it.
Subtract	subtracts the sprite from whatever is underneath it.
Lighter	only writes the sprite pixel if it is lighter than whatever is underneath it.
Darker	only writes the sprite pixel if it is darker than whatever is underneath it.

Multiply	multiplies the sprite by whatever is underneath it.
NegMultiply	multiplies the sprite by the inverse of whatever is underneath it.
MultAdd	scales the sprite's pixel by the pixel underneath it and then adds the result.
Experiment	uses a calculation related to the Blend and Multiply functions.
Sine Table	produces false colour effects based on the mathematical function.
Cosine Table	produces false colour effects based on the mathematical function.
Tan Table	produces false colour effects based on the mathematical function.
Lin. Palette & Palette	both false colour the image according to a palette definition. Compo uses the same palette format as ProArtisan 24 and PA24 palettes may be used by dragging the palette file icon to the canvas window. Only one palette may be used at a time and Compo will redraw all affected images when a file is dropped in. For best effect, palettes should be defined with a gradual spread between colours. Some suitable files are provided in the Palettes directory on Resource disc two. See Chapter 5, <i>Using Compo</i> for more details and examples.



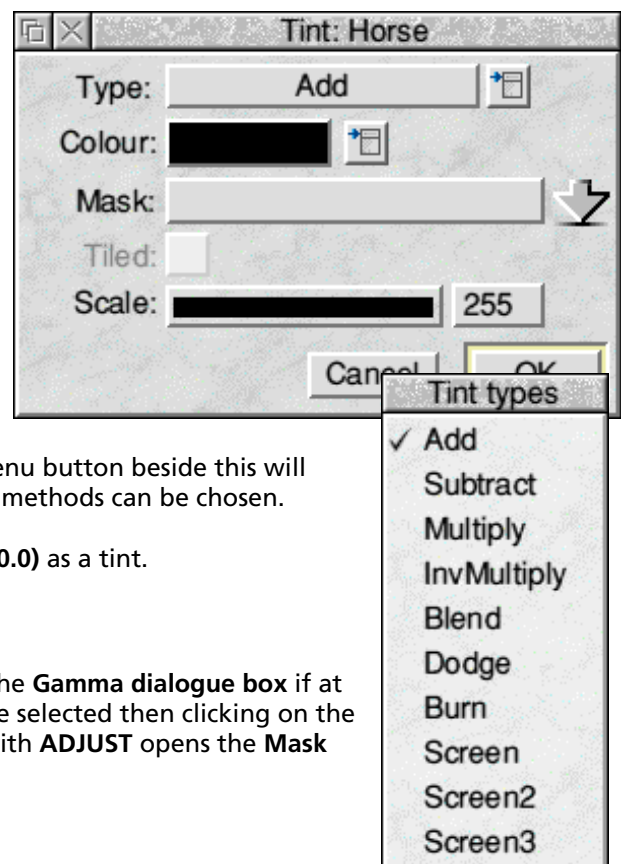
Tint (Ctrl-T)

Clicking on the **Tint** icon with **SELECT** opens the **Tint dialogue box** if at least one sprite has been selected. If no sprites are selected then clicking on the **Tint** icon does nothing. Clicking on the **Tint** icon with **ADJUST** opens the **Mask edit window** for the last selected sprite's Tint mask.

The dialogue box which opens when you click **SELECT** is the standard colour picker and operates in the same way as it does in other parts of the program.

Clicking on the menu icon beside **Colour** opens a RGB colour picker. The manner in which the selected colour is applied is shown by the top icon, and clicking on the menu button beside this will open a menu, shown on the right from which a variety of methods can be chosen.

NOTE: To remove all tinting from a sprite choose **Black (0,0,0)** as a tint.



Gamma correction (Ctrl-Shift-G)

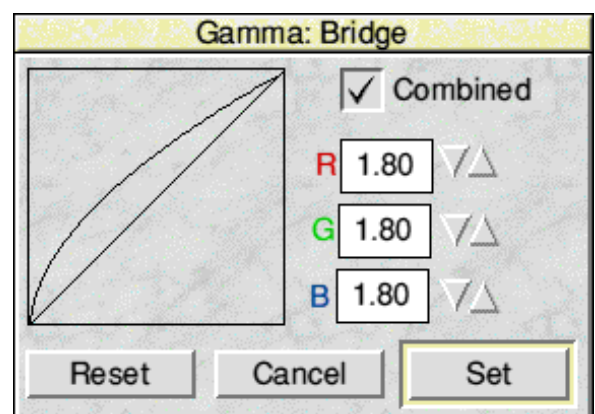
Clicking on the **Gamma** icon with **SELECT** opens the **Gamma dialogue box** if at least one sprite has been selected. If no sprites are selected then clicking on the **Gamma** icon does nothing. Clicking on the **Gamma** icon with **ADJUST** opens the **Mask edit window** for the last selected sprite's Curve mask.

Gamma dialogue box

Gamma correction is an industry standard way of modifying the brightness and contrast of an image.

Alter the gamma value either by entering a value in a writable field or clicking on the bump arrows. Remember you can press **Shift** or **Ctrl** to make larger changes to the value. If the **Combined** option is turned off you can alter red, green and blue gamma values separately. Values greater than one will lighten the image(s), values less than one will darken the image(s).

Choose **Reset all** or **Reset** to reset the gamma curve to the default of 1.00 (no Gamma correction)





Colour curve (Ctrl-V)

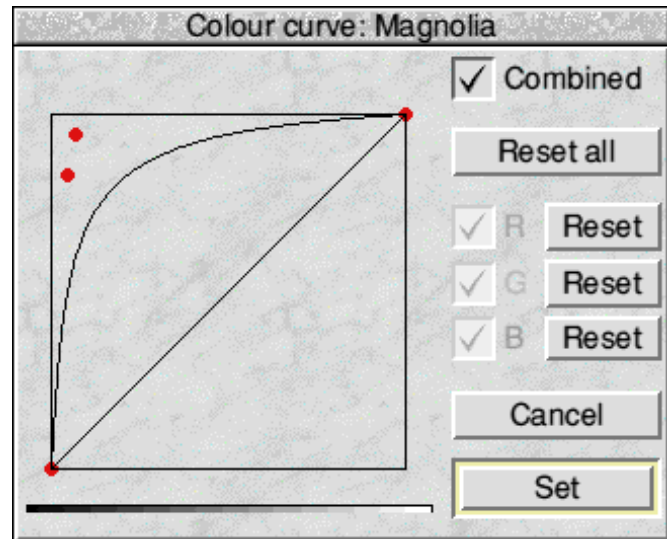
Clicking on the **Curve** icon with **SELECT** opens the **Colour curve** dialogue box if at least one sprite has been selected. If no sprites are selected then clicking on the **Curve** icon does nothing. Clicking on the **Curve** icon with **ADJUST** will open the **Mask edit** window for the last selected sprite's **Curve mask**.

Colour curve dialogue box

The Colour curve function is a more flexible way of changing the colour and contrast of an image than Gamma correction. Gamma and Colour curve may both be used together in which case the gamma correction occurs first.

Drag the control points to change the contrast and brightness of the selected sprite(s). Turn the **Combined** option off to alter the Red, Green and Blue channels separately.

If **Combined** is off you can choose which of the red, green or blue channels are displayed and alterable via the three small option buttons (labelled R,G and B). This is useful when the control points for more than one channel overlap.



Dragging a control point with **ADJUST** will attempt to update the image as you drag. This is generally too slow with current hardware though tapping **ADJUST** while dragging is a very quick way of seeing the changes you have made to the curve.



Scale (Ctrl-Shift-Z)

Clicking on the **Resize** icon opens the **Scale selection** dialogue box if at least one sprite has been selected. If no sprites are selected then clicking on the **Scale** icon does nothing.

In addition to the **Scale selection** dialogue box, it is possible to interactively resize the selected sprites by **ADJUST** dragging in the canvas. Holding **Shift** down locks the object's aspect ratios as they are resized. To abort an inadvertent resize, tap **Esc** while dragging.

Scale selection dialogue box

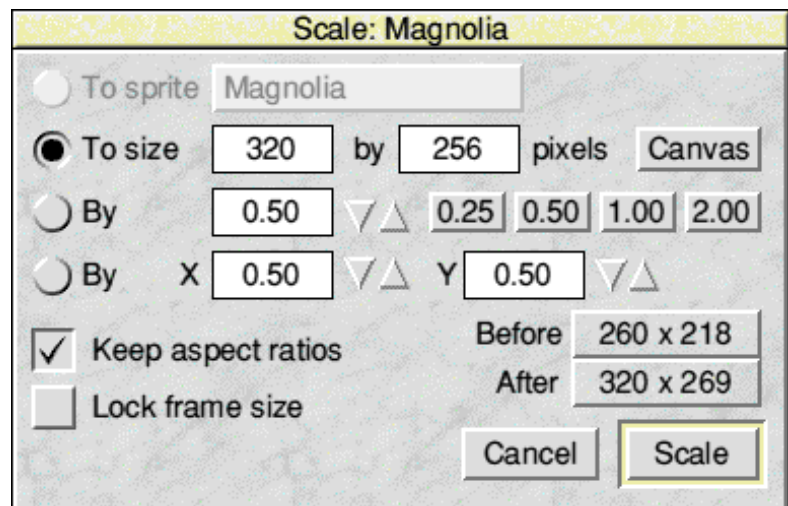
If more than one sprite is selected then clicking on the **To Sprite** radio icon allows you to scale all of the selected sprites to the same size as the sprite named beside this radio button - click on the sprite name to cycle through the selected sprites.

Choosing the **To size** button and entering a size into the width and height fields will rescale the selected sprites to the size entered. The **Canvas** button enters the canvas size into the writable fields enabling you to fill the canvas easily.

Choose the first of the **By** buttons to scale the selection by the factor in the writable field. The three small buttons to the right of this field allow you to quickly enter scaling for one quarter, half and twice the current size.

Choose the second **By** button, and enter values into the two writable fields to scale the width and height of the selection separately.

The **Keep aspect ratios** button, when on, locks the aspect ratio of each sprite being rescaled - this means that the rescale will probably not result in precisely the size chosen but it will be as close as possible while maintaining the aspect ratio of the original sprites.



Note: To retain high image quality when rescaling it is advisable to choose the Update bases item from the File menu before any rescaling of objects is done. In this way, the program can always work from full resolution originals.

Rescale on load

If you hold down **Shift** whilst loading an image a modified version of the **Scale** dialogue opens allowing you to scale the image during loading.

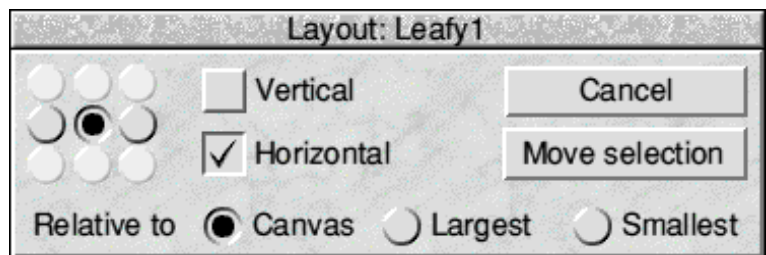


Layout (Ctrl-L)

Clicking on the **Layout** icon opens the **Layout dialogue** box if at least one sprite has been selected. If no sprites are selected then clicking on the **Layout** icon does nothing.

Layout dialogue box

This dialogue box allows you to align the selected sprites in a number of ways, depending on the state of the **Vertical** and **Horizontal** option buttons.



Vertical

The **Vertical** button selects vertical alignment. This means that the sprite(s) are aligned vertically and maintain their relative horizontal position. Only the three centre vertical radio icons are available in this mode. Choose one to indicate the new position and click on **Move selection**. **Note:** With both **Vertical** and **Horizontal** selected all nine radio icons are selectable.

Horizontal

The **Horizontal** button selects horizontal alignment. This means that the sprite(s) are aligned horizontally and maintain their relative vertical position. Only the three centre horizontal radio icons are available in this mode. Choose one to indicate the new position and click on **Move selection**.

Canvas

This aligns the selected sprites relative to the canvas. For example, choosing the centre radio icon with **Canvas** and both **Vertical** and **Horizontal** selected before choosing **Move selection** will centre all of the selected objects around the middle of the canvas area.

Largest

This aligns the selected sprites relative to the largest of the selected sprites (the largest sprite will not move). For example, choosing the centre radio icon with **Largest** and both **Vertical** and **Horizontal** selected before choosing **Move selection** will centre the smaller sprite around the larger one.

Smallest

This aligns the selected sprites relative to the smallest of those selected.

Note: The key short-cuts **F5**, **F6** and **F7** by themselves or with **Shift** or **Ctrl** allow quick access to most of the features provided by this dialogue box.

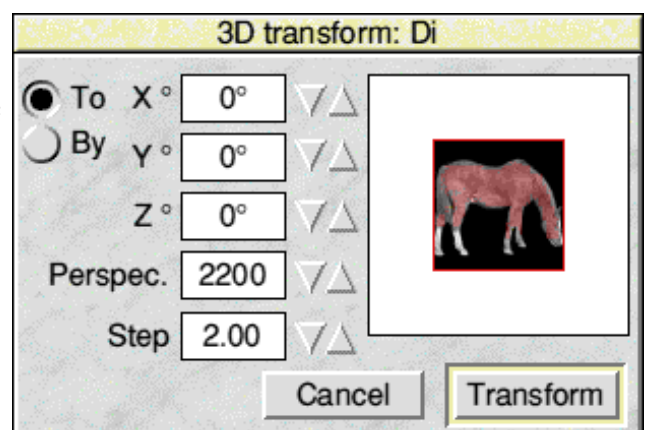


Transform (Ctrl-R)

Clicking on the **Transform** icon with **MENU** opens the **Sprite transformation** dialogue box if at least one sprite has been selected. If no sprites are selected then clicking on the Rotate icon does nothing.

Transform dialogue box

This dialogue box lets you transform the selected sprites by rotation about two or three axis. You can also add a Perspective effect. The default value is 2200 which has no effect on perspective. Try values between 300 and 2200 to see what effect they have in conjunction with Y and Z transforms. Low values tend to tie the image in knots or make it very large. See file *Perspec* for more information.



As you change the values using the bump arrows, the Example box to the right of the dialogue box changes. The black object represents the original sprite, the red one gives an idea of how the selected sprite(s) will look when transformed. The order in which scaling and transformation functions are executed has a profound impact on the quality of the images. See the example file *ScaleRot* to clarify this.

Note: As with the scaling option, it is advisable to choose the **Update Bases** item from the File menu *before* selecting this feature so that future transformations can work from the original images.

Note: Transforming anti aliased text does not generally look good. If you must do it, first scale by a factor of 2; do the transform; create a Blend mask and then scale by a factor of 0.50.

Note: Transform discards any masks (clears them to white).

Transforming

Clicking on the **Transform** icon with **ADJUST** lets you directly transform the selected image without using the Transform dialogue box. After clicking on the Transform icon move the pointer over the selected image and click with **ADJUST**. As you move the pointer up and down or left and right the image will be transformed to match in real time.

Rotating

Clicking on the **Transform** icon with **SELECT** allows you to directly rotate the selected image without using the Transform Dialogue box. After clicking on the Transform icon move the pointer over the selected image and click with **ADJUST**. A small icon will appear in the centre of the image showing the degree of rotation. At first this will show 360, which is the same as 0 rotation
As you move the mouse pointer while holding down **ADJUST** the image will rotate and the amount of rotation is shown.

