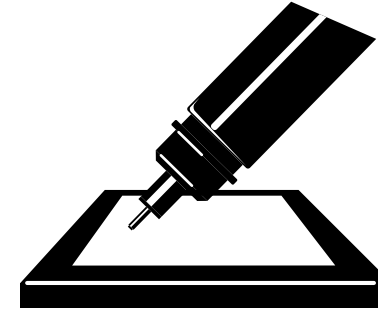




Phantasm

The Artworks colour companion



Manual Release 1.01

Designed and produced by Astute Graphics

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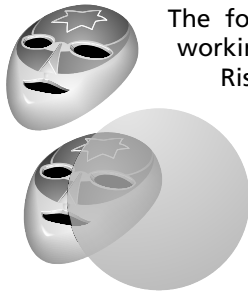
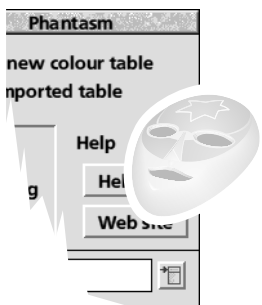
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1. Introduction

Phantasm is a unique colour control addition to Computer Concepts' ArtWorks. It enables the named colour system, present within every copy of ArtWorks, to deliver to the artist a new level of control. Such features as adjustment of lightness, contrast and saturation were previously only present on a limited number of non-Acorn professional vector packages and many painting (bitmap) programs. However it is the special features of shifting colours and converting colours to monochrome that provide a method of painlessly generating effects such as transparencies. In addition to all these features there is the ability to create new colours in a variety of different methods.



The following user manual assumes a working knowledge of both Acorn's Risc-OS desktop environment as well as ArtWorks and any add-on modules that may be enabled. Please refer to their appropriate documentation if unsure of related terminology.

1-1. The operating principle

Phantasm can only work externally to ArtWorks due to the ability of being able to import and export colour tables from any ArtWorks picture. The reason it was created as a stand-alone application rather than following the conventional module add-on method was for the single reason of providing a large number of options and features that would otherwise not fit within the standard ArtWorks tool bars. A consequence of this approach is that Phantasm can produce a sequence of colour manipulation operations at a much greater real speed than any built-in module as ArtWorks does not have to render each stage, only the final result.

The way to export colour tables from ArtWorks is to bring up the main window menu, following File, through Export and eventually to Colour table. By dragging the table file onto the Phantasm main window, editing may commence.

2. System Requirements

Phantasm is capable of working independently of ArtWorks and therefore only requires a machine with little memory and no hard disc. However, as you may only find Phantasm useful if used simultaneously with ArtWorks, the recommended requirements are more realistic.

	Minimum required	Recommended
Risc-OS	3.1	3.1
Standard memory (DRAM)	1Meg	4Meg
Hard disc	None	50Meg +
Monitor	CGA or TV (eg. A3010)	SVGA/Multisync
ArtWorks version	1.1	1.5 +
Intersect ArtWorks module	None	1.03

2-1. Installing Phantasm

Phantasm is delivered set-up ready for use on any Risc-OS 3.1 or higher machine. Details of ownership are automatically entered by Astute Graphics which means that a software registration system is not required.

Prior to inserting the original disc, please ensure that it is write-protected. Also, Please read the Software License Agreement and Limited Warranty found on the inside back cover before commencing.



To copy Phantasm onto your hard disc, if you have one, just drag-copy the main application off the supplied disc and onto your chosen directory. No further action is required.



writable.

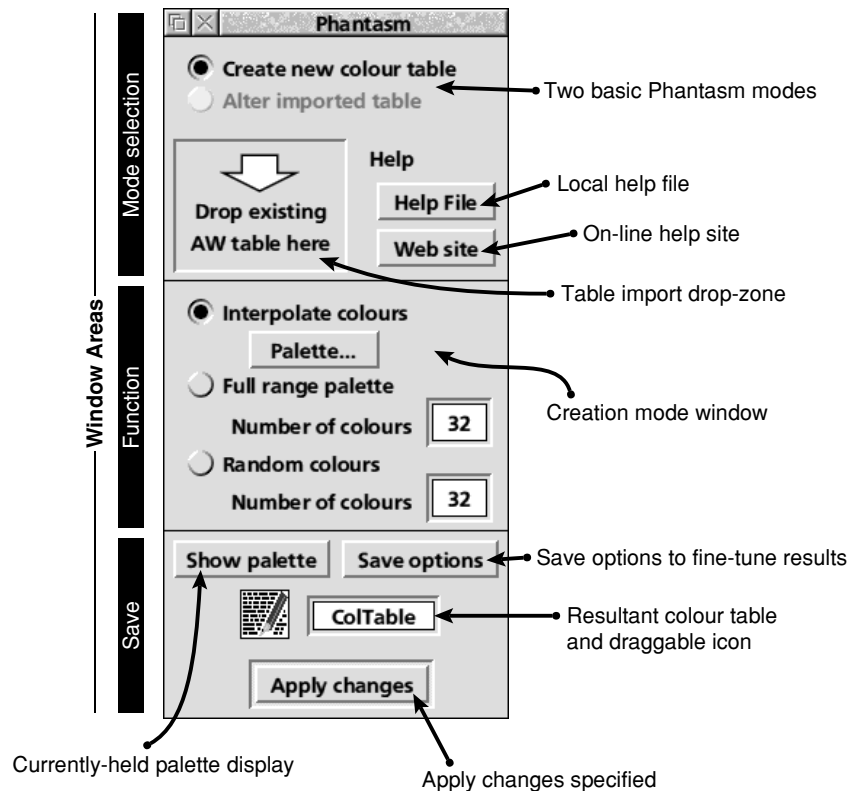
Phantasm may be used on a floppy disc-only system. Simply copy the original application onto a Risc-OS formatted disc. Using Phantasm from a floppy disc requires the disc to be read and



Before Phantasm can be used fully, the filer system will have to have "seen" the standard Acorn !System and !Scrap directories. This is automatic when using a Risc-PC, and depending on the configuration of older machines is also likely to be the case.

