

ATARI®

HYPERPAINT



THE ATARI ST™ CREATIVITY SERIES

For use with all ATARI ST™ Computer Systems.





ATARI®
PRODUCTIVITY SERIES

HYPERPAINT

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ST



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INTRODUCTION

HyperPaint for the Atari ST heralds the next generation of Graphics Packages offering a versatile, all-purpose tool for creating, editing and printing all kinds of pictures and diagrams.

HyperPaint encompasses the features provided by current Paint packages on the ST while adding a variety of new, powerful commands that speed up and simplify the whole process of creating high-quality images.

HyperPaint fully supports the Atari GDOS (Graphics Device Operating System), giving the user access to a library of different typefaces and printer drivers that can be shared by other applications.

HyperPaint supports a wide range of picture formats and provides an ideal environment for editing and re-touching large scanned images suitable for use with Desktop Publishing Software. Image sizes ranging from 32K NEOchrome and DEGAS files to massive multi-megabyte scanned images can be handled with equal ease.

GETTING STARTED

GDOS INSTALLATION

HyperPaint requires that the Atari Graphics Device Operating System (GDOS) is installed before the program is loaded. This installation procedure varies depending on your hardware configuration.

512K ST COMPUTERS

Owners of 520ST, 520STM or 520STFM computers may find that they need to limit the number of fonts and workstations used by HyperPaint. Installing additional GDOS fonts will reduce the number of graphics workstations available to the program. We have supplied a pre-configured GDOS installation suitable for the 520ST on the HyperPaint program disk. To install this insert the HyperPaint program disk into drive A and switch on the computer. GDOS will automatically be installed. Then follow the loading instructions shown overleaf to run HyperPaint.

SINGLE DRIVE SYSTEMS

Whilst HyperPaint is loading, GDOS requires access to any fonts and printer drivers named in the system's ASSIGN.SYS file. It may be impossible to fit both the HyperPaint program files and all of the font and driver information onto a single diskette. We therefore recommend that owners of single drive systems use the pre-configured GDOS installation mentioned above.

TWIN DRIVE AND HARD DISK SYSTEMS

Systems containing either two floppy disk drives or a floppy and hard disk drive should configure their system prior to running HyperPaint using the font and driver installation program supplied on the GDOS distribution diskette. For full GDOS installation instructions refer to Appendix A.

SYSTEM REQUIREMENTS

To use HyperPaint, your system should include the following equipment:

- * Atari ST or MEGA ST computer
- * Atari floppy disk drive (two are recommended, either two floppy drives or one floppy and one hard drive)
- * Atari monochrome or colour monitor or TV
- * GDOS compatible printer (optional)

If you haven't already set up your ST or MEGA ST computer system now is the time to do so. You'll find complete setup instructions in the Owner's Manuals that came with your system.

This manual assumes that you already know how to use your ST or MEGA ST computer and that you have read your Owner's Manual. You should know how to:

- * Open, copy and delete disks and files using the Desktop.
- * Point, select, drag, and double-click with the mouse.
- * Scroll in a GEM window using the scroll bars and the scroll arrows.
- * Manipulate the size and position of windows using the size box and move bar.
- * Pull down menus and choose commands.

BACKING UP HYPERPAINT

You may make backup copies of HyperPaint, but not of the manual. Every copy must include the same proprietary and copyright notices as the original. You may not sell, loan, or give away a copy of HyperPaint.

Before you do anything else, it is essential that you make a backup copy of the HyperPaint program diskette and the GDOS distribution diskette. A backup copy protects you from losing the original disk or damaging its contents.

Move the write-protect tab on the original disk so that you can see through the notch. Then copy the original disk from the GEM Desktop following instructions given in your Atari ST or MEGA ST Computer Owner's Manual. You can copy the disk to a formatted floppy or hard disk.

Once you've made the copy, store the original in a safe place; always use the backup copy as your HyperPaint master disk. Never make changes to the original disk.

HYPERPAINT FILE INFORMATION

With the GEM Desktop displayed on the screen, insert your backup HyperPaint master disk into your drive, then obtain a directory window of the disk. You'll find the following files on the HyperPaint disk:

AUTO FOLDER	This folder contains the GDOS program file and ensures that GDOS is automatically installed.														
GDOS.SYS FOLDER	This folder contains several GEM font files as well as a printer driver suitable for Epson FX series printers and compatibles.														
	<table> <tbody> <tr> <td>ATTR10.FNT</td> <td>10 Pt. Dutch font - hi/lo res.</td> </tr> <tr> <td>ATTR10CG.FNT</td> <td>10 Pt. Dutch font - med.res.</td> </tr> <tr> <td>ATTR12.FNT</td> <td>12 Pt. Dutch font - hi/lo res.</td> </tr> <tr> <td>ATTR12CG.FNT</td> <td>12 Pt. Dutch font - med. res.</td> </tr> <tr> <td>ATTR18.FNT</td> <td>18 Pt. Dutch font - hi/lo res.</td> </tr> <tr> <td>ATTR18CG.FNT</td> <td>18 Pt. Dutch font - med. res.</td> </tr> <tr> <td>FX80.SYS</td> <td>Epson FX80 printer driver</td> </tr> </tbody> </table>	ATTR10.FNT	10 Pt. Dutch font - hi/lo res.	ATTR10CG.FNT	10 Pt. Dutch font - med.res.	ATTR12.FNT	12 Pt. Dutch font - hi/lo res.	ATTR12CG.FNT	12 Pt. Dutch font - med. res.	ATTR18.FNT	18 Pt. Dutch font - hi/lo res.	ATTR18CG.FNT	18 Pt. Dutch font - med. res.	FX80.SYS	Epson FX80 printer driver
ATTR10.FNT	10 Pt. Dutch font - hi/lo res.														
ATTR10CG.FNT	10 Pt. Dutch font - med.res.														
ATTR12.FNT	12 Pt. Dutch font - hi/lo res.														
ATTR12CG.FNT	12 Pt. Dutch font - med. res.														
ATTR18.FNT	18 Pt. Dutch font - hi/lo res.														
ATTR18CG.FNT	18 Pt. Dutch font - med. res.														
FX80.SYS	Epson FX80 printer driver														
ASSIGN.SYS	GDOS font and driver configuration information.														
DEFAULT.BRS	Default set of brushes used by HyperPaint.														
DEFAULT.CFL	Default set of colour fill patterns used by HyperPaint.														
DEFAULT.MFL	Default set of mono fill patterns used by HyperPaint.														
PAINT.DAT	Data file for the HyperPaint printing utility.														
PAINT.OPT	HyperPaint printing utility default settings file.														
PAINT.PRG	HyperPaint program file.														
PAINT.PRT	HyperPaint printing utility.														
PAINT0.RSC	Low resolution HyperPaint resource file.														
PAINT1.RSC	Medium resolution HyperPaint resource file.														
PAINT2.RSC	High resolution HyperPaint resource file.														
README.DOC	A document containing information on the latest release of HyperPaint.														

LOADING HYPERPAINT

To load HyperPaint switch on your system in the normal manner and ensure that GDOS has been correctly installed.

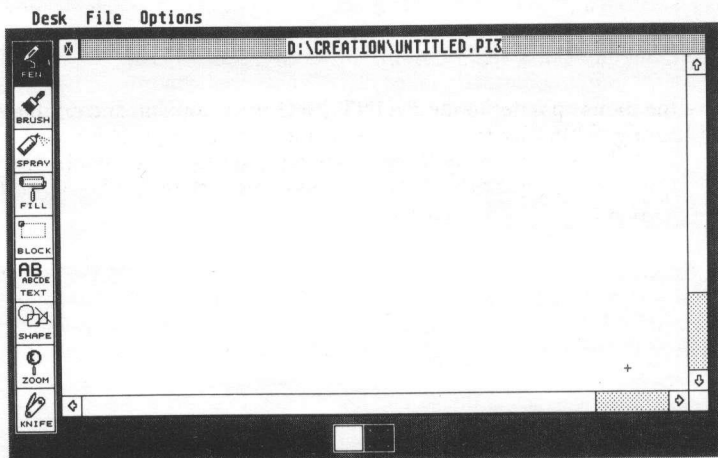
Ensure that the system is in the screen resolution that you require. On a colour system use the Desktop **SET PREFERENCES** option to change from medium to low resolution or vice versa. HyperPaint will run in any of the ST's three resolutions.

Obtain a directory of the drive or folder containing the HyperPaint program files. Unless HyperPaint is being run from hard disk, this will normally mean double-clicking on the A disk icon from the GEM Desktop.

Move the mouse pointer to the **PAINT.PRG** program icon and double-click to start loading. 520ST owners can increase the number of graphics workstations available to HyperPaint by holding down the 'Alternate' key while the program is loading; this prevents additional fonts from being installed. After a short while, HyperPaint's startup screen appears.

THE SCREEN LAYOUT

The HyperPaint screen layout consists of four elements. A menu bar used to configure the various painting tools, an icon bar used to select and configure the tools, a palette to select the current drawing colour, and a large work area where painting takes place.



THE MENU BAR

The menu bar consists of three menus: Desk, File and Options. The way the menus are invoked should be no secret to any Atari user who has ever used the GEM desktop: Pointing the mouse cursor on a menu title causes the appropriate menu to 'drop down'; you then select the menu option that you want.

THE ICON BLOCK

The icon block running down the left-hand of the screen contains nine individual icons, each representing one of HyperPaint's drawing tools. Clicking once on an icon selects that particular tool for use; double-clicking on an icon displays the configuration menu or dialog used to choose or disable features associated with that drawing tool.

THE PAINTING AREA

HyperPaint's painting area is within the large window occupying most of the screen. Painting normally takes place within this window, although it is possible to use the **entire screen** by pressing the **right-hand mouse button** or pressing the **'Help'** key.

THE PALETTE

The palette is used to select the current working colour. It operates in a similar way to HyperPaint's icon block; clicking once on a colour selects it for use, double-clicking on any colour displays a dialog allowing you to replace that colour with any of the ST's 512 colours.

On monochrome systems the palette allows you to select either black or white as the current colour. Double-clicking on any part of the palette will reverse the current palette.

THE DESK MENU

Desk

About HyperPaint

VT52 Emulator
Control Panel
Set RS232 Config.
Install Printer

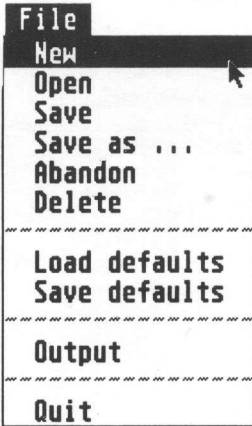
About HyperPaint

Selecting this item invokes an alert box containing information such as the program name, a copyright notice, the author's name etc.

Desk Accessories

GEM allows up to six desk accessories to be installed at boot-up time; if you have installed any, their names will appear in this menu. Desk accessories can consume a lot of memory and it is therefore advisable to keep them to a minimum (or zero if you are using a 520 ST) if best use is to be made of HyperPaint.

THE FILE MENU



New

This menu entry prints an alert box to give you a chance to reverse your decision; if you don't, it clears the current workstation and resets the window name to

UNTITLED.???

where '???' is the file extension of the current picture format.

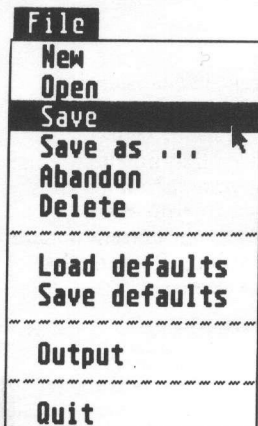
If you are working on an 'irregular' (i.e. larger than screen size) IMG file (only possible with workstation 1), the 'Set IMG size' dialog appears so that you can choose a different canvas size.



Open

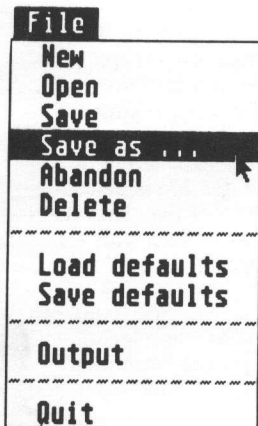
A warning message is displayed asking you to reconsider; if you decide to go ahead, the standard GEM file selector appears, showing all picture files in the current folder that match the file extension of the picture format you are working with (*.NEO, *.PII etc).

Select a picture and click on 'OK' or double-click on a picture name. The file will be loaded in memory replacing the previous contents of the current workstation.



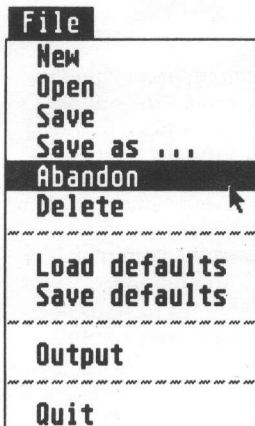
Save

The GEM file selector appears, with its filename field already filled-in with the name of the current workstation. Pressing the Return key or clicking the mouse button on 'OK' saves the picture to disk; alternatively, you can cancel the operation. If the current filetype is IMG you are also given the option to save the current colour palette as part of the IMG header.



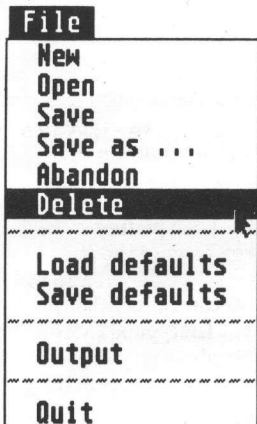
Save as ...

The GEM file selector appears, with its filename field left blank. You can type in a new filename (making sure you use the correct extension) or select a file with the mouse pointer in which case the selected file will be replaced by your picture. Pressing the Return key or clicking the mouse button on 'OK' saves the picture to disk; alternatively, you can cancel the operation. If the current filetype is IMG you are also given the option to save the current colour palette as part of the IMG header.



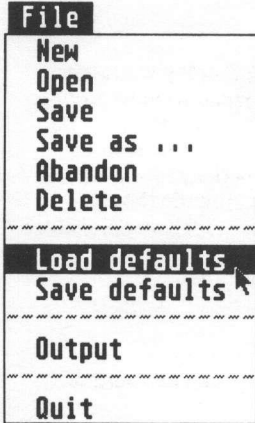
Abandon

A warning message is displayed asking you to reconsider; if you decide to go ahead, the GEM file selector appears, its filename field already filled-in with the name of the current workstation. Pressing the Return key or clicking the mouse button on 'OK' replaces the current picture with its last saved version; alternatively, you can cancel the operation.



Delete

After the GEM file selector is displayed, use the mouse pointer to select any one of the displayed files. Double-clicking or pressing 'Return' or selecting and clicking on 'OK', prints a warning message; if you still want to go ahead, the file is deleted and you can select another file. This allows you to delete a number of files with a single operation. Click on 'Cancel' to finish.



Load Defaults

Selecting this option allows you to load the default fill pattern and brush files:

DEFAULT.MFL
DEFAULT.CFL
DEFAULT.BRS.

These are normally loaded when HyperPaint is run, but if in the course of a session you modify either fill patterns or brushes, **Load Defaults** allows you to easily revert back to the default styles.



Save Defaults

This option lets you replace the current default fill patterns and brushes with different ones. It permanently changes the three default files:

DEFAULT.MFL
DEFAULT.CFL
DEFAULT.BRS

so that the new versions are automatically installed when HyperPaint is loaded. Only do this if you have safely backed up the default files supplied with this program.



