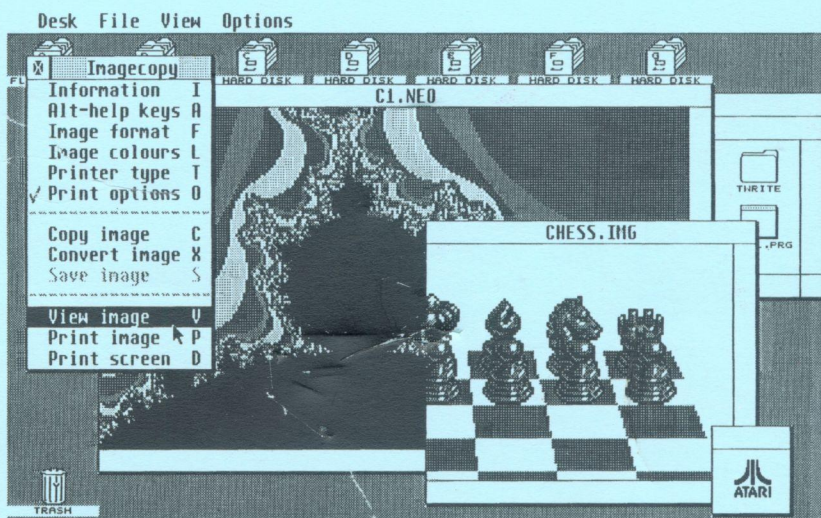


Imagecopy

Image Accessory for the Atari ST/TT



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The ST Club

Imagecopy

Image Accessory for the Atari ST/TT

Imagecopy Version 1

Programs and manual copyright Jeremy Hughes 1992.

System requirements: Atari ST/TT.

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Imagecopy

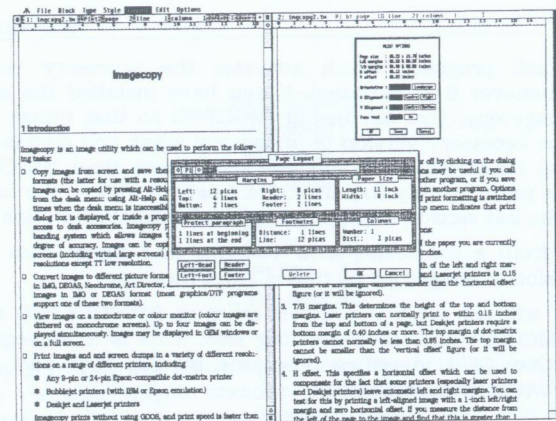
1 Introduction

Imagecopy is an image utility which can be used to perform the following tasks:

- Copy images from screen and save them in IMG, DEGAS, or RSC formats (the latter for use with a resource editor or Fontkit Plus). Images can be copied by pressing Alt-Help, or by selecting Imagecopy from the desk menu; using Alt-Help allows you to copy images at times when the desk menu is inaccessible, such as when a menu or dialog box is displayed, or inside a program which does not provide access to desk accessories. Imagecopy provides a flexible rubber-banding system which allows images to be selected with a fine degree of accuracy. Images can be copied from standard or large screens (including virtual large screens) in any of the normal ST/TT resolutions except TT low resolution.
- Convert images to different picture formats. Imagecopy reads images in IMG, DEGAS, Neochrome, Art Director, and Tiny format, and writes images in IMG or DEGAS format (most graphics/DTP programs support one of these two formats).
- View images on a monochrome or colour monitor (colour images are dithered on monochrome screens). Up to four images can be displayed simultaneously. Images may be displayed in GEM windows or on a full screen.
- Print images and screen dumps in a variety of different resolutions on a range of different printers, including
 - * Any 9-pin or 24-pin Epson-compatible dot-matrix printer
 - * Bubblejet printers (with IBM or Epson emulation)
 - * Deskjet and Laserjet printers

Imagecopy prints without using GDOS, and print speed is faster than normal GDOS output.

Imagecopy is supplied as a desk accessory (IMGCOPY.ACC) and as a stand-alone program (IMGCOPY.PRG). The stand-alone program offers a convenient way of viewing or printing images when you don't have Imagecopy installed as a desk accessory. The main drawback is that you cannot use it to copy or print images within other programs.



A3 Virtual Screenshot

2 Installing Imagecopy

2.1 Accessory version

To install the accessory version of Imagecopy, simply copy it into the root directory of your boot disk (or boot partition).

2.2 Stand-alone version

The stand-alone version of Imagecopy can be installed to display image files which are double-clicked from the desktop. To do this, click on IMGCOPY.PRG and select 'install application' from the Options menu of the desktop; type 'IMG' beside 'document type' and click on 'Install' (or 'OK'). With TOS 1.0 or 1.2, if you repeat this procedure and type 'PI?' in place of 'IMG', Imagecopy will be installed to display DEGAS or IMG files. However, with later versions of TOS, this has the effect of deinstalling your original selection.¹ Finally, to make the installation permanent, insert your boot disk and select 'save desktop' from the Options menu.

