

GEOSTM128

GRAPHIC ENVIRONMENT OPERATING SYSTEM



THE NEW OPERATING SYSTEM STANDARD
FOR THE COMMODORE 128 COMPUTER

BERKELEY
Softworks

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**GEOS 128
User's Manual**

**Berkeley Softworks
2150 Shattuck Avenue
Berkeley, California 94704**

Welcome to GEOS

Your new Graphic Environment Operating System (GEOS) ushers in a "whole new world" for your Commodore 128™. GEOS brings to you the power and ease of use that icons, windows, and pop-down menus provide. A simple click of your input device is all it takes to get the job done.

This manual is divided into eight chapters:

- 1: **Getting Started** guides you through the initial process of installing GEOS, booting GEOS, making and tailoring work disks, and setting up your input device and printer.
- 2: **A Quick Overview** introduces you to the basic techniques necessary to manage GEOS applications and move around the system.
- 3: **GEOS deskTop** describes your interface to the disk operating system.
- 4: **geoPaint** is a powerful color graphics editing system.
- 5: **geoWrite** is an easy-to-use "what you see is what you get" word processor.
- 6: **Switch 40/80 and Desk Accessories** describes GEOS' newest feature, Switch 40/80, which allows you to work in either 40-or 80-column mode. Desk Accessories are smaller applications that perform handy functions while on the deskTop or in applications.
- 7: **Troubleshooting** lists standard error messages and solutions to common problems.
- 8: **QuantumLink** is a user's guide to the telecommunications network for Commodore owners.

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How to Get Help

We hope that you will find GEOS easy to learn and use, and that this manual provides you with most of the answers to the questions you may have about the operation of geoPaint and geoWrite. However, if you do run across a problem that is not answered by the manual, there are three ways to obtain additional help.

The first, fastest, and recommended way to obtain information about and help with GEOS and its follow-on applications is through the QuantumLink telecommunications network. QuantumLink, or Q-Link, is an online service network designed for Commodore users.

Berkeley Softworks provides Customer Service message boards, along with a Programming and Technical Information message board and other useful services, in the Commodore Information Network section of Q-Link. Through these message boards, GEOS users can generally receive the most timely help and information. In addition you will have access to programs and products from Berkeley Softworks that are offered through Q-Link, many of them free of charge.

Berkeley Softworks provides customer service by telephone, but as the lines are often busy, we also recommend that users write in to us detailing their problems. All correspondence is answered promptly. The Berkeley Softworks customer service telephone number and address are as follows:

Call:

Customer Service: (415) 644-0890, 9 a.m.–5 p.m. Pacific Time

Or write:

Berkeley Softworks
Customer Service Division
2150 Shattuck Avenue
Berkeley, CA 94704

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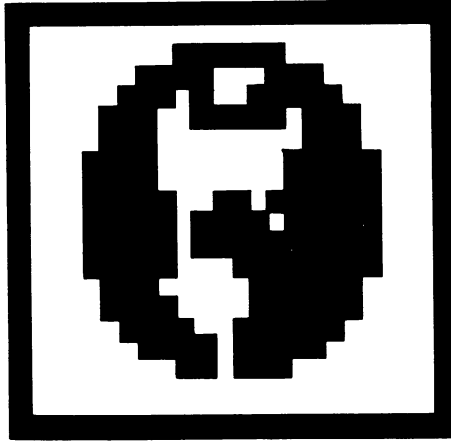
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Chapter 1: Getting Started



This chapter will guide you step by step through the procedures for:

- installing GEOS
- booting GEOS
- selecting an input driver and printer
- tailoring a work disk

Installing GEOS

Installing GEOS means preparing the applications for everyday use. You will have to install the GEOS program only once. This procedure entails booting up, checking the disks for damage, and making a copy of the **Applications** disk to a blank ("work") disk. Afterwards, you can tailor the copy of the **Applications** disk to your specific needs, and in the future make as many work disks as you need.

To install GEOS, you need the **System** disk, the **Backup System** disk, the **Applications** disk, and a blank disk.

A. First, set up your computer:

- 1: Set up your computer and disk drive according to the instructions found in the Commodore Introductory Guide.
- 2: Insert the GEOS **System** disk into the disk drive (or Drive A if you have two disk drives). Close the disk drive door.
- 3: Connect your input device (e.g., the mouse, joystick, etc.) to port 1 (the port closest to the front of the C128 keyboard). If you are using a mouse, make sure it is operating in joystick mode to start with; if necessary, refer to the operator's manual for the mouse.
- 4: Make sure that the **40/80 DISPLAY** key (at the top the keyboard) is not pushed down, and that the RGB button or composite switch (located on the right side of the set of buttons next to the power switch on the monitor) is pushed in, or in CVBS mode.
- 5: Turn on your monitor, disk drive, and C128 keyboard switches. The screen will display the message "BOOTING GEOS..."

NOTE: If your computer is already on, remove the current disk and insert the GEOS **System** disk. Turn the C128 keyboard switch OFF, then ON.

- 6: A dialog box with the message "Please insert disk: **Backup System**" appears. Remove the **System** disk and insert the **Backup System** disk. Press **RETURN** to continue.




- 7: Next, you will be asked "Have you ever installed a Berkeley Softworks GEOS application product?" If you are using GEOS for the first time, select **NO**: use the input device or keyboard cursor keys to move the pointer on the screen to **NO** and press the input device button. Then go to Step 9. If, however, you have previously owned GEOS and any of its follow-on applications (e.g., geoCalc) and are now upgrading your GEOS system, select **YES** and go to Step 8.
- 8: A dialog box will ask you to insert the follow-on applications disk. Remove the **Backup System** disk and insert the follow-on applications disk. Click **OK** to continue, then go to Step 9.
- 9: Next, you will be asked to "Please insert disk: **System**." Remove the **Backup System** disk and insert the **System** disk. Press **RETURN** to continue.
- 10: You will be asked to insert the **Backup System** disk. Remove the **System** disk and insert the **Backup System** disk. Press **RETURN** to continue.
- 11: Next, you will be asked to insert the **System** disk. Remove the **Backup System** disk and insert the **System** disk. Press **RETURN** to continue. In a moment the **System** deskTop will appear.

B. Now that your disks are installed, check them for damage (GEOS validation):

- 1: Insert the disk to be checked into the disk drive and press **⇧O** to activate it. That disk's deskTop will appear on the screen.
- 2: Move the pointer up to the command menu in the upper left corner of the screen. Position it over the **disk** command and press the input device button. A sub menu will appear; position the pointer over the **validate** item and press the input device button.

- 3: GEOS will check the disk for damage, and list any errors it finds. If there are no errors, no message is displayed.



NOTE: If GEOS indicates that the **System** disk is damaged, first check to make sure the disk is correctly inserted in the drive. Check to see if the disk drive is damaged or misaligned: try validating your disks on another disk drive, or on one at your local dealer. If the disk is truly damaged, return it to Berkeley Softworks for a replacement. (Our address and phone number can be found on the inside back cover of the manual.)

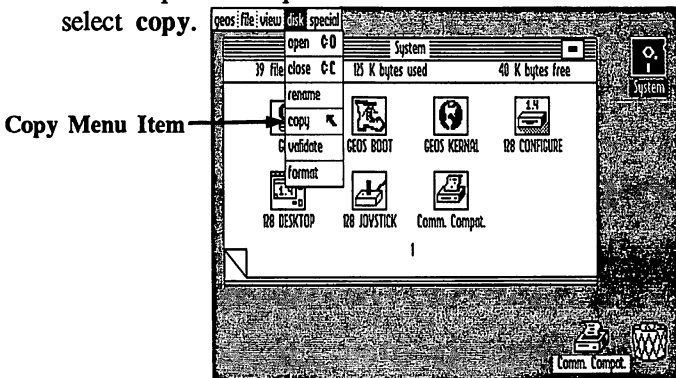
- 4: Close the disk by pressing   and remove it from the disk drive. Repeat these steps for each side of the disks in your GEOS package. When you are finished checking your disks and if they are not damaged, go to . Now Create a Work Disk.

C. Now create a work disk:

Never use your original **Applications** disk to create documents; instead make a copy of it on a blank disk called a **work disk**. A work disk is for every day use.

If you are using one disk drive:

- 1: Insert the **Applications** disk into the disk drive and open it by pressing  .
- 2: When the deskTop appears, position the pointer over the disk menu item and press the input device button. When the sub menu appears, select **copy**.



- 3: You will be asked to insert the destination disk (i.e., your blank disk) into the drive. Remove the **Applications** disk and insert the destination disk. Move the pointer to **OK** and press the input device button to begin copying.

NOTE: If your blank disk is not formatted, you will be asked if you wish to format it. Select **YES** and answer the subsequent dialog boxes until the disk has been formatted. Be sure to give your new disk a name that is different from any of your other disks.

- 4: The message “Replace the contents of (blank disk name) with the contents of Applications?” appears. Answer **YES** to continue.
- 5: Follow the directions on the screen, swapping the two disks in and out of the disk drive as directed. (This will take about four more swaps.)

You have now created a work disk and can alter it to suit your needs. See “Tailoring Your Disks,” page 1-16.

If you are using two disk drives:

- 1: Set up your system to use two disk drives:
 - a: Connect both drives to the serial port, but only turn on one disk drive (either one).
 - b: Boot GEOS and use the Configure File to add the second drive:
 - 1) Double click on the Configure File icon on the System disk note pad.
 - 2) A screen with two dialog boxes—one for Drive A and one for Drive B—will appear. Go to the Drive B dialog box and select one of the disk drives listed: **1541**, **1571**, or **1581**.
 - 3) A dialog box will ask you to “Plug in and turn **ON** new disk drive.” Connect the disk drive cables to the disk drive, printer, C128, and an electrical outlet. Turn the disk drive on and click **OK** to continue.

NOTE: Refer to the user's manual for the procedure on connecting disk drive cables.

4) Select **save configuration** from the **file** menu to install the change, then select **quit** from the **file** menu to return to the deskTop.

c: The device that was originally powered up will remain Device 8 and be referred to as Drive A. The added drive, Device 9, will be referred to as Drive B. When you have successfully added the second drive, its icon will be displayed at the right corner of the deskTop. The currently active drive will be highlighted (i.e., appear in reverse video).

2: Insert the **Applications** disk into Drive A and open it by pressing



3: When the deskTop appears, position the pointer over the **disk** menu item and press the input device button. When the sub menu appears, select **copy**.

4: You will be asked to insert the destination disk (i.e., your blank disk) into Drive B. Move the pointer to **OK** and press the input device button to begin copying.

NOTE: If your blank disk is not formatted, you will be asked if you wish to format it. Select **YES** and answer the subsequent dialog boxes until the disk has been formatted. Be sure to give your new disk a name that is different from any of your other disks.

5: The message "Replace the contents of (blank disk name) with the contents of **Applications**?" appears. Answer **YES** to continue. In a few moments the contents of the **Applications** disk will be copied onto the work disk.

NOTE: Disk copies cannot take place from a 1541 or 1571 disk drive to a 1581 disk drive, and vice versa.

Booting Up

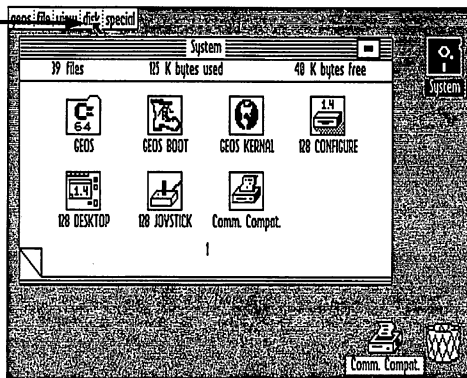
Follow this procedure each time you boot up:

- 1: Set up your computer and disk drive according to the instructions in the Commodore User's Manual.
- 2: Insert the GEOS System disk into the disk drive (or Drive A).
- 3: Connect an input device (mouse or joystick) to port 1 (the port closest to the front of the keyboard).
- 4a: If you want to start off working in 40-column mode, press the RGB button or composite switch under the monitor. Turn on the monitor, disk drive and keyboard switches. The screen will display the message "BOOTING GEOS ..." and in a moment the System disk note pad will appear.

IMPORTANT: Use this procedure if you are using C64 products, or if you wish to use color in geoPaint. Note that after you have booted up, you can switch to 80-column mode at any time.

- 4b: If you want to start off working in 80-column mode, press the 40/80-column keyboard key and press the RGB button or composite switch under the monitor so that it is out. Turn on the monitor, disk drive and keyboard switches. The screen will display the message "BOOTING GEOS ..." and in a moment the System disk note pad will appear.

Disk Menu

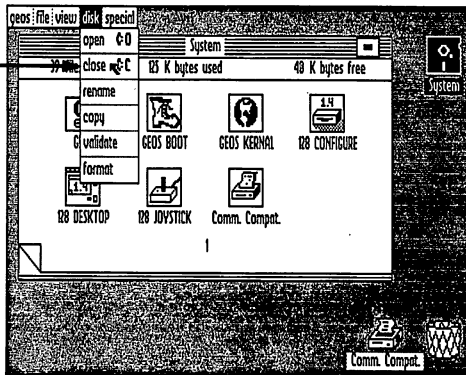


NOTE: If your computer is already on, remove the current disk from the disk drive and insert the GEOS System disk. Turn the keyboard switch OFF, then ON.

After you have booted up in 80-column mode, you can switch to 40-column mode at any time you need.

- 5: Unless you have some specific task to perform with the System disk (such as rearranging files), close the System disk by pressing **C** and remove it from the disk drive. Now insert a work disk. Press **C** **O** to open your work disk.

Close Menu Item



Choosing an Input Driver

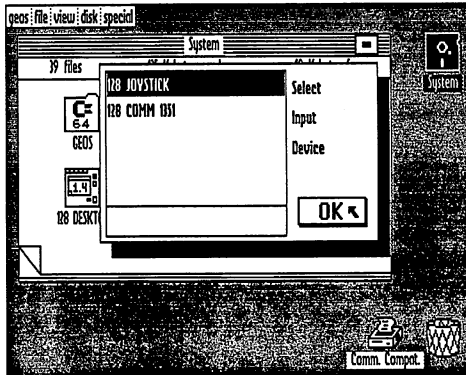
GEOS provides you with a choice of input drivers that you can use. If the first time you boot up you wish to use an input device other than a joystick, you will need to use the keyboard to select it, since the pointer on the screen will not move. You can also use your present input device to select a different one.

If you connect a new input device to your C128 after you have booted up, there is a chance that you may cause the system to crash. If you are planning to use a new input device, hook it up to your C128 before you boot up, then use the following steps to select it as your new input driver.

Once you have selected an input device, you can change its default setting so that it is selected every time you boot up. See "Selecting a File as the Default File," page 3-11.

If your present input device does not work:

- 1: Place the **System** disk into the disk drive and open it by pressing **⌘-O**.
- 2: Press **⌘-I**. The **select input driver** dialog box appears.

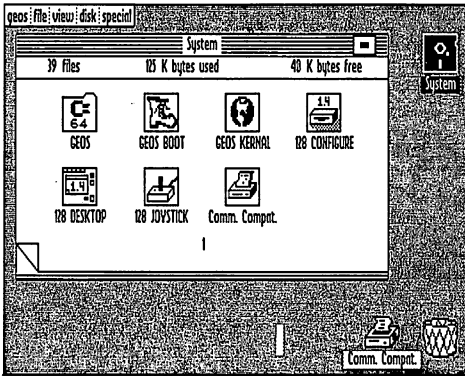


- 3: Use the keyboard cursor keys to move the pointer to the desired input device displayed in the dialog box. Refer to "Using the Keyboard Cursor Keys," page 2-3.

- 4: Press **RETURN** to highlight and select the input device, then use the cursor keys again to position the pointer over the **OK** button and again press **RETURN**.

If you want to change your present input device:

- 1: Place the **System** disk into the disk drive and open the **System** disk by pressing **⇧ O**.
- 2: Select the **geos** menu, then choose **select input driver**.



- 3: When the dialog box appears, click on the desired input device to highlight and select it, then click on the **OK** button.

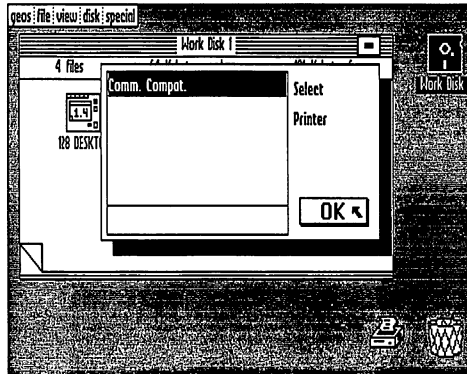
NOTE: If necessary, refer to "The Pointer and Clicking," page 2-3.

Choosing a Printer Driver and Printer

GEOS supplies you with a wide selection of printer drivers from which to choose. These drivers support over 60 different printers. There are two methods of selecting a printer driver for your printer. One is to change the default setting so that the printer driver is automatically selected each time you need to print a document (see “Selecting a File as the Default File,” page 3-11). If you have more than one printer, however, you may wish to be able to select a different printer driver quickly without changing the default setting.

To select a different printer driver:

- 1: Place the **System** disk into the disk drive and open it.
- 2: Select the **geos** menu, then choose **select printer**.
- 3: When the dialog box appears, click on the name of the desired printer driver to highlight and select it. If needed, use the scrolling arrows to scroll up and down the list.



NOTE: If necessary, refer to “The Pointer and Clicking,” page 2-3.

- 4: After you have highlighted the desired printer driver, click on the **OK** button. The name of the printer driver that you selected will be displayed at the lower right corner of the disk notepad.

NOTE: The printer drivers, which are supplied on your System disk, are located on the following pages of the disk note pad:

Page 3

Blue Chip M120
Commodore Compat.
Epson FX-80
Epson JX-80
Epson MX-80
Gemini 10x
C.Itoh 8510
C.Itoh 8510A

Page 4

ImageWriter
ImageWriter II
MPS-801
MPS-1000
HP Laserjet
IBM 5152+
MPS-801
Oki 120

Page 5

Oki ML-92/93
Okimate 10
Okimate 20
Olivetti PR 2300
Riteman C+
Scribe

Page 6

Star NL-10 (Com)
Star NX-10
Star NX-10C
Star SG-10/15
1526

The very first printer driver on your disk is not on these pages, though; it is on page 1. GEOS selects the first driver found on the boot disk as the "default" driver: in other words, the first printer driver is automatically selected when you boot GEOS. Note that unless you own a RAM Expansion Unit (REU), the printer driver must be on a work disk, as well as in the first printer position on the boot disk. If you do own a REU, you do not need to copy the default printer driver onto your work disks, since GEOS keeps the current printer driver loaded in RAM.

Selecting the Correct Printer Driver for Your Printer

There is a wide variety of printer and printer interface card combinations for the C128. The following paragraphs summarize what printers work with what printer drivers, and the various characteristics of the printers in GEOS.

Use the table below to set up GEOS to print your documents. Find your printer in the first column, set up the interface card as indicated in the middle column, and then set up the printer driver shown in the right hand column as the default printer driver.

Your Printer	Interface	Printer Driver
Apple Apple 2 Scribe	RS-232 Serial	Scribe
Apple ImageWriter	RS-232 Serial	ImageWriter
Apple ImageWriter II	RS-232 Serial	ImageWriter II
*Blue Chip M120	Centronics Parallel	BlueChip M120
*BMC BX-80	Centronics Parallel	BlueChip M120
*Cal-Abco Legend 800	Centronics Parallel	BlueChip M120
*Cal-Abco Legend 808	Centronics Parallel	Epson MS-80
*Cannon PW-1080A	Centronics Parallel	Epson FX-80
*Cannon PW-1156A	Centronics Parallel	Epson FX-80
*Citizen 120-D	Commodore Serial Bus	MPS 1200
*C.Itoh 8510	Centronics Parallel	C.Itoh 8510
*C.Itoh 8510A	Centronics Parallel	C.Itoh 8510A
C.Itoh Riteman C+ NLQ	Commodore Serial Bus	Riteman C+
Commodore 1525	Commodore Serial Bus	MPS-801
Commodore 1526	Commodore Serial Bus	1526
Commodore MPS-801	Commodore Serial Bus	MPS-801
Commodore MPS-802	Commodore Serial Bus	1526
Commodore MPS-803	Commodore Serial Bus	MPS-1000
Commodore MPS-1000	Commodore Serial Bus	MPS-1000
*Commodore MPS-1000	Centronics Parallel	IBM 5152+
Commodore MPS-1200	Commodore Serial Bus	MPS-1200
*Epson FX 80/80+/85/100/ 100+/185	Centronics Parallel	Epson FX-80
*Epson EX-800	Centronics Parallel	Epson FX-80
*Epson FX-185/286	Centronics Parallel	Epson FX-80
*Epson JX-80	Centronics Parallel	Epson JX-80

*Epson LQ-800/1000/1500	Centronics Parallel	Star NB-15
*Epson LX-80	Centronics Parallel	Epson FX-80
*Epson MX-80/100	Centronics Parallel	Epson MX-80
Ergo Systems Hush 80CD	Commodore Serial Bus	MPS-1000
Hewlett Packard Laserjet	RS-232 Serial	HP Laserjet
Hewlett Packard Laserjet+	RS-232 Serial	HP Laserjet
*IBM 5152+	Centronics Parallel	IBM 5152+
*Mannesmann Talley		
Spirit 80	Centronics Parallel	Blue Chip M120
*NEC 8023	Centronics Parallel	C.Itoh 8510
NEC PC Printer (Epson LQ Series)		
*Okidata Microline 92/93	Centronics Parallel	Star NB-15
Okidata Okimate 10	Centronics Parallel	Oki ML-92/93
Okidata Okimate 20	Commodore Serial Bus	Okimate 10
Okidata 120	Commodore Serial Bus	Okimate 20
Okidata Oki 120	Commodore Serial Bus	Oki 120
*Olivetti PR-2300	Centronics Parallel	Oki 120 NLQ
*Panasonic KX-P1090	Centronics Parallel	Olivetti PR-2300
*Panasonic KX-P1091/1092	Centronics Parallel	Epson MX-80
*Seikosha SP-1000A	Centronics Parallel	Epson FX-80
Seikosha SP-1000VC	Commodore Serial Bus	Epson FX-80
*Star Delta	Centronics Parallel	Comm Compat.
Star Gemini II	Commodore Serial Bus	Gemini 10x
*Star Gemini 10x	Centronics Parallel	Comm Compat.
*Star Gemini 10X	Centronics Parallel	Gemini 10x
Star Micronics NL-10 (with Commodore interface)	Commodore Serial Bus	Epson MX-80
*Star Micronics NL-10 (with Centronics Parallel interface)	Commodore Serial Bus	Star NL-10 (Com)
*Star Micronics NX-10	Centronics Parallel	Star NX-10
Star Micronics NX-10C	Centronics Parallel	Star NX-10
*Star SG-10/15	Commodore Serial Bus	Star NX-10C
*Star Radix	Centronics Parallel	Star SG-10/15
*Toshiba PA7253	Centronics Parallel	Gemini 10x
		C.Itoh 8510

* **Special Note:** If you own, or are planning to purchase one of the printers indicated by an asterisk (*) and do not already own an interface card, we at Berkeley Softworks strongly recommend that you purchase our **geoPrint cable**. It is less expensive and less bulky than an interface card, and it may also increase the speed of your printing process.

Interface Notes:

1. The printer is always addressed as device #4 on the serial bus, so set the interface card or printer to device #4.
2. Turn off any auto line-feed settings on the printer and the interface card.
3. If the interface card that you are using has a **transparent** mode and you cannot get your printer to work with the specific printer setting, you can use the transparent mode instead.
4. Tested cards are: Centronics Parallel, Commodore Serial Bus, Cardco Card?+G, Cardco Super G, DSI PPI Printer Interface, G-Whiz, Jameco JE-232 CM, Micrografix MW-302, Micrografix MW-350, Omnitronix Deluxe RS232 Interface, Telesys Turboprint GT, Xetec Graphics Printer Interface, Xetec Super Graphix, Xetec Super Graphix Jr.

If you don't find your particular printer listed, don't despair—most printers are compatible with one of the printers listed and can use the same setup. If you can't get anything to work, please call us for help. We may have tested your printer by then and can help get you up and running.

As new printers become available, Berkeley Softworks will write new printer drivers to support these devices. These drivers will be made available to registered GEOS users for the cost of the disk plus shipping and handling. They will also be available for downloading on QuantumLink.

