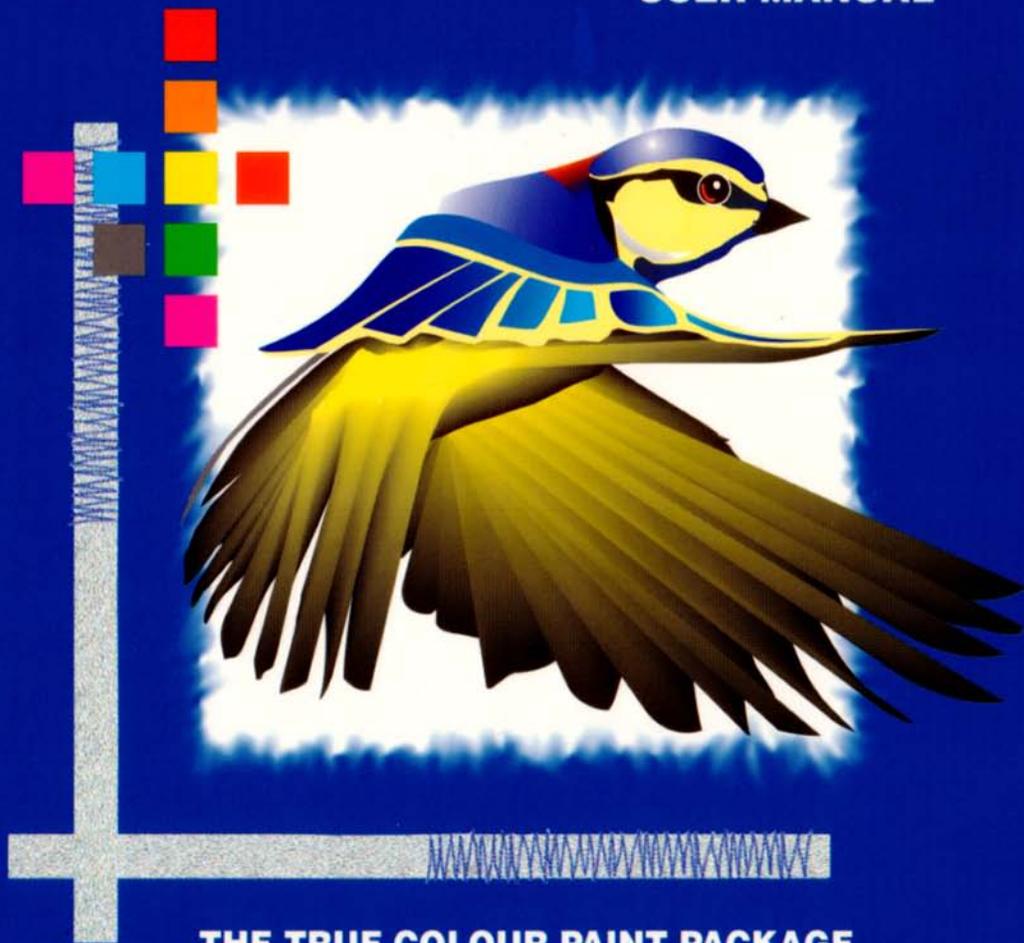


T • R • U • E
PAINT

USER MANUAL



THE TRUE COLOUR PAINT PACKAGE

HiSoft
High Quality Software

TruePaint for the Atari ST, STe, TT and Falcon030 Computers

By HiSoft

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Program

designed and programmed by John Gymer, Dave Nutkins
and Alex Kiernan.

Manual

written by Keith Wilson.

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Le Vieux Manuel

HiSoft

High Quality Software

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Introduction

System Requirements

Requires

- An Atari ST, STe, Mega ST, TT or Falcon computer system.
- Minimum 1Mb of memory.
- Double-sided disk drive.

Recommended

- Hard disk or second floppy drive for storage of images.
- Additional memory, especially for animation or True Colour use.

Registration Card

Enclosed with this manual is a registration card which you should fill in and return to us in order to register your purchase of TruePaint. This will entitle you to a free period of technical support and will enable us to keep you informed of future developments to our software.

For details of our technical support services, please refer to *Appendix D* of this manual.

You will need to quote your serial number (to be found on the disk 1 label) to obtain technical support and you may find it useful to make a note of it here:

Serial No.

39254 191

Making a Working Copy

Before using TruePaint you should make backup copies of the distribution disks and put the originals away in a secure place; safe from extremes of temperature, magnetic fields, moisture and children! The disks can be backed-up using the Desktop or any backup utility - before making any backup always write-protect the master to prevent accidental erasure.

Remember that your backup copies are for you only. The disks are not copy-protected to allow easy backup and to avoid inconvenience. Please respect this and do not give away copies to others. Not only is this illegal and unfair, it seriously endangers software production and puts prices up. If you make copies of TruePaint for your friends who otherwise would have bought the program, we will not receive enough revenue from the sale of the package to produce new versions.

The *READ.ME* File

As with all HiSoft products, TruePaint is continually being improved and updated and the latest details may be found in the *READ.ME* file on disk 1. It is important that you read this to find out about any new features or corrections to the manual. You can do this by double-clicking on its icon from the Desktop and selecting Show.

Using this Manual

We have designed this manual to contain all of the information you need in order to learn how to use TruePaint whether you are a complete beginner or an experienced computer artist. Of course you don't have to read all of it and to help you get the best out of the package we have plotted a recommended course through the manual.

Starting Off

First of all, you should at least browse through the following chapter. In addition to giving details of how to install and run TruePaint, it explains the different elements of the TruePaint window display. If you are new to paint packages or computers in general then you will find this section most useful; more experienced users will want to skip over the parts they already know.

After this, you are ready to start drawing with TruePaint (in fact, if experience is anything to go by, you probably already have!). If you feel confident about it, go ahead and explore; you can look up any options that you don't understand in the *Reference* section and dip into the tutorials to find out how various features work. Alternatively, you may wish to work through the tutorials systematically to gain familiarity with the program.

The Middle Bit

The *Background* chapter is for those interested in how it all works. It contains lots of information about computer graphics to help you understand how to make the most of them. You will probably want to miss out this chapter initially and return to it later, maybe to find out about a particular topic of interest.

Each of the *Tutorials* covers a particular aspect of drawing with TruePaint. The first few explain the fundamentals, with later tutorials describing more complex features, so they may be read in sequence. The important thing is to follow them using the computer to experiment as you go along. Advanced users can refer to individual tutorials for further information and useful techniques as required.

Animation has a whole chapter to itself and this is where to look if you want to make your pictures move. It assumes that you are already familiar with the other aspects of TruePaint, so it is advisable to have read at least some of the tutorials beforehand. As well as describing the creation and editing of animated sequences, there is also some practical advice and suggestions to get you started.

For Reference

The remainder of the manual is intended for reference (although you can read through it if you want). Each of the drawing tools, options and menu items are described in detail in the *Reference* chapter. If you are unsure about a particular feature, perhaps when working through one of the tutorials, turn to this section to find out exactly what it does. It will also tell you about any related options and suggest where to look for further details.

Finally, the Appendices contain information which you may find useful, including a complete list of keyboard shortcuts which can be used for speed, details of the various file formats supported by TruePaint, and how to obtain technical support from HiSoft if you are really stuck.

Good luck! We hope you find TruePaint a creative, flexible and enjoyable tool to use. As always, we welcome any written comments you may have on how we might improve both the program and the manual.

Getting Started

This chapter explains how to get TruePaint up and running, covering the installation process and how to load and save pictures. It also contains a guide to the TruePaint screen display to familiarise you with the user interface.

Running TruePaint

TruePaint is supplied on several double-sided disks which you should backup before attempting to use the software. The program can be run directly from your disk 1 backup or you can choose to install it on another disk or a hard drive using the installation program described later.

From Floppy Disk

To run TruePaint from floppy disk after starting up your computer you should:

- Insert your backup of disk 1 (or the disk onto which you installed TruePaint) in your computer's internal floppy disk drive (drive A).
- Use the Desktop to change into the required video mode. To start off with, we recommend that you use True Colour on the Falcon, low resolution on an ST or STe, and TT low for the TT. See your computer manual for details of how to do this.
- Using the mouse, position the arrow pointer over the drive A icon on the screen and double-click (press the left mouse button twice in succession) so that a window containing various icons appears.
- Now double-click on the *TRUPAINT.PRG* icon to start the program.

After a short time, the screen should go blank and the word *TruePaint* or *TP* will appear in the bar along the top. If this doesn't happen then check that you are doing everything correctly.

Loading a Picture

The first thing to try is loading one of our example pictures. This can be done as follows:

- Move the mouse pointer up to the word 'File' and then down over 'Open' and press the left mouse button once. A box should appear for you to choose an image file.
- If you have a second floppy disk drive, insert the examples disk in drive B.
- Click on the button marked 'B' at the right-hand side. This is important even if you only have one drive so that TruePaint knows you are about to use another disk. Single drive users will be prompted to swap disks at this stage and should insert the example disk and click on OK.
- Now click on the *PICTURES* folder and when the list of pictures appears, double-click on the one called *EXAMPLE.JPG*.

Users with one floppy drive should swap disks when asked to. Disk A refers to the one containing TruePaint and disk B is the examples disk.

The example picture is stored in the JPEG file format so that it can be loaded into any video mode (although True Colour will give the best results). However, this does cause the loading process to be slower than normal due to the conversion required, so don't worry if there is a delay before the picture appears.

You are now ready to proceed with the rest of this chapter or start the tutorials.

Installing TruePaint

If you wish to use TruePaint from hard disk or customise your floppy disks, perhaps to make use of the extra storage capacity of a high density drive, you should run the supplied installation program.

The installation program will copy the files that you need to the correct locations and set up TruePaint to use the new configuration. You can select which parts of the package are to be installed and where. If you are the sort of person who doesn't like installation programs writing to your disks, you can also view the list of files to be copied and copy them yourself if you wish.

To install TruePaint you should:

- Insert your backup of disk 1 in drive A and double-click on the drive A icon from the Desktop.
- Double-click on the *TPINST.PRG* icon to run the installation program.
- The program will first ask you if you wish to install on hard disk or floppy disk. You should click on the appropriate button.
- If you wish to change the default configuration that the program has chosen for you, use the various controls on the installation screen as described in the help display (obtained by clicking on the Help button).
- Click on the OK button to proceed with the installation. You can also click on Show to see which files will be copied.

When prompted to swap disks during installation, just insert the requested disk and click on OK. Note that the example pictures are not normally copied when installing on floppy disk since this is how they are supplied.

After completion, the installation program will show you the *READ.ME* file containing the latest details about your version of TruePaint; please read this! You are then ready to run the installed TruePaint by double-clicking on its icon as before. If your version of the Desktop supports it, you can also run TruePaint by dropping picture files on its icon, or install it as an application which runs automatically when an image file is double-clicked. See your computer manual for details.

By default, floppy disk installation also formats a standard 720K double-sided disk for you or a high density disk on the Falcon. If you wish to use a different disk format (e.g. 800K) then you should format a suitable floppy *prior* to running the installer and you must use the volume name *TRUPAINT* for this disk. The automatic formatting can be switched off from the installation screen.

We strongly suggest that you use the default setup recommended by the installation program for your hardware configuration until you become sufficiently familiar with the package to re-configure it to suit your individual requirements.

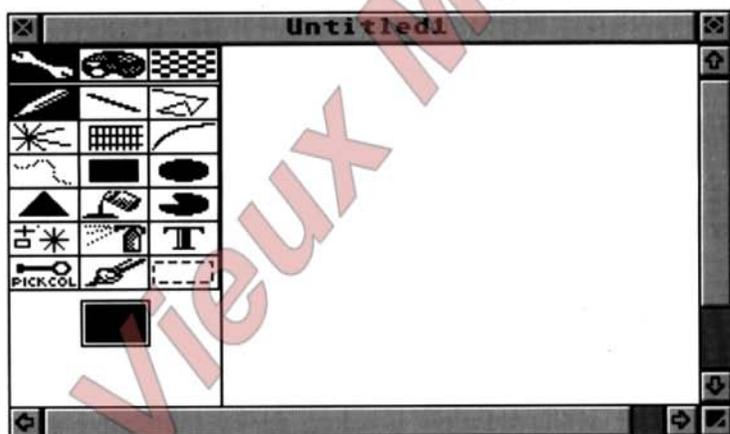
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The Screen

To help you find your way around TruePaint we have included a quick guided tour around the screen display, explaining what each element is for and how to use it.

Windows

Each TruePaint window holds a single picture. This might be a file which you have loaded from disk or a new image created within TruePaint. You can have as many windows or pictures open as memory permits (or the operating system allows).



a TruePaint window

Since TruePaint windows are very much like the windows used by the GEM Desktop, with a few additions described in the next section, you may want to skip this part if you are already used to working with them.

There is only ever one 'active' window, indicated by a different coloured title bar and border. The active window is always situated in front of all other windows.

In order to use a different window you can move the mouse pointer over it and press the left mouse button once to activate it and bring it to the top. If the window is hidden then you may need to move or resize other windows first.

The Title Bar

The title bar at the top of the window contains the window name. This will be a filename if the picture was loaded from disk or 'Untitled' followed by a number for a new image. To move the window, place the mouse pointer over the title bar and, holding down the left mouse button, drag the window to a new position.

The Close Box

The close box is the button at the top left corner of each window. Clicking on it will shut down the window. TruePaint will always ask if you want to save your work to disk before closing a window since otherwise it will be lost.

The Full Box

At the top right of the window is the full box. Clicking this button is a quick way of enlarging the window to fill the screen. Clicking a second time will restore it to its former size.

The Sizing Box

To change a window's size you can also use the sizing box at the bottom right corner. Position the pointer over it, hold down the left mouse button and move the mouse so that a box appears. You can use this to adjust the window size before releasing the mouse button.

The Drawing Area

Most of the window is taken up by the drawing area. This simply shows part of the image and is where all of the actual drawing takes place (not surprisingly!). When the mouse pointer is over the drawing area it changes from an arrow to a crosshair for accurate positioning.

You will sometimes see a shaded background area past the edges of the picture which you cannot draw on. This happens when the drawing area is larger than the image being displayed.

The Scroll Bars

At the right and bottom edge of each window are scroll bars. Since images can be larger than the display area, the scroll bars allow you to move around the picture and view different parts of it. You can also do this by holding down the Alternate key, pressing the left mouse button over the drawing area and moving the mouse. In this case, the pointer will change to a hand graphic.

Clicking over an arrow button reveals more of the image in that direction. You can hold down the mouse button to move a number of steps until you release the button to stop. Pressing the cursor keys on the keyboard has the same effect.

Pressing the mouse button over the scroll bar 'handle' and dragging it allows you to locate any part of the image quickly. Its size represents how much of the whole image is currently in view. Clicking on the background of a scroll bar can also be used to see the next 'page' of the image and is the same as pressing a cursor key whilst holding down the Shift key.

Full Screen Mode

Although drawing normally takes place in a window, TruePaint also allows you to switch into a Full Screen mode where there are no window borders and the whole display is used for drawing.

This is very useful for working with large areas of the picture although only a single image can be on screen at a time. To switch between Full Screen and window displays, press the Clr Home key.

The Toolbox

At the side of each TruePaint window is a collection of icons called the *toolbox*. Each icon represents a different 'tool' which can be used for drawing.



the toolbox

In fact the toolbox can show three different displays: drawing tools, colours and patterns (plus another one in Zoom mode). The three icons always present at the top of the toolbox indicate which display is currently visible.

A co-ordinate display above the toolbox may also be obtained, showing the exact co-ordinates of the mouse pointer on the image, although by default this feature is turned off.



Drawing Tools

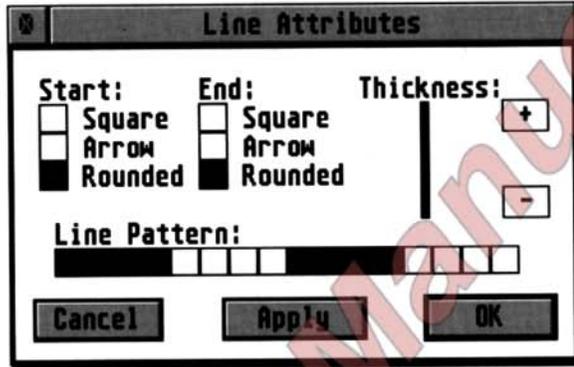
The normal toolbox display is the *drawing tools*. To select a drawing tool simply move the mouse pointer over the appropriate icon and click the left mouse button once. The icon will become highlighted to show that it is in use.

Drawing tools affect what happens when you use the mouse inside the drawing area. They each create a different sort of line, shape or effect. If you draw something by mistake, you can always press the Undo key to erase it again.

See the *Reference* and *Tutorial* sections for descriptions of the various tools.

Tool Attributes

Many of the tools have a number of settings associated with them, the thickness of a line for example. In these cases, *double-clicking* (pressing the left mouse button twice in succession) over the toolbox icon will reveal a *Tool Attribute* window which allows you to adjust these settings.



a Tool Attribute window

Most of these windows, or *dialog boxes* as they are known in GEM speak, have three buttons marked Cancel, Apply and OK. If you accidentally change some attributes, clicking on the Cancel button will leave the settings as they were before the dialog box appeared.

Clicking on OK or the close box accepts the changes and closes the dialog. Note that this button has a dark border around it which means that pressing the Return key has the same effect as clicking on the button.

One important feature about TruePaint dialogs is that unlike those of many other GEM programs, they do not block the drawing window. The Apply button allows you to use the new settings for drawing without closing the dialog box. You can then simply move it out of the way and continue drawing with the dialog box remaining on screen for easy access.

Each TruePaint dialog box is described in detail in the *Reference* section under the relevant tool or menu item.

Keyboard Shortcuts

Each tool and attribute dialog also has a *keyboard shortcut* associated with it which provides an alternative to using the mouse. Keyboard shortcuts have exactly the same effect as clicking on the icon; their use is completely optional. You will probably find you make more use of these as you become familiar with TruePaint.

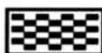
Tool keyboard shortcuts are always single key presses and may be used from Full Screen mode. Associated tool attribute dialogs can be obtained by holding down the Shift key and then pressing the relevant tool shortcut. A complete list of shortcuts can be found in *Appendix A*.



The Palette Display

The second of the three toolbox displays is the *palette display*, used to choose drawing colours. Click on the Palette icon at the top of the toolbox to reveal this and choose a colour by simply clicking on it. You can then either continue drawing or select the Drawing Tools icon to return to the original toolbox display.

The actual palette display obtained depends upon which screen mode TruePaint is running in. It will be different for palette modes and True Colour. See *Background* and the Colour tutorial for details.



The Pattern Display

Finally, the *pattern display* is used to select different patterns for drawing and filling shapes. You can also create your own multicoloured patterns and textures with it. The pattern display is described in detail in the *Reference* section.

The Menus

The menu bar appears along the very top of the TruePaint screen. There are many options and dialog boxes which can be accessed via the menus.

Normally, the menus themselves are hidden but when you move the mouse pointer over one of the menu titles at the top of the display, a box containing the list of menu items drops down.



the Options menu

To choose a menu item, simply move the mouse over it (a highlighted bar will appear) and press the left mouse button once. Alternatively you can click outside the box to dismiss the menu.

Menu items are grouped by topic. The File menu contains all the functions which deal with disk files and windows. The Edit menu allows you to cut and paste parts of a picture and also contains the vital Undo option!

The View menu controls various window display features, Options gives access to settings and dialog boxes, Effects work on a selected section of the picture. The very first menu, TruePaint or TP in low resolution, is the Desk menu which contains any installed desk accessories.

Choosing a menu item will normally carry out an action although some produce a dialog box, enable various features etc. Each of the menu options is described in detail in the *Reference* section.

Ghosted Items

You will find that some menu items, Cut and Copy on the Edit menu for example, often appear 'greyed'. This effect is called *ghosting* and it happens when it is not possible to use a menu item for some reason; in the above case because you have not yet selected an area to work with. See the *Reference* section if you are unclear as to what is wrong.

Items Ending In '...'

Some items end in '...' which means that selecting the option will produce a dialog box containing settings or requesting further information before any action is carried out. These are always safe to choose since you can Cancel the dialog box if you wish. Items without '...' take effect immediately, possibly altering your picture.

Switches

A number of the items in various menus can have a tick or check mark next to them indicating that the option is currently in use. In most cases, selecting the menu item simply switches the option on or off.

Keyboard Shortcuts

As with the drawing tools, most menu items have keyboard shortcuts which provide a quick way of accessing them. These are listed next to the menu options; a complete list can be found in *Appendix A*.

Menu shortcuts often require two keys to be held down. This is indicated in the menu by a special symbol. Those beginning with ^ require Control to be held down before pressing the letter whilst ⌘ denotes the Alternate key. Single key presses are enclosed in square brackets like this: [M].

Saving Your Work

You will probably want to keep your pictures and to do this you must save them to disk. This is a good idea not only for posterity but as a safeguard against mistakes, loss of power, hair etc. If you save your work every so often then you can always revert to the previous version if things go wrong.

This also allows you to try out ideas safely, possibly saving several different versions of a picture for comparison. Again, you can return to any version at a later stage, something which is rarely possible with conventional art media.

To save a picture to disk:

- Move the mouse pointer over the word 'File' at the top of the TruePaint screen to reveal the File menu.
- Select 'Save' from the menu by moving the mouse pointer down over the menu item and pressing the left mouse button once.

Important: If the picture was originally loaded from disk then TruePaint will immediately overwrite it with the modified version. Use Save As instead to give the picture a different name if you wish to keep the original!

When saving a picture for the first time (or using Save As) you are presented with the Save As Options dialog that lets you choose a file format in which to store the picture.

- Choose a suitable format by clicking on its name (the TruePaint TPI format is usually a good choice when starting off since it was designed for speed, but use one of the other file formats for general storage or compatibility with other programs - see *Appendix B* for details of the different file formats).
- Click on the OK button or press Return. Alternatively, you can just double-click on a file format.

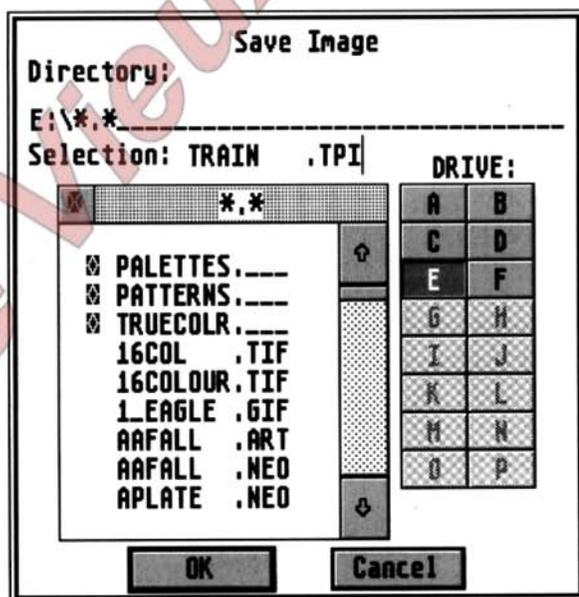
Finally, you must decide where the picture file is to be saved and give it a name. This is done via the *file selector*, described below. If you have a hard disk drive then you will probably want to save your pictures there. When saving to a floppy disk you must ensure that its write-protect tab is off. Blank floppy disks must previously have been formatted before use.

It is always a good idea to use the Desktop to create a separate folder for all your pictures, or possibly several folders, each for different numbers of colours such as 16 colour, True Colour etc.

When saving, a *progress bar* may appear. This shows you how much of the picture has been saved, giving an indication of the time left before it is complete. Saving is finished once the progress bar reaches the other side.

The File Selector

TruePaint uses the standard GEM file selector whenever you need to locate a file on disk. You may install a different file selector by placing it in your *AUTO* folder.



the standard file selector

The file selector allows you to choose the name of the file and which disk and folder it is in. The title at top of the file selector tells you what action selecting a file will have. You should follow these steps:

- Ensure that the correct drive button is selected.
- Choose any required folders by clicking on them in the file list.
- Type in the picture name, or for loading a picture, click on its name in the file list.
- Select OK to proceed. You can just double-click on a file to select it and proceed.

At any stage you can click on Cancel to abandon the operation. The individual parts of the file selector work as follows.

Drive

The drive buttons refer to different devices connected to the computer. Drive A is the internal floppy disk drive, drive B is an optional external floppy disk. Hard disks are often drive C and RAM disks, network devices etc. may use other letters.

Simply click on a button to select a drive. The directory will change and the file list will show you what files are on that drive. If there is a problem, such as no floppy disk in the drive, the computer will tell you what is wrong.

Directory

The directory name tells you which drive, folder and files you are looking at. The drive name comes first followed by ':\''. If you are inside any folders then they will be listed next with a '\' separating each one. Finally there is a 'pattern' which affects what files are displayed in the file list.