If you work from a command shell you can load image files into IMGCOPY.PRG by typing 'imgcopy filename'.

¹ If you wish to install IMGCOPY.PRG to display different types of image files with TOS 1.4 or higher, you can do so by editing the DESKTOP.INF file on your boot disk with an ASCII text editor (or wordprocessor in ASCII mode). Copy the line which mentions IMGCOPY.PRG and change the file pattern from *.IMG to *.PI? (etc.).

2.3 Imgc.prg

This is a small program which activates the accessory version of Imagecopy whenever it is executed. If you have installed the accessory version of Imagecopy, you can install IMG.C.PRG so that image files are loaded into the accessory version of Imagecopy when you double-click on their file icon. IMG.C.PRG takes up less disk space than IMG.COPY.PRG and also loads more quickly (because it is smaller). Follow the procedure described in the last section if you wish to install IMG.C.PRG in this way.

If you work from a command shell you can load image files into the accessory version of Imagecopy by typing 'imgc filename'.

⚠ IMG.C.PRG will not work if you rename it as IMG.COPY.PRG or if you rename IMG.COPY.ACC as something else. This is a consequence of the fact that GEM identifies programs by the first part of their filename (without the extension).

3 Configuring Imagecopy

Imagecopy contains built-in configuration options. Use the 'printer type' and 'print options' options to configure it for your printer - select the appropriate configuration and click on the 'Save' button. You can also configure other features, such as the default format used for saving images, by using the 'Save' button in other dialogs. If you have enough memory, you may wish to configure Imagecopy so that it reserves its own screen buffers when it is first started: this allows it to work with main programs which normally grab all available memory for their own use (§ 4.2).

If Imagecopy cannot find its program file² in the root directory of your boot drive (accessory version) or in the current working directory (stand-alone version), it will display a file selector allowing you to locate it. This could happen if you are using a utility which allows you to load accessories from a special accessory folder.

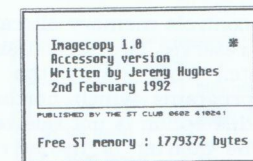
² IMG.COPY.ACC or IMG.COPY.PRG, according to whether you are using the accessory version or stand-alone version.

4 Menu options



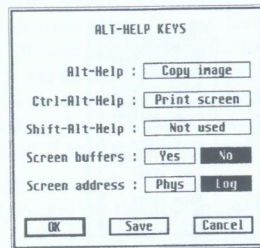
Imagecopy provides the following options in an on-screen menu which works in a similar way to standard GEM menus, except that it can be moved around the screen, and remains visible until you remove it or cover it with a window. The menu can be removed from screen by clicking on the close button or by pressing DELETE. Menu options are inactive unless the screen menu is the top window on screen (but keyboard shortcuts can still be used, provided the top window is one of Imagecopy's windows). If the screen menu is inactive, you can activate it by clicking on it, or by pressing CLR/HOME, or by selecting 'Imagecopy' from the desk menu. If you are using the stand-alone version of Imagecopy, you can activate the screen menu by selecting 'menu' from the desk menu.

4.1 Information



This option displays a box containing program information, and reporting on how much free memory is currently available in your computer. This can be removed by pressing a key or clicking the mouse.

4.2 Alt-help keys



Imagecopy allows you to use Alt-Help, Control-Alt-Help, and Shift-Alt-Help key combinations to copy screen images or print screen dumps. This is quicker than selecting Imagecopy from the desk menu, and can also be used in situations where the desk menu is inaccessible (such as in non-GEM programs, or when menus or dialog boxes are displayed in GEM programs). The Alt-help keys dialog allows you to configure these key combinations by clicking on the buttons next to 'Alt-Help', 'Ctrl-Alt-Help', and 'Shift-Alt-Help'. This offers three choices for each key-stroke: 'Copy image', 'Print screen', or 'Not used' - with the last option, Imagecopy passes control to the standard Alt-Help routine (giving draft-quality screendumps on 9-pin printers), or to an alternative routine which has been installed from an auto folder.

Under TOS 1.0, Control-Alt-Help keypresses cannot be intercepted and the 'Ctrl-Alt-Help' option is therefore disabled. In this case, you can configure the Shift-Alt-Help button to perform screen dumps.³

The 'screen buffers' option controls memory allocation. If you select 'Yes' for this option, Imagecopy reserves two screen-size buffers for copying and displaying images (etc.) This allows the accessory version of Imagecopy to work with programs which normally grab all available memory for themselves. If this option is not selected, Imagecopy reserves a work buffer which is one quarter of the screen size, and allocates additional memory as it is needed.

If you use Imagecopy within another program instead of from the GEM desktop you will be unable to reconfigure this option (one of the buttons will be disabled). This is because memory which is allocated by a desk accessory is automatically freed by TOS when the current application terminates. Imagecopy needs to have screen buffers which are not lost in this way. Changing buffers from the GEM

³ Select 'Not used' for Shift-Alt-Help if you have a memory-resident debugger which uses this keystroke to break into programs. This is not necessary if you use a debugger which is started from the GEM desktop or a command shell.