3. Phantasm's Layout

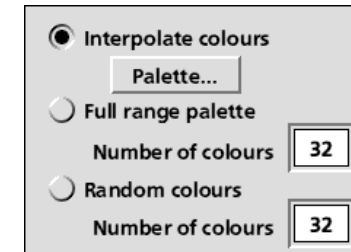
After running Phantasm, a start-up box is displayed declaring the version number, legal user and address. Its icon is then put on the icon bar from where a select-click opens the main window in which all the functionality may be found.



The main window is split up into three distinct segments; Mode selection, Function and Save. The Function segment is mode-sensitive and will change according to the required colour creation or alteration mode. Upon loading, only the Create new colour table option is available as no existing colour table has been imported ready for modification.

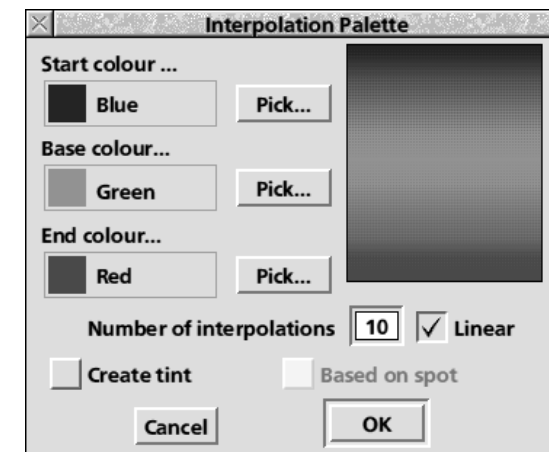
4. Colour Creation Mode

The default setting allows you to create new colour tables ready for exporting to any ArtWorks drawing window. The new colours may then be utilized within the drawing which can be edited and saved as normal. In order for Phantasm to allow you to create new colours, the Function window displays the three options;



4-1. Interpolate colours

By choosing the Interpolate colours option (default upon loading) it is possible to generate various types of colour interpolations. The types can be chosen by clicking on the Palette... button which brings up the following window;



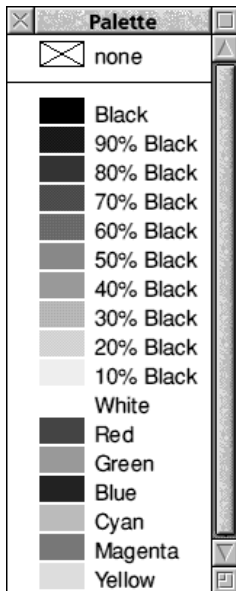
Phantasm allows you to automatically create a table of interpolated colours

between either two or three user-selectable colours. The start, middle or end colours may either be chosen from the standard ArtWorks palette, or by individually selecting new colours through the standard Acorn colour picker (supplied on Risc-PC onwards machines, but provided by Phantasm for earlier hardware). The number of stages between these colours may also be stated so that you may determine the amount of change in colour between each step.

4-2. Interpolation between three colours

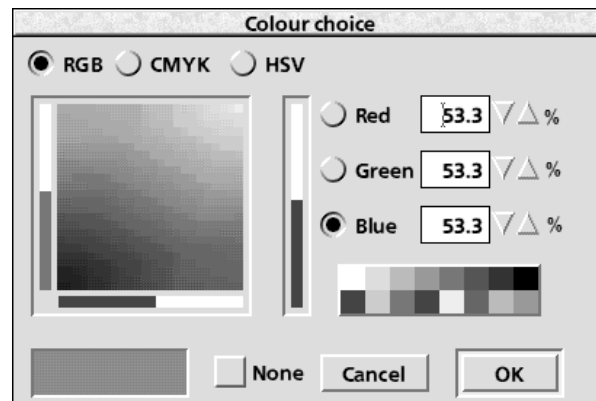
If any of the start, middle or end colours are present in the standard ArtWorks palette, then it is possible to select these by clicking over any of the stated colours (by default, Blue, Green and Red) and their sample squares which will produce an ArtWorks-like named colour menu.

When this menu, left, is displayed (noting that the option of none is only available with the Start colour) you just have to select-click on the desired colour as with ArtWorks. This chosen colour will then be displayed in the main Interpolation window.



However, it is also possible to select non-standard colours using the Pick... button option. This will result in the standard Risc-OS colour picker window being displayed (shown below). It is then possible to select any 24-bit colour using the three methods; RGB, CMYK or HSV.

To help with the selection, the main display area will show an accurate view of your choices and how they would appear in sequence.



Please note the colour picker (right) only allows you to select None for the Start colour.

Once you have selected all three colours it is possible to alter the number of interpolations using the number input box. The number entered is the total number of resultant interpolated colours which includes the start, middle and end colours.

The final choice available for a three colour interpolation is that of whether you wish to have a linear or non-linear transition. Linear is the default option and results in a constant percentage colour change between the stated colours. However, non-linear interpolations provide cylinder-wall effect shading where the percentage change in colour increases towards the start and end colours away from the middle one.

Once satisfied with the settings, click on OK to enforce the selections and close the main interpolation window. Now click on Apply changes found at the bottom of Phantasm's main window, within the save section.

Finally, to use these interpolated colours save the colour table out to a filer window by dragging the text icon above Apply changes to the filer, then dragging from there to ArtWorks. Alternatively, drag the file directly from Phantasm's window into ArtWorks'.

When using ArtWorks with the new colour table dropped onto its drawing window it is possible to select any of the interpolated colours in the normal manner. Also note that the standard palette will have been maintained.

4-3. Interpolation between two colours

It is possible to use the interpolation facility in an identical manner as described using three colours interpolation (4-2) in order to generate a two colour variety. All features such as being able to select the middle and end colours, entering of the total number of interpolations and specifying whether the transition be linear or not remain. However in order to dictate two colours, select none for the start colour (through either the named colour menu or the standard colour picker). This forces the start colour to be boxed out.

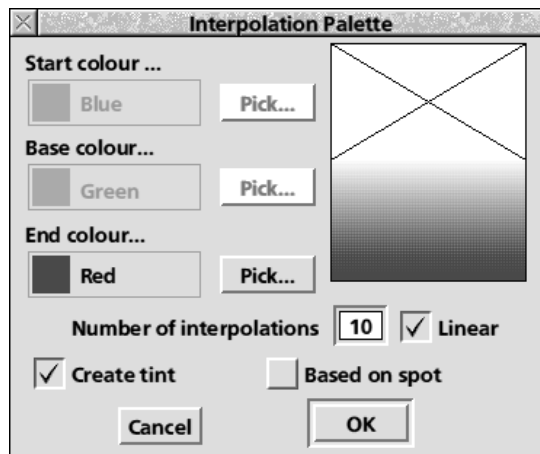
4-4. Generating interpolation tints

The best example of an interpolation tint is Black and its ten shades found in the standard ArtWorks colour table. As Black (Key) is one of the standard four colour separations, and therefore effectively a spot colour, its associated tints (x% Black) are all true shades of a spot colour. This is very important for printing purposes (see the literature accompanying ArtWorks for greater

knowledge on the printing process), but is not restricted to just Black (Key).