Tailoring a Work Disk

As you work with GEOS, you will find it necessary to create several "work disks." This will allow you to organize your work onto several disks and will ensure free disk space for larger documents. You can organize work disks by project, such as Correspondence or School Work, or by document type, such as Pictures or Essays. Here is a list of files you might want to include on a particular work disk:

deskTop	(optional, but recommended)
applications	(one or more, such as geoWrite or geoPaint)
documents	(one or more)
fonts	("BSW" automatically included; others optional)
photo/text manager	(optional)
desk accessories	(optional)
input drivers	(default automatically included; others optional)
printer drivers	(default automatically included; others optional)

Although the deskTop is not required on a work disk, it will be especially useful on disks containing two or more applications. If you do not place a copy of the deskTop on your work disk, you will have to insert a disk with the deskTop on it each time you exit an application.

To move files from one disk to another, refer to "Copying a File to Another Disk," page 3-6.

In order to create more free space on your work disks, it may be necessary to delete some files, such as documents, applications, fonts, printer drivers, or whatever files you do not need on that particular disk. To delete files, refer to "Deleting a File," page 3-9.

IMPORTANT: Before you start to tailor disks, be sure you have made at least one additional copy of the disks in your GEOS package. Store the original disks away in a safe place. You can then copy applications onto your work disks from these copies. If necessary, refer to "Copying a Disk," page 3-13.

Disk Directory

GEOS is packaged as a two-disk system. The following table is a quick reference of both disks, allowing you to quickly locate any GEOS file.

Disk A:

Side 1: System Disk

System Boot Files (GEOS BOOT, GEOS KERNEL, 128
deskTop, 128 Configure, RBOOT)

Printer Driver

Input Drivers

Preference Manager

Side 2: QuantumLink

QuantumLink System Files

GEOS to CBM Converter

Disk B:

Side 1: Backup System Disk

System Boot Files (GEOS BOOT, GEOS KERNEL, 128
deskTop, 128 Configure, RBOOT)

Printer Drivers

Input Drivers

Preference Manager

Side 2: Applications Disk

128 deskTop

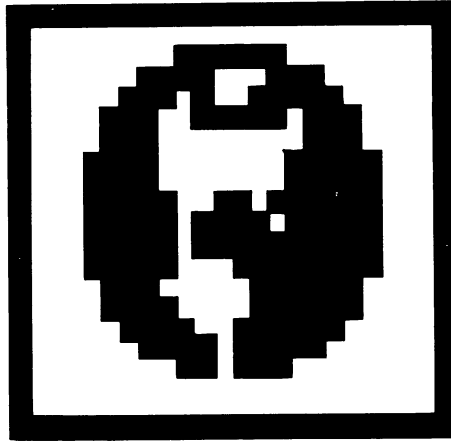
geoWrite V1.3

geoPaint V1.3

Font files

Desk Accessories (preference mgr, alarm clock, photo mgr,
text mgr, calculator, note pad)

Chapter 2: A Quick Overview



This chapter will introduce you to GEOS, the Graphic Environment Operating System. GEOS is both easy and fun to use. After reading this chapter you will have the basic knowledge necessary to use GEOS. This chapter explains:

- system requirements for GEOS
- terminology used in GEOS
- fundamentals of windows, pointing, and clicking
- selecting disks, files, and commands

System Requirements

This chapter is written assuming the following system setup:

- one C128 and monitor
- one 1541 or 1571 disk drive
- a joystick or other input device

If you are using an input device other than a joystick, see "Choosing an Input Driver," page 1-9 (and "Selecting a File as the Default File," page 3-11). If you have not done so already, follow the directions in this section to set your input device as the default device on your system disk. You cannot continue (or use GEOS applications) until you have done this.

If you own a Commodore RAM Expansion Unit (REU), do not plug it into your system just yet. After you have completed A Quick Overview you can follow directions for using the REU.

The RAM Expansion Unit, under GEOS control, is probably the single greatest performance booster you can purchase for your Commodore. The speed and ease with which applications run on the RAM device is so amazing that we at Berkeley Softworks believe that all Commodore owners will want to purchase the RAM device once they have seen the performance difference. For more information on the RAM Expansion Unit, read "The RAM Expansion Unit (REU)," page 3-20.

Let's Get Our Terms Straight

This section defines a number of words and phrases used throughout the manual to describe various features of the GEOS system. If you wish to try out what you have learned, first be sure to make a backup copy of the disk you are currently using. (See "Copying a Disk," page 3-13.)

The Pointer and Clicking

When you boot up, a colored arrow called the **pointer** appears on the screen. The pointer can be moved around the screen by moving the joystick (or other input device) in different directions. The pointer is used to select items or simply to move to another location on the screen. It is a decision-making tool which allows you to move around in the GEOS system. To select an item or move to a new location, position the pointer at the new location and press the input device button. This is called **clicking**.

The Keyboard Cursor Keys

Sometimes you may find it necessary to use your keyboard cursor keys to move the pointer around the screen or to make a selection:

<i>To move:</i>	<i>Press (at top of keyboard):</i>	<i>or (lower keyboard):</i>
Right	(Right cursor key goes here)	(CRSR)
Left	(Left cursor key goes here)	SHIFT (CRSR)
Up	(Up cursor key goes here)	(CRSR)
Down	(Down cursor key goes here)	SHIFT (CRSR)

Note that you can also use the direction keys at the top of the keyboard to move the pointer around on the screen.

To select an item, position the pointer over it and press **RETURN**.

The Commodore Key

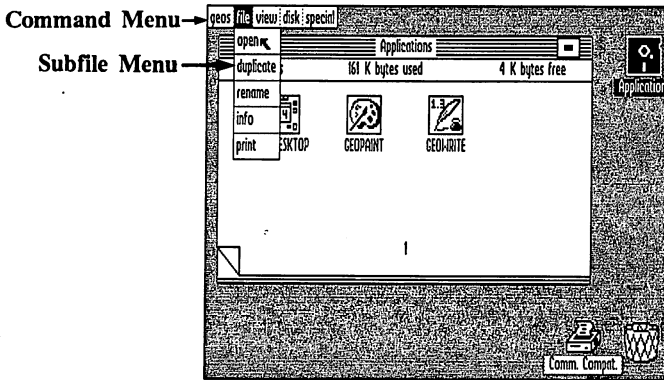
The Commodore key is a special key which when pressed in conjunction with another key allows you to use various keyboard controlled commands. These keyboard commands are the same as some of the commands you control through the sub menus. The Commodore key looks like this:



Menus, Sub Menus, and Dialog Boxes

A **menu** is just what you might guess: a list of **items**. A menu is used to list commands, desk accessories, fonts, or any of a number of items. For example, the **command menu** on the deskTop screen lists **geos**, **file**, **view**, **disk**, and **special**.

Often, selecting an item in a menu causes another menu to appear; this menu is called a **sub menu**. Occasionally, selecting an item in a sub menu will cause another sub menu to appear. You will rarely encounter more than two levels of sub menus, however.

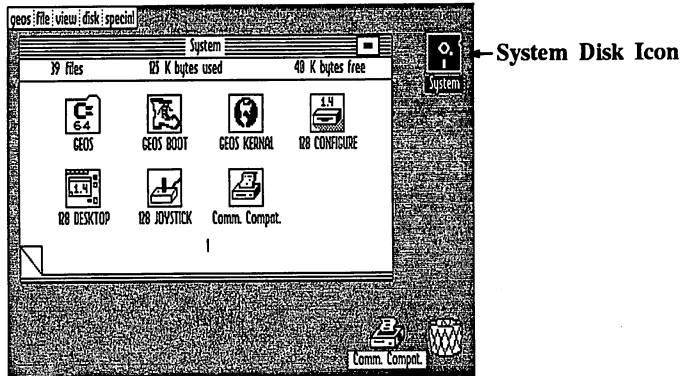


Sometimes you will select an item that will require you to enter special information before you can continue. When this happens, a **dialog box** will appear over whatever else happens to be on the screen. You will be asked to enter the information, or you can cancel the item you selected.

Once you enter the information, you can change it by pressing **INST/DEL** to backspace. When finished, you can exit by pressing **RETURN** or by clicking an **OK** or **YES** button, depending on the particular dialog box. Afterwards, the dialog box will disappear and you will return to what you were working on.

The deskTop and its Icons

When you boot up, the first screen displayed will contain the deskTop. Use the deskTop to work with your files, which are represented by icons. Icons are pictures used to represent an object, a tool, a document, or a command. With the deskTop, you can make decisions regarding the disk and its files, such as copying, deleting, or printing files appearing on the deskTop.

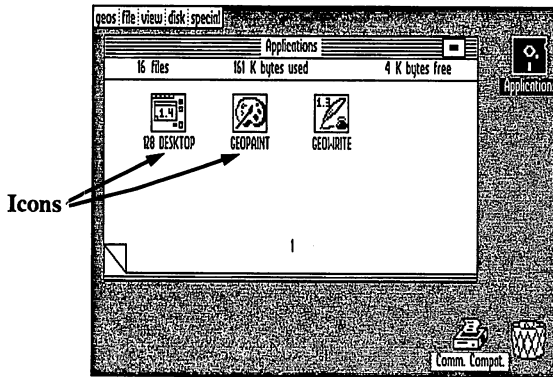


The icon shaped like a disk at the upper right corner of the screen indicates the drive in which your disk is located. If you click the pointer on this icon, you will open the disk. To close the disk you are currently using—represented by the deskTop—click on the close button at the upper right corner of the deskTop.

At the bottom right corner of the screen is an icon representing the currently selected **printer**, which is used to print files, and a small **wastepaper basket**, which is used to delete files. You will learn more about the deskTop in Chapter 3, "The GEOS deskTop."

Selecting a File Icon

Once you click on a file icon, it appears in **reverse video**, i.e., white on black. There are various ways of selecting a file icon, depending on what you want to do with it.



If you want to use the command menu:

Click on the file icon once so that it is highlighted, then make a selection from the command menu.

If you want to move the file icon:

Click on the file icon once so that it is highlighted, pause, then click on it again so that a blue outline (called the "ghost icon") appears in place of the pointer. You can move the ghost icon around on the deskTop. To deposit it, select a place and click again.

If you want to open a file icon:

Click twice in rapid succession. This is called **double clicking**.

Applications

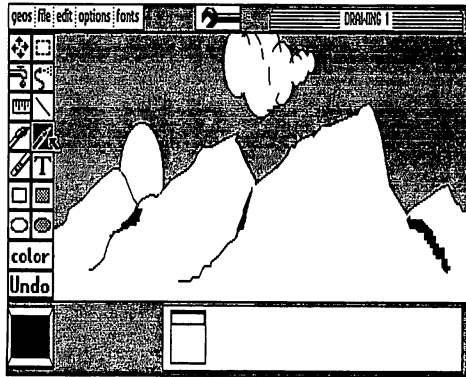
Applications are computer programs that operate in GEOS. **geoWrite** and **geoPaint** are examples of GEOS applications. Additional applications for use with GEOS are also available.

Documents

The geoWrite and geoPaint applications allow you to create your own data files (**documents**) on the disk. Each such file consists of high resolution 8 1/2 x 11 inch pages. Once you create a document, you can alter it as you wish, duplicate it, rename it, or delete it.

Windows

The framed rectangular regions on the screen are called **windows**. They are typically used to separate different functional areas on the screen. A window is a viewport into an area larger than can be displayed on the screen.



Drawing Window

For example, geoPaint provides a **drawing window** into an 8 1/2 x 11 inch document. This window shows only a portion of the document at one time. You can view the rest of the document by **scrolling** or **moving** the window to different parts of the document.

The Text Cursor

Whenever you are working with text, there is a small flashing bar on the screen indicating where the next typed character will appear. This bar is called a **text cursor** or sometimes just a **cursor**. You can move it around anywhere that text can be typed with the pointer by simply clicking on the new location.

Highlighting Text

In geoWrite, text may be cut, copied, changed, or moved within the document, or moved to other documents. To indicate to the program which text you wish to change, you need to **select** it by **highlighting** it. Click once at the beginning of the text, continue to hold the input device button down while dragging the cursor, and click again at the end of the text. It will reverse (i.e., turn white on black). You have just highlighted or selected it. Then you can have it cut, copied, changed, or deleted.

Fonts, Type Styles, Point Sizes, and Proportional Spacing

When you are creating text in a geoWrite or geoPaint document, you may eventually want to vary the size, style, and typeface of the text. GEOS offers you multiple character sets or fonts (fonts are typefaces). You can type with the medieval characters of the **Dwinelle font** or the simple straight lines of the **University font**.

The size of each font is measured in **points**. There are 72 points to an inch. The actual height of characters printed using GEOS depends on the resolution of your printer.

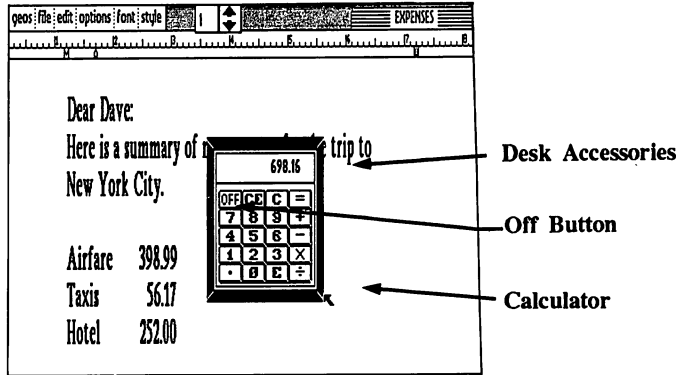
For any given font and point size, you can also change the **type style** used to print your text. Available styles are **bold**, *italic*, **outline**, and underline.

If you look closely at the spacing between the individual letters printed by most typewriters you will notice that the letters are printed with a fixed spacing. If you look at a professionally printed page—such as this page—you will notice that the spacing depends on the shape of the letter. For example, the letter “w” is wider than the letter “i”. This is called **proportional spaced printing** because each character is proportioned differently. GEOS uses **proportional spacing** for all text to allow you to create professional looking documents.

The original GEOS disk has five different font files, each with a number of point sizes. Berkeley Softworks offers a font disk with 20 additional fonts. Once font files are placed onto a disk, they can be used with any application on that disk.

Desk Accessories

A **desk accessory** is a small utility program which you can bring upon the screen almost any time you need it. Though you can use an accessory within an application, it is separate from that application. Once you select a desk accessory, it pops up on the screen over whatever you were working on, temporarily making that application inactive. When you finish using the desk accessory and click on its close button, the previous application becomes active once again.



For example, while in the geoWrite application, you might be typing in a column of numbers. If you want to total the numbers, you can select the **calculator** from the **geos** menu. The calculator will pop up over the document, and you can use it to sum the figures. (If you like, you can then copy the total into the document.) When you are finished, simply click the OFF button of the calculator, which will then disappear and allow you to return to the geoWrite document you were working on.

Copy the Desk Accessories that you may want to use with your applications onto your work disks.

40/80-Column Mode

GEOS provides you with the option of viewing your screen in 40-column mode, for easier visibility, or 80-column mode, to view a larger portion of your document. At any time, whether you are on the deskTop or in an application, you can switch between the column modes.

NOTE: Many monitors have a vertical size knob, which allows you to adjust the height of your screen display when you are using 80-column mode. To make the text easier to read, adjust the vertical size knob so that the text appears smaller.

There are advantages to both modes in geoWrite and geoPaint. For example, in geoWrite you may wish to use 80-column mode to view the entire width of your document, or you may wish to use 40-column mode in which some text fonts are easier to read. 40-column mode enables you to work with colors in geoPaint, but 80-column mode—which does not display colors—allows you to view the entire width of the drawing window.

IMPORTANT: In general, all applications and desk accessories written

for the C64 System will operate in 40-column mode in the C128 System, except for those that utilize basic ROM (Read Only Memory), such as the C64 versions of the Calculator, geoCalc, and geoFile. The 128 Configure File should only be used with the C128 System.



Never and Always (Do's and Don'ts)

When you are not using your disks, keep them in their sleeves and away from all electronic or magnetic equipment. Do not lay them on top of your monitor, or computer power supply.

Always close the disk drive door after inserting any disk into the disk drive.

Never remove a disk from the disk drive while on the deskTop, or while you are using an application, without first closing the disk (unless you are specifically asked to do so by a dialog box).

Always create and use work disks. Use the **System** disk only for booting, or to rearrange your default files.

Never create a document on the **Applications** disk. Copy the applications onto work disks and create your documents there. If, however, you do create a document inadvertently on the **Applications** disk, copy the document onto another disk (if you wish to save it), and then remove the document from the **Applications** disk by using the following procedure:

- 1: Move the file icon to the border and drop it there.
- 2: Pick up the file icon again and move it to the waste basket to throw it away (see "Deleting a File," page 3-9).

Always make backup disks containing your document files in case one disk becomes damaged.

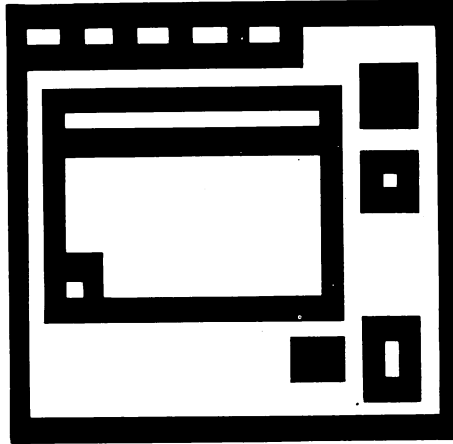
Never give two disks the same name; it is too easy to confuse the two. If one disk is to be a backup, vary its name slightly. For example, the backup for a disk called "Limericks" could be named "Limericks Backup", or "Limericks II."

Never use the old BASIC validate command. If you accidentally use this command, immediately boot GEOS and use the **validate** command located in the **disk** sub menu on the deskTop.

NOTE: The **validate** command can fix small problems. In the above case, it simply prevents further damage. **Validate** will check for damage and display a dialog box listing what it has found.

Never use the old BASIC scratch command either. If you do, use the procedure above to restore your work.

Chapter 3: The GEOS deskTop



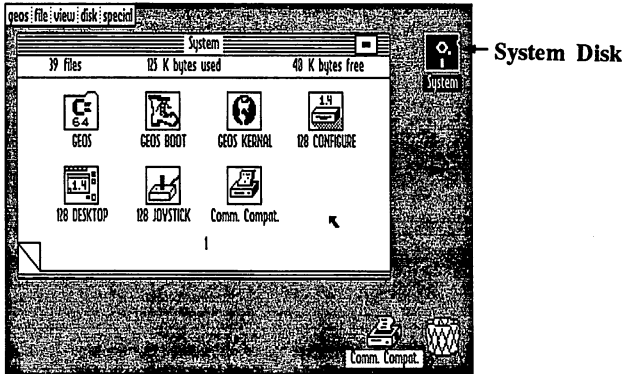
This chapter describes the functions of the GEOS deskTop. It describes how to:

- identify the deskTop, icons, menus, and disk note pad
- manage files (open, close, rename, copy, move, delete, print, and get info)
- manage disks (open, close, copy, format, rename, and validate)
- use two disk drives
- use non-GEOS disks
- use the RAM Expansion Unit (REU)
- use GEOS and BASIC

At the end of this chapter is a Quick Reference to all the commands contained in deskTop menus.

The deskTop Screen

The deskTop, which is the first screen you see after you boot GEOS, enables you to gain access to, and work with your files. It also allows you to make decisions regarding disks, such as copying or renaming them. This chapter describes how to use the deskTop to manipulate files and disks.



The **Command menu** lies along the top of the deskTop. Selecting each item in the command menu will cause a sub menu of commands to appear. To select a menu or an item, point to it and click.

In the upper right corner of the deskTop is a **disk icon**, indicating the disk that is currently in the disk drive. This icon is black when a disk is open.

The **disk note pad** is the large white area in the middle of the screen. It contains information about the currently open disk. The disk's name appears in the title bar. A **close button** is displayed at the far right; click on it to close the disk. The number of files, how much disk space is used and how much is available are listed below the title bar. The pages of the disk note pad display the icons of the files residing on the currently open disk.

There may be up to eight **file icons** on each page of the disk note pad. The icon's appearance indicates the file's type, such as application or document. The name of the file is written below the icon.

There may be up to 18 pages on the disk note pad. There are two ways to flip through the pages:

- Enter the page number (1–9) from the keyboard, or
- Click on the dog-eared (turned over) corner at the lower left corner of the note pad to move forward; click on the area just below the dog-ear to move to the previous page. If you click backwards while on page 1, you will jump to the last page of the note pad. If you have ten or more pages on your disk note pad, you will need to use the “dog-ear” to get to any pages after 9.

The area just below the disk note pad is the **border**, which is used to temporarily deposit file icons you are moving or coping.

The **printer** and **waste basket** icons appear in the lower right corner of the deskTop. The printer icon, which represents the default printer, allows you to easily print a data file: simply drag the file’s ghost icon over the printer icon and click. The waste basket works in a similar way: to permanently delete a file, drag its ghost icon over the waste basket icon and click.

The deskTop V1.3 and Master disks

Your GEOS boot disk and other application disks (Desk Pack 1, geoDex, Writer’s Workshop, Font Pack) are valuable disks, which we presume you wish not to damage. The deskTop V1.3 and Disk Copy programs were designed to prevent accidental damage to these Master disks, by treating them as special:

- The deskTop V1.3 will not let you throw away files from the disk note pad of a Master disk. Should you really need to get rid of a file, you can first move it to the border, and then throw it in the waste basket from there.
- The deskTop V1.3 will not allow a file on Master disk to be overwritten with a file copy from another disk. If you wish to replace a file on a Master disk with another version of the same file, you must first delete the older file before copying over the new one.

File Management

There are several categories of GEOS files. These categories depend upon the type of information the file contains and how that information is used.

GEOS File Categories

System Files

- The GEOS operating system files Boot and KERNEL
- System data files such as the Photo Scrap and Text Scrap

Program Files

- Applications programs, such as geoWrite and geoPaint
- Desk Accessories, such as the preference manager, calculator, notepad, photo manager, and text manager
- User programs in either Assembly Language or BASIC format

Data Files

- Documents created by GEOS applications
- Font files containing bit-mapped image data for text
- Data files created by non-GEOS programs

Interface Drivers

- Input drivers to accommodate a joystick or mouse
- Printer drivers, each for a specific printer

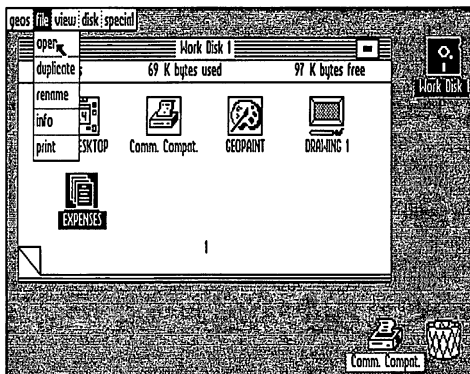
Non-GEOS Files

- Programs and data files that have not been converted to GEOS format. The deskTop displays a Commodore logo icon for each of these files.

Opening Files on the deskTop

There are two methods of opening a file on the deskTop:

- click once on the file and select **open** from the **file** menu, or
- double click the file icon.



The types of files (listed on the previous page) that can be opened from the deskTop are: BASIC programs, assembly languages programs, application programs, documents you have created, and desk accessories. If you attempt to open another file type, a dialog box will inform you that the file cannot be opened from the deskTop.

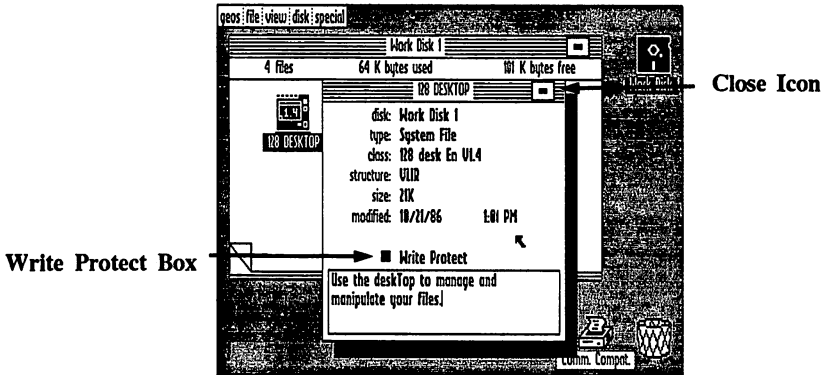
IMPORTANT: If you are opening a file from a C64 product, you must use 40-column mode. To switch to 40-column mode, select **switch 40/80** from the geos menu and press the RGB button or composite switch at the bottom of the monitor (next to the monitor's power switch).