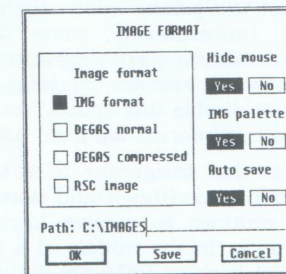
desktop is OK because the desktop does not terminate unless you change resolution or reset your computer.

If you change the 'screen buffers' option repeatedly, the memory in your computer will become fragmented (i.e. split into a number of smaller blocks) as a consequence of the way that GEM allocates its own memory. Fragmented memory can still be used by TOS and by programs, so long as these do not require memory blocks that are larger than the largest remaining block. If you are curious, you can use Freemem (§ 8) to display your current memory situation.

The 'screen address' option determines whether the physical or logical screen will be copied or printed when one of the Alt-help combinations is pressed. In most cases the physical and logical screens are identical, but some programs (such as the HiSoft debugger Monst) maintain separate logical and physical screens. In this case you might want to copy/print the physical screen (which is the screen you can actually see) rather than the logical screen. One problem with selecting the physical screen as the default option is that Imagecopy has no way of determining its size and layout. If these are not the same as the logical screen's size and layout (as is the case with some virtual large screen programs), Imagecopy will produce a garbled image (or crash!).

The 'Save' button saves 'Alt-help keys' options to disk so that they become the default options whenever Imagecopy is loaded. Imagecopy looks for IMGCOPYY.ACC in the root directory of your boot drive, or for IMGCOPYY.PRG in the current working directory if you are using the stand-alone version. If the program file cannot be found in its expected place, Imagecopy will display a file selector for you to locate it.

4.3 Image format



This allows you to select different image formats for saving images, and choose different options for copying images. Imagecopy will save images in IMG format (used by some wordprocessors and most desktop publishing programs), DEGAS format (normal or compressed), and RSC format

(for use with a resource editor).⁴ IMG images can be copied in any size from 6x6 pixels up to full screen size, and RSC images can be copied in any size from 6x6 pixels to 128x128 pixels (the maximum allowed by GEM). DEGAS images cannot be smaller or larger than the size of a standard ST screen, but Imagecopy allows you to select a smaller portion of the screen, and saves the unselected part of the screen as a white border. IMG images are automatically compressed, and can include palette information in the Atari-approved format used by Hyperpaint; you can choose not to save palette information by selecting 'No' underneath 'IMG palette'.⁵

The 'hide mouse' option allows you to choose whether the mouse will be hidden or displayed when an image is copied. If the mouse is not hidden it will be changed to its original shape before it is copied. If you wish to position the mouse in a particular spot before saving an image (with the hide mouse option set to NO) you should note that the 'hot spot' of the flat-hand pointer is in the middle of the hand shape; if the mouse pointer was originally an arrow shape, the tip of the mouse arrow will be located in the same place as the middle of the flat hand pointer.

'Autosave' determines whether an image is automatically saved to disk when you press Alt-Help. If this option is not selected, the image is kept in memory until you select 'save image' from Imagecopy's menu (so long as the memory used to store the image is not released by TOS; see below). This is normally less convenient, but there are a few programs in which you may be unable to grab images while autosave is selected.⁶ If you wish to copy an image from a non-GEM program and save it after returning to the desktop, you will have to configure Imagecopy so that it reserves its own screen buffers before the program is started (§ 4.2).⁷

⁴ RSC images can also be imported into Fontkit Plus.

⁵ Programs which do not use palette information should not have any difficulty in ignoring it. Unfortunately, some well-known programs (including Pagestream and Calamus) are unable to read IMG files which contain this information, so if you are working with a monochrome monitor it may be better to disable this option. You can use the 'convert image' option to remove palette information from IMG files.

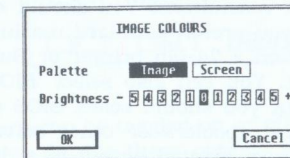
⁶ The reason for this is that Imagecopy tries to avoid making disk accesses during a GEMDOS routine (this would cause a system crash). If a program uses GEMDOS routines to receive keyboard input, Alt-Help keypresses are likely to occur in the middle of a GEMDOS routine, and Imagecopy will pass control back to GEMDOS if the autosave option has been selected. There is no problem in copying images during a GEMDOS routine if the autosave option is not selected (§ 6.2).

⁷ Images which are stored in memory are discarded if the memory is released by TOS before they have been saved; this normally happens when a main program is started or finished, unless the image is stored in a screen buffer which has previously been reserved by Imagecopy (§ 6.1).

The 'path' option allows you to define a default directory for image files; if this is blank, the root directory of the boot drive is used as the default directory.⁸ You can of course use the GEM file selector to save and print images in any directory, except for the following situation: if the 'autosave' option is selected, Imagecopy cannot display a GEM file selector when Alt-Help is pressed.⁹ As an alternative, it displays a filename dialog, and the image file is saved under this filename in the default directory.