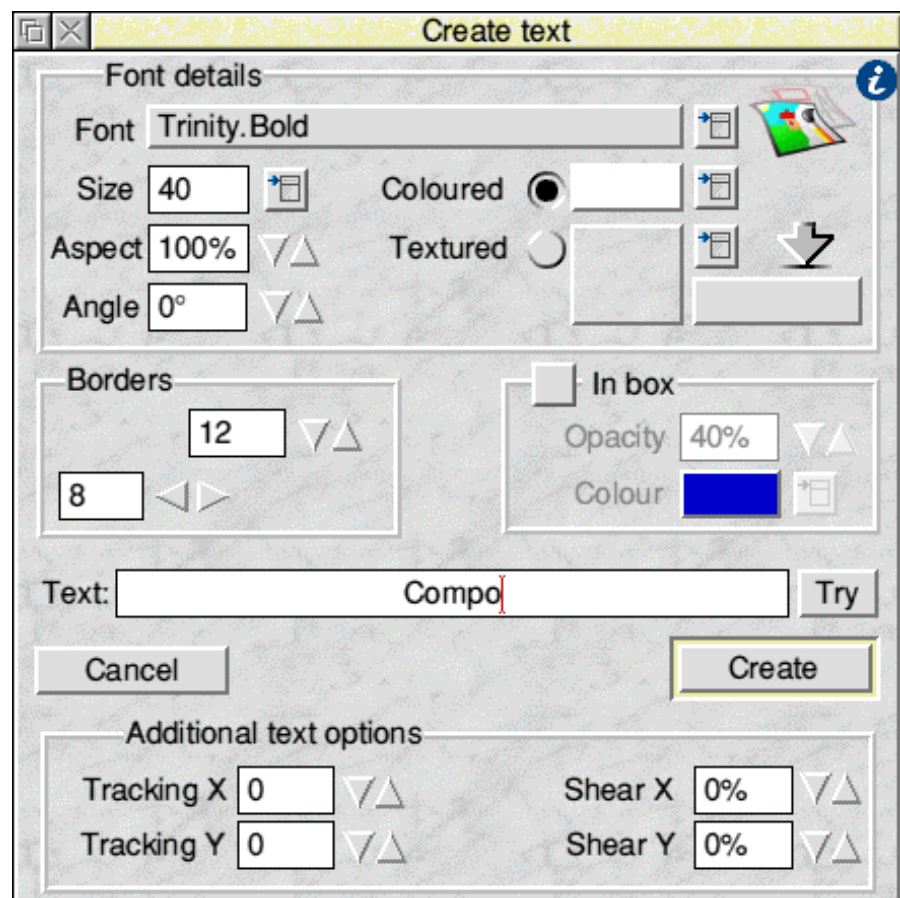


Text (Ctrl-Shift-E)

Clicking on the **Text** icon opens the **Create text** dialogue box. However, if the last sprite selected is text, which was created with this dialogue box, then it is the **Edit text** dialogue box which opens. This dialogue box is very similar, but allows you to edit the piece of text rather than creating a new one.

Create text dialogue box

This dialogue box allows you to enter anti aliased text into the composition via the writable **Text** icon. Once created, the text becomes a sprite, just like any other, and all of the normal effects may be applied to it. In addition, you can use the **Stamper** tool in the **Mask edit** window to paste the text's **Blend mask** into another sprite in order to produce the very common effect in advertising, where an image appears through text.



Note: Although the text becomes a sprite the program retains the information required to recreate the **Edit text** dialogue. This means that you can later edit any of the attributes associated with the text or even the text itself.

Font

The menu icon beside the Font field allows you to choose a font from those available.

Colour

The menu icon beside the Colour field allows you to choose the colour of the text to be created.

Size

The Size writable icon allows you to set the size of the text. The value is in points and the menu icon allows you to choose from a list of preset sizes.

Aspect

Aspect lets you change the Aspect ratio of the text. Either enter a new value into the writable icon or use the bump arrows to change the value already present. Angle allows you to change the angle at which the text is printed.

X off and Y off

X Off and Y Off define a border of blank pixels surrounding the text. This is useful if the text is to have a shadow. This may be altered after the text has been created by using the **Trim** dialogue box. See Chapter 4, *The Menus*

In box

Superimposes the text over a partly transparent coloured tint box which can be used to make the text stand out over a detailed background. The **Opacity** and **Colour** items are used to alter the characteristics of the box.

Try

The Try button opens a window showing the text attributes. This window can be left open while the attributes in the dialogue box are changed - it is updated automatically as you change attributes.

Cancel

Choosing Cancel closes the dialogue box.

Create New

The Create new button only appears if you are editing a previously created piece of text and will force the program to create a new block of text rather than changing the edited one. This is useful as it allows you to 'read' the attributes of a particular text sprite and then create another piece of text with the same settings.

Change

The default action button will either contain the word **Create** as in the illustration if you are creating a new piece of text or the word **Change**, when you want to edit an existing text sprite. Pressing **Ctrl-E** while the pointer is over the canvas will **Create** text at the current pointer position in the canvas. The attributes of the last text block created or edited are used.

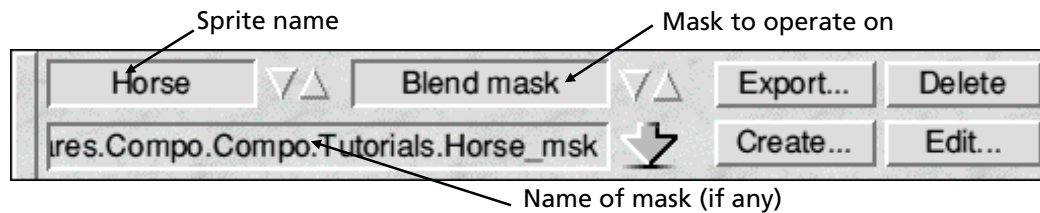


Undo

The Undo icons allows you to undo and redo most of the operations described above. Compo keeps an extensive undo history and the change which can be undone or re-done is displayed graphically below the relevant **Undo** or **Redo** icon. Clicking on an icon with **ADJUST** has the same effect as clicking on the other icon. Clicking with the **Shift** key held down moves to the first or last undo recorded.

Horizontal mask toolbar

This toolbar allows access to the various mask editing functions of compo. The contents of the toolbar change as you select objects. Generally, it relates to the last sprite added to the selection. If no sprites are selected then the icons in the toolbar are greyed out and unselectable.



To select a sprite to work on, either select it in the canvas or use the bump arrows to toggle between the selected sprite names. Choose the mask you want to operate on by clicking on the relevant bump arrows. If there is already a mask of the type selected then its name will appear in the mask name area. In all cases the amount of the relevant effect applied through the mask is governed by the grey level intensity of each pixel. White means no effect applied, black means the full effect is applied and mid grey (value 128) means 50% effect is applied.

The mask types available in this version of Compo are:

Blend mask

This controls the opacity of the sprite on a pixel by pixel basis, it also determines the shape of the shadow if no shadow mask exists. If this mask is not in use then the sprite's opacity is solely a function of the global opacity (see the **Opacity** dialogue box earlier in this chapter).

Tint mask

This mask controls the amount of tinting on a pixel by pixel basis. For this mask to have any effect a tint must be applied to the sprite. See earlier in this chapter. If no tint mask is in use and a tint is applied then all of the sprite is tinted by the same amount.

Curve mask

This mask controls the amount of colour curve and gamma correction applied to the sprite on a pixel by pixel basis. The **Gamma** or **Colour curve** values for the sprite must be different from the default for this mask to do anything. If this mask is not in use then the full amount of Gamma and/or Colour curve is applied to all of the sprite.

Displace mask

This mask causes a displacement or distortion of the sprite. Mid grey values in the mask produce no distortion, white values in the mask produce maximum positive distortion, dark values produce maximum negative distortion. When first created (if you choose Edit...) the mask is automatically coloured mid grey. You will not notice any change until you paint into the mask. See Chapter 5, *Using Compo* for examples of how to use this unusual mask.

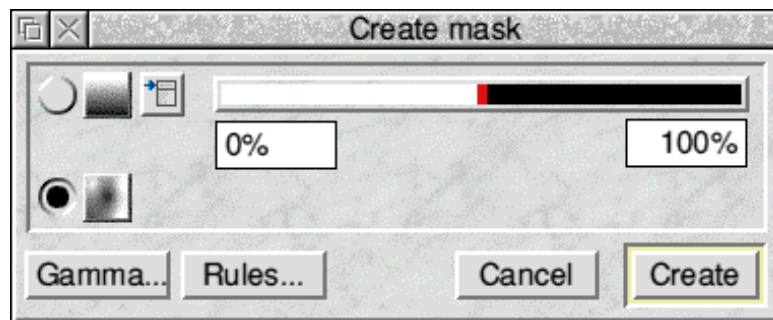
Shadow mask

If a shadow is active, this mask is used in preference to the Blend mask in determining the shape and density of the shadow. When this mask is first created (by choosing **Edit...** or **ADJUST** clicking on the **Shadow** icon in the main toolbar) it will inherit a copy of the Blend mask automatically which can then be modified by any of the tools in the Mask editing window. This lets you have, for example, a very softly feathered shadow and a relatively sharp edge to the sprite at the same time. It also allows the more artistic user to create truly realistic three dimensional shadows by hand should they wish to do so.

Note: Loading a file to the Shadow mask causes the mask to be scaled to Fit the sprite. This is the only case where a file is always scaled to fit the sprite.

Create

Click on the **Create** button to open the **Create mask** dialogue.



The top radio icon has an associated menu opener which leads to a sub menu containing different fill types such as vertical, circular, rectangular etc. These generate automatic fill patterns in the mask using a grey scale. The associated sliders control the intensity of the mask grey scale. 100% right and 0% left gives a pattern of dark to light, 100% left and 0% right gives the opposite. 50% on each gives a solid mid grey mask. When everything is set as you want it click on **Create** to generate the mask.

Gamma

Click on this button to open a **Gamma correction** dialogue. In this case the **Combined** item cannot be unticked as the mask is grey scale and so you must change all components. The settings enable you to control the gradient used to blend between grey values when a new mask is created. Try settings of 0.2 and create a vertical fade. Next try settings of 2.0 with the same vertical fade.

Rules

This item allows you to change the rules and tests used when creating a mask with the **Create mask** option. Its main use is to allow the mask that you create to modify an existing mask.

Write

This item leads to a sub menu which allows you to choose the test applied to each pixel. The Write is only applied if the result of the Write test is true. For example, Write -> If not black will only alter pixels in the mask that are not black.

Type

The results of this item are more subtle. Choosing an item other than the default Values item scales the value of the pixel being written to the mask, based upon the value of the pixel in the mask.

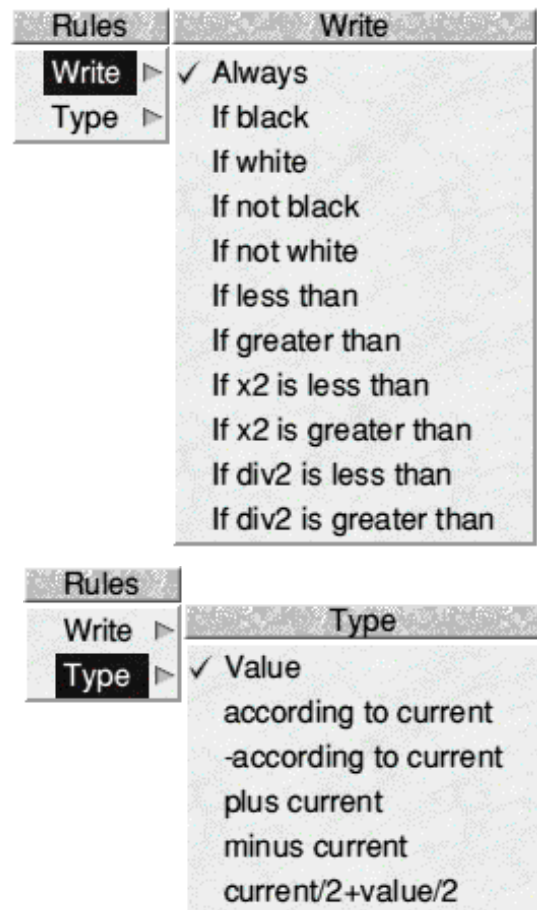
For example, create some text, select it and the **Blend** mask, open the **Create mask** window:

Set **Rules** -> **Type** -> **According to current** and create a **Vertical fade**. You will notice that the vertical fade has been constrained to the shape of the text (because black areas of the Text mask scale the fade being written, to zero (anything * 0 = 0). The anti aliasing around the edges of the text pulls the fade dark so you retain some of the edge anti alias.

Compare with **Rules** -> **Write** -> **If not black** instead to see the difference this makes.

Export

Click on the **Export...** button with **ADJUST** to open a standard save box allowing you to export the mask to hard disc or another program. Clicking on the **Export...** button with **SELECT** sends the mask to a suitable editing application via OLE. Normally this would be !Paint.



Delete

Clicking on the **Delete** button deletes the mask and redraws the sprite. If the Warnings preference is on then you are asked to confirm the action.

Edit

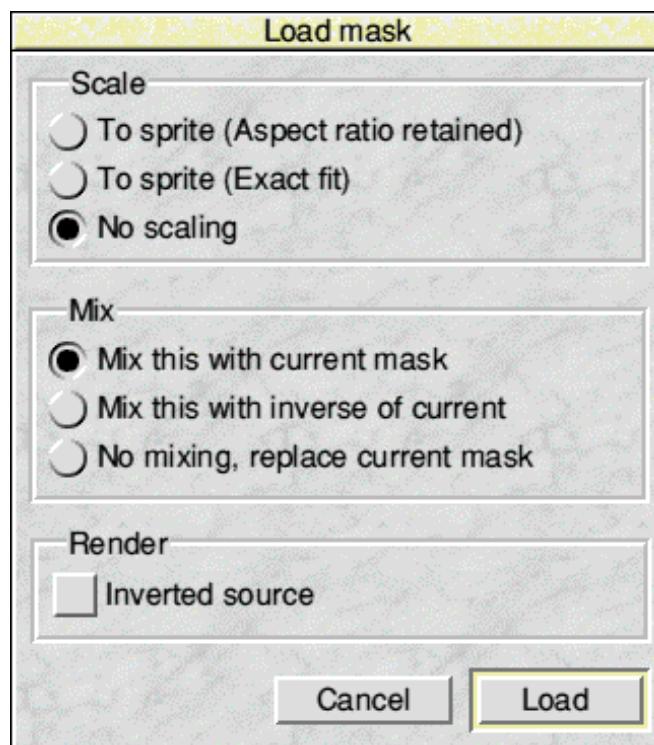
Click on **Edit...** to open an edit window for the mask selected. If there is no mask of the selected type present an empty one, the same size as the sprite is created and the edit window opens onto it. See **Mask edit toolbar** for more information.

Loading a Mask

An existing mask or any image can be dropped onto the **load target** (the arrow) to load the mask. If the image is not a grey scale Compo converts it for you. If you hold down the **Shift** key whilst dropping a file to the Load target the Load mask dialogue opens.

You can now select if the file is scaled to fit the selected sprite, retaining aspect ratio if required. In addition, if there is already a mask in operation you can choose to mix the masks if you wish.

Note: The Shadow mask is automatically scaled to the exact size of the sprite.



Mask edit toolbar

This toolbar is attached to the Mask edit window which is opened by choosing the **Edit...** button in the Horizontal mask toolbar or by **ADJUST** clicking on the **Shadow**, **Opacity**, **Tint**, **Gamma** or **Colour** curve buttons in the main toolbar.



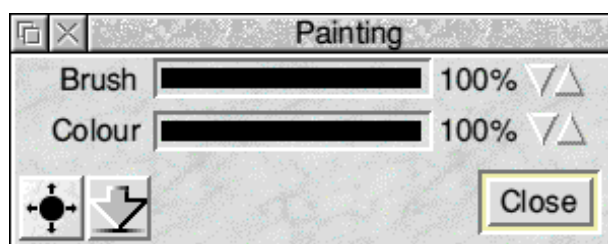
Open Sprite view

This opens the **Sprite view** window which shows the sprite in its original state, unmodified by effects and masks. It also lets you use the Magic wand and Snips tools to select areas of the sprite for inclusion in, or exclusion from, the mask.



Brush style

Clicking on this tool with **MENU** opens a dialogue box where you can set the shape and style of the brush which is used to paint into the mask.

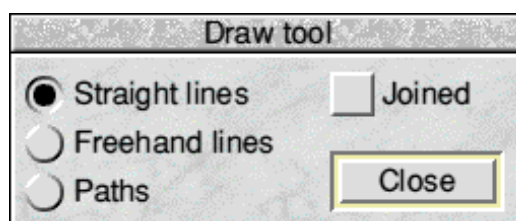


Clicking on the button at the bottom left of this window opens the dialogue shown on the right. This lets you choose between three simple shapes, a triangle, square or circle, and set its size with the slider on the left. If the **Soft** slider on the right is dragged to a greater size than the slider on the left it will give the mask a soft edge.



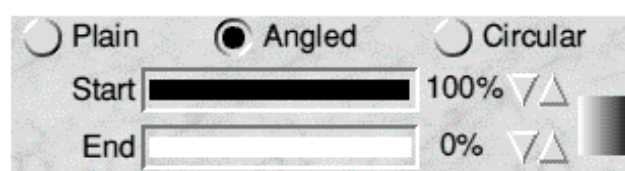
Draw lines

This tool allows you to draw rubber banded lines in the mask. Click **SELECT** for the start point, drag the line to the end point and release. Dragging with **SELECT** draws a line in the current Mask paint colour. Dragging with **ADJUST** always draws a black line. This tool is useful for cutting off unwanted areas of a mask which can subsequently be removed with the **Plain fill** tool.