Output

Clicking on this menu entry exits the main program and runs a special printing utility called 'PAINT.PRT'.

You can return to HyperPaint from the printing utility by selecting the 'Quit' option in the 'File' menu. Alternatively, you can return to the GEM Desktop by selecting the same 'Quit' option while holding down the 'Alternate' key.

Further information on using the HyperPaint print utility can be found in Appendix B



Quit

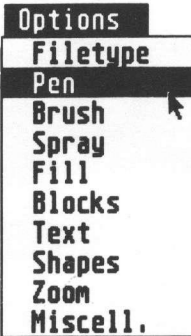
This option allows you to exit HyperPaint and return to the GEM Desktop. An alert box is displayed offering you the option of either saving your work and returning to the program or simply quitting to the desktop.

THE OPTIONS MENU



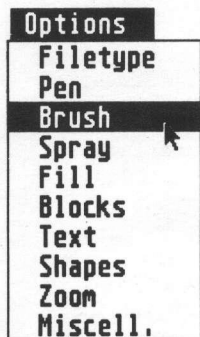
Filetype

The 'FILE OPTIONS' sub-menu drops down, showing all available file formats (NEO, Degas etc). The currently selected one is ticked and you can choose a different format by simply clicking the mouse button on it. The filetype applies to all available workstations.



Pen

This menu entry causes the pen selection dialog box to appear; this can also be achieved more directly by double-clicking on the PEN icon. Eight pen thicknesses are available, the current one being highlighted. The selected pen thickness also determines the border line thickness used by all unfilled shapes.



Brush

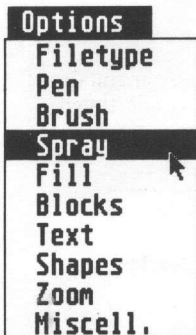
The 'BRUSH OPTIONS' sub-menu drops down showing the following additional selections:



The first entry, 'Select brush', allows you to choose one of eight brush shapes, edit any one of them or choose to use the current block as a brush.

Sets of eight brush shapes can be saved to disk or loaded from disk using the file extension '.BRS'. The file 'DEFAULT.BRS' must always be on your boot disk for the program to find and load when it is first run.

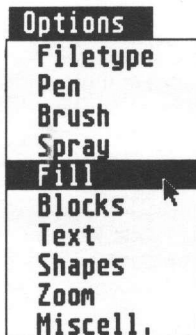
More details on brushes will be found in the section on Painting Tools.



Spray

This menu entry causes the spray dialog box to appear; this can also be achieved more directly by double-clicking on the SPRAY icon. The dialog allows you to select either a small, medium or large spray nozzle as well as setting the spraying speed using a six-step slider.

The section on the Painting Tools describes the spray in more detail.



Fill

The 'FILL OPTIONS' sub-menu drops down offering the following choices:

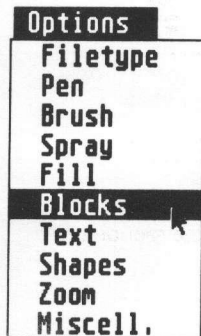


The first two options let you select the fill pattern of your choice as either a monochrome or colour 16 by 16 pixel pattern. If you are using a monochrome monitor, the 'Colour Fill' menu entry is disabled.

'Load', 'Save' and 'Save as.' allow you to load or save complete sets of **30** patterns depending on your choice of Monochrome or Colour mode. The extension '.MFL' is used for monochrome fills while '.CFL' is used for colour.

The 'Fill Mode' lets you select from 'Replace', 'Transparent', 'Invert' and 'Reverse Transparent' writing modes.

More on fill patterns will be found in the section on Painting Tools.



Blocks

Blocks are rectangular sections of a picture which can be defined (CUT) by the user and then saved to disk, pasted elsewhere on the picture, rescaled, stretched, rotated, skewed etc.

This menu entry causes the 'BLOCK OPTIONS' sub-menu to drop down, allowing you to pick one of the many block manipulation operations.

These are:

BLOCK OPTIONS	
Cut Block	ⓄM
Paste Block	ⓄN
Rescale	ⓄO
Stretch	ⓄP
Rotate	ⓄQ
Flip Horiz.	ⓄR
Flip Vert.	ⓄS
Skew Horiz.	ⓄT
Skew Vert.	ⓄU
Outline	ⓄV
Smooth	ⓄW
Paste Mode	ⓄX

Load Block	
Save Block	
Save as,,	

and are fully explained in the section on Painting Tools.

Options
Filetype
Pen
Brush
Spray
Fill
Blocks
Text
Shapes
Zoom
Miscell.

Text

The 'TEXT OPTIONS' sub-menu drops down offering the following options:

TEXT OPTIONS	
Font	ⓄI
Orientation	ⓄJ
Style	ⓄK
Writing Mode	ⓄL

The 'Font' option lets you select the typeface (font) and the character size in typographical points. The default font is 'System' which is the ST's ROM-based font.

Additional fonts (see Appendix A for font installation instructions) are loaded when the program is first run unless the 'Alternate' key is held down during loading.

The 'Orientation' option determines whether the text is printed from left to right, right to left, upwards or downwards.

The 'Style' option caters for text effects (Normal, Bold, Italic, Underlined, Outlined and Light) as well as text justification (Left, Centre or Right).

The 'Writing Mode' option allows you to select from a total of four modes: 'Replace', 'Transparent', 'Invert' and 'Reverse Transparent' and thus determine how the text is combined with the existing picture.

The Painting Tools section explains the text options in more detail.



Shapes

The 'SHAPE OPTIONS' sub-menu (also available by double-clicking on the Shapes icon) drops down offering the following two options:



'Select Shape' displays the Shapes dialog box which enables you to select one of 18 geometric or mathematical shapes. The selected icon is outlined and the shape it represents becomes the current shape as soon as you press 'Return' or click on the 'OK' button. The same dialog box can also be arrived at by simply pressing 'Alt' and 'A' together.

The following shapes are available:

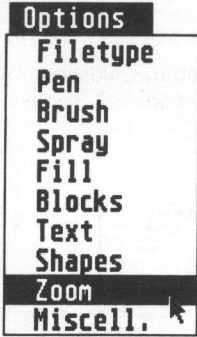
Unfilled

Lines
 Continuous Lines
 Rays
 Curves
 Triangles
 Rectangles
 Squares
 Circles
 Ellipses
 Circular Arcs
 Elliptical Arcs

Filled

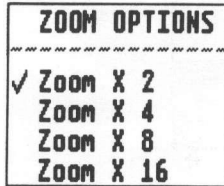
Triangles
 Rectangles
 Squares
 Circles
 Ellipses
 Circular Arcs
 Elliptical Arcs

The 'Set parameters' sub-menu entry displays a dialog box in which one of eight line 'types' can be selected as well as the option to outline or not the seven available filled shapes. It is worth noting here that all line types revert to solid if a line (pen) thickness of more than one pixel is selected.



Zoom

The 'ZOOM OPTIONS' sub-menu is displayed, offering a choice of four 'entry' magnification factors:



The selected zoom factor is ticked and is used each time you enter the Zoom mode as a 'start'. Of course, once in Zoom mode, you can decrease or increase the magnification factor in steps of one from 2 to 16 times actual size.

The sub-menu can also be produced by double-clicking on the Zoom icon.

The Painting Tools section of this manual covers the Zoom operation in more detail.

Options

Filetype
 Pen
 Brush
 Spray
 Fill
 Blocks
 Text
 Shapes
 Zoom
 Miscell.

Miscell.

The 'MISC. OPTIONS' sub-menu drops down offering the following miscellaneous options:

MISC OPTIONS	
Clear screen	⌘D
Smear	
Cycling	⌘Y
Mirror	

Set Cycling	⌘Z
Set Mirror	
Set Palette	
Load Palette	
Save Palette	

Work Manager	⌘E
Set .IMG size	

MISC OPTIONS	
Clear screen	⌘D
Smear	
Cycling	⌘Y
Mirror	

Set Cycling	⌘Z
Set Mirror	
Set Palette	
Load Palette	
Save Palette	

Work Manager	⌘E
Set .IMG size	

Clear screen**(Alt D)**

After a warning alert box that allows you to change your mind, the current workstation screen is cleared.



Smear

This is a 'toggle', that is it changes state from selected (ticked) to non-selected (unticked) each time you click on it. If it is selected, it modifies the operation of the spray tool so that the colour used for each, randomly produced, spray dot is decided upon by randomly reading pixels from the spray's target area (the screen area encircled by the spray's nozzle outline).

The effect this has on the sprayed area is that adjacent colours are 'mixed' and their edges smoothed over by pixels of one colour being sprayed onto regions of the other and vice versa. For example, if you move the spray cursor over the boundary of, say, a blue and a white area, random blue pixels will be 'diffused' into the white area and white pixels into the blue area. The visual result will be that of a reasonably smooth transition from one colour to the other.



Cycling

(Alt Y)

This option acts as an 'ON/OFF' switch for the colour cycling operation. The sub-menu entry is ticked if cycling is enabled and unticked when colour cycling is disabled.



Mirror

Like 'Smear', this toggles the Mirror option on and off. Mirroring is supported by the Pen and the Brush (in the non-block mode) and can produce some very interesting and decorative effects.

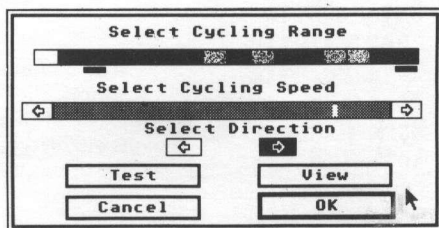


Set cycling

(Alt Z)

Cycling a selected range of colours from the current colour palette can add an extra dimension to your pictures. Careful choice of colours can produce an impression of animation whose speed and direction is user-defined.

This sub-menu entry displays a special dialog box through which you can set the range of colours to cycle, the speed of cycling (from approximately 50 'steps' a second to about 1/2 a step a second) and the direction ('left' or 'right'). Test buttons allow you to examine the cycling palette ('Test') or the complete picture ('View').



A copy of the colour palette at the top of the dialog box lets you define the range (marked by means of the two 'bar' delimiters under the colour boxes). To do this, click the left-hand mouse button on the colour box you want the cycling to start from, and, without releasing the button, 'drag' it (towards the right!) to the last colour you want in the sequence; then let go of the button. The markers will be positioned under the colours of your choice.

The colour cycling speed is set using a conventional GEM slider: Increase the speed by moving the slider to the right (by 'click-and-dragging-it' or clicking on the right arrow) and decrease it by moving the slider to the left or clicking on the left arrow.

If the filetype is NEO or DEGAS, saving a colour picture also saves the colour cycling information. Only one set of colour cycling data is supported and it is therefore shared by all available workstations.



Set Mirror

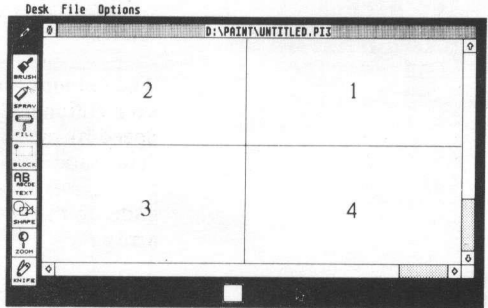
The 'Set mirror' dialog box is printed on the screen. It displays three options; Horizontal, Vertical and Diagonal.



Any combination of them can be set by simply clicking on the appropriate options to select them. To de-select an option that is enabled, just click the mouse button on the appropriate 'button'.

An invisible set of x-y axes, intersecting each other at the centre of the work area act as axes of symmetry for horizontal and vertical mirroring; their intersection providing a centre of symmetry for diagonal mirroring.

The work area is thus divided into 4 quadrants which we shall number 1,2,3,4:



Let's assume that you are drawing on the 3rd quadrant. Here is a table showing what you should expect depending on your set mirror options:

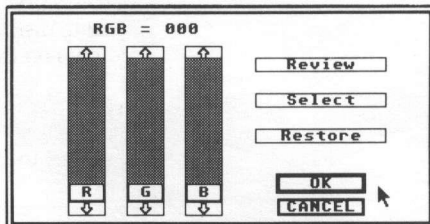
<u>Option</u>	<u>Writing on</u>
Horiz.	4
Vert.	2
Diag.	1
Horiz. + Vert.	4 + 2
Horiz. + Diag.	4 + 1
Vert. + Diag.	2 + 1
Horiz. + Vert. + Diag.	4 + 2 + 1



Set Palette (or double-click on any palette colour)

If this option is selected on a monochrome system, the Black and the White palette boxes are inverted and therefore, background and foreground 'colours' are exchanged.

In colour, a dialog box is displayed consisting of the following:



(i) R,G and B vertical slide bars showing graphically the Red, Green and Blue proportions of the current palette colour.

The RGB mix can be varied by either 'click-and-dragging' the appropriate colour slider or clicking on the up or down arrows of each slide bar.

Each slider can represent up to eight 'steps' of participation in the overall mix, 0 to 7. Selecting a different colour from the palette at the bottom of the screen, updates the slide bars accordingly.

(ii) A numerical display of the RGB proportions consisting of three digits, one for each of the primary colours, which is also updated when a colour is selected or mixed. Each digit can vary from 0 to 7.

(iii) 'Review'. Clicking the left-hand mouse button on this and holding it down takes you to the full screen to take a look at the way your palette changes have altered the appearance of the picture. Releasing the mouse button returns you to the colour selection dialog. If the mouse button is pressed while holding the 'Alternate' key down, and you position the centre of the cross cursor over a pixel on the main screen, returning to the dialog box makes the colour of that pixel the current palette selection. This is useful if it is visually hard to distinguish between very similar colours on the palette.

(iv) 'Select'. A single click on this dialog entry, takes you on a trip to the colourful world of the ST's full palette of 512 colours.

Clicking on any of the 512 narrow strips updates the colour of the large rectangle at the extreme right and shows the RGB mix of that colour. Once you have selected a colour, click anywhere inside the large rectangle to return to the main dialog. The currently selected palette position adopts the colour you chose.

(v) 'Restore'. This lets you re-instate the ST's default palette i.e. the palette the ST boots up with. You are offered a chance to cancel.

(vi) 'Cancel' and 'OK'. These have the usual effects of cancelling all changes or accepting them, respectively.

If, whilst the colour selection dialog is displayed, you click on a palette position and then 'drag' the mouse towards the right, defining a 'rubber' rectangle joining up two colours, releasing the mouse button causes all the intermediate palette boxes to adopt shades between the start and end colours in a properly graded fashion. For example, if position 1 (extreme left) of the palette is WHITE and position 8 is BLACK, joining them up produces a complete grey scale from white to black. You might find that some of these intermediate colours are repeated; this happens if there are fewer possible colours between the two limits than there are available palette positions. This feature is particularly useful if effective 'smoothing' or anti-aliasing of blocks is desirable.

MISC OPTIONS	
Clear screen	⌘D
Smear	
Cycling	⌘Y
Mirror	

Set Cycling	⌘Z
Set Mirror	
Set Palette	
Load Palette	
Save Palette	

Work Manager	⌘E
Set .IMG size	

Load/Save palette

These two entries allow you to load or save just the colour palette of the current workstation for future use without having to load/save the complete picture. A file extension of 'PA1' is used for Low resolution palettes while 'PA2' is used for Medium.


```

MISC  OPTIONS
-----
Clear screen  [D]
Smear
Cycling      [Y]
Mirror

-----
Set Cycling  [7]
Set Mirror
Set Palette
Load Palette
Save Palette

-----
Work Manager [E]
Set .IMG size
  
```

Work Manager**(Alt E)**

This entry brings up the Workstation Management dialog box which lets you Select, Copy or Clear workstations.

```

Workstation Management
-----
1 2 3 4 5 6 7 8 9 10
-----
Copy mode:
Palette Image Both
-----
Clear mode:
One All
-----
Copy Clear
-----
Cancel OK
  
```

To select a particular workstation (although this is much much easier done using a function key!) just click on one of the available workstations and then click on OK or press Return. If you have clicked on a workstation box by mistake and don't quite remember what your current workstation is, click on 'Cancel'.