The 'Save' button saves 'image format' options to disk so that they become the default options whenever Imagecopy is loaded. For this to work you need to have a copy of IMGCOPY.ACC in the root directory of the disk in your boot drive (or in the root directory of a hard disk boot partition).

4.4 Image colours



This option allows you to change the colours which are used to display or print images. There are currently two options:

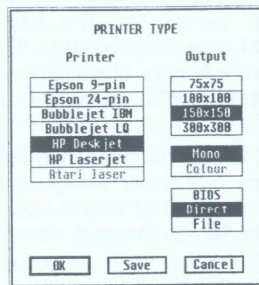
1. The palette option allows you to switch between the image's own palette and the current ST palette.
2. The brightness option changes the brightness at which an image is printed or displayed.

There is no 'Save' button for colour options, since it is unlikely that you would want to make permanent alterations to the standard settings.

⁸ The stand-alone version of Imagecopy uses the current directory as the default directory instead.

⁹ It is impossible to access GEM from an Alt-Help interrupt; Imagecopy displays dialogs and alerts which look like GEM dialogs, but it uses its own (non-GEM) routines to do this.

4.5 Printer type



This option can be used to configure Imagecopy for different printers and to select different output resolutions. You should experiment to decide which output resolution you prefer: standard resolutions are 120x144 on a 9-pin printer, 180x180 on a 24-pin printer or Bubblejet, and 150x150 on a Deskjet or Laserjet. You can also select 'BIOS' or 'Direct' output: direct output is faster, but you should select BIOS output if you want it to be intercepted by print spoolers or other software. A third option ('File') allows you to redirect printed output to a disk file which can be printed from the desktop (with TOS 1.4 or higher),¹⁰ or from another program. Binary print files normally have a PRN extension. You may wish to switch off Imagecopy's print-formatting options when saving print files that will be printed by another program (§ 4.6).

Imagecopy supports two different Bubblejet configurations: IBM for Bubblejet printers which emulate the IBM Proprinter, and LQ for printers which emulate an Epson LQ printer. Older Bubblejet models, such as the BJ-10e, normally have IBM emulation; more recently, Canon have introduced the BJ-10ex, which can be switched between IBM and LQ modes. With IBM-compatible printers, you cannot print at 90 or 120 dpi unless your printer is configured to accept 24-pin graphics codes.¹¹ Imagecopy uses native Bubblejet escape codes for high-resolution output (180 dpi and 360 dpi): with some printers these codes are inactive unless Bubblejet print mode is activated with a dip-switch setting.¹²

You can increase the size of a printed image by selecting a lower print resolution, and vice versa. The print quality of dot-matrix printers varies according to resolution, but the print quality of Bubblejet, Deskjet, and

¹⁰ Earlier versions of TOS are unable to print binary files.

¹¹ This is normally possible via a dip-switch setting.

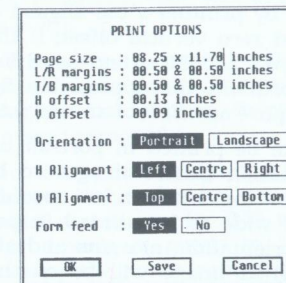
¹² Check your printer manual for details: Bubblejet print mode is a superset of the (standard) IBM/LQ print mode, so it should not cause any compatibility problems with other software.

Laserjet printers is the same for all resolutions.

The 'Atari laser' and 'Colour' options have not yet been implemented.

The 'Save' button saves selected options to disk so that they become the default options whenever Imagecopy is loaded.

4.6 Print options



Print-formatting options can be toggled on or off by clicking on the dialog box title. The ability to disable these options may be useful if you call the Atari screendump command from within another program, or if you save a screen dump to file in order to print it from another program. Options in the 'print options' dialog are greyed-out if print formatting is switched off; otherwise, a tick in Imagecopy's pop-up menu indicates that print formatting is switched on.

Imagecopy provides the following print options:

1. Page size. This should match the size of the paper you are currently using: A4 paper is 8.25 inches by 11.70 inches.
2. L/R margins. This determines the width of the left and right margins. The minimum size for Deskjet and Laserjet printers is 0.15 inches. The left margin cannot be smaller than the 'horizontal offset' figure (or it will be ignored).
3. T/B margins. This determines the height of the top and bottom margins. Laser printers can normally print to within 0.15 inches from the top and bottom of a page, but Deskjet printers require a bottom margin of 0.40 inches or more. The top margin of dot-matrix printers cannot normally be less than 0.85 inches. The top margin cannot be smaller than the 'vertical offset' figure (or it will be ignored).
4. H offset. This specifies a horizontal offset which can be used to compensate for the fact that some printers (especially laser printers and Deskjet printers) leave automatic left and right margins. You can test for this by printing a left-aligned image with a 1-inch left/right

margin and zero horizontal offset. If you measure the distance from the left of the page to the image and find that this is greater than 1 inch, you can compensate for this by entering the difference as a horizontal offset. With Deskjet printers that are configured to use A4 paper the appropriate figure is 0.13 inches.¹³