Renaming a File

Click on the file once to select it, then choose **rename** from the **file** menu. A dialog box will pop up and ask you to enter a new name. Press **INST/DEL** to backspace over as much of the old name as you want, then type in the new name, and press **RETURN**. When the deskTop reappears you will see the new filename in the title bar.

File Info and Write Protect Status

Click on the file once to select it, then select **info** from the **file** menu. A dialog box will pop up displaying the disk name, type, class, structure, size, and when modified. The dialog box also allows you to change the write protect status (which determines whether a file can be deleted) and enter a brief note describing the file's purpose.



To change the write protect status:

Click on the Write Protect box once to change the write protect status. If the box is black, the file cannot be deleted. If the box is hollow, the file can be deleted.

To add a note:

Simply start typing. Use **INST/DEL** to backspace and delete. To move to another location, click anywhere in the text.

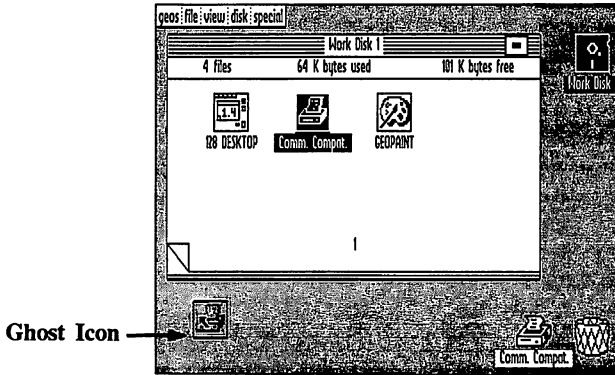
Making a Copy of a File on the Same Disk

Click on the file icon once to select it, then choose **duplicate** from the **file** menu. When asked to, enter the new name (use **INST/DEL** to backspace over the old one) and press **RETURN**. The new file will be the same as the original file, except for its name.

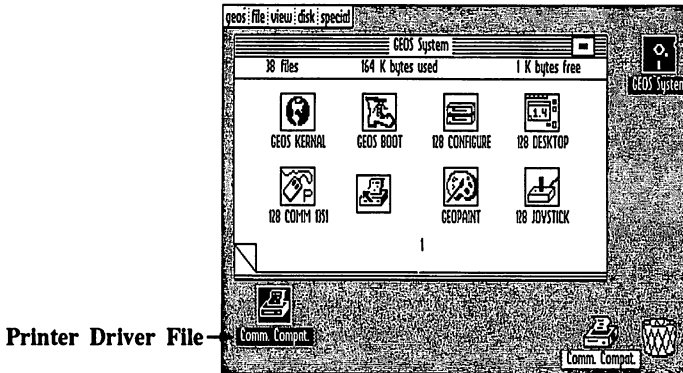
Copying a File to Another Disk

If you have one disk drive:

- 1: Open the source disk (i.e., the disk you wish to copy from). That disk's note pad appears. Click on the file icon to be copied so that its ghost icon appears.

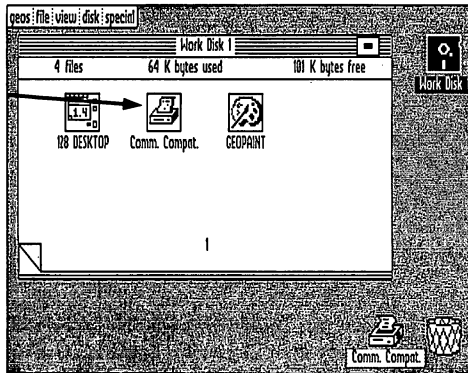


- 2: Move it to the border, and click once to drop it there.



- 3: Close and remove the source disk. Insert the destination disk (i.e., the disk that you wish to copy the file to) and open it.
- 4: Click on the file icon you deposited on the border and drag it onto the destination disk's note pad. Click to deposit it there.

Printer Driver File



- 5: When asked to, remove the destination disk, and insert the source disk. Click **OK** to continue. Follow the directions on the screen until the file has been completely copied.

NOTE: You can copy more than one file at a time in this manner. Drag the icons to the border, and follow the procedure described above for each file to be copied.

Copying a file does **not** delete it from the source disk. If you re-open the source disk, the file will re-appear on the border. You may now want to drag it back up to the disk note pad and deposit it.

If you have two disk drives:

- 1: Open the source disk. That disk's note pad appears. Click on the file to be copied so that its ghost icon appears.
- 2: Move the ghost icon over the disk icon representing the destination disk, and click to indicate that you want the file copied onto that disk.

NOTE: You can copy files from Drive A to Drive B, or vice versa.

Deleting a File

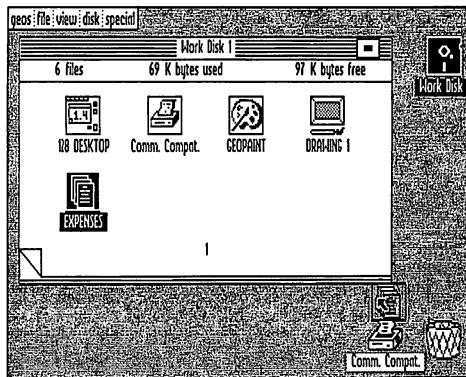
Deposit the file's ghost icon on the border, then drag it over the waste basket icon and click to throw it away. (This is to prevent accidental deletions.) The original icon will disappear from the disk note pad and the file will be deleted. Once a file is deleted, it cannot be recovered.

If while trying to delete a file, a dialog box appears saying, "This file is write protected and cannot be deleted," you must use the **info** command in the **file** menu to change the file's write protect status before you can delete it. Refer to "Changing the Write Protect Status," page 3-5

Printing a Document

There are two ways to print a document from the deskTop:

- select the file's icon and then choose **print** from the **file** menu, or
- drag the file's ghost icon over the printer icon and click.



NOTE: If necessary, click on **Cancel** to stop printing.

Only documents you have created (using geoWrite and geoPaint) can be printed from the deskTop. Note also that files can be printed while you are still working within an application.

If the printer is not connected, incorrectly connected, or not selected, a dialog box will appear saying "The printer is inaccessible." If this happens, check your printer connections and power switch, and make sure that you have selected the correct printer. Refer to "Choosing a Printer Driver and Printer," page 1-11. Now try printing again.

Selecting a File as the Default File

Note that some files automatically are selected ahead of others. For example, the first time you booted GEOS, the joystick was selected as your input device. This is because the joystick file icon appears ahead of all other input driver file icons on the disk note pad, and GEOS always selects the first file in a specific category of files as the default file. Therefore, in order to change your system's default setting, you will need to move the file you want as the default file in front of all the other files of that type.

For example, if your input device is not a joystick, you will need to reselect the input device each time you boot up, which will become tedious after awhile. An easier method is to change the order in which the files appear on the disk note pad, since GEOS always selects the first file on the disk note pad as the default.

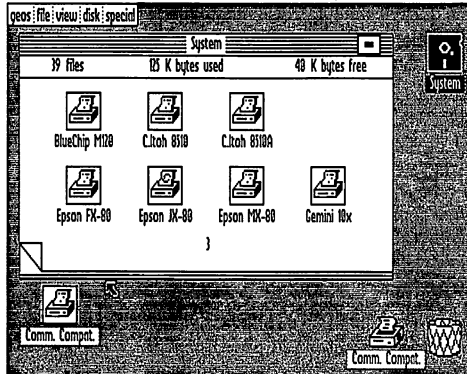
You can move files around on the **System** and **Applications** disks, as well as on work disks. If you have a long list of documents, you can rearrange their order on the disk so that certain files will always appear first when you go to select a document. In the case of selecting an input device and printer, it is best to rearrange these files on the original System disk.

NOTE: This is the procedure you need to use to select your printer driver as the default printer file on your boot disk.

To change a file's default setting:

- 1: Open the disk so that the disk note pad with the file icons is displayed.
- 2: Flip through the pages of the note pad (click the dog-eared corner) until you find the first file in that category (e.g., the first input driver on the disk).

- 3: Click on the icon so that you have brought up its “ghost” icon. Drag the ghost to the border below the note pad and click again to drop it there.



- 4: Flip the note pad pages again to find the file icon you need. Select it as you did the icon in Step 3, and drag it to the border.
- 5: Click the original icon (the one that was listed first and is now in the border) and move it to where the second icon was in the note pad. Click again to drop it there.
- 6: Flip back to the place where the original icon was displayed. Select the icon remaining in the border and move its ghost to the note pad and click again to drop it in the place of the original icon.

You have just made this file the default file. Now, every time you boot, the default will be loaded first by GEOS, without your having to manually select it.

Disk Management and Organization

Opening a Disk

Either press **⌘-O**, or select **open** from the **disk** menu. You also can click on the disk icon at the upper right corner of the screen.

NOTE: When a disk is opened, do not remove it from the disk drive unless you are copying it or its files to another disk.

Closing a Disk

Before removing the disk from the disk drive, either press **⌘-C**, or select **close** from the **disk** menu. You also can click on the close button at the top right corner of the disk note pad. The disk note pad will be cleared, and the disk icon will be replaced with an image of a disk with a question mark inside it.

Copying a Disk

If you have one disk drive:

- 1: With the source disk (i.e., the disk to be copied) in the disk drive, select **copy**, from the **disk** menu. Remove the disk when you are asked to do so.
- 2: Insert the destination disk (i.e., the disk to be the new copy) into the disk drive and click **OK**.

NOTE: If the destination disk is unformatted, a dialog box will ask you to enter a disk name. The disk will then be formatted, and you can resume copying.

If the destination drive is a 1571, you will have the option to format the disk as single or double sided.

- 3: The question "Replace the contents of (destination disk name) with the contents of (source disk name)?" appears. Click **YES**.
- 4: Continue to follow the directions on the screen, swapping disks in and out of the disk drive and clicking **OK**, until the disk is copied.

If you have two disk drives:

- 1: Open the source disk (i.e., the disk to be copied) by inserting it into the disk drive, and then clicking on it (or pressing **C** **O**). Then select **copy** from the **disk** menu.
- 2: Insert the destination disk (i.e., the disk to be the new copy) into the other disk drive and click **OK**.

NOTE: If the destination disk is unformatted, a dialog box will ask you to enter a disk name. The disk will then be formatted.

If the destination disk drive is a **1571**, you will have the option to format the disk as single or double sided.

- 3: The question "Replace the contents of (destination disk name) with the contents of (source disk name)?" appears. Click **YES**. After a few moments, the disk will be copied.

NOTE: You can copy a disk in Drive A to Drive B, or vice versa.

Formatting a Disk

Before a blank disk can be used to store files it must be formatted. To format a disk, select **format** from the **disk** menu. When asked, remove the current disk (if you have one disk drive), and insert the blank disk. Next, enter a name for the disk and press **RETURN**. Then, if you are using a 1571 drive, select whether you want one or both sides formatted. After a moment, the disk will be formatted.

NOTE: Formatting a disk will destroy all files that are currently on the disk.

Renaming a Disk

To change the name of the disk, open the disk, select **rename** from the **disk** menu. A dialog box will appear and ask you to enter a new name. Press **INST/DEL** to backspace over as much of the current name as you want, then type the new name. Press **RETURN** when finished.

Validating a Disk

Should you ever encounter problems with a disk, use the **validate** command in the **disk** menu to check for damage on the disk. If the damage is minor, the **validate** command will repair it. **Validate** will not change the file contents of the disk. After validating, the disk will be reopened.

IMPORTANT: Never validate a GEOS disk from BASIC. Only use the GEOS validate command when in the GEOS environment.

Using Non-GEOS Disks

Although programs not specifically designed for GEOS cannot take advantage of GEOS's windows, icons, and pull-down menus, you can use the deskTop to examine the contents of a non-GEOS disk and to run programs from non-GEOS disks.

Using the deskTop with Non-GEOS Disks

Insert the non-GEOS disk into the disk drive and select **open** from the **disk** menu. A dialog box appears, asking if you would like to convert the disk's directory to GEOS format. If you select **YES**, GEOS will expand the directory on the disk by one block. This additional directory area will be used to keep track of files which are moved from the disk note pad to the deskTop border.

If you select **NO**, GEOS will not allow you to move files from this disk off the disk note pad onto the deskTop border. You can, however, otherwise use the deskTop to manipulate the files on the disk.

Once GEOS has opened the disk, an icon will appear on the disk note pad for each file on the disk. Since these files do not have icon images, a "C128" icon will be displayed for each. You can rename, copy, and delete these files as if they were standard GEOS files.

Running a Program on a Non-GEOS Disk

Once you have opened a non-GEOS disk and its contents are visible on the disk note pad, you can double click on any of the program file icons to run a program. GEOS will determine the type of program, and will attempt to load and run it. If the disk you have inserted normally starts by itself, select the **BOOT** option from the **special** menu.

Using Two Disk Drives

Enabling Your Second Disk Drive

If you have changed the jumper in your second drive to permanently change it to device 9, GEOS will automatically enable the second drive when booting. If your drives have not been altered in this manner, you **must start GEOS with the GEOS disk in one disk drive and the other disk drive powered off.** (This is because both drives power up as device 8.) Then follow the “add drive” procedure as follows:

If you have two disk drives but only one appears on the deskTop, you can add the second disk drive using this procedure. Connect both drives to the serial port, but only turn on one disk drive (either one). Boot GEOS and use the Configure File to add a second disk drive. The disk drive that was originally powered up will remain device 8 and be referred to as Drive A. The added disk drive will be changed in the software to device 9 and be referred to as Drive B.

When you have successfully added a second disk drive, its icon will appear at the right edge of the deskTop (see below). The disk icon for the currently active disk drive is highlighted (i.e., displayed in reverse video).

Selecting the Active Disk Drive

The disk note pad displays the contents of one disk drive at a time. Furthermore, the disk menu commands act on the currently selected disk drive. To select the active disk drive, simply click on that drive’s disk icon located at the right. Remember: **Drive A (device 8) is the original disk drive and appears above Drive B (device 9) on the deskTop.**

Using the Configure File to Add or Change Disk Drives

To change Drive A:

- 1: Go to the System disk deskTop and double click the 128 Configure icon. A screen with two dialog boxes—one for Drive A and one for Drive B—will appear.
- 2: Go to the Drive A dialog box and click on the “No drive” box.
- 3: A dialog box will ask “If desired, you may now turn OFF and/or unplug drive A.” Disconnect the cables from Drive A and turn the disk drive off. Go to the dialog box and click OK to continue.
- 4: You will be returned to the Drive A dialog box, which will now display three different disk drives: 1541, 1571, and 1581. Select one.
- 5: A dialog box will ask you to “Plug in & turn ON new disk drive.” Connect the cables to the new disk drive and turn the disk drive on. Click OK to continue.

NOTE: Refer to the user’s manual for your disk drive for the procedure for connecting disk drive cables.

- 6: Select **save configuration** from the **file** menu to install the change.
- 7: To return to the deskTop, select **quit** from the **file** menu.

To add a disk drive or change Drive B:

- 1: Go to the System disk deskTop and double click the 128 Configure icon. A screen with two dialog boxes—one for Drive A and one for Drive B—will appear.
- 2: Go to the Drive B dialog box and find the disk drive you want: 1541, 1571, and 1581. Select one.

- 3: A dialog box will ask you to "Plug in & turn ON new disk drive." Connect the disk drive cables to the new disk drive, printer, C128, and an electrical outlet. Turn the disk drive on. Click **OK** to continue.

NOTE: Refer to the user's manual for your disk drive for the procedure for connecting disk drive cables.

- 4: Select **save configuration** from the **file** menu to install the change.
- 5: To return to the deskTop, select **quit** from the **file** menu.

The RAM Expansion Unit (REU)

Perhaps the greatest single performance improvement that you can make to your Commodore (now that you are using GEOS) is by obtaining one of the Commodore RAM Expansion Units (REU). The 1700 REU adds 128K of RAM (random access memory, or internal memory storage capacity), the 1764 REU adds 256K, and the 1750 REU adds 512K.

The GEOS KERNAL supports Commodore's RAM Expansion Unit (REU) via the **128 Configure** file. Specifically, the KERNAL allows up to 512K of RAM to be configured to provide a 1541 or 1571 RAM disk, the shadowing of a real 1541 disk drive, fast movement of data, and fast rebooting of GEOS from BASIC. To access the RAM expansion features, boot GEOS with the RAM Expansion plugged in, and double click on the **128 Configure** file icon. The amount of RAM installed in the RAM Expansion Unit is shown, and On/Off toggle boxes allow you to set the configuration you desire. When finished, select **quit** from the file menu, and your system will function as you have selected. You may run **128 Configure** at any time, to change the system configuration. To save the configuration for the next time you boot GEOS, select **save configuration** from the file menu.

Here is a full description of the additional options available with the **128 Configure** file:

- **1541/1571 RAM Drive:** A simulated 1541/1571 disk drive, implemented entirely in RAM. Note that anything generated on such a drive should be copied to a real disk, or be lost, at the end of a session.
- **Shadowed 1541 Drive:** RAM is used to "remember" data that has been previously read from a disk on a real 1541 drive. If data is requested after it has been read once before, it is loaded from the RAM expansion, saving the time required to go to the disk to get the same data. All writes go through to the physical disk, so the disk's data is always accurate. Basically, this mode speeds up a real drive.

- **DMA for “Move Data”:** The RAM Expansion Unit is capable of moving large amounts of data much faster than code in the C64 computer. If this option is specified, then the KERNEL routine “MoveData” uses the DMA features of the RAM Expansion Unit. The effect is quite noticeable in scrolling around a geoPaint document, for instance.
- **Fast Reboot:** If this option is selected, and BASIC is reentered, from the deskTop under the **special** menu, or by double clicking on a BASIC program, then pressing the **RESET** key will cause GEOS to reload in from the RAM Expansion, and look for a deskTop. Note that if you have a RAM drive in your configuration, and have a copy of the deskTop on it, GEOS reboots very fast indeed. All this requires that the memory space in the C128 from \$C000 to \$C07F in RAM bank 1 be preserved by the program. If a program uses this space, or replaces the **RESET** vector, but allows returning to BASIC, then you may reload GEOS fast by typing Boot “128 Rboot” with any disk in the disk drive that you’ve copied the RBOOT program onto.

Copying Files Using the RAM Expansion Unit

Copying files from one disk to another is much faster when using the REU. Place the source disk in Drive A (the 1541/1571 drive) and copy the files to the RAM disk. This can be accomplished by dragging the ghost icon for the file over to the RAM disk icon and dropping it. The copy operation will occur very quickly because writing to the RAM disk is almost instantaneous. Now close the source disk in Drive A. Insert the destination disk. You will notice that the file copy operation can now be performed in a fraction of the time previously required.

The same benefit applies to copying an entire disk. Using the REU you can make backup disks much faster by using the **copy** command from the **disk** menu. First copy the source disk to the RAM disk. Close the source disk and place the destination disk in Drive A. Open the RAM disk and again select the **copy** command from the **disk** menu.

If a copy of the deskTop is placed on the RAM disk, GEOS will always load it quickly from there, even though you may be currently using applications on another disk. When you are working in a RAM disk, you need to copy your application document files back to a floppy disk for storage.

GEOS and BASIC (for BASIC Programmers Only)

Entering the BASIC Interpreter from the deskTop

If you have installed the RAM Expansion Unit (REU):

Select **BOOT** or **BASIC** from the **special menu**. When you are finished using the application, or **BASIC**, press the **RESET** key.

NOTE: So long as the application does not restore the RESET vector and does not alter the space \$C000 to \$C07F in RAM bank 1, and you have not reconfigured your drives while in BASIC, GEOS will load off of the RAM Expansion Unit and the deskTop will come up on your screen.

For those applications that do take control of the machine as mentioned above, load and run the program RBOOT by typing **BOOT "128 RBOOT"**. This will quickly reload GEOS. The RBOOT file may be placed on any of your work disks. Note that GEOS boots very fast if you have a RAM disk set up with a copy of the deskTop on it.

If you have not installed the RAM Expansion Unit (REU):

Select **BOOT** or **BASIC** from the **special menu**. To return to GEOS, press the **RESET** key, or reboot: flip the C128 keyboard switch OFF, then ON.

Running BASIC Programs from the deskTop

Any BASIC program can be loaded and run from the deskTop. Simply double click the program's icon on the disk note pad page. If the program is small, the GEOS diskTurbo software will fast load the program into memory and automatically execute a RUN command. If the file is large, it will be loaded by the normal Commodore DOS routines and a RUN will be executed.

Programmer's Reference Manual and geoBASIC

To aid programmers in the development of software capable of operating in GEOS, the engineers at Berkeley Softworks have written *The Official GEOS Programmer's Reference Manual*, available through Bantam® Books.

Most of the powerful routines in GEOS are accessible through a jump table. The reference manual will allow experienced BASIC and assembly language programmers to access all of the graphics and operating system features of GEOS to develop their own GEOS applications.

Quick Reference: deskTop Menus

geos

- geos info:** displays copyright notice and version number of GEOS.
- deskTop info:** displays version number of deskTop.
- select printer:** lets you select a printer driver.
- select input:** lets you select an input driver.
- preference mgr:** a desk accessory; lets you select input driver speed, color, background and foreground colors, and time and date.
- alarm clock:** a desk accessory.
- photo manager:** a desk accessory; lets you manage photo albums.
- text manager:** a desk accessory; lets you manage text albums.
- calculator:** a desk accessory.
- notepad:** a desk accessory; lets you create memos.

file

- open:** loads and executes the currently selected file on the deskTop.
- duplicate:** creates a duplicate copy of the selected file.
- rename:** allows you to rename the selected file.
- info:** displays information about the selected file.
- print:** prints the selected file (application files only).

view

- icon:** files on disks are displayed on disk note pad pages in icon form. You must be in this Icon-View Mode to manipulate the files. The other viewing modes listed below can only be used to display the contents of the disk.
- size:** displays files sorted by size, largest file first.
- type:** displays files grouped by type.
- date:** displays files in order of last modification. The most recently updated file is listed first.
- name:** displays files sorted alphabetically.

disk

open: opens disk currently inserted in disk drive, and displays files on disk note pad.

close: closes currently open disk.

rename: renames currently open disk.

copy: full disk copy; copies source disk to destination disk, replacing contents of destination disk.

validate: verifies integrity of currently open disk; repairs minor damage.

format: initializes selected disk (removes all files on that disk).

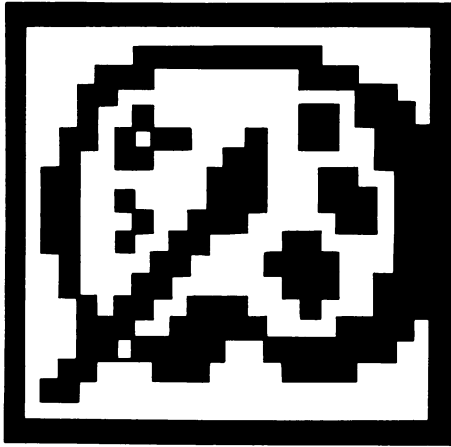
special

BASIC: escapes from GEOS deskTop to Commodore BASIC.

RESET: initializes the deskTop and reopens the disk. Use this command after disk errors, or if you accidentally swap files without following the proper open and close procedures.

BOOT: boots a 128 program disk if it has the capability to auto-boot.

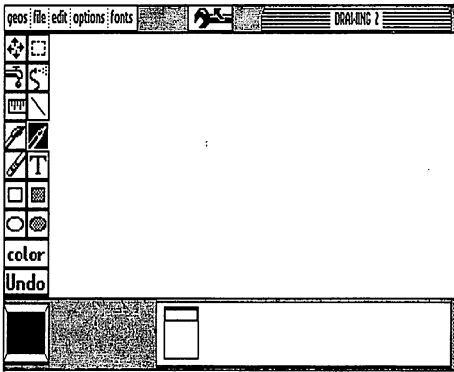
Chapter 4: geoPaint



This section covers geoPaint, a powerful color graphics editor. geoPaint allows you to create high-resolution, color graphic images on the display screen and print them. This chapter explains how to:

- enter geoPaint
- use geoPaint in either 40- or 80-column mode
- draw images
- add text to the images you have drawn
- correct and add details to the images
- issue special geoPaint commands
- print out the images you have created
- move or copy images to a geoWrite document
- exit geoPaint

The geoPaint Screen



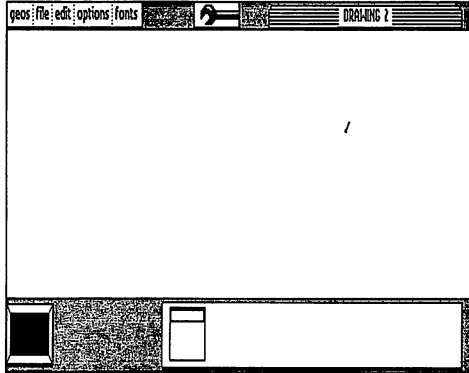
The maximum “printed” resolution of a GEOS document is 80 dots per inch, or 640 dots wide by 800 dots long (8 x 10 inches). Since this resolution is greater than what can be shown on your screen, geoPaint supports the use of a **Drawing Window**.