To copy the CURRENT workstation to another one, click on the desired destination, decide on the Copy mode (Palette only, image only or both) and then click on COPY. The current workstation is shown by being highlighted.

To clear the current workstation, select 'ONE' as the Clear mode and then click on CLEAR.

To clear all workstations (up to 10 on a 1040 ST or a Mega ST), select 'ALL' as the Clear mode and then click on CLEAR.

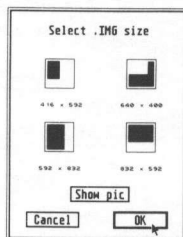
```

MISC  OPTIONS
-----
Clear screen  [D]
Smear
Cycling      [Y]
Mirror
-----
Set Cycling  [Z]
Set Mirror
Set Palette
Load Palette
Save Palette
-----
Work Manager [E]
Set .IMG size
  
```

Set IMG size

This option only works if the selected filetype is IMG and the current workstation is number 1. (Workstation 1 is the one to use if you want to load or create an IMG file which is not 'screen-sized'). An alert warns you to that effect.

Selecting the 'Set IMG size' option displays a dialog box with 4 pre-set picture sizes and an option to view the complete IMG file. Click on a picture size to select it and then press Return or click on OK. The size will be adopted if there is enough memory to satisfy the request.



If you want to preview your picture select the 'Set IMG size' menu option and click on the 'Show Pic' button to get a 'best-fit' representation of your whole painting. Clicking the left-hand mouse button erases this picture and takes you back to the main screen.

Note that very large IMG pictures (typically 400-500K of scanned images on a 1040 ST) will need to be scaled down for this display, so be patient!

THE PAINTING TOOLS

The nine icons on the left-hand side of the screen represent your drawing and painting tools.

A single click of the left-hand mouse button on any of these icons selects that particular tool and the current painting mode (filling, magnifying etc). The tool remains active until another one is selected (with the exception of the KNIFE which automatically selects the block icon immediately a shape is jack-knifed).

Double-clicking on a tool icon brings up a dialog box or a sub-menu enabling you to set the parameters or options pertaining to that particular tool. For most tools, there is also an entry in the 'Options' menu which allows you to set or change the parameters for a certain tool even if another tool is currently active. In this way a different pen thickness can be chosen, for example, while you are in the middle of drawing lines or curves using the Shapes tool.

You can only select a tool if you are in the 'window' mode although most tool options can be set in the full-screen mode by using keyboard shortcuts.

The various tools and their options are described in the following sections.

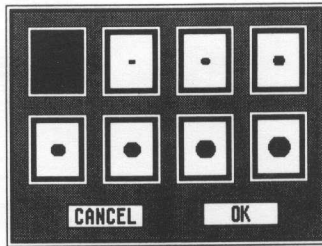
PENS



The Pen is a simple drawing tool which could be used to roughly sketch your picture before editing it in detail using zoom, or to erase parts of it by drawing with a suitable background colour.

Eight pen thicknesses are available, these also determine the line thickness used by the Shape tool for creating the border of all unfilled shapes.

To invoke the pens dialog either double-click on the pen icon or choose 'Pen' from the 'Options' menu. The first method switches you to the Pen mode (if you are not already there) while the second allows you to set a thickness without leaving your current tool.



Once the pen selection dialog is displayed, select the current pen thickness and click on OK or press Return.

BRUSHES

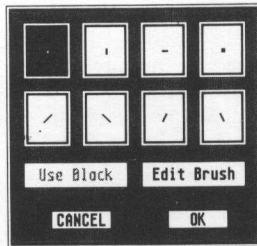


The Brush is a more versatile tool than the Pen and is normally used for more detailed work or special effects.

In addition to the eight single-colour brushes any rectangular picture block defined (CUT) using the BLOCK tool, can also act as a brush; brushes always operate in the Transparent mode and, therefore, any elements of background colour (the left-most colour in the palette) in the brush/block will allow the picture underneath to show through.

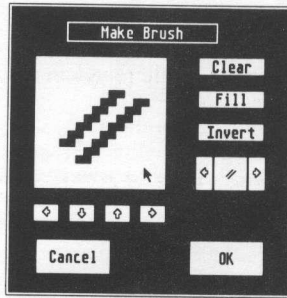
To select the tool, click on the Brush icon. If the current brush is not a picture block, the cursor will change to the brush shape.

To select a brush, double-click on the brush icon or choose 'Brush' from the 'Options' menu followed by 'Select Brush' in the 'Brush Options' sub-menu ('Alternate B' has the same effect). The brush selection dialog will appear.



A brush is selected by clicking on the square containing the brush shape you wish to use and then clicking on OK or pressing Return.

The eight available brushes can then be edited by selecting any one of them and clicking on 'Edit Brush'.



If a picture block has been defined (CUT), the 'Use block' button will be enabled thus becoming the ninth possible choice. If this option is chosen, 'Edit Brush' becomes inactive.

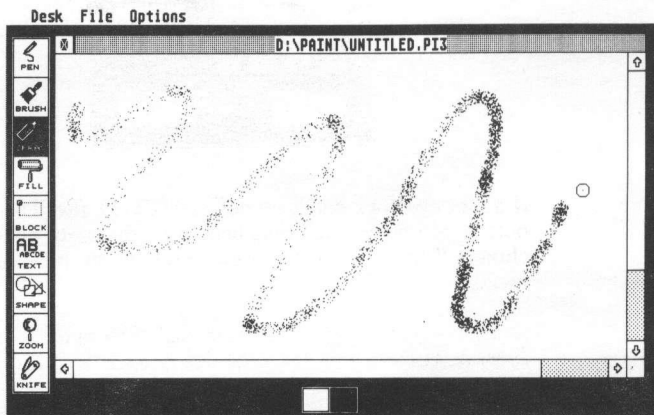
Brushes can be saved to disk or loaded from disk as '.BRS' files. A .BRS file contains the definitions of all eight brushes.

A brush file called 'DEFAULT.BRS' is loaded when the program is first run, providing a default set of eight brushes. (Make sure there always is a 'DEFAULT.BRS' file on your program disk). You could rename your favourite brush file to 'DEFAULT.BRS' (provided you make a copy of the one supplied on your master disk for safe keeping) so that the brushes of your choice are loaded in by default.

SPRAYCAN

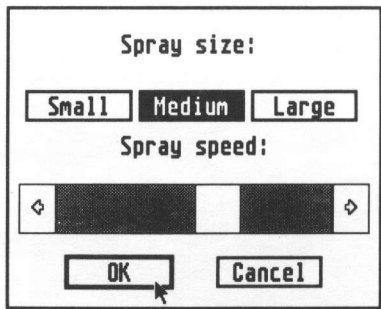


The Spray or airbrush randomly sprays a fixed, circular area with groups of single pixels in a manner not dissimilar to that of a painter's spray-gun.



Like all the other tools the Spray is selected by clicking the left-hand mouse button once on the spray-can icon.

To set the characteristics of the Spray, double-click on the spray-can icon or select 'Spray' in the 'Options' menu.



The dialog box which appears also lets you choose one of three spray sizes: small, medium and large, as well as one of six possible spray speeds; the speed is reduced or increased by clicking on the left or right arrows respectively, or by simply 'dragging' the slider to the required position.

When the spray is used, the cursor is replaced by a nearly circular outline enclosing the 'target' area. The current palette colour is normally used unless the 'Smear' option has been enabled from the 'Miscellaneous' sub-menu, in which case the colour used is decided upon by randomly reading pixels from the spray's target area.

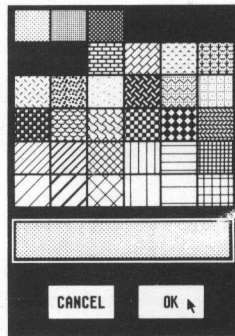
FILL PATTERNS



The fill mode is selected by clicking the left-hand mouse button once on the fill icon.

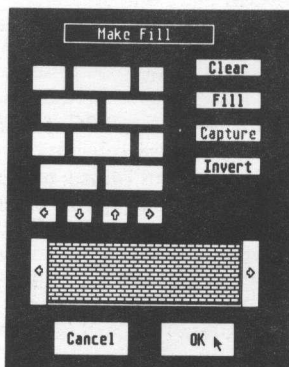
Double-clicking on the icon brings up the 'Fill options' sub-menu which allows you to select monochrome or colour fills, save or load fill pattern files, and set the fill writing mode. The same sub-menu can be produced by selecting 'Fill' in the 'Options' menu.

36 monochrome fill patterns are available in addition to a further 36 colour patterns if a colour monitor is attached. The selection dialogs for monochrome or colour fill patterns are normally invoked by clicking on the appropriate fill sub-menu entry. Alternatively, each dialog can be displayed directly from the keyboard by pressing either 'Alt F' for monochrome or 'Alt G' for colour.



Each dialog box consists of 36 small rectangles each filled with one of the 36 patterns and a large rectangle which indicates the current selection. Clicking on any of the small filled rectangles updates the large one with the new fill pattern. Clicking on the 'OK' button fixes the selection and makes the last selected pattern the current fill.

If the left-hand mouse button is clicked inside the large filled rectangle, the dialog box is replaced by the 'Edit Fill' dialog; you can now customise the current fill pattern (or any one of the 36 by using the left and right arrow buttons on either side of the large rectangle that displays the 1:1 pattern).



If you are editing a monochrome pattern, clicking the left-hand mouse button inside the editing rectangle has a toggling effect: white pixels turn black and vice-versa; For colour patterns, you pick up the desired colour from the standard palette.

The 'Capture' button is enabled when editing a colour fill pattern. Clicking on it takes you to a full-screen display of your picture where a transparent, rectangular cursor lets you define a 16 x 16 pixel area as the current fill pattern. Once you are over the desired part of the picture, click the left-hand mouse button again to return to the fill pattern editor. The area enclosed by the cursor will then become the new fill pattern.

Once a monochrome or colour fill is selected, it becomes the 'current' fill and is used whenever the 'fill' tool is active to fill an enclosed area. Filling takes place from the point the mouse button was clicked until a different boundary colour is found. As soon as the fill tool is chosen, the cursor changes to a tilted jug and the cursor 'hot-spot' is the tiny drop of paint which appears to have just left the spout. It is this hot-spot that must be inside the area to be filled when the mouse button is pressed.

If the area you are filling is not completely enclosed, the paint will 'leak' into other areas; in this case, wait for the fill to end, press UNDO to restore the previous state of your canvas and then edit the boundary to eliminate the 'leak'.

Avoid filling areas which have already been filled with some fine, dotted pattern or such like; the fill algorithm will be faced with the horrendous task of working its way through a complicated maze of 'boundary' pixels and might, therefore, take a very long time.

Sets of fill patterns (all 36 of them) can be saved to disk or loaded from disk by selecting the appropriate sub-menu entry. If the current fill is a mono pattern, Load and Save will automatically adopt the extension .MFL and only operate on the monochrome fills. Similarly, if the current fill is a colour pattern, a colour mode will be assumed and the extension .CFL will be used.

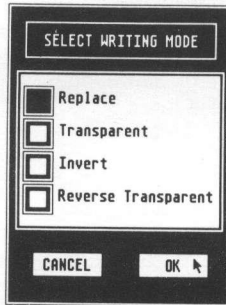
Two fill pattern files will be found on your master disk:

DEFAULT.MFL
DEFAULT.CFL

These are loaded in automatically when you first run the program. If, at any point you would like to restore the default fill patterns and brushes (after, perhaps, some unsatisfactory editing etc), click on the 'Load defaults' entry in the 'File' menu. Similarly, if you would like a certain set of fills and brushes to become your start-up defaults, use the 'Save defaults' entry of the same menu. Don't forget to make backups of the files supplied on your master disk as 'Save defaults' will over-write the following files.

DEFAULT.BRS
DEFAULT.MFL
DEFAULT.CFL

The 'Fill Mode' entry in the 'FILL OPTIONS' sub-menu ('Alternate H') allows you to set the particular way in which the fill pattern will be combined with the existing picture.



In the 'REPLACE' mode, the fill pattern simply over-writes whatever was on the canvas before; it is perfectly predictable for both mono and colour fills.

The remaining three modes will be explained in the context of monochrome fills (i.e. one background and one foreground colour).

TRANSPARENT: The pattern itself is superimposed on the canvas while its background is made transparent (ignored) and therefore the old canvas colours show through.

INVERT: The background of the fill pattern is again transparent but all the pixels of the canvas which correspond to the actual pattern are inverted. The current palette colour is ignored and the only colours appearing in the filled area are the old canvas colour (fill pattern background) and its inverse (fill pattern foreground). Inverses of colours are rather peculiar and difficult to guess in advance, so it's worth experimenting.

REVERSE TRANSPARENT: As the name implies this is a variant of the transparent mode. In this case it is the pattern itself that becomes transparent and allows the old canvas to show through while the pattern background is opaque and painted in the current palette colour.

BLOCK MANIPULATION



Any rectangular portion of a picture can be defined ('CUT') as a BLOCK.

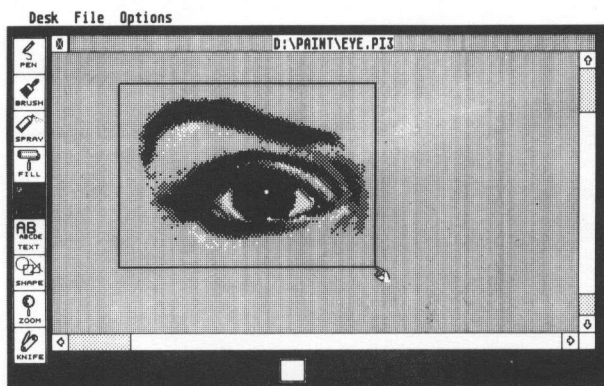
The cut block can then be pasted back onto the original picture or another workstation in its original form or after a suitable transformation. It can also be saved to disk in a .IMG format, ready to be imported into other applications such as 1st Word Plus, HyperChart, Calamus, Fleet Street Publisher and Timeworks DTP.

To select a Block operation:

Double-click on the Block tool (the rectangle below the paint roller) or select BLOCKS in the Options menu. Once a block operation has been chosen, it remains active and can be used as soon as you select the Block tool by single-clicking on it.