Fill tool

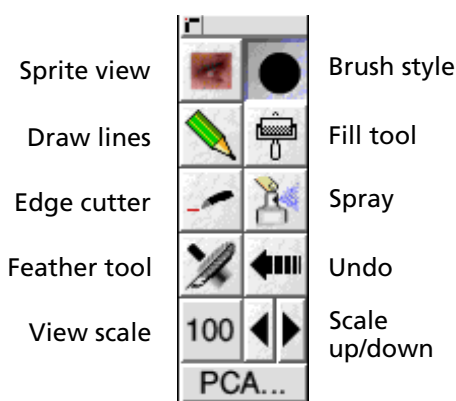
The Fill tool allows you to fill an area of the mask with either a plain colour or a graduated range of colours. When you select this tool the dialogue box shown will appear at the bottom of the mask window and using this you can choose the fill type and the colour(s) to use.



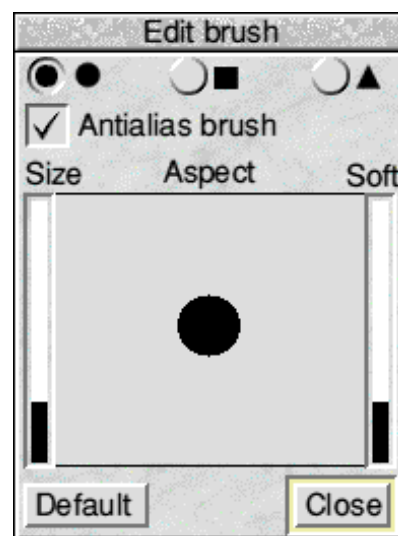
Plain fill fills in the current mask colour, if you initiate the fill with **SELECT**, or in black if you initiate the fill with **ADJUST**.

Angled and **Circular** are graduated fill types and require you to drag out an area to fill through. The end point of this drag is the 'seed point' from which the fill begins. The start point of the drag is the 'extent' of the fill range and may be outside the object to be filled.

Angled fill allows you to have a fill at any angle or, by reversing the start and end points, in any direction eg dark to light or light to dark.



The Mask Edit toolbar



Circular fill allows you to have a circular fill and, by reversing the start and end points, you can have it light to dark or dark to light.

Start & End allow you to choose the start and end shade. The fill is always a grey scale fill. The graduated fill effect is indicated in the small block in the bottom left corner of the dialogue box.

Note: Should the fill 'leak' or not produce the effect desired choosing the **Undo** button (see below) will remove the fill.

Note: Due to a bug in some versions of RISC OS fills may fail to work with masks greater than 1024 pixels high.

Edge cutters



The Edge cutter tools are used to trim rubbish from the edges of the mask. The tool draws a line from the left, right, top or bottom of the mask to the current pointer position.

The direction of the cutter is chosen by repeatedly clicking on the tool. The four edges cutter tools are shown on the left.



Cut to Left



Cut to Right



Cut to top



Cut to bottom

SELECT clicks draw lines in the current mask colour (see **Fill tool**). **ADJUST** clicks draw in black.



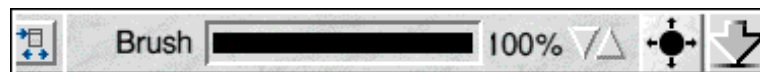
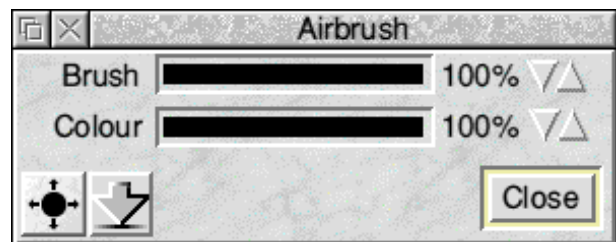
Spray tool

The Spray tool is a simple airbrush. Click **MENU** over the tool and the dialogue box shown will appear.

This lets you change the characteristics of the spray. It can be particularly effective to use the Feather tool after spraying an area.

The icon at the bottom left opens a dialogue which lets you set the shape of the spray. This is the same as the one used to set the **Brush** shape.

Clicking **ADJUST** on the tool instead of **MENU** will attach the dialogue shown below to the bottom of the window. Clicking on the icon on the left toggles between **Brush shape** (shown), **Colour** and **Density**.

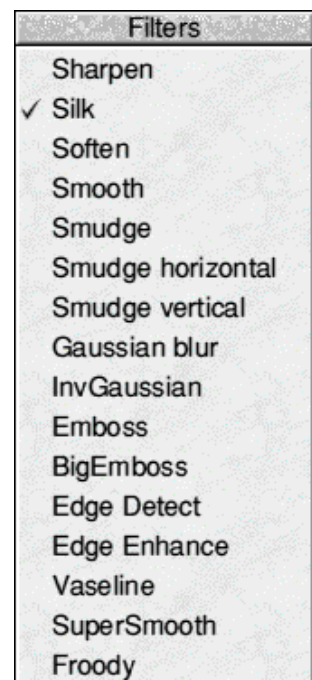
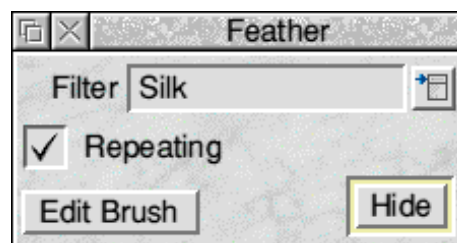


Feather tool

This can be used in a variety of ways to alter the mask's appearance. Most common uses involve darkening or softening an area of the mask, particularly edges.

Press **MENU** over the icon to open the **Feather** dialogue box. This lets you change various aspects of the Feather tool, including the type of **Strength filter** used and the size of feathering. Clicking on the menu icon opens a menu showing the various filters available (right). If **Repeating** is ticked the **Strength filter** is additive, that is it affects the pixels each time you wipe over them. If it is unticked then the filter is only applied to the pixels once.

As with many of the other tools if you click on the tool icon with **SELECT** instead of **MENU** then a version of this dialogue will attach to the bottom of the window.





Undo

The **Undo** icon lets you undo a modification made to the mask. Depending on the number of undo buffers configured and the amount of memory free in your computer, it may be possible to undo more than one step by repeated clicks on the **Undo** icon. If there is not enough memory free to create an undo buffer when you are about to modify a mask, you are warned and the action you were about to take is aborted. Either free some more memory or turn the **Undo** option off (see **Preferences** in the next chapter for details of this).

Sprite view toolbar

This small toolbar is attached to the Sprite view window. In addition to the standard set of **Scale** icons it has the following two buttons:



Snip tool

This, when selected, causes clicks in the **Sprite View** window to draw a smoothed freehand line in the **Mask edit** window. This lets you trace around the edges of an object to produce a mask outline which can then be filled. **SELECT** drags in the **View** window draw lines in the current **Mask paint** colour, **ADJUST** draws black lines.



Magic wand

This is used to add pixels of specific colours to the mask. The associated menus let you set the search range, the colour value either side of the pixel colour that you click on, and the size of the search area in pixels. Pixels in the sprite which are sufficiently close in colour to the one clicked on are added or removed from the mask depending on whether **SELECT** or **ADJUST** is used. For more information on the various settings available to let you adjust the sensitivity of this process see the next chapter.

4. The Menus

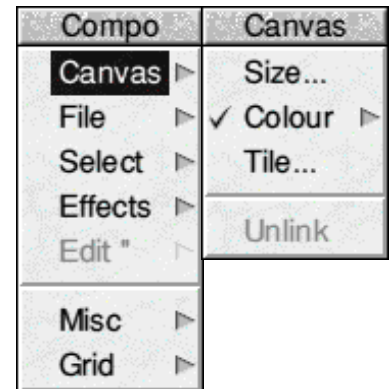
This chapter describes the menus associated with the program.

The Main Menu

The main menu appears when you click **MENU** over the canvas window. The submenus and dialogue boxes associated with the menu entries are described in turn.

Canvas sub-menu

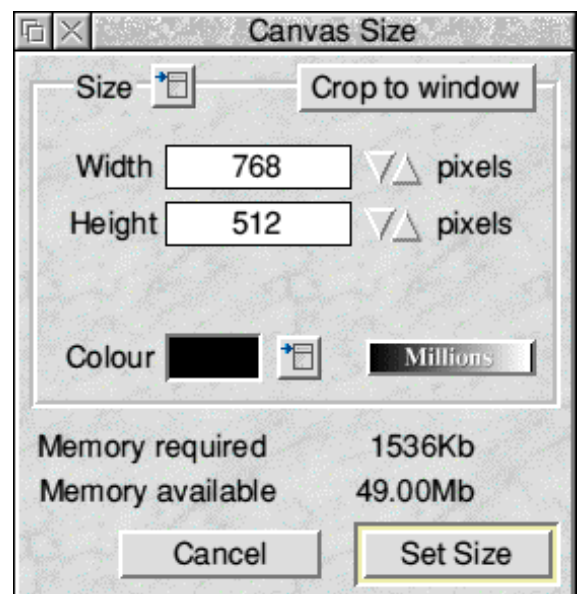
The canvas sub-menu lets you change aspects of the canvas even while working with it. This includes its size and whether it is plain colour or has a tiled background



Size...

Choosing **Size...** opens the **Canvas size** window. The items in this window are:

- Size** This menu icon leads to a default set of canvas sizes that you may find useful.
- Width** You can alter the canvas width using the writable field or the bump arrows. Note that Compo works internally in pixels and so the width and height figures may be rounded up or down slightly from what you enter.
- Height** You can alter the canvas height using the writable field or the bump arrows.
- Colour** This leads to a standard Acorn colour picker for the canvas colour.
- Memory required** Is the amount of memory required for the new canvas as shown in the dialogue.
- Memory available** Is the amount of free memory available. If the program thinks that there will not be enough free memory for the canvas size you have chosen then these values appear in red.



Colour

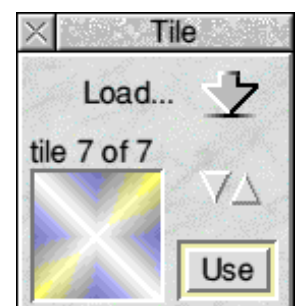
This item leads to a standard Acorn colour picker for the canvas colour. Clicking on the menu item itself forces the program to use the last colour defined for the canvas. A tick appears beside this item when the canvas is a plain colour or beside the **Tile...** item when it is a tiled sprite.

Tile...

When chosen, this item opens the **Tile pool** window.

Use the bump arrows to move through the tile pool. Choose the **Use** button to use the displayed tile as the canvas background. Choose this button with **ADJUST** to keep the tile window open, with **SELECT** to close it.

You can drag any of the bitmap file formats supported by Compo (including JPEG, Sprite, TIF, GIF, PhotoCD etc.) onto the load target in the **Tile pool** window to add the image to the tile pool. Compo automatically scales and converts it to the Preferred tile Size. See the **Preferences** window below if you wish to change this. In some cases eg if the sprite name is **Tile <nn>** or is exported from the **Edit** menu, the sprite is not automatically re-scaled. To force a scale hold down **Shift** whilst dropping the sprite onto the Tile window.

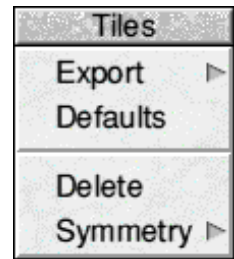


Note: For technical reasons it is not possible to load Squashed sprite files, Draw files or ArtWorks files, directly into the Tile pool. Load the file into the canvas and use the **Edit -> Export** dialogue to transfer the image to the **Tile pool**.

To export a tile, drag the tile being displayed in the pool window to hard disc for safe keeping or to another program for editing. The tile is saved With a name related to its position in the pool eg **Tile7. Tile3**.

Click **MENU** over the tile window to open the menu shown.

Export This item allows you to edit all of the tiles in another program or to save a set of tiles to disc for later use.
Tiles which have been exported may be re-imported into the program by saving from the editing program, directly into the tile pool window - the tiles loaded will replace those in the program and, if necessary, the canvas is redrawn to reflect the changes.



Defaults Resets the Tile pool to the default tiles loaded with the program.

Delete Deletes the tile currently displayed in the **Tile window**. If the tile is being used in the canvas another tile is chosen from those remaining in the pool and the canvas is redrawn.

Symmetry This item leads to a sub menu where you can set the tile symmetry in **Horizontal**, **Vertical** or **Both** planes. They work by mixing opposite edges of the tile together to produce a symmetrical tile. Although these options are intended for use with nearly symmetrical tiles produced by the **Colour block** dialogue box (see the next chapter, **Using Compo**). Interesting effects can be created by applying these items to a scanned image. For example, try loading one of the JPEG images supplied with your computer, sa24, into the tile pool and choosing **Symmetry -> Both**.

Note: Because these items modify the tile it is advisable to save a good tile to hard disc (as described above) before choosing one of the Symmetry items.

The File sub-menu

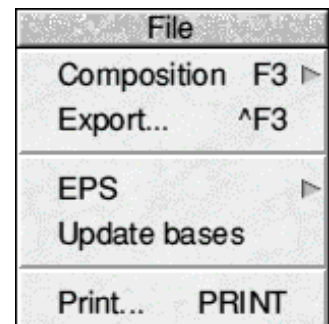
This submenu lets you save the composition in a number of file formats. It also has an item which lets you save modified sprites and masks. An important general point about save dialogue boxes within Compo is that you are allowed to transfer a file from one part of the program to another. For example, it is possible to load an image, use the **Trim** dialogue box to reduce the size of it and then choose **Export** (both in the **Edit** submenu detailed below) to transfer the trimmed sprite to the tile pool for tiling the canvas.

Composition

This format is Compo's own. It preserves all of Compo's effects and the independence of objects. On reloading a Composition file at a later date you can continue where you left off.

The file format has a couple of options which affect its internal structure and the size of file produced. To see them, choose the toggle size gadget at the top right of the save dialogue box.

With images and masks This is on by default. The Composition file will contain all the image and mask data for the composition. This file format takes the most disc space but, assuming you have enough free memory, is guaranteed to reload all of the composition.



If this option is off then the Composition file saved will contain all of the effect and positioning information but not the image and mask data. It will attempt to locate image and mask files relative to the directory in which the Composition file is saved. When saving in this way you will be given the opportunity to save modified masks and sprites via an automatic **Update bases** command. See below.

When reloading this format (without images and masks), the program simulates the user dragging in the various files and masks to re-create the composition. This may fail if, for example, you have deleted or moved one of the files. If Compo fails to find a file as it loads it will open a dialogue box giving you the opportunity to find the file or a suitable alternative. If you cannot, the program will use a default sprite instead.

Squash internals This attempts to compress the Composition file internally as it is saved. Squashed Compositions are slower to save and reload but require less space on the hard disc.

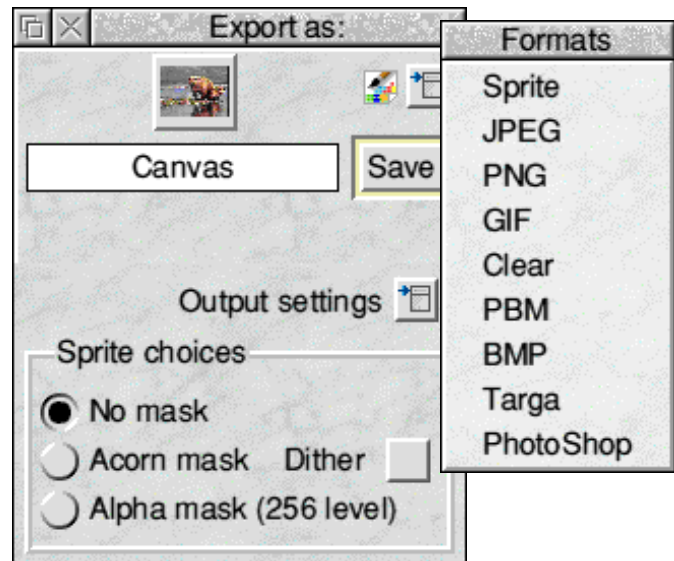
Export

This opens the **Export** dialogue.

The menu icon at the top left opens a menu from which you can choose the format in which you wish to export the canvas. The options are:

Sprite Saves a standard 32bpp Acorn format sprite containing the canvas.

JPEG Saves the canvas in industry standard JPEG format. Output quality may be changed in the Preferences window.
Note: JPEG is a 'lossy' format. It discards part of the image data to reduce file size. Because of this, you should not save compositions in JPEG format if some of the source files were JPEGs as degradation of image quality becomes very noticeable after several iterations.
 For the same reason you should not use JPEG format when a composition contains fine graduations (for example tints, colour blocks or imported vector format Artwork). The JPEG algorithm degrades these noticeably.



PNG Portable Network Graphic. This is the new bitmap graphic format intended for internet use.

GIF Graphics Interchange Format. Probably the most widely used bitmap format for web use although limited to only 256 colours.

Clear This 24bit file format is recognised by a number of Acorn applications. Files are 25% smaller than Sprite format as the Alpha channel is not saved. Clear files may be translated to a number of foreign formats via the popular utility 'Creator'.