File Patterns

Normally, the pattern will be *.* meaning 'all files'. Changing this to *.TIF would show only files ending in .TIF. The pattern C*.* would give the files that started with the letter C. This is useful when searching for a particular picture or type of file. To change the pattern, click on the directory name and use the keyboard.

Selection

This is the name of the file. You can click on this and type a name from the keyboard but for loading a file it is often quicker to use the file list.

Note: leaving the three letters after the dot blank when saving files ensures that TruePaint adds the correct extension for the type of file. Entering your own file extensions can prevent TruePaint from recognising the file format when loading.

The File List

This shows the files which match the given pattern and the folders (indicated by a special symbol) in the current directory. Use the scroll bar to move around the list and click on a name to either select a file or enter a folder. Double-clicking a file is equivalent to selecting OK. To leave a folder, click on the close button at the top left corner.

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Background

This section explains various aspects of computer graphics to help you understand such topics as True Colour mode, outline fonts and Bézier curves, and how to make the best use of them in your pictures. It assumes no prior knowledge of computer graphics and although suitable for the beginner, is not essential for learning how to use TruePaint.

The Display

An understanding of how the images displayed on your computer screen are actually formed is a great help when using a computer art package. This first section discusses the fundamentals of the display.

Pixels

Unlike photographs and paintings, the computer display is in fact made up of thousands of tiny dots. These little dots are the smallest objects that the computer can display and it uses them like building blocks to create all other shapes, forming the graphics and text that you see on your screen. It is from this property that they get their name, *pixels*, which is short for *picture elements*.

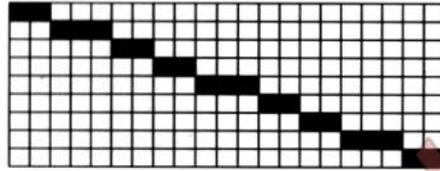
To get an idea of how this works, imagine the screen as a large piece of graph paper. Each square on the graph paper represents a single pixel (a good analogy since the pixels are actually arranged in a grid pattern) which can either be filled or empty.

Now, to draw something like a straight line we could fill in a whole row of pixels to give a horizontal or vertical line. For a thicker line we could make it several pixels wide, although it couldn't be any thinner since one pixel is the smallest possible display element.

Of course, this wouldn't be of much use for detailed drawings since each pixel is far too large and clumsy, but if you made the pixels small enough (or walked over to the other side of the room) they would appear to create the illusion of detail. This is essentially how the computer display works; by making the dots small enough.

Resolution

OK, so how do we draw a diagonal line? Because the computer is limited to constructing shapes out of pixels, it has to approximate diagonal lines and curves as a series of shorter horizontal or vertical lines placed one after another.



a close up of the pixels in a diagonal line

Although this does look something like a diagonal line, it is by no means perfect. The pixels become quite obvious as jagged steps in the line. It is this effect which makes *resolution* so important.

Resolution generally refers to the size of the pixels, so a higher resolution (smaller pixels) means that this effect is less apparent to the eye. For example, you probably haven't noticed that the print in this manual is made up of dots at a resolution of around 1200 per inch! The word 'resolution' is also used to refer to the *number* of pixels in the display, usually written as the number of pixels across times the number of pixels down, e.g. 640x400.

Using a higher resolution is a good way of getting better quality and sharper images. However, there are trade-offs. More pixels means more work for the computer, slowing it down and since it has to remember the appearance of each pixel, more memory.

Overscan

Traditionally, on computer screens that could only show text, a black border surrounded the actual display area to ensure that parts of the display didn't disappear off the edge of the monitor. With the advent of pixel-based graphic displays this border was retained, but it is sometimes useful to show pictures that extend beyond it, covering the entire screen.

This is something that we are quite used to seeing on our television sets. When it is available on a computer, this effect is known as *overscan*. It simply means that there are more pixels than usual so that they fill the monitor screen. With overscan, you cannot normally see the edges of the computer display or any surrounding border.

The Falcon030 supports various overscan resolutions and TruePaint can use these for viewing and animating pictures. It will also draw using them if you set up your computer to use overscan by default. Typically, overscan would be used for video applications, full screen animation, or just displaying large pictures.

Interlaced Mode

Another technique used on the Falcon to increase resolution on a video or TV display is called *interlacing*. To understand what it does it is necessary to know a little about the way a monitor or TV works.

The basic idea is that a beam scans across the inside of the screen, lighting up dots on the display. It starts at the top left corner and sweeps over the screen, drawing a single horizontal line of the picture. Once it reaches the right hand edge of the monitor, the beam flies back to a position slightly below where it started and proceeds to draw the second line of the display. Each time it does this it lights up another strip of the image on the phosphor surface inside the screen.

Frames

After repeating this many times, a single image *frame* has been built up. In fact with the UK television system (*PAL*) this happens at a rate of 50 times per second, 60 on an American (*NTSC*) television.

There are around 300 horizontal scan lines per frame of television, enough resolution to obtain reasonable picture quality. However, to improve upon this, the scanning beam would have to generate still more lines which would mean that it had to travel even faster across the screen's surface and adding to the cost of manufacture. This is where interlaced mode comes in.

The frames themselves are formed in precisely the same way as before, but instead of starting each frame at exactly the same position, alternate frames are positioned slightly lower down on the screen. Half a scan line to be exact. This means that as the beam scans through the frame, it fills in the gaps between the lines in the previous frame to give the illusion of twice the resolution without actually having to do any more work!

Flicker

Interlacing works extremely well for real life or moving images because shading and movement help disguise the interlace effect. However, because computer displays consisting of windows and text are often static, this effect can become apparent as a visible flickering of the display.

The flicker is due to the fact that every other frame is slightly offset from the last. It is most pronounced on single pixel thick lines across the screen since these don't even appear in half of the frames due to the interlacing effect.

Although interlaced flicker can make such modes unusable for applications such as word processing, the extra resolution is ideal for most graphics. When running TruePaint in interlaced video modes you will probably notice much less flicker over the image than in the window borders.

Colour

Another equally important aspect of computer graphics is, of course, colour. How we perceive colour, the way the computer handles it, and some methods of selecting colours in TruePaint are all discussed in this section.

RGB

All colours of light can be split up into colours of the spectrum which is what a prism does. However, thanks to the way our eyes work, it is possible to mix any colour from just three colours: red, green and blue. This is because there are three sorts of colour receptors inside our eyes, each sensitive to one of these colours.

These are called the *primary colours* and are often abbreviated to RGB. Now if you've always thought that red, yellow and blue were the three primary colours, this is also correct but for a different way of mixing colours. Red, green and blue are the primary colours we actually see, whereas red, yellow and blue are those used when mixing paint.

Optical Mixing

At first it may seem surprising that any colour can be created by mixing just three colours. To convince yourself of this, try looking at a colour TV through a magnifying glass. You should be able to see the tiny dots of red, green and blue which are used to create all of the colours you see on the screen.

The effect is very similar to that of a picture formed from a mosaic of individual pixels. Because the spots of primary colour are so tiny, you do not see them as individual dots at all. Instead, your eyes themselves mix the colours together, creating the illusion of many different colours.

Another good example of this can be found in the impressionist paintings of Georges Seurat in the *pointillist* style which are composed of thousands of tiny dots of paint, each carefully placed and coloured to create the desired form and shade. Upon close examination you will find that the colours apparent to the eye are often not present in the painting at all.

Palette Colour

So how do computers display colour? Well, the first problem is the sheer magnitude of colours which we can see. To display all of them at once on a computer would require a massive amount of memory. This is where the idea of a *colour palette* comes from.

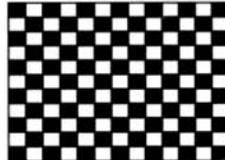
A palette-based display is limited to showing a fixed number of colours on the screen at any one time, thus saving memory. This can be as little as two or four different colours or as large as 256. The clever part is that these colours can be selected from a much greater range, 512 on the Atari ST, 4096 on the STe or over quarter of a million colours on the Falcon030!

In a 16 colour mode for example, the 16 palette colours would be carefully chosen to suit the subject matter being displayed. A picture of an apple might contain several different shades of red (depending upon the type of apple!) plus perhaps white for highlights with some greys for a shadow. Choosing a good colour palette is one of the most important steps in creating palette mode pictures.

Dithering

As a substitute for having more colours available, we can place different colours of dots together to produce the effect of a new colour. This process is known as *dithering* and is a technique which you can incorporate into your own pictures.

The simplest form of dithering is to arrange alternate dots of two different colours in a pattern something like this:



a simple dither pattern

Although we have used black and white here, you would normally use two similar colours such as light blue and dark blue. On the computer screen, these would appear to blend together (just like the dots of paint) giving the impression of a third, intermediate shade of blue. This would save you having to add an extra blue to your palette, freeing up a palette entry for a different colour.

Dither patterns with similar colours in a simple pattern usually work best but more complex patterns with a greater number of colours will create different effects and textures which can be used to add variety and realism to your pictures.

True Colour

Although palette modes may be ideal for the computer, the relatively small number of colours available simultaneously can be limiting. An alternative approach is for the computer to display as many colours on the screen as possible.

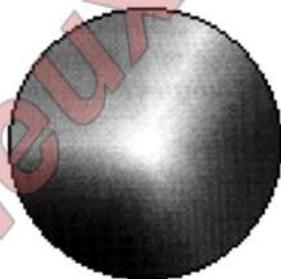
The human eye can distinguish around 400,000 different colours in total, although it is sensitive to more of certain colours than others. However, excellent results can be achieved with far fewer colours than this. The Atari Falcon030 can display up to 65,536 colours on screen simultaneously in its True Colour mode (it is worth noting, though, that Falcon030 palette modes can choose from a much greater range of colours, but fewer of them can be displayed at once).

The important thing about True Colour mode is that it has no palette. Each of the colours can be used in any part of the screen. This has an important consequence for how we create pictures since there is no need to worry about which colours to include in the palette; all of the colours can be used!

True Colour also affords the computer much more flexibility in dealing with images. Because it can rely on there being a full range of shades available, it is possible to lighten or darken parts of the picture easily. Adding a slight tint may also be done without requiring the use of complex dither patterns. TruePaint gives you full control over such effects when run in True Colour mode.

The Colour Wheel

Choosing a colour on a computer is often a matter of selecting how much red, green and blue are to be mixed together as described earlier. For example, the colour pink is comprised mostly of red with some blue and green to make it lighter. However, this is not always an obvious process. How could you create brown for example? Fortunately, there is a more intuitive method for True Colour work called the *colour wheel*.



the colour wheel

The colour wheel is a disc containing all of the 'bright' colours. It is arranged with pure colours of the spectrum including the primary colours around the edge of the disk (see the colour section of this manual). As you move towards the centre, the colours become paler so that pastel colours appear in a much smaller circle in the middle with pure white in the absolute centre.

This is pretty much what you would see if you shone three spotlights, one for each of the primary colours, onto a white screen so that their beams overlapped. All three together make white with the secondary colours (yellow, cyan and magenta) between each primary.

Picking a colour from the colour wheel is simply a matter of pointing at it with the mouse and clicking. However, you have probably noticed that there are a huge number of colours which don't appear on the colour wheel at all, such as grey, dark green etc. This is where the *shade bar* becomes important.



the shade bar

Whilst moving towards the middle of the colour wheel adds white to a colour, the shade bar adds black. After picking a colour from the wheel you can darken it by clicking on the shade bar. Thus greys are selected as shades of white and dark green appears in the shade bar when bright green is chosen on the colour wheel.

In fact any colour can be selected by using just these two controls to first choose a base colour and then the required shade, which is how you select a colour in True Colour mode with TruePaint.

Detail through Colour

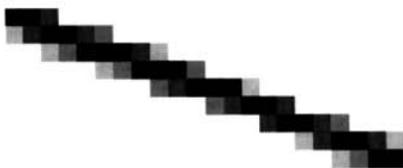
As has already been mentioned, resolution is an important factor in the quality of computer graphics. It is also true that careful use of colour can vastly improve the *apparent* resolution and detail in a picture.

Again, similar techniques are to be found in conventional art. Great landscape paintings such as those by Constable and Turner often include minute detail formed by just a few or even single brushstrokes. Yet viewed from a distance these give the impression of trees, houses or sheep on a hillside.

Perhaps surprisingly, the creation of detail on computers has much in common with these techniques. If you examine the graphics of most computer games closely, or in a magazine, especially on small animated objects you will see that just a few pixels are often used to represent an eye, arm or leg. It is the clever use of colour which creates the illusion of fine detail.

Anti-aliasing

Anti-aliasing is the use of colour to disguise the nasty steps in lines and curves encountered earlier. It involves choosing a number of colours between that of the object and the colour of the background and using them to soften the jagged edges.



an anti-aliased line

Although TruePaint does not anti-alias for you, the effect can be added manually and is especially useful for small or detailed graphics.

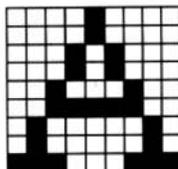
Fonts

The word *font* is used to describe a particular style of lettering. Different fonts have a different appearance; rounded or square letters, flowing script etc.

Your computer is capable of using many different fonts and styles, all of which you can incorporate in your pictures with TruePaint. This section explains the two main types of fonts used by computers along with their strengths and weaknesses.

Bitmap Fonts

A *bitmap* is simply a grid of pixels, described earlier. A *bit* is computer jargon for a single element which can either be on or off. Because the computer display consists of pixels, all fonts end up in this form when they are drawn on the screen. The letter 'A' for example would look something like this:



a bitmapped letter 'A'

What is significant about a bitmap font is that this is both how the font was originally designed and how it is stored within the computer. When writing some text, the computer simply copies the bitmap for each individual letter into the screen pixels which is nice and fast.

Bitmap fonts are usually designed by hand so they tend to give the best results. The person creating the font will have made sure that each letter is clear and that all the lines are of uniform thickness, even if the font is very small.

The disadvantage of bitmap fonts is that they are a fixed size. There must be a separate bitmap not only for each font style but for each size of lettering too since the arrangement of pixels will obviously be different. What is required is some way of *scaling* the font to a larger or smaller size.

Font Scaling

Any bitmap can be scaled down simply by leaving out rows and columns of pixels. Halving a bitmap in size for example could be done by keeping only every second pixel. Although this can be quite effective for many images since your eye fills in the missing details, it is not so suitable for bitmap fonts.

The problem occurs when attempting to scale down thin lines. Since the computer cannot display anything thinner than a single pixel, what happens is that important details start to disappear completely when they are scaled down too much. To make matters worse, increasing the size of a bitmap by doubling up pixels makes lines and edges look large and blocky.

So, whilst scaling bitmaps can be used to change font sizes and is certainly useful for resizing graphics, there is a better way of doing this.

Outline Fonts

The second type of fonts are *outline* fonts. As the name suggests, rather than a bitmap of pixels, a description of the outline around each letter is stored by the computer, making up a complete picture of what the letter looks like.



a font outline

To draw the font on screen, the computer has to actually construct each letter from straight lines and curves, following its stored description. This process can take a little time so in practice the bitmap created for each letter is remembered so that it can be quickly copied from memory next time it is needed. This is called *font caching*.

Outline fonts are ideal for scaling since all the computer need do to create a larger font is draw the font outline at a larger size. Thus any font size can be created without blocky pixel effects or missing lines since everything gets drawn again in the correct resolution.

Although outline font scaling is not built into the Atari ST or Falcon, it is available in the form of the Speedo GDOS software package. More information concerning this can be found in *Appendix C*.

The Best of Both Worlds

Why bother with bitmap fonts at all? The answer is that since they are designed by hand they are more readable, especially at small sizes. It is very difficult for the computer font scaler to adjust each letter so that it 'looks right' but this is exactly what human font designers can do.

So in practice it is usually better to use a combination of bitmap and outline fonts. Outline fonts for flexibility and high quality lettering at large sizes, bitmaps for small text and specific, commonly used font sizes.

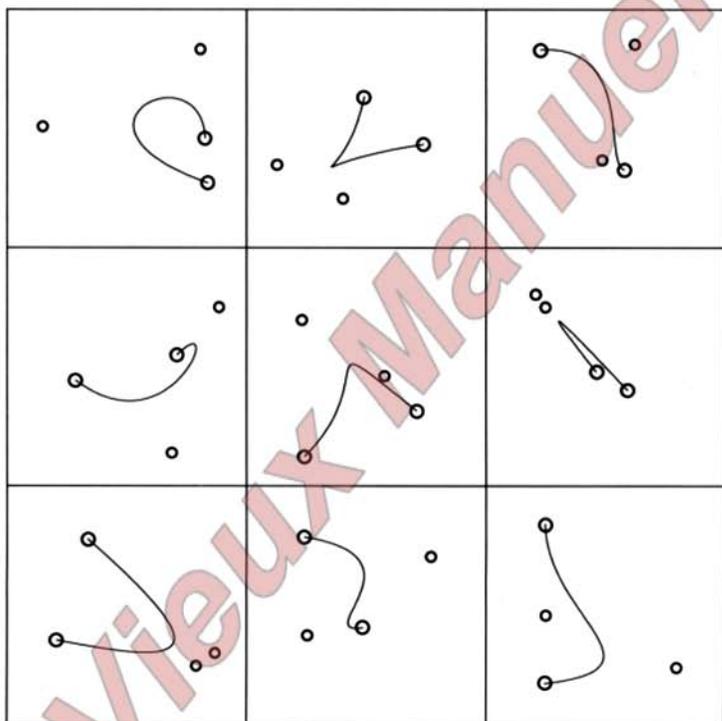
Bézier Curves

Both computers and rulers make drawing perfect straight lines very easy but curves are often more important in real images. Instead of using trial and error to obtain the desired results, TruePaint gives you the ability to produce perfectly smooth curves in a simple and predictable manner.

These curves are called *Bézier curves* (pronounced 'bey-zee-ay') after the French engineer who invented them for use in designing Renault cars. They are also the type of curves used by the font scaler to form text.

Control Points

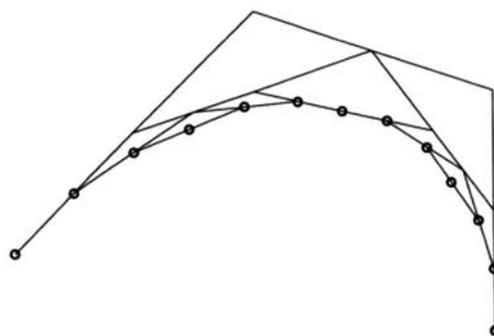
In addition to having a start and an end point, Bézier curves have two additional *control points* whose position determines the shape of the curve. Although the curve does not actually pass through these points they act like magnets, each of them bending the curve between the fixed start and end points.



some Bézier curves and control points

When drawing such curves it may help to think of them as the path followed by a moving object. From the start point it begins to travel in the direction of the first control point. But as it moves it is gradually drawn towards the second control point. Midway between these two points it decides to head for the end point and in doing so has traced out the shape of the curve.

Alternatively, picture the curve as being constructed from a series of straight lines. The first three lines simply connect the four points. Then the midpoint of each line is joined together. Once this process is repeated a few times the shape of the curve becomes apparent.

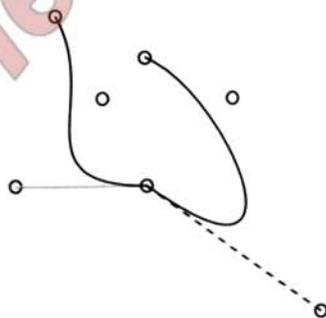


a Bézier curve as straight lines

Of course the best way to learn about Bézier curves is to use the computer to experiment. TruePaint allows you to adjust the position of each point any number of times before actually drawing the curve on the picture. You can make use of this facility to find out how each point affects the overall shape of the line.

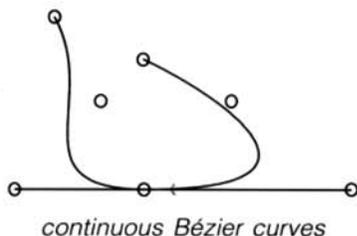
Joining Curves

Although single Bézier curves come in a variety of shapes including S-curves and loops, you will often want to place two or more curves end to end to produce more complex outlines. Ideally, the second curve should flow smoothly on from the first without any sharp corners at the join.



poorly joined Bézier curves

There is a trick to this. When you start the second curve from the end of the first, imagine a straight line extending from this point in the same direction as the end of the curve. Placing the first control point somewhere along this line will ensure that a smooth curve is produced.



What you are actually doing is making sure that the join and the two adjacent control points all lie in a straight line (indicated by the dotted line on the diagram) which, due to the way Bézier curves work, always guarantees perfect continuity.

Le Vieux Manuel

Tutorials

There are eight tutorials in all, each one covering a different aspect of TruePaint. They may be read in sequence or you can turn to a specific tutorial for a step by step guide to a particular feature. Don't be afraid to experiment with the described techniques by creating pictures as you go along!

More detailed information concerning each option, drawing tool and menu item can be found in the Reference section if required.

1: Drawing with the Mouse

The first step in learning to use a paint package is becoming accustomed to using the mouse as a drawing tool. This first tutorial also introduces you to some of the basics of TruePaint.

Starting a Picture

After running the TruePaint program as described in *Getting Started*, a blank screen will appear with a menu bar at the top. Before you can start drawing you need to create a new image in a window as follows:

- Move the mouse pointer up to the word 'File' at the top of the screen to reveal the File menu then down over the word 'New' so that it lights up. Now press the left mouse button once.
- A small window saying *New Image* will appear. Move the pointer over the Screen button and click once. This will open up a window containing a full screen sized image ready for drawing.

You aren't just limited to one window. If you want several images you can repeat this process to create as many windows as you like, memory permitting, up to the maximum allowed by the operating system. See *Getting Started* for details of how to use the various window controls.



Freehand Drawing

TruePaint starts up with the *Pen tool* active so that you can start drawing straight away. The icon representing the Pen tool (below the spanner icon on the left of the window) will be lit up to indicate this.

Drawing takes place in the *drawing area* which is the large empty box taking up most of the window. This area shows part of your picture. To start drawing, do the following:

- Move the mouse pointer over the drawing area so that the pointer changes from an arrow into a crosshair.
- Hold down the left mouse button and move the mouse around the drawing area.
- Release the mouse button to stop drawing.

Each time you move the mouse with the button held down, a continuous trail of colour will be left behind. The Pen tool essentially turns the mouse pointer into a pen which draws when the button is down and is lifted from the paper when the mouse button is released.

How to Undo Mistakes

Of course, everybody makes mistakes and one of the nicer qualities of computers is that they (usually) allow these to be corrected or undone without having to start all over again.

TruePaint allows you to undo any changes to the picture and even to put them back again if you change your mind. To undo the most recent changes you should:

- Move the mouse pointer over the word 'Edit' at the top of the screen to reveal the Edit menu.
- Move down over Undo so that it becomes highlighted and press the left mouse button once.

Alternatively, you can just press the Undo key on the keyboard. Choosing Undo is always safe because you can Undo a second time to restore the image. If TruePaint tells you it cannot Undo (after loading a picture for example), just press Return.

Important: The way that Undo works is by remembering all the changes you made *since you last moved off the drawing area*. Because of this, Undo can correct several changes at once or just one.

For example, if you draw three lines without moving off the drawing area and select Undo, all the lines will disappear. But if you moved the pointer outside this area after the first line was drawn then only *two* will disappear.

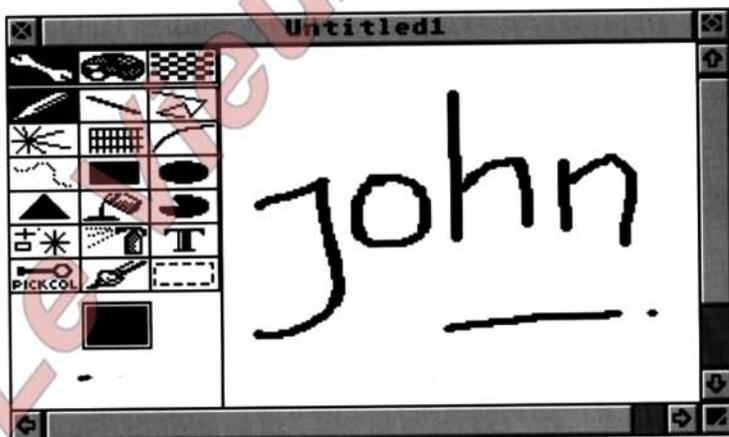
Clearing the Image

If you decide that you have made a complete mess of the picture, you can clear it and start again in the following way:

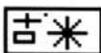
- Move up to the Edit menu and select Delete by clicking on it.
- Answer OK to the alert box which appears by moving the pointer over the OK button and pressing the left mouse button once.

If you select this by accident then you can always click on Cancel or use Undo.