CUT BLOCK

(Alt M)

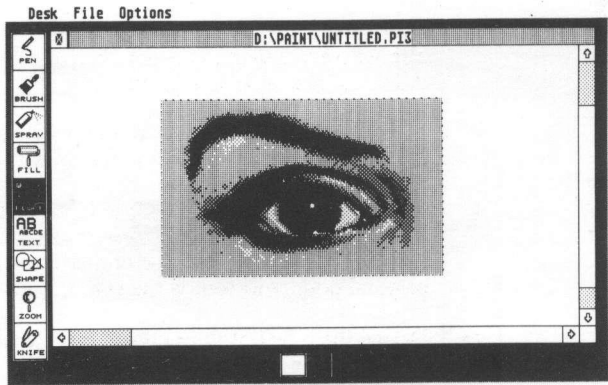


This option is automatically selected when the program is first run. To define a block:

- (i) Select the Cut Block operation as outlined above, alternatively, select the Block icon and press the Alternate and M keys together.
- (ii) Move the cross-hair cursor to the point on your canvas where you want the block to start.
- (iii) Hold down the left-hand mouse button while moving the cursor (now, a pointed hand) in any direction. A rectangular outline with one corner fixed to the original point will follow the cursor.
- (iv) Define the block of your choice by releasing the mouse button. The part of the original picture enclosed by the rectangle will be removed while a dashed outline is left to mark its place. This is the default, but you can override it by holding the SHIFT key down while going through steps (iii) and (iv). In this case, a 'snapshot' of the defined area is taken leaving the original picture intact. The dashed outline will remain on the screen until the next operation.

If you accidentally cut a block without holding SHIFT down, the picture may be restored by pressing UNDO after releasing the mouse button. This does not affect the contents of the 'cut buffer'.

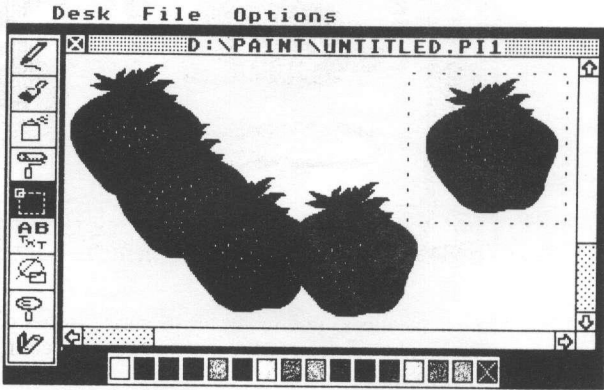
After a block is cut, the PASTE option is automatically selected and, therefore, you will have to go through steps (i) to (iv) to define a different block.

PASTE BLOCK**(Alt N)**

This option is selected automatically after a block is cut using the CUT BLOCK option or the Jack Knife tool. Alternatively, it can also be activated by clicking on the 'Paste Block' option in the BLOCK OPTIONS sub-menu or by using its keyboard shortcut: Alternate N.

- (i) Move the cursor onto the canvas and click the left-hand mouse button once. The cut block, surrounded by a dashed outline, becomes visible and may be moved freely around your painting area by moving the mouse.

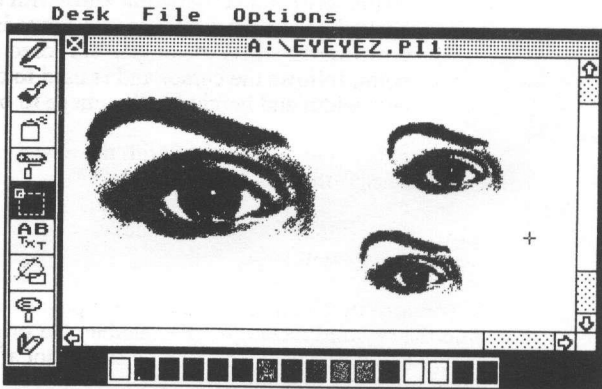
- (ii) Use the mouse to position the block accurately and then click the left-hand mouse button once. The block is pasted ('stamped') onto the canvas.



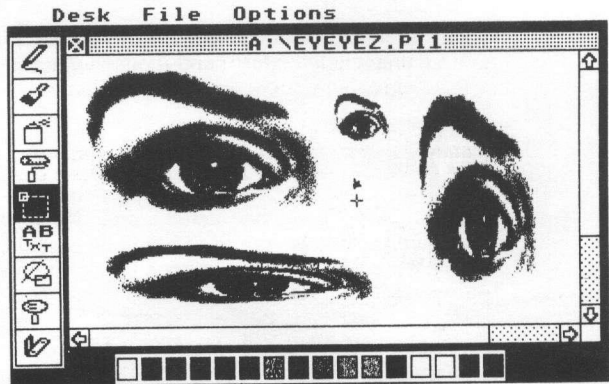
To paste the block again, repeat steps (i) and (ii). Pressing ESC while moving the block around the screen cancels the operation. The particular way in which the block is combined with the existing picture is defined by the 'Pasting Mode'.

RESCALE
STRETCH

(Alt O)
(Alt P)



'Rescale' pastes a re-sized copy of the block onto the canvas retaining the proportions of the original block.



'Stretch' allows you to stretch or shrink either dimension of the block and does not, therefore, always retain the original proportions.

Having selected 'Rescale' or 'Stretch' from the BLOCK OPTIONS sub-menu, do the following:

- (i) Move the cross-hair cursor to the point where you want the top left-hand corner of the re-sized block to be.
- (ii) Hold down the left-hand mouse button. A dashed outline indicating the actual size of the block appears, its top left-hand corner coinciding with the point you clicked on. As the mouse moves towards the right and downwards, a new rectangle, anchored to the same point, follows the cursor and is used to determine the new width and height for the image to be pasted.
- (iii) When you are satisfied with the new dimensions release the mouse button.

The main difference between rescaling and stretching becomes apparent here:

If you are stretching, the block is manipulated so that it fits into the re-sized rectangle. (Remember, the original block is safely kept in its own storage area and is not affected by anything other than the next CUT).

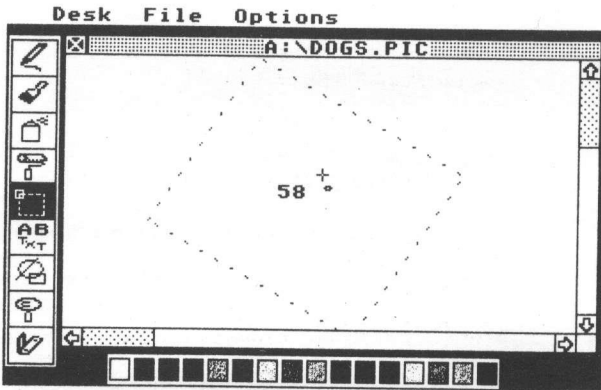
If you are rescaling, the height of the re-sized rectangle is ignored and a new one is worked out so that the proportions of the original block are retained.

ROTATE

(Alt Q)

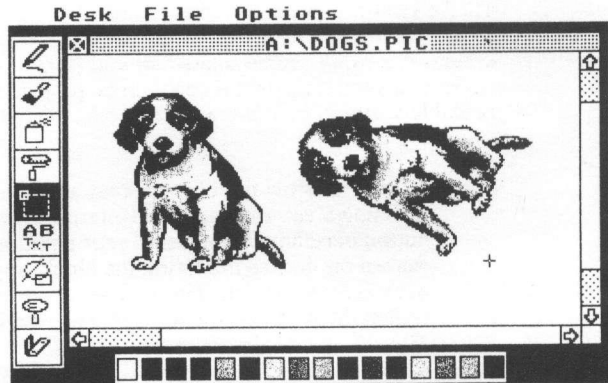
An existing block can be rotated around its centre in increments of one degree; it can then be pasted to any of the available workstations. To effect a block rotation do the following:

- (i) Having selected the 'Rotate' option on the BLOCK OPTIONS sub-menu, click the left-hand mouse button once anywhere inside your painting area. A dashed outline, representing the block, appears in the middle of the screen. This can be rotated around its centre as the mouse moves freely around the screen. The rotation angle in degrees is displayed inside the rectangle.



- (ii) As soon as the desired rotation angle is shown, click the left-hand mouse button once to fix it. The degree display disappears and you will find that the pre-rotated outline rectangle can be moved across your canvas following the movement of the mouse.

- (iii) When the rotated rectangle is over the position that you wish to paste the newly rotated block, click the left-hand mouse button once and the rotated block unfolds on the canvas.

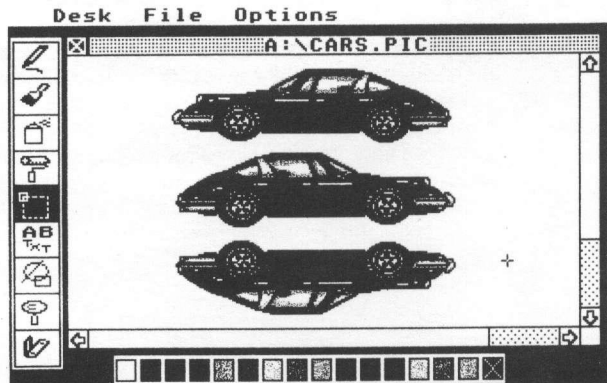


UNDO can be used to remove the pasted block from the screen while pressing ESC during steps (i) and (ii) cancels the operation.

FLIP HORIZONTAL
FLIP VERTICAL

(Alt R)
(Alt S)

These operations are used to paste mirror images of the block onto the painting area.



With horizontal flip, the left-hand edge of the original block becomes the right-hand edge of the pasted block and vice-versa. It is, therefore, a reflection around an imaginary axis that runs right through the middle of the block.

The vertical flip is a reflection around a horizontal axis and as a result, the top edge of the original block becomes the bottom line of the pasted block and vice-versa.

Select one of the flip options from the BLOCK OPTIONS sub-menu and then:

- (i) Click the left-hand mouse button anywhere inside the painting area. The cursor disappears and is replaced by a dashed block outline which can be moved freely across the canvas following the mouse movement.
- (ii) When the block outline is over the area you want the flipped block to be pasted on, click the left-hand mouse button. The 'mirrored' block is pasted on your canvas and the cross-hair cursor is restored.

UNDO and ESC perform their usual functions: UNDO removes the pasted, flipped block and restores the canvas to its previous state. ESC removes the moveable outline cursor and cancels the operation during step (i).

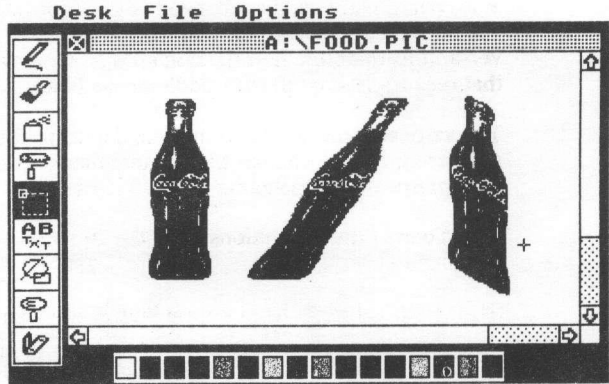
SKEW HORIZONTAL
SKEW VERTICAL

(Alt T)
(Alt U)

The skewing procedure is identical to that for block rotation except that now the free movement of the mouse in step (i) alters the skew rather than the rotation angle.

Step (ii) fixes the skew angle while step (iii) pastes the skewed block onto the canvas.

Again, pressing ESC while in steps (i) or (ii) cancels the operation and pressing UNDO after step (iii) restores the picture to its previous state.



OUTLINE SMOOTH

(Alt V)
(Alt W)

These two operations should be considered to be operations on selected areas of the canvas rather than general block manipulations. They affect the part of the screen that the original block was cut FROM and they should, ideally, be used immediately after cutting a block (with SHIFT) so that the on-screen picture still contains the block.

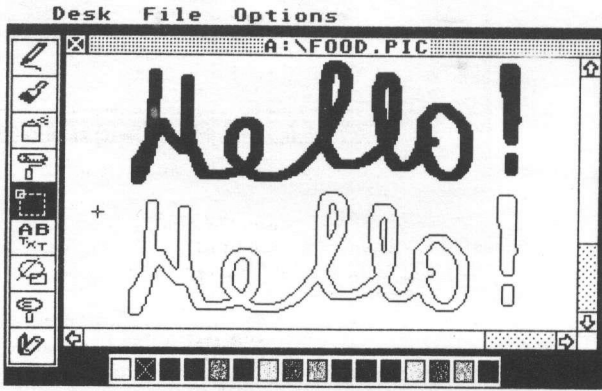
Both operations 'read' information held in the 'cut buffer' and modify the corresponding section of the canvas based on that information. (Special effects can be achieved, though, by clearing the screen or switching to a different workstation).

Both operations require two mouse button clicks:

The first click draws a dotted rectangle around the area the block was cut from (whether the block is still there or not) marking it as a 'target' for the actual operations, while the second outlines or smooths. The following explanations assume that the first click has already taken place.

OUTLINE

When this option is selected from the BLOCK OPTIONS sub-menu, clicking the left-hand mouse button over a pixel inside the area where the block originated from causes the colour of that pixel to be identified. Then, all the regions within the block, which are painted the same colour, receive a single-pixel outline in the currently chosen palette colour.

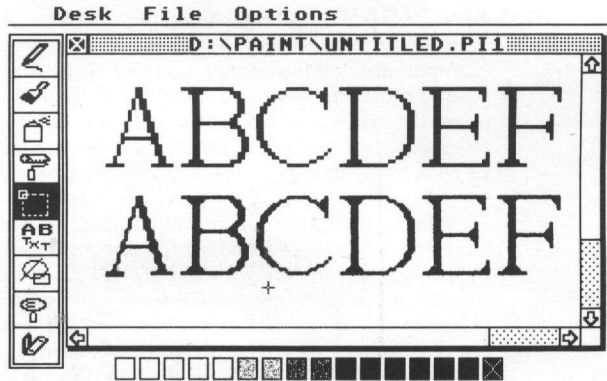


For example: If the current palette colour is red and the mouse button is clicked over a yellow pixel inside the area the block came from, all yellow regions bounded by the block dimensions will be outlined in red.

SMOOTH

This is a software image-filter. In monochrome, it scans the block from top to bottom and eliminates single, isolated pixels ('Spot noise'). The apparent result is that certain digitised pictures of a rather 'dotty' appearance may be made to look cleaner by resembling high contrast, line-drawings.

In colour (particularly in low resolution), areas of abrupt intensity changes are identified and their edges are blurred by choosing the most appropriate intermediate shades from the current palette. For example, jagged lines and transitions from one colour to another are smoothed by filling the corners with pixels of the best available colour.



The 'anti-aliasing' algorithm used is more effective if your current palette contains a few colours which lie between the ones you want to blur. For example:

To smooth the 'staircase' look of a black 'A' printed on a white background, make sure the palette contains two or more shades of grey. (Double-click on a palette colour to get the 'Set palette' dialog box and 'click-and-drag' to join up two colours and define a range of shades between them).

PASTING MODE

(Alt X)

Like the 'Fill mode', the pasting mode determines how the block is pasted onto the existing picture. The same modes (Replace, Transparent, Invert and Reverse Transparent) apply and these are fully described in the section on Fill Patterns.

The Pasting mode is only relevant if 'Paste' has been selected; it does not apply to the other block functions which always use a 'Replace' mode.

LOAD/ SAVE/ SAVE AS...

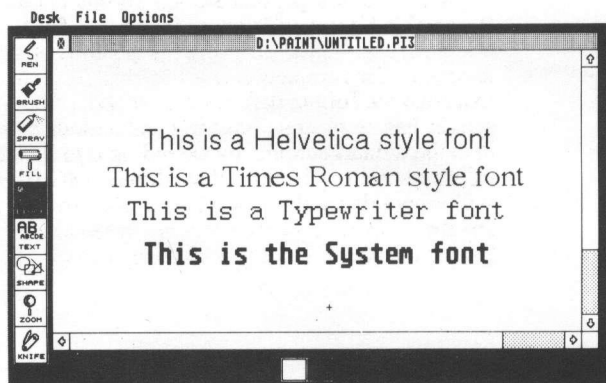
Saving and Loading Blocks is one of HyperPaint's major features. Not only can you transfer blocks from one picture to another via a disk but you can also export your blocks to other packages such as Word Processors and Desk Top Publishing programs.