If you were on a tight printing budget it may be best to opt for only one, two or three printing separations and not all four standard varieties (CMYK). It is also possible to specify a special colour (for example, a corporate image) as one of the spot colours so that a true colour reproduction may be assured. However, it would then be possible to create a sequence of shades of that particular colour by using Phantasm's interpolation tint option. Acorn's green logo is such an example.

The one major restriction of ArtWorks is that it is not possible to create true separations using tints interpolated between two spot colours, even though the printing process would easily accommodate it. Therefore all tints of a colour, be it based on process or spot, have to graduate from the base colour (denoted as the end colour in Phantasm's interpolation menu) to no colour — ie. white.



By selecting Create tint in the interpolation menu, both the start and middle colour options are greyed out. Automatically, Phantasm will specify the middle colour as white and only leave you to select the end colour which is the colour all tints will remain proportional to, even when used within ArtWorks.

There are three further options left; the number of interpolations and

linearity (both discussed earlier in 4-2) and the new option of forcing the base (end) colour as being a spot colour. By selecting this you will be specifying a new separation in the printing process, so both a basic knowledge of the professional printing process as well as caution are required if you elect to print any artwork using a bureau or similar! (Note that such matters do not concern desktop printers.)

By clicking OK in the interpolation window as well as Apply Changes in the main Phantasm save window, the tints are ready to be exported directly to ArtWorks, or saved to the filer. Note that Phantasm will save the interpolated colours in the table as true tints regardless of any Save settings, described later.

4-5. Creation of a "Full range palette"

Within the colour table creation mode area found within Phantasm's main function window is the option of creating a "Full range palette". What this does is to create the greatest variation of hues when both saturation and value levels are at 100%. The result is a user-specified amount (the number of which is entered in the input box) of rainbow colours. Any shade may be generated from these colours by performing either a radial or linear fill from any of the generated colours to either black or white (effectively altering the saturation and value amounts).

By selecting this option and having entered the required amount of colours, you may click on Apply changes to generate the table which is then ready for exporting or saving.

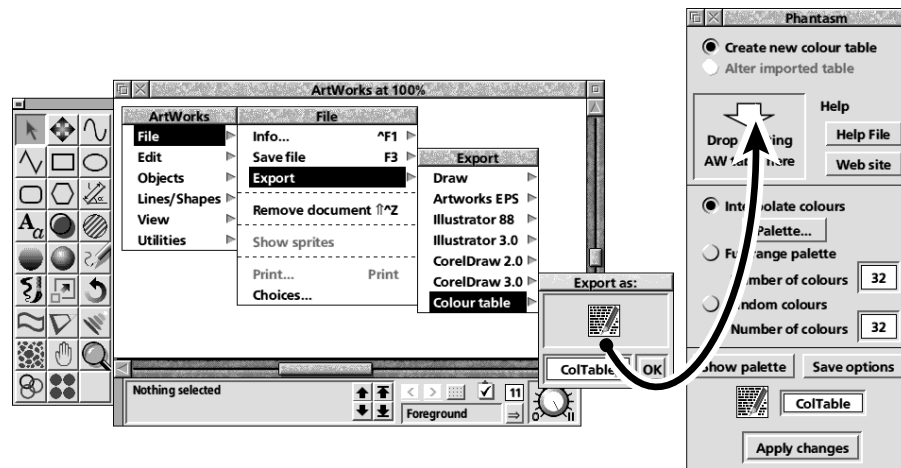
4-6. Generating random colours

For those indecisive moments...

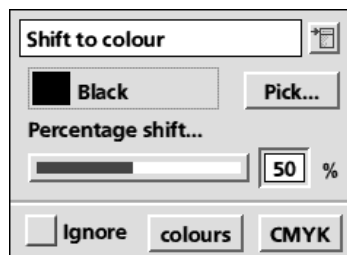
When this option is selected and the number of colours entered, in an identical manner to creating a "Full range palette" (4-5), then the resultant colour table will contain a user-specified amount of random colours.

5. Colour Alteration Mode

Arguably the most useful aspect of Phantasm is its ability to alter existing colour tables used by ArtWorks drawings. The process which is involved to export the ArtWorks colour table to Phantasm was described in "The operating principle" (1-1) and is illustrated below;



Once the "ColTable" file has been dragged from ArtWorks' Export, Colour table menu onto Phantasm's target area (denoted by the white down-facing arrow), Phantasm will un-grey and automatically alter its operation mode to Alter imported table. In doing so, the Function window will change appropriately to;



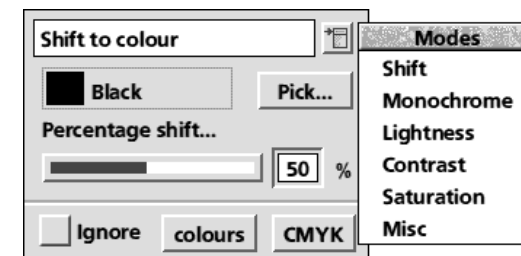
The Function window is operation-sensitive, so by default the window will display the ability to Shift to colour. It may also be noted that the lower part of the Function window is always reserved for the Ignore facility, regardless of operation. This will be discussed later.

There are six main operation modes that may be called upon, depending on the type of colour table modification required. These are;

- Shift to colour

- Convert to monochrome
- Adjust lightness
- Adjust contrast
- Adjust saturation
- Miscellaneous

Each operation mode alters the Function window in some small way in order to best suit the user control. In order to enable each operation mode, you have to click on the pop-up menu button to the right of the text "Shift to colour" which will result in a menu stating all available operation modes. By clicking on your operation mode choice, you may begin to edit the imported colour table accordingly.