It is a good idea at this stage to practice some freehand drawing with the mouse before continuing. You could start with some simple sketches of faces, cars, animals, cartoon characters etc. to gain familiarity with the mouse. Try signing your name - it isn't as easy as it sounds! Use Undo if necessary and Delete or New whenever you want to start a new drawing.



start with something simple



Drawing Dots

For some variety, try clicking once on the *Dots tool* (underneath the triangle icon). You can draw with it in a similar way to the Pen tool except that it leaves a series of dots instead of a continuous line. If you move the mouse quickly then the dots will be more widely spaced.

To return to the Pen tool, click on its icon so that it becomes highlighted as before.

Full Screen Mode

Finally, you may find *Full Screen mode* useful. Normally, each drawing is contained within a window as described in *Getting Started* but in Full Screen mode the window borders and menu display disappear and the entire screen becomes your drawing area.

Select Full Screen on the View menu or press the Ctr Home key to enter Full Screen mode. You can continue drawing as usual but with the whole screen. Use the cursor keys to move around the picture or click and drag with the Alternate key held down so that the pointer turns to a hand (this works even in window mode). Press Ctr Home once more or Esc to leave Full Screen mode and return to the normal window display.

All of the TruePaint drawing tools work in Full Screen mode so you may wish to use it during any of the other tutorials. Although the toolbox, menus or dialogs are not available, many of the keyboard shortcuts listed in *Appendix A* may still be used.

2: Drawing Shapes

This tutorial explains how to use the drawing tools for creating lines, circles, rectangles and other shapes. It assumes that you are familiar with using TruePaint's window display and the mouse.

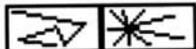


Straight Lines

You will often want to use straight lines in your pictures and these can be drawn using the *Line tool*. To draw a straight line:

- Select the Line tool by clicking on its icon (next to the Pen tool).
- Move over the drawing area and position the mouse pointer where you want the line to start.
- Holding the left mouse button down, move the pointer to the end point of the line and release the button to draw it.

While you are doing this you will notice that a 'rubber band' line follows the mouse around. This is to remind you where the line starts and finishes so that you can position it accurately before actually drawing the line.



Connected Lines and Rays

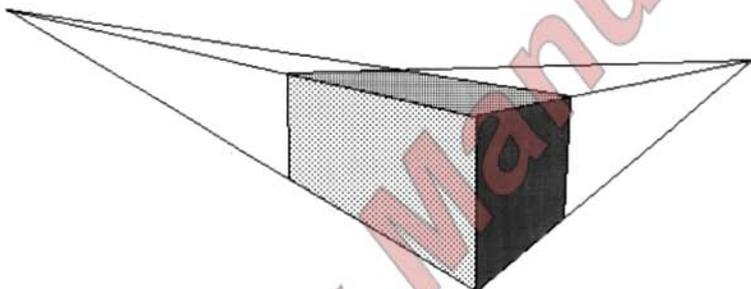
A slight variation on the above, these produce a series of straight lines either connected to one another or converging on a single point. They both work in a similar fashion:

- Select the *Connected Lines* or *Rays tool* by clicking on the appropriate icon.
- Move the pointer over the drawing area and press and release the left button once to start the lines off.
- Now all you need do is click once for the end point of each line. Since they automatically connect to the previous one, you should not hold the button down while moving the mouse; just press and release.
- Click on the tool icon once more to start a new series of lines, or select another drawing tool to finish.

To recap: the Line tool is for individual straight lines, Connected Lines for a series of continuous lines and Rays for lines originating from the same point.

Perspective Drawing

The Rays tool is particularly effective for giving the effect of perspective in your drawings. To the eye, parallel lines receding into the distance appear to converge on a *vanishing point* somewhere along the horizon. In practice, several vanishing points are often apparent, each in a different direction.



using the Rays tool for perspective

To mimic this effect we can select the vanishing point as a starting point for the Rays tool. If you draw some lines corresponding to the edges of a road or a terrace of houses going off into the distance then this framework can be used as the basis for a picture.

Line Thickness

Up to this point we have used just one thickness of line but TruePaint allows you to choose the line thickness for most of the tools we have encountered so far. To adjust the line thickness you should:

- Double-click (press the left mouse button twice in succession) on one of the line drawing tools or the Pen tool. This will reveal a window called the *Line Attributes dialog*.
- The vertical line at the right of the dialog shows the currently selected thickness. To change this, move the mouse pointer over one of the buttons marked '+' or '-' and hold down the left mouse button.
- Click on the OK button to accept the changes.

You can change the line thickness in this way to suit each different part of your picture. See if you can create a realistic looking tree using the various drawing tools and line thicknesses (hint: you can use Rays for branches).



Circles and Rectangles

Circles, ellipses (ovals) and rectangles are drawn in much the same way as straight lines by simply stretching out a shape of the required size. For example, to draw a circle:

- Click on the *Circle icon* (the completely filled one).
- Position the mouse pointer in the drawing area where you want the centre of the circle.
- Hold down the left mouse button and move the mouse diagonally up and to the right. A circle will appear, changing shape and size according to the position of the mouse pointer.
- Once you are happy with the shape, release the mouse button to draw it.

You will notice that although an outline was visible when moving the mouse, a solid shape was actually drawn. This is because *Filled Shapes* on the Options menu is on, indicated by a tick in the menu. Selecting it will switch this off so that outline shapes can be drawn. To switch it back on, select it again.

Square and rectangular boxes are drawn in much the same way with the *Rectangle tool*. Position the pointer over one corner of the box, hold down the mouse button and drag to the opposite corner, releasing the button to draw the shape.



Polygons

Polygons are simply multi-sided shapes which includes squares, triangles, hexagons etc. These can all be drawn with the *Polygon tool*, represented by a triangle icon. Using this tool is much like drawing connected lines; you click once for each corner of the shape. Try drawing some triangles to see how this works.

For shapes other than triangles:

- Double-click on the triangle icon for the *Polygon Attributes dialog*.

- Press the Backspace key twice and type in a number of sides from the keyboard, 5 for example.
- Press the Return key or click on the OK button.

Drawing the shape is done exactly as before except that you select a different number of points, five in our example would draw a pentagon (or star). The shape will be filled if Filled Shapes is selected.

If you also select the *Regular* box then you can draw polygons with equal length sides in the same way as circles, by dragging out a shape. See the *Reference* section for details.

Free Form Shapes

Free Form in the Options menu is also selected by default so that 'non-square' shapes such as ellipses and rectangles can be drawn. You can switch this off to allow only exact circles, squares and regular shapes if you want.

Using the tools already described you should be able to draw much neater and more detailed pictures than you could using just the freehand Pen tool. Try some drawings that make use of these tools, a simple drawing of your house for example. You may want to save some of these to disk for working with in later tutorials.



Selecting Patterns

In addition to single colour filled shapes you can have patterns too. Clicking on the checkerboard icon at the top of the toolbox presents you with a choice of patterns you can select by clicking on them. The current pattern is shown at the bottom of the toolbox. Select the single colour pattern for solid filled shapes as before.

To return to the normal toolbox display, click on the Drawing Tools (spanner) icon. It is also possible to define your own fill patterns from this display, see the *Reference* section for details.



Filling an Area

Another method of filling shapes is to use the *Fill tool*. With this tool active, clicking on the drawing area will fill outwards from that point with the selected colour and pattern. This can be used to fill in an irregularly shaped area or change a shape's colour.

Note that the area being filled must be completely enclosed by another colour otherwise the fill will 'leak' out over the rest of the picture. Don't panic if this happens, use Undo.

3: Colour

This tutorial describes the use of colour within TruePaint. It explains how to choose a drawing colour, select a palette and how the various colour effects such as Rainbow mode work.



Choosing a Drawing Colour

If you have read ahead or are just inquisitive then you may already have discovered how to change the drawing colour, in which case you might want to skip this part. Otherwise, to choose the pen colour you should:

- Select the *Palette icon* at the top of the toolbox. Either a series of coloured boxes or a colour wheel and shade bar will appear depending upon the screen mode (see the *Background* section).
- Clicking on a coloured box with the left mouse button will select a colour. Otherwise, click first on the colour wheel (you may drag the mouse with the button held down if you wish) and then on the shade bar if a darker colour is required. You can also click outside the colour wheel to select pure white.
- Once the desired colour is shown at the bottom of the toolbox you can click on the *Drawing Tools icon* to return to the normal display.

If you return to the drawing tools display, the chosen colour will be shown in the *Pen Colour indicator* beneath the tools. However, you can continue drawing with the previously selected tool from within the Palette display.

It is often easier to first select the drawing tool you wish to use and then switch to the Palette display for drawing and choosing colours. That way, you only have to leave the Palette display to select a different tool. You can do tricks like drawing different coloured rays by choosing a new colour before drawing each line.



Picking a Colour from the Image

You will often want to draw in a colour which exactly matches an existing part of the picture. To save you resorting to trial and error there is a special tool for this, used as follows:

- Select the *Pick Colour tool* by clicking on its icon at the bottom left of the drawing tools.

- Position the mouse pointer over the area of colour which you want to match and hold down the left mouse button.
- If the Pen Colour indicator doesn't show the desired colour then you can move the mouse around to find the right colour before releasing the button.

Changing the Palette

As described in the *Background* section, a *palette* is the selection of colours that appear on the screen. Each TruePaint window has its own palette which you can change to suit the image. Note that this is not necessary in True Colour mode since it has no palette!

Assuming that you are running in a palette mode (16 colours for example), here is how to change the palette:

- Move the mouse pointer up to the Options menu and click on Colour to produce the *Colour Options dialog* (alternatively you can double-click on a palette colour or the Pen Colour indicator).
- Select a colour to change by clicking on it. Be careful when changing the first two colours since they are also used for the window display.
- Use the *Red*, *Green* and *Blue* sliders to mix the desired colour from primary colours. You can click on the slider background or arrows to change its value, or click and drag the slider itself.
- After repeating the previous two steps for each colour that you wish to change, select OK to continue.

You can click on Restore at any time if you change your mind about your new colour scheme. Note that when you change a palette colour, parts of the picture drawn in the old colour will also change to the new colour.

Try adding orange to your palette (orange is made up of red with some green and no blue) and experiment with the three sliders to get used to mixing colours. To help you along, here are some hints:

- Red and green make yellow, red and blue make purple, green and blue make turquoise, and all three together make white.
- To make a colour darker, move all the sliders down.
- For a paler colour, add white by moving each of the sliders upwards.

Choosing a Palette

To get the most out of palette modes it is very important to choose a good palette for your picture. There is no ideal palette for all pictures, instead each picture will need a different palette depending upon the subject matter. Since there are a limited number of colours, it pays to choose carefully.

First decide what the main colours will be. If you are drawing a car, the main colour might be red with black for the background. Having more of these colours in your palette will allow you to add realistic shading effects or you can use dither patterns as described in the *Background* section to give the impression of even more shades.

Now work out which other colours will be required. This might include highlights, shadows, foreground and background detail and text if required. Using only one of each colour where possible will maximise the number of palette entries available for the main colours.

In this way you can build up a palette on the basis of how important each colour is and how much it is used in the picture to make the best use of the available colours.

Write Modes

The *Write Mode* affects how what you draw is combined with the background. Normally the background is simply overwritten and patterns are drawn in a combination of the pen colour and the default background colour. You can change this in the following way:

- Select *General* on the Options menu to reveal the *General Options dialog*.
- The *Write Mode* appears at the top left of this dialog. Click on the box next to *Transparent* to select it.
- Click on the OK button to continue.

If you try selecting a pattern and drawing a filled shape now you will see that the original picture shows through the gaps in the pattern. You can return to the normal behaviour by selecting *Replace*. The other *Write Modes* are mainly used for special paste and text effects.

Rainbow Effects

One unique feature of TruePaint is the ability to draw 'rainbow' lines and shapes. Instead of using the current pen colour, everything will be drawn in a number of sections to give a multicoloured effect. This works best in True Colour mode.

You can switch Rainbow mode on and off by selecting Rainbow on the Options menu. Try drawing some lines and filled shapes to see how it works. To change the start and end colours of the rainbow you can:

- Select Colour from the Options menu or double-click the Pen Colour indicator to reveal the Colour Options dialog.
- Click inside the box next to *Rainbow 1* or *Rainbow 2* to choose the start or end colour.
- Choose the desired colour in the normal way from the colour wheel, sliders or palette.
- Once you have chosen both colours, click on OK.

When you change either Rainbow colour you will see the sample Rainbow in Colour Options change. In palette-based modes, the Rainbow will consist of the palette colours from Rainbow 1 and Rainbow 2 in order. True Colour mode however always gives you a smooth graduation between the two colours.

Note that with the Rainbow 1 or Rainbow 2 box selected, the Pick Colour tool will change the appropriate rainbow colour in addition to the pen colour. You can also draw Rainbow lines with the Pen tool.

Shadows

Shadow is another special effect for use with lines and shapes. It gives the impression that the shapes are hovering some distance above the background, casting a shadow on it. To enable this effect:

- Select Shadow on the Options menu to get the *Shadow Options dialog* box.
- There are 9 boxes at the right of the dialog representing different shadow directions. Try selecting the lower right one to begin with.
- Click on the OK button.

Now try drawing with the Pen tool. To switch the effect off again, follow the same procedure except click on the centre box for no shadow.

4: Brush Effects

This tutorial describes how to use the various TruePaint brush effects including Airbrush, Smooth and Tint. Note that some of these effects are only available in True Colour mode.



Airbrushing

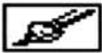
The airbrush effect may be used in both palette and True Colour modes and gives the effect of paint sprayed onto the picture. This produces a random, textured appearance instead of solid areas of colour. To use the airbrush:

- Click on the *Airbrush tool* icon.
- Position the mouse pointer where you want to start spraying in the drawing area.
- Hold down the left mouse button and move the mouse to spray rapidly to give a light spray effect or more slowly for a dense spray.

You can build up colour by repeated spraying of the same region or by moving the mouse in small circular motions. Fine control over the airbrush effect is available via the *Airbrush Attributes dialog*. For example, to increase the size of the airbrush:

- Double-click the Airbrush tool to reveal the dialog box.
- Increase the nozzle size by clicking on the up arrow button. You will see the circle on the left changing in size. This represents the area around the mouse that will be affected.
- Click on the OK button.

You may also change the quantity of colour which is sprayed by clicking in one of the *Flow Rate* boxes. For more colourful effects, try using the Airbrush tool in Rainbow mode.



Smoothing

The smoothing effect only works in True Colour. It is used to blend or blur parts of the picture to give a 'watery' appearance. You might want to use it after adding a highlight or shadow to soften the sharp edges where the new colour meets the old. It is used as follows:

- Select the *Brush tool* by clicking on its icon in the toolbox.
- Position the mouse pointer over the area to smooth. A rectangular box should appear, showing you the region over which the effect will be applied.
- Hold down the left mouse button and move the pointer as necessary. Keep moving the mouse until the desired effect is achieved.

Try using this to create the effect of waves upon water. Select a reasonable line thickness and choose light blue from the Palette display. Using the Pen tool, draw broad horizontal strokes of colour onto the image to look like waves (you don't need to be very careful).

Once you have done this over the whole window area, repeat the process using a different shade of blue. The idea is that the old lines show through the gaps. Keep adding different shades until you have built up a pattern that covers most of the white background. You might also want to add a few lines in a much lighter colour for highlights.

The final step is to use the Brush tool over the whole image to smooth it out, giving the water effect. You can even repeat the whole process again to add more colour and depth to the texture.

Tint

Another True Colour brush effect is *Tint*. It can be used like the Airbrush tool to spray colour over the image except that it blends the pen colour into the background instead of drawing scattered pixels of colour. To select Tint:

- Call up the *Brush Attributes dialog* by double-clicking the Brush tool icon.
- Click in the Tint box to select it.
- Click on the OK button.

Using the Brush tool as before will now add colour to the rectangular brush area. You might want to experiment with some of the other Brush Modes such as *Smooth Tint*, *Lighten* and *Darken*.

Applying Effects to an Area

Until now we have used a rectangular brush shape but there are others. Like the airbrush, the brush size may be varied and a circular brush shape is available. It is also possible to apply a brush effect over a large area of the picture in the following way:

- Select the *Area* box on the Brush Attributes dialog and click OK.
- Position the mouse pointer over one corner of the area.
- Hold down the left mouse button and move the mouse to stretch out a box of the required size (just like using the Rectangle tool).
- Release the mouse button to apply the effect. Depending upon the size of the area, this may take some time.

The Rainbow 1 Range

The remainder of the brush modes are used for colour changing. This includes re-colouring part of a picture, replacing one colour with another and swapping palette colours around.

Brush modes mentioning *Range* adjust only certain colours, leaving others alone. They use the Rainbow 1 colour selected in Colour Options and *Rainbow 1 Range* in Brush Attributes. The way that this works is that colours close to the Rainbow 1 colour are considered to be within the range and are changed by the brush effect.

Changing Colours

For example, try the following to re-colour an object in an existing True Colour picture:

- Choose the Circle brush shape and *Replace Range* mode from the Brush Attributes dialog.
- Select the Rainbow 1 box on the Colour Options dialog and use the Pick Colour tool to select the main colour of the object you wish to change (this will also select Rainbow 1).
- Use the Palette display to choose a new colour.

- With the Brush tool, draw over the object as if using the Tint brush mode to 'colour it in'.

Only those colours close to the Rainbow 1 colour you chose should be affected, allowing you to effectively re-colour the object. If other colours are also changed, use Undo and try entering a smaller Rainbow 1 Range.

A range of one will include only the Rainbow colour itself which can be used to selectively erase a temporary grid or layout lines drawn onto the picture.

Swapping Palette Colours

In order to swap between two palette colours you must use the *Swap Ranges* mode with an Area brush and a Rainbow 1 Range of one. Select the pen and Rainbow 1 colour as before for the two colours to swap and drag out a box covering the area to affect. You can use Full Screen mode to select the entire picture.

5: Cut and Paste

The term 'cut and paste' refers to the technique of copying from one image into another to duplicate part of a drawing or as a way of assembling a picture or animation from many parts. This tutorial explains how this is done and how to achieve the best results.



Selecting an Area

Before you can copy part of an image you must first *select* it in the following way:

- Click on the *Selection tool* at the lower right of the toolbox display.
- Position the mouse pointer over the image and holding down the left mouse button, drag out a rectangle.
- When you let go of the mouse button, a rectangle with small square 'handles' at each corner will appear. These may be used to adjust the size of the area by positioning the mouse pointer inside them, holding down the mouse button and dragging.
- The entire area may be moved by clicking inside the rectangle and dragging.

Try selecting and adjusting different areas to get used to how this works. Note that clicking outside the selected area will deselect it again. There is also a command on the Edit menu called *Select Visible* which quickly selects the entire visible area of the image.

Selecting an area in this way has another use. If you switch back to one of the drawing tools such as the Pen tool, you will find that it now only draws within the selection. Mouse presses outside the selected area are ignored. This is useful for changing one small area without disturbing the rest of an image.

The Clipboard

The cut and paste technique makes use of a *clipboard*. This is where the piece of the image previously 'cut' is kept, ready for pasting somewhere else. In a sense, the clipboard is like a hidden extra window which remembers whatever was last put into it.

The clipboard only has space for a single image, so whenever you cut or copy something into it the previous clipping is lost. Quitting TruePaint will also lose the contents of the clipboard although pasting does not, so you can paste a single clipping any number of times.

Cut, Copy and Paste

The three commands that use the clipboard are *Cut*, *Copy* and *Paste* all of which can be found on the Edit menu. For an example of how they can be used to transfer part of an image from one window to another, try the following:

- Select the area that you wish to copy using the method described above.
- Select the Copy command from the Edit menu. This stores the selection in the clipboard. You could use Cut instead which would also erase the selected area.
- Activate the destination window in the normal way.
- Select Paste from the Edit menu. This will cause the clipboard contents to appear inside the window 'floating' over the image. You can position it by holding down the mouse button over the selection and dragging it to a new location.
- Finally, double-click the left mouse button to actually draw the clipping onto the image. Be careful not to move the mouse between clicks. Clicking outside the selection will cancel pasting.

You can use this process to copy between any pictures or even duplicate part of an image elsewhere on the same image. Using Cut instead of Copy can be used to move sections from one place to another.

One thing to watch out for when pasting palette-based images is that, since each picture can have a different palette, the pasted section may appear in the wrong colours. You can get around this either by using the same (or similar) palettes for each picture or by changing colours with the Brush tool after pasting.

Transparency

Cutting and pasting rectangular sections is all very well but you will often want to paste an irregularly shaped object onto a background. This can also be done if you change the Write Mode to Transparent. The Write Mode is accessed through General on the Options menu as described in the *Colour* tutorial.

Try drawing some different coloured triangles and using select, Copy and Paste as normal. With Transparent mode, areas of the default background colour become transparent when pasted so that the underlying image shows through, making it look like the object was drawn there originally.

Note: in True Colour mode, only pure white will be transparent when pasted. Always click on the white background *outside* the colour wheel to select this colour for drawing.

How to Avoid Holes

There are three main problems with transparent pastes. The first is that only the first palette colour (or pure white in True Colour mode) can be used as a background when drawing the image for Transparent to work. Another problem is that if this colour is used elsewhere in the image it will also become transparent, producing an unwanted 'hole' when the image is pasted.

Both of these difficulties can be solved by drawing the image on a different colour background and then using the Fill tool to change the surrounding area to the transparent colour before pasting. This makes it easier to ensure that the transparent colour is not itself used in the picture. You can also fill areas of the background colour as required after pasting.

Cutting Out Complex Shapes

Since the Selection tool only deals with rectangles, the third problem is in cutting out a complex shape from an existing image. The best way of doing this is to first copy the region containing the object into a separate window and then cut away the remaining background areas.

By selecting the transparent colour for drawing (see the previous note) and using the Pen tool with a reasonable line thickness, start chipping away at the rectangular block. Imagine that you are sculpting a block of stone or wood; start by eliminating any large unwanted chunks, taking more care over the detailed edges of the object using thinner lines and other drawing tools as necessary.

Once this is complete (and it does take a little patience!) you have a copy of the image on a background of the transparent colour which can be copied and pasted onto another image as before.

Assembling a Picture

It is sometimes useful to create each different part of your picture as a separate image to be pasted together later. Some of the advantages of this are:

- Better control over where everything goes.
- You can erase part of the image without having to re-draw the background underneath it.
- Changing the background itself is much easier.
- It is easy to create and compare different versions of the picture.
- You can even use the same component images in several pictures.

Since many of these factors become even more important when dealing with animations, here are a few tips to bear in mind when assembling a picture in this way:

- Save your work regularly!
- For transparency, either draw on the default background colour or use the fill technique described earlier.
- Ensure that you use the same palette for each picture (not applicable in True Colour mode).
- Check that everything is drawn to the same scale so that parts of the final picture don't appear out of proportion.

6: Effects

This tutorial explains how the various image transformations on the Effects menu work and what they are for. It also describes how to produce mirrored and symmetrical drawing effects.

Flip

The simplest effects on the Effects menu are *H-Flip* and *V-Flip* since, unlike the others, they can be used without selecting an area to 'mirror' the entire picture. H-Flip gives a normal mirror image whereas V-Flip turns the picture upside down. Selecting the same effect again will restore the picture. Use both effects together to rotate the image through 180 degrees.

Note that these effects work on the whole image, not just the visible portion so you may find yourself looking at the opposite side of the picture. To flip part of an image, select it as described in the previous tutorial before using H-Flip or V-Flip.

Resize and Stretch

Both of these effects alter the size of the current selection. You can use them in the following way:

- Select an area with the Selection tool or Select Visible menu item.
- Choose *Resize* or *Stretch* from the Effects menu. Note that the menu shows a tick next to the command to remind you of what you chose.
- Use the handles at each corner of the selection to adjust the image size by clicking and dragging with the mouse. They work in exactly the same way as the handles used for selecting an area except that they actually resize the image.
- Reposition the image by holding down the mouse button inside the selected area and dragging it to a new location as if pasting. You can resize and drag as many times as you want.
- Double-click over the drawing area to paste the resized image onto the background.

As you can see, this process is very similar to using Cut and Paste and can in fact be used in conjunction with them.

The difference between Stretch and Resize is that the latter always preserves the proportions of the image, unlike Stretch where you can distort the selection by making it wider or taller.

Combining Effects

Many of these effects may be used in combination with each other and they all work with Paste. This means that you can carry out several effects one after another before finally committing the results to the image. For example:

- Select and Copy an area.
- Select Paste from the Edit menu.
- Choose V-Flip from the Effects menu. Notice that the selection has been altered even though it has not yet been pasted onto the background.
- Now select Stretch from the Effects menu. The results of the previous effect can now be resized.
- Finally, double-click to draw the selection on the image or click on the background to cancel.