To achieve this, a popular storage format is used, Digital Research's bit image standard for picture files:- IMG. (You will notice that the IMG format is also one of the types supported for complete images by this program). We have extended the formal definition of an IMG file which, as it stands, has no means of dealing with colour palettes other than the default colours, by extending it to include palette information. Applications that address IMG files correctly will ignore this additional information, however, to cater for 'badly behaved' programs you are given an option to leave palette information out when saving a block.

TEXT



The Text icon allows you to add text to your pictures in a variety of fonts, sizes, effects, orientations and colours.



After selecting the text icon, simply move the pointer back into the drawing area and start typing. You will find that the text is printed in the current palette colour (unless a 'reverse' writing mode is used) using the currently set attributes. Furthermore, the text can be freely moved around the screen following the mouse until the 'Return' key is pressed or the left-hand mouse button is clicked. These two actions 'fix' the text string with all its attributes and they only differ in what they permit you to do next:

The 'Return' key fixes the current string of characters and moves your print position onto the next line (not always the line below, see 'Orientation') and a column determined by your chosen justification, e.g. if left justification is selected, the implied text cursor is positioned exactly under the left-most character of the fixed string just like a typewriter or a word-processor. The text you type in now is no longer moveable as its position has been set in relation to the previous line.

Clicking the left-hand mouse button, terminates and fixes the string and allows you to start again with a new one at a different position.

The various text options of the current string can be changed 'on-the-fly' provided that the string hasn't been fixed yet.

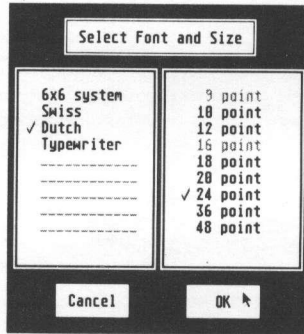
Double-clicking on the text icon or selecting 'Text' in the 'Options' menu brings up the 'TEXT OPTIONS' sub-menu which lets you select the Font and Font size, the Orientation, the Style and Justification and the Writing Mode.

Alternatively, the four keyboard short-cuts can be used to produce the text dialog boxes directly - a very handy method of changing parameters while you are still typing the text in.

FONT

(Alt I)

This option lets you select the Font (typeface) and the Font size (in typographical points a la GEM!) to be used by the current text string. Up to 9 fonts (including the system font which is always there) and 9 popular point sizes are supported.



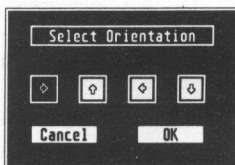
The fonts are loaded when you first run the program (unless you hold the Alternate key down while loading) and must conform to the GDOS standard. Fonts may be installed or removed using the procedure detailed in Appendix A.

The available font point sizes are: 9, 10, 12, 16, 18, 20, 24, 36 and 48. Selecting a font by clicking the left-hand mouse button on its name, immediately shows which point sizes that particular font supports. You simply click on the size you want and this becomes the current size for all your text handling until you select another size or another font.

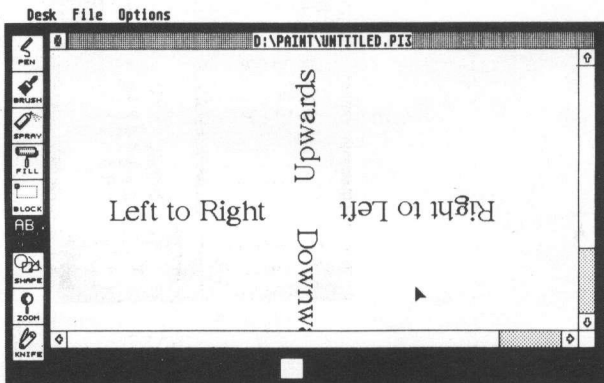
ORIENTATION

(Alt J)

The orientation or rotation of your text string describes the direction of writing. There are four possibilities:



- (i) Left to right (0 degrees anti-clockwise rotation)
- (ii) Upwards (90 degrees anti-clockwise rotation)
- (iii) Right to left (180 degrees anti-clockwise rotation)
- (iii) Downwards (270 degrees anti-clockwise rotation)

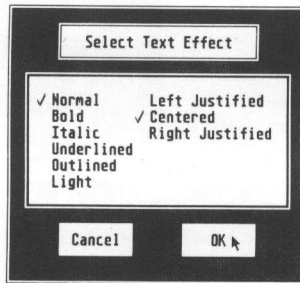


It is worth noting that left to right and right to left are NOT mirror images of each other (nor are upwards and downwards). Just imagine that you carry on writing in the conventional manner but somebody keeps rotating your paper from time to time by 90, 180 or 270 degrees clockwise!

STYLE

(Alt K)

This dialog box lets you select the special effect(s) you wish your text to have as well as the way it is justified once fixed by the 'Return' key.



All GEM effects, supported by the ST implementation, are offered:

- Normal (cancels all others)
- Bold
- Italic
- Underlined
- Outlined
- Light

The typed text can be Left, Centre or Right justified; that is, on each Return key press, the text line can be aligned to the left margin, can be centrally positioned or can be aligned to the right margin.

You will, no doubt, find the best uses for justified text through experimentation like, for example, the use of Right justification when a piece of text has to be aligned to a right-hand edge etc.

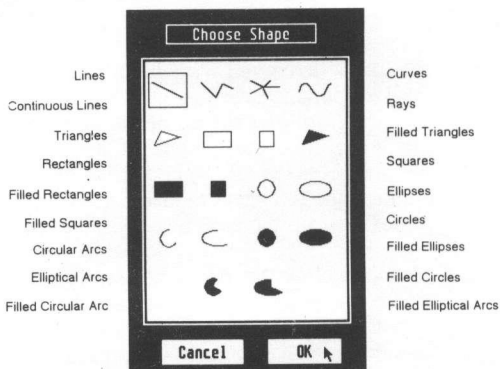
WRITING MODE**(Alt L)**

Like the 'Fill mode', the text writing mode determines how the string is 'blended' with the existing picture. The same modes (Replace, Transparent, Invert and Reverse Transparent) apply and these are fully described in the section on 'Fill'.

SHAPES



To select this tool, click once on the Shapes icon; to choose a particular type of shape to draw, double-click on the icon or click on 'Select Shape' in the 'SHAPE OPTIONS' sub-menu or simply use the 'Alternate A' keyboard shortcut.



Shapes are divided into two types: unfilled and filled. Unfilled shapes are drawn using the current palette colour, the current pen thickness and, for the minimum pen thickness only, a line style normally set by the 'Set parameters' (Alt C) option in the 'SHAPE OPTIONS' sub-menu. This is an important point to remember because, no matter which line style is selected, for lines thicker than 1 pixel GEM defaults to a solid line.

Filled shapes use the current monochrome or colour fill pattern and can be optionally outlined by a single-pixel line in the current colour and line style. The option to outline is also set using the 'Set parameters' (Alt C) entry of the 'SHAPE OPTIONS' sub-menu.

All shapes operate in a 'free-movement', 'rubber-band' fashion in which the selected shape is dynamically generated and drawn as the mouse is moved freely around without any buttons being pressed; when a point or a radius or an angle needs to be fixed, the left-hand mouse button is pressed and the process either ends or enters its next 'construction' phase.

For example:

To draw a curve, select the curves icon in the Shapes dialog box and click on 'OK' or press Return. Then click the left-hand mouse button once on the point on the canvas where you want the curve to start.

The point is marked with an 'X' and as you move the mouse freely around the canvas, a 'rubber band', anchored at the 'X' point, follows the tip of the pointer. The rubber-banded line lets you set the steepness ('the tangent') of your curve at the point it takes off. Once you've chosen the tangent, clicking the left-hand mouse button fixes it (although it is removed from the screen for aesthetic reasons).

You then click the mouse button on a point on the canvas where you want the curve to pass through. A new marker appears and as you freely move the mouse again, a rubber-banded tangent similar to the previous one follows the pointer. In addition, the two 'X' markers are joined by a curve of a fixed initial steepness and a shape controlled by the mouse.

When you are happy with the curve, you fix the second tangent by clicking the mouse button once, the markers are erased and the curve joining the two points is printed in the current colour and pen thickness.

The steepness of the second point of the curve is 'remembered' so that clicking on another point on the canvas lets you chain segments of curves together in a continuous manner.

Pressing the Escape key (ESC) at any time, terminates this 'chaining' and allows you to start a completely new curve.

Pressing UNDO has a similar effect but also erases all the chained segments and restores the screen to its previous state.

You will soon work out how to use the Shapes provided you remember that button clicks are only used to fix the various parameters of the shape (vertices, angles etc) while 'rubber-banding' is done by freely moving the mouse without holding down the left-hand mouse button.

The parameters of a shape vary depending on the shape in question. For example, a line is fully defined by fixing its two end points while a circle needs a centre and a radius, an ellipse needs a centre and two radii etc.

To create arcs you need a centre, one or two radii, a starting angle and an ending angle. The arc will be drawn from the starting angle to the ending angle in an anti-clockwise direction.

The procedure is as follows:

- (i) Define the centre of the circle or the ellipse which contains the arc by clicking the left-hand mouse button once.
- (ii) Move the mouse freely (without pressing any buttons) to define the radius (or radii).
- (iii) Click the left-hand mouse button to fix it.
- (iv) Move the mouse freely to define the starting angle of the arc.
- (v) Click the left-hand mouse button to fix it.
- (vi) Move the mouse until the desired arc is displayed.
- (vii) Click the left-hand mouse button to fix it.

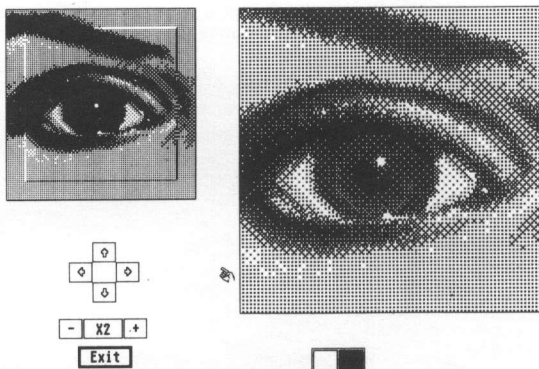
The continuous nature of rays, continuous lines and curves necessitates the use of the Escape key as a means of terminating the operation. You will find that while these shapes are active, you can no longer switch from full to windowed screen and vice versa or change workstation; you'll have to interrupt the operation first by pressing Escape (or Undo, as described above).

ZOOM



To select zoom mode, click on the Zoom icon once. To set a default magnification, double-click on the icon or select 'Zoom' in the 'Options' menu. One of four 'coarse' levels of magnification can then be selected (x2, x4, x8 and x16).

When the Zoom tool is selected, moving the pointer back into the work area changes it to a magnifying glass. Position the magnifying glass over the point that you want to become the centre of the zoom rectangle and click the left-hand mouse button once; the normal screen is replaced by the 'Magnify' screen which consists of the following:



The 1:1 window, a rectangle containing a large chunk of your canvas at its normal size. A dotted, rectangular outline (the 'focus rectangle') marks the exact section of the picture that is being shown in the Edit Window.

The Edit Window occupies the largest part of the top right area of the Magnify screen and consists of the contents of the 'focus rectangle' magnified by the currently selected zoom factor.

This is where the editing of the magnified picture takes place, by the user 'painting' the 'fat-bits' using the arrow cursor and the current palette colour. The changes are shown immediately on the part of the 1:1 window that is enclosed by the focus rectangle.

The palette, where colours are selected as usual by clicking on the appropriate box. Double-clicking to set the palette colours is NOT permitted.

The bits'n'pieces, The arrows allow you to move the focus rectangle over any part of the full screen picture.

The Plus (+) and Minus (-) signs increase and decrease the magnification respectively in steps of 1 from a minimum of x2 to a maximum of x16. The current zoom factor is shown in the box between '-' and '+'.

'Exit' (or the Return key) fixes the last changes and returns to the previous screen mode.

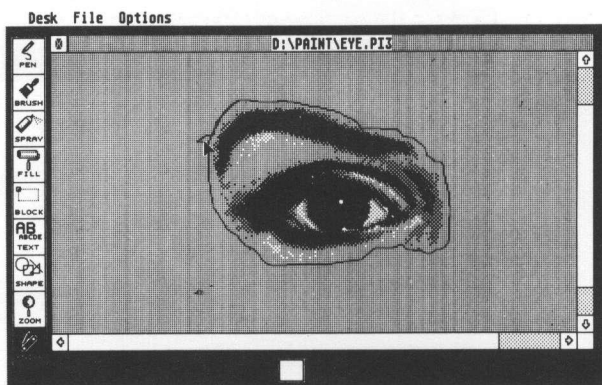
'Undo' has a toggling effect in Zoom mode: Pressed once, it cancels the last change; pressed again, cancels the last 'undo' and restores the last change and so on.

KNIFE

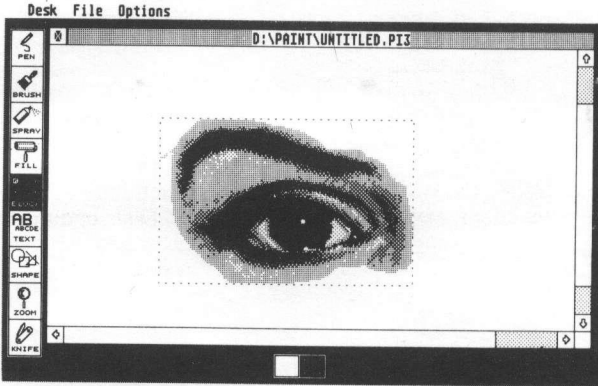


The knife or Jack-Knife allows you to CUT irregularly-shaped blocks. Once CUT, a block can be manipulated the usual way by the various block operations.

Click on the Knife Icon to select it and then move back to your painting area, click the left-hand mouse button at the point where you want to start and then, without releasing the button, 'trace' the shape you want to cut out. When you let go of the button, the block is stored in the Cut Buffer, the Knife tool is automatically de-selected and the Block tool is selected.



'Paste' mode becomes the current block operation until another is chosen. Just like cutting blocks, holding SHIFT down while cutting with the knife leaves the cut section in its place, otherwise it physically removes it.



Double-clicking on the Knife icon brings up the BLOCK OPTIONS sub-menu. Knife supports the same range of block manipulation commands mentioned in section L.

APPENDIX A

GDOS INSTALLATION GUIDE

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- Q-3 **SYSTEM COMPONENTS**
- Q-4 **USING THIS GUIDE**
- Q-4 **GETTING STARTED**
 - Q-4 Making a working copy of the GDOS Distribution Disk
- Q-5 **DISTRIBUTION DISK CONTENTS**
 - Q-5 INSTALL.PRG and INSTALL.RSC
 - Q-5 GDOS.PRG
 - Q-6 The META Folder
 - Q-6 The HILO_RES and MED_RES Folders
 - Q-6 The PRINTER Folder
 - Q-6 README.DOC
- Q-7 **THE INITIAL GDOS INSTALLATION**
- Q-11 **EFFECTS OF THE GDOS INSTALLATION**
 - Q-11 ASSIGN.SYS
 - Q-12 The GDOS.SYS folder
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- Q-25 GDOS System Folder
- Q-26 New GDOS.PRG
- Q-27 New Drivers/Fonts
- Q-27 New ASSIGN.SYS
- Q-27 Loading your customised GDOS installation

Q-28 GDOS ERROR MESSAGES

WELCOME TO ATARI GDOS

Welcome to Atari GDOS, the program that enables the Atari ST and MEGA computers to use graphics printing devices and custom fonts.