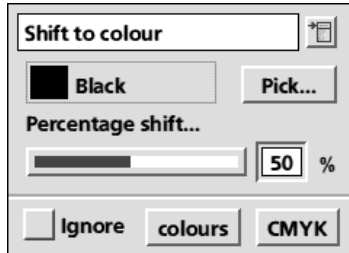
In the following sections, a brief description of the principle of each operation mode as well as how to operate it will be given. Actual practical use will be given later.

5-1. Shift to colour

The theory behind Shift to colour, as in most operation modes, is very simple but can create some unique effects (such as transparencies) effortlessly.

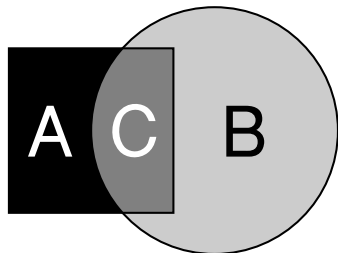
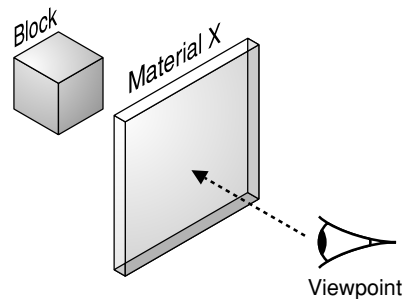
It is very self-explanatory. If this function is applied to an existing colour table at 100% strength (selected by either sliding the blue bar, or entering the value in the input box), then all colours in the table become the same as the selected destination colour in the Function window (by default, Black). However, there are very few cases where a 100% shift is required, so a more moderate percentage is usually chosen which would result in all colours shifting x% from its original state to the chosen destination colour.

This is the principle behind transparencies. The diagram to the right shows an object (*Block*) being viewed through a sheet of *Material X* from *Viewpoint*. The link between the operation Shift to colour and *Material X* is that the percentage opacity of *Material X* is equivalent to the percentage in Phantasm's window.



Looking at the diagram below it may be seen that the square A which is of colour A (the colour to be altered in the imported colour table within Phantasm) has a filter, B, partially obscuring it. The filter's natural colour is B (the selected colour when using Shift to colour), which is defined by its colour when the filter loses all transparency. The intersection, C, is then of the colour A shifted to colour B by x%, where x% is the level of opacity of the filter B and therefore the percentage selected in the Function window Shift to colour.

In order to use Shift to colour, first select the colour you wish to shift the imported named colours to. For example, if you wish to create a glass-transparency effect, then you would either ensure that the colour name Glass is created using ArtWorks (try 35% Cyan, 5% Magenta, 0% Yellow and 10% Key) and therefore exported along with all other named colours so that it may be selected by select-clicking on the colour square and name, or by picking the colour by select-clicking in the Pick... button.



Once the colour is chosen, determine the percentage shift as mentioned earlier by using either the blue slider bar or the input box, then finally click on Apply changes button found at the bottom of the main Phantasm window. The colour table is then ready to be exported or saved to filer.

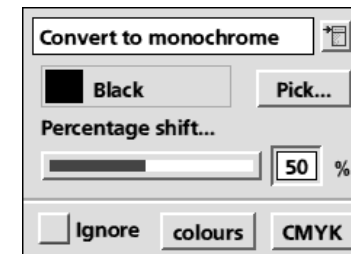
In order to create transparency effects, please read the techniques section (9).

5-2. Convert to monochrome

Identical in layout to Shift to colour (5-1) and very similar in principle to it, Convert to monochrome is also self-explanatory.

If 100% percentage shift were to be selected with this alteration operation, the result would be that all named colours would end up as a percentage colour (like tints) of the selected monochrome colour. For example, if 10% Black were to be converted 100% towards Brown (in order to emulate old photographs), then the result would be that it would alter to 10% Brown. Likewise Black converted in the same circumstances would become the colour Brown.

Uses for this are, amongst others, to create old-style photographs and to create true Black-and-White drawings which would be more suitable for generating better results from monochrome printers (ones with only a black ink such as current laser printers).



Using this operation is identical to using Shift to colour (5-1).

5-3. Adjust lightness

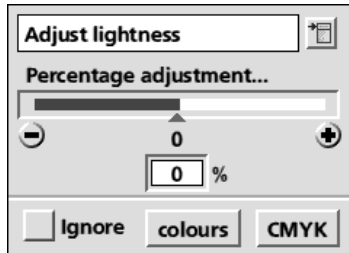
By selecting this, the Function window alters from the previous two operation modes. The main differences are that there is no colour to select and that the percentages can be both positive and negative.

Adjust lightness is a very simple tool to do just what it states. By choosing to lighten the named colours by a positive amount, the picture would become brighter, whereas a negative amount would darken it.

The two methods of determining the percentage adjustment are as before; by either select-dragging the blue slider or by entering a value in the input box (noting that a negative symbol may be entered also).

To quickly reset the value to zero, select click on the centre triangle or the number zero below it. Also to increase or decrease the value by increments of 5%, click in the (+) and (-) buttons at the extremes of the blue slider.

Once the value has been set, click on the Apply changes button at the bottom of Phantasm's main window. Export or save as usual in order to use the modified colour table.



5-4. Adjust contrast

Adjust contrast is identical in appearance to Adjust lightness and just differs in the results it produces.

Note that certain colours and therefore drawings are more susceptible to a positive function in this operation than others as

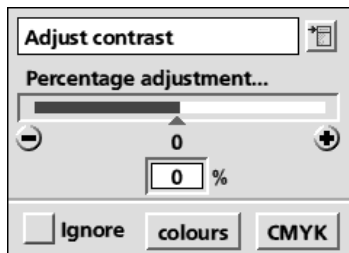
certain colours can't increase at all in terms of contrast (eg. Black). The same applies vice-versa.

5-5. Adjust saturation

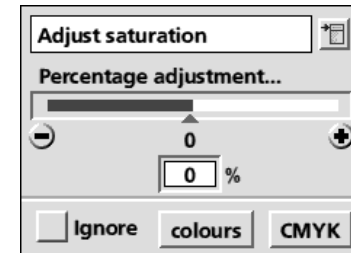
The third Adjust... operation is once again in an identical format to the previous two.