Pattern

This effect works very much like Stretch except that instead of resizing the selection it 'tiles' it to give a repeating pattern. You can use this to create various textures or to save time when pasting several copies of the same image.

Try selecting a small area of a picture and creating a pattern from it. Alternatively, reduce a large image in size before using Pattern. Note that you must make the selection larger to get the patterned effect.

Shear and Wrinkle

The final four effects distort the actual shape of the selection. *Shear* skews the image as if it were on a slope and *Wrinkle* bends it backwards and forwards to give a rippled or folded effect. Once again, you simply position the handles to achieve the desired results.

To wrinkle an image you would do the following:

- Select an area or start pasting.
- Move up to the Effects menu and click on *H-Wrinkle*. An envelope shaped box should appear.
- Click and drag the two handles to create the required degree of wrinkling (the 'flap' of the envelope represents a single fold or wrinkle; its height is the length of the fold which will be repeated down the entire image and the distance from the box determines the width of each fold).
- Double-click to draw the results onto the image.

Mirrored Drawing

This final special effect does not appear on the Effects menu since it does not operate on the selected area. The *Mirror* options actually repeat everything you draw by reflecting it as if through a mirror. This results in a perfectly symmetrical design and can be used to generate kaleidoscopic patterns and shapes. To switch mirroring on:

- Select General from the Options menu.
- Click inside the box marked *4-Way* under the Mirror options.
- Click on the OK button.

Now try drawing something with the Pen tool. You will find that your drawing is reflected in each quarter of the image. Note that drawing is still limited to the visible or selected area however.

In fact, mirroring actually happens through a point called the *origin* which can also be changed from the General Options dialog. By using the other Mirror options you can also adjust how drawing is mirrored.

7: Adding Text

This tutorial covers the use of TruePaint's text drawing facilities and how to produce textured and coloured text. A discussion of how text and fonts work can be found in the *Background* section.

Drawing Text

Adding text to a picture is quite simple and involves the following steps:

- Select the *Text tool* by clicking on its icon in the toolbox (it's a letter 'T').
- Move the mouse pointer over the drawing area roughly where you want the text to start (don't worry too much about the exact positioning at this stage).
- Type the text in from the keyboard. You can use Backspace to rub out mistakes.
- If necessary, you can reposition the text by clicking the mouse over the drawing area. Note that you may continue typing after this if you wish.
- Finally, double-click the left mouse button to draw the text on the picture.

If you are using TruePaint for drawing labelled diagrams or charts then you may wish to use the Line Attributes dialog and Line drawing tool to draw lines with arrowheads on the image.

Note: none of the keyboard shortcuts are available while the text tool is active.

Choosing a Font

The *font* is the style, size and shape of lettering used for text. The particular selection of fonts available on your computer depends upon what is installed and whether Speedo or Font GDOS is running (see *Appendix C*). To select the font:

- Double-click on the Text tool to produce the *Text Attributes dialog* box.

- Choose a font by clicking on its name in the list at the top of the dialog. The two arrow buttons at the side may be used to move through the list.
- Adjust the font size by holding the left mouse button down over any of the group of four arrows. Alternatively you can click on width or height and use the keyboard to enter a new size, pressing Return when finished. Note that the width and height are normally the same.
- Select any desired text effects such as bold, italic, etc. by clicking on the relevant box so that it lights up. You can switch effects off in the same way.
- Click on the OK button.

If you now draw some text you will find that the new font size and styles are used. You can use this procedure to change any or all aspects of the font as required.

Normal *Italic*
Bold Underline
Light Outline
various text effects

Transparency

Like most drawing, text is affected by the Write Mode in General Options. The default Write Mode (Replace) draws text in the pen colour on a solid background. You may already have noticed the white box drawn under the text.

Changing the Write Mode to Transparent as described in the *Colour* tutorial allows text to be superimposed upon any background. Although the letters still appear in the pen colour, no white box is drawn so that the picture shows through the gaps between the letters.

Transparent mode is generally better for text and looks nicer than the default, although you should take care to choose a pen colour that is readable against the background.

Multicoloured and Textured Text

Another Write Mode which is useful for text is *Stencil*. It is the exact opposite of *Transparent* and has the effect of drawing only the text background, leaving the text itself transparent like a stencil with the picture showing through each letter. This is how multicoloured and textured text are achieved.

Firstly, create the pattern for the text over a sufficiently large area in as many colours as you like using the normal drawing tools. You could use the water texture described in the *Brush Effects* tutorial. Then simply draw the text over this background in *Stencil* mode, a large font size usually works best. You can trim off any excess pattern afterwards.

Although this technique works well for bitmap fonts, it is less suitable for outline fonts since these often give gaps between each letter. Instead of manually erasing each of these gaps you can use cut and paste to achieve the same effect.

Cutting and Pasting Text

The simplest use of cut and paste with text is to Copy a piece of text into the clipboard and Paste it several times to save typing or for a shadow effect. Another idea is to select some text and use the Effects menu to alter it to give reflected or skewed text. See the previous two tutorials for details.

However, if you want to use the *Stencil* effect with outline fonts, or indeed any shapes other than text, here is what you should do:

- Draw the pattern or texture as before but in a separate window.
- Elsewhere in this window (or another window again), draw the text in *Replace* mode. Do not use *Stencil* mode at this stage.
- Using the Selection tool, select the text and Copy it into the clipboard (see the *Cut and Paste* tutorial).
- Now change the Write Mode to *Stencil* using the General Options dialog box.
- Choose Paste from the Edit menu and position the text over the pattern. When you double-click, the stencil effect will be applied, giving you patterned text.
- Finally, Copy and Paste this text into the picture as necessary (don't forget to change the Write Mode back to *Replace* first though!).

8: Detailed Work

This final tutorial describes those TruePaint features which assist with detailed editing of the image and accurate mouse positioning.

The Hot Spot

The TruePaint *Hot Spot* is a magnified display of the area surrounding the mouse position which can be positioned either above or to the left of the drawing area. To switch the Hot Spot display on:

- Select General from the Options menu.
- Click on the Hot Spot box marked either *Top* or *Side* depending upon where you want the display to appear.
- Click on the OK button.

The magnified area automatically tracks the mouse as you move it around the drawing area. The small square fixed in the centre of the Hot Spot display represents the actual mouse position. To turn it off again, follow the same procedure but click in the box marked *Off*.

The advantage of the Hot Spot is that you can still use all of the regular drawing tools but with much greater precision due to the magnification. You could use it to ensure that two lines meet, or assist in using the Selection tool to accurately cut out a shape.

You can also use the General Options dialog to change the size and magnification level of the Hot Spot but note that larger displays will be slower to draw. The Hot Spot also works in Full Screen mode.



Zoom Mode

Another way of obtaining a magnified display is to use *Zoom mode*. Although this does not provide all the normal drawing tools, it is ideal for detailed editing or touching up small areas of the image. It works as follows:

- Select *Zoom* from the View menu to enter Zoom mode. The image (or selected area) will become magnified and a special Zoom mode toolbox display will appear.
- Click on the magnifying glass icons to zoom further in and out of the image and use the window scroll bars to move around as usual.

- You can select one of three dot sizes for drawing or use the Zoom mode Fill tool. Click on the drawing area to use these tools.
- Use the colour wheel or palette display to change the drawing colour as normal.
- Once you are finished editing, selecting Zoom from the menu a second time will exit Zoom mode.

Most of the menu options are also available in Zoom mode and you can Undo or enter Full Screen mode as required. Note that there is a different set of keyboard shortcuts for use in Zoom mode.

Co-ordinates

There are a number of options which help you locate exact positions on the image by means of a *co-ordinate* numbering system. The X co-ordinate is the distance across the image whilst the Y co-ordinate is the distance down.

By default, the exact centre of the image has both X and Y co-ordinates of zero and this point is known as the *origin*. X co-ordinates to the left of the origin and Y co-ordinates above it are negative numbers. You can reposition the origin via General Options or using the Ruler display.

Selecting the *Co-ordinates* option from the View menu will continuously show the X and Y pixel co-ordinates of the mouse pointer. The co-ordinates are displayed immediately above the toolbox in each window.

The Rulers

In addition to co-ordinates you can switch on the *Ruler* display. You can use either or both of these displays to assist in accurate placing or measuring - to draw a square of exactly 20 pixels wide for example - or to ensure that two shapes are of identical size.

As the name suggests, the rulers are horizontal and vertical bars next to the drawing area which show co-ordinate numbers. To switch these on or off you should:

- Select *Ruler* from the View menu to get the Ruler Options dialog.
- Click in the *Ruler On/Off* box.
- Click on the OK button.

Conclusion

If you have been following each of the tutorials through, you have now covered all of the main features of TruePaint. You will probably want to make use them by creating some of your own pictures. For practise, it can also be helpful to try copying existing pictures onto the computer, using the techniques and effects that you have learned. Once you feel confident with TruePaint, you might want to try animating some of your images too.

Use the *Reference* chapter and index to check up on any options that you are unsure about. You may also find it interesting to read through the *Background* chapter if you have not already done so.

Good luck!

Le Vieux Manuel

Animation

This section describes the use of TruePaint's animation facilities. It discusses the way that animations work, how they are created and also suggests some techniques you can use in designing your own animations. It is recommended that you familiarise yourself with TruePaint before attempting to create your own animations.

Introduction

Computer animation basically works in much the same way as television or moving film, by rapidly displaying a series of individual still pictures one after another to produce the illusion of continuous movement.

Moving Objects

To give the effect of an object falling from the sky for example, the first 'frame' would be a picture of the sky showing the object in its initial position. The second frame would show the same background but with the object at a slightly lower position, the third much lower as the object gathers momentum and so on.

When played back in sequence, your eye would follow the object and it would appear to move. The faster the frames are replayed, the smoother the movement appears. Conventional film for example is normally played at a rate of around 25 frames per second.

Ring Motion Animation

Of course there is more to it than simply moving objects about. Consider an animation of a walking figure. Not only does it need to move but its arms and legs must also be animated, otherwise it would appear to mysteriously slide or skate along rather than walking!

This is done by preparing a number of individual frames of the walking figure, all based upon the same graphic but each at different stages of walking. The first frame would show the figure ready to take a step forward, the next would have one leg slightly outstretched, a few frames later the figure would be in mid-stride and so on.

Only one 'cycle' of the animation need be drawn in this way since this sequence repeats. The same frames can be reused for each forward step, although care must be taken to ensure that they are placed on the background frames so that the foot positions match up correctly. This technique is known as *ring motion* animation.

Creating Your Own Animations

Animation does take some skill and practice (you will probably get much amusement from your initial attempts!), some careful observation of both real life and cartoon images can help too. If you own a video recorder with a good freeze frame or frame advance facility, you can use this to watch how professional animators create various effects and try to mimic these in TruePaint.

It is best to start off with something simple so that you can get acquainted with the animation options, a bouncing ball for example or a pair of eyes that look from side to side. A walking stick figure or a cartoon character provide more of a challenging project.

TruePaint by no means restricts your animations to simple objects moving around a static background. In practice, your animations may be as complex as you like. A combination of moving objects, animated backgrounds and complete changes of scene can be used with the final animation often being assembled from a number of individual pictures. Some hints and tips can be found at the end of this section. Let your imagination loose!

Memory Requirements

Rather than storing each individual frame in memory, TruePaint only stores the initial image. Subsequent frames are remembered by the differences from the previous frame, requiring less memory, disk storage and also allowing better playback speeds. This means that you can create longer or smoother animations since more frames will fit into memory at once. Remember to check that the animation is not too big to fit on disk though!

Because of this, a ten frame animation usually takes up much less memory than ten individual pictures although this depends on the animation. The more movement taking place in each frame, the greater the memory requirement will be. So, a picture with little movement takes up only slightly more space than a static image, whereas a fully animated backdrop requires much more. Smaller images also require less memory.

Conserving Memory

If you are unable to add further frames to your animation then you have run out of memory. You may be able to recover some by closing any windows or desk accessories that are not required and using the File Formats option to unload some file managers. Do not unload the one you are actually using since you will need it when saving your animation, unless you are using the built-in TruePaint animation format.

Removing animation frames or reducing the amount of movement between each frame will also increase the amount of available memory.

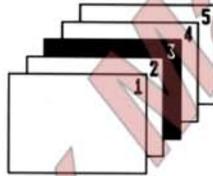
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The Animation Options

Each of the TruePaint animation options is described in detail below, starting with an explanation of how to build up an animation sequence.

Building an Animation

Each frame of the animation is created with the usual drawing tools in exactly the same way as a still image. Think of the animation as a stack of separate images, only one of which is visible through the window at any given time.



an animation sequence with frame 3 being viewed

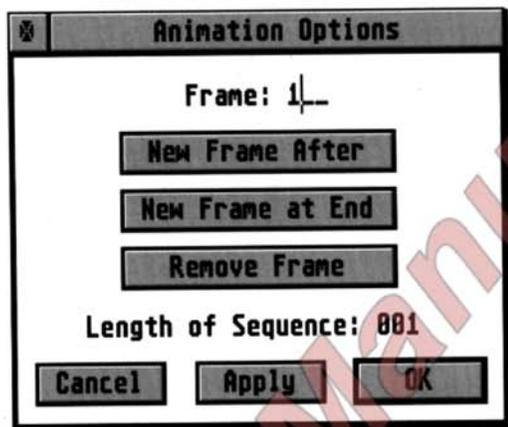
The sequence is built up by adding frames one at a time. When creating a new animation this is normally done by drawing a single frame then using *New Frame at End* to create the next. You can then adjust the picture accordingly without having to redraw the entire image. This process would be repeated for each successive frame. Alternatively, first create as many blank frames as you think will be required and then draw each one individually from scratch.

Extra frames may be inserted anywhere in the sequence with *New Frame After*. If at any stage you wish to reorder or copy frames then you can use the Edit menu's Cut and Paste commands in Full Screen mode.

To move between frames using the keyboard, type a left or right arrow symbol: < or > (this may involve holding down the Shift key, depending upon your keyboard). Right arrow will move forward a frame, left arrow moves back to the previous frame. These controls stop when you reach either end of the animation and so do nothing if there is only a single frame.

Animation Options

All of TruePaint's animation facilities are accessed via the *Animation* menu item on the Options menu. Selecting it produces the following dialog box.



the Animation Options dialog

These options allow you to add, delete and edit individual animation frames. By selecting *Animate* from the View menu you can actually replay the animation, although there must of course be more than one frame in the sequence to do this.

Frame Numbers

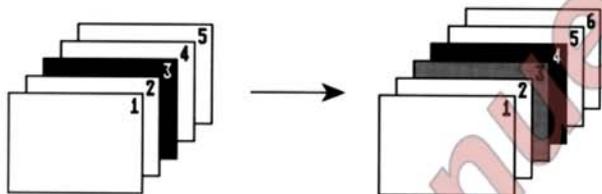
Each animation frame is numbered, with the first frame being frame 1. The total number of frames is shown in the *Length of Sequence* indicator at the bottom of the Animation Options dialog and this is the highest frame number which can be entered. For a still image this will always be one.

You can type in a frame number from the keyboard, using Esc or Backspace to rub out the existing value. This is the frame which will be used for the operations described below. It can also be used jump quickly to any particular point in the animation. Note that the frame number you enter must actually exist.

To simply view the frame, click on Apply. You can use this to check that you entered the right frame number before clicking on OK or closing the dialog to resume editing. Use Cancel to exit leaving the frame number unaltered.

New Frame After

Clicking on this button will insert an extra frame in the animation, after the given frame number, and position you on that frame, ready for editing. The newly created frame will be an exact copy of the existing one. This can be used to create more 'in between' frames in a sequence for smoothness.

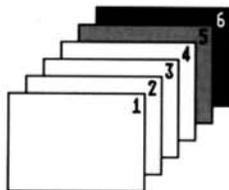


adding a new frame after frame 3

Note that adding a frame into the middle of an animation causes all the frame numbers after this point to increase by one. Length of Sequence should also increase by one. If this does not happen, it means that you have run out of memory.

New Frame at End

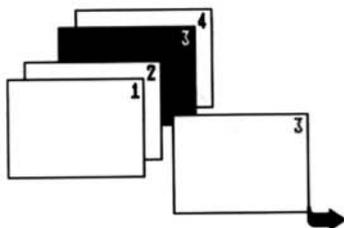
As you might have guessed, *New Frame at End* is similar to *New Frame After* except that it creates a new frame at the end of the animation sequence. It always has exactly the same effect, regardless of the frame number. The new frame will be a copy of the existing final frame. This is often used when initially creating an animation by adding a frame and then modifying it to create successive frames.



adding a new frame to the end of the sequence

Remove Frame

This deletes the given frame number from the sequence altogether, decreasing the length of the sequence by one. As with inserting a frame, this also affects the numbering of any frames after this point. Be careful with this option since removed frames cannot be recovered!



removing frame number 3

To lose all of the frames and start again it is usually quicker to simply close the window and use New, whereas if you wish to clear the current frame, use Delete on the Edit menu instead.

Animate Mode

Selecting Animate from the View menu with an animation sequence present takes you into *Animate mode*. This is where you can replay the animation at speed using the whole screen. Initially, the first frame of the animation will be shown with a bar containing various icons at the bottom of the display.



the Animate icons

To use any of these controls either press their keyboard shortcuts or position the mouse pointer over the icon and click the left mouse button as for a drawing tool. Note that the normal keyboard shortcuts are not available from Animate mode.

If your computer and monitor support overscan, you can obtain a larger display which extends beyond the normal screen borders by switching on the View menu Overscan option before entering Animate mode.



Play

Return

The *Play* button is used to actually run the animation sequence. Each frame will be shown in turn at the specified rate. The animation will be played continuously, returning to the beginning after the last frame unless *Ping-Pong* is selected in which case it will also be played backwards. To stop playback, hit any key on the keyboard.

Delay

+ or -

Delay determines the speed of animation playback by adjusting the amount of time each frame remains on the screen. Clicking on the minus button will speed up playback whilst the plus button slows it down. Note that it is easiest to use the numeric keypad for the keyboard shortcuts.

As mentioned previously, a faster rate of playback can improve the smoothness of the animation but this also requires a greater number of frames and more memory to achieve a sequence of the same duration.

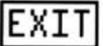


Ping-Pong

P

Animation normally cycles round from the first to the last frame, looping back to the start once finished. When the Ping-Pong icon is highlighted however, the frames will be played first forward and then in reverse order so that the animation appears to 'bounce' back and forward, doubling the effective length of the sequence.

If you design with this feature in mind then you can create longer animations out of fewer frames, although it only works for certain sequences. For example, an eye opening and closing could easily be done with Ping-Pong mode, but it would be less useful for an apple falling from a tree since the apple would then appear to bounce off the ground right back onto the tree!



Exit

Esc

Clicking on the *Exit* icon will return you to the regular TruePaint window display and the Animation Options dialog so that you may continue drawing and editing.

Useful Techniques

To assist you in creating animations of your own, this section describes some useful time-saving techniques to simplify the process plus some ideas that you might want to incorporate in your animations.

Backgrounds

Many animations take place on a relatively static background. TruePaint takes advantage of this to reduce the amount of memory required for each frame. Because of this, it is often easier to initially draw the background as a separate, static image to which foreground and movement can later be added.

Once you have prepared a suitable backdrop see if you can make it more interesting and realistic by adding motion. For example, water is rarely perfectly still and plants stir in the breeze. Changing an area's colour can be used to simulate the effects of light and shade, or as a special effect. Spending time over such background detail will greatly add to the overall quality of your animation.

Creating Interaction

The backdrop need not be just a pretty picture. Where possible, try to create some element of interaction with the foreground so that objects appear move into and out of it, not just across the front of it.

To create the effect of, say, a tiger walking through the jungle, you could build the picture out of several layers. The first layer would consist of the ground, sky and distant trees. The animated tiger would then be pasted onto this background with the final layer of foreground trees pasted over the top of the whole animation so that the animal can only be seen through the foliage.

Perspective and Distance

Adding convincing depth to your animations can be quite a difficult task. You can use the Rays tool to help with perspective drawing as described in the tutorials and good use of colour will also add realism. Distant objects tend to appear more 'washed out' so use muted greys and blues for these rather than bright colours.

To create the effect of something moving into the distance, use *Resize* to shrink it down in successive frames. Always draw the largest size manually to avoid blocky pixel effects when resizing. You might want to sketch out the path that the object follows first to ensure a smooth progression and either note down co-ordinates or selectively erase it later with the *Brush* tool.

Animated Objects

Animated foreground objects are usually best created as completely separate animations which you then *Paste* onto the background. To do this, create a new image of the required size and draw the first frame of the animated object. It is important that you retain the default background colour at this stage.

Remember that in palette-based modes, the colour palette you use for all your animated objects must be exactly the same as that of the background to prevent colour matching problems later on. Of course, *True Colour* mode does not have this problem.

Adding Frames

After drawing each successive frame, select *New Frame at End* and use it to form the basis for the next frame. This ensures that each frame matches correctly and will save you time since only the sections which move need to be redrawn. For animations that repeat it is only necessary to draw one complete cycle although you must make sure that the first frame follows on smoothly from the last.

You may prefer to create all the frames within a single image instead and use *Copy* and *Paste* to start each new frame. Although this makes it easier to compare different frames, it will not be possible to test the animation before pasting it onto the background.

Assembling Your Animation

The advantage to building up each element in this way is that it gives you complete flexibility when assembling the final animation. However, it is important to save each of the component parts to disk before assembly. This allows you to make mistakes without ruining all your work and you can even reuse sections in other animations.

Creating the finished product is a matter of using Copy and Paste to construct each frame. The successive frames of objects should be pasted onto the background animation, changing their positions between frames accordingly. Use the arrow key shortcuts to flip from frame to frame to ensure continuity. Transparent Write Mode along with use of the default background colour will ensure that the pasted objects do not leave solid blocks around them. See the *Cut and Paste* tutorial for details.

The Grid, Co-ordinates and Ruler options also come in handy for placing objects at the required positions. For smooth and even movement, try using Snap to Grid and pasting each frame one grid line further on from the last. Realistic acceleration effects can be achieved by increasing the number of steps moved by the same amount each frame.

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Reference

The *Reference* section covers each of the TruePaint icons, menus and dialogs. It is divided into two parts describing the toolbox and the menus. Dialog boxes are to be found alongside the associated tool or menu item.

The Toolbox

This section describes each of the TruePaint tool icons that appear in the toolbox area at the left side of each window. There are three different toolbox displays which are selected by the three icons at the top of the toolbox, or by pressing 1, 2 or 3. These are *Drawing Tools*, *Palette* and *Patterns*. There is also one other toolbox display that only appears in Zoom mode which is detailed later.



the three toolbox icons

A tool may be selected by moving the mouse pointer over its icon and clicking the left mouse button. The currently selected tool is indicated by a reverse colour icon.



The Drawing Tools

1

There are eighteen different *drawing tools* which appear in the toolbox when the above icon is selected. This is the default toolbox display. A drawing tool may be activated by clicking once on its icon or by pressing the appropriate single key shortcut.



the drawing tools

Many of these tools have an associated *Tool Attributes dialog* containing additional settings, in which case double-clicking the tool icon or pressing its keyboard shortcut with Shift held down will reveal a window. Options menu items such as *Rainbow* and *Shadow* may also be used to alter the actions of various tools.

Note that all drawing is limited to the visible part of the image. Any part of a shape which falls outside this area will not be drawn. The *Selection tool* may be used to further restrict drawing to any rectangular section of the image.

The drawing tools and associated dialogs are described in left to right order as they appear on the screen. Keyboard shortcuts are also shown.



The Pen tool

P

The Pen tool is used for continuous freehand drawing. While the left mouse button is held down over the drawing area, the Pen tool will paint a continuous line in the current pen colour (shown at the bottom of the toolbox) as you move the mouse. Release the mouse button to end the line.

Simply clicking on the image will paint a single dot although the Dots tool is more suitable for drawing a series of unconnected dots. A shadow will also be drawn if selected from the Options menu and Rainbow mode may be used for multicoloured lines. For patterned drawing, use the Brush tool.

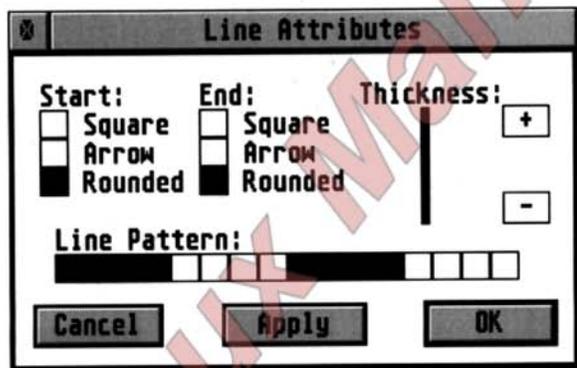
The thickness and shape of the pen is changed via the Line Attributes dialog which appears when you double-click the Pen tool. Note that Arrow lines and Line Patterns are not generally useful for freehand drawing.