Like other “windows” in GEOS, the Drawing Window displays only a portion of a much larger document. In most cases (the “Normal Edit” mode), the Drawing Window allows you to work with an area up to 8 inches wide in 80-column mode by 1.8 inches high (approximately 1/7 of the total document). In the “Pixel Edit” mode, (see page 4-20), the Drawing Window actually magnifies a smaller section of your document, enabling you to work in much greater detail. In either case, you can move the Drawing Window around to view other portions of your document.

Above the large drawing window is a **Command Menu**. Clicking on one of the menu names displays a sub menu with several commands to choose from. Simply click on the command you desire.

Along the left side of the geoPaint screen is the **Graphic Tool Box** (initially not visible). The icons located in the Graphic Tool Box give you access to the many drawing tools described later in this chapter.

The **Title Bar** in the upper right corner displays the name of the document you are currently working on.



When your geoPaint document first appears on the screen, the drawing tools are not visible. To view the tools, move the pointer to the Tool Box icon at the top of the screen and click on it once. The drawing tools will appear at the left of the screen. To hide the tools, click on the Tool Box icon again. Note that in 80-column mode, the entire width of the printed page is visible when the tools are hidden.

The **Status Box**, a rectangular box at the bottom of the screen, displays different information depending on the tool in use.

In most cases, the Status Box appears as shown. Inside it, from left to right, are the **Page Map**, **Card Paint Color Indicator**, and the **Paint Color Bar**. The Page Map displays the size and relative position of the Drawing Window on your document. The Card Indicator displays the color that is beneath the pointer as it moves across your document. The Paint Color Bar displays the 16 available colors to work with. The arrow immediately above the Paint Color Bar points to the **Current Color**. geoPaint uses this color whenever you use a drawing tool. Note that the Color Indicator and Paint Color Bar only appear in the 40-column mode, since the use of color is not supported in 80-column mode.

The **Status Box** displays measurement information when using the Ruler, Line or Rectangle drawing tools. Also, it can display available brush shapes and patterns.

Directly to the left of the Status Box is the **Current Pattern Indicator**. Several tools use the pattern displayed in this box—the Paint Brush, Faucet, Air Brush, and Filled Rectangles and Circles.

The **pointer**, which indicates your location on the screen, is used to select menus, drawing tools or patterns. When in the Drawing Window, the pointer changes shape (and color, if you are in 40-column mode) to indicate the tool you are using.

If you have not already done so, read Chapter 2, “A Quick Overview,” before you continue.

Using 40- or 80-Column Mode

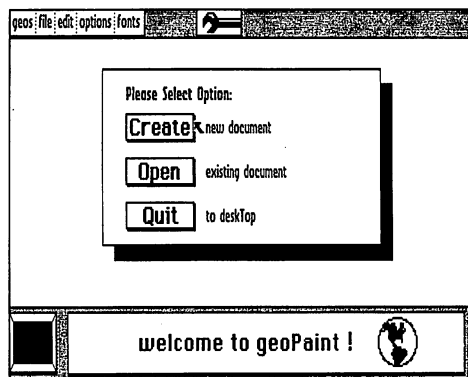
At any time you can switch column modes (40 or 80), from either the deskTop or from within geoPaint. **Note, however, that you can use color only while in 40-column mode.** To switch modes, select **switch 40/80** from the geos menu, then press the RGB button or composite switch at the bottom the monitor (next to the monitor’s power switch).

Entering geoPaint from the deskTop

There are two ways to enter geoPaint from the deskTop:

- click on the geoPaint icon on the Disk Notepad and then select **open** from the file menu, or
- double click the geoPaint icon.

In both cases, geoPaint will load and then display a dialog box which contains three options: **Create new document**, **Open existing document**, and **Quit to deskTop**. Select one.



Create New Document

- 1: Click the **Create new document** box.
- 2: When the dialog box appears, enter a name for your new document. Press **RETURN**.

NOTE: If you have two disk drives and need to create your document

on the other disk drive, click on the **Disk** button once to move to the other disk drive. Then continue with Step 2.

Open Existing Document

- 1: Click the **Open existing document** box.
- 2: When the dialog box containing a list of existing documents is displayed, click on the lower scroll arrows at the bottom of the box to find the document you need.
- 3: Select the document by clicking on its name once to highlight it, then click on the **Open** button to open it.

NOTE: If you have two disk drives and need to open a document on the other disk drive, click on the **Disk** icon once to move to the other disk drive. Then continue with Step 3.

Only the first 15 documents can be displayed in the open dialog box window. It is unlikely you will have more than 15 such documents on a single disk. If you do, rearrange your files on the deskTop to access these other files. If necessary, refer to "Selecting a File as the Default File," page 3-11. You can always select files to work on from the deskTop.

Quit

Select this option to exit geoPaint and return to the deskTop.

Opening an Existing Document from the deskTop

Either select the document icon on the disk note pad and activate **open** from the file menu, or double click on the document icon.

Running geoPaint with the RAM Expansion Unit (REU)

If you own the Commodore RAM Expansion Unit and have installed the REU GEOS KERNEL, you should always run geoPaint on the RAM disk. We recommend creating a geoPaint disk containing the REU deskTop, geoPaint, the Photo Manager desk accessory, and any other desk accessories that you desire. Use the copy command in the disk menu to copy the work disk onto the RAM disk (refer to "Copying a Disk," page 3-13). Create and edit your document on the RAM disk. **Be sure to copy your document to the 1541/1581 disk drive before turning the system off.** For more information on the RAM expansion unit, read "The RAM Expansion Unit," page 3-20.

Selecting Colors

When you are using 40-column mode, geoPaint provides 16 “paint” (foreground) colors and 16 “canvas” background colors. You draw the images with the paint colors onto the canvas color background. You can change the colors at any time.

While drawing with geoPaint, consider that you are painting onto a canvas, and that both the paint and canvas colors can be chosen from a set of 16 colors. Thus, there are two methods to draw a picture:

1. **Drawing Tools to Create an Image.** You can select any tool and draw the image with any color you choose—the background (canvas) color will not be affected.
2. **Using “Color” to Wipe on New Colors.** Once you’ve drawn a picture, you can wipe on new colors by selecting the **Color** icon in the Tool Box. This lets you change the canvas color.

These methods are described in more detail below, but before you decide on an approach, you should understand the way in which colors interact and are controlled by the C128.

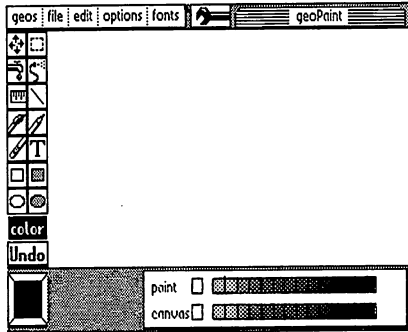
The Gridwork of Cards

The C128 divides a color picture into small squares called “cards.” Each card is 8 pixels (dots) wide and 8 pixels high. (The individual pixels are visible in **pixel edit**.) You can specify a maximum of two colors for each card: one paint (foreground) color, and one canvas (background) color. These cards are not immediately apparent. When you create a new document the canvas color (for all cards) is light gray; the paint color is set to dark gray. When you draw a line on the screen, there are both dark gray and light gray pixels on the same card.

A problem arises however when you attempt to draw a third color on this card. Since the card can show only two colors (not three), something has to give—the old foreground color switches to the new color. The result is a “jagged” color change at the boundary of the card. This problem can be avoided with careful placement of your images and the proper selection of paint and canvas colors. If you do not own a color printer, we suggest drawing your images in black and white.

Using the Drawing Tools to Create an Image

Whenever you paint using one of the drawing tools, geoPaint will use the Current Paint Color you have selected. The color of the canvas will not be changed as you draw. To choose a new Current Paint Color, point to the desired color in the Paint Color Bar and click. The Current Paint Color will move to that color.



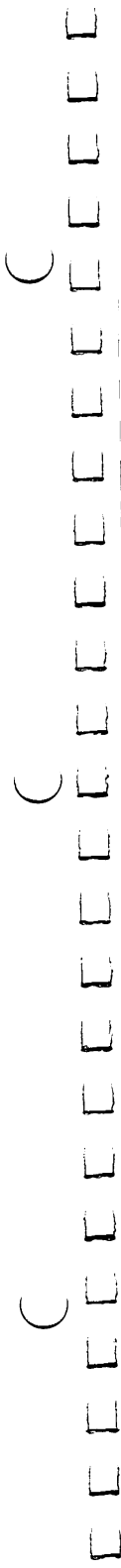
By clicking on the Card Color Indicator, located at the left of the Color Bar, geoPaint will set the Current Color to whatever paint color is selected for a given region of the Drawing Window. In other words, as you move across the Drawing Window, the Current Color will change to match the color in that region.

Using "Color" to Wipe on New Color

- 1: Select the **Color** icon in the Tool Box. A second color bar for the canvas color will appear below the Paint Color Bar.
- 2: Click on a paint color from the upper color bar and/or a canvas color from the lower color bar.
- 3: Move the pointer to the Drawing Window, click once to activate **Color** and wipe the new colors on the screen. Click again to stop.

Color Off

Select **color off** from the **options** menu. This allows you to draw in black and white: the drawing tool you are using will be dark gray and the background light gray. Select **color on** to activate the colors.

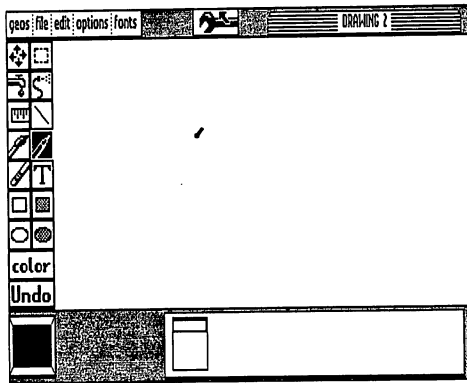


Drawing Tools and Shapes

geoPaint provides several drawing tools and shapes. Each tool produces a different graphic effect. The **Pencil**, **Paint Brush**, and **Air Brush** let you draw free hand. The **Line**, and **Hollow and Filled Rectangles** and **Circles** provide an easy way to draw geometric shapes. Use the **Faucet** to fill in shapes with patterns.

Using the Pencil

Use the **Pencil** to draw individual points and free hand lines:

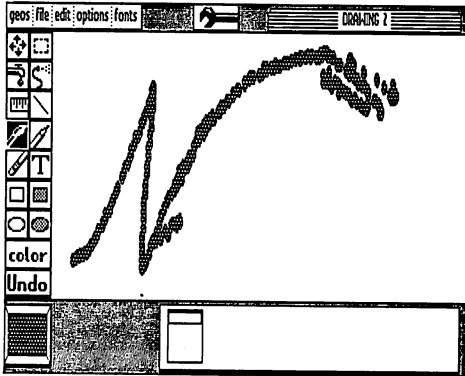


- 1: Click the **Pencil** icon in the Tool Box. The pointer will change to a pencil shape.
- 2: To activate the Pencil, move the pointer to the desired location and click to begin drawing. To deactivate, click again.

NOTE: If you are using 40-column mode, use the Color Bar to select different colors in which to draw. Note also that the Pencil icon can be used to activate Pixel Edit as well. See "Detailing with Pixel Edit," page 4-20.

Using the Paint Brush

The **Paint Brush** paints with any of 32 different brushes using the pattern displayed in the Current Pattern Indicator:



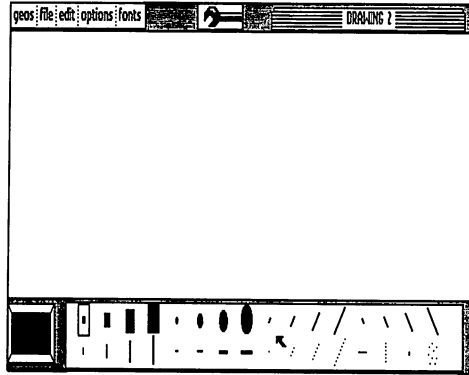
- 1: Click on the **Paint Brush** icon. The pointer will change to the current brush pattern.
- 2: Position the pointer at the desired location and click to begin painting. To deactivate, click again.

NOTE: To select a different pattern, see “Changing the Current Drawing Pattern,” page 4-29.

To change the brush shape:

- 1: Either select **change brush** from the **options** menu or double click on the Paint Brush icon. The Status Box will display a box containing the 32 different brush shapes. The current brush shape will have a box around it.

- 2: Click on a desired brush shape. The pointer will assume that brush's shape.

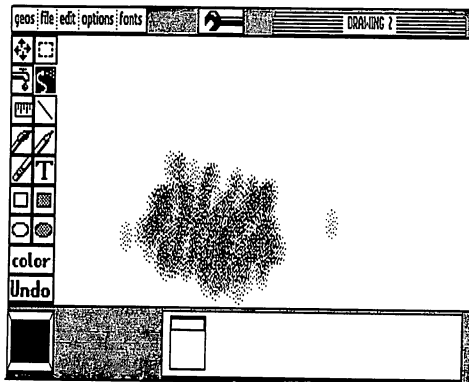


Using the Airbrush

With the **Airbrush**, you can spray paint large areas with the Current Pattern in a variety of intensities.

To activate the Airbrush:

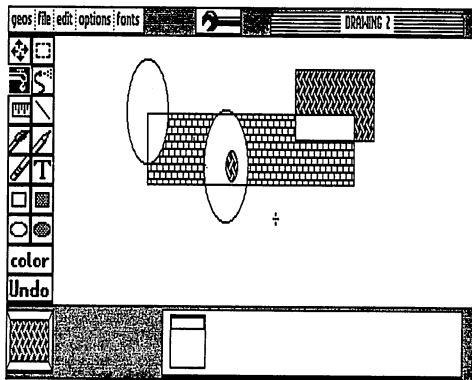
- 1: Click on the **Airbrush** icon.
- 2: Move the pointer to the desired location and click to begin painting. Click again to deactivate.



NOTE: To select a different pattern, see “Changing the Current Drawing Pattern,” page 4-29.

Using the Faucet

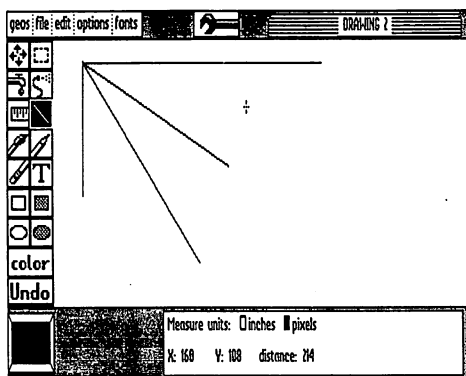
Use the **Faucet** to fill in an enclosed image:



- 1: Click on the **Faucet** icon.
- 2: Point to a position within the enclosed area and click once to fill it.

NOTE: Make sure the enclosed area is truly enclosed, or else the Faucet will leak out all over your document (which you can undo by selecting the **Undo** icon). To select a different pattern, see “Changing the Current Drawing Pattern,” page 4-29.

Drawing Squares and Rectangles



- 1: Click on the **Line** icon.
- 2: Position the pointer at the desired beginning point, click, and stretch the line out in any direction. Click again to deactivate. Repeat as desired for each line.

NOTE: Measure the size of the line as you draw by referring to “Measure units” in the Status Box below. See “Measuring Distances,” page 4-28, for more on the Measure units box.

geoPaint lets you draw two different types of squares and rectangles: hollow and filled:

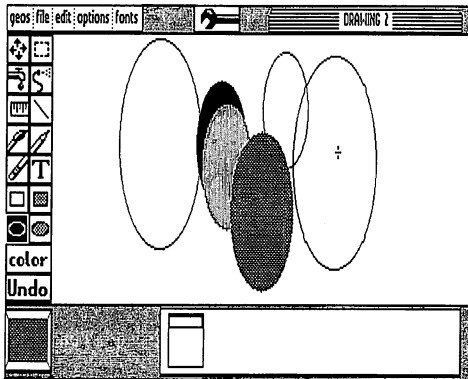
- 1: Click on the **Hollow** or **Filled Rectangle** icon.
- 2: Position the pointer at the desired beginning point, click, and pull the shape diagonally in any direction. When finished, click again.

NOTE: Measure the size of the box as you draw it by referring to “Measure units” in the Status Box below. See “Measuring Distances,” page 4-28, for more on the Measure units box.

Note that a filled square or rectangle contains the Current Pattern. To select a different pattern, see “Changing the Current Drawing Pattern,” page 4-29.

Drawing Circles

geoPaint lets you draw hollow or filled circles as well:

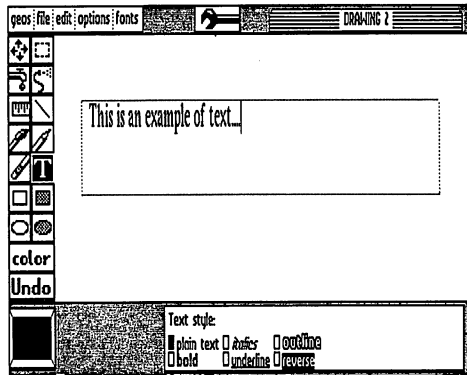


- 1: Select the **Hollow** or **Filled Circle** icon.
- 2: Position the pointer at the center of the desired circle and click once. As you move the pointer out, a circle is drawn between the start point (center) and the pointer. When finished, click again to deactivate.

NOTE: A filled circle contains the Current Pattern. To select a different pattern, see “Changing the Current Drawing Pattern,” page 4-29. Note also that circles appear slightly elongated on the screen (i.e., they are not perfect circles). This is because while GEOS dots are square, the dots on the screen are slightly rectangular, resulting in a slight elongation. On the 80-column screen, this is even more pronounced. However, if your printer’s resolution is the same vertically as it is horizontally, a circle will be printed as a circle.

Adding Text

To add text to your document, select the Text icon, define a rectangular area in which to insert the text (“Text Region”), then type your text.



Creating Text

- 1: Click on the Text icon.
- 2: Define a Text Region: click once to select one corner, drag the pointer to the diagonal corner, and click again. Be sure the region is large enough to encompass all of your text.
- 3: When the text cursor (a flashing vertical line) appears, type your text.
- 4: When finished, click on the Text icon or any other icon in the Tool Box.

NOTE: You may type up to 254 characters (including spaces) into the Text Region. Refer to the Status Box to select the style and color of your text. To select a style, click on its box; to deselect, click the style again.

Changing Text (While Editing Only)

Move the pointer to the desired location in the Text Region and click. You can either type more text or use the **INST/DEL** key to delete text.

Selecting a Font and Style

- 1: With the text cursor in the current text region, click the **fonts** menu.
- 2: Click on a font, then select a point size.
- 3: To select a style and color, go to the Status Box and make a selection by clicking on the appropriate box. To disable a style, click its box again.

NOTE: Any font, style or color you select affects all the text in the Text Region. You may, however, change to another font, style or color at any time before leaving the edit mode.

Changing the Position and Layout of the Text

- 1: With the text cursor in the current text region, position the pointer in a new location outside the Text Region.
- 2: Define a new Text Region: click to define one corner, drag the cursor to its diagonal corner, then click again. All of the existing text will reformat itself to fit in the new Text Region.

Moving or Copying Text by Using the Text Scrap

- 1: With the text cursor in the current text region, select the **edit** menu, then select **cut** (to move) or **copy**.
- 2: Click the **Text** icon.
- 3: Define a new Text Region: click once to define one corner, then click again to define its diagonal corner.
- 4: Select **paste** from the **edit** menu.

NOTE: Once the text is placed into the new Text Region, you can change it any way you wish. To paste a piece of text in several places in your image, repeat steps 3 and 4.

Correcting and Detailing

geoPaint lets you correct what you have created with the **Undo** command, the **Recover** command, or with the **Eraser**. You can also make detailed changes with **Pixel Edit**.

Using the Undo Command

If you make a mistake, don't panic! Just click on the **Undo** command at the bottom of the Tool Box, or press **⌘-U**. geoPaint will reverse your last change, restoring the original image. Note that Undo only works if you have not clicked on another function, nor can it be used to "undo" itself. The **⌘-U** shortcut can be used to undo an action when the tool box is hidden.

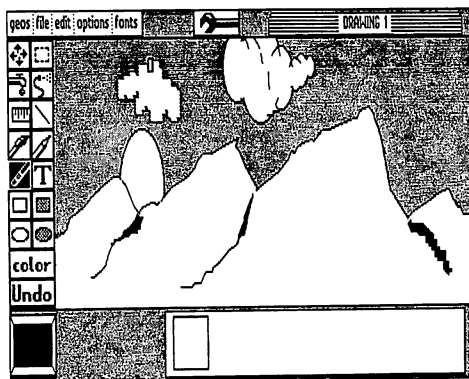
Saving Changes

Any changes you make in the Drawing Window are stored temporarily in memory. They become permanent when they are "saved" onto the disk. Saving occurs when you scroll the Drawing Window vertically, **update**, **quit**, or close the document.

Using Recover to Undo Changes

To reverse all changes you have made in the current editing session, select **recover** from the file menu.

Using the Eraser

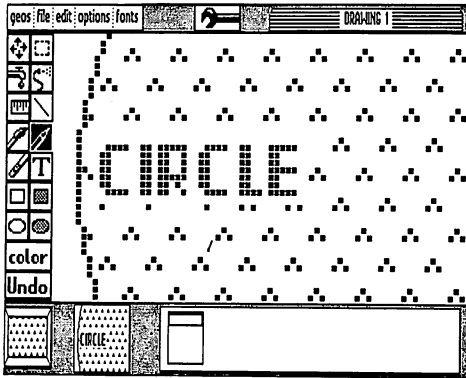


- 1: Click on the Eraser icon. The pointer changes to a small rectangle.
- 2: Move the pointer over the image you want to erase in the Drawing Window and click once to activate the Eraser. When finished erasing, click again to deactivate.

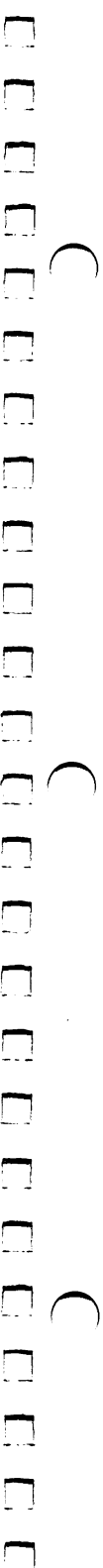
NOTE: When activated, the Eraser appears pink. It will remove any foreground color you move it over.

Detailing with Pixel Edit

Pixel Edit magnifies a selected portion of your document to allow you to add or delete fine detail.



- 1: To begin, either double click the Pencil icon or select **pixel edit** from **options**. An editing box will appear at the upper left corner of the Drawing Window.

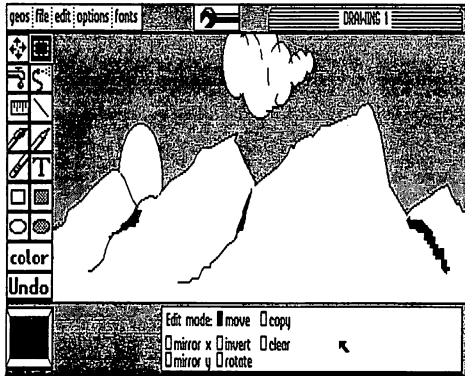
- 
- 2: Position the box over the desired location and click once. The Drawing Window “zooms in” on this portion of your image. An actual size representation of the area you selected will be displayed to the left of the Status Box.
 - 3: You can use all tools except the Edit Box and the Text Icon. Note: If you click the pencil over a pixel, it acts as an eraser.
 4. When finished, select **normal edit** from the **options** menu.

NOTE: While in **pixel edit**, you can also change the color of the pixels.

Editing Selected Regions

With geoPaint, you can perform several editing operations on selected rectangular regions of your document.

Opening an Editing Region



- 1: Go to the Toolbox and click the **Edit Box** icon.
- 2: Position the pointer at one corner of the area you wish to select. Click once.
- 3: Move the pointer to a diagonal corner of the area and click again. Be sure to encompass all of the area you want selected.

NOTE: If you wish to select the entire Drawing Window, double click the Edit Box icon.