PBM-Plus A standard file format in the Unix world. Compo outputs 'p6' PBM files.

Targa A 24 bit file standard in the PC world. Compo creates type two, 24bpp images.

Photoshop Exports the file in the format used by the widely used PC bitmap editing program.

Update Bases

Choosing this item (or saving a Composition without images and masks) causes the program to search through all of the sprites and masks in the composition. If an object has been modified in the program and not subsequently resaved Compo opens a dialogue box allowing you to save it.

This is an important feature - when rescaling and transforming objects Compo will use the 'original' file whenever it can. To ensure the best possible image quality, it is important that you create masks and images and then choose this item **before** rescaling or transforming them. If you do this, scaling objects back up or transforming them again will result in much better image quality as the program has these full quality 'bases' to work from.

The Select sub-menu

This submenu is similar to Draw's submenu of the same name.

All	Selects all of the sprites in the composition.
Clear	Deselects all of the sprites which were selected.
Delete	Deletes all of the selected sprites and their associated masks from the composition.
Front	Moves the selected sprite(s) to the front.
Forward	Moves the selected sprite(s) forward in the depth stack.
Back	Moves the selected sprite(s) to the back.
Backward	Moves the selected sprite(s) backward in the depth stack. When there is more than one sprite selected the action of Front and Back cannot be guaranteed to produce any particular effect though the selected objects will move in the right direction!
Group	Groups all the selected sprites so that they can only be selected and deselected together as one unit. This does not make them one unit and actions such as scale, alignment etc, act on each individual item independently.
Ungroup	Reverses the action of the previous item, and removes grouping from all of the selected sprites (though they will still be selected).
Lock	Locks the selected sprites. Locked sprites cannot be moved, their opacity, shadow etc. cannot be modified. Useful if you have finished part of the composition and do not want to modify it inadvertently.
Unlock	Reverses the action of the previous item. Objects which were locked are now free to be modified.
Copy	Makes copies of the selected sprites. The copies are then selected. Initially, the copies are identical to the originals.

Select	
All	^A
Clear	^Z
Delete	^X
Front	^F
Forward	↑F
Back	^B
Backward	↑B
Group	^G
Ungroup	^U
Lock	
Unlock	
Copy	^C
Clone	^K

The Effects sub-menu

The **Effects** menu duplicates the buttons in the Main window toolbar. These modify the selected sprite's effects. It serves as a textual version of this part of the toolbar which some users may prefer. It also provides reminders of the key shortcuts used to open these dialogue boxes.

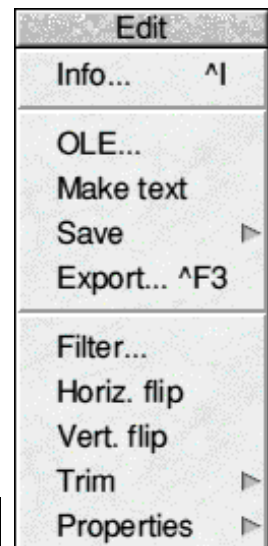
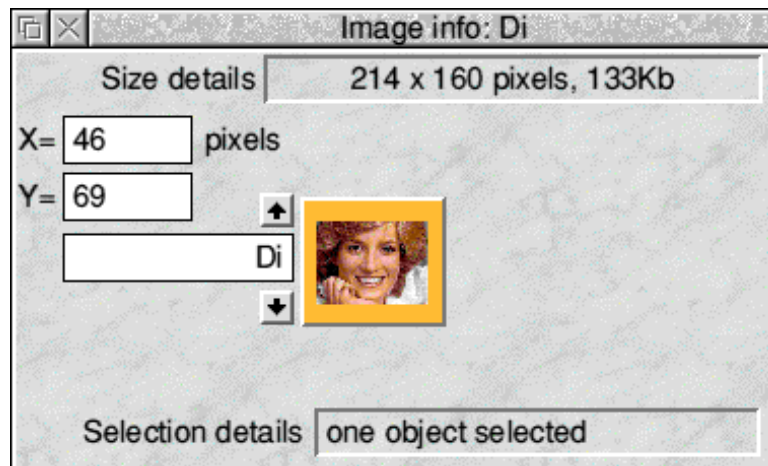
These were all fully described in **Chapter three - The Toolbars**, so the descriptions will not be repeated here.

Effects	
Shadow	^↑S ▶
Opacity	^O ▶
Tint	^T ▶
Gamma	^↑G ▶
Curve	^V ▶
Scale	^↑Z ▶
Layout	^L ▶
Transform	^R ▶

Edit

The exact appearance of this item in the main menu varies, depending on the sprites selected. Generally, the name of the last sprite added to a selection appears in the menu. It leads to a submenu (right) which holds effects and actions which cannot be logically applied to more than one sprite at a time. The actions are applied to the named sprite only.

- Info** Opens the Image Information window. This window not only provides useful information about the last selected sprite but also lets you enter the precise position of the sprite by hand. You can also use the small arrows to move selected sprites in the depth stack. Up to three sprites are shown at any one time.
- It may be useful to keep the info window open while you work with the composition. If it becomes hidden as you work then pressing **Ctrl-I** will pop it to the front.



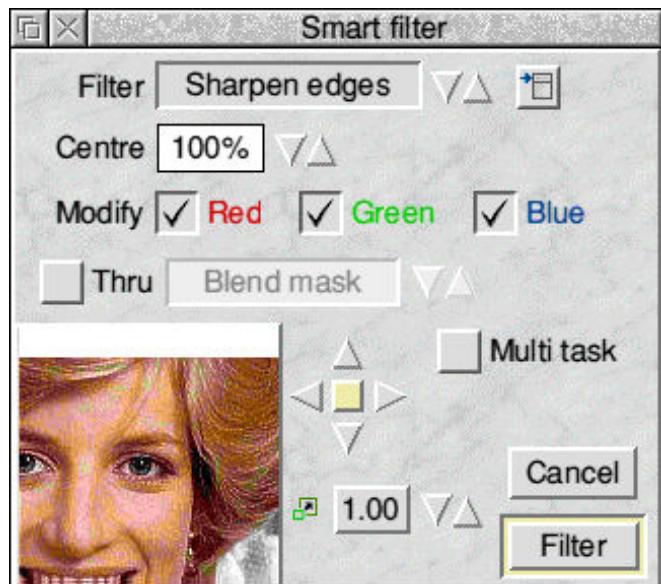
- OLE** Choosing this item has the same effect as **Ctrl-Double clicking** on a sprite in the canvas and sends it to a suitable editing application using the OLE standard. Saving the edited sprite from the editing application, using the standard save procedure, will return the edited image to Compo automatically.
- Make text** This opens the **Create text from sprite** dialogue. This is essentially the same as the **Create text** dialogue except that the colour options are greyed out. In addition there is a new button labelled **Fit to sprite**. This option creates a text mask which is attached to the Blend mask of the selected sprite. When you click on **Create** the text forms a 'window' onto the sprite so that the sprite is only visible through the text. The **Fit to Sprite** button scales the text to fit the selected sprite. The calculation is based upon the text size when the dialogue is opened, so if you change it, you may need to select this button twice. As with other masks you can move the mask on the sprite using **Shift** or **Ctrl** whilst dragging.
- Save** Leads to a **SaveAs** dialogue from which you can save the selection as a Sprite file.
- Export** This lets you export the sprite to another application or to disc. If the destination is a disc then the pathname for the sprite is updated. Compo also allows you to transfer the sprite to the Tile pool if the tile dialogue box is open. See the next chapter, **Using Compo**.
- Note:** To maintain image quality when rescaling sprites, you should only use one of the three items **Filter**, **Horizontal flip** and **Vertical flip**. on a sprite which has not been rescaled. Remember to choose **Update bases** from the **File** menu before any rescaling is done.

Filter...

This opens the **Filter** dialogue box which lets you modify the image in a number of ways such as sharpening and embossing effects. Choose a filter by clicking on the bump arrows beside the filter name. The menu icon opens a filter definition window which is explained in detail in Chapter 5, **Using Compo**.

The **Centre** value is related to the 'strength' of the filter and its effect varies from filter to filter. Generally, a larger centre value produces a 'weaker' filter.

The **Modify** buttons let you restrict the filter to any combination of the Red, Green or Blue components of the image.



Thru uses the named mask to control the strength of the filter on a pixel by pixel basis within the sprite. The bump arrows let you choose from the available masks.

Note: if a given mask has not been created for the sprite then the filter will execute evenly over the whole sprite.

Click on **Filter** to process the image. This may take a few seconds with large images and complex filters. You can abort a filter while it is working by pressing **Escape**. The filter window will stay open if you choose **Filter** with **ADJUST**. This lets you select another sprite and execute another filter without reopening the dialogue box.

The **Example** box lets you see the effect of a filter on a part of the image. As you toggle through the filters the filter is applied to the Example window. The four bump arrows to the right of the Example box move the sprite relative to the example box. The bump arrows beneath the example box scale the image in the Example box.

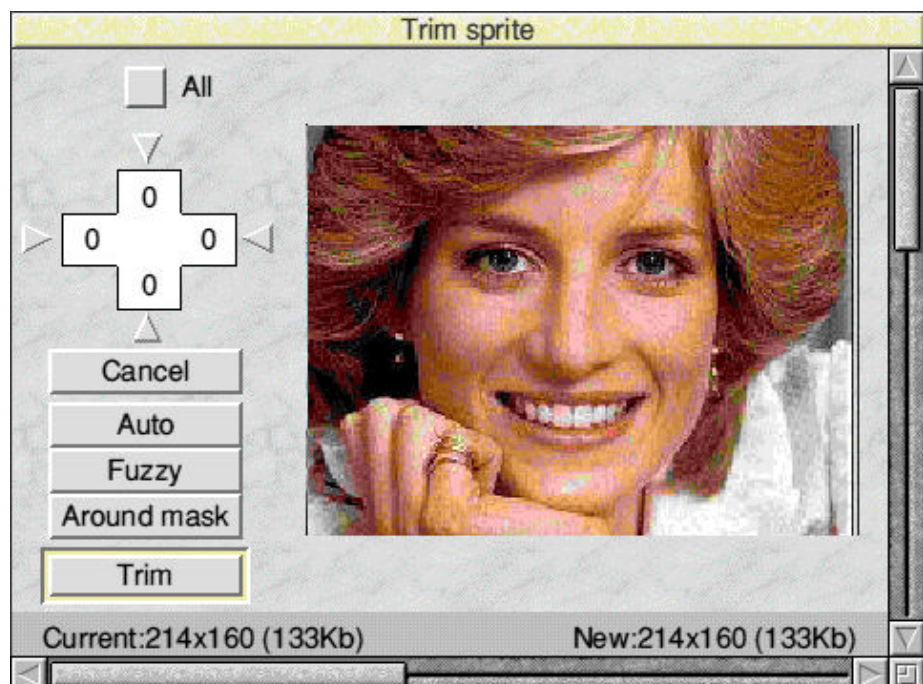
Tick **Multi task** if you want to use other applications whilst a filter is in progress. This is only required when processing very large sprites. Filters work much faster with **Multi task** disabled.

Horiz. flip Flips the sprite and all associated masks horizontally. Choose this item again to reverse the effect.

Vert. flip Flips the sprite and all associated masks vertically. Choose this item again to reverse the effect.

Trim

This leads to the **Trim** dialogue box where you can increase or decrease the size of the sprite. It is also possible to make the program trim the sprite to the boundaries of the masks.



To reduce the sprite's size simply drag a box over the area you wish to keep. The surrounding portions of the image will be inverted and it is these areas and the associated areas of all of the masks that are discarded when you click on **Trim**. To fine tune the amount use the four bump icons or enter values in the writable icons.

To increase the size of the sprite click with **ADJUST** on the appropriate arrow icon. A negative value means that the number of rows or columns shown will be added to that side of the sprite. Selecting **Around mask** sets the trim values to remove all areas of the sprite which relate to black areas in the masks.

Trimming a sprite may make it use less memory and let it be redrawn faster.

Note: Trimmed sprites and masks are marked as modified. To retain image quality for rescale operations you should do any trimming before rescaling the sprite and select **File -> Update bases** immediately after trimming.

The Misc sub-menu

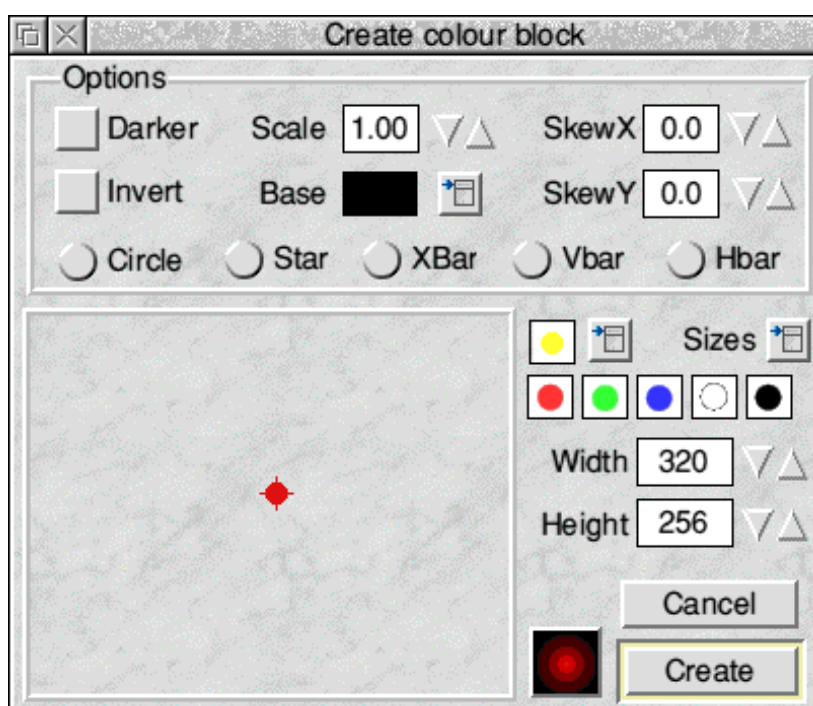
The Misc menu contains the following items.

Text This has the same effect as the text button in the main toolbar.

Block... This opens the Colour block dialogue box which allows you to create a sprite which is filled with shaded areas of colour. The resulting sprites are useful for a number of purposes. Examples include multi-coloured text, canvas tiles and mixing effects. See the next chapter, **Using Compo**, for some detailed examples.

The colour of each pixel in the created sprite depends on its distance from each of a number of user defined 'colour points'. Compo allows you to arrange up to 32 of these points and each may be any of the 16.7 million colours available.

In addition, each point may be one of five different 'shapes' which define how the strength of the colour point falls off with distance.



To add a point to the colour block drag one of the coloured circles onto the definition area at the left of the dialogue box. To move a point on the definition area simply drag it to where you want it. To remove a point from the definition area drag it off the area.

To change the shape of a point within the area double click on it with **SELECT** to advance through the available shapes. Double click **ADJUST** over a point to move backwards through the available shapes. The radio icons in the Options section change to reflect the shape of the point. These options are also used to define the shape of a new point, which can then be dragged onto the area.

There is a set of standard colours and one user definable colour. To change the definition of this, use the standard Acorn colour picker which is opened by clicking on the menu icon to the right of the user defined colour, initially this is yellow. This colour may be changed after each point has been created - allowing access to Options.

Width defines the width of the sprite to be created.

Height defines the height of the sprite to be created.

Create with ADJUST will create a colour block and keep the dialogue box open.

Create with SELECT will create a colour block and close the dialogue box. The block created is initially positioned in the middle of the canvas. A small thumbnail of the block beside the Create button gives an idea of what the block will look like when created. This thumbnail is updated as you make changes. The Options at the top of the window allow you to change the way the colour block will look.

Darker has a quite subtle effect and, when on, tends to produce blocks in which the effect of each colour point drops off more rapidly.

Invert is a very strong effect. It causes colour points to have more influence the further away a pixel is from them. It produces a logical inversion of the colour block blend.

Scale can be thought of as a means of 'zooming' un the colour block. Values greater than one, produce less contrast in the resulting colour block. Values less than one, produce more dramatic changes in the colour block.

Base colour allows you to set the 'base' colour of the colour block via a standard colour picker.

Skew X allows you to distort the shape of the colour block horizontally.

Skew Y allows you to distort the shape of the colour block vertically

Experimenting with this very powerful feature will soon give you a feel for what can be produced. In the next chapter we give a few examples

The **Block** tool can also be used to create a box to place behind text. The box is not attached to the text unless you group the text and the block together. Both items can be scaled and moved independently. This is sometimes more convenient than having the block fixed to the text.