GDOS (Graphics Device Operating System) is installed in your System with the GDOS installation program and enabled through GDOS-based applications such as paint packages, drawing programs, word processors and desktop publishing software.

With GDOS installed, you can use a selection of fonts in your picture and you can print it as you see it to any GDOS-compatible printer such as the Atari SMM804 dot-matrix printer and the Atari SLM804 laser printer.

Once installed, GDOS is loaded from your boot drive when you switch on your system and remains resident in RAM throughout your work session.

GDOS and the GDOS installation program can be used with Atari MEGA and ST computers, GDOS-compatible printers and GDOS-based applications.

SYSTEM COMPONENTS

In order to customise GDOS, you must set up your Atari computer system with the following components:

- * Atari MEGA or ST computer
- * Two Atari disk drives (may include one hard disk drive)
- * Atari Monitor or television
- * Atari GDOS-compatible printer
- * Formatted floppy disks

Set up your system following the instructions in the Owner's Manuals supplied with the equipment. Before using GDOS, it is recommended that you have a good working knowledge of all components of your Atari computer system.

USING THIS GUIDE

The information and illustrations in this manual tell you how to install GDOS in your system for the first time and then customise the installation for your particular needs. For best results, it's recommended that you work through the manual from beginning to end. Once you're familiar with using the GDOS installation program, this manual can serve as a reference guide to individual procedures and specific information.

A summary of each manual section follows:

Getting Started explains how to make a working copy of the GDOS distribution disk and install GDOS for the first time. This section includes descriptions of all information on the GDOS distribution disk.

Customising Your GDOS Installation explains how to use the installation program to customise GDOS for your special needs. Most importantly, this section includes directions for installing new fonts and device drivers.

GDOS Error Messages explains the error messages your system may return once the GDOS.PRГ file is on your boot disk.

GETTING STARTED

Making a Working Copy of the Distribution Disk

The GDOS installation program is contained on the GDOS Distribution Disk. It is essential that you make a working copy of the disk to use routinely, and store the original disk as your backup copy. Doing this protects you from losing the original disk or damaging its contents.

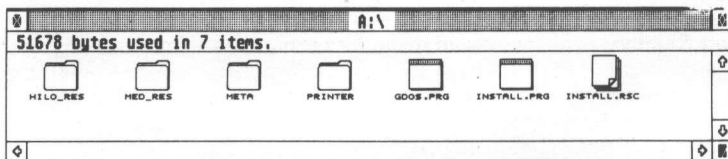
Write-protect the original disk by sliding its write-protect tab so you can see through the notch. (When a disk is write-protected, its information cannot be changed or erased). Then copy the disk from the desktop, following the instructions in your Atari computer Owner's Manual. If you have a hard disk connected to your system, copy the GDOS Distribution Disk to the root directory of drive C.

Always use the copy as your working disk. Store the original disk in a safe place protected from dust, moisture, direct sunlight, and sources of electric power or magnetism. If the information on your working disk is damaged or erased, use your original disk to make a new working disk.

GDOS DISTRIBUTION DISK CONTENTS

The GDOS distribution disk contains the files you need to install GDOS in your system. The files include several device drivers and fonts. Device drivers allow GDOS to print or display to a particular graphics device; fonts tell GDOS the form of the characters to be printed or displayed.

To see what the disk contains, display a directory window for it on the desktop. The directory looks like this:



INSTALL.PRГ and INSTALL.RSC

INSTALL.PRГ is the GDOS installation program, which lets you install the GDOS program, fonts, and device drivers from the GDOS Distribution Disk into your system. After the initial GDOS installation, you will use INSTALL.PRГ to install new fonts and device drivers or remove those already resident, as your needs change.

INSTALL.RSC is the GDOS installation program's GEM resource file.

In order to run, INSTALL.PRГ must be in the root directory of a disk in drive B or in the root directory of drive C, and INSTALL.RSC must be in the same directory. (For complete information, see **The Initial GDOS Installation** later in this section).

GDOS.PRГ

GDOS.PRГ is the GDOS program. During the initial GDOS installation, GDOS.PRГ is written to an AUTO folder on your boot disk (drive A or drive C). This allows your system to run GDOS.PRГ automatically during booting. (For complete information, see **The Initial GDOS Installation** later in this section).

The HILO_RES and MED_RES Folders

The HILO_RES and MED_RES folders contain the GDOS fonts for high-, low-, and medium resolution screen display. Screen fonts are the counterpart of printer and meta fonts, and are used by GDOS to display on screen exactly how a document or picture will look when printed.

Screen fonts for high and low resolution are identified by short filenames (six characters plus an extension); screen fonts for medium resolution are identified by having 'CG' as the seventh and eighth characters in the filename.

Screen fonts are run by the screen driver SCREEN.SYS, which is resident in ROM.

The META Folder

The META folder normally contains metafile fonts, should an application require them. An image orientated program such as HyperPaint does not require access to Metafile fonts.

The PRINTER Folder

The PRINTER folder contains GDOS device drivers for the Atari SMM804 dot-matrix printer, the Atari SLM804 laser printer, the Star Micronics NB15 and the Epson FX-80 dot-matrix printer. The printer drivers are identified by the printer name followed by the extension '.SYS' e.g. **FX80.SYS**.

README.DOC

If README.DOC is present on your disk, be sure to read it before using the GDOS installation program. README.DOC will explain any production changes made to the GDOS distribution disk that are not described in this manual. (You can read the file either by printing it to the screen or by opening it within a word-processing application such as Microsoft Write or 1st Word Plus).

THE INITIAL GDOS INSTALLATION

When you run the GDOS installation program for the first time, you will accomplish three things:

- (i) GDOS.PRГ will be installed in an AUTO folder on your boot disk.
- (ii) An ASSIGN.SYS file will be written to the root directory of your boot disk. ASSIGN.SYS provides the roadmap for the GDOS program, telling it which device drivers and fonts are used together and where to find them in the system.
- (iii) A GDOS system folder (GDOS.SYS) will be written to the drive you specify. The folder will hold all device drivers and fonts supplied on the distribution disk. Later any drivers and fonts you install for other devices will be added to the folder.

To run the GDOS installation program you must have at least two disk drives connected to your system. The second drive will be either a floppy or hard disk drive.

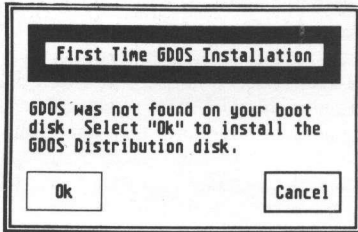
To run the GDOS installation for the first time, follow these steps:

- (i) With the desktop displayed, insert your working GDOS distribution disk into the drive as described in paragraph A or B:
 - (A) If you have two floppy disk drives, insert your working GDOS distribution disk into drive B. Insert your boot disk (the disk containing your desk accessories) into drive A. If you don't have a boot disk, insert a blank, formatted disk into drive A. Then go on to step (ii).
 - (B) If you have a hard disk drive, copy the GDOS distribution disk to the root directory of drive C. (You may have done this already when you made a working copy of the distribution disk). If your system boots from the hard drive, go on to step (ii). If your system boots from a floppy drive, insert your boot disk (the disk containing the AUTO folder and any desk accessories) into drive A, then go on to step (ii).

- (ii) Display a directory (either B or C) for your GDOS Distribution Disk and double-click on INSTALL.PRG. In a moment, the INSTALL.PRG desktop and a dialog box appear:



- (iii) In the dialog box, select Floppy or Hard Disk to specify your current boot drive. Then select OK. A dialog box appears:



- (iv) Select OK to continue with the GDOS installation. A dialog box appears:



- (v) In this dialog box you specify the drive where the GDOS program will find the GDOS system folder. The GDOS system folder contains the device driver and fonts needed by your GDOS-based applications. You must specify the drive now so that INSTALL.PRG can record that location in the ASSIGN.SYS file it will soon create.

You can select any drive available in your system. (Non-available drives are shadowed in the dialog box). To help you decide which drive to specify, remember that when you later run a GDOS-based application such as HyperPaint, the disk containing the GDOS system folder must remain in the drive you choose now. For example, if you have two floppy drives and you are going to run HyperPaint from drive A, you should select drive B for your GDOS system folder. If you have a hard disk drive, it is highly recommended that you specify an available hard disk partition.

Select your drive, then select OK.

- (vi) A. **If you specified a floppy drive in step (v),** a dialog box appears asking you to insert a blank, formatted disk into drive A.

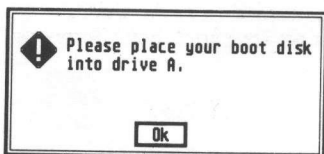


Insert the disk into drive A, then select OK. The GDOS.SYS folder is created on that disk, which you will later keep in whatever drive you specified in step (v) whenever you run a GDOS-based application.

- B. **If you specified a hard disk partition in step (v), the GDOS.SYS folder is now created there.**

Dialog boxes monitor the operation.

- (vii) If your system boots from a floppy drive, a dialog box now asks you to insert your boot disk into drive A. Do that, then select OK. (If your system boots from a hard drive, this message is not displayed).



The program now writes GDOS.PRG to an AUTO folder on your boot disk. If an AUTO folder exists on your boot disk, GDOS.PRG is added to it. Then the program creates the ASSIGN.SYS file in the root directory of your boot disk. Dialog boxes monitor these operations.

- (viii) GDOS is now installed, but you must reboot your system in order to load it. A dialog box appears:



Select Reboot. While the system reboots, GDOS loads automatically from the AUTO folder and a message appears telling you that GDOS is resident.

Then the desktop appears.

EFFECTS OF THE GDOS INSTALLATION

Now that you've installed the GDOS program, device drivers, and fonts supplied on the GDOS Distribution Disk, your system can display those fonts on screen and print them to a supported printer.

Note: GDOS printer drivers are available for other printers in addition to the ones mentioned previously. For information contact your Atari Dealer or see Customer Support at the end of this manual.

Installing GDOS results in the following new folders and files on your system:

- * The GDOS program GDOS.PRG was copied from the GDOS Distribution Disk to an AUTO folder on your boot disk (floppy or hard).
- * An ASSIGN.SYS file was written to your boot disk.
- * A GDOS system folder named GDOS.SYS was created on disk for use in the drive you specified. Once the folder was created, the GDOS installation program read all the device drivers and fonts from the folders on the distribution disk into GDOS.PRG for later use with your GDOS-based applications.

ASSIGN.SYS

The ASSIGN.SYS file is a text file that records the location of the GDOS files and folders in your system. It works as a roadmap for the GDOS program, telling it what device drivers and fonts are used together, and where to find them. Information in ASSIGN.SYS is read into RAM during booting, and remains resident until you reboot or switch off your system.

As you install and remove drivers and fonts, you will write updated ASSIGN.SYS files to your boot disk. A valid ASSIGN.SYS file must be current in order for GDOS to locate installed device drivers and fonts.

Note: the ASSIGN.SYS file contains filenames only. The actual font and device driver files are contained in the GDOS.SYS folder.

The GDOS.SYS Folder

The GDOS.SYS folder contains the GDOS fonts and device drivers that were supplied in the folders on your GDOS Distribution Disk. (The screen driver SCREEN.SYS, which is resident in ROM, is not contained in GDOS.SYS).

It's recommended that you keep only those drivers and fonts you are currently using in your GDOS.SYS folder, and remove all others. (See the section on removing items from your GDOS installation). Keeping unused items in your GDOS.SYS folder takes up disk space that you would probably rather be able to use for something else.

GDOS FONT FILES

The GDOS font files contain the information GDOS needs to print and display characters in various fonts to specific devices. A font is the size and style of the characters in which text is displayed or printed.

Note: GDOS is compatible with all GEM-format fonts.

The fonts supplied on the GDOS Distribution Disk contain three typefaces: Swiss, Dutch, and Typewriter.

Swiss and Dutch have 10-, 12-, 18- and 24-point fonts. (Points indicate the size of a font; higher point sizes mean larger fonts). Swiss and Dutch are also proportional fonts (that is, characters are proportionately wider or narrower depending on their shape).

Typewriter is a 10-pitch fixed font; that is, it prints 10 characters to the inch. (In a fixed-pitch font, all characters are the same width regardless of their shape).

This is Swiss 10-point, a proportional font.

This is Typewriter, a 10-pitch fixed font.

This is Dutch 18-point, a proportional font

When using a GDOS-based application such as HyperPaint, you are able to use a range of fonts on the same diagram or picture. To display these fonts on screen, the GDOS program will use high, medium or low resolution screen fonts depending on the resolution HyperPaint is being run in.

GDOS FONT FILENAMES

In GDOS, font files are named according to the following pattern:

ATcc##nn.FNT

Where:

AT	is the font file prefix (1)
cc	is the font typeface (2)
##	is the font size (3)
nn	is the font device (4)
.FNT	is the font file extension (5)

For example:

ATTR12MF.FNT is a Dutch 12-point font for metafiles
ATSS12.FNT is a Swiss 12-point font for high and low resolution

- (1) All font filenames begin with "AT" as the first and second letters.
- (2) The third and fourth letters of the font filename identify the typeface: "SS" for Swiss; "TR" for Dutch; and "TP" for Typewriter.
- (3) The fifth and sixth characters of the filename indicate the point size of the font; 10-, 12-, 18-, or 24-point.
- (4) The seventh and eighth characters of the filename identify the device the font is designed for: "LB" means Atari SMM804 dot-matrix printer; "LS" means Atari SLM804 laser printer; "EP" means the Epson FX-80 printer; "SP" means the Star NB15 printer; "MF" means metafile; "CG" means colour graphics medium-resolution screen; no seventh or eighth character means high- and low-resolution screen fonts.
- (5) All font files end with the extension ".FNT".

Note: See the README.DOC file, if present on your GDOS Distribution Disk, for any modifications to the pattern of font filenames.

GDOS DEVICE DRIVERS

The GDOS device drivers contain the routines GDOS needs in order to print or display to a particular graphics device (such as the screen, a printer, a plotter, or a camera). Each graphics device must have its own GDOS device driver and (where required) fonts installed in the system in order to display or print GDOS images.

Device driver filenames include the name of the device and the extension ".SYS". For example, the file FX80.SYS supplied on your GDOS Distribution Disk is the device driver for the Epson FX-80 dot-matrix printer.

RUNNING A GDOS-BASED PROGRAM

With GDOS installed, you can run any GDOS-based application and display and print documents or images incorporating GDOS fonts. While you're running the application, the GDOS system folder must remain in the drive you specified during GDOS installation. This allows the application to use the drivers and fonts in the GDOS system folder. Refer to the first part of the HyperPaint manual for more information on using GDOS within the application.

CUSTOMISING YOUR GDOS INSTALLATION

INSTALL.PRГ on the GDOS Distribution Disk is the program you use to install GDOS in your system. Once GDOS is installed, you can use INSTALL.PRГ again and again to add new device drivers and fonts to the GDOS system folder and remove those you don't need. After you add or remove fonts, INSTALL.PRГ writes your new GDOS installation to disk and updates the ASSIGN.SYS file.