The Pen tool may also be used as an eraser by choosing the background colour from the Palette display and a wide line thickness. Drawing on the picture will then appear to 'rub out' the image. This technique also works with the Brush tool and can be used to rapidly create large areas of colour.

Line Attributes

Shift L

The Line Attributes dialog is used to change the style, thickness and pattern of lines or shapes produced with many of the drawing tools and is brought up by double-clicking on an appropriate tool (such as the Pen or Line tool).



the Line Attributes dialog

To accept any changes you have made, either close the Line Attributes window, click on the OK button or press Return. Cancel will close the dialog without changing the settings whilst Apply starts using the new attributes immediately, allowing you to resume drawing without closing the dialog.

For example, to change the line thickness you should:

- Click on the Drawing Tools icon at the top of the toolbox if it not already selected.
- Double-click on the drawing tool you wish to use, the Pen tool for example, to produce the Line Attributes dialog.
- Select the required line thickness by clicking on the '+' and '-' buttons at the right-hand side of the dialog.
- Click OK or press Return to resume drawing.

Note that some of the attributes are more useful when used in conjunction with certain drawing tools.

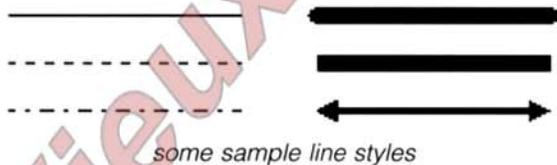
Start and End

There are three line end styles available: *Square*, *Arrow* and *Rounded*. The current style is indicated by a filled box and may be changed by clicking within one of these boxes.

Square line ends give the effect of drawing with a marker pen and are also suited to creating large areas of colour or erasing part of an image using thick lines.

Arrow places an arrowhead at the end of a line which varies in size according to the thickness of the line. This is best used with the Line or Arc tools to add dimensions or captions to a diagram or drawing. Some interesting effects can be produced with arrow lines in Rainbow mode although they do not work well for freehand drawing.

Rounded lines are the best choice for continuous lines and shapes since they join together neatly at corners. Note that there is no difference between Square and Rounded line ends for very thin lines.



Although you would normally use the same style at both line ends, it is possible to select different start and end styles. If you require a line with an arrow at only one end for example, you might select Square for the line start and Arrow for one line end.

Thickness

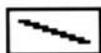
The current line thickness is shown at the right of the Line Attributes dialog. Press the left mouse button over the '+' or '-' buttons to make the line thicker or thinner accordingly. Thick lines are useful for fast drawing or colouring whilst finer lines are for detail.

Line Pattern

This allows you to draw patterned or dotted lines instead of a solid, unbroken line. Note that this attribute only affects lines which are a single pixel thick; wider lines are always solid.

The horizontal bar is a magnified representation of the line pattern, made up of sixteen dots. Clicking at any position along the bar will switch a single dot on or off. Those that are on are normally drawn in the pen colour, dots which are off are either drawn in the background colour or left unchanged from the background depending upon the Write Mode. With all the dots filled in, a solid line will be drawn.

It is possible to create many different line patterns in this way. For example, alternate dots give a fine texture to your lines whilst alternate groups of four on, four off will give a dashed line. Other sequences such as dot-dash may be useful for technical drawings etc.



The Line tool

L

This tool may be used to draw single straight lines in the current pen colour or Rainbow mode if selected. Line thickness, pattern and start or end shape may be adjusted using the Line Attributes dialog which will appear after double-clicking on this tool.

To draw a straight line in the image you should:

- Position the mouse pointer over where you want the line to start.
- Hold down the left mouse button and drag the mouse to where the line should end (a 'rubber band' effect shows you the length of the line).
- Release the mouse button to draw the line on the image.

A shadow line will also be drawn if enabled. For drawing a series of lines, the Connected Lines, Rays or Polygon tools may be more suitable.



The Connected Lines tool

N

The Connected Lines tool draws a series of lines, each following on from the last. It differs from the Line tool in that you press and release the left mouse button for each point rather than dragging. After clicking once to start the first line, each successive mouse click draws a new line starting from where the previous one left off.

To break the line and select a new starting point, simply reselect the Connected Lines tool. Double-clicking this tool reveals the Line Attributes dialog.

You can draw each line segment in a different colour by using the Palette display to change colour before selecting each end point. Connected Lines also work with Rainbow mode and Shadow. To draw an outline of a shape, use the Polygon tool.



The Rays tool

Y

Rays are similar to Connected Lines except that they all start at the same initially selected point. To use this tool you should:

- Click once at the position where you want the lines to start.
- Move the mouse pointer to the end position of a line and click.
- Repeat this process until the desired number of lines are drawn. Dragging the mouse while holding the left button down will draw a series of rays.
- Select the Rays tool again to select a different starting point, or any other toolbox icon as required.

Double-clicking on the Rays tool produces the Line Attributes dialog. See the *Drawing Shapes* tutorial for a description of how to use the Rays tool for perspective drawing.



The Grid tool

G

This tool is used to draw a rectangular or square grid of lines on the picture using the current Line Attributes. It is necessary to select the overall dimensions and grid size as follows:

- Hold down the left mouse button over where the grid is to begin, drag out a box and release the button. This is the total size of the grid.
- Hold the mouse button down again and adjust the grid lines as required by moving the pointer inside the original box. This sets the dimensions of each grid square.
- Release the mouse button to draw the grid.

In Rainbow mode, this can be used to create a rectangular gradient of colour by placing the grid lines so close together that they meet. Interesting effects can also be obtained with grid lines a single pixel apart so that the original image shows through.

Double-clicking the Grid tool will reveal the Grid Overlay Options dialog, also available via Grid on the View menu. This can be used to overlay a temporary grid on the picture which can be switched off again at a later stage. See the menu item for details of using grids as a drawing aid.



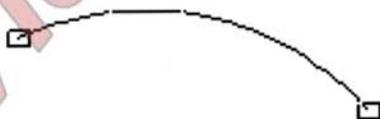
The Arc tool

X

The Arc tool draws curves which form the partial outline of a circle or ellipse. For a more flexible way of drawing different types of curves use the Curve tool; the Segment tool may be used for filled or wedge shaped circular sections.

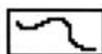
The steps involved in using the Arc tool are:

- Drag out a circle or ellipse of the required size as for the Circle tool.
- Using the two handles which appear, adjust the length of arc drawn by positioning the crosshair inside the box, pressing the mouse button and dragging to the new position.
- You can reposition the arc by pressing the mouse button while the pointer is inside the complete circle's area and dragging it to a new position. Clicking outside this area will cancel the operation.
- Once the desired shape is achieved, double-click to draw the arc.



an arc being drawn

Arcs may also be drawn in Rainbow mode and with a Shadow. If a perfect circle is required then the Free Form menu option should be switched off before drawing.



The Curve tool



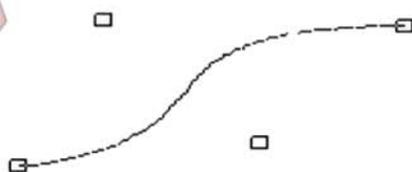
This tool allows you to draw a variety of curves including loop and S-shapes. The curves are Bézier curves, created using four individual points. For curves which form part of a circle or ellipse you can instead use the Arc tool. A detailed discussion of Bézier curves and how to make the best use of them can be found in the *Background* section.

Important: either Speedo or Font GDOS must be installed to use the Curve tool. It will not be selectable and appears greyed if neither system is available. See *Appendix C* for details.

Operation of the Curve tool is very simple and involves:

- Clicking on four points on the image. The first and last of these are the start and end points, the other two are control points, described below.
- Adjusting the points by dragging the corresponding handles around the image. This may be done any number of times to achieve the desired curve.
- Double-clicking over the drawing area to draw the curve. You can click once to cancel.

The shape of a Bézier curve is determined by the positioning of the two control points. Unlike the first and last point selected, the line does not pass through these points. Instead, they distort the shape of the line, pulling it towards them.



drawing a curve with control points

If the control points are on opposite sides of the curve as above, an S-shaped curve will result. With the start and end points closer together and the control points switched over, loop shapes can be created. Remember that you can always piece several curves or arcs together to form more complex shapes (see *Background*).

Curves may be drawn with a shadow although unlike Arcs, they cannot be Rainbow lines. Double-clicking the Curve tool produces the Line Attributes dialog which adjusts line thickness, style and pattern.



The Rectangle tool

R

This tool can be used to draw both filled and outline rectangles and squares. The Polygon tool may be used for drawing more complex or rotated shapes.

Drawing a rectangle is similar to using the Circle tool; press the left mouse button over where you want the rectangle to start then drag the pointer to the opposite corner. Releasing the button will then draw the shape. The Free Form option should be off to draw exact squares.

Rectangles are drawn using the pen colour and fill pattern with an outline in the current line settings, which may be changed via the Line Attributes dialog produced by double-clicking the tool icon. Rounded line ends are the most suitable for drawing rectangles.

For solid boxes, ensure that Filled Shapes on the Options menu is selected, otherwise only an outline will be drawn. In Rainbow mode, filled rectangles are drawn as a series of concentric boxes, each in a different colour, according to the settings in the Colour dialog. The Rounded Boxes option will change the appearance of each corner of the rectangle, giving a speech bubble effect.



The Circle tool

C

The Circle tool draws either circles or ellipses using the current Line Attributes, fill pattern and pen colour. To draw a partial circle or wedge-shaped section, use the Arc or Segment tools. To draw a circle:

- Select the Circle tool by clicking on its icon in the toolbox.
- If you want a perfect circle rather than an ellipse, check that Free Form in the Options menu is off. For a filled circle, use Filled Shapes on the Options menu.
- Position the mouse pointer over where you want the centre of your circle to be.

- Hold the left mouse button down, drag the mouse to create a shape of the required proportions and release the mouse button to draw it.

If Rainbow mode is enabled then either a coloured outline or a series of concentric circles or ellipses will be drawn. For a different type of rainbow circle, try using the Segment tool.

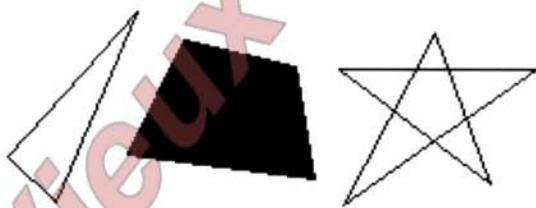


The Polygon tool



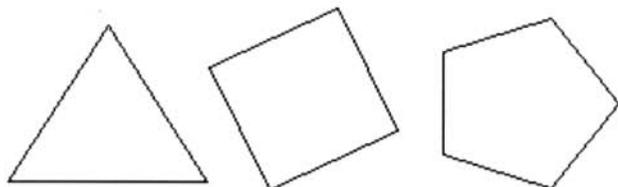
Although by default the Polygon tool draws triangles, hence its icon, it can be configured to draw squares, hexagons or even stars, all at any angle or size (a polygon is simply a multi-sided shape). Polygons are drawn using the current Line Attributes which may be accessed by double-clicking on another drawing tool such as the Pen tool. For solid or patterned polygons, enable the Filled Shapes menu option.

There are two basic methods of drawing polygons depending upon whether *Regular* is selected in the Polygon Attributes dialog which appears when you double-click the tool icon.



non-regular polygons

By default, polygon drawing is similar to using the Connected Lines tool except that, once the required number of points have been selected by clicking the mouse on the image, the entire shape is drawn with the last point automatically connected to the first. Note that you do not need to drag the mouse with the button down, simply click at each point in turn.



regular polygons

Regular polygons are symmetrical shapes such as equilateral triangles, squares, pentagons etc. These may also be rotated to any angle, allowing tilted squares and rectangles to be drawn. The technique is similar to using the Arc tool:

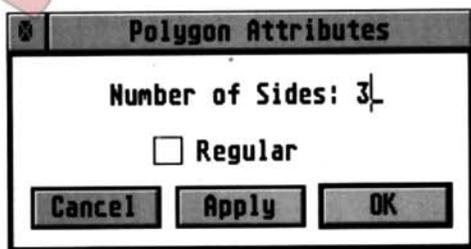
- Position the mouse at the centre of the shape.
- Holding down the left mouse button, drag the pointer to determine the dimensions of the shape. With the Free Form menu option on, shapes may be horizontally or vertically stretched.
- Using any of the handles that appear at each corner, rotate the shape as required. Note that the overall dimensions do not change, only the position of each side.
- Reposition the shape if necessary by pressing the mouse button with the pointer inside the shape and dragging it around the screen.

The last two steps may be repeated as necessary until the desired shape is obtained. Double-click over the drawing area to draw the shape or click once to cancel. Note that Rainbow and Free Form only affect regular polygons.

Polygon Attributes

Shift O

Double-clicking the Polygon tool icon will reveal the Polygon Attributes dialog which determines the type of shape drawn by the Polygon tool.



the Polygon Attributes dialog

After changing the required attributes you can press Return, click on OK or close the dialog box to accept the changes. Alternatively, click on Cancel to continue with the old settings or press Apply to resume drawing with the new attributes without closing the dialog.

Number of Sides

This controls how many sides the polygon has, which is also the number of points you have to select when drawing regular polygons. It may be changed by deleting the existing number with Backspace and typing the desired number of sides from the keyboard.

Regular

To draw polygons where the shape and length of each side is uniform, select the Regular box. These are drawn by dragging out the shape and then rotating it. Otherwise, each point is selected in turn with the final point joined automatically to the start to complete the shape. See the Polygon tool for details.

Non-regular polygons are much more flexible as they can be used to draw or fill irregular and unusual shapes which could not be created as regular polygons.



The Fill tool

F

Depicted as a bucket of paint, the Fill tool floods an existing area of colour with the current pen and pattern. Simply click the left mouse button with the pointer positioned over the area to be filled. Note that the Polygon, Circle and Rectangle tools will also draw solid shapes with the Filled Shapes menu option selected.

Some care must be taken to ensure that colour does not leak outside the intended area. This happens if there is as little as a one pixel gap or join at the boundary. To avoid this you can use Zoom mode or the Hot Spot to locate and change such pixels manually. If you find yourself watching your wonderful picture filling up with green paint because a fill has leaked, don't panic! You can always use the Undo function and try again.

Fill works best on drawn or palette-based images since it only affects pixels of exactly the same colour. With photographic type images you may find that only part of an area is filled, especially in True Colour mode. This happens when there are subtly different shades present which, although they look the same to you, the computer considers to be a different colour.

For another way of changing part of an image to a different colour, see the Brush tool.



The Segment tool

E

The Segment tool works very much like the Arc tool but instead of drawing only curves, it draws wedge shaped sections of ellipses and circles and can be used for drawing semicircles, pie charts etc.



shapes drawn with the Segment tool

For a visually accurate circle, switch Free Form off. With Filled Shapes selected, the segments are filled. For further details, please refer to the Arc tool.

You may want to use this tool for Rainbow mode shapes since it produces a different rainbow effect from the Circle tool.



The Dots tool

D

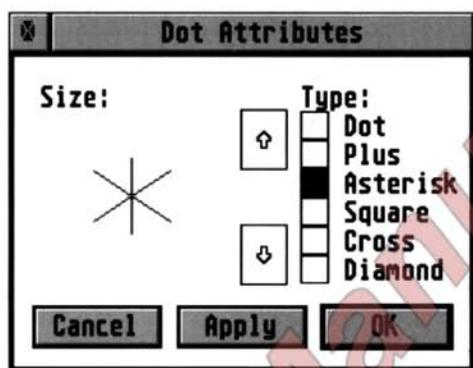
This tool may be used for freehand drawing in a similar way to the Pen tool except that it draws individual points rather than a continuous line. Press the mouse button over the image once for a single dot or hold it down and drag to draw a trail of dots. Moving quickly will give widely spaced dots.



the six available dot types

In addition to drawing single pixel points, the Dots tool can be used to draw a variety of shapes for producing special effects or textures. To select the type and size of dot, double-click on the Dots tool icon to reveal the Dot Attributes dialog.

The Dot Attributes dialog gives you access to the different dots and sizes used by the Dots tool and is produced by double-clicking on this tool.



the Dot Attributes dialog

To accept any changes you make, either click on OK, close the dialog or press the Return key. Cancel will restore the settings prior to calling up the dialog and Apply will use the new attributes for drawing without closing the dialog.

Size

There are eight different sizes available for each type except Dot which may only be a single pixel in size. Press the mouse button over the up arrow to increase the dot size or the down arrow to decrease it (note that you should hold the left mouse button down rather than just clicking it). The size display lets you preview the dot as you vary the controls.

Type

To select any of the six dot types, click in the box next to its name. The size display will show you the actual dot shape. The currently selected dot type is indicated by the filled box.



The Airbrush tool

A

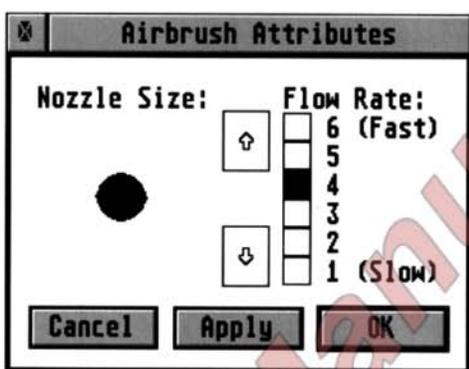
The Airbrush tool is used to give a spray effect similar to that produced by an artist's airbrush. Pixels of the selected colour are scattered randomly over the area around the pointer when you draw. The size of this area and the rate at which colour is sprayed are adjustable via the Airbrush Attributes dialog, available by double-clicking. For example:

- Select the Airbrush tool by clicking on its icon.
- Choose the colour to spray onto the picture using the Palette display.
- Position the mouse pointer over the drawing area where you want to apply some colour.
- Holding down the left mouse button, move the mouse across the area that you wish to colour. Note that the Airbrush tool only adds more colour as you move the mouse around; just holding down the mouse button will only spray momentarily.

This tool is very useful for shading pictures or blending one area of colour into another since it creates a mixture of colours rather than uniform areas. In Rainbow mode, the entire range of rainbow colours will be used.

In True Colour modes, similar effects can be achieved using the Brush tool, with the added advantage that it uses many different colours to produce its smoothing and tint effects, giving a more realistic result.

Double-clicking on the Airbrush icon will reveal the Airbrush Attributes dialog. This is used to adjust the size of area covered by the Airbrush spray and the speed at which colour is sprayed.



the Airbrush Attributes dialog

Click OK, close the dialog or press Return to accept any changes you make or Cancel to leave all attributes as they were. Apply will use the new settings for drawing without closing the dialog.

Nozzle Size

This is the region around the mouse pointer over which the airbrush effect will be added. The Airbrush tool will only spray pixels within this area. Small nozzle sizes are ideal for detailed work, larger sizes are better for creating texture.

To adjust the nozzle size, press the left mouse button while the mouse is over one of the arrows. Up increases the size, down decreases it. The nozzle display to the left of the arrows will vary as you use the controls.

Flow Rate

The flow rate affects the density of the airbrush, changing the amount of colour sprayed on the image each time you move the mouse. Density is also affected by the speed at which you move the mouse, moving faster produces a lighter spray.

There are six flow rates available. For a dense colour, select a higher number for a fast flow rate. For a more sparse airbrush effect, use the slower rates. Note that high flow rates are less suited to use with small nozzle sizes.



To add text to your images, select this tool. Combined with the options in the Text Attributes dialog (produced by double-clicking) it is capable of drawing many different fonts and styles including Speedo or Font GDOS fonts. However, its basic operation is very simple:

- Select the Text tool icon from the toolbox.
- Move the mouse pointer into the drawing area.
- Start typing! The text will appear under the mouse pointer as you type and you can use Backspace to rub out any mistakes.
- To reposition the text, move the mouse around whilst holding the left button down. You can change the position and colour of text or continue typing any number of times before actually writing it on the image.
- Once you are happy with the results, press Return or double-click to draw the text on the image in the current pen colour and Write Mode.

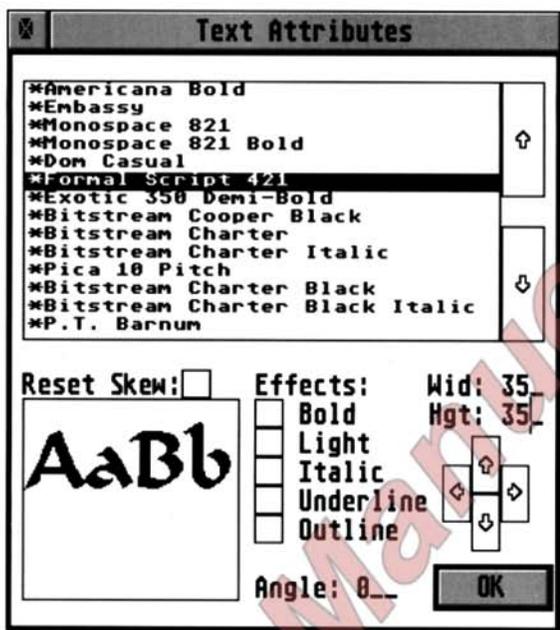
For further details of how to add text to your pictures and make use of the various Write Modes, please refer to the *Adding Text* tutorial.

Note: none of the TruePaint keyboard shortcuts are available while the Text tool is active.

Text Attributes

Shift T

This dialog lets you set the font size, style and direction used by the Text tool. See the discussion of fonts in the *Background* section for further information.



the Text Attributes dialog

To accept any changes simply click on OK. The Text tool will then proceed to use the new text attributes. Pressing Return or closing the dialog have the same effect.

Important: many of these features are only available if you are running Speedo or Font GDOS. Please refer to *Appendix C* for details.

Font

All of the available fonts are displayed in a list at the top of the Text Attributes dialog. Outline fonts (i.e. Speedo or Font GDOS fonts that can be scaled to any size) are marked with an asterisk. If there are more fonts in your system than fit in the window you can click on the arrows on the right to scroll through them.

A font is selected by simply clicking on its name. The current font is indicated in the list by a highlighted bar. A sample of its appearance in the current size and style is shown at the bottom left of the dialog.

Width and Height

Text size is varied by changing the width and height of the font which can be done in two ways. Firstly, you can click on the *Wid* or *Hgt* indicator in the Text Attributes dialog and type the required size from the keyboard, using Backspace or Esc to rub out. Pressing Return will update the display. This is useful for quickly changing the font size by a large amount.

Alternatively you can click on the four arrow buttons using the mouse. The up and down arrows increase and decrease the font height whereas left and right adjust the width. The sample text display automatically displays the new sizes as you use these controls. Simply hold the left mouse button down until it shows the correct size.

In most cases it is best to use the same font width and height so that text does not appear distorted. Note that for fonts not marked with an asterisk, only the height may be adjusted. The width is set automatically so that the font appears in the correct dimensions.

Effects

The effects change the appearance of a font and can be applied either singly or in combination. To switch an effect on or off, click on the labelled box.

Bold makes text darker by thickening all the lines in the font and may also make the text wider. If you already have a bold version of the font, use that instead.

Light draws the text using a pattern of dots instead of a solid colour. This gives a 'ghosted' effect similar to unavailable menu items. For more complex textured effects, see the *Tutorials* section.

Italic has the effect of slanting all the letters in the font. Although this simulates italics, it does not give as good results as a true italic font. You can also use the skew facility for greater control over the slant angle.

Underline simply places a line below the text at the correct position whereas *Outline* draws each letter as an unfilled outline, also making the text slightly wider. This effect is often particularly effective in conjunction with *Bold*.

Skew

With an outline font it is possible to *skew* or slant each letter to give forward or backward italics, although it is often better to use a real italic font or the Italic effect. Note that this is different to the text angle which draws text on a gradient.

To change the skew angle, position the mouse pointer over the sample text display and hold down the left button. The text will be skewed to the left or right depending upon which half of the box you click in.

To reset the skew angle, click in the *Reset Skew* box above the sample text display.

Angle

One of TruePaint's most useful text drawing features is the ability to rotate fonts to any angle. To change the slope upon which text is drawn, click on Angle and use Backspace and the number keys to type in an angle between 0 and 360 degrees.

The angle is normally 0 for left to right text on a straight line. An angle of 90 will give sideways text reading from bottom to top, 180 is completely reversed etc. To change the slant of the actual letters themselves you should use skew.

Note: although any angle may be used for outline fonts, only multiples of 90 degrees are available for bitmap fonts.



The Pick Colour tool

As an alternative to using the Palette display or Colour Options you can simply pick a colour from the image itself with the Pick Colour tool. This is ideal for ensuring an exact colour match with part of an existing picture. To do this:

- Select the Pick Colour tool by clicking on its icon in the toolbox.
- Move the mouse pointer over the image and press the left mouse button to choose a colour.
- With the mouse button still down you can move the pointer around until the Pen Colour indicator shows the desired colour.