To create the block set the Base colour and the colour of the **Definable point** to the required colour and drag the **Definable point** onto the block. Drag the original point off the block to remove it and then click on **Create**. You can now scale and move the block as well as alter opacity, masks etc.

The Grid sub-menu

The Grid item allows you to control aspects of a grid which may be overlaid on the canvas. Choosing the Grid item itself toggles the state of the Show and Lock items described below.

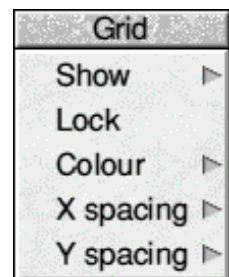
Show This toggles display of the grid over the canvas on or off.

Lock This toggles locking of objects to the grid. When dragging sprites their positions will 'snap' to the grid points as they are dragged.

Colour This lets you change the grid colour via a standard Acorn colour picker. Choose a grid colour which will stand out well against the sprites in the canvas.

X spacing Allows you to change the horizontal spacing size of the grid in units of one pixel.

Y spacing Allows you to change the vertical spacing size of the grid in units of one pixel.



The Mask editing menu

This is the menu which appears when you click **MENU** with the pointer over the mask editing window.

Invert

Inverts the mask - black becomes white and vice versa. Choosing this item again reverses the effect.

Lighten

Lightens the mask.

Darken

Darkens the mask.

The submenus for **Lighten** and **Darken** allow you to choose a particular range of values in the mask to operate on. For example **Darken -> All but white** would tend to reduce anti aliasing of the mask.

If used repeatedly, it would eventually give a mask consisting of only white or black pixels. All of the pixels between black and white would have become black.

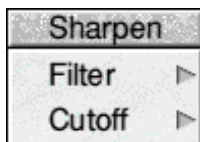
Not surprisingly, there is an option **All but black** and if you choose **Lighten -> All but black** repeatedly then all grey pixels would eventually become white. Many of the functions in this menu have an identical submenu and can be used in a similar way. For example, **Anti alias -> Smooth -> All but black** will tend to 'erode' the white edges of the mask.

Anti alias

The Anti alias submenu allows you to soften the edges of the mask. **Silk**, **Soften**, **Smooth** and **Smudge** provide progressively more intense smoothing functions.

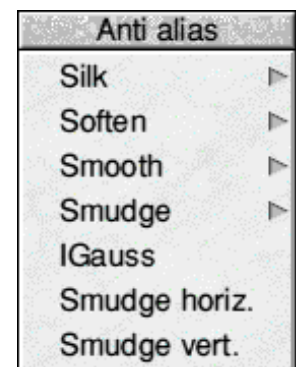
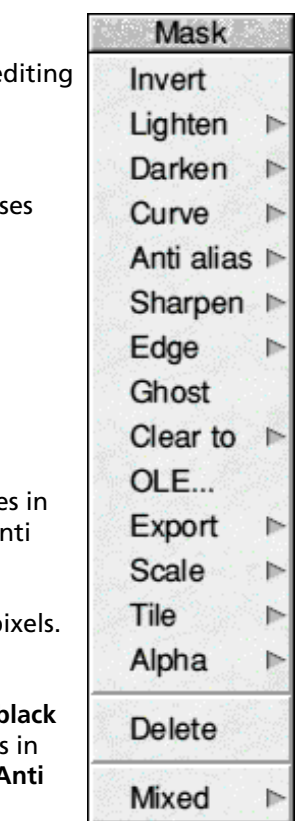
Sharpen

The **Sharpen** submenu has an opposite effect to the **Anti alias** submenu and lets you remove anti aliasing from a mask.



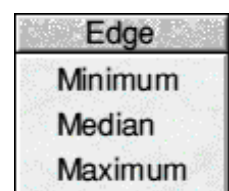
Filter This sharpens the mask using a simple filtering function

Cutoff This leads to a slider dialogue box and, when **OK** is chosen within this box all pixels darker than the cutoff value chosen are turned black. All pixels lighter are turned white. The slider value relates to the grey scale value of the pixel in the mask.



Edge

Applies an edge smoothing routine which has the effect of reducing the size of the mask inwards. There are **Minimum**, **Median** and **Maximum** functions. Choosing **Median** is useful for removing stray pixels from the edge of the mask.



Ghost

This is unusual. It is a little like a violent smoothing function and produces a ghostly ethereal sort of effect. Choose **Anti alias -> Smooth** after Ghost for best effect.

Clear to

Allows you to clear the mask to black or white

OLE...

This sends the mask to a suitable editing application using the OLE standard.

Export

This leads to the standard **Save** dialogue box, allowing you to export the mask to hard disc or another application.

If you double-click on the file icon it will toggle between sprite, JPEG and Squashed sprite formats.

Note: For best quality always use sprites or Squashed sprites. When rescaling a mask, the base file on disc is not used if it is a squashed tile. This will result in some loss of quality.

Scale

This opens the dialogue box shown which lets you scale the mask. You can either enter the values directly or use the bump icons. You can scale X (horizontal) and Y (vertical) sizes separately or together. Clicking on **Canvas** will scale the mask to the same size as the current canvas.

Delete

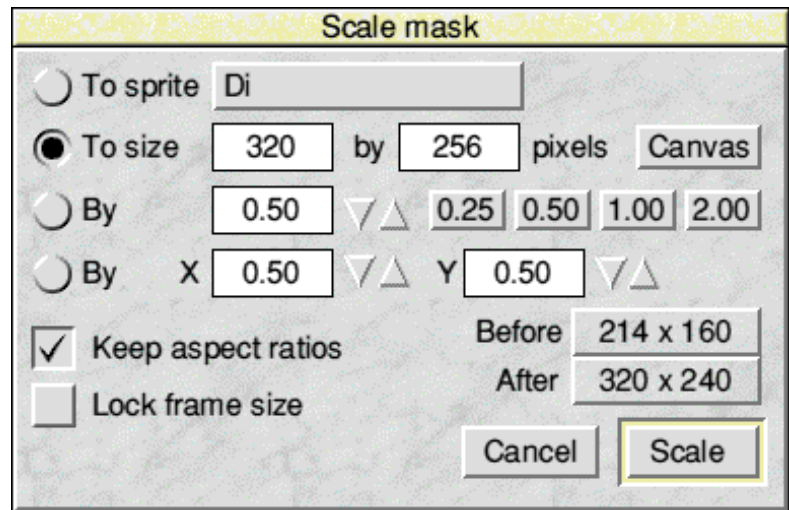
Deletes the mask and removes the mask editing window.

Mixed

Choosing **Mixed** determines whether the program will mix the sprite and mask together in the **Mask edit** window. This requires additional memory, (which is released when the Mask edit window is closed), and slows down redraw of the edit window, but it can be useful for precise editing of the mask in relation to the sprite.

If there is not enough free memory or if the mask is not the same size as the sprite the mask is displayed by itself as if the option was off.

The sub menu leads to a standard Acorn colour picker, which allows you to select the colour used to represent the mask. Choose a colour which contrasts well with the colours in the sprite.



The Sprite view menu

This small menu appears when you click **MENU** over the **Sprite view** window or the **Wand** icon. It allows you to change the settings of the **Magic wand** tool and to choose between a **RGB** wand and a **HSV** wand.



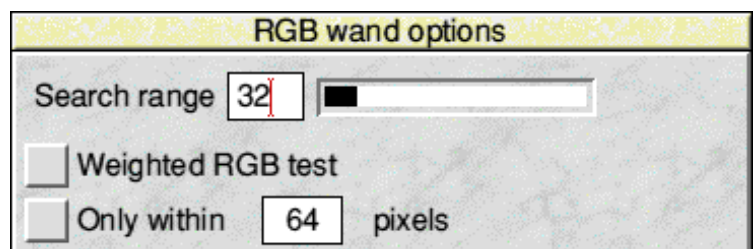
The **RGB wand** tests pixels in the red, green and blue colour space for their similarity to the one clicked on. The **HSV wand** tests pixels in terms of their distance in Hue Saturation and Value from the pixel clicked on. Which wand you use will depend on the sprite being masked. The RGB wand is almost always satisfactory, and is much faster than the HSV wand to use.

There are separate options for **Include** (ie add pixels to the mask) and **Exclude** (ie remove pixels from the mask). Colours are included if you use **SELECT** to click on a pixel or they are excluded if you use **ADJUST** to click on a pixel.

Global RGB

This leads to a sub menu with two items, **Include options** and **Exclude options**. Each leads to a window where you set the items to be included or excluded

Search range Enter a value into the **Search range** writable icon or drag the slider. The value is a distance in a three dimensional 'colour cube', if a tested pixel in the sprite falls within this distance it is deemed 'acceptable' for inclusion in, or exclusion from, the mask.



Weighted RGB test If this is on the search is weighted to more closely match the human visual system. The weights are set to provide a strong green bias as the human eye is much more sensitive to changes in green than red or blue.

Only within If this is on the program only considers pixels within the radius set in the writable icon. In addition, as a tested pixel is further from the initial pixel its colour must be 'closer' to the colour of the initial pixel

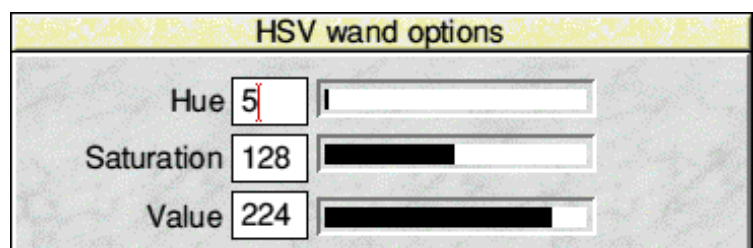
Global HSV

As with RGB this leads to a sub menu with Include and Exclude options, each of which lead to a dialogue box as shown.

Hue This ranges from zero to 360 and is a distance around a 'colour wheel' which will be accepted for inclusion or exclusion from the mask.

Saturation This defines the amount of change in the intensity of a pixel which is acceptable for inclusion in/exclusion from the mask. It can be thought of in terms of the amount of white in a colour.

Value This defines the amount of change in the brightness of a pixel which is acceptable for inclusion in/exclusion from the mask. It can be thought of in terms of the amount of black in a colour.



The Icon bar menu

The icon bar menu appears when you click **MENU** over the application icon on the icon bar.

Info

This leads to an information box providing information about the program including a version number and date which you should mention in any correspondence. It also displays the serial number of the program.

Canvas size...

This opens the Canvas Size dialogue box. Clicking **ADJUST** on the application icon has the same effect. This item is only available if a canvas already exists.

Preferences...

Opens the Preferences window, which is described fully later.

Show CD Album

With a Kodak PhotoCD in the drive, clicking on this option produces a window containing the first ten thumbnail images on the disc. See Chapter 6 for more details.

Note: Do not choose this item whilst the Busy light on the CD Player is lit.

PCD Info

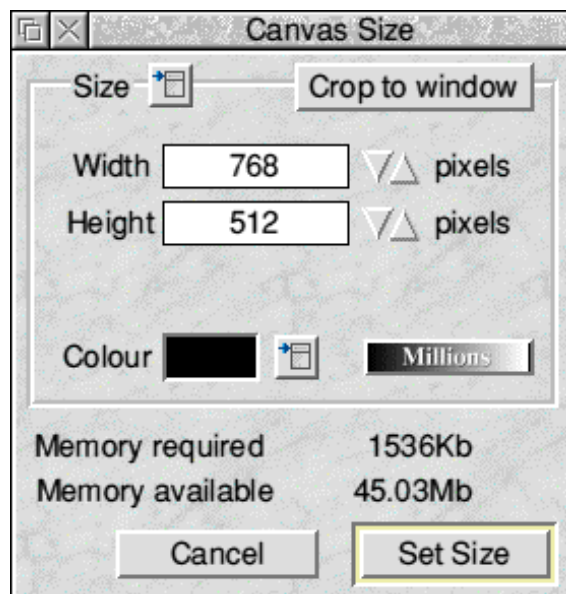
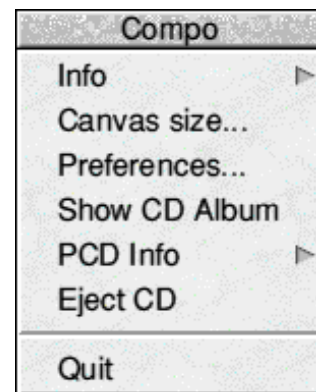
After **Show CD Album** has been chosen this item will lead to a dialogue box giving information about the PhotoCD.

Eject CD

This ejects the CD from the drive. You must use this when removing a disc as the disc draw is locked to prevent problems from unmounted CDs.

Quit

Quits Compo, prompting if you have an unsaved composition in memory.

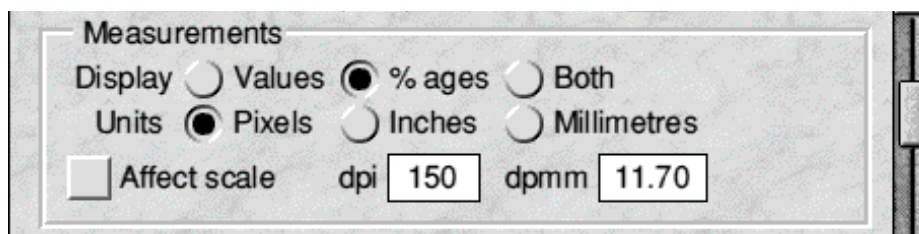


The Preferences window

The top section of the window may not be visible when you first open it. To see this area either use the vertical scroll bar.

Measurements

The window controls the format of the measurements and size values displayed by the program.



Display The Display radio buttons control whether component values or percentage values are used for dialogue boxes, such as the Opacity dialogue box. Component values usually range from zero to 255. Percentages from 0-100%.

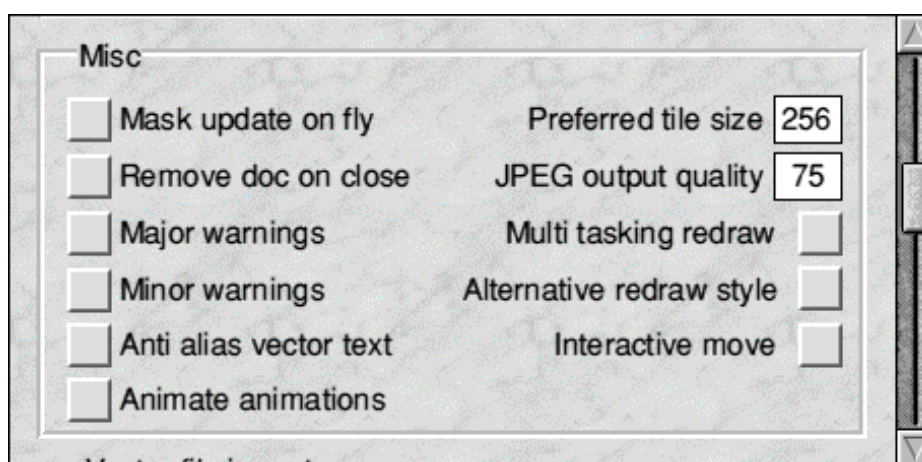
Units The Units radio buttons control the display units for things like sprite positions, sizes of sprites and canvas size etc. Compo works internally in pixels and values entered in inches or millimetres may be rounded down to the nearest pixel. This means that the values in the dialogue box may change when you next view them.

You can also change the dots per inch and dots per millimetre values by altering the value and pressing **Return**. DPI is a device independent setting for the size of the image. A canvas set at 300dpi and 70mm by 50mm looks very much larger than 70mm * 50mm on screen. This is because monitor screens usually work at about 90dpi. The image will look bigger on a 17 inch monitor than on a 14 inch. However, when you send your image to a printer (the man not the device), he will output it at very high resolution onto film and it will then appear at the correct size.

In summary: the setting of the DPI value is a device independent setting which should be set to the dpi of the ultimate output device e.g. a Raster Image Processor. To complicate matters your printer may talk in terms of Lines Per Inch (LPI) or dot screen. Most quality litho printing is done at 150dpi and this equates nicely to using 300dpi. For lower quality or mono work, 150dpi can be used.

Misc

The second section of the Preferences window holds a variety of miscellaneous options and settings.



Mask update on fly When this option is on (the default), painting in a mask edit window updates a corresponding area of the canvas to reflect your changes. When this option is off, the canvas is only updated when you stop painting in the mask edit window.

Composition

Preferred tile size This is the preferred size to scale an image for use in the Tile pool. The size is in pixels and the image being converted is scaled to a size as close to this as possible while still maintaining its aspect ratio.