Moving or Copying the Selected Region

To move or copy a selected region within the Drawing Window:

- 1: Click on the **Edit Box** and use the pointer to define the region to be moved or copied.
- 2: Go to the Status Box and select either **move** or **copy**. (To deselect, click on the box again.)

- 3: Click on the region to be moved or copied. The region becomes attached to the pointer.
- 4: Move the pointer to the new location. Click again to deposit the copied or moved image.

NOTE: Repeat Steps 3 and 4 for each time you want the image moved or copied.

Mirroring

*The Mirror commands let you flip an image either horizontally (**mirror x**) or vertically (**mirror y**):*

- 1: Click on the **Edit Box** and use the pointer to define the desired region.
- 2: Go to the **Status Box** and click either **mirror x** (horizontal flip) or **mirror y** (vertical flip).

NOTE: To flip the image back to its original position, click the **mirror** box again.

Inverting

*Use **invert** to reverse the color of the selected region:*

- 1: Click on the **Edit Box** and use the pointer to define the desired region.
- 2: Go to the **Status Box** and click **invert**.

NOTE: To reverse the image's color back to its original condition, click **invert** again.

Rotating

Rotate will revolve the selected region 90 degrees. Each additional click will rotate it another 90 degrees:

- 1: Click on the **Edit Box** and use the pointer to define the desired region.
- 2: Go to the Status Box and click **rotate**.

Clearing

To clear a selected region:

- 1: Click on the **Edit Box** and use the pointer to define the desired region.
- 2: Go to the Status Box and click **clear**.

NOTE: Any changes can be reversed with the **Undo** button.

Using the Photo Scrap

The **Photo Scrap** works the same as the Text Scrap used in geoWrite: it is a temporary storage file into which you move or copy selected images. You can paste them into your current geoPaint document, another geoPaint document, or even a geoWrite document.

Note that the Photo Scrap only holds one selected region at a time. Each time you cut or copy a region, you replace the current *contents* of the Photo Scrap file with the new region.

To move or copy a selected region to another Drawing Window in the same document:

- 1: Click on the **Edit Box** and use the pointer to define the region to be moved or copied.
- 2: Go to the Command Menu and select the **edit** menu, then select **cut** (to move) or **copy**.
- 3: Go to the Status Box and use the Page Map to select another location.
- 4: When you reach the new location, click the **Edit Box** again to define the new location of the selected region.

- 5: Go to the Command Menu and select **paste** from the **edit** menu.
- 6: For each duplication, define a new edit region (you do not need to click the **Edit Box** again, since it is still active), then select **paste** from the **edit** menu.

To move or copy a selected region to another document:

- 1: Click on the **Edit Box** and use the pointer to define the region to be moved or copied.
- 2: Go to the Command Menu and select the **edit** menu, then select **cut** (to move) or **copy**.
- 3: Exit the document by selecting the **file** menu, and then select **close** (if the destination is another geoPaint document) or **quit** (if the destination is a geoWrite or geoFile document).
- 4: Open the destination document. When it appears, select the insertion point for the image (for geoWrite), define a picture field (for geoFile), or use the **Edit Box** to define the new region (for geoPaint).

NOTE: geoPaint images appear in black and white when placed in a geoWrite or geoFile document.

To move or copy an image to another disk:

- 1: Click on the **Edit Box** and use the pointer to select the region to be moved or copied.
- 2: Go to the Command Menu and select the **edit** menu, then select **cut** (to move) or **copy**. Exit the document by selecting **quit** from the **file** menu.
- 3: When the disk note pad appears, click on the Photo Scrap icon and drag its ghost to the border and click to leave it there. Close the disk and remove it from the disk drive. (If the destination disk is in another drive, select that drive.)

- 4: Insert the destination disk into the disk drive, then open it. Copy the Photo Scrap onto the disk note pad.
- 5: Open the destination document. When the document appears, select an insertion point.
- 6: Go to the Command Menu and select **paste** from the **edit** menu.

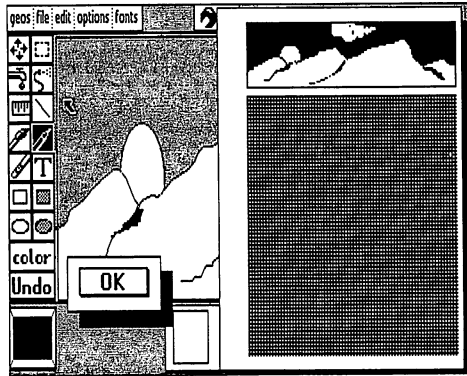
Using the Photo Manager

The **Photo Manager** is used to permanently store a number of selected geoPaint regions in albums of images. See "The Photo Manager," page 6-11).

Special Commands

Preview Page

Use **preview** to view a compressed black and white version of the entire geoPaint document. Note that while **preview** lacks detail, it allows you to make decisions about the overall placement and proportions of your document.



To preview your document:

Select **preview** from the **file** menu. When finished viewing, click the **OK** button.

Moving the Drawing Window

There are two ways to move the Drawing Window to a different section of your document: one lets you move precisely; the other allows you to move quickly.

For accurate positioning and fine movement:

- 1: Click the **Scrolling Arrows** icon in the Tool Box. (The Tool Box will temporarily disappear.)
- 2: Move the pointer to a new location. As you do so, the Page Map in the Status Box displays your position on the page.

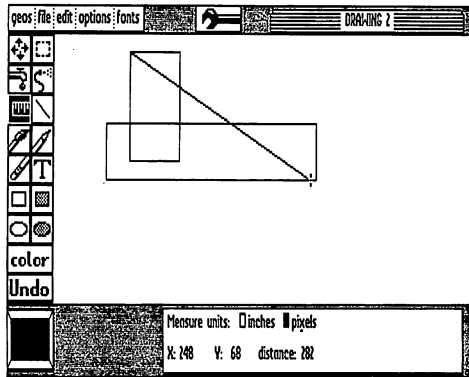
- 3: Click once to select the new location of the Drawing Window.

To move quickly from one part of the page to another:

- 1: Position the pointer on the Page Map in the Status Box and click. The box inside, which represents the Drawing Window's current location, becomes attached to the pointer. (The Tool Box will temporarily disappear.)
- 2: Point to a new location in the Page Map and click.

Measuring Distances

The **Ruler**, which resembles a tape measure, is strictly a measuring device that leaves no permanent image on the screen.

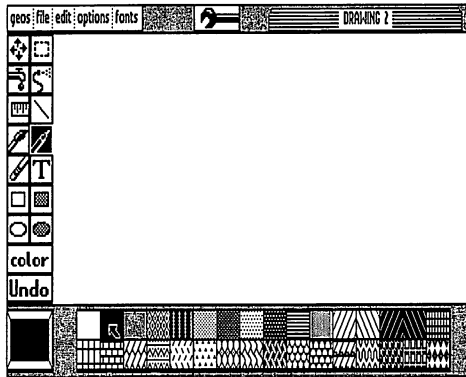


To measure an image:

- 1: Select the **Ruler** icon in the Tool Box. The Status Box will display the **Measure units** box.
- 2: Go to the Status Box and select a unit of measure: inches or pixels. (Depending on the background colors of the area to be measured, select a color for the ruler.)
- 3: Point to the beginning point of the image to be measured, click, then drag to the ending point and click again. As you drag the ruler, a running measurement of the item is displayed in the **Measure units** box.

NOTE: As with all measuring tools, the pixel measurement is in actual dots on the screen. Inches are based on “printed” inches (not “screen” inches) of 80 dots to the inch. The accuracy of any printed document depends, therefore, on the resolution of your printer. For example, on an 80-dots per inch printer, a 1-inch line created in geoPaint prints out 1 inch long. On a 60-dots per inch printer, that same line would print out 1.3 inches long.

Changing the Current Drawing Pattern



To change a pattern:

- 1: Click on the **Current Pattern Indicator** at the lower left corner of the screen. The Pattern Options will appear in the Status Box.
- 2: Go to the Pattern Options and click on the desired pattern. The new pattern will appear in the **Current Pattern Indicator**.

NOTE: The Current Pattern is available to any area that can carry it, whether it is an enclosed area, the canvas or foreground, or the brushes.

Printing Your Document

From within your document:

Select **print** from the **file** menu. To cancel, click on the **Cancel** button.

From the deskTop:

Drag the document's icon over to the printer and click once to deposit it. Another method is to click on the document's icon, then select **print** from the **file** menu.

IMPORTANT: In order to print your document, the Printer Driver for your printer must have been selected when you originally set up your files, and must be on the disk with geoPaint. To select the correct printer driver, refer to "Choosing a Printer Driver and Printer," page 1-11.

Note that the printed resolution of a geoPaint document is based on 80 dots per inch on an 8-inch wide page (640 total dots). Printers that support less than this resolution—60 dots per inch (480 total), for example—may produce only a portion of the geoPaint document.

Note also that some printer configurations will require that the printer be turned on before turning on the computer.

Managing Documents

Updating and Saving Changes to Your Document

geoPaint saves your recent changes onto the disk whenever you move up or down the page (scroll), or when you close the document. You may wish to update your file more frequently, however, if you have just made an important change or are working with a very detailed portion of your image. Use the **update** command in the **file** menu to save your most recent changes to disk.

Recovering Your Document from the Disk

Should you decide to reverse all the changes you made since your document was last updated on the disk, select **recover** in the **file** menu. geoPaint will re-open your document and restore to the screen the last saved (or updated) version of your document.

Renaming Your Document

Select **rename** from the **file** menu. Enter the new name in the dialog box and press **RETURN**.

NOTE: **Rename** does not create a duplicate copy of your document under a new name. It merely changes the name of the current document. To make copies of documents, see "Copying a File to Another Disk," page 3-6.

Leaving geoPaint

To leave the document to begin work on another geoPaint document:

Select **close** from the **file** menu. When the dialog box appears, select one of the three options: **Create a new document**, **Open an existing document**, or **Quit to the deskTop**.

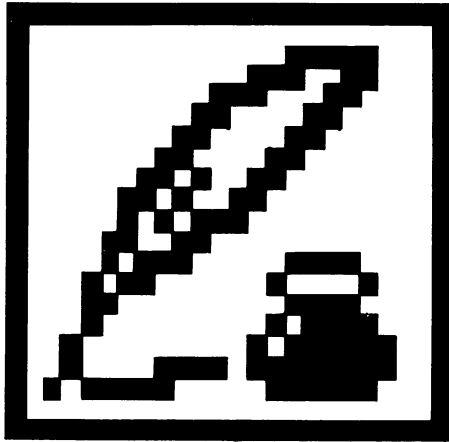
To leave geoPaint and return to the deskTop:

Select **quit** from the **file** menu.

NOTE: Exiting the current document automatically saves it to disk.

Chapter 5: geoWrite

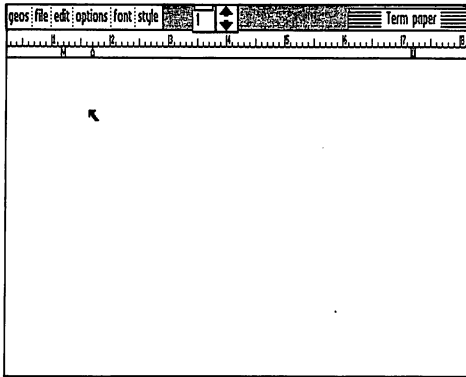
This section covers geoWrite, a powerful word processor, which allows you to create multipage documents with multiple proportionally spaced fonts using different type styles and point sizes.



This chapter explains how to:

- enter geoWrite
- use geoWrite in either 40- or 80-column mode
- type a document and change text
- move around in a document
- format a page with margins, tabs, and page breaks
- use font and type styles
- use text from other documents
- insert pictures from geoPaint
- work with the document itself: printing, saving changes, exiting

The geoWrite Screen



As shown above, the geoWrite **Writing Window** occupies most of the screen and serves as a window into each page of your document. The **Command Menu** lies along the top of the screen. This menu gives you access to some of geoWrite's more specialized commands, which are divided into six groups: **geos**, **file**, **edit**, **options**, **fonts**, and **styles**. Click on one of these menu names to pull down a menu of additional commands. Then simply click on the desired command. (If you move the pointer outside the menu, the menu disappears.)

To the right of the Command Menu you will find the **Page Indicator**. This box has two uses: it displays the page number of the page visible in the Writing Window, and it can be used to move the Writing Window to a different portion of the current page.

You may also scroll the Writing Window using the **Scroll Arrows** located just to the right of the Page Indicator. These arrows scroll the page one line up or down, depending on the arrow clicked.

The **Title Bar** in the upper right corner displays the name of the document you are currently working with.

The **Ruler** is located directly below the Command Menu. It lets you change the format of your document.

Inside the Writing Window you will notice the **pointer** and **text cursor**. The text cursor indicates your active position in the Writing Window — that is, where the next typed character will appear. The pointer allows you to select commands from the Command Menu.

Using 40- or 80-Column Mode

At any time you can switch column modes (40 or 80), from either the deskTop or while working with a document. To do so, select **switch 40/80** from the geos menu, then press the RGB button or composite switch under the monitor (next to the monitor's power switch).

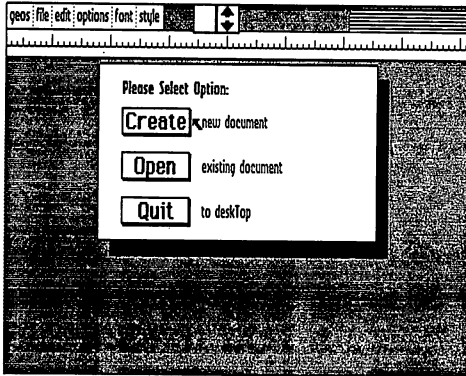
Entering geoWrite

If you have not already done so, read Chapter 2, "A Quick Overview."

Entering geoWrite from the deskTop

There are two ways to enter geoWrite from the deskTop:

- click on the geoWrite icon on the disk note pad and then select **open** from the **file** menu, or
- double click the geoWrite icon.



In both cases, geoWrite will load and then display a dialog box which contains three options: **Create new document**, **Open existing document**, and **Quit to deskTop**. Select one.

Create New Document

- 1: Click the **Create new document** box.
- 2: When the dialog box appears, type a name for your new document. Press **RETURN**.

NOTE: If you have two disk drives and want to create your document on a disk in the other disk drive, click on the **Disk** button once to move to the other disk drive. Then type a name for your new document and press **RETURN**.

Open Existing Document

- 1: Click the **Open existing document** box.
- 2: When the dialog box containing a list of existing documents is displayed, click on the lower scroll arrow at the bottom of the box to find the document you want.
- 3: Select the document by clicking on its name once to highlight it, then click on the **Open** button to open it.

NOTE: If you have two disk drives and need to open a document on a disk in the other disk drive, click on the **Disk** icon once to move to the other disk drive. Then click on the desired document to select it.

Only the first 15 documents can be displayed in the open dialog box window. It is unlikely you will have more than 15 such documents on a single disk. If you do, you will have to rearrange your files on the deskTop so as to be able to access later files through the open dialog box window. If needed, refer to "Selecting a File as the Default File," page 3-11.

Quit

Select this option to exit geoWrite and return to the deskTop.

Opening an Existing Document from the deskTop

Either select the document icon on the disk note pad and click **open** in the file menu, or double click on the document icon.

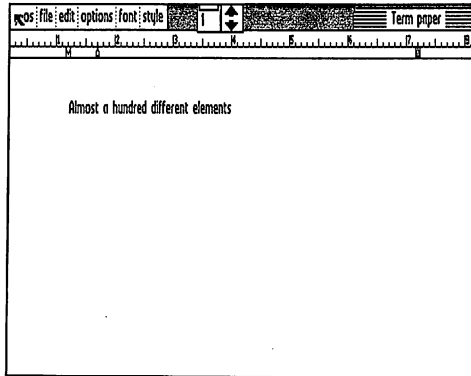
Running geoWrite with the RAM Expansion Unit (REU)

If you own the Commodore RAM Expansion Unit and have installed the REU GEOS KERNEL, you should always run geoWrite on the RAM disk. We recommend creating a geoWrite work disk containing REU, deskTop, geoWrite, Photo Manager desk accessory, and any other desk accessories you desire. Use the **copy** command in the **disk** menu to copy the work disk onto the RAM disk. Create and edit your documents on the RAM disk. **Be sure to copy the document to the disk drive before turning the system off.** For more information on the RAM Expansion Unit, see page 3-20.

Once Inside Your Document

Entering Text

Simply start typing. The text you type will appear in the Writing Window at the location of the text cursor.

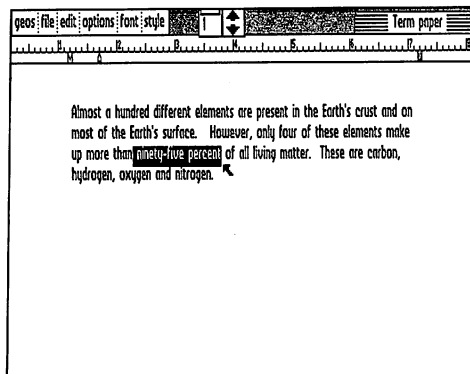


Moving Around

Move the pointer to another location and click. If you click the pointer anywhere after the last character in the document, the cursor will appear immediately after that character.

Selecting Text

Position the text cursor in front of the first character of your selection, hold down the mouse/joystick button, drag to the last character, and click again. The selected text will be highlighted. (If you are using 40-column mode, the text invisible to you—that is, the text in the hidden side of the window—is also selected.)



Inserting Text

Position the cursor at the place where you want to insert text and begin typing.

Changing Text

Select the text, and simply type the new text. You need not delete the original text; the new text will automatically replace the old.

Deleting Text

If you wish to delete only one character, position the cursor after it and press **INST/DEL**. If you wish to delete more than one character, select the text and press **INST/DEL**.

Ending a Paragraph

Press **RETURN**. This moves the cursor to the beginning of the next line.

Using Tabs

Press **CTRL I** or **TAB** to move to the next tab stop. (To set tabs, refer to "Setting Tab Stops," page ##.)

Inserting a Page Break

Select **page break** from the **options** menu.

Viewing an Entire Page

Select **preview** from the **file** menu. When finished, click on the **Cancel** button in the dialog box.

Using Word-Wrap





If you reach the right margin of the page while typing a word, geoWrite picks up the word and moves it to the beginning of the next line. In other words, geoWrite inserts a carriage return for you. It is best to let geoWrite do this for you, rather than pressing **RETURN** at the end of each line.

This way paragraphs will correctly reformat themselves when you change text.





Pasting Text into Your Document

When you cut or copy text in order to move or copy it, the text is copied into the **Text Scrap**, a temporary storage file separate from your document. When you select **paste** from the **edit** menu, the contents of the Text Scrap are placed back into your document. A copy of the text remains in the Text Scrap until you select new text to be copied or moved. If, for example, you wish to copy a piece of text a number of times, all you need to do is copy it into the Text Scrap once, then select **paste** each time you want to paste it into your document.





To move or copy text:

- 1: Select the text to be moved or copied.
- 2: Select the **edit** menu, then select **cut** (to move) or **copy**. Or, use the keyboard commands:   (cut) or   (copy).
- 3: Move the cursor to the new location and click.
- 4: Select **paste** from the **edit** menu.

To move or copy text to another document on the same disk:

- 1: Select the text to be moved or copied. Select the **edit** menu, then select **cut** (to move) or **copy**. Or, use the keyboard commands:   (cut) or   (copy). Exit the document by selecting **close** from the **file** menu.
- 2: Select **Open existing document**. Click the name of the destination document, then click **Open**.
- 3: When the destination document appears on the screen, click at or select the place where you wish to insert the cut or copied text. Select **paste** from the **edit** menu.

To move or copy text to another disk:

- 1: Select the text to be moved or copied. Select the **edit** menu, then select **cut** (to move) or **copy**. Or, use the keyboard commands:   (cut) or   (copy). Exit the document by selecting **quit** from the **file** menu.

- 2: When the disk note pad appears, click on the Text Scrap and drag its ghost to the border and click to leave it there. Close the disk and remove it from the disk drive. (If the destination disk is in another disk drive, select that drive.)
- 3: Insert the destination disk into the disk drive, and open it. Copy the Text Scrap onto the disk. Open the destination document. Select an insertion point, then select paste from the edit menu.

Writing Window and Document Dimensions

As you enter text in 40-column mode, you will quickly find that the screen does not display the entire width of your text; it only displays the first 5.2 inches. The remaining two inches, which are invisible to the right of the screen, are displayed when you move the cursor to the right of the screen, or as you type text.

If you would rather view all of your text on one screen, adjust the margins so that the document is only 5 inches wide. (Later on, when you print the document, you can re-adjust the width to 7.4 inches.) Refer to “Setting Left and Right Margins,” page 5-13.

Another way to view the entire width of your document is to simply switch from 40- to 80-column mode: select **switch 40/80** from the geos menu, then press the RGB button or composite switch under your monitor (next to the monitor’s power switch).





NOTE: The document dimensions described here are based on a print resolution of 80 dots/inch. If your printer has a different resolution, the dimensions will be slightly different.

To move within the current page:




There are two ways to move within the current page, depending on which column mode you are using:

- manually scroll the window by clicking the up or down arrows in the scroll box, or
- use the Page Indicator. To use the Page Indicator, click the small box inside, which represents the Writing Window. The box becomes attached to the pointer. Move the box to its new location and click. That section of your document will now appear in the Writing Window.

To move forward or backward one page:

Select **options**, then select either **next page** or press   or **previous page** or press  .

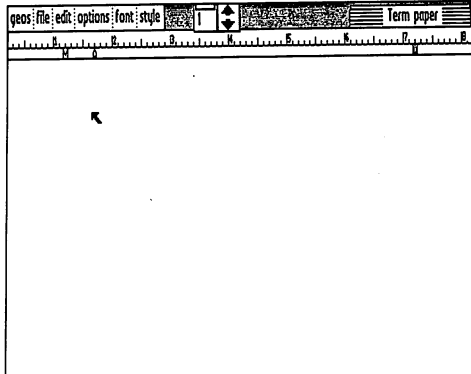
To move to any page:

Select **options**, then select **goto page** or press  . Enter the page number and press .

Formatting

The Ruler

Use the **Ruler** to change margin and tab positions of the currently visible page. As shown below, the **Ruler** appears along the top of the screen:



Setting left and right margins:

On each side of the Ruler you will find a margin marker which resembles the letter M. These markers define the left or right margin for your text. To change a marker's position, click on it once, drag it along the Ruler, then click again to place it.

To set tab stops:

geoWrite allows you to set up to eight independent tab stop positions on each page. For each tab, there will be a corresponding tab marker on the Ruler.

To set a tab, point to a spot on the Ruler and click once.

To change a tab's position, click on it once, drag it along the Ruler, then click again to place it.

To remove a tab, click on it once, drag it up to the top half of the Ruler and click again.

To insert a page break:

Click on the screen where you would like the page break to begin, then select **page break** from the **options** menu.

NOTE: geoWrite allows you to insert a page break at any point in your document.

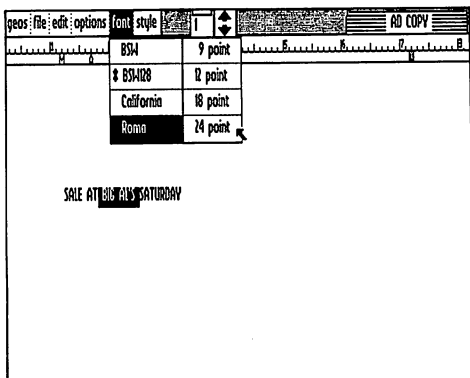
To delete a page break:

Go to the top left corner of the page following the page break and press **INST/DEL**. A dialog box will ask if you wish to delete the last character of the preceding page. Select **OK**. The page break will be deleted and the cursor will appear at the bottom of the previous page.

Using Different Fonts and Styles

Choosing a Font

You may choose a font (typeface) and point size at any time in geoWrite. Simply select the desired font from the font menu and begin typing.



Changing the Font of Selected Text

- 1: Select the text to be changed.
- 2: Select font, then select one of the listed typefaces.
- 3: A menu displaying point sizes will appear. If desired, select a new point size.

NOTE: If you only wish to change the point size of a selected text, you need to reselect the font you are using before you can select the new point size.

Changing the Style of Selected Text

Select style, then select one of the displayed styles. To disable a change, reselect the style option from the style menu.

Editing Tips

Use Page Breaks in Large Documents



geoWrite documents can grow up to 64 pages—assuming enough disk space is available. In large documents, you should insert page breaks wherever appropriate. This will maximize geoWrite performance.