If either Rainbow 1 or Rainbow 2 is selected in the Colour Options dialog then the Pick Colour tool will also change this colour, which is very useful when selecting colour ranges for the Brush tool.



The Brush tool

B

The Brush tool provides a variety of colouring and blending effects. These work best in True Colour mode, making use of the wide range of colours and shades available, although most of the Brush effects work in palette modes too. Note that the Airbrush tool may also be used for shading.

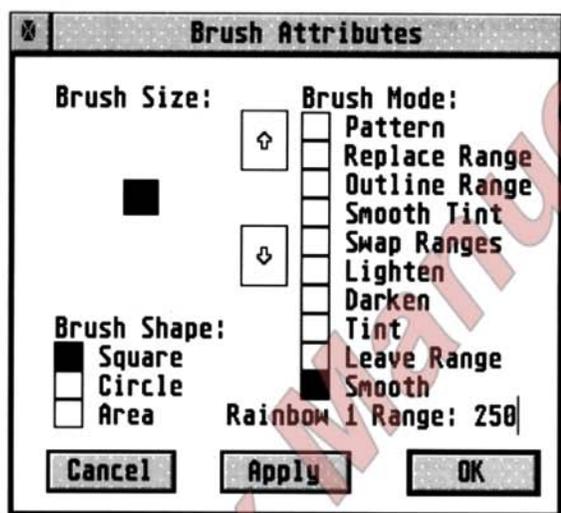
The precise action of the Brush tool depends upon the current Brush Attributes settings which are available by double-clicking. However, the basic technique is normally the same:

- Select the Brush tool icon. You may double-click to adjust the Brush Attributes if required.
- Move the mouse pointer over the drawing area. A box representing the size of the brush will appear.
- Hold down the left mouse button and move the mouse to apply the chosen brush effect to the boxed area (just like using the Airbrush tool) or click once to apply the effect a single time.

If the Area brush mode is selected then you should instead drag out a rectangle. See the *Brush Effects* tutorial for further details.

The default brush effect in True Colour mode is to smooth the area under the brush. In palette modes it draws the current fill pattern. You may wish to use this instead of the Pen tool for erasing, either with the background colour or a blank pattern.

Double-clicking on the Brush tool icon in the toolbox will bring up the Brush Attributes dialog used to select the size, shape and effect of the Brush tool.



the True Colour Brush Attributes dialog

After making any changes, OK, Return or closing the dialog will resume drawing. Cancel will ignore the changes whilst Apply uses the new settings without closing the dialog box.

Brush Size

This determines the size of square and circular brushes. A small brush size is useful for detailed work whereas a larger brush is faster for large areas of colour. To adjust the size, click on the up or down arrows. The actual brush size is shown in the dialog.

Brush Shape

You may choose a different brush shape by clicking in one of the *Brush Shape* boxes. *Square* and *Circle* simply vary the brush shape that appears beneath the mouse when drawing. *Area* differs from this in that it allows you to drag out a rectangle over which the effect is applied.

A circular brush is especially suitable for tinting and smoothing effects since rounded edges tend to look more natural.

Brush Mode

The various brush modes are what gives the Brush tool its flexibility. To fully understand each mode it is a good idea to use TruePaint to experiment. However, they do fall into several basic categories.

Pattern is by far the simplest mode. The brush is used to draw the current fill pattern onto the image in the pen colour. You can use this to 'colour in' or erase part of the picture.

Smooth is also fairly straightforward. It smooths the area under the brush to give a smudged or blurred appearance. This is ideal for softening boundaries between different colours for shading etc. *Smooth* is only available in True Colour mode but *Smear* may be used instead for palette modes to give a similar effect.

Tint Modes

Lighten, *Darken* and *Tint* all affect the colour of the image. *Tint* adds the current pen colour to the area under the brush and is only available in True Colour mode. It gives the effect of a translucent colour wash or a more realistic airbrush. The more tint applied, the closer to the pen colour the area becomes. *Tint* can be used to great effect with photographic type images to alter colours and is best suited to a circular brush shape.

Lighten and *Darken* are similar except that they tint towards white and black respectively. They are often used to add highlights or shading to a picture. In palette-based modes they change each colour to the next or previous colour in the palette, only generally useful for ordered or grey scale palettes. *Smooth Tint* is a combination of both *Tint* and *Smooth* giving a sort of water-colour wash effect.

Colour Change Modes

The remainder of the brush modes change an area from one colour to another. They all work on a *range* of colours based around the *Rainbow 1* colour selected in Colour Options. The *Rainbow 1 Range* determines what other colours are affected, i.e. how similar to *Rainbow 1* a colour has to be before it is included in the range altered by the Brush.

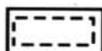
Replace Range changes all colours in the range to the pen colour. To change all shades of blue to green for example, you would select blue as the *Rainbow 1* colour (using Colour Options or the Pick Colour tool) and green as the pen colour, then use the Brush tool over the relevant parts of the image.

Leave Range does the exact opposite, only changing colours *not* in the range to the pen colour. This can be used to selectively erase only those parts of an image which are a certain colour. *Outline Range* draws a single pixel border around colours in the range, ideal for outlining text or drawings.

Finally, *Swap Ranges* converts everything in the Rainbow 1 range to the current pen colour *and* changes colours in the range of the pen colour to Rainbow 1, thus swapping the colours. Always use this mode with an Area brush.

Rainbow 1 Range

Along with the Rainbow 1 colour, this determines the colours affected by the above brush modes in True Colour. A range of 1 will include only the Rainbow 1 colour itself. Higher numbers will extend the range to cover the colours close to Rainbow 1. Simply click the mouse over the colour range and use Backspace and the number keys to enter a new range.



The Selection tool

S

The Selection tool has two functions: specifying an area for Edit or Effects menu operations (Copy, Delete, Resize etc.) and to restrict drawing to a rectangular section of the image. You can select an area as follows:

- Choose the Selection tool from the Drawing Tools display.
- Move the pointer over the image, hold down the left mouse button and drag out a rectangle (just like the Rectangle tool).
- You can click inside the rectangle and drag it to a new position or use the handles at each corner to adjust its size any number of times so that it exactly covers the area you want to select.

The drawing tools and many of the menu commands (some of which are only available when an area is selected) will proceed to use this area rather than the entire screen. Note that only the visible part of the selection is actually used.

To deselect an area, simply click outside it with the Selection tool active. A quick way of selecting the part of the image you can see is to use Select Visible on the Edit menu. To select a larger area you must use Full Screen mode.



The Pen Colour indicator

The Pen Colour indicator is the box below the drawing tool icons which shows the currently selected pen colour used for drawing lines, shapes etc. Double-clicking on it will reveal the Colour Options dialog also available from the Options menu.

To change the pen colour you can use the Palette display, Colour Options or the Pick Colour tool. Note that if Rainbow mode is on, many tools will use the selected Rainbow colours rather than the pen colour.

Le Vieux Manuel



The Palette Display

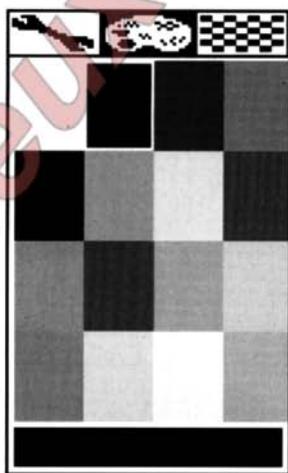
2

The centre icon at the top of the TruePaint toolbox is the *Palette icon*. Selecting it or pressing 2 will switch the toolbox to a palette display which allows you to choose the pen colour. Other ways to select a new pen colour are the Colour Options dialog and the Pick Colour tool. Note that you may continue drawing from the Palette display with the current tool if you wish.

There are two different palette displays depending upon whether you are using a palette-based mode or a True Colour mode. See the *Background* section on colour for an explanation of the difference.

Palette Mode

In palette-based video modes, the Palette display is divided up into coloured rectangles, each representing a different palette colour.



a 16 colour Palette display

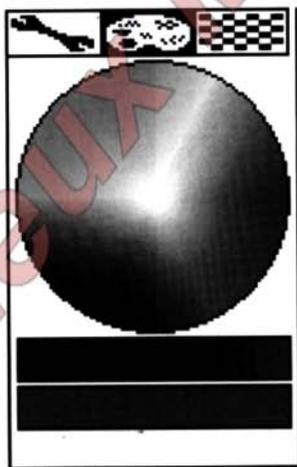
Selecting a new pen colour is simply a matter of clicking on one of these boxes in the toolbox. The current pen colour is indicated by the outlined box.

If you want to draw in a colour other than those shown, you will need to change the palette using the Colour Options dialog, available from the Options menu. Double-clicking on a palette colour will also bring up this dialog to let you adjust the colour. Remember that changing the palette also affects the colours in your picture. See the *Colour* tutorial for details.

Note that some palette colours may be identical to others, in which case you will be unable to differentiate between them on the image. However, since they are still separate palette colours, their actual on-screen colours can still be changed individually.

True Colour Mode

In True Colour mode, you have a much wider choice of colours since the display is not limited to showing only certain colours from a fixed palette. The True Colour Palette display consists of a colour wheel and shade bar, described in the *Background and Tutorials* sections.



the True Colour Palette display

Around the edge of the wheel are the pure colours of the spectrum which become progressively paler as you move towards the centre. The shade bar immediately below the colour wheel allows you to darken these colours. The actual pen colour is shown at the bottom of the toolbox.

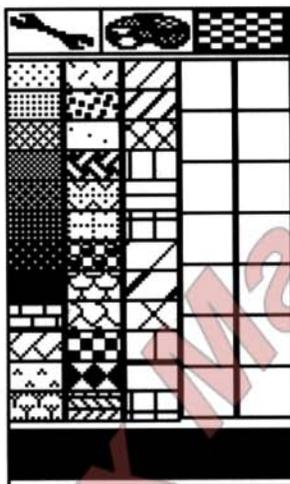
To select a colour you click on the colour wheel and shade bar. As with the Pick Colour tool, you can drag the mouse around with the button held down until you locate the desired colour. Selecting a colour is usually a two stage operation, first choosing a base colour and then selecting a shade.

For more precise control you can double-click on the pen colour to bring up the Colour Options dialog box.

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The *Pattern icon* gives you access to the third toolbox display which allows you to select a pattern for filled shapes and the Fill tool.



the Pattern display

There are 36 fixed pre-defined patterns plus another 14 that you can create yourself using the *Define Fill Pattern* dialog (accessed by double-clicking on one of the patterns or the Fill tool).

Choosing a pattern is very simple, you just click on the one you want to use. The solid colour fill pattern should be chosen if no pattern is wanted. The selected pattern is shown in colour at the bottom of the toolbox. Note that shape outlines are always drawn in the pen colour.

Pre-defined Patterns

The pre-defined fill patterns are always drawn in the current pen colour and cannot be changed. With the default Write Mode, the background colour will be the first palette colour, or white in True Colour mode.

User Fill Patterns

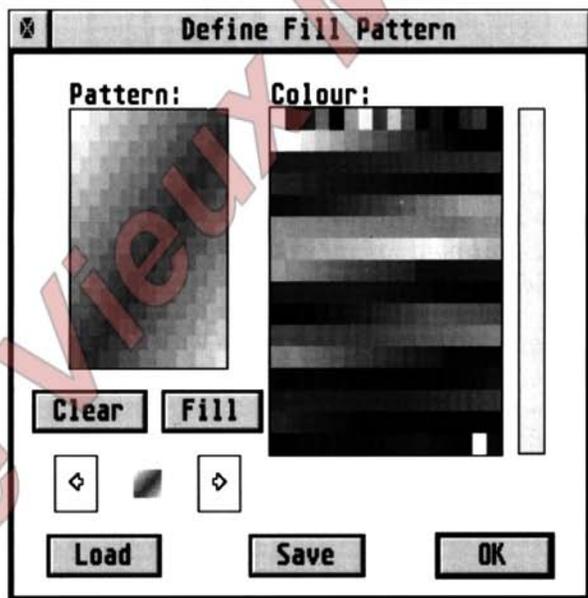
Each user fill pattern can either be *multicolour* or *single colour*. Unlike the pre-defined patterns, multicolour patterns may contain any combination of colours. They always appear in the same colours, regardless of the current pen colour and are shown in the toolbox in full colour.

Single colour patterns are those which only use the first two palette colours, or black and white in True Colour mode. Although this is how they appear in the Pattern display, they can be drawn in any colour by simply changing the pen colour (like pre-defined patterns).

Define Fill Pattern

Shift F

This dialog is used to modify the user fill patterns. It is accessed by double-clicking on either the Pattern display or the Fill tool.



the Define Fill Pattern dialog

Click on the OK button or close the window to resume drawing.

Pattern

The pattern being edited is displayed both magnified and at normal size. Clicking on the magnified pattern will add pixels of the selected colour. Hold the mouse button down if you wish to draw a series of dots. You can use the arrow buttons to select different user fill patterns as required.

Clear and Fill

Both of these buttons erase the existing pattern, filling it with a single colour. *Clear* uses the background colour whilst *Fill* uses the selected colour.

Colour

To choose which colour is added to the pattern when you draw, use the palette or colour wheel in the normal way. The vertical bar at the right of the dialog shows the currently selected colour.

When creating single colour patterns, only use the first two palette colours or pure black and white in True Colour mode. Using colours other than these will cause them to be multicolour patterns, always drawn in the same colours rather than the pen colour.

Load and Save

Individual patterns can be stored on disk using the Save button and retrieved using Load. You can use this facility as a way of copying one fill pattern to another. To save all of the patterns at once, you may use the Save Setup option.

Clicking on either of these buttons produces a file selector (described in *Getting Started*) for you to specify the name and location of the pattern file. It is recommended that you save patterns in a separate folder with the default extension of *.PAT*.

The Menus

TruePaint has a number of menus each containing a number of related actions, options or dialog boxes. To select a menu item, move the pointer over the appropriate menu title, down over the required item and press the left mouse button once. Some menu items are only available under certain circumstances as described. For a more detailed discussion on the use of menus, please refer to the *Getting Started* section.

The various menus and menu items are described in the order they appear within the program. Keyboard shortcuts are listed alongside each option where applicable.

The TruePaint Menu

The TruePaint or TP menu is commonly known as the Desk menu because it contains any resident Desk Accessory programs. Only the first item on this menu is actually part of TruePaint itself, all others are either Desk Accessories or part of the Desktop.

If your computer is running MultiTOS then you can also use this menu to switch between applications. The menu title confirms that you are currently within TruePaint.

About TruePaint

Help

This option brings up a window giving you information on your version of TruePaint. Simply click on the close box to remove the window.

It is important that you quote the exact version number from this window when contacting HiSoft so that we know which version of TruePaint you are running.

The File Menu

The File menu contains options related to windows and storing picture files on disk. An explanation of how to load and save pictures along with details of the file requester and window controls can be found in *Getting Started*.



the File menu

New

Control N

This menu item creates a blank, untitled image window, ready for drawing into. You can create as many new images as you like, limited only by available memory, up to the maximum allowed by the operating system. Selecting New brings up the *New Image dialog* box which allows you to choose the exact dimensions of the image.



the New Image dialog

For a full screen sized image, just click on the Screen button or OK to use the sizes shown. You can enter an exact pixel width and height from the keyboard, using Backspace or Esc to rub out the existing sizes after clicking on each dimension.

Selecting Cancel or closing the dialog will abandon the operation. To close an image window after it has been opened, simply click on its close box or select Close from the menu. Note that you cannot change the size of an image after it is created, instead you must copy and paste it into another image of the required size.

Open

Control O

The Open command is used to load existing pictures and animations from disk. A new window is automatically created for each opened file. You can even load the same file into several different windows at once if you wish. To reopen the current file, losing any changes you have made, use Revert.

Selecting Open produces a file selector for you to choose a file to load (see *Getting Started* for details). The selected file must be of an image file format that TruePaint recognises (see *Appendix B*). If it is unable to determine the format of the file, TruePaint will ask you to choose the correct format as it does for Open As. This is not usually necessary for files saved with the appropriate three letter extension. You may also be asked to swap disks so that TruePaint can load one of its External File Managers.

A progress bar will appear, showing you how much of the file remains to be read. If there is a problem loading the file, the error will be reported and you can click on OK to continue. This can happen when there is insufficient memory to open the image, in which case try closing down some windows first.

Note that TruePaint will attempt to adjust the image or palette to suit the current screen mode. This can cause some loss of quality which is why it is always a good idea to keep pictures from different video modes separate. You can change video mode using the Desktop. TruePaint may also exchange the second colour in the palette with another to ensure that the screen display is readable. Although any picture can be loaded in True Colour, palette modes must have a sufficient number of colours to be able load the picture.

Open As

Open As is very similar to Open except that it allows you to choose which EFM is to be used when loading the picture. Although it is generally more convenient to use Open for loading images or animations, Open As can be useful in a number of situations:

- If you already know the format of a file, Open As can be faster, especially if an EFM which is not currently loaded is required, since this saves TruePaint from having to search through all of the available EFMs to find the correct one.
- TruePaint is unable to recognise certain file formats when non-standard file name extensions are used (as is sometimes the case with Targa files). Again, Open As is significantly faster than Open in these cases.
- Some files (notably IFF files) may contain more than simply a picture. To load an image which forms part of a more complex document you can use Open As.

Upon choosing Open As from the menu, a dialog box similar to the Save As Options will appear. You can either double-click on the required file format or click once and press OK to proceed. Using the file selector you should then select the file to be opened in the normal way. Selecting Cancel at any stage will abandon.

Close

Control W

Close has exactly the same effect as closing the current image window with the mouse. If you have changed the picture in any way since it was opened or created, TruePaint will ask you if you wish to save the updated version to disk before closing the window, otherwise it will just close the window immediately.

Warning: you cannot get back a picture that has been changed and then closed without saving!

The Save option allows you to store the current image or animation on disk. Selecting it will do one of two things. For untitled windows, Save automatically does a Save As so that you can select a name and file format for the picture. Otherwise it will save the picture to disk over the existing version. If you do not wish to do this, or want to save the image in a different file format, use Save As instead.

For a complete description of how to save your work to disk, please refer to the *Getting Started* section.

Save As

Save As allows you to save a picture or animation to disk with a choice of file formats and name. This would normally be used to save different versions of a picture, or perhaps an individual frame out of an animation. Selecting Save on an untitled image has the same effect. First of all, a dialog box similar to the File Format Options appears, showing all of the available file formats.



the Save As Options dialog

Either double-click on the required format or select it and press OK or Return to continue. The arrow buttons move through the list of file formats, those marked with a tick are currently resident in memory (see the File Formats menu option for details). Closing the dialog or selecting Cancel will abandon the save. You might want to use the TPI and TPA formats for speed, or if there is insufficient memory to load an EFM, since these are built-in.

Not every format is capable of representing any picture and most of them only save single images rather than animations. It is up to you to choose an appropriate file format, TruePaint will tell you if it is unsuitable for the picture. Details of the various formats can be found in *Appendix B*.

After choosing a format, a file selector will appear for you to give the file a name and choose where it is to be saved. Leaving the file extension (i.e. the three letters after the dot) blank will ensure that TruePaint substitutes the correct extension. Adding your own may affect TruePaint's loading of the file. A progress bar will appear during saving, indicating how the save is progressing. See the Save option and *Saving Your Work* in *Getting Started* for further details.

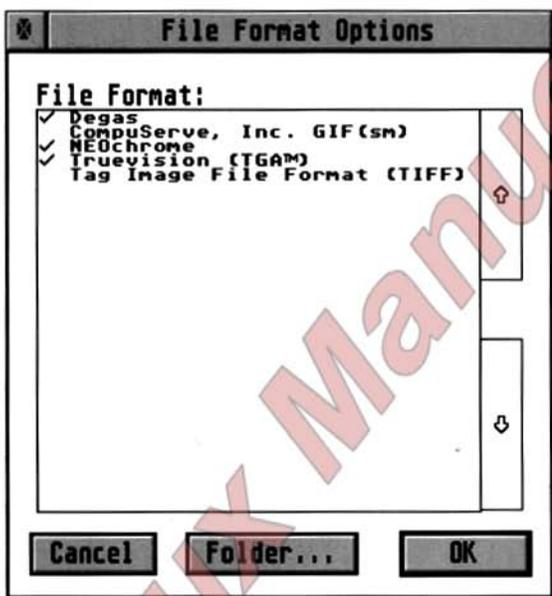
Revert

This allows you return to the last version of an image which was saved. After asking you for confirmation, Revert reloads the picture in the current window from disk, losing any modifications made since the file was last loaded or saved. Note that you could Open the same picture in a different window instead, although this can be confusing. You cannot Revert an untitled picture which has never been saved.

Revert can be used as a sort of mass undo. If you save your work regularly or at various important stages (a wise idea anyway) and later decide you have made a mistake, you can use Revert to go back to the previous version instead of scrapping the whole thing and starting again. You can also Undo a Revert to restore the changes or compare two versions of a picture.

File Formats

Selecting this menu item brings up the *File Format Options dialog* which allows you to control which *External File Managers (EFMs)* are kept in memory for fast access.



the File Format Options dialog

An EFM is a special program loaded from disk which understands how to load and save a particular file format. They are normally located in the *EFMS* folder of your TruePaint disk and are loaded automatically as required. Although this saves memory, it can be slow since every time it loads or saves an image, TruePaint must first load the relevant file manager.

Using the File Format Options you can select those formats you use most often to be permanently loaded for speed. Save Setup will remember these so that they are loaded automatically when you start TruePaint. However, it is not usually a good idea to have all of the EFMs loaded since each one takes up memory; others will still be loaded from disk as before.

Note: cut-down versions of the TPI and TPA file managers are built into TruePaint to ensure that you can always save your work if you run out of memory. Their disk loaded equivalents are only required for loading pictures created in a different screen mode.

Formats

You can choose whether an EFM remains in memory by simply clicking on it in the file format list. A tick appears beside those that are loaded. Closing the dialog, clicking on OK or pressing Return will either read the extra EFMs from disk or unload those which you have deselected. You can use this to reclaim memory if necessary.

The arrow buttons scroll through the list of available file formats and clicking on Cancel will ignore any changes and close the dialog.

Folder

Although file managers are normally loaded from the *EFMS* folder on your TruePaint disk, you can change this by clicking on the Folder button. This produces a file selector which allows you to select a new folder. Clicking on OK scans the selected folder for EFMs and updates the list of file formats, Cancel will leave everything as it was. Note that all of the EFMs must be within the same folder.

Quit

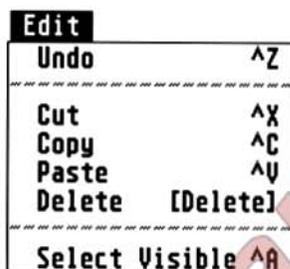
Control Q

Select Quit to leave TruePaint and return to the Desktop. This will automatically close all of the windows, asking if you want to save those pictures which have been changed first before quitting. If you are using a multitasking operating system then you can switch to the Desktop or any other program without quitting TruePaint via the Desk menu. To close only a single window, use Close.

Warning: any changes you have made to pictures will be lost when you quit TruePaint unless you save them!

The Edit Menu

Edit menu options work with whole sections of the image and the clipboard. Several of these only become available once an area has been selected, using the Selection tool for example.



the Edit menu

The clipboard is the place where an area that has been 'cut' from an image is kept, ready for 'pasting' (see the *Cut and Paste* tutorial for details). There is only one clipboard and it can be used to transfer graphics between windows. The contents of the clipboard are lost when you quit TruePaint.

Undo

Undo or Control Z

This option will literally un-do changes made to the picture, allowing you to correct a mistake or accidental modification. It remembers everything that was changed *since you last moved off the drawing area*, so Undo may remove one or more changes at once.

Selecting Undo a second time will restore the picture. You can use this to switch between the modified and unmodified versions for comparison. Pressing the Undo key has exactly the same effect as selecting this menu item.

Cut

Control X

Cut removes the selected area from the picture and places it in the clipboard. The selection is cleared to the background colour and the previous contents of the clipboard are lost. This can be used to move part of an image from one place to another since the cut section may subsequently be pasted elsewhere.

This is exactly the same as using Copy followed by Delete. Part of the image must have been selected with the Selection tool or Select Visible menu item in order to use this option.

Copy

Control C

This simply copies the selection into the clipboard ready for pasting. The previous contents of the clipboard are lost although, unlike Cut, the image itself is left unchanged, so this can be used to duplicate part of an image. Copy is only available after selecting an area with Select Visible or the Selection tool.

Paste

Control V

Paste is used to draw the clipboard image from the most recent Cut or Copy operation on the current picture. It cannot be selected when the clipboard is empty. See the *Cut and Paste* tutorial for a full explanation of these options.