Remove doc on close If this is on then when you close the canvas window a warning is issued if you have not saved the canvas. You can choose to continue and lose the canvas or save it. If this option is off the canvas window is closed but the canvas remains in memory and can be re-displayed by clicking with **SELECT** on the icon bar icon

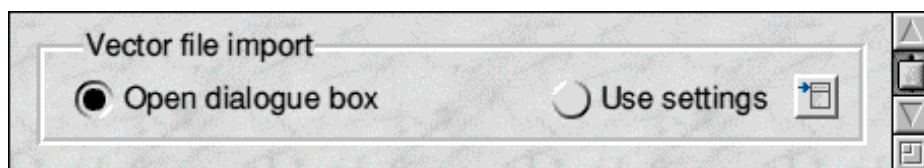
JPEG output quality This controls the level of compression and image quality when saving a JPEG file. Values between 10 and 99 are acceptable but normal ranges are from 70-90. The smaller the number, the smaller the final file size but the lower the image quality.

Multi-task redraw By default, Composition uses the entire resources of the computer while such operations as painting in a mask are underway. This improves the responsiveness of the drawing tools. If you want other programs to continue working while these operations are underway then turn this option on.

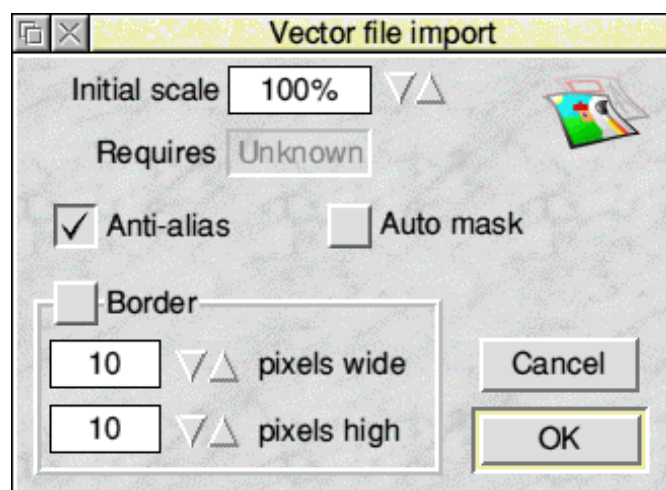
Major warnings When on, the program warns you before doing something potentially hazardous like deleting a mask.

Minor warnings When on the program warns you before doing things such as deleting a sprite, trimming a sprite etc.

Vector file import



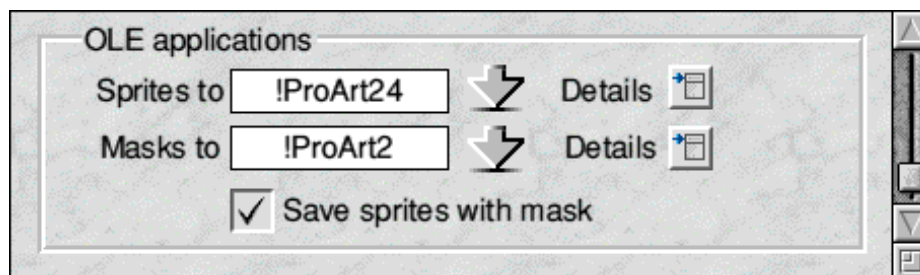
Open dialogue box If this radio icon is selected a dialogue box (right) opens when you import a Draw or ArtWorks file. The dialogue box lets you select various settings before the file is loaded.



Use settings If this radio icon is selected, the settings defined in the associated dialogue box are used automatically.

OLE applications

The final section of the window concerns OLE - The method by which sprites and masks in Compo can be edited in other programs and quickly returned to the Composition with their effects untouched.



Composition's system of OLE is slightly different to other packages in that you specify a 'preferred' program to edit images with. This is because, typically, many programs are able to load sprite files and it is not always clear which will 'get' a particular file when double clicked on.

To change the default package for OLE drag the icon of the application you wish to use onto the appropriate load target icon in the Preferences window.

If the application conforms to the standard Acorn name guidelines you will need to do nothing more. The text which appears beside the load target is the application name (e.g. !ProArt24). Click on the **Details** menu icon to change the task name and director) name for the application. These are set automatically to a suitable default when you drag the application icon onto Compo.

Note: By default, Paint will not allow you to edit sprites from Compo. See the Technical issues Appendix for details of a fix to make Paint edit these sprites. Compo will attempt to OLE a sprite to an appropriate editing package when you hold **Ctrl** down and double click on the sprite in the canvas.

Compo will attempt to OLE masks to ProArt2 or Paint when the OLE... button in the horizontal mask toolbar is chosen.

Masks and Sprites modified in another package will automatically return to Compo when saved *as long as the filename is not altered*.

Applications which support the <F3>, <Return> short cut to save a file under the same name are particularly handy.

Note: Compo will cope if you change the size of the sprite in another program. although any masks in use by the sprite will be positioned incorrectly when the sprite is returned to Compo. It is recommended that you use Compo's Trim dialogue box to change the size of a sprite. See earlier in this chapter.

5. Using Compo

This Chapter is intended to give you ideas by explaining how some of the features and effects, described in the previous two chapters, may be used and combined to produce interesting effects. The ideas are presented as a series of tutorials, in a similar manner to the tutorials in the first chapter

Shadows

Shadows for rectangular objects

1. Create an empty canvas. Click **MENU** over it, follow **Canvas -> Colour** and choose **White** from the colour picker.
2. Load the image **Magnolia** from the supplied tutorials.
3. Select **Magnolia** and **ADJUST** click on the **Opacity** icon in the main toolbar to open a blank Blend mask for the object.
4. Click **MENU** over the mask edit window and choose **Clear to -> White**. Close the Mask edit window.
5. Choose the **Shadow** icon in the main toolbar, turn the shadow option on by clicking on the **Active** box. And choose **OK** (Alternatively, Press **Ctrl-S**). The shadow will not be visible at present because all of the Blend mask is solid. To correct this, click **MENU** over the canvas and follow **Edit 'Magnolia' -> Trim**. **ADJUST** click on the bottom and right hand arrows in the Trim dialogue box to extend the appropriate sides of the sprite to reveal the shadow. A value of -10 should be enough. Remember to **ADJUST** click on **Trim** in the trim dialogue box to keep it open so that you can repeat the operation if all of the shadow is not visible.

Soft shadows using the Shadow mask

1. Load the **Horse** image from the supplied tutorials or use the shadowed magnolia image created in the previous tutorial.
2. Turn **Shadows** on for the selected object(s) if necessary.
3. **ADJUST** click on the **Shadow** icon in the main toolbar. A Shadow mask is created and a copy of the object's Blend mask is automatically placed in it.
4. Click **MENU** over the Mask edit window and choose **Ghost** or **Anti alias -> Smooth** a couple of times. If desired, the shadow may be altered in a more localised way by using the Feather tool with **Strength -> Deluge** or **Darken**.

The actual intensity of the shadow calculated at each point is quite complex and is based on the intensity of the Blend mask value (brighter values in the Blend mask produce less shadow), the intensity of the Shadow mask pixel and the intensity of the shadow colour.

Creating true three dimensional shadows

The Pseudo 3D shadow options often suffice for creating realistic looking shadow effects. If you have the time and the artistic ability it is possible, however, to recreate the exact shape of the shadow in the original image.

1. Load the **Horse** tutorial image.
2. Select the **Horse** and turn on its shadow.
3. **ADJUST** click on the shadow icon in the main toolbar.
4. Click **MENU** over the mask edit window and choose **Clear to -> Black** with **ADJUST** to keep the menu open.
5. Choose the **Mixed** item in the menu to turn on mixing of the horse and its shadow mask.
6. Using the **Line** drawing tool, draw around the shadow shape on the grass behind the horse.
7. Ensure that the outline of the shadow is complete, with no missing pixels. The zoom buttons may help with this.

8. Choose the **Fill** tool (and set it to **Plain** if necessary) and click **SELECT** within the shadow outline you have created. If the fill Floods outside the shadow shape choose the **Undo** button. Find the pixel missing from the shadow outline, fill it with the **Line** drawing tool and try again.
9. Either use the menu item **Anti alias -> Smooth** or the **Feather** tool to soften the edges of the shadow.

All around shadows

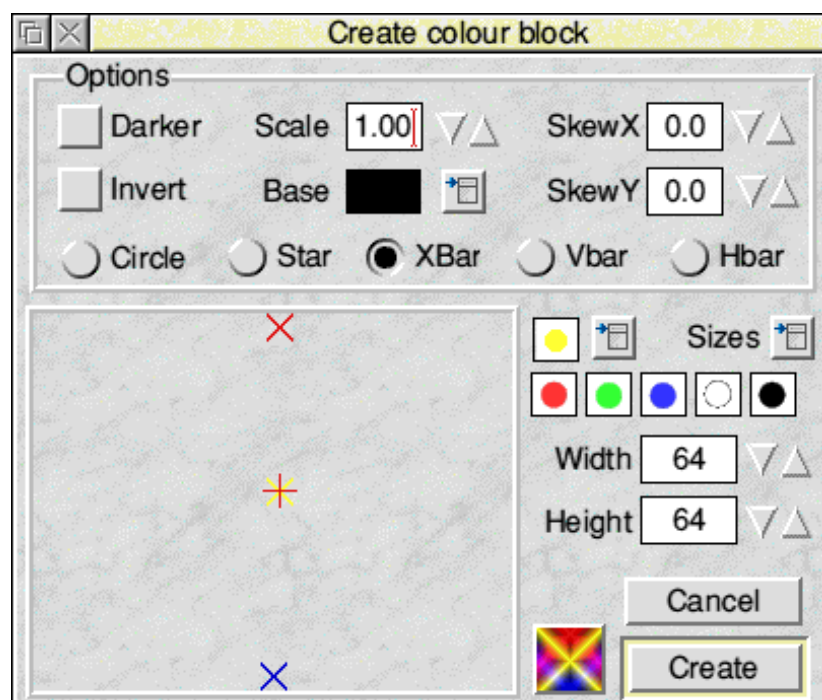
1. Load the **Leafy1** tutorial image.
2. Load **sa24** from the standard **Images** directory supplied with your computer.
3. Select **sa24** and click on the **Mask** icon to open the **Horizontal mask** toolbar. Select the **Blend mask** if necessary.
4. Drag **sa24_msk** from the **Tutorials.std_msks** directory into the **Horizontal mask** toolbar.
5. Open the **Shadow** dialogue box by clicking on the **Shadow** icon in the main toolbar, turn shadows on and reduce the x and y offsets to zero. Click **OK** in the Shadow dialogue box.
6. Click with **ADJUST** on the **Shadow** icon to open the **Shadow mask** for the image.
7. Click **MENU** over the **Mask edit** window and choose **Edge -> Maximum** twice with **ADJUST** then choose **Anti alias -> Smooth** or **Ghost**.

Colour blocks

This feature is one of the most flexible in the program. Here we give a few examples of what it can be used for.

Canvas Tiles

1. Open the **Tile** and **Colour block** dialogue boxes by choosing **Canvas -> Tile...** with **ADJUST** and then **Misc -> Block...** from the main canvas menu.
2. Change the **Width** and **Height** fields in the Block dialogue box to **64 pixels**. Using smaller tiles slows down redraw of the canvas considerably.
3. Drag the default red colour point to the top of the block definition area and double click on it twice to turn it into a 'X-bar' point.
4. Drag a blue point onto the definition area and place it at the bottom of the area.
5. Drag a yellow point to the middle of the area and double click on it until it turns into a Star shape. The **Create colour block window** should look like the illustration below at this point.
6. Choose **Create** with **ADJUST**.
7. Select the small colour block which appears in the middle of the canvas. (If it is not visible choose the toggle size icon in the canvas window with **ADJUST**)



8. Click **MENU** over the object and follow **Edit 'ColBlock' -> Export**. Drag the file icon to the **Tile** window and choose the **Use** icon in the Tile window with **ADJUST**.
9. Click **MENU** over the tile window and choose **Symmetry -> Vertical**.

Colour blocks as canvas background

1. Open the **Colour block** window, click **MENU** over it and choose **Reset** with **ADJUST** and then **Size -> Canvas** from the menu.
2. Drag the default red circle to a point about 7/8 of the way up and 1/8 of the way in from the left of the definition area. Drag a blue colour point on and drop it at about 7/8 of the way across the area and 1/8 of the way up. Drag a white point to the centre of the area. A line at about 45° should connect all three points.
3. Choose **Create** with **ADJUST** to create the colour block.
4. Experiment with different colour points and shapes. The thumbnail will give you a good idea of how a block will look before it is created. Remember that each block you create will use memory. You may need to select and delete unwanted blocks if memory becomes short.

Mask creation techniques

There are several shortcuts and techniques for creating masks of irregular 'real world' objects.

If the object to be masked has a fairly simple background colour (for example, a blue sky with a multi coloured object, such as a person, in the foreground) then it is often easier to select areas of the image you *do not want* and then choose the **Invert** item from the Mask edit, window menu.

Invert is also useful for fine tuning a mask when used in conjunction with **Mixed** viewing in the **Mask edit window** menu. Turn **Mixed** on, choose **Invert** and then cut holes in the solid mask until all of the object you want to display is visible (using the Feather tool to soften the edges of the object). When complete, choose **Invert** once more.

Creating smooth fades of irregular objects.

A common requirement when creating a mask is for it to fade smoothly from an angle. The **Angled fill** tool in the **Mask edit window** can fill areas of single colour within a mask but if anti aliasing has been used an unsightly border of pixels is not filled.

To avoid this, use the **Sharpen -> Cutoff** dialogue box in the **Mask edit window** menu to remove any anti aliasing from the mask, then fill and anti alias it.

Maths options

The **Maths** options in the **Opacity** window are often good for special effects. Here are a few examples, there are many possibilities.

Luminous, Three Dimensional Text

1. Starting with a blank canvas. Load the supplied file. **Landscape**.
2. Choose the **Text** button in the main toolbar.
3. In the **Create text** dialogue box change the font size to 140 point and the text colour to White if it is not set to white already. You can also change the default text if you wish but stick to roughly the same size word.
4. Choose the **Create** button and move the text to partly cover sky and land, about two thirds of the way up the landscape image.

Note: If the text is not anti aliased select it, delete it, run the **Tfonts** utility and then recreate the text by pressing **Ctrl-E** with the pointer over the canvas.

5. Choose the **Shadow** icon and select the **Active** box. Increase the X and Y offsets to 10 pixels. Choose the **Colour** menu opener in the **Shadow** **dialogue** box and choose a slightly darker grey from the default set in the colour picker. Choose **OK** to close the dialogue box.
6. Choose the **Shadow** icon with **ADJUST** to open the **Mask edit** window for the **Shadow** mask. Click **MENU** over the mask edit window and choose **Edge -> Maximum** twice and then **Anti alias -> Smudge** twice. Close the **Mask edit** window.
7. Choose the **Opacity** icon and click on the toggle window size gadget to reveal the **Maths** options. Drag the **Opacity** down to about 35%, Change the **Maths** type to **Add** and then choose **OK**.
8. Experiment with different coloured text and varying the amount of blurring in the **Shadow** mask by using the **Ghost** and **Anti alias** filters a different number of times.
9. Try changing the **Maths** type and varying the colour and intensity of the shadow colour.

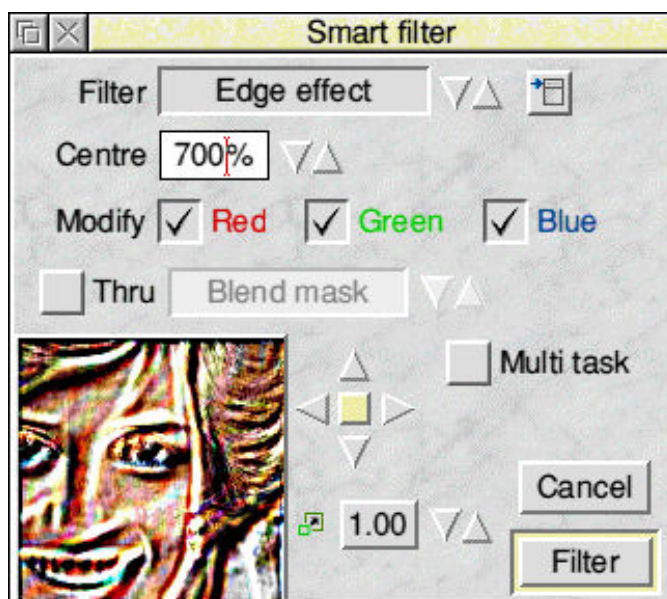


The file **3DText** (shown right) is an example what can be produced.

Filters

Some examples

1. Starting with a blank canvas, load the 'Di' tutorial image. Select it and make a number of copies by pressing **Ctrl-C** a few times or choosing **Select -> Copy**
2. Select one of the images and open the filters dialogue box by choosing **Edit 'Di' -> Filter...** from the main menu.
3. Change the filter type to **Edge effect** by clicking on the bump arrows.
4. Increase the **Centre value** to 700%, either by entering a value into the writable field or clicking on the associated bump arrows with **Shift** or **Ctrl**.