5. V offset. This specifies a vertical offset which can be used to compensate for the fact that some printers leave blank margins at the top and bottom of a page. Once again, you can determine the appropriate offset for your printer by printing a top-aligned image with a 1-inch top/bottom margin and zero vertical offset; if the printed margin is greater than 1 inch you should enter the difference as a vertical offset. With Deskjet printers the appropriate figure is 0.09 inches; dot-matrix printers require an offset of around 0.85 inches.¹⁴
6. Orientation. Images can be printed in portrait or landscape orientation. Landscape orientation causes images to be printed sideways (rotated 90 degrees to the left), and is useful for printing large images which are too wide to be printed in portrait orientation. If you select landscape orientation, margins and alignment options are not rotated: a top-aligned image will be on the right of the page when it is turned on its side to match the orientation of the image. Select bottom left alignment if you want an image to be aligned in the top left corner when it is viewed in landscape orientation.
7. H Alignment. Horizontal alignment options are used to align an image with the left or right margins of the page, or to centre it between the two margins.
8. V Alignment. Images can be aligned with the top or bottom margins of the page, or centred between the two. You can use the alignment options in conjunction with margin settings to position an image anywhere on the page.
9. Form feed. If this option is selected Imagecopy sends a form feed to eject a page after printing.

The 'Save' button saves options to disk so that they become the default options whenever Imagecopy is loaded.

4.7 Copy image

This option is used to copy images from screen. You can either select this

¹³ If the left margin is correct and the right margin (on right-aligned images) is incorrect, you need to adjust the page-width figure: reduce the page width to increase the right margin, or increase the page width for a narrower margin.

¹⁴ If the top margin is correct, but the bottom margin (on bottom-aligned images) is incorrect, you need to adjust the page-height figure: reduce the page height for a wider bottom margin, or increase it for a narrower margin.

as a menu option or press Alt-Help (or Ctrl/Shift-Alt-Help, depending on how you have configured the 'alt-help keys' option). Using Alt-Help allows you to copy menus and dialog boxes, and you can also use this method to copy images from programs which do not provide access to desk accessories.¹⁵ If the autosave feature is selected (§ 4.3), you may occasionally need to press Alt-Help more than once before it has any effect; if nothing happens after several attempts you may need to disable the autosave option before you can copy images (this is most likely to happen with non-GEM programs: see footnote 6 on page 8 for an explanation of why this is so).

If you select 'copy image' as a menu option, but wish to have Imagecopy's menu removed from screen, you can hold down one of the shift keys while selecting the menu option. Release the shift key once all traces of the menu have been removed.

When you have selected this option, Imagecopy displays a pointing hand and waits for you to draw a box outline on screen; this may be any size from 6x6 pixels up to full screen size for IMG images or ST screen size for DEGAS images,¹⁶ or from 6x6 pixels to 128x128 pixels for RSC images. If you want to copy the entire screen in IMG or DEGAS format you should click the right mouse button or press CLR/HOME to set the box to its maximum size. Once you have drawn a box outline you can resize it or move it to a different position before copying the enclosed image. The box can be moved by holding the left mouse button down while the mouse cursor is over the box in the shape of a flat hand. An alternative method is to use cursor keys. These move the box by 8 pixels at a time, having first aligned the box's left or upper edge on an 8-pixel boundary. You can also move the box 1 pixel at a time by pressing the cursor keys in conjunction with the Shift key. You can resize the box by holding the left mouse button down while the cursor is near one of the corners of the box, when it will be in the form of a pointing hand. Alternatively, you can use cursor keys in conjunction with the Control key: cursor left and right keys move the right edge of the box, and cursor up and down keys move its bottom edge; pressing Shift at the same time causes the box to be resized in single-pixel steps instead of 8-pixel steps.¹⁷ To toggle between the current box size and the maximum image size you can either click the right mouse button while the cursor is displayed as a pointing finger, or you can press the CLR/HOME button.

When you wish to copy an image you can either press RETURN or click the right mouse button while the cursor is inside the box. You can also

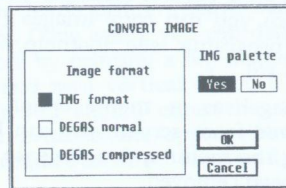
¹⁵ Some programs (normally games) disable the Alt-Help key stroke, making it impossible to copy images or print screen dumps.

¹⁶ DEGAS images cannot be larger than a standard ST screen.

¹⁷ Cursor key options are useful for making fine adjustments to the size and position of the outline box: it can be fiddly to make single-pixel adjustments by moving the mouse.

abort the copy process by clicking the left button outside the outline box (or anywhere on screen if you have not yet drawn an outline box) or by pressing UNDO.

4.8 Convert image



This option allows you to convert images from IMG, DEGAS, Neochrome, Art Director, or Tiny format to IMG or DEGAS format. Images which are converted to DEGAS format will be cropped or padded to standard ST screen sizes. Another way of converting images is to display them on screen (using 'view image') and use the Alt-Help key to copy them back to disk; this method allows you to cut out part of a full-screen image and save it in IMG format, and can also be used to convert colour images into monochrome images. Use the 'convert image' option if you want to preserve the original resolution.