If, on the other hand, you have a large document with no page breaks, as you insert a character on the first page, it might push the last character on the first page down to the second page, and so on, causing a ripple effect that may involve every subsequent page of the document. By inserting a page break, the changes you make have only to ripple down to the end of the current page.

Update Your Document as You Work


geoWrite saves your recent changes onto the disk whenever you move up or down the page (scroll), or when you exit the document. To update your work whenever you wish, select **update** from **file**. This will save your current changes to the disk and protect against losing data. It's a good idea to update your work every fifteen minutes or so, or after you have made an important change.

Keyboard Shortcuts

Use the keyboard to select frequently used menu and ruler items. Shortcuts are selected by holding down the Commodore key “” and pressing the particular key for the shortcut desired. The shortcuts for menu items are as follows: 

Edit Menu:	cut:	X
	copy:	C
	paste (text):	T
	paste (picture):	W

Options Menu:	previous page:	-
	next page:	+
	goto page:	G
	page break:	L

Style Menu:  plain text:
bold:
italic:
outline:
underline:

P
B
I
O
U

Additional Characters

Create the following additional characters by holding down the Commodore key and pressing the key indicated:

To create: Press: 

{	[
}]
	^
~	-
^	/
~	*
.	@

Using Graphics from geoPaint

You can move or copy geoPaint images into your geoWrite document. Refer to "Using the Photo Scrap," page 4-24 to copy an image into the Photo Scrap (which works the same way as the Text Scrap). Note that once you have pasted an image into your document, it is in black and white. Note also that it is centered on the page. The picture must fit between the margins—there is no way of reducing a large picture to fit between narrow margins.

To move or copy an image into your document:

- 1: While working with your geoPaint document, select the image to be moved or copied. Exit the geoPaint document and select the geoWrite document into which you want to move or copy the image.
- 2: Having opened the geoWrite document, select the place where the image is to be inserted.
- 3: Select **paste** from the edit menu. A sub menu will appear. Select **photo**. The image will be inserted.

Showing and Hiding Pictures

Whenever geoWrite displays a page containing a picture, the bit-mapped image data for the picture must be loaded from the disk. Since this will slow geoWrite slightly, you may want to select **hide pictures** from the options menu. This will prevent pictures from appearing in the Writing Window. Space for each picture will be reserved in the document, and the pictures will be printed when **print** is selected. To show pictures in the Writing Window, select **show pictures** from the options menu.

Deleting, Moving, or Copying Pictures

To delete, move, or copy pictures in a geoWrite document, treat them as you would text. Refer to "Pasting Text into Your Document," page 5-9.

Using the Photo Album

When you select **paste picture** from the **edit** menu, the current contents of the Photo Scrap file are used. If you have many pictures or charts you wish to create in geoPaint for use in a geoWrite document, use the **photo manager** desk accessory. Selecting **photo manager** gives you access to any of the graphic images stored in the Photo Albums on the disk, allowing you to cut or copy images from Photo Albums into your geoWrite document. For more details see "The Photo Manager," page 6-11.

Printing Your Document

From within the document:

Select **print** from the **file** menu. To cancel, click on the **Cancel** button.

From the deskTop:

Drag the document's icon over to the printer and click once to deposit it. Another method is to click on the document's icon, then select **print** from the **file** menu.

IMPORTANT: In order for your document to be printed, the correct printer driver must first be selected, and must be on the disk with geoWrite. If you have not already done so, return to the deskTop and select the correct printer driver. (See "Selecting the Correct Printer Driver for Your Printer," page 1-13.)

Note that some printer configurations will require that the printer be turned on before turning on the computer.

Managing Documents

Renaming a Document

Select **rename** from the **file** menu. Type the new filename into the dialog box and press **RETURN**.

Updating Your Work

Select **update** from the **file** menu. This menu item saves your current work to the disk, which guards against losing data. It is a good idea to update your work every fifteen minutes or so, or after you have entered an important piece of text.

Text Manager

This feature allows you to save separate portions of text in a Text Album, so that you need not type the same text every time you need it. To use a Text Album, select **text manager** from the **geos** menu. Refer to "The Text Manager," page 6-14.

Photo Manager

This feature allows you to save many geoPaint images in a Photo Album. To use a Photo Album, select **geos**, then select **Photo Manager**. Refer to "The Photo Manager," page 6-11.

Recover

Select **recover** from the **file** menu. Use **recover** if you decide to reverse all the changes you made since your document was last updated on the disk. geoWrite will re-open your document and restore the screen to the last saved (or updated) version of your document.

Preview

Select **preview** from the **file** menu to view the entire page you are currently working with. Click on **OK** to exit and return to your document.

Leaving geoWrite

You must close the document you are working with before leaving geoWrite.

To leave the document and begin work on another geoWrite document:

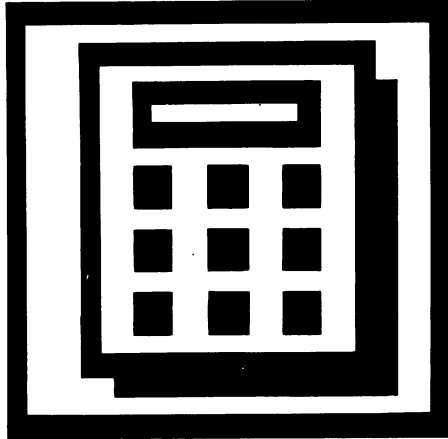
Select **close** from the **file** menu. A dialog box will appear; select one of the three options presented.

NOTE: Use this method if you wish to move directly to another geoWrite document on the same disk.

To leave geoWrite and return to the deskTop:

Select **quit** from the **file** menu. This returns you to the deskTop.

Chapter 6: Switch 40/80 and Desk Accessories



This section covers the the use of switch 40/80 and the GEOS Desk Accessories— helpful and convenient tools available anywhere in GEOS:

- switch 40/80
- preference manager
- calculator
- photo manager
- text manager
- notepad
- alarm clock

Desk Accessories Overview

The GEOS disk contains a number of useful programs called **Desk Accessories**. These programs are different from regular GEOS application programs because they can be used *while running* any GEOS application. Simply select a desk accessory from those listed in the geos menu. The desk accessories will “pop up” in an application (or the deskTop) ready for use. For example, the calculator can be used while running the geoWrite program, without having to exit geoWrite.

NOTE: The program you are working in when you select the desk accessory is “swapped” out and temporarily stored in another RAM section of the 128. Though the program remains on the screen, it is rendered inactive until you exit the desk accessory.

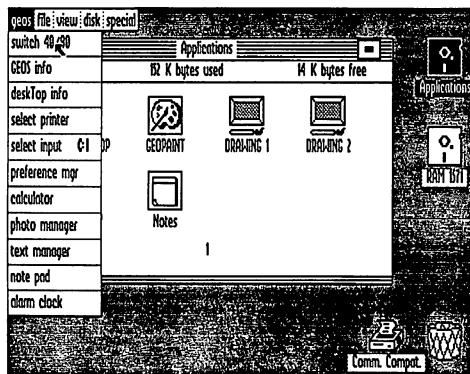
Some desk accessories, because of their size or complexity, require up to 15K bytes free on the disk in order to run. If you select a desk accessory and there is not enough space on the disk for the swap file, GEOS will automatically return you to the application. If you still wish to use the accessory, you will need to move or delete files from the disk (see “File Management,” page 3-4).

Available Desk Accessories

All available desk accessories are listed under the geos menu in any application in the order they appear on the deskTop. To reorder the menu for easier access to commonly used accessories, see “Selecting a File as the Default File,” page 3-11.

Depending on your needs, you may want to add or delete desk accessories from a particular disk. Since all desk accessories are treated as independent files by GEOS, you may add or delete them to tailor a disk to your individual requirements without affecting any of the other files on the work disk (see “Tailoring a Work Disk,” page 1-16, and “File Management,” page 3-4).

Activating and Quitting a Desk Accessory



To activate:

Select the **geos** menu, then select the desk accessory. It will pop up over the screen, rendering the current program temporarily inactive.

To exit:

Select the desk accessory's **close**, **quit**, or **exit** option. The program you were previously working on will become activated again.

When a Desk Accessory Will Not Load

Sometimes when you click on a desk accessory in the **geos** menu, the disk will start up for a moment but then stop, and the desk accessory will not have loaded. This will happen if there is not enough free disk space on the current disk. Desk accessories need disk space to save the state of the currently running program—that is, the **deskTop** or an application—so the program can be restored after the desk accessory has been used.

Another reason a desk accessory would not load is if the disk has been removed from the disk drive. If you close a disk and insert a new one, be sure to open the new disk (by clicking its icon or by pressing **⌘** **[O]**) before trying to load any desk accessories.

Switch 40/80

Although **switch 40/80** is not really a desk accessory, it resembles one in that you have access to it at any time. Use it to switch column modes (either 40 or 80), whether you are working on the deskTop or in an application. To use this feature, select **switch 40/80** from the **geos** menu, then press the RGB button or composite switch under the monitor (next to the monitor's power switch).

IMPORTANT: In general, all applications and desk accessories written for the C64 System will operate in 40-column mode in the C128 System, except for those that utilize basic ROM (Read Only Memory), such as the C64 versions of the Calculator, geoCalc, and geoFile. The 128 Configure File should only be used with the C128 System.

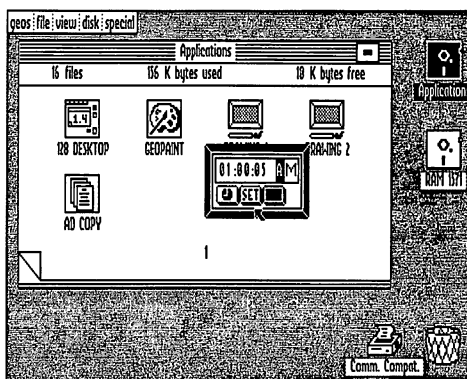
The Alarm Clock

The alarm clock may be called up to display the current time (if it has already been set), set the correct time, or set an alarm time. Once set, the clock and alarm are active no matter where you are working in GEOS. Setting the alarm will cause a tone to sound at the specified time.

For each of the three buttons used, there is a corresponding key: **M** for Mode, **RETURN** for Set, and **SHIFT Q** for Close.

Selecting the Alarm Clock

Select **geos**, then select **alarm clock**. When it appears, it is in clock mode. When finished viewing the time, click the black Close button next to SET.



Setting the Clock Time

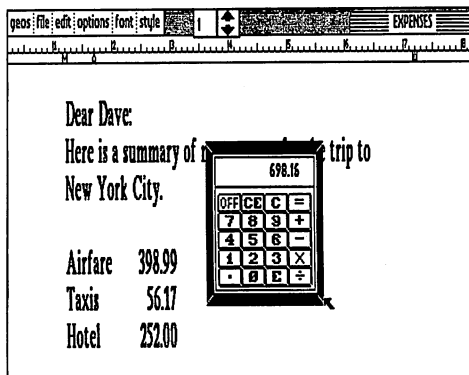
- 1: Switch to Clock Mode: press **M** or click on the Mode button until a clock face appears.
- 2: Click the pointer at a time digit. The digit will be highlighted and the clock will freeze.
- 3: Type the new time. (The cursor will skip the colons.) Press the **SPACE BAR** to bypass correct entries. Press **RETURN** or click on Set when finished.

Setting the Alarm

- 1: Switch to Alarm Mode: press M or click on the Mode button until a bell appears.
- 2: Enter the alarm time (the cursor will skip the colons). Press the **SPACE BAR** to bypass correct entries. Press **RETURN** or click on Set when finished. The new bell displayed next to the Close button signifies that you have set the alarm.

The Calculator

The calculator desk accessory gives you the capability to do quick arithmetic while running any GEOS application. It operates in the same fashion as a typical four-function calculator.





Entering Values

To enter values and execute functions, either use the pointer and click on the calculator's keys, or use the keyboard (either the top row of numbers or the numeric keypad). Keys you need to use are as follows:

	<i>Calculator Key</i>	<i>Keyboard Key</i>
Add:	+	+
Subtract:	-	-
Divide:	÷	/
Multiply:	X	*
Exponential:	E	E
Clear:	C	C
Clear entry:	CE	INST/DEL
Exit:	OFF	SHIFT Q

Copying Values to Documents

To copy the value displayed into the Text Scrap, press  . You can then paste the value into a document. If you are pasting the value into a geoPaint document, you must first select the Text icon and then open a text region in which to insert the value.

Numbers in Scientific Notation

In addition to supporting basic arithmetic functions, the calculator also handles numbers in scientific notation. To enter very large (or very small) numbers, use scientific notation. Type the mantissa, then E, then the power of 10. For example, to calculate the equation $3.2 \times 10^{11} \times 2.1 \times 10^{-5}$, you would input the following:

- 1: Type: 3.2E11
- 2: Click on the Multiply Key (*)
- 3: Type: 2.1E-5
4. Click on the Equal Sign (=)

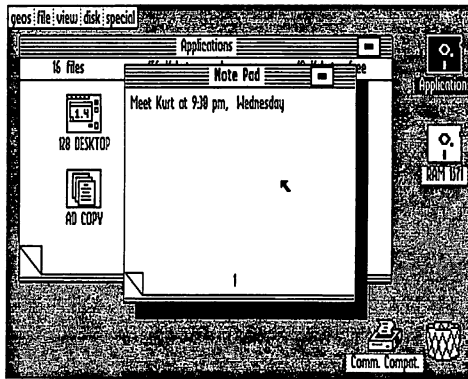
The correct result, 6,720,000E6 (i.e., 6.72×10^6), is displayed in the calculation window. Note that the maximum exponent that may be displayed or used in a calculation is 10^{-37} or 10^{37} (E-37 or E37).

The Notepad

With the notepad desk accessory you can jot down short notes while you are using any GEOS application. Your notes automatically will be saved as a Notes file on the disk. Any text that was saved in the Notes file will be displayed each time you use the notepad. You can store up to 127 pages of notes, with approximately 250 characters on each page.

Adding Notes

Select notepad from the geos menu. When the notepad appears, begin to type a note. Insert characters by clicking the pointer at the desired insertion point; delete characters by using the **INST/DEL** key. Avoid typing on the last line of the notepad, since this line is sometimes not displayed.







Moving to Another Page

Click on the dog-eared corner at the lower left corner of the notepad to go to the next page, or press the **Down Arrow**. To return to the previous page, click the part of the page just below the dog-eared corner, or press the **Up Arrow**. To go to pages 0 through 9, press **←** and the page number.

Exiting the Notepad

Click on close box at the upper right corner of the notepad, or press **←** **Q**.

Moving or Copying the Note to the Text Scrap

- 1: Select the desired notepad page.
- 2: Press   (to cut or move) or   (to copy). Close the notepad.
- 3: Open the destination document, select the note's insertion point, then select **paste** from the edit menu. If you are pasting into a geoPaint document, first select the **Text** icon and define a text region in which to move or copy the note.

Deleting the Notepad Contents

To delete the entire contents of the notepad, simply delete the Notes file from the deskTop. This will remove the existing notes and give you a fresh notepad with which to work.

The Photo Manager

The **photo manager** manages graphic images stored in multiple **Photo Albums** on the disk. Each **Photo Album** may contain up to 127 pages of graphic images collected from your geoPaint documents. For example, one **Photo Album** may contain charts and graphs for a business proposal; another album may contain illustrations for your upcoming novel.

The **Photo Manager** enables you to select graphics from any of the photo albums and insert them in other GEOS applications, such as geoWrite.

Photo Scraps and Photo Albums

There is a distinct relationship between the "photo files." Whenever you cut or copy a picture (graphic image), it is placed into a **Photo Scrap** file, which is a temporary storage file. **Photo Albums** are a means of saving the image you placed in the **Photo Scrap** and turning it into a permanent file (i.e., a **Photo Album**). The **Photo Manager** allows you to move images to and from a **Photo Album**. A **Photo Album** may contain many separate pages.

Remember that the **Photo Scrap** is a temporary file; each time you copy an image into it, that image replaces the current contents of the **Photo Scrap**.

The Photo Album Screen

Once inside the photo album, use the two items in the command menu, **file** and **edit** (located at the top of the album screen), to work with your images. To exit quickly to the previous application, click on the close box at the top right of the album screen.

At the lower left corner of the album screen is the **Window Indicator**, which consists of two black rectangles: the large rectangle represents the entire size of the image; the smaller rectangle represents the **Photo Album** screen. To view another part of an image that is too large to fit in the window, click where you would like its top left corner to lie.

Creating a Photo Album or Opening an Existing One

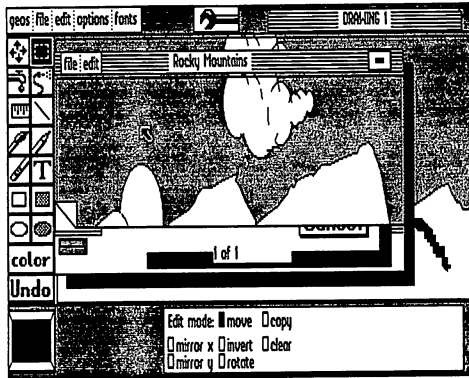
- 1: Select **photo manager** from the **geos** menu.
- 2: When the dialog box appears, select **Create new photo album**, **Open existing photo album**, or **Quit**.
- 3: To create a new album, enter a name and press **RETURN**. To open an existing album, highlight its name in the list by clicking on it once (to select it), then click **Open**. If there are more than five names on the list, click on the scroll arrows at the bottom of the dialog box until you find the album you want.

NOTE: The album name dialog box will display only the first 15 album names on the disk. If you have more than 15 albums, and wish to display a different set of names, you will need to move, delete, or rearrange the file icons on the deskTop (see "File Management," page ##, and "Disk Management and Organization," page ##).

Placing an Image into a Photo Album

In geoPaint, to move or copy the image into the photo scrap:

- 1: Select the **Edit Box** icon and define the region you want to cut or copy into a Photo Album.
- 2: Select **cut** (to move) or **copy** from the **edit** menu.
- 3: Select **photo manager** from the **geos** menu. (You need not be in the document in which you originally created the Photo Scrap.)
- 4: Select an option: **Create new photo album**, **Open existing photo album**, or **Quit**.
- 5: Enter a name for a new photo album and press **RETURN**, or select an existing album and click **Open**.



- 6: When the album appears, note that it has its own command menu: **file** and **edit**. Select **edit**, then select **paste**. The image that you placed in the Photo Scrap will be copied into the album.

NOTE: You can use the above commands to move or copy images in the existing photo album to another photo album. For example, create a photo album, insert an image into it, cut or copy it, then select **close** to exit that Album. Next, create or open another album, and insert the cut or copied image of the first photo album into it.

Remember that only a *copy* of the Photo Scrap has been pasted into the album. If you wish, you may use the same Scrap in another album.

Exiting a Photo Album

Select **close** from the **file** menu if you wish to open another album or create a new one. Select **quit** to return to the previous application, or to the deskTop.

The Text Manager

As the Photo Manager manages graphic images, the **text manager** manages blocks of text stored in multiple Text Albums on the disk. Each Text Album may contain up to 127 pages of text collected from your geoPaint or geoWrite documents. Typically, Text Albums are organized by the type of text they contain. For example, you may have one Text Album that contains headers and footers for a business proposal; another album may contain poetry samples for an English term paper.

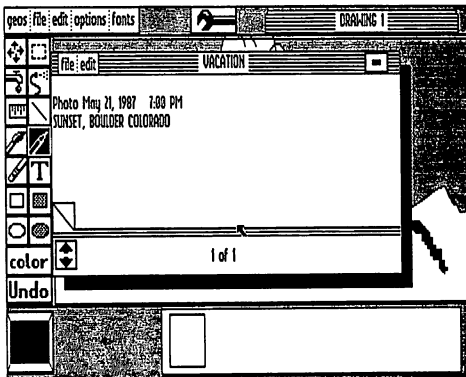
The Text Manager enables you to select text from any of the Text Albums and use them in other GEOS applications.

Text Scraps and Text Albums

There is a distinct relationship between the "text files." Whenever you cut or copy text, it is placed into a Text Scrap file, which is a temporary storage file. Text Albums are a means of saving the text you placed in the Text Scrap and turning it into a permanent file (i.e., a Text Album). The Text Manager allows you to move scraps to and from a Text Album. The Text Manager works much like the glossary feature found in other word processing programs.

The Text Album Screen

Once inside the text album, use the two items in the command menu, **file** and **edit** (located at the top of the album screen), to work with your text. To exit quickly to the previous application, click on the close box at the top right of the screen album.



If the text is larger than the Text Album window, use the scrolling arrows at the bottom of the screen to view another area of the text. To move to the next page, click on the dog-eared corner at the lower left of the page; to move to the previous page, click on the page area just below the dog-eared corner.

Creating a Text Album or Opening an Existing One

- 1: Select **text manager** from the **geos** menu.
- 2: When the dialog box appears, select **Create new text album**, **Open existing text album**, or **Quit**.
- 3: To create a new album, enter a name and press **RETURN**. To open an existing album, highlight its name in the list by clicking on it once (to select it), then click **Open**. If there are more than five names on the list, click on the scroll arrows at the bottom of the dialog box until you find the album you want.

NOTE: The album name dialog box will display only the first 15 album names on the disk. If you have more than 15 albums, and wish to display a different set of names, you will need to move, delete, or rearrange the file icons on the deskTop (see "File Management," page 3-4, and "Disk Management and Organization," page 3-13).

Placing Text into a Text Album

- 1: First you must create a text scrap. In **geoPaint**, select the **Edit Box** icon and define the region which contains the text to be placed in the Text Album.
- 2: Select **cut** (to move) or **copy** from the **edit** menu. In **geoWrite**, highlight the text, then select **cut** or **copy** from the **edit** menu.
- 3: Select **text manager** from the **geos** menu. (You need not be in the document in which you originally created the Text Scrap.)

- 4: Select an option: **Create new text album, Open existing text album, or Quit.**
- 5: Type a name for a new text album and press **RETURN**, or select an existing album and click **Open**.
- 6: When the album appears, note that it has its own command menu containing the items **file** and **edit**. Select **edit**, then select **paste**. The text you placed in the Text Scrap will be copied into the album.

NOTE: You can use the above commands to move or copy text in the existing text album to another text album. For example, create a text album, insert an image into it, cut or copy the image, then select **close** to exit that album. Next, create or open another new album, and insert the cut or copied image of the first text album into it.

Remember that only a *copy* of the Text Scrap has been pasted into the album. If you wish, you may use the same Scrap in another album.

Exiting a Text Album

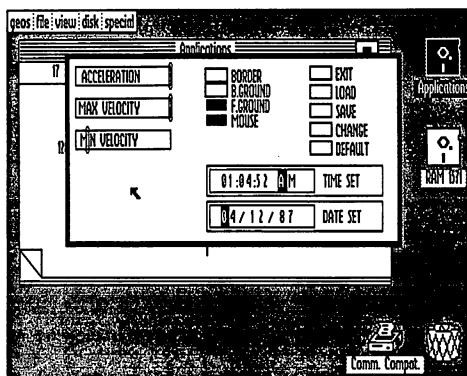
Select **close** from the **file** menu if you wish to open another album or create a new one. Select **quit** to return to the previous application or to the deskTop.

The Preference Manager

The **preference mgr** allows you to set several different parameters in GEOS. As shown below, the Preference Accessory is divided into several functional areas.

By changing the settings displayed in these areas, you can customize the way GEOS works to your own particular preferences.

You may wish to make permanent changes in the Preference Manager for particular work disks. For example, on a geoPaint work disk, you may wish to have the pointer speed set very slow for accurate drawing. On a geoWrite work disk you may wish to set your screen colors to an amber foreground on a black background for easier readability.



Setting the Pointer Movement Characteristics

Use **ACCELERATION**, **MAX VELOCITY**, and **MIN VELOCITY** to adjust the pointer movement characteristics. **ACCELERATION** controls how quickly the pointer will achieve maximum velocity. **MAX VELOCITY** and **MIN VELOCITY** set the maximum and minimum speeds the pointer will achieve. All three of these options apply to the joystick, whereas **MAX VELOCITY** applies to the mouse only.

To use **ACCELERATION**, **MAX VELOCITY**, and **MIN VELOCITY**:

- 1: Point to the knob on the bar, click once to select it, then drag it to its new location. Moving the knob to the left slows the pointer down; moving it to the right speeds it up.
- 2: Click again to deposit the knob and update the new setting.
- 3: To install the change on the disk, click the **Change** button at the upper right corner of the Preferences box, then click **Save**.

Changing the Pointer Shape and Color

In 80-column mode, you cannot change the mouse shape and color. If you are in 40-column mode, however, you have the option of changing the pointer's shape and color.

The box in the lower left corner lets you change the actual "bit-mapped" image of the pointer.