Choosing Paste activates the Selection tool and causes the contents of the clipboard to appear within the current window in a rectangular box. To position it, hold down the left mouse button with the pointer inside this box and drag it to a new position. You can do this any number of times. Double-clicking will actually draw the clipping onto the image, clicking outside the box will cancel.

The results of a Paste are determined by the current Write Mode in General Options. This may be used to paste a partially transparent image with areas of the background showing through, or to mask one image with another. By default, the pasted section completely overwrites the underlying image.

You can choose Paste several times in a row to paste multiple copies since Paste does not empty the clipboard. It is also possible to select an Effects menu item to manipulate the pasted area before drawing it onto the picture if you wish.

Delete

Delete

Delete will either clear the selected area to the background colour or, if there is no selected area, ask if you wish to erase the entire image. It does *not* place the deleted area in the clipboard, so if you wish to paste it somewhere else, use Cut instead. The only way of restoring a deleted area is to Undo.

Although Delete can be used to start a new drawing, it is usually better to use New instead since it creates a new window. Otherwise, you might accidentally save the new picture to disk over the old one.

Select Visible

Control A

This menu option will select all of the image that is visible in the current window. Although this is not useful for limiting the drawing area, it can be used for Cut, Copy or any of the Effects menu options. From Full Screen mode, using the keyboard shortcut will select the entire screen area. To select other sized areas, use the Selection tool.

The View Menu

The View menu only affects the TruePaint window display; none of these options actually modify the image itself. Other related options can be found on the General Options dialog.

View	
Full Screen	[C]r
Zoom	[Z]
Animate	[M]

Co-ordinates	⌘I
Snap to Grid	⌘N
Overscan	⌘V

Grid...	⌘G
Ruler...	⌘R

the View menu

This is a very useful facility which switches TruePaint between window mode and Full Screen mode, where the whole display is used for drawing. Although you can only view a single image, the larger drawing area often makes working on the picture much easier. It can also be useful for checking that frames of an animation line up correctly.

All of the drawing tools and many menu options can still be activated via their keyboard shortcuts in Full Screen mode although it is not possible to access dialog boxes. You can scroll around the image using the cursor keys or by moving the mouse whilst holding down both the Alternate key and left mouse button as normal. To exit Full Screen mode, press the Clr Home key or Esc.

If your computer and monitor support overscan then you can make use of it for the Full Screen display by selecting the Overscan option before entering Full Screen mode.

Zoom

Z

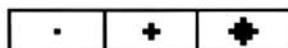
This menu item is used to switch Zoom mode on and off. Zoom mode magnifies part of the image, allowing individual pixels to be edited. This may be used in conjunction with Full Screen mode. If the Selection tool has been used to select an area, Zoom will magnify this.

When Zoom mode is on, indicated by a tick next to the menu item, the toolbox display will change.



the Zoom mode tools

Although it is not possible to use all of the regular drawing tools, as you can with the Hot Spot display, there are a number of special tools available for detailed editing in Zoom mode. These also have keyboard shortcuts.



Dot Size

1 2 3

Three different dot sizes are supported for drawing. With one of these active, clicking over the image will draw dots of the selected pen colour (like using the Dots tool). Simply click on one of the icons or press a number key between 1 to 3 to select a dot size.



Fill

F

Similar to the normal Fill drawing tool, clicking on the image with this icon selected will flood a single colour area with the current pen colour. It does not use fill patterns.



Zoom In

+

Clicking on this icon will increase the magnification, making each pixel appear larger for more detailed editing, although less of the image will fit in the window. You may wish to use the numeric keypad for this tool's keyboard shortcut.



Zoom Out

-

Zooming out decreases the magnification level so that more of the picture can be seen and the pixels appear smaller. To zoom out completely and return to actual size you must select Zoom from the menu once more.

Colour

Most of the Zoom mode toolbox is taken up by a colour palette similar to the Palette toolbox display. This consists of either coloured boxes or a colour wheel in True Colour mode which you can use in the normal way to change the pen colour for drawing or filling.

Animate

M

This is used to enter Animate mode for replaying animations over the whole screen (not to be confused with Animation on the Options menu which allows you to edit the animation). Upon selecting it, the display will show the first frame in the sequence and a number of icons used to control playback. For a description of these, please refer to the *Animation* chapter. Note that there must be more than one frame in the sequence to Animate.

You may play animations in overscan mode if your computer supports it by selecting Overscan from the View menu before entering Animate mode.

Co-ordinates

Alternate I

Co-ordinates is a switchable menu item. With it selected, the exact pixel position of the mouse pointer over the image is shown above the toolbox to help with accurate mouse positioning as you move around the drawing area. For example, you could draw concentric circles by using the Co-ordinate display to ensure that each circle has exactly the same centre point.

All co-ordinates are relative to the origin and match those shown on the Ruler display. The X co-ordinate is the number of pixels across the image and the Y co-ordinate is the number of pixels down with negative numbers indicating positions to the left of or above the origin. The Ruler display and General Options dialog can be used to adjust the origin.

Snap to Grid

Alternate N

When Snap to Grid is on (indicated by a tick next to the menu item), all drawing is restricted to the grid lines set up in Grid Overlay Options. This affects all drawing tools and the placement and sizing of selected areas. Selecting the menu item switches Snap to Grid on or off.

This facility can be useful for a number of things such as accurately aligning different elements of a picture, ensuring smooth and even movement in an animation, constructing an image out of smaller blocks and drawing lines at specific angles.

Overscan

Alternate V

Overscan is only available when running on a Falcon computer with a non-VGA monitor and allows graphics to be displayed over a larger area of the screen than usual (see the *Background* section). This option determines whether overscan is used in Full Screen and Animate modes. It has no effect on the normal TruePaint window display.

Note that if your computer was already in overscan mode when TruePaint started up, this option will have the reverse effect.

Since overscan increases the dimensions of the display area and is intended for video work, it is normal for the edges of the picture to be hidden from view by the monitor.

Grid

Alternate G

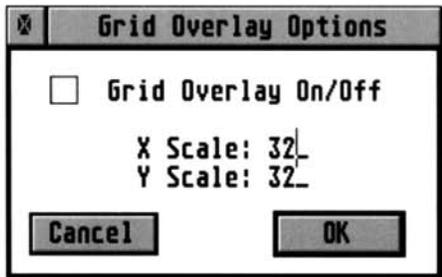
Selecting Grid from the View menu will reveal the Grid Overlay Options dialog described below. This may be used to temporarily overlay a grid on the drawing area. Double-clicking on the Grid drawing tool icon has the same effect.

A grid can be an excellent drawing aid for copying pictures from paper to the computer screen. By placing a corresponding grid over both pictures you can copy each square individually, making it much easier to avoid distorting the picture. You can enlarge or reduce the picture while copying by simply varying the size of the grid squares.

There are two ways of doing this in TruePaint. You can either draw a grid in the window with the Grid tool and draw over it as you create the picture, or you can overlay a grid. This has the advantage that it can be switched off or on later at will.

Grid Overlay Options

The Grid Overlay Options dialog can be accessed via Grid on the View menu or by double-clicking the Grid drawing tool. It allows you to superimpose a grid over the image and adjust the size of the actual grid squares.



the Grid Overlay Options dialog

Click on OK, close the dialog or press Return to use the new options or click on Cancel to ignore any changes. Note that these options apply to all windows.

Grid Overlay On/Off

The overlaid grid may be switched on or off for all windows by clicking in this box.

X and Y Scale

These sizes determine the pixel dimensions of a single grid square for both grid overlays and Snap to Grid. They may be altered by clicking on the appropriate number and using the keyboard to enter the new size with Backspace to rub out. You may wish to use the Ruler display to determine appropriate grid sizes.

Ruler

Alternate R

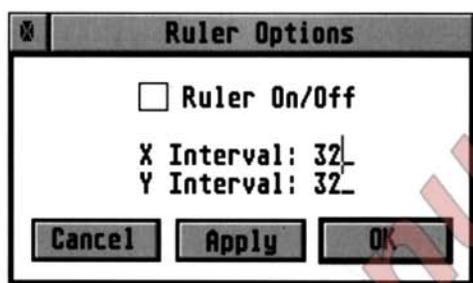
The TruePaint rulers are bars numbered in pixels that appear above and to the left of the drawing area. These numbers correspond to those given by the Co-ordinates display and may be used to assist accurate positioning and measuring with the mouse pointer. Selecting Ruler from the menu will reveal the Ruler Options dialog box.

The pixel position where both rulers show zero is called the origin. Depending upon the settings in the General Options dialog, this may be the top left of the image or some other location, defaulting to the exact centre of the picture. This user origin is indicated on each ruler by a small arrow marker. Points before or above the origin have negative co-ordinates.

To set the user origin from the ruler display, hold the mouse button down over the box where the rulers meet (next to the Pattern icon) and drag the pointer onto the image. The arrow markers will move with the mouse and remain wherever you release the mouse button. The origin can also be changed from General Options.

Ruler Options

The Ruler Options dialog is obtained by selecting Ruler on the View menu. It is used to switch the ruler display on or off and to change the intervals at which co-ordinates are marked on each ruler.



the Ruler Options dialog

To accept the new settings press OK, Return or close the dialog. Cancel will ignore any changes and Apply will update the display with the new settings. You can set up separate rulers for each window if you wish.

Ruler On/Off

To switch the ruler display on or off, click in this box. The box will be filled if rulers are selected.

X and Y Interval

The size of the interval between each mark on the rulers is controlled by these options. Note that this does not change the actual co-ordinates, just the quantity of co-ordinates shown on each ruler. *X Interval* affects the ruler along the top whilst *Y Interval* is for the ruler at the side.

To change the intervals, click on the number and use Backspace followed by the number keys to enter a new value. Smaller numbers will show more co-ordinate positions on the ruler.

The Options Menu

The Options menu, shortened to Opts in low resolution, contains many settings which allow you to configure TruePaint and the actions of various drawing tools. Most of the items on this menu either produce a dialog box or switch a particular feature on or off.



the Options menu

Free Form

Alternate E

Free Form affects all of the shape drawing tools including Circle, Rectangle and Polygon, and may be turned on or off by selecting this menu item. By default, Free Form is on, so you can draw shapes of any size and proportion. With Free Form off however, TruePaint will automatically match the width and height of shapes, allowing you to draw perfect circles, squares etc. (although this will depend upon your display). Non-regular polygons are not affected.

Filled Shapes

Alternate F

With Filled Shapes switched on (indicated by a tick in the menu), the various shape drawing tools such as Circle, Rectangle and Polygon create solid shapes rather than outlines. Shapes are filled in the selected fill pattern using either the current pen colour or Rainbow mode if selected.

Rounded Boxes

Alternate B

Selecting Rounded Boxes will cause all rectangles and squares drawn with the Rectangle tool to have rounded corners, giving a 'speech bubble' effect. Note that Rainbow mode cannot be used with Rounded Boxes unless they are filled.

Rainbow

Alternate W

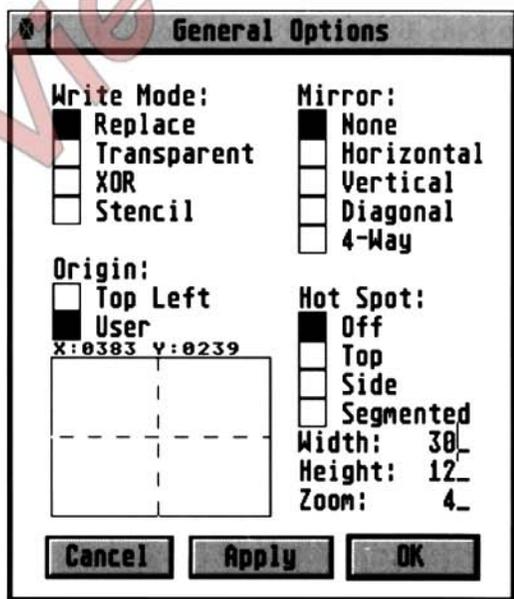
In Rainbow mode, TruePaint draws lines and shapes in a series of colours instead of the current pen colour. The start and end colours can be set up using the Colour Options dialog. You can switch this feature on or off by selecting this menu item.

In True Colour mode, the rainbow colours will be graduated smoothly from the selected Rainbow 1 colour to Rainbow 2 in the specified number of steps. In palette modes, the colours appear in their palette order. See the *Colour* tutorial and individual drawing tools for details.

General

Alternate O

Selecting this option brings up the *General Options dialog* used to set up various drawing and view attributes.



the General Options dialog

After changing some of these options you can either click on OK, press Return or close the dialog to accept the changes or, as usual, click on Cancel to ignore all changes and close the dialog. Apply will use the new options without closing the dialog.

Write Mode

The Write Mode affects all of the drawing tools, the Effects and the Paste command. There are four different Write Modes, each of which causes drawing to affect the image in a different way. They can be selected by clicking inside the appropriate box, the current Write Mode will be highlighted. See the *Tutorials* for some examples of their use.

By default, TruePaint uses *Replace* mode which means that any drawing completely overwrites the background area and patterns are drawn with a fixed colour background. When *Transparent* mode is used, the background colour becomes transparent so that the underlying picture shows through. This is ideal for adding text and pasting images.

XOR is a special effect that combines the drawing colours with the image so that anything drawn twice will disappear. It can be used to create unusual textures and photographic negative effects in True Colour mode. *Stencil* causes only the background colour to be drawn, all other colours appear transparent. This can be used to 'mask out' parts of an image and create textured or coloured text.

Origin

This is the position on the image where both X and Y co-ordinates are zero (see the Co-ordinates and Ruler options), also used by the Mirror options. The origin may either be fixed at the top left corner of the image or set to any other position by clicking on the *Top Left* or *User* box.

To adjust the user origin, hold the left mouse button down over the image at the bottom left of the dialog box. By moving the pointer to the edges of the image so that it scrolls, position the image so that the crosshairs lie over the desired origin. Releasing the mouse button will set the origin. You can also do this from the Ruler display. Note that the user origin is ignored when Top Left is selected.

Mirror

TruePaint has the ability to 'mirror' all drawing through the user origin to produce kaleidoscopic effects or symmetrical drawings. The four different mirror options each reflect drawing in different ways. *Horizontal* and *Vertical* mirror in a single direction, *Diagonal* mirrors through the origin and *4-Way* is a combination of all three which draws everything four times. Select *None* to switch mirroring off.

Note that, as with all other drawing, only the visible part of the image or selection can be drawn into using the mirror options so you may wish to use Full Screen mode. To change where drawing is reflected, adjust the user origin.

Hot Spot

An alternative to Zoom mode, the Hot Spot display not only allows detailed editing and accurate positioning of the mouse but gives you use of all the normal drawing tools too. The Hot Spot is a magnified representation of the area immediately surrounding the mouse pointer. It may be placed above or to the side of the drawing area and can be of any size, although larger sizes will slow down the display.

To switch on the Hot Spot, click in the *Top* or *Side* box. *Segmented* outlines each magnified pixel with a box whilst *Width* and *Height* set the dimensions of the Hot Spot display. Sizes that extend past the edge of the drawing area will be ignored.

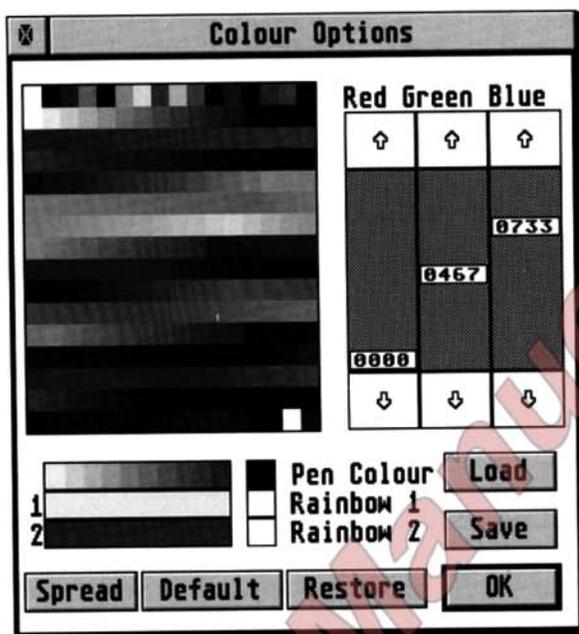
Zoom allows you to adjust the magnification of the Hot Spot display. Increasing the number will make the pixels appear larger but reduce the size of area that can be displayed. To change these numbers, click on them with the mouse and enter a new value from the keyboard using Backspace to rub out.

Colour

Alternate C

Selecting Colour from the Options menu or double-clicking on the Pen Colour indicator or a palette colour will reveal the *Colour Options dialog* used to modify the palette, to set the two rainbow colours and to adjust the pen colour.

There are two variations on this dialog which appear, depending upon whether you are running in a palette-based or True Colour mode. The palette mode dialog includes additional facilities for changing an image's colour palette. For further details, see the *Colour* tutorial and *Background* section.



the Colour Options dialog in 256 colours

After making the required changes you can click on OK, close the window or press Return to continue. Note that you can also use the Palette toolbox display or Pick Colour tool to select the pen colour.

Colours

To choose a colour, click on the palette or colour wheel display. This will change either the pen colour, Rainbow 1 or Rainbow 2, depending upon which of these boxes is active. The Red, Green and Blue sliders will be updated to reflect the colour you chose and can be used to adjust the colour or to change the palette.

Red, Green and Blue

These three sliders represent the mix of primary colours that make up the selected colour. In True Colour mode they are simply an alternative method of selecting colours to the colour wheel, but in palette-based modes they actually modify the picture's palette. See the *Background* section and *Tutorials* for an explanation of RGB colour and colour palettes.

There are three ways of adjusting the slider levels: dragging the indicator to a new position whilst holding down the mouse button, clicking on the patterned background for fast adjustment, and clicking on the arrows for fine control.

Although the sliders range from zero to one thousand, each step does not necessarily represent a different colour due to the limited number of levels which the computer can display (8 on the ST, 16 for the STe or TT and 256 on the Falcon030). However, TruePaint will save this information with the file where possible which may affect the colours displayed on a different machine.

Note also that finer colour resolution is available in Falcon palette modes than in True Colour mode - although you may not always be able to tell the difference!

Rainbow Step

This is a True Colour option which determines the smoothness of the rainbow effect by setting the number of steps in which the colour transformation takes place. The individual steps become visible if small numbers are used whereas large numbers take longer to draw but give a smoother rainbow effect. Simply click on the number and use Backspace and the number keys to enter a new value.

Rainbow 1 and 2

Clicking on the Rainbow 1 box or the Rainbow 2 box causes any colour selection to alter one of the Rainbow colours instead of the pen colour. Subsequent use of the Pick Colour tool will also change the selected Rainbow colour, useful for picking the Rainbow 1 Range for the Brush tool.

The coloured bars at the bottom left of the dialog show the two Rainbow colours and a sample Rainbow display. For a full explanation of Rainbow mode, see the *Colour* tutorial and the Rainbow menu option.

Pen Colour

When this box is selected, clicking on the palette or colour wheel will change the current drawing pen colour in the same way as the Palette display. This is also useful if you wish to alter the colour palette without affecting Rainbow mode.

Spread

For palette modes only, *Spread* creates a smooth colour range between the selected Rainbow 1 and Rainbow 2 colours. Although it does not alter either Rainbow colour, all of the palette colours in between will be changed to intermediate shades. This is useful for adding a range of similar colours to your palette, or for smooth Rainbow mode effects.

Default and Restore

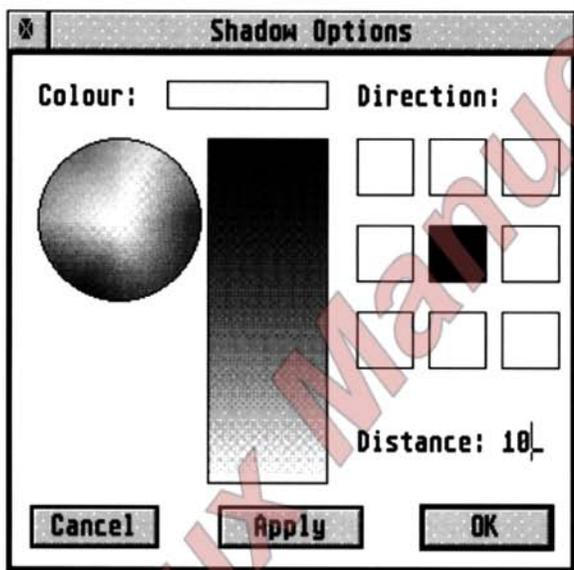
The *Default* button resets the entire palette to the standard set of colours. These will either be the system default colours or those previously stored with the Save Setup option. Clicking on *Restore* cancels all changes made to the palette since the Colour Options dialog appeared.

Load and Save

You can store colour palettes on disk using the *Load* and *Save* buttons of the Colour Options dialog. It is possible to Save one picture's palette and Load it into another as a way of copying the palette from one window to another. Clicking on either button produces a file selector for you to choose a palette file from disk. It is recommended that you give palette files an extension of *.PAL* and keep them in a separate folder. TruePaint palette files are not generally compatible with those of other programs.

TruePaint can also load the palette directly from an existing picture if you select it from the file selector. This is a good way of ensuring that the two palettes are an exact match. Note that, to ensure the screen display is readable, TruePaint may exchange the second colour in the palette with another when loading, as it does with picture files.

Shadow brings up the Shadow Options dialog which allows you to set the colour, direction and depth of shadows drawn beneath shapes and lines. Most of the drawing tools will use shadows if they are selected.



the True Colour Shadow Options dialog

After using the dialog to change the shadow options you can press Return, click on OK or close the dialog to accept the new settings. Cancel will restore them to their previous state and Apply will use the new settings without closing the dialog box.

Colour

The colour of the shadow may be altered by selecting a colour from the palette display or the colour wheel on the Shadow Options dialog. By default it is black but it may be set to any colour.

Direction

Any of nine shadow directions can be selected by clicking on the appropriate box which will become highlighted to show that it is active. The shadow effect is usually more convincing if you ensure that all the shadows in the picture fall in the same direction. The centre box switches shadows off, which is the default setting.

Distance

This is the gap between the actual drawing and its shadow. Visually, this affects the 'height' of drawn objects since the proximity of the shadow usually indicates how close an object is to the background. You may wish to vary the distance used across the picture.

To change the distance, click on the number with the mouse and enter a new value from the keyboard using Esc or Backspace to rub out. Larger numbers give a more distant shadow.

Animation

Alternate A

Selecting this option will present you with the *Animation Options dialog* which gives access to TruePaint's animation editing facilities. There is a separate chapter devoted to animation which gives a detailed explanation of these options along with some background information and useful techniques that you can use in your own animations. In brief, the options are as follows:

Frame is the frame number in the sequence to add, delete or view. You can type a number and click on Apply or OK to show this frame in the window. *Length of Sequence* gives the number of the last animation frame.

New Frame After and *New Frame at End* insert an extra frame in the sequence by duplicating either the frame with the given frame number or the very last frame. The sequence length will increase by one unless there is insufficient memory available. *Remove Frame* deletes the frame from the sequence.

You can also select Animate from the View menu to take you into *Animate mode* where you can replay the animation at various speeds. For further details, please refer to the *Animation* section.

Save Setup

Save Setup stores the current settings on disk, including Tool Attributes, menu options, file formats, the default palette and all the patterns. This can be used to remember all of your preferred settings so that you don't have to change them every time you run TruePaint.

The setup is saved in the *TRUPAINT.INF* file which is loaded automatically when you start TruePaint. Note that selecting this will overwrite any previous settings file.

The Effects Menu

The Effects menu provides various transformation effects which work on the selected area or during a Paste. Many of these can be used in conjunction with one another or several times in succession before drawing the results onto the picture. See the Effects tutorial for details.



the Effects menu

Although each effect is different, their operation is very similar.

- Either select an area with the Selection tool or the Select Visible menu item, or Paste the contents of the clipboard.
- Choose the desired effect from the Effects menu. Unless the effect takes place immediately, a tick will appear next to the menu item to show that it is active.
- Using the handles which appear, adjust the box to the required dimensions. To reposition the entire selection, click and drag the box itself.
- Double-click the left mouse button over the drawing area to draw the result onto the image or click outside the selection to cancel. Alternatively, you can choose another effect.

H-Flip

Horizontal Flip gives the effect of viewing the image in a mirror. Unlike most of the other effects, it takes place immediately and works on the entire picture if there is no selected area. H-Flip may be used in conjunction with other effects and selecting it twice will return you to the original image.

V-Flip

Vertical Flip mirrors the image vertically. Like H-Flip, it happens immediately and can be used on the whole picture or with other effects. Note that this is different to turning the image upside down. To do this you must use both H-Flip and V-Flip.

Resize

Resize changes the size of the selected image, ensuring that it retains its original proportions. This is similar to Stretch except that the image cannot be distorted, only increased and decreased in size (although quality may still be lost). In general, it is best to draw the original image at its maximum size and scale it down.