The principle behind this operation mode is that all named colours are internally converted to the HSV (Hue, Saturation and Value) colour model. As the title suggests, Adjust saturation alters the percentage saturation within this colour model for each colour. The saturation is really how "deep" the colour appears to be. The percentage adjustment is the multiplying percentage shift for each Hue value, not an addition to each value.

Again, just as with Adjust contrast (5-4), the effectiveness of this operation mode depends upon how much saturation each colour already possesses. If, say, you were to adjust the standard ArtWorks palette colour, Red (which converted to HSV values is 0° Hue, 100% Saturation and 100% Value), by +100%, there would be no resultant effect as the colour already had 100% saturation. However, if the percentage adjustment were -100%, then the colour red would become white. Experimentation with this operation mode is recommended.



5-6. Miscellaneous



The final operation mode presents two options without any levels or colours to be selected. The first, Invert image colours, is just an absolute operation that inverts all named colours by 100%. To make this effective to the imported colour table, ensure this option is selected, then Apply changes.

The second, Revert to original colours, is very useful as ArtWorks doesn't recognise imported colour tables in its undo facility. Therefore it is strongly suggested that the ArtWorks file is saved before its colour table is exported, altered in Phantasm than placed back in the drawing. However, this facility can be used as a last resort. To make effective, click on Apply changes.

5-7. Ignore (mask) colours and separations

Each of the six colour table alteration modes have the ability to ignore certain named colours simultaneously with any combination of the four separations, Cyan Magenta, Yellow and Key. This adds great versatility to Phantasm.

By default Phantasm doesn't ignore any colours or separations as the Ignore box is unticked. However, as soon as a colour or separation is selected, the box automatically is ticked and the ignore facility is in action.



To select a named colour (or combination of named colours) to be ignored when the table is being altered, select-click on the colours button next to the Ignore words. A menu similar to the one left, will appear (obviously, the list of named colours depends on the colour table imported). At the top is a set of five quick-select options for both selecting groups of named colours (Ignore all, Ignore standard colours, Ignore black shades and

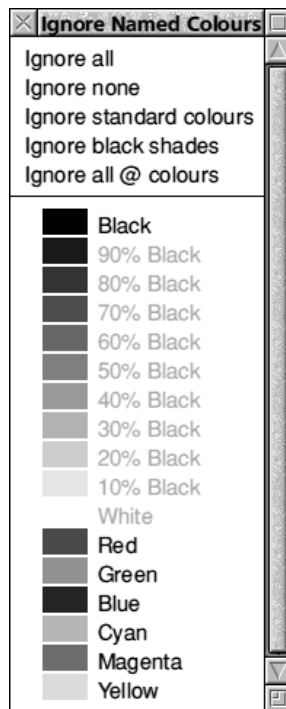
Ignore all @ colours) as well as deselecting all (Ignore none).

Below the dividing line is the list of imported named colours. Note that all tints are greyed out as they always remain relative to a specific colour. By

selecting the colour on which tints are based, you will also be selecting all associated tints.

To select a single colour or quick-select option, select-click on it. The menu will instantly disappear and this colour will then be ignored throughout any alterations.

To select a number of colours or quick-select options, use the adjust mouse button to select or deselect individual colours. The menu will remain up and the ignored colours will be ticked to show this.

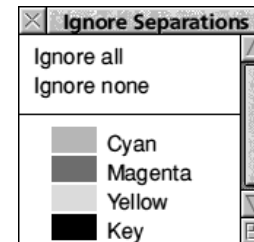


The reason for the quick-select Ignore all @ colours is that if you draw an ArtWorks picture with Phantasm in mind, you may wish to keep a number of colours free from any alteration. If this is the case, then name these colours (or re-name the colours) with an "@" symbol at the start. This way, all such colours may be chosen to be ignored in a single quick-select mouse click.

Ignoring separations is very similar in principle to ignoring colours, except the menu always displays the four same colours (CMYK) and there are only two basic quick-select options. See menu left.

Once again, by clicking with the select-button, the menu instantly disappears after a selection whilst an adjust-click keeps the menu up for further selections.

It is possible to eliminate certain separations (by ensuring they are not ignored, then shifting all colours to White by 100%) or single-out a particular separation. As stated previously, ignoring separations may be used simultaneously with ignoring named colours.



6. Palette Display

It is possible to view any effect you may be having on the named colours (both when creating and altering) without having to export the colour table back to ArtWorks. This is done by clicking on the Show palette button towards the bottom of Phantasm's main menu. Upon doing so, a window similar in style (but obviously dependant on the currently loaded created colour table) to the one below is produced;

Not only will this display be constantly updated according to any alteration or creations, but it also shows the specification at a glance. These are in the form of one or two letters before the colour square. The first of these letters may either be;

- R — RGB colour model
- C — CMYK colour model
- H — HSV colour model
- T — Tint

The second of the letters apply to all colour models apart from Tints.

- P — Process colour
- S — Spot colour

Please refer to the ArtWorks documentation for full descriptions of each if in doubt.

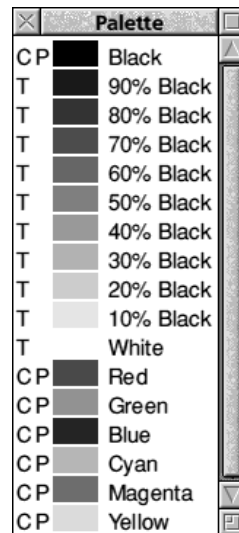
6-1. Detailed colour information

As well as the ability to learn about a particular colour at a glance, it is also possible to obtain more accurate and detailed information by menu-clicking over any of the named colours displayed in the palette window. The type of information window brought up depends entirely on the colour type (RGB, CMYK, HSV or Tint).

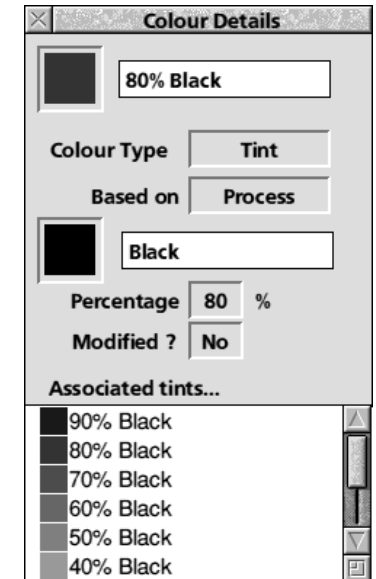
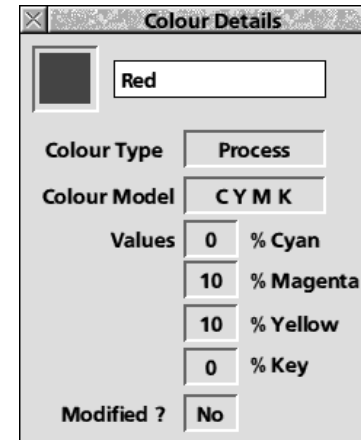
The two major types of colour info windows are shown below;

As may be seen, such information as colour composition, colour model, modification status and if a tint, all associated tints is displayed.