Another use for this option is to convert uncompressed IMG files into compressed IMG files. Imagecopy automatically compresses IMG files, and gives better compression ratios than some other programs.¹⁸

If you select 'No' for 'IMG palette', Imagecopy will discard palette information when saving IMG images. Some programs are unable to load IMG files with palette information; you can double-click on an image window (or press RETURN) to determine whether an IMG file contains this information.

4.9 Save image

This menu option is usually disabled (greyed out) because images are normally saved automatically when they are copied or converted. If you select the 'copy image' function by clicking on Imagecopy in the Desk menu, Imagecopy will display a GEM file selector for you to select the name under which the image will be saved to disk. Alternatively, if you copy an image by pressing Alt-Help and the autosave option (in the 'image format' dialog) is selected, Imagecopy will display a filename

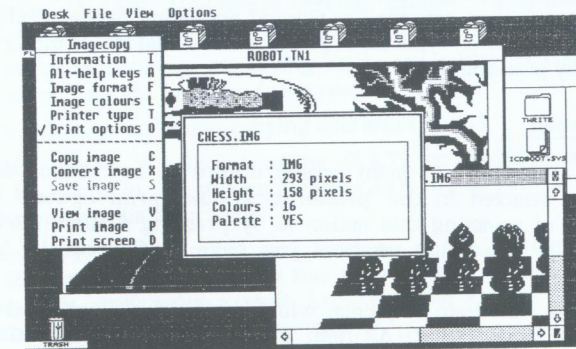
¹⁸ Compressed images are normally half the size of uncompressed images. Some programs save images in uncompressed format; I am not aware of any (commercial) programs which read uncompressed IMG files but are unable to read compressed IMG files.

dialog for you to type a filename under which the image will be saved. In the second case, the file will be written in the 'path' directory shown in the 'image format' dialog, or in the root directory of the boot disk if a 'path' directory has not been selected. (The reason Imagecopy does not display a GEM file selector after Alt-Help is pressed was explained on page 9.)

However, if you copy an image by pressing Alt-Help and the autosave option is not selected, the image which you copy is stored in memory without being saved to disk. This can also happen if you accidentally select the Cancel button in the GEM file selector (or Alt-Help filename dialog), or click on OK when the filename is blank. 'Save image' provides a way of saving these images.

You can omit the file extender when saving images: Imagecopy will add it automatically for you.

4.10 View image



This option allows you to view images on screen. Imagecopy can display images in IMG (*.IMG), DEGAS (*.PI1, *.PI2, *.PI3, *.PC1, *.PC2, *.PC3), Neochrome (*.NEO), Art Director (*.ART), or Tiny (*.TNY, *.TN1, *.TN2, *.TN3) format, on monochrome and colour monitors.¹⁹ Images are displayed within a standard GEM window which can be resized or moved, except that images which are smaller than 128x128 pixels are displayed within a non-resizable window (to prevent window elements being jumbled together through lack of space). If you view an image which is larger than screen size you can scroll around it using scroll arrows and bars. You can also switch to a full-screen display (and back

¹⁹ Colour images are automatically dithered on monochrome monitors. This also happens with low-resolution images on medium-resolution monitors and vice versa.

again) by clicking the right mouse button or pressing ESC; this removes window borders (etc.) to use all available screen space. Images can be scrolled in full-screen mode by moving the mouse cursor to the edge of the screen. You can copy or print from images which are displayed in full-screen mode by pressing 'C' or 'P' (as well as by pressing Alt-Help). Up to four images can be displayed at a time: you can switch between different images (in windows or full screen) by pressing TAB.

You can convert non-IMG files into IMG format by using the 'view image' option to display them on screen, and then pressing Alt-Help to recopy the entire image, or part of as image, as an IMG file.

If you double-click on an image window (or press RETURN) Imagecopy displays information about the image, including the format and size of the image, how many colours it contains (2 = monochrome), and whether a palette is present in the image file.

4.11 Print image

This option allows you to print images in IMG, DEGAS, Neochrome, Tiny, or Art Director format. Images are printed according to the print options selected in the 'printer type' and 'print options' dialogs. Printing can be interrupted by pressing UNDO.

4.12 Print screen

This option allows you to print screen dumps in accordance with the print options selected in the 'printer type' and 'print options' dialogs. Another way of selecting this option is by pressing Control-Alt-Help or (Shift-)Alt-Help, depending on how you have configured the 'alt-help keys' option.

If you press an Alt-Help sequence which is listed as 'not used' in the 'alt-help keys' dialog (Shift-Alt-Help in the default configuration) you will normally get the TOS screendump routine. This produces draft-quality printouts on 9-pin printers, and ignores any settings which have been selected in Imagecopy.

If you select 'print screen' as a menu option, but wish to have Imagecopy's menu removed from screen, you can hold down one of the shift keys while selecting the menu option. Release the shift key once all traces of the menu have been removed.

When the print screen option is selected, Imagecopy displays an alert box which allows you to choose between printing the entire screen, or part of the screen, or cancelling the operation (in case you selected it by mistake). If you choose to print part of the screen, Imagecopy displays a pointing hand and waits for you to draw a box outline around the area you wish to print. The method for doing this is identical to the method used in copying images (§ 4.7).