To change the pointer shape, click on the image in the larger of the two boxes. The image is composed of dots called "pixels." Clicking on a pixel deletes it; clicking on a blank area creates a pixel. When you are finished rearranging the pixels so that the pointer has a new shape, click the **Change** button at the upper right corner of the Preferences box, then click **Save**.

The image in the smaller box shows the actual size and appearance of your transformed pointer.

Changing the Border, Background, Foreground, and Mouse Colors

In 80-column mode, there are only two color options available—black and white. In 40-column mode, of course, you have a wider choice of colors from which to choose.

To change any of the screen colors of the border, background, foreground, and pointer colors, click on the corresponding box. As you click, each of the

available 16 colors is displayed in the box. To see what you have produced—it will affect only the Preference box—click on the **Change** button. To install the change on that disk, select **Save**.

Note that the background color may be any of the available colors except the current foreground and pointer colors. This prevents the pointer and text from blending into the background and becoming invisible.

Changing the Date and Time

For accurate date/time stamping of your files, it is recommended that you set the date and time whenever you boot GEOS and before you start working with applications.

To set the date or time:

- 1: Click on the **Date** or **Time** box. Type in the new time or date. Press the **SPACE BAR** to bypass correct entries. (Note that the time freezes after the first key on the keyboard is pressed. Note also that the cursor bypasses the colons and slashes.)
- 2: When the time and date are set, press **RETURN**.

NOTE: Moving the pointer outside the **Date** or **Time** boxes before pressing **RETURN** causes the values to revert to their original settings.

Using, Saving, and Recalling Your Changes

When you select **Change**, the alterations you have made take effect within the Preference Manager. If you exit the Preference Manager and return to an application, all your changes will remain in effect while you use the application. When you quit the application and return to the deskTop, the default, or original parameters will be reset.

When you select **Save**, the changes that you made become permanent on that disk. To save any changes, first select **Change**, then select **Save**.

If after you have made changes and you wish to return to the last saved preferences file, select **Load**.

To recall the original default settings select **Default**. This will load the original GEOS colors, shapes, and settings.

To leave the Preferences Manager and return to the previous application, select **Exit**. Selecting **Exit** without first selecting **Load**, **Save**, **Change**, or **Default** will cancel any changes you have made to the Preferences Manager in that editing session.

Chapter 7: Troubleshooting



Error reading disk

This chapter describes the standard error messages and provides help when you run into difficulty using GEOS.

Standard Error Messages

The error messages listed in this section may result from a number of causes. The problem could be user-related, or a hardware fault, or a GEOS software error. To ensure that the problem is not user-related, this section provides a number of trial solutions to the various error messages you might discover while using GEOS. If the problem persists after following the recommendations in this section, and using alternate hardware does not help, contact Berkeley Softworks for assistance. The following error messages are listed alphabetically.

A maximum of 8 files may be placed on the border.

The deskTop only allows eight files to be placed in the lower border area below the Disk Notepad. To create room for more, move some of them back onto the Disk Notepad or to another disk.

Bad or missing disk, no sync.

This error frequently occurs when the disk is not properly inserted into the drive. Check to make sure the disk is inserted label-up, and the disk drive door or latch is closed. Also check the disk drive cables.

Can't copy picture to scrap.

geoWrite does not allow you to transfer graphics from a geoWrite document to the Photo Scrap.

Can't find printer driver.

In order to print a document, you must have a copy of the printer driver for your printer on the disk with your document and application.

Cannot go to given page.

You have entered a page number that does not exist in the document.

Cannot recover from file.

You have made changes to your document (such as deleting a picture) that have automatically been saved to the file on the disk. You cannot use the recover command.

Device not found

GEOS is having trouble communicating with the disk drive. Check to make sure that the drive is on and that the cables are properly connected.

Directory is full

You cannot create a new file because the disk directory cannot hold any more file names. Delete or move some files to another disk to continue.

Disk copy can't be performed between these two disk formats

You cannot copy a double sided disk to a single sided disk. You can, however, copy a single sided disk to a double sided disk.

Disk ID mismatch.

This error means that you have inserted a new disk without letting GEOS know about it. You can only insert or remove disks while at the deskTop and using the open and close commands.

Disk too full.

There is not sufficient free storage space on your disk to perform the requested operation. Delete or move some files to another disk before trying again.

Not enough disk space.

Same as above.

Double-sided disk in 1541.

You have inserted a double sided disk into a 1541 drive, which only accepts single sided disks.

Error reading disk.

GEOS cannot reliably read data from your disk. Repeat the operation you were trying. If this does not help, the disk is probably bad.

File exists, choose another.

You are trying to create a document to be saved on the disk, but the name you have specified has already been given to another document on the disk. Choose a different name.

File not found.

GEOS cannot find the file you have requested on the currently opened disk.

Files may not be moved to the border from a non-GEOS disk.

Only disks which have been formatted using GEOS and disks which have been converted to the GEOS directory format can contain files which have been moved from the Disk Notepad to the lower bordered area.

Page too large.

When using geoWrite, it is possible to create a page that requires more memory than is available.

Please move/delete files from disk to continue.

There is not sufficient free storage space on your disk to perform the requested operation. Delete or move some files to another disk before trying again.

Printer is inaccessible.

GEOS cannot communicate with your printer. Make sure you have selected the correct printer driver, and that your interface card and printer are connected properly.

The application that created this file can't be found.

You have tried to open a file which was not created by a GEOS application such as geoPaint or geoWrite.

The operation requested may not be performed on system files.

The requested operation is inappropriate for GEOS system disk file.

This disk not active.

This message is displayed on the deskTop when certain operations are attempted on border files not from the current disk.

This file can't be opened from the deskTop.

Only files of the type BASIC, Assembly, Application, Application Data, or Desk Accessory can be opened on the deskTop.

This file can't be printed from the deskTop.

Only Application data files may be printed from the deskTop.

This file is write protected and cannot be deleted.

Before you can delete a file, you must turn off its write-protect flag. To do so, select the file by clicking on it once. Then select **info** from the **file** menu. Click once in the box next to "Write Protect". Select **Close** in the top right corner of the dialog box.

This is not a GEOS format disk. Would you like to have it converted?

You are attempting to open a disk which has not been converted to the GEOS directory format. Refer to "Using Non-GEOS Disks," page 3-##, for details.

This operation can only be performed on files from the current disk.

The operation you have requested can only be performed on a file which is on the currently opened disk.

Warning: Disk near full.

You are rapidly running out of storage space on the currently opened disk. Delete or move some files to other disks to free up some space before continuing.

Write protect tab on disk.

You cannot change a disk if the write-protect tab is affixed to it. If you are absolutely sure you want to change the disk, remove the tab from the disk and try again.

Chapter 8: QuantumLink

This section covers QuantumLink, the telecommunications network for Commodore owners. The software needed to access QuantumLink is included on the back side of the GEOS disk. To access QuantumLink, you'll also need a modem (either 300 or 1200 baud).

QuantumLink, also known as Q-Link, is easy-to-use and affordable. A large selection of services are available to help you make better use of your computer, learn new things, make new friends, save time and money, and have a lot of fun. Services available on the Q-Link network include:

- Free software (over 5,000 programs are available)
- Special Interest Groups (SIG's), including a GEOS user group
- Online chat and messaging
- Multi-player online games and tournaments
- Previews of new software releases
- Conferences and discussions on a variety of topics
- The Commodore Hotline (you'll get fast answers from Commodore)
- Electronic Encyclopedia
- Discount Shopping and Travel Planning

Take A Guided Tour! (No Modem Required)

You can see for yourself how Q-Link can help you get the most out of your Commodore computer by taking a brief demonstration tour. The tour is stored on your disk, so no modem is required. To take the tour, load the Q-Link side of the disk -- if you're using the GEOS desktop, click the Q-Link (under the Special menu bar); otherwise, place the Q-Link side of the disk in your drive and type: LOAD "QDEMO",8,1 (and then press RETURN)

QuantumLink Customer Service:

(800) 392-8200

(Canadians call 703-883-0788)

Q-Link is available from 6 p.m. until 7 a.m. (local time) weekdays and 24 hours weekends and major holidays.

Q-Link Services

Q-Link offers its members hundreds of services which are useful, educational and fun. The services are divided into eight Q-Link Departments:

People Connection

People Connection is the social center of the system. This is the place to go to meet other Q-Link members, get help, compete in game tournaments, attend club meetings, or get a front row seat at Auditorium lectures given by experts. People Connection is divided into rooms. A room can be created by any user, and can hold up to 23 people.

Getting Around -- When you first enter People Connection, you will find yourself in a Lobby. If you want to send a message, simply type it and press RETURN -- it will then be broadcast to everyone else in that room. To find out what other rooms are available, press F7 and select "List all occupied public rooms." To move to a different room (or start your own), press F7 and select "Change rooms or enter Box Office."

Online Games -- Q-Link offers a number of online games in PEOPLE CONNECTION. These games, such as Hangman and Sea Strike, can only be played online with another Q-Link member. To find out more about the games, see the instructions which are posted in JUST FOR FUN department. If you're in PEOPLE CONNECTION and would like to play a game, press F7 and select "Play or observe and online game." If needed, Q-Link can even help find you a partner.

News & Information

This department contains the latest headline news and polls where you can express your opinions.

Commodore Software Showcase

The Commodore Software Showcase is where you'll find thousands of useful Commodore programs which you can download to your disk and keep! A wide variety of programs are available, including games, education, utilities, and music. In addition to housing the software libraries, the Commodore Software Showcase also contains other information about software that you will find of interest, including reviews.

Commodore Information Network

The Commodore Information Network (also known as CIN) is designed to aid you, the Commodore user, in getting the information you need and want. It's also the place to get answers to your questions, and exchange helpful suggestions about your Commodore. There's information about new Commodore products, a direct hotline to Commodore, user group information, and Special Interest Groups (SIG) on a variety of topics. If you leave a message on one of the "SIG Message Boards," you can expect to get a fast response from fellow Commodore users across the country!

Learning Center

Thinking of taking some college courses? Need some help with your homework? Want to look something up in a comprehensive electronic encyclopedia that's updated several times a year? The Learning Center can assist you.

Just For Fun

Just for the fun of it...sports contests, trivia quizzes, entertainment news, movie reviews; soap opera summaries, even an "electronic" cafe. Just For Fun is the department to go to for light-hearted entertainment.

The Mall

The Mall helps you save time and money. A wide variety of products are available for your convenience. If you want to save money *and* have fun, be sure to participate in our online auctions!

Customer Service Center

This is the place to go if you want to find out what's new on Q-Link, get a calendar of upcoming special events, check the status of your account, create additional user names, or submit your suggestions to Q-Link.

NOTE: Services are subject to change. Q-Link is constantly adding new services, and from time to time we may remove some. To get an up-to-date listing of the available services, go to CUSTOMER SERVICE CENTER and select "Services and Pricing."

Connecting to Q-Link

You will find Q-Link very easy to use. You don't have to memorize any complicated commands or keywords; instead, all you have to do is select options from Q-Link's colorful, easy-to-understand online menus. If you ever have a question or a problem, help is available online (we have a team of Q-Guides and Q-Helpers ready to help you) or by phone (our Customer Service department is open every day until 1:00 a.m. Eastern Time).

Getting Started

1. Purchase A Modem

To access Q-Link, you'll need either a 300 or 1200 baud modem. If you don't yet own a modem, see your computer dealer, or call Q-Link Customer Service at 800/392-8200 (Canadians call 703/883-0788).

2. Set Up Your Equipment

- Properly connect your computer, disk drive, monitor, and modem.
- Turn on the power to your computer, disk drive and monitor.
- Place the Q-Link command template over the function keys (F1, F3, etc.).

3. Load Your Q-Link Disk

You can load the Q-Link software either from the GEOS desktop, or separately.

Loading from GEOS Desktop:

- Click on the "Special" menu option at the top of the desktop
- When the menu appears, select "Q-Link"
- When instructed, turn over the disk and click on the OK icon.

Loading Separately:

- Insert the Q-Link side of your disk into your disk drive
- When you see READY on your screen, type:
LOAD "*",8,1 (and then press RETURN)

4. Take A Guided Tour

After the Q-Link disk has loaded, you will be asked what you would like to do. You should select "See preview of Q-Link," which is an off-line demonstration of some of the services and features available on Q-Link. After the brief tour ends, you should then select "Connect to Q-Link."

5. Enter Your Access Information

You will be asked to enter the following information once, and then it will be stored on your disk:

- type of modem you are using
- type of phone system (touch tone or pulse)
- local access number

To determine your local access number, check the listings at the end of this chapter. When typing in the appropriate number, be sure to include the special symbol (either a "/" or a "+") that precedes the number.

NOTE: If you ever want to change your access information to reflect a different modem or phone number, you can do so by loading a program stored on the Q-Link side of your disk. Type LOAD "CHANGE ACCESS",8,1 (and press Return).

6. Connect to Q-Link and Register

After you've entered your access information, select "SIGN ON TO Q-LINK" and press F1. If your equipment is properly connected and you have an auto-dial modem, you will be automatically connected to Q-Link. If you have a manual dial modem, follow the instructions on your screen.

Once you're connected, you will be asked to enter additional information, including:

- the number on the enclosed "Special Introductory Offer" coupon
- your billing information (you can have monthly Q-Link charges billed to a Visa or MasterCard, or your bank will automatically pay your bill from your checking account)
- your name and address, so we can send you our monthly newsletter

7. Welcome Aboard!

After you complete the one-time registration, you'll be ready to explore the system. We recommend that you make PEOPLE CONNECTION your first stop, as you'll find plenty of fellow users ready to chat, play a game, or answer your questions.

IF YOU HAVE ANY PROBLEMS, CALL CUSTOMER SERVICE:

800-392-8200
(Canadians call 703-883-0788)

Follow-Up Visits to Q-Link

The information you entered during your first visit to Q-Link is saved, so you do not need to enter it again. On subsequent visits, all you need to do is load the Q-Link software, either from the GEOS desktop or separately.

Loading from GEOS Desktop:

- Click on the "Special" menu option at the top of the desktop
- When a menu appears, select "Q-Link"
- When instructed, turn over the disk and click on the **OK** icon.

Loading Separately:

- Insert the Q-Link side of your disk into your disk drive
- When you see **READY** on your screen, type:
LOAD "*",8,1 (and then press RETURN)

You will then be connected to Q-Link.

NOTE: You cannot make a copy of your Q-Link disk once you have registered it. It will void your account information and you will be unable to use the account again.

How to Disconnect from Q-Link

When you are finished with your online session and would like to sign off, return to the Department menu and select "Sign Off." Or, turn off the modem to hang up.

Getting Around Q-Link

To get around Q-Link and get the most out of the services, you'll need to familiarize yourself with the four function keys on your Commodore computer, as well as a few other keys and symbols.

<u>Press</u>	<u>Command</u>
Function Keys	
f1	SELECT the menu item with the check mark next to it
f3	SAVE to a disk the information currently being displayed
f5	CANCEL the current screen and return to previous screen
f7	GET a menu, or get help

Other Important Keys

RETURN SEND a message (or make a game move)

Up/Down
Cursor To move the cursor (✓) to a different menu item, or to review additional text, use this key (it's located in the bottom right of the keyboard, next to the Shift key)

- when you press the Up/Down Cursor key *alone*, the cursor will go **down** to a lower menu item or additional text
- when you press the Up/Down Cursor *and* the Shift key at the same time, the cursor will go **up** to a higher menu item or previous text

Special Q-Link Symbols

- †††† FLASHING ARROWS in the lower right corner of your screen indicates there is more text available, and you should press the Up/Down Cursor key to view it
- MAIL** MAIL message in the lower right corner of your screen indicates you have E-Mail waiting in your electronic mailbox. To read it, press F7 to get a menu, cursor down to "Q-Link Post Office" and select it (by pressing F1), then cursor down to "Read Waiting E-Mail" and select it
- +
- +
- +
- √ CHECKMARK (√) in the upper right corner of your screen indicates that information is being transmitted from Q-Link to your screen. When the checkmark disappears, the information you requested has been completely transmitted.

Getting Help

If you have problems connecting to Q-Link, or have a question about billing or some other issue, you can call Q-Link's Customer Service Department at:

800/392-8200

Hours: 9am to 1am Eastern Time
(Canadians call 703-883-0788)

If you have a question or problem when you are connected to Q-Link, there are four ways to get help:

1. **Press F7** -- Dozens of help instructions are stored on your disk. Press F7 for an explanation of how the function you are currently using works.
2. **Ask a QGUIDE or QHELPER** -- You will find members of Q-Link's Customer Service staff available online in the PEOPLE CONNECTION department. QGUIDEs are usually available in the Lobbies, and QHELPERS are usually waiting to assist you in the room called Help.
3. **Ask a fellow user** -- Q-Link is a very friendly network, and you can almost always find someone in PEOPLE CONNECTION who can help you.
4. **Send E-Mail to Jenny C** -- If you have a question or comment that doesn't require an immediate answer, you should send E-Mail to Jenny C, a member of the Q-Link staff. She will respond via E-Mail within 48 hours.

Pricing and Billing Information

Q-Link is designed to be the most affordable telecommunications network for Commodore owners. As a Q-Link subscriber, you will have access to a wide range of services for a monthly fee of \$9.95.

There are two types of services on Q-Link:

1. **Basic Services** -- Many of the services available on Q-Link are "Basic" services, and you can use BASIC SERVICES AS MUCH AS YOU WANT each month, with no extra charges. Examples of Basic services include the encyclopedia, a news report, information about Commodore computers, and trivia quizzes.
2. **Plus Services** -- Some Q-Link services are special "Plus" services. In addition to unlimited use of Basic services, Q-Link subscribers get their **FIRST 60 MINUTES OF PLUS SERVICES FREE EVERY MONTH!** Additional Plus service is billed at the rate of 6¢ per minute. (There is no extra charge for 1200 baud access.) Examples of Plus services include People Connection, software downloading, and message boards.

NOTE: Pricing and services are subject to change. For up-to-date information, check the online CUSTOMER SERVICE CENTER department.

Telecommunications Charges

Telecommunications charges are *included* in the Q-Link fees as long as you are able to connect to Q-Link through one of the hundreds of local access numbers listed at the end of this chapter. Q-Link access numbers are available in over 600 cities. If you live in a local calling area, your calls to Q-Link will be handled by your phone company just like any other call. If you live *outside* of the the local calling area, you may wish to check with your phone company because you might be billed extra for a long distance call.

Billing Options

Your monthly Q-Link charges can be billed to either a Visa or MasterCard account, or can be paid by your bank from your checking account through a service called CheckFree. With your permission, CheckFree will tell your bank each month what your Q-Link charges are, and your bank will then pay the proper amount from your checking account and list the transaction on your monthly statement.

Monitoring Your Charges

A record of your usage and charges is available online. To review your charges, select CUSTOMER SERVICE CENTER from the department menu, and then select "Billing Information." If you have any questions about your account, call Customer Service at 800/392-8200. (Canadians call 703-883-0788)

Canadian Surcharges

Q-Link is available in Canada through Data Pack. Communications surcharges apply: call **703 883 0788** for detail.

U.S. Local Access Numbers

You connect to QuantumLink through local access numbers available in more than 600 U.S. cities. When you are initially registering your disk, you will be asked to enter the access number in your area from the list below. Depending on the number you select, you will need to include either a plus (+) symbol for Telenet or a slash (/) symbol for Tymnet. This symbol should be entered in front of the local number, just as it is listed in this directory (example: /999-9999).

After your modem connects you to the local access number, you will be instantly linked to QuantumLink through a nationwide data network such as Telenet or Tymnet. The data network costs are *included* in the QuantumLink rates.

As long as the number you select is in your local calling area, it will be handled by your phone company as a local call. If you have flat rate telephone service, there will be no extra charge; if you have measured unit service, you will be charged message units, just like you would for any local call.

If your city is not listed, please call QuantumLink Customer Service at 1-800-392-8200.

ALABAMA					
Anniston	/236-3342	Bakersfield	/322-5078	Mar Vista	/643-2907
Birmingham	+ 328-2310	Belmont	+ 327-8146	MarinaDelRey	+ 306-2984
	/942-4141	Berkeley	/366-1092		/643-2907
Dothan	/794-7954	Beverly Hills	/430-2900	Merced	/383-7593
Florence	/767-7131	Burbank	/789-9002	Modesto	/527-0150
	+ 767-7960	Burlingame	/846-9235		+ 576-2852
Huntsville	/882-3003	Canoga Park	/588-3043	Monterey	/375-2644
	+ 539-2281	Cathedral City	/789-9002		+ 646-9092
Mobile	/343-8414	Chico	/324-0920	Napa	/257-1990
	+ 432-1680	Colton	/343-4401	Newport Bch	/756-8341
Montgomery	/265-4570		+ 824-9000	Norwalk	+ 404-2237
	+ 269-0090	Compton	/370-1200		/435-0900
Tuscaloosa	/349-5670	Concord	+ 516-1007	Oakland	+ 836-4911
	+ 345-2077		/935-0370		/430-2900
		Corona	+ 827-3960	Oceanside	+ 430-0613
		Covina	/737-5510	Ontario	/594-4567
ARIZONA		Davis	/594-4567	Oxnard	/985-7843
Mesa	/258-0554	Diamond Bar	/758-3551	Pacheco	/935-0370
	/254-5811	El Monte	/594-4567	Palm Springs	/324-0920
Phoenix	+ 254-0244	El Segundo	/308-1800	Palo Alto	/366-1092
	/258-0554	Escondido	/643-2907		+ 856-9995
	/254-5811		/941-6700	Pasadena	/308-1800
Tucson	+ 747-0107	Eureka	+ 741-7756	Pleasanton	/462-8900
	/790-0764	Fairfield	/444-8011	Pleasant Hill	/935-0370
		Fremont	/426-5900	Pomona	/594-4567
ARKANSAS		Fresno	/490-7366		+ 626-1284
Fayetteville	/442-3850		/442-4328	Rancho Bernar	/485-1990
Ft. Smith	+ 782-2852	Garden Grove	+ 233-0961	Redding	/241-4820
	/782-2486	Glendale	+ 898-9820	Redwood City	/366-1092
Hot Springs	/623-3576		+ 507-0909	Riverside	/370-1200
Jonesboro	/935-7957	Hayward	/846-9235	Sacramento	+ 448-6262
Little Rock	/666-6886	Inglewood	+ 881-1382		448-4300
	+ 372-4616		/430-2900	Salinas	+ 443-4940
Pine Bluff	/535-8055	Irvine	/587-0030	San Bernadino	/370-1200
Springdale	/442-3850	Lancaster	/756-8341	San Carlos	+ 591-0726
		Long Beach	/949-7721	San Clemente	/492-0165
CALIFORNIA		Los Altos	/435-0900	San Diego	/296-3370
Alameda	/430-2900	Los Angeles	/980-8100		+ 233-0233
Alhambra	/308-1800		+ 624-2251	San Fernando	/789-9002
Anaheim	/756-8341		+ 937-3580	San Francisco	+ 956-5777
Antioch	/754-8222		/587-0030		/947-1300
Arcadia	/308-1800				

San Jose + 294-9119
/980-8100
San Lou. Obispo /544-5753
San Mateo /588-3043
San Pedro + 548-6141
/435-0900
San Rafael + 472-5360
/453-5420
San Ramone + 829-6705
Santa Ana + 558-7078
/756-8341
Santa Barbara + 682-5361
/564-2354
Santa Clara /980-8100
Santa Cruz /475-0981
/429-6937
+ 429-6937
/643-2907
Santa Monica /578-4447
Santa Rosa /527-6180
Sherman Oaks /789-9002
South S.F. /588-3043
Stockton + 957-7610
/467-0601
Sunnyvale /980-8100
Thousand Oaks /496-3473
Vallejo + 552-6656
/644-1192
Van Nuys /789-9002
Ventura + 656-6760
/985-7843
/587-0030
Vernon /627-0770
Visalia /941-6700
Vista /935-0370
Walnut Creek + 915-5151
W. Covina /594-4567
/789-9002
W. Los Angeles + 887-3160
Woodland Hills /758-3551

Santa Monica /643-2907
Santa Rosa + 578-4447
/527-6180
Sherman Oaks /789-9002
South S.F. /588-3043
Stockton + 957-7610
/467-0601
Sunnyvale /980-8100
Thousand Oaks /496-3473
Vallejo + 552-6656
/644-1192
Van Nuys /789-9002
Ventura + 656-6760
/985-7843
/587-0030
Vernon /627-0770
Visalia /941-6700
Vista /935-0370
Walnut Creek + 915-5151
W. Covina /594-4567
/789-9002
W. Los Angeles + 887-3160
Woodland Hills /758-3551