Please note that no values may be altered in these windows as they are for information purposes only.



Whatever settings you opt for, they may either be made effective just for the



current session (by just clicking on OK) or made permanent to be brought up in the next session (by clicking on Save settings).

Save only new/modified colours will ensure that Phantasm only saves/exports the colour table with only modified (see 6-1 to find out how) or newly created colours.

Replace original colours should mostly be set as ticked as it tells Phantasm to append an exported colour table originated from ArtWorks. This in turn means that all colours will be updated with any alterations.

7. Save Options

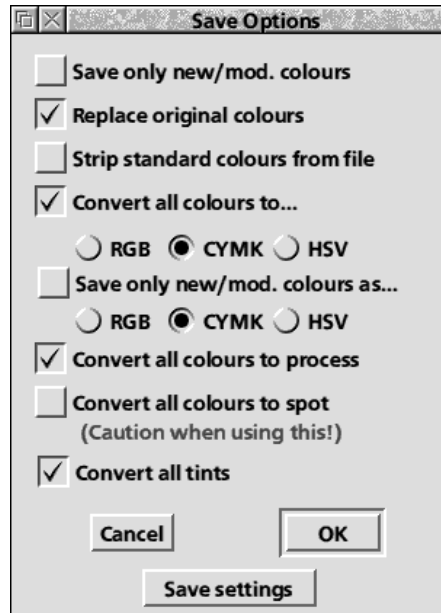
The Save options window, left, may be called-up by either clicking in the Save options button to be found towards the bottom of the main Phantasm menu, or by clicking on the menu entry from the icon bar.

The options set out in this window will probably determine the quality of the result from Phantasm and in some cases should be used with caution and a greater knowledge of the printing process.

Strip standard colours from file is useful for when collating ArtWorks palettes that may be useful for future pictures. It eliminates the standard ArtWorks palette of Black and its 10% interval tints, White, Red, Green, Blue, Cyan, Magenta and Yellow. This then certifies that any such palette dropped on an existing drawing is not going to interfere with the standard palette already in use.

Convert all colours to... (RGB, CMYK or HSV) will then make sure that Phantasm saves/exports *all* colours in the chosen colour model. If unticked along with Save only new/mod. colours as..., Phantasm will save any new or modified colours in the model that is most convenient for it internally (which

does not equate to the best for the artist). Note that it is best to ensure that an ArtWorks picture is of one colour model to enable blends and other features to operate properly.



Phantasm operates a full *Grey Component Replacement* function in order to get the best results from four separation printing processes. Please refer to the *ArtWorks Commercial Printing Guide* for more information about this specialised area. However, this implies that if this option is set ticked and CMYK is selected (recommended), the output should be optimised for printing.

Save only new/modified colours as... (RGB, CMYK, HSV) will toggle Convert all colours to... off — if on prior to selection of this option. By ticking this, you are ensuring that Phantasm keeps all imported colours in their original colour model and only effects the created or modified colours.

Convert all colours to process ensures that all Spot colours are eliminated. This might be a good idea when checking a drawing for a commercial printing process. If it is not set and certain additional colours were set as Spot, then theoretically the printing cost could soar as you would be requesting more separations.

Convert all colours to spot should be used with extreme caution (for the exact reasons outlined above). This option is only useful when dealing with a very small number of colours which were created specifically to be spot colours. Please read the ArtWorks literature for a greater understanding of Spot colours before use.

Convert all tints was added to Phantasm's features in order to give further control to the user. It must be noted that in certain operations involving altering colour tables, the only way to ensure correct function alteration is to select this. In doing so, Phantasm will convert all tints to process colours (apart from the tints created in the interpolation window). However, this process is

not easily reversed. The advantage of maintaining tints is that if spot colours are used, true tints remain as the drawing structure would have originally dictated. Also note that some alteration functions automatically convert tints, such as Invert.

8. Miscellaneous

8-1. Reset

It may be necessary at some stage through a single session with Phantasm to reset the application. This can be done by an entry on the icon bar menu and will result in the application returning to loaded state regarding the colour tables. It saves on having to quit and re-load Phantasm in order to start afresh.

8-2. Help features

There are three main help features with Phantasm, excluding this manual;

- Acorn's !Help application (supplied with each Risc-OS machine)
Please refer to Acorn literature regarding this application.
- !Help file held within the Phantasm's application directory.
This may be accessed by either using the filer help facility or by clicking on Help file found at the top of Phantasm's main menu. It contains the latest additions/alterations to Phantasm.
- On-line Astute Graphics Website.
If you have a web browser loaded, then it is possible to automatically direct it to the Astute Graphics Website by clicking on the Web site button. This site is intended to be a forum to Acorn graphics users, especially in the use of ArtWorks. It will also display any hint 'n tips received by other users of Phantasm.

8-3. Quit

Phantasm may be Quit by the normal manner from the icon bar menu.

8-4. Info

Phantasm's version number is displayed by following the Info entry on the icon bar menu. Please note that the legal user and license number is also

displayed as it has been permanently “etched” into each copy individually. All illegal copies may be traced back to their original owner!

9. Techniques

Phantasm is a very versatile application and may add much potential to your copy of ArtWorks. However, in order to harness this potential it is necessary to grow accustomed to some techniques used to create artwork effectively and efficiently.

9-1. Creating appropriate colours

Phantasm will operate perfectly with all existing ArtWorks files although in the future it may be advisable to stick to a few guidelines in order to accelerate any colour adjustment work. The major consideration is to name colours meaningfully, not just keeping the colour as New colour x. The next step is to use the colours as their name dictates. So, for example, if you create a colour called Sea Blue and use it as the basis of creating a view of the sea, try not to use the same colour for colouring-in the sky. In doing so you not only have to use Phantasm to adjust a scene’s colours, but also start cutting and pasting objects/groups to the clipboard only to shuffle such items between ArtWorks sheets.