5. Choose **Filter** with **ADJUST** so the **Filter dialogue** box stays open.
6. Select one of the other Di images, try changing the Centre value to 200% and turning off the **Modify Red** and **Green** buttons, before **ADJUST** clicking on **Filter** again.

Defining filters

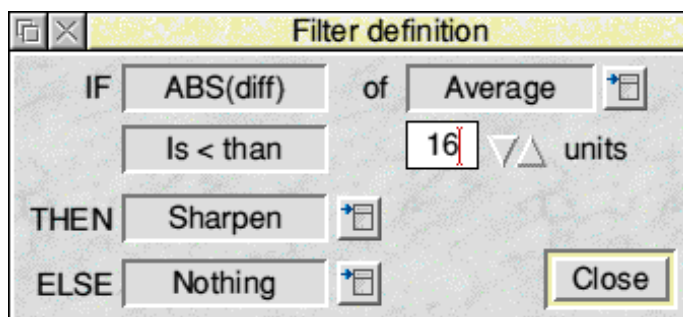
The **Smart filters** in Compo can be made to work differently on different parts of the image being processed.

The **Filter definition** dialogue is used to construct a User filter using a BASIC like **IF...THEN...ELSE** construct. The program decides which of two *Action* filters to use. based upon the results of the *Test* filter.

If the result of the *Test* filter, as tested by the surrounding three fields, is positive, the **THEN** filter is the one executed for that pixel, otherwise the **ELSE** filter is executed. Anyone who understands the basics of programming will have no difficulty in working out what is going on.

A good example to look at is the **Unsharp** filter. Its 'brief' is to execute a sharpening filter on the areas of the image that are blurry and to leave alone areas of the image that are already sharp. This helps to prevent unsightly artefacts left by the sharpen filters of other applications. Ironically, the filter decides which parts of the image are blurry by blurring it some more internally. This method takes advantage of the fact that areas which are blurred do not change much when blurred further, while those areas of high contrast (the 'sharp' bits) change considerably when subjected to a blurring filter. Try the following **Unsharp** filter.

1. Ensure **Modify - Red, Green and Blue** are all ticked
2. Change the filter type to **User** by clicking on the bump arrows.
3. Click on the menu icon to open the **Filter definition** window
4. Change the window to look like that below by clicking on the relevant fields then choose the Close button and click on **Filter** in the **Smart filter** dialogue box.



The above filter definition can be written as:

- Take an average of the pixel being changed and the pixels surrounding it.
- If the absolute value of the difference between the averaged result and the current value of the pixel is less than the threshold value (16 in this case) then the pixel must be part of a blurred area, so sharpen it.
- If the above is not true then leave it alone.

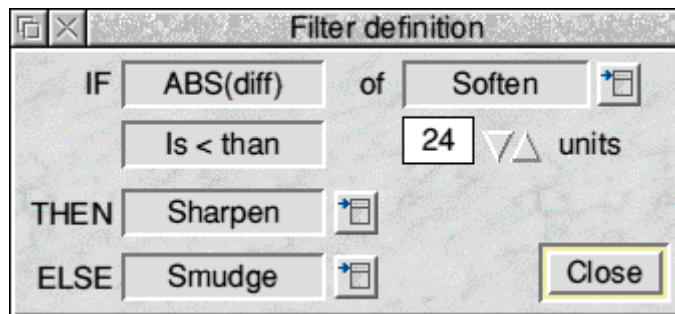
Put another way it can be read as:

- IF the Absolute difference of the Averaged pixels is less than 16 units
- THEN apply the **Sharpen** filter
- ELSE do nothing

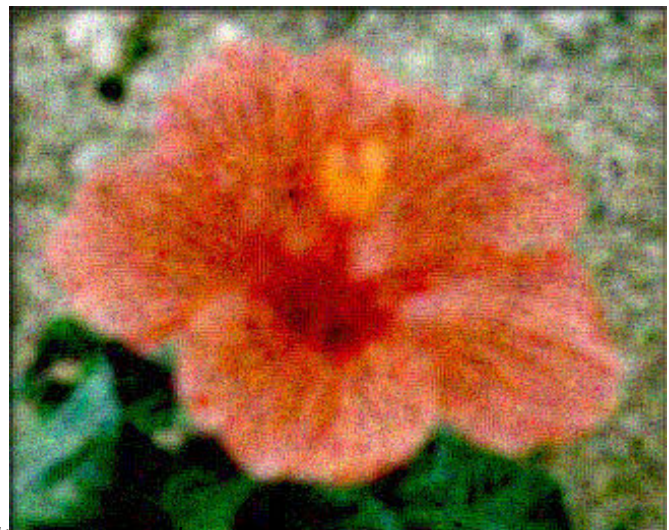
You might like to change the value of 16 to 8 and see what happens. Now only the most blurry areas are sharpened.

This is such a powerful feature that you should spend a little time acquainting yourself with the possibilities. Try to work out what is happening in the next example.

1. Change the filter type to User by clicking on the bump arrows.
2. Click on the menu icon to open the Filter definition window.
3. Change the window to look like that below by clicking on the relevant fields then choose the Close button.



The filter you have created produces an 'impressionist' painting effect, sharpening the blurry parts of the image and 'smudging' those parts of the image that were sharp. Repeated several times on an image, this filter produces a quite realistic 'painting'.



Effects of the filter described above

Displace mask

Melting Moments

1. Load the tutorial image **Magnolia** and select it.
2. Open the **Horizontal Mask Toolbar**, if necessary, and select **Displace** mask.
3. Choose the **Edit...** button.
4. In the **Mask edit** window toolbar select the **Spray** tool.
5. Change the **Mask** paint colour to 140 units by clicking on the **Current mask** colour icon and dragging the slider in the **Mask intensity** dialogue box.
6. Paint randomly across the mask using the **Spray** tool.
7. Change the mask colour to about 100 units and repeat step 6.
8. Select the **Feather** tool and paint across the mask. The flower will quickly reform where you paint and then proceed to 'melt'. The more often you go over an area the more it will melt. You may like to experiment using different feather strengths.

With practice, you will find you can 'melt' any part of an image in any direction simply by the way in which you use the feather tool.

Magic Mirrors

1. Load the **Di** tutorial image, select it and choose the **Displace mask** on the horizontal toolbar. Choose the **Edit...** button in the horizontal toolbar.
2. Choose the **Fill tool** with **MENU** and select the **Circular fill** type from the dialogue box.
3. Try circular fills of various sizes. Remember to use the **Undo** button in the **Mask edit** window toolbar to undo a fill before trying the next one.

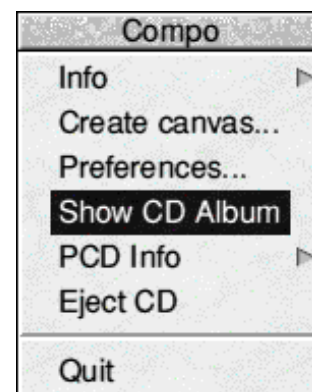
6. PhotoCD

This short chapter introduces the Kodak PhotoCD capabilities. Compo is Kodak PhotoCD enabled. This means that you can load and manipulate PhotoCD images directly. The rest of this chapter will introduce you to the concepts of PhotoCD and its uses.

Before you can use Photo CD you must have a CD-ROM drive capable of reading PhotoCD images and also a version of CDFS 2,20 or later. This should not be a problem unless you are using an original RiscPC 600 with a very early CD ROM which has not been upgraded.

PhotoCD - Getting started

Before going any further you must insert a Kodak PhotoCD into your CD-ROM drive. If you do not insert a Kodak PhotoCD into the drive, you will receive a warning message from Compo.



Click **MENU** over the Compo icon on the icon bar icon and you will notice three menu entries relating to CD.

Show CD Album

With a Kodak PhotoCD in the drive, clicking on this option produces a window containing the first ten thumbnail images on the disc.

Note: Do not click on this icon whilst the Busy light on the CD drive is lit.

As you will see the thumbnail images are a series of radio icons labelled 1-10, 11 -20 and so on. To view the thumbnails of the images numbered 11 to 20 click on the appropriate radio icon at the top of the window. The same applies for the rest of the images. In some cases it is possible to have more than 100 images on a PhotoCD. To access any images above 100 hold down the **Shift** key whilst selecting the relevant icon.

For example: **Shift+radio icon 1-10** shows thumbnails for images 101 to 110

To load a full version of a thumbnail image, double click on the thumbnail image itself with **SELECT**. See the section on the **Control panel** to find out how to load images at different resolutions.

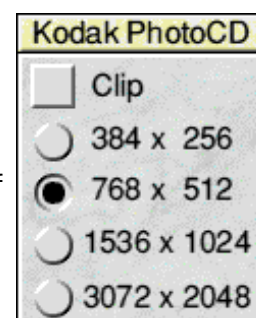
Clicking on the **Transfer** button will copy the thumbnail images displayed to the **Tile** pool, from which they may then be used to tile the canvas background.

Control panel

Clicking **MENU** over the **Album** window will open the **Control panel** options window.

Resolution

The bottom of this window is occupied by four radio icons followed by differing resolutions. These resolutions are the size, in pixels, of the images that can be accessed from your PhotoCD. The maximum size that you can load is limited by your available RAM. You will be unable to load the highest resolution images without at least 32Mb of RAM. For this reason, we have provided the **Clip** facility.



Clip

If you select the **Clip** option before double clicking on a thumbnail, the image is not loaded immediately but a clip window similar to the **Trim** window, detailed earlier in this manual, appears. This allows you to select just part of the image for loading - thus enabling you to access the highest resolution images. For larger images, it may take a while for the **Clip** window to appear due to the low speed of CD ROM.

To select an area drag a box across the image in the **Clip window** and then use the adjuster arrows (with **SELECT** and **ADJUST**) to fine tune the region.

As you change the size of the area to load, the amount of memory it would require, along with the amount of memory the full image requires, is shown at the bottom of the window. If there is not enough memory free the size appears in red.

To load the selected area choose **Load** in the window. This may take a while. If you want to clip more than one region choose **Load** with **ADJUST** to keep the clip window open.

Loading individual images

Some PhotoCD's (most notably the Corel Professional Photo series) do not contain an overview image pac. In this case, the thumbnail window cannot be used. Instead, find the image you wish to load in the CD directory structure (the file will have a distinctive 'PhotoCD' icon) and drag it to the Compo icon on the icon bar or into the main canvas window. A small dialogue box will appear which, apart from the addition of a Load button, is identical to the **Control panel** options window described above.

Select the resolution (and clip option if desired) then choose **Load**. If **Clip** is turned on, the **Clip window** will appear as described above otherwise the image is loaded to the canvas.

This feature is also useful for loading image pacs which have been transferred to hard disc for fast access or repeated use.

PCD Info

This menu item is found on the icon bar menu and going to the sub menu provides information about the Kodak PhotoCD currently in the drive. Be patient, it may take some time.

Eject CD

So that the filing system does not become confused with unmounted CD-ROM's, Compo locks the CD-ROM into the player. To remove the CD-ROM you must click on this menu item which first dismounts the CD-ROM and then ejects it. Ejecting Photo CD's in any other way will confuse the system and result in an error message similar to that you receive when trying to view a non compatible PhotoCD.

7. More examples

This chapter contains additional examples for using Composition. In these examples it is assumed that you are familiar with both your computer and the Composition tools. The examples are written tersely so that you can follow them easily and complete them quickly.

Tiles 1

1. Open empty canvas.
3. Drag the file **Daisies** to the Tile window.
4. Choose **Use in Tile** window with **ADJUST**.
5. Click **MENU** over Tile window.
6. Choose **Symmetry** -> **Horizontal**.
7. Choose **Symmetry** -> **Vertical**.

Tiles 2

1. Open an empty canvas.
2. Load **Images.00-49.sa01** from your hard drive.
3. Select the image.
4. Click **MENU** over canvas.
5. Choose **Edit "sa01"** -> **Trim**.
6. Drag box to surround left eye of tiger.
7. Choose **Trim** with **ADJUST** and fine tune trim if necessary.
8. Press **Ctrl-I**.
9. Click **MENU** over canvas and choose **Canvas** -> **Tile**.
10. Drag over thumbnail image of the eye in the info window - a sprite icon appears.
11. Drag the sprite icon to the **Tile** window.
12. Choose **Use** in the **Tile** window.
13. Try **Symmetry** > **Horizontal** in the **Tile** window menu.

Opacity & Maths options

1. Ensure that you are working in a 16 million colour mode.
2. Open a new canvas.
3. Click **MENU** over the canvas, select **Canvas** -> **Colour** and choose white.
4. Load **MDHB** from the supplied images and move to the bottom of the canvas.
5. Click on the **Text** icon in main toolbar.
6. Create the word Acorn in red 140pt Homerton Bold text.
7. Select the newly created text.
8. Choose the **Opacity** icon and reduce opacity to 50%.
9. Click on the **Shadow** icon and enable shadows. Set X & Y offsets to 8 and click on **OK**.
10. Click on the **Shadow** icon with **ADJUST** to open a **Shadow mask**.
11. Click **MENU** over **Shadow mask** and choose **Anti alias** -> **Smudge** twice (use **ADJUST** the first time).
12. Click on the **Shadow** icon and turn on **Pseudo 3D**. Change the **X Shear** value to 0.50 and choose **OK** with **ADJUST**.
13. Change the **Y Shrink** to 0.60 and choose **OK**.
14. Select the **MDHB** sprite, choose the **Opacity** icon and set opacity to 50%.
15. Return the opacity of **MDHB** to 100% after viewing the effect.
16. Click on the **Mask** icon to open the **Horizontal toolbar**.
17. Ensure the **Blend mask** is selected and click on **Create**.
18. Choose **Create** within the **Create Mask** dialogue.
19. Click on the **Opacity** icon and then on the **Size** icon in the top right of the box.
20. Use the bump arrows to select different **Maths** options and use **ADJUST** to click on **OK** so that you can view the effect and immediately try another one. Some of the **Maths** options will have no effect on this image.
21. When you get to the **Palette** item click on **OK** and then try dropping the supplied palette files onto the canvas.

Colour curve and curve mask

1. Open a new canvas.
2. Load **House**, select it and choose the **Colour curve** icon in the main toolbar.
3. Move both of the control points to the bottom right of the curve area and choose **Set**.
4. Click on the **Curve** icon with **ADJUST** to open a **Curve mask**.
5. Click **MENU** over **Curve mask** and choose **Mixed**.
6. Choose the **Eye** icon in the mask edit window toolbar and click over the sky with the **Wand** in the Sprite view - you will find it easier if you set the **Wand RGB -> Include Options** to **Within 64 pixels**. You may need to click several times to select all of the sky.
7. Tidy up the mask using the painting and feather tools in the Mask window.
8. Choose the curve icon with **SELECT**, turn **Combined** and the **Green** and **Blue** buttons off. Drag the Red curve to the top left and choose **Set**.

Maths options and the Blend mask

1. Open a new canvas.
2. Load **SwanCygnet**.
3. Select the image and press **Ctrl-C** to make a copy.
4. Select background copy of the image.
5. Choose the **Opacity** icon, click toggle size if necessary and set **Maths options** to **Lin. Palette** by clicking the down arrow twice from **Blend**. Click on **OK**.
6. Select the front copy and move to exactly cover the back copy of image (use Info window for this - **Ctrl-I**).
7. Ensure the front copy is selected and click **ADJUST** on the **Opacity** icon to get a blank **Blend mask**.
8. Click **MENU** over **Blend mask** and turn **Mixed** on.
9. Paint across Blend mask - a colour version of the image will replace the grey scale version.
10. Paint so that the area surrounding the swan and cygnets is filled - result in canvas is quite subtle.
11. Choose **Invert** from **Mask edit** window menu to produce a colour swan on a grey scale background.
12. Try the **Angled** and **Circular** fills in the **Blend mask** to produce images that graduate from colour in one print to mono in others.

Colour blocks / Text / Shadow mask

1. Open a new canvas.
2. Click **MENU** on **Misc -> Block**.
3. Choose the menu icon beside **Sizes** and choose **Size -> Canvas** from the menu.
4. Drag the red point to 1/4 of the way across and 3/4 of the way up the definition area.
5. Drag a yellow point to 3/4 of the way across and halfway up the definition area.
6. Drag a blue point to halfway across and about 1/3 of the way up the definition area.
7. Choose **Create**.
8. Choose the **Text** icon in the main toolbar.
9. Set font **Size** to 100 point and font to **Trinity.Bold.italic**.
10. Turn In box on and reduce Opacity to 20%.
11. Change the text to **Composition** and choose **Create**.
12. Select text. select **Shadow** icon, make shadows **Active** and set **X offset** and **Y Offset** to 8 pixels. Click on **OK**.
13. Select the **Shadow** icon with **ADJUST** to create a **Shadow mask**.
14. Click **MENU** over the **Fill tool** and set to **Plain fill**. Ensure **Mixed** is not ticked.
15. Click **ADJUST** over dark grey background around text and inside the 'o's and 'p'.
16. Click **MENU** over **Shadow mask**. Choose **Anti alias -> Smudge -> All but black** twice (both times with **ADJUST**).
17. Choose **Edge -> Maximum** twice and then close the **Mask edit** window.
18. Select the text.
19. Choose the **Layout** icon in main toolbar.
20. Turn **Horizontal** and **Vertical** on. select the central radio button and choose **Move selection**.
21. Select background image, click on the **Opacity** icon and change the **Maths type** to **Palette** - one downward click from **Blend** should do it.
22. Try dropping the different files in the **Palettes** directory onto the canvas.