5 Keyboard shortcuts

Imagecopy provides keyboard shortcuts for all its menu options, and for some other common operations. Menu shortcuts are listed in the menu (note that these are normal [non-control] key strokes), and differ from mouse-selected options in that they can be used when the screen menu is not the top window on screen, provided that the top window belongs to Imagecopy and not to some other application.

Other shortcuts are as follows:

1. DELETE: closes the top window on screen if this is one of Imagecopy's windows. If Imagecopy's screen menu is the top window, this is equivalent to exiting from Imagecopy.
2. CLR/HOME: brings Imagecopy's menu to the front of the screen. This key is also used to toggle the outline box used for copying images between its current size and full screen (or maximum) size (§ 4.7).
3. TAB: cycles through image windows, bringing them to the front of the screen (§ 4.10). Also cycles through images which are displayed in full-screen mode.
4. ESC: switches between displaying an image within a GEM window (with scroll bars etc.), or on a full screen (§ 4.10).
5. UNDO: abandons an image-copying operation (§ 4.7).
6. RETURN: copies a selected image (§ 4.7), or displays information about an image in the current window (§ 4.10), or selects the default exit button in a dialog or alert.
7. Cursor keys: these can be used to move or resize the outline box used for copying images (§ 4.7). Use with the control key to resize the outline box, and with a shift key to move or resize in 1-pixel increments instead of 8-pixel increments.

6 Problems

6.1 Memory allocation

As a desk accessory, Imagecopy is subject to memory limitations which do not affect stand-alone programs. There are two main problems: (1) some programs grab all available memory for their own use, and (2) any memory which is used by Imagecopy is released by TOS when a main program terminates. The first problem results in Imagecopy displaying a 'not enough memory' alert when it is used within a memory-grabbing program, while the second problem causes unsaved images to be discarded when a main program is started or finished. To avoid these problems, Imagecopy can be configured to reserve two screen-size buffers for copying and viewing images etc. (§ 4.2). These buffers are available

for Imagecopy to use inside memory-grabbing main programs, and they are not released by TOS when a program terminates.

Imagecopy may still run out of memory if it is configured to reserve screen buffers. This can happen if you try to print or view an image which is larger than your screen, or if you try to print or view a second image when one is already displayed, or if you try to copy from an image which is displayed with the 'view image' option.

6.2 GEMDOS

Imagecopy tries to avoid interrupting GEMDOS calls when copying images with Alt-Help if the 'autosave' option in the Copy format dialog is selected (file operations which are carried out during a GEMDOS call normally lead to a system crash). However, the method which it uses to avoid this situation is not one hundred percent foolproof. On rare occasions it is possible for an Alt-Help interrupt to occur at the beginning or end of a GEMDOS call, when Imagecopy will be unaware that a GEMDOS call is being executed. This is more likely to happen with non-GEM programs than with GEM programs,²⁰ and it is possible that you will never encounter this problem, but you are advised to save important work before copying images in this way.

7 Programming Information

If Imagecopy is configured to print screen dumps when an Alt-help combination is pressed, it will also intercept calls made to the XBIOS Scrdmp() routine (XBIOS 20). In this case, Imagecopy does not display an alert allowing the operation to be cancelled, or part of the screen to be selected, unless the Alternate key is pressed when the Scrdmp() routine is called.

If you mix Scrdmp() calls with buffered print output, you must ensure that print buffers are flushed before the Scrdmp() routine is called. In C, you can do this by including a fflush(stdout) command. If you use a programming language which does not have an equivalent command, you may be able to achieve the same effect by pausing the program for a half second.

Printer margins are normally reset to zero (or their default setting) after an image is printed, and character pitch is reset to Pica on dot-matrix and Bubblejet printers (this is necessary because margin settings are dependent on the current character Pitch). You can prevent this happening by disabling Imagecopy's print formatting options (§ 4.6).

Not implemented in Imagecopy 1.0, but planned for future versions: a

²⁰ Despite its name, GEMDOS is part of the non-GEM component in the ST operating system: it controls file operations and other relatively low-level device functions.

message-passing system which will allow Imagecopy's print routines and other image routines to be used by other GEM programs. Check the readme file on disk to see if this has been implemented in your version, or contact the ST Club for further information.

8 Freemem

This is a small memory utility which reports on how much free memory (RAM) is currently available. Most programs of this type report how much memory is in the largest free memory block.²¹ By contrast, Freemem reports how much memory is available in each free block, how much total free memory is available, how much memory is in use (by TOS and other programs), and the total amount of RAM in your computer. Freemem adds its own (small amount of) memory to the largest free block, so it effectively reports how much memory was available before it was loaded.