Always try to operate in one colour model, be it RGB, CMYK or HSV when within ArtWorks. You may find that HSV is the easiest model system to select a colour and this is reflected in the title given to it of “*The Artist’s Palette*”. The reason for this is not so much to do with Phantasm’s functionality, but rather to do with the way ArtWorks handles colour. This is shown in operations such as blends where if a blend starts with an object filled with a colour of model A and finishes with an object filled with colour of model B, the results are not always good. Refer to ArtWorks literature for more information about this.

Finally, make use of the “@” colour facility. You will often find that it is necessary to isolate a component of the drawing. This can easily be done for objects within ArtWorks where components may be grouped, but it is not possible for named colours as they are not effected by groupings. Therefore if you know in advance that, say, an intricate border should not be effected by Phantasm, name all colours involved as @ Border <colour>. In this manner, if there are a number of colours used solely by the border, you are able to ignore these in one click from within Phantasm ignore menu (see 5-7).

Example one

In this example, the basic principle of naming colours appropriately will be demonstrated.

Load the ArtWorks file Example1a (right) into ArtWorks. This bizarre picture shows a strange ring tube with two spheres at the top and a skewed rectangular base constituting a form of frame around a cube with some text and an astro-belt effect disc.

The intention of the example is to alter the centre cube, the text and astro-belt so that they are converted to a red and white monochrome effect, whilst leaving the frame components in tact.

When drawing this picture, the two major groups were given distinct colour names and were never interchanged, as below;

In order to obtain the colour alteration visible in the file Example1b, take the following steps;

- 1 Load Phantasm.
- 2 Export the colour table of file Example1a directly onto Phantasm’s target import area.
- 3 Alter the Function window operation mode to Convert to monochrome.
- 4 Select the colour Red from the named colour menu.
- 5 Specify a shift in percentage of 100% by sliding the blue bar all the way to the right.
- 6 Click on the colours ignore button and select Ignore all @ colours.
(Notice that the Ignore tick box is automatically ticked.)
- 7 Click on the main menu Apply changes button.
- 8 Drag the colour table directly to the ArtWorks window displaying Example1a from where the colour table originated.

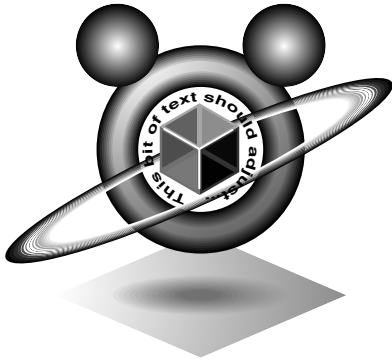
The result should be identical to the file Example1b.

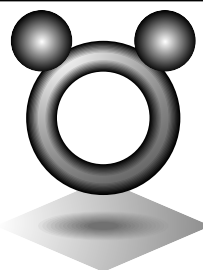


Example two

Demonstrating the principle in example one with a bit more realism, apply all the stages in example one to the file Example2, except instead of ignoring just the “@” colours, also choose to ignore all standard colours.

Please note that the classic ArtWorks Apple4 file (which was the basis of the file Example2) has had its colour names modified so that this process may be applied with greater ease. However it is possible to apply this effect to the standard file that was supplied with all copies of ArtWorks. Simply ungroup the drawing and select the apple body leaving the stalk, leaf and background behind. Group this selection and cut to clipboard. Paste this onto a new ArtWorks sheet and apply the Convert to monochrome (towards Red) process to the new drawing that just contains the apple body, ignoring the standard colours. Copy the result to the clipboard and paste and position the red apple back into the



Frame components and colours	
	@ Paper
	@ Border Orange
	@ Border Dark Orange
	@ Border Cyan
	@ Border Magenta
	@ Border Base
	@ Border Dark Base

Subject components and colours	
	PtmInter 1
	PtmInter 2
	PtmInter 3
	PtmInter 4
	PtmInter 5
	PtmInter 6
	PtmInter 7
	PtmInter 8
	PtmInter 9
	Light Ring
	Dark Ring

original file.

9-2. Cutting and pasting

The standard practice of cutting and pasting sections of drawings between sheets in ArtWorks is essential in order to colour manipulate images successfully. Basically, the principle was displayed with Example two, where in order to target a certain component of a drawing for isolated colour manipulation, it was copied to the clipboard and then pasted and modified on another sheet. By doing this you are also eliminating the need to carefully select colours to ignore, which is practical when dealing with drawings whose named colour use is not ideally suited to Phantasm’s Ignore facility.

By altering the colours on a separate sheet then copying and pasting back to the original drawing any modified colours are appended to the original drawing rather than replacing the existing ones. The two real problems with this are that;

- 1 If a number of such operation are conducted, each with a large number of named colours, then the resultant file will have a very large total number of colours which hinders selection (although this causes no problems with printing or editing).



- 2 Positioning the artwork back to its correct position can be tricky. The best solution to this is to maintain the original object, then when a modified replica is pasted back, use ArtWorks Alignment facility to exactly reposition the object.

Another fact about named colours is that once an ArtWorks drawing has had a number of colour table added to its list (either by pasting a selection with a new set of colours or by importing a colour table) its very time-consuming to remove them individually. The trick is that with a highly modified drawing it may be best to periodically copy and paste the whole drawing to a new sheet. This will instantly remove all unused colours, but also eliminates the use of layers unless each one is copied and pasted individually. Also, page sizes, colour etc. all have to be re-set.

The method of copying selections to the clipboard then pasting on another sheet is utilized in order to generate transparency effects.

Example three

*Requires MW Software's ArtWorks Intersect module for practical use.
Please contact your local Acorn software distributor for details.*

Creating transparency effects has always alluded users of ArtWorks ever since its launch. However, even though Phantasm doesn't allow ArtWorks to render such effects in a proper manner (a task which is impossible without a re-write of ArtWorks' core program which is highly unlikely as Computer Concepts has ceased development of this software), it is able to effortlessly give the appearance of being able to do so. The results remain in a vector format, along with all its advantages, as well as *looking and printing* identically to true transparency-enabled software.