Stonehenge

1. Load **Images.00-49.sa00** from your hard drive.
2. Select the sprite and click on the **Mask** icon.
3. Ensure that **Blend mask** is selected.
4. Drop the file **Images.50-99.sa51** from your hard drive onto the load target in the Mask toolbar.
You can Try dropping the supplied mask, sa51_msk, onto the load target with **Shift** held down and opt to mix the masks.

All screwed up

1. Load **Images.00-49.sa05** from your hard drive.
2. Select the sprite and click on the **Mask** icon.
3. Ensure that **Blend mask** is selected.
4. Drop the supplied mask file, **Screw**, onto the load target in the **Mask toolbar**.
Try some other images such as **sa07**.

Torn paper 1

1. Load the supplied image **Daisies** and select it.
2. Click on the **Mask** icon.
3. Ensure **Blend mask** is selected.
4. Drop the file **TornPaper.Torn1** onto the mask load target.
5. Click on **Edit** and experiment with the tools in the **Mask edit** window.

Torn paper 2

1. Load the supplied image **Daisies** and select it.
2. Load the file **Torn1** into the canvas - the file **Torn1_msk** is also loaded automatically.
3. Select the **Torn1** sprite and click on the **Opacity** icon.
4. Use **ADJUST** on the slider to alter the opacity interactively.

Torn paper 3.

The torn paper sprite was created from the supplied Draw file. The sprite was then loaded into Compo where a mask was created. The sprite was then saved out as a JPEG file and the mask was also saved.

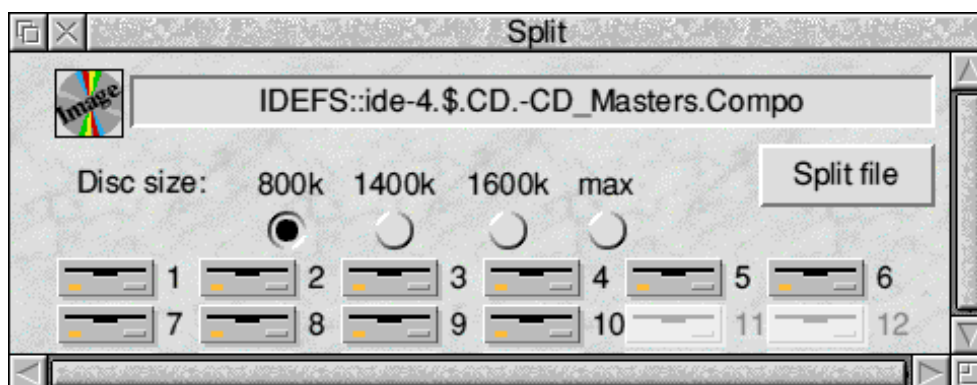
Appendix 1 - Split

About Split

Split is a general purpose utility for dividing up very large files to fit them on floppy discs and to allow them to be recreated at a later date. This is useful as Compo produces large files, which you may want to send to your printer, publisher etc. For serious work you might like to discuss the use of Magneto optical discs with your printer or film producer.

Splitting a file up

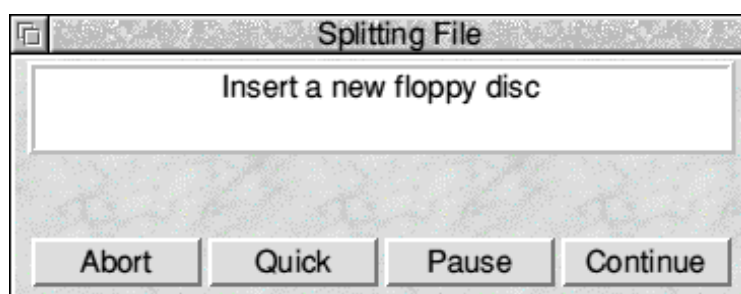
Double click on the 'Split' icon to load it and then click on the program icon on the icon bar to open the main Split window. Drag the icon of your large file from the directory viewer onto the split window or program icon. The window will change to show the name and icon of the file.



A number of floppy disc icons appear, the number will depend on the **Disc size** selected and the size of the file. This is the number of discs, of the given size, required to store the file. It makes sense to use the largest disc size that is common between your computer and the receiving computer. The **max** option is special, when selected, no discs are shown. As the file is split up the program checks how much free space there is on each disc you insert. Split uses all of the free space on each disc.

Choose the **Split file** icon to begin splitting the file up.

The splitting window appears with a request for you to insert a disc into drive zero. Insert a disc and choose **Continue** to begin the splitting process.



While the program is waiting for you to choose **Continue** you can insert discs and catalogue them, format a disc etc.

Whilst Split is running do not attempt to access floppy drive zero. You can still use any other filing system on your computer, albeit with reduced performance.

Do not do anything which may cause the computer to leave the desktop environment (for example, running most games) while Split is active.

Choosing **Abort** will abort the splitting process.

Choosing **Pause** will suspend the splitting process until **Continue** is clicked on. **Do not remove the disc from the floppy drive while Paused!**

The program provides information while it works, detailing how much information has been transferred and how much there is to go.

When Split has finished choose **Continue** to close the window. You should ensure that all of the discs used to store the file are labelled and put in a safe place. It would also be a good idea to verify them at this point.

Note: Split tries to multi-task at all times. Choosing the **Quick** button causes Split to multitask less frequently, which speeds up the splitting process, but slows down the desktop to the point where it is virtually unusable. Once chosen, the text in this icon changes to **Slow**, and choosing this will cause Split to revert to the slower method. Because Split polls the desktop so infrequently in 'Quick' mode this will probably only be possible when the program has paused, waiting for another disc.

Recreating a file

1. Load Split
2. Catalogue one of the floppy discs containing the split file.
3. Drag the text file 'SplitHdr' to the split icon on the icon bar.
4. Drag the file icon from the dialogue box which appears, to a suitable directory on I hard disc. The program will prompt you for each disc making up the split file. You may present the discs to the program in any order. As each disc is supplied the relevant disc icon in the main window will become solid, providing a visual indication of how many more discs are required to complete the file.

Appendix 2 - Glossary

24 Bit colour or so called "True Colour"

A method of defining the colour of a pixel in an image where eight binary bits (giving 256 possible levels) are used to define each of the three primary colours (Red, Green and Blue) which, when mixed, produce the colour of the pixel. Called 'True Colour' because the human eye cannot distinguish all of the shades available.

Aliasing

Aliasing occurs most often when scaling the size of a bitmap. It turns smooth curves into ugly jagged 'staircases' and degrades image quality, Anti aliasing may be used to correct it

Anti aliasing

Anti aliasing is a technique used to improve the quality of rescaled bitmaps which replaces pixels which would be ideally 'half on' by an intermediate shade. Acorn users will be most familiar with anti aliased fonts which vastly improve the quality of fonts displayed on screen at different sizes.

Alpha Channel

Acorn's 24 bit sprite format is actually 32bits in size. 24bits are used in the definition of the Red, Green and Blue values for each pixel. The remaining eight bits are known as the Alpha channel and are used for video overlay.

BitMap

A bitmap is an image made up of pixels which has a fixed amount of detail. Most accurately, a bitmap contains pixels of only two colours (black and white) though the term is commonly used to describe images with many colours. Increasing the size of a bitmap can only increase the size of the pixels from which it is made up (producing the familiar jagged stall-casing effect called Aliasing). Compare **Vector Image**. **Pixmap**.

Curve Correction

A technique used in Compo and similar to **Gamma Correction** whereby the output colour levels of an image are controlled in relation to the shape of a Bezier curve.

Dots per Inch (dpi)

The value used to link the width of an image, in pixels, to the width of the image when printed. See Resolution.

Gamma Correction

An industry standard way of changing the contrast and brightness of an image. Gamma values greater than one lighten the image, Gamma values less than one darken it. Definition: $\text{Output} = \text{Input}^{(1/\text{Gamma})}$. A standard value for Gamma used in the Television industry is 2.2

Mask

Usually, a mask is 256 grey level image which is used to control the mixing of one image with another. Compo expands this term to an image which is used to attenuate or control an effect. For example, the Tint mask is a mask used to control the amount of tinting applied to the pixels in a Sprite.

OLE

Object Linking and Embedding allows you to edit a file in another program and see the results of your changes very quickly in Composition by simply saving the file from the editor without changing the filename. Compo automatically reloads the modified image and displays the changes in the composition.

Pixel

A single dot on the computer screen, in a sprite or bitmap image. From *Picture Element*.

Pixmap

A Pixmap is a colour image made up of pixels. A narrower definition of **Bitmap**. Compare **Bitmap**, **Sprite**, **Vector Image**.

Rasterising

The process of converting a vector image into an array of pixels (called a Bitmap). When printing, a vector image is rasterised to the output resolution of the printer concerned.

Resolution

The amount of detail in an image. A function of the physical size of the image when displayed and the number of pixels used to make up the image. For example. an image 600 pixels wide printed at a resolution of 300 dots per inch would appear- two inches wide. The same image printed at a resolution of 600 dots per inch would be one inch wide.

Sprite

A Sprite, within Compo, is an image, defined as a two dimensional array of values representing the colour of individual pixels within that image. Compo Sprites are always **24 bit colour** images. Compare **Bitmap. Vector Image**.

Tint

Adding or subtracting a certain shade of colour from every pixel in an image. IS used to produce effects similar to viewing the image through a coloured filter.

Vector Image

A Vector Image is defined mathematically in terms of lines, points and curves. The details of these objects is held to very high precision so increasing the displayed size of a vector image will often reveal more detail. Although Compo can load Vector images from Draw and ArtWorks files, it does so by converting them into a Bitmap of fixed resolution. See **Rasterising**.

Appendix 3 - Technical issues

Anti aliased Fonts

Text is only anti aliased up to the size set by 'Configure'. To run Configure, double click on the !Boot application on your hard disc. Unfortunately, the operating system only permits anti aliasing of text to a maximum of 255 points. When used with Composition it is often desirable to anti alias text larger than 255 point. For this reason we have created a very simple application called !Tfonts. When run, Tfonts sets the Font manager to anti alias text much larger than the 255 point default. The maximum size available depends on the amount of memory in your machine and the complexity of a particular font.

Tfonts makes a temporary modification only. The next time your computer is reset the configured defaults will be used. For this reason, we recommend setting the anti aliasing size to the maximum possible using Configure and only using Tfonts if text at a particular size does not appear anti aliased.

ChangeFSI

Compo uses the excellent ChangeFSI (CFS1) program written by Sophie Wilson of Acorn. Use of CFSI is transparent and should never be apparent, unless you have moved it on your hard drive or stopped it being 'seen' when the computer is booted. If this is the case Compo reports an error to you. You can overcome this problem by opening the directory containing CFSI. For a permanent fix you should ensure that CFSI is Filer hooted when the computer is turned on.

Compo's !Run file contains a list of directories where Compo looks to find CFSI. If you store CFSI in a different directory you can add its path to this command so that Compo knows where to find it.

One advantage of using CFSI in this way is that as newer versions become available you can update your copy of CFSI and Compo will automatically use the new version.

Note: A bug in CFSI results in a single pixel black line appearing at the edges of an object that has been scaled. If this happens you can remove it by selecting the object and using the **Edit -> Trim** item.

Paint and 32bit sprites

By Default, Paint on RISC OS 3 does not permit the editing of true colour sprites. To force Paint to edit true colour sprites the command

```
*Set Paint$Options X
```

must be placed in an Obey or Command file within your !Boot application. We recommend the file !Boot.Choices.Boot.PreDesk. This is a relatively trivial task for an experienced Acorn user. It is not something that we recommend a non technically aware user attempt.

Foreign filetypes

Composition is able to load image files directly from DOS format floppy discs, hard disc partitions and CD-Roms. To do this mappings between DOS style three character file extensions and RISC OS filetypes need to be established. Composition has commands which do this within the applications !Run file. If you need to add new files in the future simply add them to this list.

Transformations

To get the best possible quality from the **Transform** function use the following rules.

1. If an object has been created or modified with Compo you must save the object first. The **Update bases** command in the **File** submenu is useful for this.
2. Scale the object you wish to transform by a factor of 2.00.
3. Transform the object. You can do this repeatedly by clicking on **Transform** with **ADJUST** to get the angles right.
4. Create a **Blend mask** for the transformed object if one does not exist. (Quick way; click **ADJUST** on the **Opacity** icon, click on the **Eye** icon. click on the black area outside the transformed sprite with **SELECT**, tidy up the mask then choose **Invert** from the **Mask edit** window menu).

5. Scale the object by a factor of 0.50

Housekeeping

In some circumstances Compo is not allowed to quit cleanly and this may result in files being left in the 'Scrap directory as well as Dynamic memory areas not being released. To clear out both these areas you can start Compo whilst holding down the Alt key. This clears Compo's scrap files and also checks the Dynamic areas for files use by Compo. Whilst clearing the Dynamic area, it sends messages to the other applications to check if it can clear the memory.

The Dynamic areas are also cleared on a reset but the scrap directories are not cleared.

An example that could cause this situation to arise would be a machine crash. This can be caused by any application, a power surge etc. Switching off the machine without quitting Compo may leave files in the scrap directory.

You can recover files from !Scrap by using the RISC OS !ShowScrap utility to open the current Scrap folder, then open the Compo folder to locate any files.

Appendix 4 - Keyboard shortcuts

Ctrl-A	Select all sprites
Ctrl-B	Move selected sprite(s) to back
Ctrl-C	Copy selection
Ctrl-E	Add text to canvas at pointer position (using settings in
Ctrl-F	Move selected sprite(s) to front
Ctrl-G	Group selection
Ctrl-I	Open Info dialogue box/bring Info dialogue box to front
Ctrl-L	Open Layout dialogue box
Ctrl-O	Open Opacity dialogue box
Ctrl-R	Open Transform dialogue box (rotate)
Ctrl-S	Toggle Shadow active state of selected objects on/off
Ctrl-T	Open Tint dialogue box
Ctrl-U	Ungroup selection
Ctrl-V	Open Colour curve dialogue box
Ctrl-X	Delete selection
Ctrl-Z	Clear selection
Shift-B	Move selected sprite(s) backwards one layer
Shift-F	Move selected sprite(s) forwards one layer
Ctrl-Shift-E	Open Create/Edit text dialogue box
Ctrl-Shift-S	Open Shadow dialogue box
Ctrl-Shift-G	Open Gamma dialogue box
Ctrl-Shift-Z	Open scale dialogue box
Tab	Toggle toolbars on/off
Shift-Tab	Toggle toolbars and tool windows (mask edit etc.) on/off
Shift	Holding down Shift whilst clicking on bump arrows to change values in dialogue boxes causes the values to move in larger increments
Ctrl	Holding down Ctrl whilst clicking on bump arrows to change values in dialogue boxes causes the values to move in even larger increments
Shift & Load	Holding down Shift whilst loading an image brings up a Scale dialogue allowing you to scale the image to fit the canvas or to an existing object.
F3	Open save dialogue box. If the pointer is over the Mask edit window then the save box is for the mask sprite. Otherwise the save box is for the composition.

The action of the following group of shortcuts is dependant on the setting of the Vertical and Horizontal options in the Layout dialogue box.

F5	Left/Top align selection on canvas
Shift-F5	Left/Top align selection on largest sprite in selection.
Ctrl-F5	Left/Top align selection on smallest sprite in selection.
F6	Centre selection on canvas
Shift-F6	Centre selection on largest sprite in selection.
Ctrl-F6	Centre selection on smallest sprite in selection.
F7	Right/Bottom align selection on canvas
Shift-F7	Right/Bottom align selection on largest sprite in selection.
Ctrl-F7	Right/Bottom align selection on smallest sprite in selection.
F8	effect/move Undo when the main window has input focus.
F9	effect/move Redo when the main window has input focus.

Here are just a few of the other products you will be able to
download from RISCOS.com free of charge
(You can make a donation to help support future product releases but this is entirely voluntary)



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Some of the products shown above might not be available immediately.
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