On a TT, Freemem reports ST and TT memory separately. If you find that some of this information scrolls off the top of the screen, you can use Control-S to pause the screen display and Control-Q to continue.

```
Freemem 1.2 - written by Jeremy Hughes
                2nd February 1992
```

```
ST RAM
```

```
-----
Free memory : 2398744 bytes
                32596 bytes
                13312 bytes
                8328 bytes

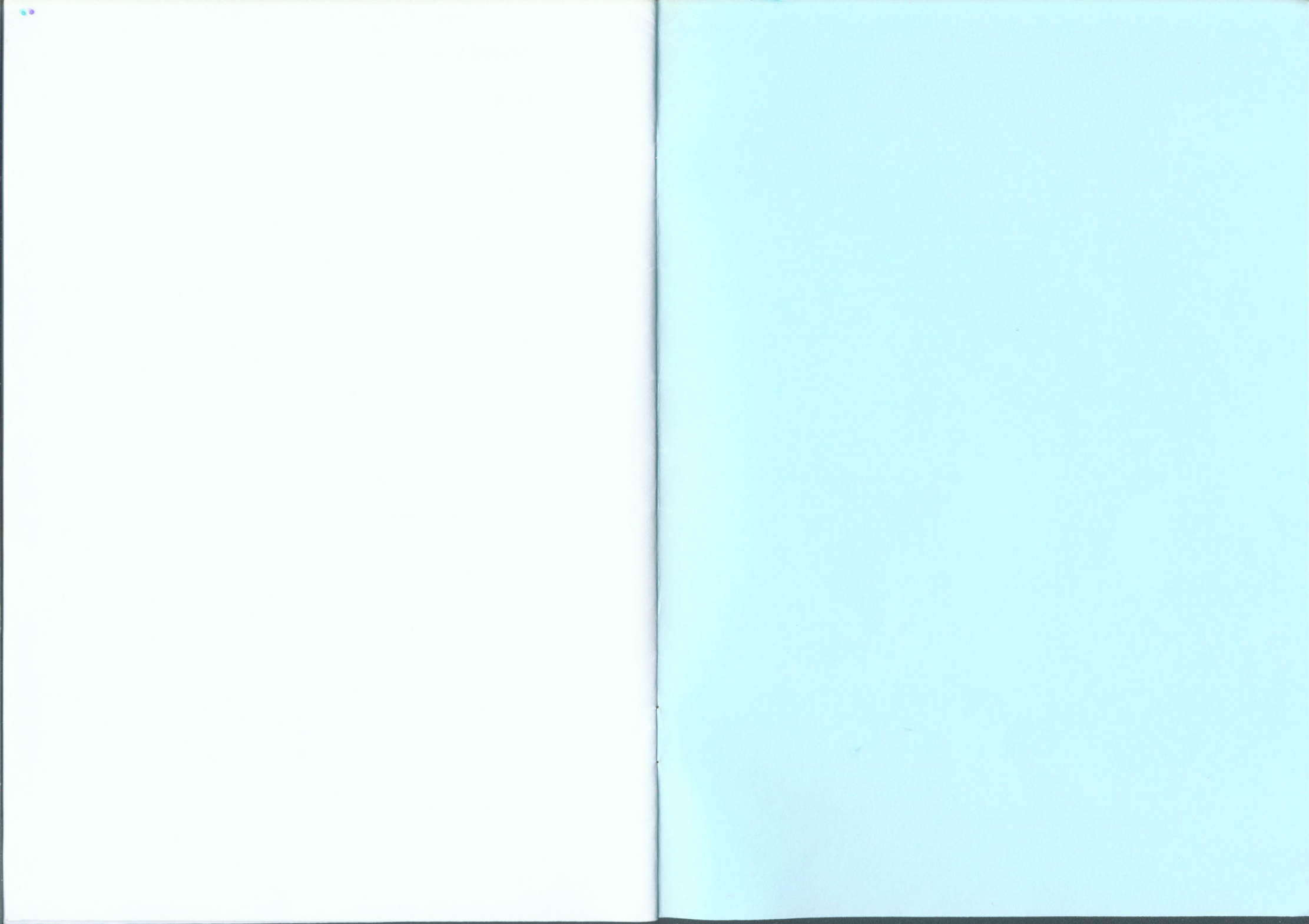
Total free  : 2452972 bytes

Used memory : 1741332 bytes

Total memory: 4194304 bytes
```

```
Press a key...█
```

²¹ This is also true of the free memory report in Imagecopy's information dialog.



Imagecopy

- Copy images from screen and save them in IMG, DEGAS, or RSC format.
- Images can be copied by pressing Alt-Help.
- Flexible rubber-banding system allows images to be selected with a fine degree of accuracy.
- Works with standard and large screens (including virtual large screens) in any of the normal ST/TT resolutions except TT low resolution.
- Convert images to different formats. Imagecopy reads images in IMG, DEGAS, Neochrome, Art Director, and Tiny format, and writes images in IMG or DEGAS format.
- View images on a monochrome or colour monitor.
- Up to four images may be displayed simultaneously.
- GEM-window and full-screen display modes.
- Print images and screen dumps in different resolutions on a range of printers, including 9-pin and 24-pin dot-matrix printers, Bubblejet printers, Deskjet and Laserjet printers.
- Fast print speed.