With Resize and Stretch you can adjust the size of the image with the selection handles any number of times. However, choosing the effect a second time will lose quality. This will create a mosaic effect if you first reduce the image in size and then select Resize again to restore it to its original size.

Stretch

This allows you to adjust both dimensions of the selected image to make it larger or smaller. It differs from Resize in that the correct proportions are not necessarily retained. As discussed in the *Background* section on fonts, scaling in this way can lose detail or produce blocky pixel effects.

Pattern

This effect 'tiles' the selected area to produce a repeating pattern or texture. Note that you must increase the size of the selection using the handles to achieve the pattern effect, otherwise the image will simply be trimmed down to size. You may want to Resize the selected image first.

H- and V-Shear

The Shear effects skew the image in a given direction. Horizontal Shear gives an effect similar to italics whilst Vertical Shear draws the image on an upward slope. In each case, the selection handles adjust the skew angle and are restricted to moving in a single direction only. It is not possible to apply further effects after shearing.

H- and V-Wrinkle

These effects repeatedly shear the image back and forth in a zigzag pattern. Horizontal Wrinkle bends the image from left to right whilst Vertical Wrinkle can be used to simulate waves. The placement of the handles determine the length and depth of a single 'wrinkle' which is then repeated over the entire length of the image.

Le Vieux Manuel

Appendix A

Keyboard Shortcuts

This Appendix contains all of the TruePaint menu and toolbox key equivalents. Zoom and Animate mode shortcuts are listed last. Not all keyboard shortcuts are available at all times - see the relevant chapters for details.

File Menu

New	Control N
Open	Control O
Close	Control W
Save	Control S
Quit	Control Q

Edit Menu

Undo	Control Z or Undo
Cut	Control X
Copy	Control C
Paste	Control V
Delete	Delete
Select Visible	Control A

Scrolling

Scroll Left	←
Scroll Right	→
Scroll Up	↑
Scroll Down	↓
Page Left	Shift ←
Page Right	Shift →
Page Up	Shift ↑
Page Down	Shift ↓
Drag Screen	Alternate drag

Drawing Tools

Airbrush	A
Arc	X
Brush	B
Circle	C
Connected Lines	N
Curve	V
Dots	D
Fill	F
Grid	G
Line	L
Pen (default)	P
Pick Colour	I
Polygon	O
Rays	Y
Rectangle	R
Segment	E
Selection	S
Text	T

Tool Attributes

Airbrush Attributes	Shift A
Brush Attributes	Shift B
Define Fill Pattern	Shift F
Dot Attributes	Shift D
Line Attributes	Shift L
Polygon Attributes	Shift O
Text Attributes	Shift T

Options

Animation Options	Alternate A
Co-ordinates	Alternate I
Colour Options	Alternate C
Filled Shapes	Alternate F
Free Form	Alternate E

(continued)

General Options	Alternate O
Grid Overlay Options	Alternate G
Overscan	Alternate V
Rainbow	Alternate W
Rounded Boxes	Alternate B
Ruler Options	Alternate R
Shadow Options	Alternate S
Snap to Grid	Alternate N

Miscellaneous

Drawing tools Display	1
Palette Display	2
Pattern Display	3
About TruePaint	Help
Full Screen	Clr Home
Zoom	Z
Animate	M
Next Frame (may require Shift)	>
Previous Frame (may require Shift)	<

Zoom Mode Shortcuts

Dot Sizes	1 2 3
Fill	F
Zoom In	+
Zoom Out	-

Animate Mode Shortcuts

Play	Return
Increase Delay	+
Decrease Delay	-
Ping-Pong	P
Exit	Esc

Appendix B

File Formats

This Appendix contains details of some of the file formats available from TruePaint, their uses, portability, capabilities and their standard file name extensions. There may well be additional formats which we have implemented since writing this manual for which you should refer to the READEFMS.ME file on disk 1.

Introduction

Unlike many traditional image manipulation programs, TruePaint uses an External File Management System (EFMS) to handle the loading and saving of images. External File Managers (EFMs) are special programs that understand how to load and/or save a particular image file format. This not only gives you the ability to work with pictures from a wide variety of sources but it also allows efficient memory usage since you only need load the particular EFMs that you will be using in the current session.

For any particular file format, the pictures which may be saved using it can differ greatly. For example, TIFF may be used to save any picture which TruePaint can generate, whereas NEOchrome is restricted to pictures which exactly match the specifications of ST low, ST medium and ST high resolution (320x200x16 colours, 640x200x4 colours, 640x400x2 colours). The purpose of this Appendix is to describe the various EFMs that are supplied with TruePaint and to point out any restrictions within the various file formats that you should be aware of.

When TruePaint loads an image, it attempts to convert it to the current video mode, which may result in some loss of colour accuracy. Subsequently saving the file may cause it to be written out in such a way that the program that originally created the image will be unable to load it back in, the most extreme case being saving a monochrome image in True Colour mode.

Note that, due to the extremely large number of file formats in use and the difficulty in obtaining documentation on many of them, there are many programs which write 'broken' files which TruePaint may fail to load correctly. This may be because there is part of a file format specification which we have not yet implemented; you should check the *READEFMS.ME* file for known restrictions. If after checking this you encounter such an image, please send us a copy of the file, telling us what format you think it is and which other programs you know of that load it correctly.

Image File Formats

Degas

.PI1-8, .PC1-8

Degas and Degas Elite were among the first of the third-party graphics packages for the Atari. The image formats they support (PI1, PI2, PI3, PI5, PI7 and PI8 uncompressed and PC1, PC2 PC3, PC5, PC7 and PC8 compressed) allow all standard ST and TT screen modes to be used: 320x200x16, 640x200x4, 640x400x2, 640x480x16, 1280x960x2 and 320x480x256.

This EFM is principally available for its use as an import filter, i.e. for loading your old pictures. In general, this format is not recommended as a method of saving your pictures since, even if the picture will fit within the other constraints, a Degas picture only has a resolution of 4096 colours cf. 262144 supported by Falcon030.

GIF

.GIF

The Graphics Interchange Format (*GIF*, pronounced 'jif') is a format designed by CompuServe for the on-line transmission and interchange of palette images and is probably the single most successful 'paint'-type image format, with many thousands of images available on on-line services (indeed, many such images are available on CD-ROM in collections such as GIFs Galore, containing over 6500 images).

GIF is especially suitable for the import or export of images containing up to 256 colours (there is no True Colour support in this format) although, due to the complex compression algorithm used, some loss of performance may be noticed.

We are required to state that:

"The Graphics Interchange Format(c) is the Copyright property of CompuServe Incorporated. GIF(sm) is a Service Mark property of CompuServe Incorporated."

IFF ILBM

.LBM

The Interchange File Format (*IFF*) was devised by Electronic Arts® for open file interchange of all forms of data (graphics, sound, text etc.) across all platforms, although its use has been largely restricted to Commodore's Amiga® computer so much of this portability has never been exploited. (there are some notable exceptions such as Apple's usage of it in their high end system sound support) The graphics portion of this standard is the ILBM (InterLeaved BitMap) specification; many so-called IFF files are really IFF ILBM files.

Unfortunately for a portable file format specification, IFF ILBM files contain several Amiga-specific artefacts which make its use on other platforms difficult; in addition some programs write 'broken' IFF ILBMs. You should refer to the *READDEFMS.ME* file for details of which display modes the TruePaint EFM supports.

Nevertheless, IFF ILBM files support all resolutions in palette modes, in addition to True Colour files, although the True Colour representations are not widely used. As a format for use in palette-based work, IFF ILBM files are excellent. Note that you may need to use Open As instead of Open to load complex IFF files which contain embedded pictures.

Image

.IMG

The GEM image file format was devised by Digital Research for use with GEM. It supports all screen modes. IMG files are most useful for exchanging images between applications on the Atari platform and provide surprisingly effective compression ratios given the simplicity of the method used.

Unfortunately, DRI failed to specify how the palette information was stored or how a True Colour image could be saved. Several solutions to the palette problem exist; these are known as *NOSIG* (archaic), *HYPERPAINT* (produced by the HyperPaint® program), *XIMG* (the German standard) and *STTT*. The best of these, *XIMG*, is used when writing IMG files with the IMG EFM, all are recognised when reading. Files without any palette at all are interpreted as grey scale images.

The *XIMG* extension is also used for True Colour work, although files saved from the Ventura 4 package can also be imported. Note that not all programs recognise True Colour IMG files and some may attempt to load them incorrectly.

JFIF

.JPG

JPEG (pronounced 'jay-peg', standing for Joint Photographic Experts Group) is a standard compression method for compressing 'real-world' pictures; cartoons and other non-realistic images are not its forte. Also, JPEG is 'lossy', i.e. the output image is not necessarily the same as the input image. However, on typical images of real-world scenes, very good compression levels can be obtained without visible change, and amazingly high compression levels are possible if you can tolerate a low-quality image.

The JPEG File Interchange Format (*JFIF*) is a minimal file format which enables JPEG bit streams to be exchanged between a wide variety of platforms and applications. *JFIF* is suitable for all resolutions and colour depths although, as noted above, JPEG does not perform well on non-realistic images. Also the JPEG algorithm is *extremely* numerically intensive, so load and save times are typically very poor, although the level of compression possible is outstanding.

We are required to state that:

"this software is based in part on the work of the Independent JPEG Group".

NEOchrome

.NEO

NEOchrome was the original Atari paint program (circa 1985) which ran only in ST low resolution. The file format it used, NEO, is capable of storing 16, 4 and 2 colour pictures from a palette of 4096 at resolutions of 320x200, 640x200 and 640x400.

This EFM is principally available for its use as an import filter, i.e. for loading your old pictures. In general, this format is not recommended as a method of saving your pictures since, even if the picture fits within the other constraints, a NEOchrome picture only has a resolution of 4096 colours cf. 262144 supported by Falcon030.

Targa

.TGA

The Truevision Targa (*TGA*TM) format was developed by Truevision in 1984 for use in their true colour video cards and, as such, is one of the most widely used true colour formats.

This format is extremely simple, but powerful, and provides support for all video modes. For fast, portable True Colour image storage, Targa is probably the best file format to use. For palette mode images Targa is fine on-platform, but less transportable across platforms since very few programs use the Targa format for palette-based work.

Note that you may need to use Open As instead of Open to load older Targa files which do not use the *.TGA* extension.

TIFF

.TIF

The Tag Image File Format (*TIFF*) is the de facto standard file format for desktop images on all platforms. It includes support for images from the simplest low-resolution monochrome picture through to very high resolution YCbCr digital video. Because of this flexibility, the TIFF specification (over 120 pages itself) is divided into two portions: Baseline TIFF and TIFF extensions.

TruePaint implements all of the Baseline TIFF specification in addition to many of the TIFF extensions; for those supported by TruePaint you should refer to the *READEFMS.ME* file. When writing TIFF files, TruePaint normally only uses Baseline TIFF features so that the images should be readable by any other Baseline TIFF reader.

TIFF is the recommended file format for file interchange and final storage since it is capable of representing all aspects of an image, ensuring that no information is lost in the storage/retrieval process. Unfortunately, the complexity of TIFF tends to handicap its performance in some areas. This also means that the TIFF EFM is considerably larger than many of the others.

The TIFF EFM is based, in part, on the work of Sam Leffler in his public domain TIFF support software. We are required to state that portions of this work are:

“Copyright (c) 1988, 1989, 1990, 1991, 1992 Sam Leffler

Copyright (c) 1991, 1992 Silicon Graphics, Inc.

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TruePaint Image

.TPI

The TruePaint Image format exists to provide a high speed load and save mechanism whilst preparing an image. *We do not recommend that you use this format as a final archive format* - for that you should use one of the more compact, portable formats (GIF, IFF ILBM or TIFF for palette images; Targa, TIFF or JFIF for True Colour images). TPI files are also compatible with Prism Paint .PNT files.

This format is always available for saving since it is built into TruePaint. Note that the high speed aspects of this format are lost if you subsequently load an image into a different resolution from the one in which it was created, requiring that it is converted to that video mode. This action also requires the disk-based TPI EFM to be available since conversion is not performed by the built-in EFM.

TPI files saved on one machine will not necessarily load into TruePaint running on another computer, due to differences in the internal data representation, if a third-party video card is being used. If in doubt, use one of the portable file formats instead.

Le Vieux Manuel

Animation File Formats

Like still image file formats, there are several (although considerably fewer) animation formats in common use, but unfortunately these differ considerably in the manner in which they work. In the future we hope to add support for other animation formats. However, at the time of writing, the only format supported is TruePaint's own.

Note that attempting to save an animation using one of the still image file formats will save only the current frame, not the entire sequence.

TruePaint Animation

.TPA

This is a proprietary format for full screen animations in all video modes. For speed it uses the same method of storage as TruePaint itself, so file size depends upon the differences between successive frames in addition to image size and length of sequence. Since TPA files can become very large, we recommend high density floppies or a hard disk for storing animations.

As with TruePaint Image files, part of this EFM is built into the program so you can always save your animations with it, even in low memory conditions.

EFMS Developers Kit

TruePaint is only the first of many HiSoft products to use the External File Management System. In the future, products such as SBasePro4 and K-Spread 5 will add EFMS support.

The EFMS specification includes support for many different file types (graphics, sound, animation, vector graphics etc.) which products may call on. With the arrival of Falcon030 the range of capabilities of Atari computers has been expanded greatly and many of the existing file formats are no longer relevant, which is why we developed the EFMS. This system is available for licensing by third parties. If you would like details please contact David Link at HiSoft.

Le Vieux Manoir

Appendix C

Speedo and Font GDOS

To make the most of TruePaint's text and curve drawing facilities you will require the Speedo or Font GDOS software, available separately. We have included some basic information on these packages here to explain how they work.

What is GDOS?

GDOS is an extension of your operating system. When installed, it allows the programs that you run to output text and graphics to printers and other devices besides the screen. GDOS also enables you to print text in many different font faces. Instead of typing characters in the standard system font, you now have access to Swiss, Times, Bitstream Charter and a multitude of other fonts. GDOS is run when you first turn on your machine.

In addition, *Speedo* and *Font GDOS* (but not 'old' GDOS) add other features, not directly connected with text, such as Bézier curves and several other low level operating system features.

Which version of GDOS?

All versions of GDOS support bitmap fonts, but both Font and Speedo GDOS support a new feature: 'font caching'. With old versions of GDOS, every bitmap font that you wish use takes up memory, and your machine will quickly run out of space. With font caching, you tell Speedo/Font GDOS how much memory that you wish to devote to storing your bitmap fonts. This memory is called a cache.

Speedo/Font GDOS will load in the font as it's used. When there is no longer any room for the next font, Speedo/Font GDOS will get rid of one of the fonts to make room. As long as the memory that you allocate is bigger than the largest font, Speedo/Font GDOS will be able to use as many bitmap fonts as you wish in a limited amount of space.

In addition to bitmap fonts, Speedo GDOS allows programs to print in scalable outline fonts instead of bitmap fonts. Outline fonts offer high-quality text at all sizes, whereas bitmap fonts are limited to a small number of sizes that become unappealing when crudely scaled by the system. See the *Background* section for a more detailed explanation.

Furthermore, unlike bitmap fonts, which are found in GDOS or Font GDOS, outline fonts allow you to use the same font file to print any size character on almost any output device. This is because the description of the characters and not the character data is stored in the font file. An 'a' for example is built using the same set of rules whether it's built at 10 point or at 24 point. This means you no longer need a separate font for the different screen resolutions and, more importantly, you no longer need separate fonts for your printers and other devices. Speedo GDOS can create all of these characters for all devices and all sizes using the same font description.

TruePaint works with all current versions of GDOS, taking advantage of whichever features are available in a particular version. If you can obtain it, we would recommend that you use Speedo GDOS (although it is not released at the time of the first publication of this manual); failing that, try Font GDOS which is available from the ST-Club, Nottingham.

Appendix D

Technical Support

TruePaint comes with 30 days free technical support, starting from the date of registration; therefore you should send in your registration card quickly. Technical support is available by telephone during our Technical Support Hour, by letter or by fax.

When contacting HiSoft for technical support, the following will save time and help us give you a quick answer:

- Please ensure you have read the relevant sections of the manual carefully and the *READ.ME* file before contacting us (many problems are simple mistakes which could easily be avoided by referring to the manual).
- Give us both the version number of the software from the About TruePaint dialog box and your exact hardware configuration. We will also need your disk 1 serial number.
- When telephoning, call while actually in front of your computer if possible so that you can quickly try out suggestions. Alternatively, have the manual to hand for reference.

Should you wish to receive extended technical support, please complete the relevant sections on the registration card, indicating whether you would like to take up the *Silver* or the *Gold* service.

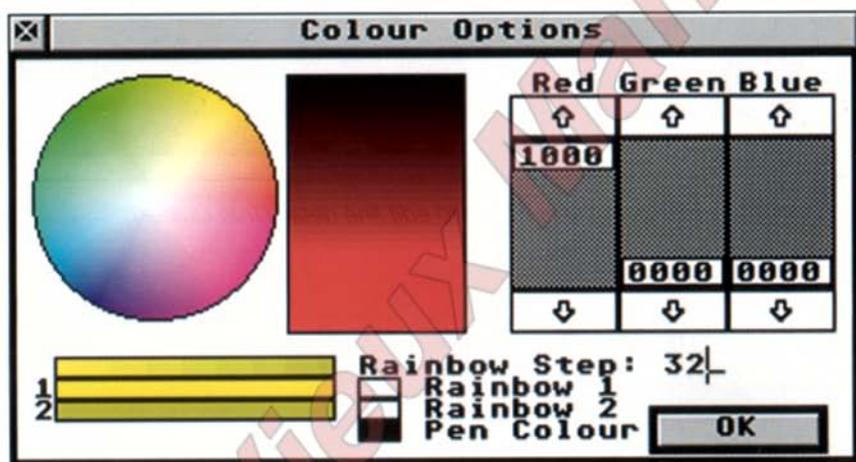
In addition to your name, address and postcode (very important for UK customers), we need payment details before we can accept your extended registration. You can pay by credit card (Mastercard, Eurocard, Access, Visa etc.), UK debit card (Switch, Connect etc.), Eurocheque, UK cheque or Postal Order.

You may have already registered another HiSoft product under our *Gold* or *Silver* service, in which case there is no need to fill out the payment section.

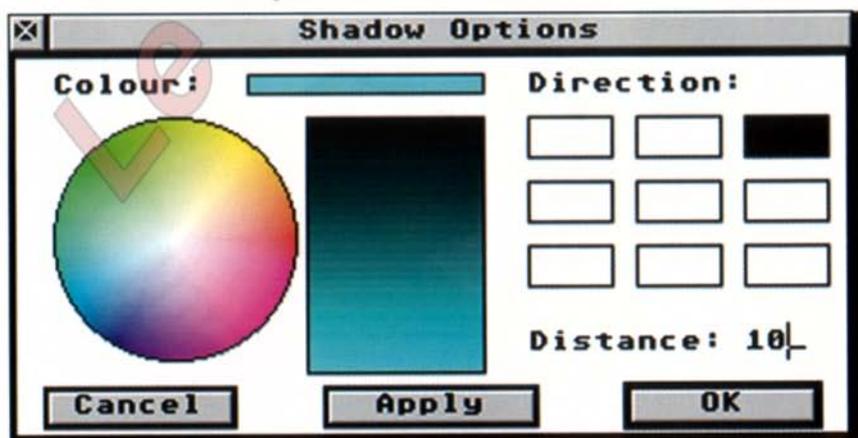
Colour Section

True Colour Mode

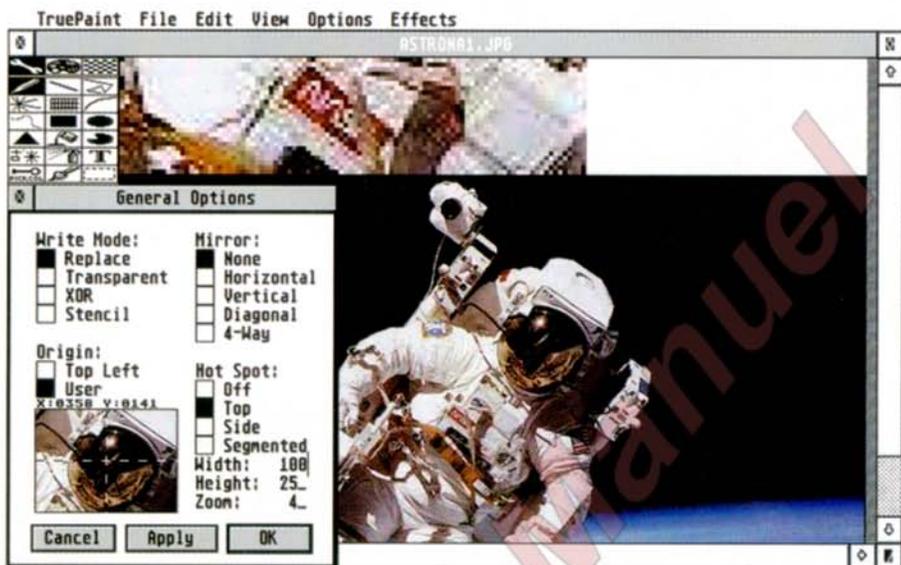
In True Colour mode you choose a particular colour (for the pen, rainbow, shadow etc.) by using a colour wheel and its associated shade bar as shown below. The Colour Options dialog also lets you set a colour using the RGB sliders.



the Colour Options dialog in True Colour



the Shadow Options dialog in True Colour



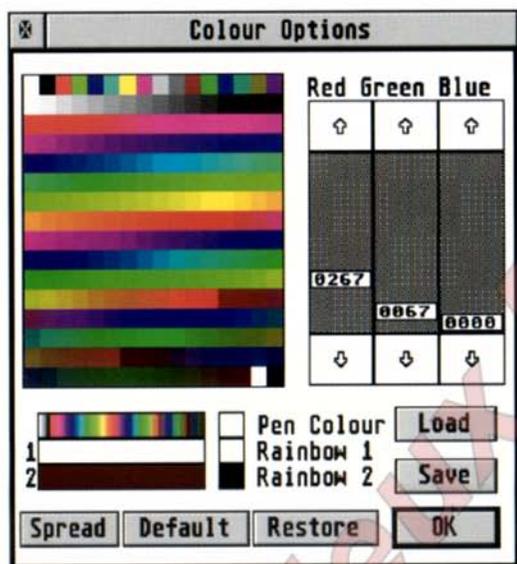
setting up the Hot Spot to edit fine detail (True Colour)



TruePaint in TruePaint (True Colour)

Palette Modes

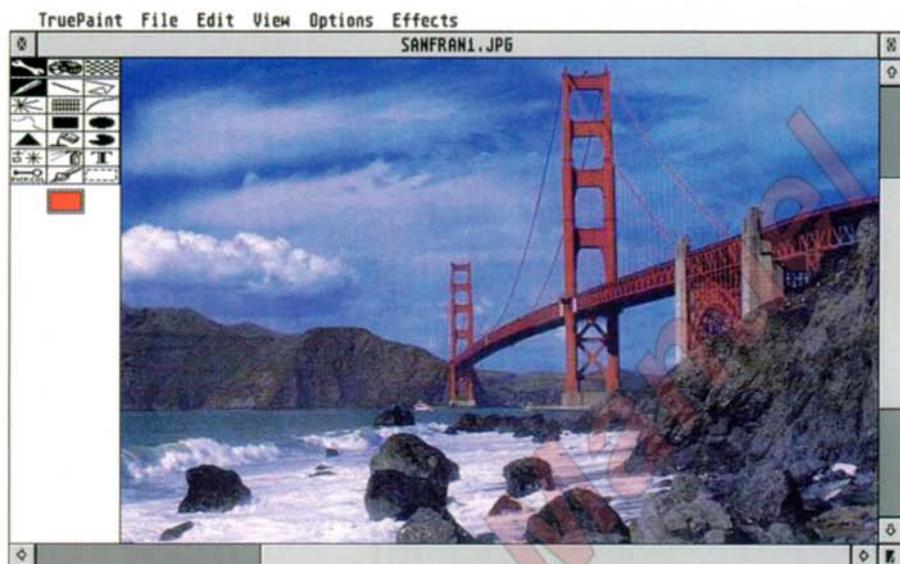
In Palette modes you choose a particular colour (for the pen, rainbow, shadow etc.) by selecting the one that you want from the displayed palette of colours. The Colour Options dialog also lets you edit an existing, selected colour using the RGB sliders.



the Colour Options dialog in 256 colours



the Shadow Options dialog in 256 colours



there are some beautiful JPEG pictures to be found (True Colour)



you can do some Wandaful things in TruePaint! (256 colours)

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Notes

Le Vieux Manuel

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