To customise your GDOS installation, begin by running INSTALL.PRG from the directory of your GDOS Distribution Disk (in drive B or on your hard disk drive). In a moment, the INSTALL.PRG desktop appears, along with a dialog box:



The program is asking to be directed to your boot drive so it can read the ASSIGN.SYS file. Select either Floppy or Hard Disk depending on your boot drive, then select OK. After the program reads ASSIGN.SYS, the INSTALL.PRG menu bar is displayed:

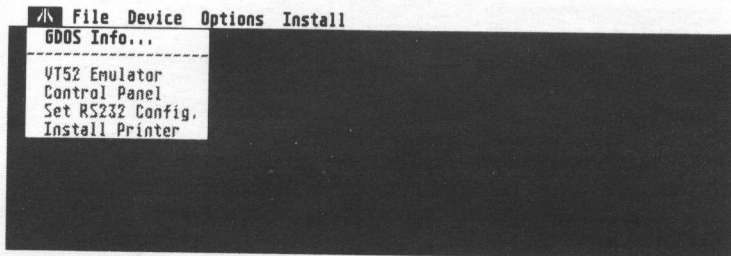
⌘ File Device Options Install



The program's five menu-bar headings, Atari, File, Device, Options, and Install, include drop-down menus containing the options you'll use to customise your GDOS installation. Move the mouse pointer to a heading and display its menu.

THE ATARI MENU

The ATARI menu contains the GDOS Info... option, plus any desk accessories loaded during booting. The desk accessories will be unavailable while you are working with the GDOS installation program.



GDOS Info...

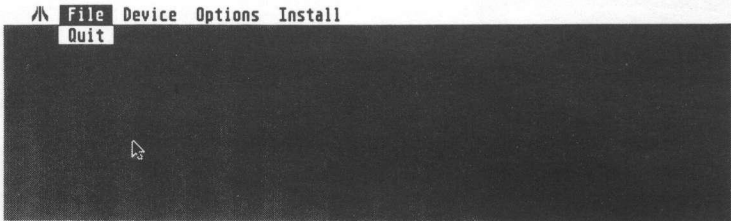
When you select GDOS Info..., a dialog box appears:



Select Exit to quit the option.

THE FILE MENU

The File menu contains the Quit option.



Quit

Select Quit to exit the installation program and return to the GEM Desktop.

If you have made no changes to your GDOS installation, the program closes and GEM Desktop appears.

If you made changes to your GDOS installation, but did not select any options from the Install menu, a dialog box tells you the installation will be cancelled.



Select OK to cancel any changes and return to GEM Desktop; select Exit to retain the INSTALL.PRG menu bar on screen and continue with the installation.

If you made changes but didn't complete the installation by selecting the correct options from the Install menu, or if you deleted a file from the Install window, a dialog box tells you that the installation is incomplete.



Select OK, then complete your installation by selecting the correct options from the Install menu. (See the **Install Menu** later in this section).

If you made changes and completed the installation with options from the Install menu, a dialog box gives you the choice of rebooting or canceling.

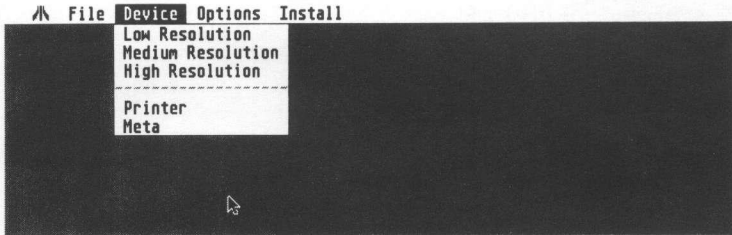


Select Reboot so that your system will load your new GDOS installation before returning to GEM Desktop.

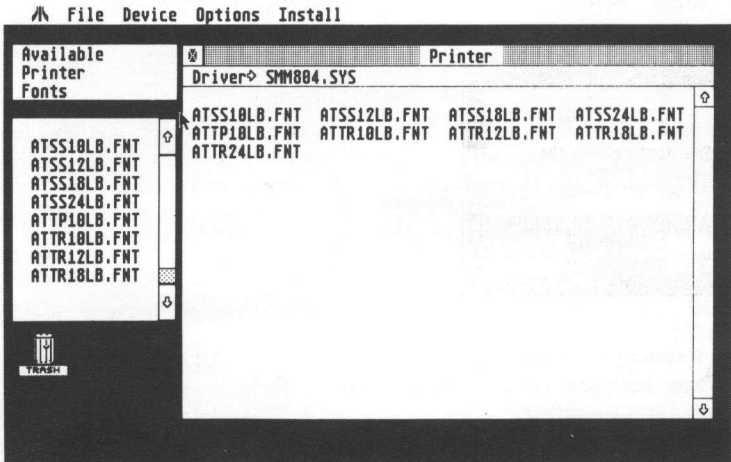
Select Cancel to return to GEM Desktop without loading your new installation. The new installation is retained but you must reboot in order to use it.

THE DEVICE MENU

Each graphics device must have its own GDOS device driver and, where applicable, fonts installed in order to display or print GDOS images. The Device menu lists several graphics devices.



When you select a device from the menu, two windows open on screen:



The Available window, on the left, shows the fonts available on your Distribution Disk (either in drive B or on drive C) for the selected device. The Installed window, on the right, lists all currently installed fonts for the selected device (the name of the device appears at top centre of the window). Fonts are installed when they are contained in the GDOS.SYS folder.

Using the Available and Installed windows, you can install new fonts or remove those you don't need. Install fonts by selecting their filenames in the Available window and dragging them to the Installed window. Remove fonts by selecting their filenames in the Installed window and dragging them to the trash can.

Note: You can select filenames by either clicking on them with the left-hand mouse button or using a rubber-band box. Once filenames are selected, you can deselect them by clicking on them again with the left-hand mouse button. To deselect all selected filenames in a window, click the right-hand mouse button within the window.

To install and remove device drivers, use the Find Driver and Remove Driver options in the Options menu. (See **Find Driver** and **Remove Fonts and Remove Driver** later in this section).

Low, Medium and High Resolution

The screen display is a graphics device that "prints" (displays) graphics output. Characters and shapes on screen are actually groups of pixels (picture elements) arranged to form images according to a design (the screen font). Each screen resolution is a separate graphics device using its own pixel size.

A screen device driver (SCREEN.SYS) and system screen fonts are already resident in ROM. The GDOS Distribution Disk contains additional screen fonts for high, low, and medium resolutions. These screen fonts are used by GDOS to display on screen exactly how a picture or diagram will look when printed. The screen fonts are installed during your initial GDOS installation.

Select the Low, Medium, or High Resolution option to remove the installed screen fonts or reinstall them later.

Note: High and Low screen resolutions use the same fonts. When you try to remove fonts for either resolution, INSTALL.PRG first checks whether the fonts are used by another driver in the system. If so, the fonts are not erased.

Printer

Each printer has its own GDOS device driver and fonts. Because HyperPaint simply sends a complete bit-image to the printer, it does not insist on printer fonts being installed. However, other GDOS-based applications such as Microsoft Write, HyperChart or HyperDraw will require the installation of printer fonts.

The GDOS Distribution Disk contains device drivers for four popular printers; the Atari SMM804, Atari SLM804, Star Micronics NB15 and the Epson FX-80, one of these will be installed during your initial GDOS installation. GDOS Drivers and fonts for other printers are continually being made available, for more information contact your Atari dealer or see **Customer Support** at the end of this manual.

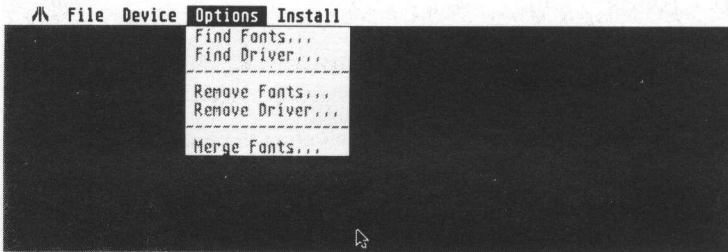
Select the printer option to install or remove printer fonts and device drivers.

Meta

A metafile is an "ideal" data file that can be used with any graphics device. Metafiles are used by applications to contain, for example, a document's text and a complete description of how it looks when printed. HyperPaint does not require that metafile fonts are present. However, as with printer fonts, other applications may require the installation of the metafile driver and fonts.

THE OPTIONS MENU

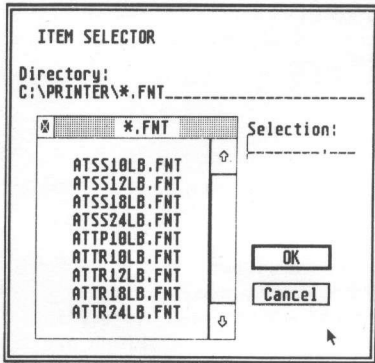
When you select something from the Device menu, the Options menu selections are activated.



Find Fonts

Use the find fonts option to locate fonts in your system that are not on the GDOS Distribution Disk. First, insert a disk containing the new fonts that you want to install into a drive. (If you have two floppy drives, insert the disk into **drive B**). Then display the Available and Installed windows for the device those fonts will be used with (see **The Device Menu** earlier in this section).

Next, select the Find Fonts option to locate the new fonts. The GEM item selector appears:



The item selector's directory line shows the drive that you ran INSTALL.PRG from, the folder on that drive containing fonts from your selected device, and the .FNT (font) extension. Click on the directory line to move the cursor there, then edit the line to show the path to the new fonts. Update the item selector's window by clicking on the scroll bar. The filenames of the new fonts will appear in the window.

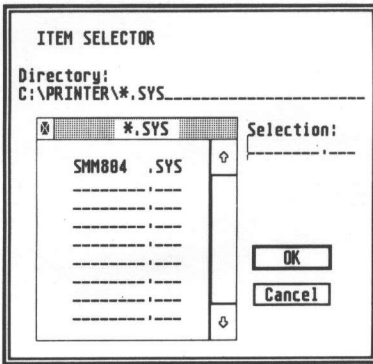
Next, select OK to make these fonts available for installation. They now appear in the Available window.

Note: When adding new fonts from more than one floppy disk, you must complete the installation of fonts from one disk (with the New Drivers/Fonts option from the Install menu), before going on to install fonts from another disk.

Find Driver

Use the Find Driver option to locate device drivers in your system that are not on the GDOS Distribution Disk. First, insert a disk containing the new device driver that you want to install into a drive in your system. (If you have two floppy drives, insert the disk into **drive B**). Then select a device from the Device Menu (see **The Device Menu** earlier in this section). The Available and Installed windows for that device will appear.

Next, select the Find Driver option to locate the new driver. The GEM item selector appears:



The item selector's directory line shows the drive you ran INSTALL.PRG from, the folder on that drive containing a driver for your selected device, and the .SYS (driver) extension. Click on the directory line to move the cursor there, then edit the line to show the path to the new driver. Update the item selector's window by clicking on the scroll bar. The filename of the new driver will appear in the window.

Double-click on the new driver's filename to select it for installation. The driver's filename now appears at the top left of the Installed window.

Note: When adding new drivers from more than one floppy disk, you must complete the installation of a driver from one disk (with the New Drivers/Fonts option from the Install menu), before going on to install a driver from another disk.

Remove Fonts and Remove Driver

You can remove installed fonts and drivers. With the Available and Installed windows for a particular device on screen, select either the Remove Fonts or Remove Driver option. A dialog box appears:



If the Remove Files Box is ticked, the program will erase the currently installed fonts or driver from the GDOS.SYS folder. If the box is not ticked, the program will only remove the installation record of the fonts or driver from the ASSIGN.SYS file. The removed fonts or driver will remain in the GDOS.SYS folder, but will not be used.

Click on the Remove box to toggle between ticked and not ticked. Then select OK to remove the fonts or driver (or Cancel to cancel the operation).

Note: High and low screen resolutions use the same fonts. If you try to remove fonts for either resolution, INSTALL.PRG first checks whether those fonts are used by another driver in the system. If so, the fonts are not removed.

Merge Fonts

With the Available and Installed windows for a particular device on screen, select the Merge fonts option to merge all fonts in the Available window with the fonts in the Installed window.

THE INSTALL MENU

You must write your customised GDOS installation to disk in order to use it. To do that, use the options in the Install menu.



GDOS System Folder

The GDOS system folder GDOS.SYS is the holding area for the installed GDOS device drivers and fonts. The folder was created during the initial GDOS installation and resides on the drive you specified at that time. You can use the GDOS System Folder option to relocate the folder to the root directory of any other drive on your system.

Warning: After you relocate GDOS.SYS to another drive, you must reinstall all device drivers and fonts.

To relocate the folder, select GDOS System Folder from the Install menu. A dialog box appears:



The drive where the folder currently resides is highlighted in the dialog box. Select the drive where you want to relocate the folder, then select OK. A dialog box appears reminding you that relocating the folder means installing all drivers and fonts. Select OK to relocate the folder; select Exit to discontinue the operation and return to the INSTALL.PRГ desktop.

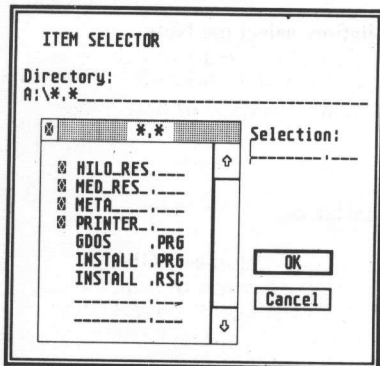
Once you've relocated the folder, use the Device and Options menus to reinstall your drivers and fonts.

Reminder: The GDOS system folder must remain on a disk in the currently specified drive at all times when you're running a GDOS-based application.

New GDOS.PRГ

The New GDOS.PRГ option is used to write a new copy of GDOS.PRГ to the AUTO folder of your boot disk. You will need to do this if your GDOS.PRГ file is damaged, you received a new version of GDOS.PRГ, or you are installing GDOS.PRГ on a new boot disk.

Insert the disk containing the correct GDOS.PRГ into a floppy drive on your system. Then select the New GDOS.PRГ option, the GEM item selector appears:



Use the item selector to locate the GDOS program on the floppy disk. Click on the directory line to move the cursor there, then edit the line to show the path to the program. Update the window by clicking in the scroll bar. The filename GDOS.PRГ will appear in the window. Double-click on the filename to write the new GDOS.PRГ to the AUTO folder on your boot drive, where it replaces the old GDOS.PRГ.

New Drivers/Fonts

When you've added new drivers or fonts to your GDOS installation, you must use the New Drivers/Fonts option in order to complete the installation.

If you have two floppy drives, the disk containing the new driver or fonts should be in drive B. Insert your GDOS.SYS folder disk into drive A. Then select New Drivers/Fonts. INSTALL.PRG writes the new fonts and driver to the GDOS.SYS folder.

Note: Your GDOS.SYS folder disk must have enough space available to accept the new fonts and drivers. If it doesn't, a dialog box appears telling you so. Exit from INSTALL.PRG, and remove some files from the disk before beginning to customise the GDOS installation again. Or, use a blank, formatted disk in drive A when you use the New Drivers/Fonts option.

If you have a hard drive, make sure the disk containing the driver or fonts to be installed is in a drive in your system. Then select New Drivers/Fonts. INSTALL.PRG writes the new fonts and driver to the GDOS.SYS folder.

New ASSIGN.SYS

After making changes to your GDOS Installation, select the New ASSIGN.SYS option to write a new ASSIGN.SYS file to the root directory of your boot disk. Using the new ASSIGN.SYS option is required in order to complete your customised GDOS installation, regardless of how minor or major the changes were.