The theory behind creating such an effect was described earlier in Shift to colour (5-1) but the following is how to translate this information into ArtWorks-specific use. By combining the features of the *Intersect* module and the ArtWorks clipboard it is possible to create such effects as found in the file Example3. In order to replicate this effect, take the following steps;

- 1 Create the object which is to be looked at through the lens — in this case a cone-shaded object (constructed through the use of radial fills and blends). In the case of this example, it was given a white start colour and a new appropriately named end colour. Group the objects.
- 2 Draw the to-be-transparent shape and place over the original object. Please note that the Intersect module represents limits to the type of shape — as a rule-of-thumb, try to keep the number of bezier curves down to a minimum. Colour the shape with a meaningfully-named colour, in this case Lense. This colour is to be the absolute colour of the to-be-transparent object.
- 3 This should bring you to stage one in the file Example3. Save the drawing.
- 4 Copy both items to clipboard and paste on to a new sheet. Select all and dictate that no objects have a line colour.



- 5 Export this new drawing's colour table to Phantasm and ensure the mode Shift to colour is selected.
- 6 Choose the named colour used to fill the to-be-transparent object as the colour to shift to.
- 7 In the case of this example, the opaqueness of the lense is 25%, so this value is ensured using either the blue slider or the input box.
- 8 Apply changes and export back to the ArtWorks window from where the colour table originated. (For correct results, it is advised that the Convert all tints option found within the Save options window is set on.)
- 9 This should bring you to stage two in the file Example3.
- 10 Ensure that the single path object, in this example the circular lense, is in front of the object group. Using the *Intersect* module within ArtWorks Intersect with top (found in the Lines/Shapes ArtWorks sub-menu). Group the objects.
- 11 This should bring you to stage three in the file Example3.
- 12 Copy this intersected group to clipboard and paste in the original ArtWorks drawing window and position precisely over the illustration.
- 13 If the original transparent shape had a line colour, clone it and set the cloned shape to a fill colour of None.
- 14 This should bring you to the final stage four in the file Example3.

The final result in this simple example is technically accurate as well as being a true ArtWorks drawing that is backwards-compatible and printable.

10. Known Limitations

After months of trial and error, Phantasm was fine-tuned to the application you have in your possession. However, whilst testing, a number of limitations of ArtWorks were uncovered which concern the use with Phantasm.

10-1. Unnamed colours

ArtWorks works on the principle that all colours are named and accounted for on any colour-selection menu. This rule remains constant until a blend between two named colours is made into shapes, a task done by either using the Make shapes command, or by using *Intersect* on a blend. At this point, the new inbetween shapes are coloured correctly, but their colours are not listed in any menu. Therefore they are not exported in the colour table which renders then untouchable to Phantasm.

The reason that this came about was that ArtWorks renders blends “on-the-fly”. This has many advantages, with much lower amounts of memory being the top one, but it also means that Computer Concepts considered that when converted to individual shapes, part of the theory should continue in the form of keeping colour listings to a minimum (even though they have to be held within ArtWorks somewhere in order to render them).

The solution to this problem is to take the approach as shown in Example three, which is to first perform the colour alteration, then make shapes. However, under certain circumstances, this may be impossible (as, for example, the Make shapes command may have been performed at a prior date and the undo facility does not go back that far, or it was pasted onto the drawing in that state). Therefore, the only feasible way around this is to export the shapes to Draw, then to re-import them. By doing this, all colours will be present, usually entitled New colour x, but there will be a loss of quality as any graduated fills will also be converted into single colour shapes. The result of this may be a very large named colour list as well as a very large file size.

10-2. Original ArtWorks files

Before ArtWorks was first released, it was to be called TopDraw. Many, now classic, drawings were created using this pre-release version of ArtWorks such as the MG Midget. Some of these files have non-standard colours as they do not have any name, which is theoretically impossible to create with later versions, except under the circumstances outlined in 10-1. Therefore for

Phantasm to work on these files, they first have to be copied/pasted to a new sheet. This will force all colours to have a name.

10-3. Linking Phantasm to ArtWorks

The non-module approach was taken by Astute Graphics to create Phantasm as a stand-alone application so that many benefits such as greater control over colour manipulation and more features could be reaped.

The original intention was always to link Phantasm to a specified ArtWorks window so that, if required, any alteration to an imported colour table could be rendered instantly. However, after much research it has been found that ArtWorks does not comply with Risc-OS convention and can therefore not be linked successfully. Research is still taking place into this area, but unless the source code of ArtWorks is released (which will not be the case), this matter is unlikely to be resolved.

10-4. ArtWorks undo feature

ArtWorks’ undo feature doesn’t recognise a colour table which has been imported into the drawing. Therefore, when clicking on undo past the point when such a table was imported, ArtWorks will not have noted the change in colours but will continue in every other respect.

10-5. Sprites within ArtWorks drawings

It must be noted that Phantasm is not a bitmap (graphics files such as Acorn’s Sprites) colour manipulator. Any sprite file(s) within an ArtWorks drawing will *not* be modified unless it is a 256 colour grey-scale image in which case the screen.top colour will be adjusted as it is listed and exported in the colour table. To adjust such graphics files, use an application such as ChangeFSI (supplied with every Acorn computer) before dropping onto the ArtWorks window. A second note to this topic is that ArtWorks can’t correctly handle deep sprites (15-bit and 24-bit) so any such graphic should be dropped separately into a DTP/layout package such as Ovation Pro or Impression Style/Publisher if you wish the file to be commercially printed properly.

11. Further ArtWorks Information

ArtWorks has been around for many years, yet there are only a handful of recent resources from which to further your working knowledge of this application. Many are also beginners guides which are not so useful to a large number of more competent users. Astute Graphics has attempted to change this by writing articles for Acorn magazines and establishing its internet presence — all knowledge drawn from many years of use both as an amateur and commercially.

Below is a list of known resources;

Martin Wuerthner Software

Developers of ArtWorks 2 and of ArtWorks add-on modules such as *Intersect*, *Polygon* and *Hatch*.

www.mw-software.com

Thanks and acknowledgement must go to the following people regarding the production of this Software;

Ben Ollivère for the excellent programming.

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My parents for funding at a critical stage of this project.
(you'll see it all back one day...)

Susan for many miscellaneous tasks, but mainly for sticking by me while I spend every hour getting this ready!

Page for your notes

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