Loading Your Customised GDOS Installation

You must reboot your system in order to load your customised GDOS installation. Select Quit from the File menu, then select reboot from the dialog box that appears. Your system will reboot and load the new GDOS installation. (For more information, see **Quit** earlier in this section).

After finishing your work session and switching off your system, your customised GDOS installation will remain on disk. The next time you switch on your system, the customised GDOS installation will load automatically.

Reminder: When running a GDOS-based application, the GDOS.SYS folder must be in the drive you specified during your GDOS installation.

GDOS ERROR MESSAGES

When you switch on your system with GDOS installed, your screen may display a GDOS error message. This section lists the messages you may see and explains how to remedy the errors.

Illegal workstation ID in ASSIGN.SYS file
Partial record found in ASSIGN.SYS file
Drive specification not allowed in ASSIGN.SYS file
Invalid filename found in ASSIGN.SYS file
Attempt to read ASSIGN.SYS failed

These messages indicate an invalid entry or a corruption in the ASSIGN.SYS file. Erase the GDOS.SYS folder from your system, and ASSIGN.SYS and GDOS.PRG from your boot disk. Then reinstall GDOS following the steps at the start of this Appendix.

Insufficient memory

Your system does not have enough memory to install GDOS. Free some memory (for instance by disabling desk accessories), then reboot.

Corrupt driver file

A printer or meta driver in the GDOS.SYS file is corrupt. Copy an uncorrupted file to the folder and reboot.

Atari GDOS release 1.1 not installed

This message appears if the GDOS installation program cannot install GDOS. See the previous messages for possible reasons why GDOS failed to install.

APPENDIX B

HYPERPAINT PRINT UTILITY

R-2 INTRODUCTION

R-2 THE DESK MENU

R-2 About PaintPrt

R-2 Desk Accessories

R-3 THE FILE MENU

R-3 New

R-3 Open

R-3 Load options

R-4 Save options

R-4 Print

R-4 Quit

R-5 THE OPTIONS MENU

R-5 Picture type

R-5 Print options

INTRODUCTION

HyperPaint's printing utility **PAINT.PRT** is invoked by using the program's **OUTPUT** option.

Clicking on **OUTPUT** leaves HyperPaint and executes the printing utility. The name of the file that you are currently editing is automatically passed to this utility. A new menu bar appears together with an information box at the bottom left-hand corner of the screen. If a filename has been passed to the printing utility by HyperPaint, the picture file is loaded into memory and is then ready for processing prior to printing; otherwise, an error message is displayed allowing you to load a different image.

THE DESK MENU



About PaintPrt

Selecting this item invokes an alert box containing information such as the program name, a copyright notice, the author's name etc.

Desk Accessories

GEM allows up to six desk accessories to be installed at boot-up time; if you have installed any, their names will appear in this menu.

THE FILE MENU



New

Selecting this option clears the current picture in memory in preparation for a new image to be loaded.



Open

Open invokes the standard GEM file selector, enabling the user to select a new image ready for printing.

Open automatically inserts the correct extender for the filetype selected using the **Picture type** option in the Options menu. If you wish to load a different filetype, simply replace the current filename extender with one of your choice.



Load Options

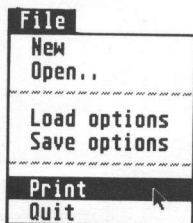
This option loads the file: PAINT.OPT

This contains the default picture type and print option settings. Invoking Load Options overwrites any changes made using the Options Menu.



Save Options

Save Options writes the current picture type and print options to the file: PAINT.OPT. This allows you to customise the HyperPaint print utility to suit the type of pictures that you most frequently print. Note that Save Options overwrites the existing PAINT.OPT file, therefore ensure that you have made backups of your HyperPaint program diskette before using this option.



Print

The print option processes and prints the current image file using the current scaling and positioning settings. If a colour picture is output to a monochrome printer, patterns of dots in differing densities are automatically associated with the colours contained in the picture giving a shading or toning effect.

GDOS only permits the user to interrupt the printing process at the end of a page by taking your printer off-line, it may, therefore, be a short while before printing stops.

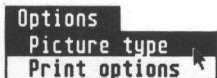


Quit

The Quit option normally exits from the Print utility program and returns directly to HyperPaint. Any settings made during the current printing session will be lost unless **Save Options** was used prior to Quitting.

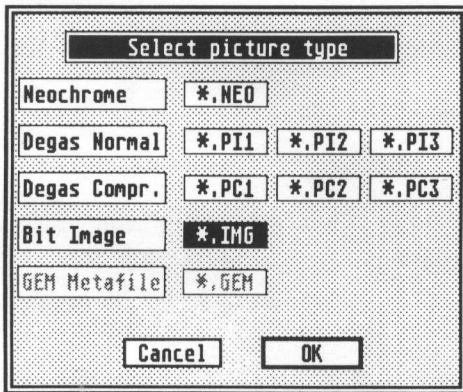
If the Alternate key is held down whilst the Quit option is selected, the HyperPaint Printing utility returns directly to the GEM Desktop, rather than to the Paint program.

THE OPTIONS MENU

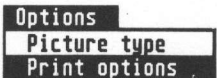


Picture type

Selecting the Picture type option invokes a dialog displaying the four picture file formats currently supported by HyperPaint. Clicking on any of the file types automatically selects that filetype as the default.



Note: The HyperPaint Print utility does not currently support the printing or display of GEM files, this option is, therefore, permanently disabled (shadowed).



Print Options

Selecting Print Options invokes a dialog that allows the user to specify where on the page his image is printed and how the image is scaled.

Set print options

Scaling: **Best fit**

Initial Form Feed

Final Form Feed

Horizontal

Vertical

No of copies : 01

Best fit scales the image being printed to fill the entire page.

Off disables both horizontal and vertical scaling. Off is ideal for printing 300 DPI scanned images to the Atari laser printer.

X only disables vertical scaling and only scales the width of the image to retain the proportions of the picture. This feature allows very high density prints on dot-matrix printers.

Y only disables horizontal scaling and only scales the height of the image to retain the proportions of the picture. This feature allows very high density prints on dot-matrix printers.

Initial/final form feed allow the user to specify whether form feeds are required before and/or after every page printed.

Horizontal and vertical positioning allows the image to be justified to any edge of the page or positioned centrally.

No. of copies allows the user to choose how many copies are printed of each page (upto 99).

APPENDIX C

HYPERPAINT KEYBOARD SHORTCUTS

ALTERNATE

Pressing Alternate in conjunction with an alpha key (A-Z) effects a menu shortcut according to the following table:

A.....	Select Shape
B.....	Select Brush
C.....	Set Shape options
D.....	Clear Screen
E.....	Workstation Manager
F.....	Select Mono Fill pattern
G.....	Select Colour Fill pattern
H.....	Set Fill writing-mode
I.....	Select font and point size
J.....	Text orientation
K.....	Text style
L.....	Text writing mode
M.....	Cut
N.....	Paste
O.....	Rescale
P.....	Stretch
Q.....	Rotate
R.....	Flip horizontal
S.....	Flip vertical
T.....	Skew horizontal
U.....	Skew vertical
V.....	Outline
W.....	Smooth
X.....	Pasting mode
Y.....	Start colour cycling
Z.....	Set colour cycling

If the Alternate key is held down while the program is loading, the fonts specified in the ASSIGN.SYS file are NOT loaded.

If left or right animation of workstations is in progress, pressing the Alternate key stops the sequence.

Pressing Alternate before selecting REVIEW on the SET PALETTE dialog, returns the colour under the cursor and selects it.

Pressing Alternate while quitting from the HyperPaint Print utility forces an exit to the GEM Desktop, rather than returning to the paint program.

SHIFT

If either SHIFT key is held down while a block is being cut, the block is not physically removed from the picture, but is merely copied into the CUT buffer.

If left or right animation of Workstations is in progress, pressing the left-hand SHIFT key slows down the speed of animation, while the right-hand SHIFT key increases it.

CONTROL

The CONTROL key is only used in text mode in conjunction with other keys to produce part of the Atari extended character set.

ESCAPE

The ESCAPE key is used to interrupt continuous shapes such as Continuous Lines, Rays and Curves or any shape which is in a rubber-banding mode. This key is also used to exit from other functions such as Paste, Rotate, Flip horizontal and vertical, Skew horizontal and vertical before their final position has been determined.

THE FUNCTION KEYS

The function keys F1 to F10 are used to select a workstation. The number of available workstations can be found via the Alternate E shortcut.

LEFT AND RIGHT CURSOR KEYS

The left and right cursor keys are used to initiate left and right animation of the HyperPaint Workstations. The speed of animation is controlled by means of the left and right SHIFT keys.

UNDO

The UNDO key cancels the last operation and restores the screen to its immediately previous state. In the Zoom mode, UNDO has a toggling effect in that it can undo its previous state.

HELP

The HELP key (as well as the right-hand mouse button) toggles the screen from Window to full-screen mode and back.

Pressing any key while in the process of outlining or smoothing a block, aborts the operation. Testing for a keypress is done every sixteen lines so as not to slow down these operations and, therefore, the effect might not be immediate.

APPENDIX D

HYPERPAINT PICTURE FORMATS

HyperPaint supports some of the most popular picture file formats:

NEOchrome	(.NEO)
Degas Normal	(.PI1, .PI2, .PI3)
Degas compressed	(.PC1, .PC2, .PC3)
DRI bit image	(.IMG)

NEOCHROME FILE FORMAT

NEO files are usable in Low Resolution only. The length of a typical NEO picture file is 32128 bytes made up of a 128-byte Header followed by 32000 bytes of raw picture information in the ST's interleaved plane format.

The Header format is as follows:

<u>Byte offset</u>	<u>Length</u>	<u>Explanation</u>
+0	1 WORD	0
+2	1 WORD	0
+4	16 WORDS	Hardware Colour Palette.
+48	1 WORD	If bit 15 is set, the low 8 bits are valid. Then: High Nibble= start ink in cycle (0-15). Low Nibble= end ink in cycle (0-15).
+50	1 WORD	If bit 15 is set, the low 8 bits are valid. Then: Low 8 bits=Cycle speed and direction (signed number, negative = left).
+52 to +128		Not used.

DEGAS NORMAL FILE FORMAT

The DEGAS Normal format can be used across all three resolutions. The following file extensions are used:

- PI1 Low Resolution
- PI2 Medium Resolution
- PI3 High Resolution

The following file format is used:

- 1 WORD Resolution flag (0, 1, 2 for PI1, PI2, PI3).
- 16 WORDS Hardware Colour Palette.
- 32000 BYTES Picture Image Data.
- 4 WORDS Only the first WORD is used by HyperPaint. Left cycling limit (0-15).
- 4 WORDS Only the first WORD is used by HyperPaint. Right cycling limit (0-15).
- 4 WORDS Only the first WORD is used by HyperPaint. Cycling Direction. 0 = Left , non-zero = RIGHT.
- 4 WORDS Only the first WORD is used by HyperPaint. Cycling Delay. Permissible values: 0-128, indicating the number of 20 ms periods between colour shifts.

DEGAS COMPRESSED FILE FORMAT

The DEGAS Compressed format can be used across all three resolutions. The following file extensions are used:

PC1	Low Resolution
PC2	Medium Resolution
PC3	High Resolution

The following file format is used:

1 WORD	Resolution flag (0, 1, 2 with bit 15 set for PC1, PC2, PC3).
16 WORDS	Hardware Colour Palette.
IMAGE DATA	Compressed as described below.
4 WORDS	Only the first WORD is used by HyperPaint. Left cycling limit (0-15).
4 WORDS	Only the first WORD is used by HyperPaint. Right cycling limit (0-15).
4 WORDS	Only the first WORD is used by HyperPaint. Cycling Direction. 0 = Left, non-zero = RIGHT.
4 WORDS	Only the first WORD is used by HyperPaint. Cycling Delay. Permissible values: 0-128, indicating the number of 20 ms periods between n colour shifts.

The compression algorithm is based on BYTE opcodes whose meaning is as follows:

<u>BYTE OPCODE n</u>	<u>ACTION</u>
0...127	Copy the next n+1 bytes literally.
-1...-127	Copy the next byte (-n + 1) times.
-128	Do nothing.

Bit planes are compressed separately (i.e. in STANDARD form) on a scan line by scan line basis).

DRI BIT IMAGE FILE FORMAT

A GEM VDI bit image file contains information that can be used to re-create a picture from its bit (pixel) image. The file consists of a header and raw pixel information. The pixel information can be encoded in a variety of formats.

A bit image file has an extension of IMG.

Bit Image File Header

The bit image file header consists of (normally) eight WORDS in 68000 format (High byte precedes Low byte):

<u>Word</u>	<u>Contents</u>
0	IMG file version number
1	Header length in WORDS (normally 8)
2	Number of planes (1, 2 or 4)
3	Pattern length in bytes (normally 2)
4	Source device pixel width in microns
5	Source device pixel height in microns
6	Scan line width in pixels
7	Number of scan lines (height in pixels)

WORD 1 indicates how long the header is. HyperPaint optionally extends the IMG header by an additional 17 Words to accomodate Hardware Palette Information as follows:

<u>Word</u>	<u>Contents</u>
8	0x0080 HyperPaint 'Valid Palette Flag'
9-24	16 Words Hardware Colour Palette.

The header length (WORD 1) is then extended to 25.

Bit Image File Data Format

A bit image file is composed of a series of scanline items each one of which consists of

A vertical replication count
Encode data for each plane.

The vertical replication count is coded as 4 bytes:

<u>Byte</u>	<u>Contents</u>
0	NUL
1	NUL
2	FF Hex
3	Replication Count (less than 256)

The encoded data for each color plane follows the vertical replication count. The planes are assumed to be in Standard (rather than Device-specific) form. Data is always provided for all defined bit planes.

Note: the number of pixels described for each bit plane of a scan line is not necessarily the scan line width specified in the file header. Because the data is encoded in byte-wide packets (groups of eight pixels), the number of pixels actually described is always a multiple of eight and is never more than seven pixels wider than the scan line width.

Plane data is encoded in one of three modes:

SOLID RUN, PATTERN RUN, or BIT STRING.

A SOLID_RUN item contains a single byte that describes a state and the number of bytes for which that state is true. The high-order bit defines the state where:

1 = pixels ON
0 = pixels OFF

The low-order seven bits define the run length (1 to 127).

A PATTERN_RUN item describes a set of pattern bytes and the number of times the pattern bytes should be repeated. The number of bytes in a pattern is defined in the bit image file header; typically, it is two for a screen device image. It is defined as follows:

<u>Byte</u>	<u>Contents</u>
0	NUL
1	Length of run
2	First byte of pattern
.	
n	Last byte of pattern (n is defined by header word 3).

A BIT_STRING is used to encode streams of pixels which cannot be encoded efficiently as solid runs or pattern runs:

<u>Byte</u>	<u>Contents</u>
0	80 Hex
1	Byte count (1 to 255)
2	First byte of bit string
.	
n	Last byte of bit string.

APPENDIX E

CUSTOMER SERVICE INFORMATION

Atari Corporation welcomes questions about your Atari computer products. Write to **Customer Relations** at the address below.

Atari user groups are outstanding sources of information on how to get the most from your Atari product. To receive a list of Atari user groups in your area, send a self-addressed, stamped envelope to **User Group List** at the address below.

In the United Kingdom, write to:

Atari Corp.(UK) Ltd.
P.O. Box 555
Slough, Berkshire
SL2 5BZ

In the United States, write to:

Atari Corporation
P.O. Box 61657
Sunnyvale, CA 94088

Please write the subject of your letter on the outside of the envelope.

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