COLORADO
Aurora /830-9210
Boulder /830-9210
Colorado Spgs /590-1003
+ 635-5361
Copper Mtn. /968-6560
Denver + 337-6060
/830-9210
Ft. Collins + 493-9131
/493-3001
Grand Junction + 241-3004
Greeley /352-0960
Pueblo /543-9712
+ 542-4053

CONNECTICUT
Bloomfield /242-7140
Bridgeport /579-1479
+ 335-5055
/797-9539
Danbury + 794-9075
/454-2701
Fairfield /242-7140
Hartford + 247-9479
/634-9249
Meriden /634-9249
Middletown + 624-5954
New Haven /773-0082

New London + 447-8455
/443-6997
North Haven /773-0082
Norwalk + 866-7404
/454-2701
Norwich /443-6997
Stamford /965-0000
+ 348-0787
Stratford /579-1479
Waterbury + 753-4512
/755-5994
Westport /454-2701

WASHINGTON DC
Washington + 429-7896
+ 429-7800
/691-8200

DELAWARE
Dover /678-9545
Newark + 454-7710
/652-2060
Wilmington /652-2060

FLORIDA
Boca Raton + 338-3701
/272-7900
Bonytn Beach /471-9310
Cape Coral + 549-9000
Clearwater /796-2166
Cocoa /639-1405
Daytona Bch + 255-2629
/255-4783
DelRay Beach /272-7900
Ft. Lauderdale + 764-4505
/463-0882
Ft. Meyers /481-8866
Fort Pierce /466-5661
Gainesville /378-4576
+ 338-0220
+ 353-1818
Jacksonville /721-8100

Lakeland + 688-4366
/665-8582
Longwood /841-0020
Melbourne /639-1405
+ 242-8247
/639-1405
Merritt Isle /599-2900
Miami + 372-0230
+ 263-3033
Naples /351-0305
Ocala + 351-3790
+ 422-4088
/841-0020
Orlando /769-0709
+ 432-1335
/477-3344
Panama City /272-7900
Pensacola + 941-5445
+ 323-4026
/796-2166
/952-9000
Sarasota + 923-4563
/878-2267
+ 681-1902
Tallahassee /932-7070
Tampa + 224-9920
/569-8207
Vero Beach

W. Palm Beach + 833-6691
/471-9310
Winterhaven /665-8582

GEORGIA

Albany + 888-3011
/888-9282
Athens + 548-5590
/548-7006
Atlanta + 523-0834
/451-2208
Augusta + 724-2752
/868-8500
Columbus + 571-0556
/327-0597
Doraville /451-2208
Macon + 743-8844
/746-2739
Marietta /451-2208
Martinez /868-8500
Norcross /451-2208
Rome /234-0102
Savannah + 236-2605
/232-6751
/746-2739
Warner Robins

IDAHO

Boise + 343-0611
/343-0404
Idaho Falls /523-7800
Lewiston + 743-0099
Pocatello /233-2501

ILLINOIS

Aurora /844-1800
+ 896-0620
Belleville /235-9820
Bloomington + 827-7000
/829-2802
Bradley /935-2352
Champaign /359-1163
Chicago + 938-0600
/922-4601
Cicero /345-9100
Danville /431-3133
Decatur /429-5995
+ 429-0235
+ 758-2623
Dekalb /790-4400
Downers Grove /345-9100
Forest Park /232-7111
Freeport /790-4400
Glen Ellyn + 726-0070
Joliet /727-2169
/935-2352
Kankakee /362-0820
Lake Forest /358-8770
Lake Zurich /362-0820
Libertyville /345-9100
Maywood /358-8770
Palatine + 637-8570
Peoria /637-5961
/788-3713
Rock Island + 965-0400
Rockford /398-6090
Springfield + 753-1373
/525-8025

St. Charles /844-1800
Urbana + 384-6428
/359-1163
Wheaton /790-4400

INDIANA
 Bloomington + 332-1344
 /332-3051
 Evansville + 424-7693
 /464-8181
 Ft. Wayne + 426-2268
 /422-2581
 Gary + 882-8800
 /885-0002
 Hammond /885-0002
 Highland /885-0002
 Indianapolis + 299-0024
 /631-1002
 Kokomo + 455-2460
 /453-7818
 Lafayette + 742-6000
 /423-4616
 Marion /662-1928
 Mishawaka /234-5005
 Muncie + 289-5068
 + 233-7104
 /234-5005
 South Bend /232-0112
 /232-5329
 Terre Haute

IOWA
 Ames + 233-6300
 /236-9020
 Cedar Falls + 364-0911
 /363-7514
 Cedar Rapids + 324-2445
 /788-3713
 Davenport + 288-4403
 /277-7752
 Des Moines + 556-0783
 /582-3599
 Dubuque + 351-1421
 /354-3633
 Iowa City /753-0670
 Marshalltown + 255-1545
 /255-3834
 Sioux City + 236-9020
 /232-5441
 Waterloo

KANSAS
 Kansas City /384-1544
 Lawrence /843-4870
 Leavenworth /651-8094
 Manhattan /776-0121
 Mission /384-1544
 Salina /825-4845
 Shawnee /384-1544
 Topeka + 233-9880
 /234-3070
 Wichita + 262-5669
 /681-0832

KENTUCKY
 Bowling Green + 782-7941
 /781-5711
 Frankfort + 875-4654
 Lexington + 233-0312
 /266-0019
 Louisville + 589-5580
 /499-7110
 Owensboro /685-0959

LOUISIANA
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Baton Rouge + 343-0753
 /924-5102
 Lafayette + 233-0002
 /237-9500
 Lake Charles + 436-0518
 /494-1991
 Monroe + 387-6330
 /388-8810
 New Orleans + 524-4094
 /522-1370
 Shreveport + 221-5833
 /688-5840
 Slidell /649-6050

MAINE
 Auburn /786-5390
 Augusta + 622-3123
 Bangor /989-2831
 Brewer + 989-3081
 /989-2831
 Lewiston + 784-0105
 /786-5390
 Portland + 761-4000
 /775-5971

MARYLAND
 Aberdeen /273-7100
 Annapolis + 224-8550
 /269-7942
 Baltimore + 727-6060
 /547-8100
 Bethesda /691-8200
 Chevy Chase /652-0800
 Cumberland /777-9320
 Frederick /293-3380
 Hagerstown /293-3380
 Myersville /293-3380
 Rockville /652-0800

MASSACHUSETTS
 Attleboro /226-6441
 Bedford /271-0420
 Boston + 292-0662
 /292-1900
 + 580-0721
 /961-4051
 Brockton /292-1900
 Cambridge /675-1750
 Fall River /537-6451
 Fitchburg + 879-6798
 Framingham /626-9801
 Holyoke /781-6830
 Lawrence /689-0186
 + 975-2273
 /537-6451
 Leominster + 863-1550
 Lexington + 937-5214
 Lowell /459-0694
 /593-4051
 Lynn + 999-2915
 /999-4521
 New Bedford + 586-0510
 /499-0971
 North Hampton /961-4051
 Pittsfield /599-0015
 Randolph + 781-3811
 Salem /781-6830
 Springfield /824-6692
 Taunton + 540-7500
 Woods Hole + 755-4740
 Worcester /791-9000

MICHIGAN
 Ann Arbor + 996-5995
 /973-7935
 Battle Creek + 968-0929
 /965-3901
 Benton Harbor /925-3134
 Cadillac /775-9242
 Detroit + 964-2988
 /962-2870
 Flint + 235-8517
 /235-5730
 Freeland /695-6751
 Grand Rapids + 774-0966
 /459-2304
 Jackson + 782-8111
 /782-0584
 /789-8133
 Kalamazoo + 345-3088
 /388-2130
 + 484-0062
 Lansing /482-5721
 /723-6516
 Manistee /228-3780
 Marquette + 832-7068
 Midland /695-6751
 + 726-5723
 /739-3453
 Muskegon /451-2400
 Plymouth + 332-5120
 Pontiac /982-0301
 Port Huron + 790-5166
 Saginaw /695-6751
 + 827-4710
 /424-8024
 Southfield /925-3134
 St. Joe + 946-2121
 Traverse City /947-0050
 + 575-9152
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MINNESOTA
 Duluth + 722-1719
 /722-7441
 Mankato /387-7313
 Minneapolis + 341-2459
 /333-2799
 Rochester + 282-5917
 /289-5599
 /333-2799
 St. Paul /251-4942
 St. Cloud + 253-2064

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 Jackson + 969-0036
 /355-9741
 /482-4335
 Meridian /769-6673
 Pascagoula /638-1551
 Vicksburg

MISSOURI
 Bridgeton /731-8002
 Columbia + 449-4404
 /874-2771
 Independence /384-1544
 Jefferson City + 634-5178
 /634-8296
 Joplin /781-8718
 Kansas City + 221-9900
 /384-1544
 Rolla /364-2084

St. Joseph	+ 279-4797 /232-1455	Red Bank	/758-9100	High Point	/883-6121 + 889-7494
St. Louis	+ 421-4990 /731-8002	Ridgewood	/742-0752	North Wilkesboro	+ 838-9034
Springfield	+ 864-4814 /869-4903	Roseland	+ 227-5277	Raleigh	/829-0536
MONTANA		Sayreville	+ 525-9507	Research Tr Pk	+ 549-8139
Billings	+ 245-7649 /252-4880	Trenton	+ 989-8847 /888-0803	Rocky Mt.	/977-0617
Bozeman	/587-1930	Union City	/824-1212	Tarboro	+ 823-0578
Butte	/494-6682	Vineland	/696-7121	Wilmington	+ 763-8313 /762-1865
Great Falls	/727-9510	Wayne	/742-0752	Winston Salem	+ 725-2126 /784-6080
Helena	+ 443-0000	NEW MEXICO		NORTH DAKOTA	
Missoula	+ 721-5900 /721-8960	Albuquerque	+ 243-4479 /242-8344	Bismark	/255-0869
NEBRASKA		Las Cruces	/525-0011	Fargo	+ 237-3442 /280-0210
Grand Island	/382-4075	Santa Fe	+ 473-3403 /984-2941	Grand Forks	/746-0344
Lincoln	+ 475-4964 /474-7481	NEW YORK		Mandan	+ 663-2256
Omaha	+ 341-7733 /393-0903	Albany	+ 465-8444 /458-8300	Minot	/839-4210
NEVADA		Binghamton	+ 772-6642 /724-4351	OHIO	
Boulder City	/293-0300	Buffalo	+ 847-1440 /893-1306	Akron	/535-1861
Carson City	/885-8411	Corning	/962-4481	Canton	+ 453-6555 /452-0903
Las Vegas	+ 737-6861 /293-0300	Deer Park	+ 667-5566	Cincinnati	+ 579-0390 /530-9019
Reno	+ 827-6900 /885-8411	Elmira	/737-9065	Cleveland	+ 575-1658 /241-0024
NEW HAMPSHIRE		Hempstead	+ 292-3800 /485-7422	Columbus	+ 463-9340 /221-1862
Concord	+ 224-1024	Huntington	/420-1221	Dayton	+ 461-5254 /223-3847
Durham	/868-1502	Ithaca	+ 277-2142 /257-6601	Elyria	+ 323-5059
Hanover	/643-4011	Melville	/420-1221	Hamilton	/874-1744
Manchester	+ 627-8725 /623-0409	Mineola	/485-7422	Kent	+ 678-5115
Nashua	+ 880-6241 /882-0435	New City	+ 741-8100	Lima	/228-6343
Portsmouth	+ 431-2302	New York	+ 741-4950 /620-6000	Lorain	+ 960-1771
Salem	/893-6200	Niagara Falls	+ 282-1462	Mansfield	+ 526-0686 /529-3303
NEW JERSEY		Perinton	/385-5817	Marysville	/644-3896
Atlantic City	+ 348-0561 /345-4050	Pittsford	/385-5817	Newark	/349-9234
Camden	/665-5600	Plattsburgh	+ 562-1890	North Canton	/453-6555
Cherry Hill	/665-5600	Poughkeepsie	+ 473-2240 /473-0401	Springfield	+ 324-1520 /325-0511
Eatontown	/758-9100	Rochester	+ 454-1020 /385-5817	Steubenville	/283-2496
Elizabeth	/824-1212	Ronkonkoma	/467-5178	Toledo	+ 255-7881 /255-7790
Englewood Clif.	/567-9841	Schenectady	/458-8300	Warren	+ 394-0041 /392-2542
Fair Lawn	+ 488-6567	Syracuse	+ 472-5583 /437-7111	Youngstown	+ 743-1296 /759-8892
Hackensack	+ 824-1212	Utica	+ 797-0920 /797-7001	OKLAHOMA	
Jersey City	/758-9100	White Plains	+ 328-9199 /328-7730	Ardmore	/226-1260
Long Branch	+ 864-8468	NORTH CAROLINA		Bartlesville	+ 336-3675
Lyndhurst	+ 596-1500	Asheville	+ 252-9134 /252-9023	Enid	/234-5320
Marlton	+ 663-9297	Chapel Hill	/549-8952	Lawton	/353-6987
Merchantville	+ 455-0275	Charlotte	+ 332-3131 /377-0521	Oklahoma City	+ 232-4546 /495-8201
Morristown	/539-1222	Durham	/549-8952	Stillwater	+ 624-1112
New Brunswick	+ 745-2900	Fayetteville	+ 323-8165 /485-8161	Tulsa	+ 584-3247 /582-4433
Newark	+ 623-0469 /824-1212	Gastonia	/867-2203	OREGON	
Passaic	+ 778-5600	Greensboro	+ 273-2851 /273-0332	Corvallis	+ 754-9273
Patterson	+ 684-7560 /742-0752	Greenville	/758-0102	Eugene	+ 683-1460 /746-0092
Pennsaukin	/665-5600			Hood River	+ 386-4405
Piscataway	/562-9700			Medford	+ 779-6343 /779-2902
Princeton	+ 799-5587 /452-1018				
Rahway	/396-8550				

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Springfield /746-0092

PENNSYLVANIA

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Altoona /943-5848
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/285-9527
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Danville + 271-0102
Downington /383-0440
Erie + 899-2241
/456-8501
Greensburg /836-4470
Harrisburg + 236-6882
/763-6481
Johnstown + 535-7576
King of Prussia + 337-4300
/666-9190
Lancaster + 295-5405
/393-7732
Latrobe /836-4470
Levittown /943-3700
Mt. Penn /779-9580
New Castle /658-5056
Norristown /666-9190
Philadelphia + 574-9462
/567-4390
Pittsburgh + 288-9950
/642-6778
Reading + 376-8750
/779-9580
Scranton + 961-5321
/346-4516
State College + 231-1510
/234-3853
/666-9190
Valley Forge + 829-3108
Wilkes Barre /826-8991
Williamsport + 494-1796
York + 846-6550
/898-9850

RHODE ISLAND

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/273-0200
Warwick /273-0200
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SOUTH CAROLINA

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/254-7563
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Spartanburg + 585-1637
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/341-4007
Sioux Falls + 336-8593
/335-0780

TENNESSEE

Bristol + 968-1130
Chattanooga + 756-1161
/265-1020
Clarkesville /552-0193
Jackson /424-2114
Johnson City + 282-6645
/928-1191
Knoxville + 523-5500
/690-1543
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/527-8006
Nashville + 244-3702
/885-3530
Oakridge /483-0183
+ 481-3590

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Abilene + 676-9151
/676-0091
Amarillo + 373-0458
/371-0031
Arlington /877-3630
Athens + 677-1712
Austin + 928-1130
/444-3280
Baytown /420-3389
Brownsville /548-1331
+ 542-0367
Bryan + 822-0159
/823-1090
College Station /823-1090
Corpus Christi + 884-9030
/883-8050
Dallas + 748-6371
/638-8888
Denton /565-0552
El Paso + 532-7907
/533-1453
Fort Worth + 332-4307
/877-3630
Galveston + 762-4382
/765-7338
Houston + 227-1018
/556-6700
Killeen /634-3439
Laredo + 724-1791
/727-4626
Longview + 236-4205
/236-4271
Lubbock + 747-4121
/797-0765
McAllen /631-6101
+ 686-5360
Midland + 561-9811
/561-8401
/683-5645
Nederland + 722-3720
/722-4166
Odessa /561-8401
Port Arthur /722-4166
San Angelo + 944-7621
/658-4590
San Antonio + 225-8004
/225-8002

Sherman /893-1024
Temple + 773-9423
Texas City /765-7338
Tyler + 597-8925
/597-9321
Waco + 752-9743
/753-0001
Wichita Falls /723-2386

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/621-1280
Provo + 373-0542
/375-0645
Salt Lake City + 359-0149
/364-0780

VERMONT

Barre /229-4508
Burlington + 864-0808
/864-5714
Montpelier + 229-4966
/229-4508
Rutland + 775-1676
White River + 295-7631

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Alexandria /691-8200
Annandale + 429-7896
Arlington /691-8200
Charlottesville + 977-5330
/977-5661
Covington + 962-2217
Fairfax /691-8200
Hampton /727-0572
/596-7608
Harrisonburg + 434-7121
Herndon + 435-1800
Lynchburg + 845-0010
/846-0213
Midlothian /744-4860
Newport News + 596-6600
/596-7608
Norfolk + 625-1186
/855-7751
Petersburg /861-1788
Portsmouth /855-7751
Richmond + 788-9902
/744-4860
Roanoke + 344-2036
/344-2762
Virginia Beach /855-7751
Williamsburg /229-6786

WASHINGTON

Auburn + 939-9982
/735-3975
/285-0109
Bellingham + 733-2720
/671-5990
Enumclaw /735-3975
Everett /258-1018
Longview + 577-5835
Olympia + 754-0460
/943-9050
Richland + 375-5377
/375-3367
Seattle + 625-9612
/285-1019
Spokane + 455-4071
/624-1549

Tacoma	+ 627-1791	WISCONSIN		Neenah	+ 722-7636
	/272-1503	Appleton	/722-5580		/722-5580
Vancouver	/696-9305	Beloit	/362-4655	Oshkosh	/235-7473
Wenatchee	+ 663-6227	Brookfield	/785-1614	Racine	+ 632-6166
Yakima	/248-1462	Eau Claire	+ 836-9295		/553-9044
			/832-1354	Sheboygan	+ 452-3995
WEST VIRGINIA		Green Bay	+ 432-2815		/457-6128
Charleston	+ 345-6471		/432-3064	Wausau	/355-1262
	/345-9575	Janesville	/362-4655	West Bend	/334-1240
Huntington	+ 523-2802	Kenosha	+ 552-9242		
	/523-8432		/553-9044	WYOMING	
Morgantown	+ 292-0104	La Crosse	/784-9099	Casper	+ 265-5167
	/292-0682	Madison	+ 257-5010		/234-4211
Parkersburg	/485-9470	Milwaukee	+ 271-3914	Cheyenne	+ 638-4421
Westover	/292-0682		/785-1614		/632-7464
Wheeling	/233-7950			Laramie	+ 721-5878

Canadian Tymnet Access Numbers

There is a 6¢/minute (U.S.) communications surcharge to connect to QuantumLink through Tymnet.

When entering your local access number, you must enter the slash symbol (/) *before* entering the number, as a “/” symbol informs the Q-Link access software to use the Tymnet sign-on procedure.

If you have any questions or problems, you can call Q-Link Customer Service at 1-703-883-0788.

Burnaby	/604/294-3223	Ottawa	/613/563-7703	Vancouver	/604/294-3223
Calgary	/403/232-6661	Toronto	/416/365-7630	Ville St.	
Montreal	/514/748-1051			Laurent	/514/748-1051

Canadian Datapac Access Numbers

There is a 15¢/(U.S.)/minute (\$9.00/hour) communications surcharge to connect to QuantumLink through Datapac.

When entering your local access number, you must enter the exclamation symbol (!) *before* entering the number, as a “!” symbol informs the Q-Link access software to use the Datapac sign-on procedure.

If you have any questions or problems, you can call Q-Link Customer Service at 1-703-883-0788.

300 BAUD 1200 BAUD

Alberta

Calgary	1264-9340	1290-0213
Edmonton	1420-0185	1423-4463
Fort McMurray	1791-2884	1743-5207
Grande Prairie	1539-0100	1539-6434
Lethbridge	1329-8755	1327-2004
Medicine Hat	1526-6587	1529-5521
Red Deer	1343-7200	1342-2208

British Columbia

Abbotsford	1859-9961	1859-6623
Campbell River	1286-0703	1286-0094
Cranbrook	1489-4171	1489-3588
Dawson Creek	1782-9402	1782-9177
Kamloops	1374-5941	1374-9510
Kelowna	1860-0331	1860-9762
Nanaimo	1753-6491	1754-8291
Nelson	1354-4411	1354-4824
Prince George	1564-4060	1562-8469
Terrace	1635-7221	1638-0238
Vancouver	1689-8601	1687-7144
Vernon	1549-5245	1549-5285
Victoria	1388-9300	1386-0900
Williams Lake	1398-6377	1398-7227

Manitoba

Brandon	1725-0878	1727-6609
Dauphin	1638-9244	1638-9441
Morden	1822-6237	1822-6287
Portg La Prair.	1239-1166	1239-1688
Selkirk	1785-8625	1785-8771
Steinbach	1326-9826	1326-1385
Thompson	1778-6461	1778-6451
Winnipeg	1475-2740	1943-4488

New Brunswick

Bathurst	1548-4461	1548-4581
Campbellton	1759-8561	1759-8571
Edmundston	1739-6621	1739-6611
Fredericton	1454-9462	1454-4525
Moncton	1854-7078	1854-7510
Newcastle	1622-4451	1622-8471
Saint John	1693-7399	1642-2231
Woodstock	1328-9361	1328-9351

Newfoundland

Corner Brook	1634-1839	1634-1469
Grand Falls	1489-4930	1489-4020
St. John's	1726-4920	1726-5501

Nova Scotia

Bridgewater	1543-6850	1543-1360
Amherst	1667-5035	1667-5297
Halifax	1477-2000	1477-8000
Kentville	1678-1030	1678-2096
New Glasgow	1755-6050	1755-6150
Sydney	1564-1400	1564-1450
Truro	1662-3258	1662-3773

Ontario

Barrie	1737-4100	1737-4120
Belleville	1966-6002	1966-9301
Brampton	1791-8900	1791-8950

Brantford	1756-0000	1756-0020
Brockville	1345-4670	1345-4942
Chalk River	1589-2175	1589-2117
Chatham	1351-8910	1351-8920
Clarkson	1823-6000	NA
Cornwall	1938-9700	1938-4777
Galt	1622-1714	1622-1780
Guelph	NA	1836-7960
Hamilton	1523-6800	1523-6900
Kingston	1549-7720	1549-7760
Kitchener-Wat.	1579-0009	1578-9720
London	1679-7500	1679-7620
Niagara Falls	1357-2702	1357-2770
North Bay	1476-3900	1476-3920
Orillia	1326-1120	1326-1130
Oshawa	1579-8920	1579-8950
Ottawa	1567-9100	1567-9300
Owen Sound	1371-5900	1371-5910
Peterborough	1748-6940	1748-6945
St. Catharines	1688-5620	1688-5640
Sarnia	1336-9920	1336-0950
Sault Ste. Mar.	1942-4960	1942-4970
Sudbury	1673-9602	1673-9652
Thunder Bay	1623-9644	1623-3270
Toronto	1868-4000	1868-4100
Trenton	1394-3355	1394-4868
Welland	1788-1200	1788-1230
Windsor	1973-1000	1973-1020
Woodstock	1485-5220	1485-5236

Prince Edward Island

Charlottetown	1566-5002	1566-5934
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Quebec

Bale Comeau	1296-9113	1296-8611
Drummondville	1477-7151	1477-7153
Gaspe	1368-1377	1368-2352
Granby	1375-1240	1375-4184
Joliette	1759-8340	1759-8381
Jonquiere/Chic	1545-2272	1545-2290
Montreal	1878-0450	1878-0640
New Carlisle	1752-2255	1752-2238
Quebec City	1647-4690	1647-2691
Rimouski	1722-4694	1722-4696
St. George DeBeauce	1227-4692	1227-4690
St. Hyacinthe	1744-9270	1774-9991
St. Jean	1346-8779	1347-6211
St. Jerome	1432-3453	1432-3165
Sept. Iles	1962-8402	1962-7634
Sherbrooke	1566-2770	1566-2990
Sorel	1743-3381	1743-0101
Trois Rivieres	1373-2600	1373-2603
Valleyfield	1377-1260	1377-1680

Saskatchewan

Moose Jaw	1693-7611	1374-5910
Prince Albert	1922-4233	1922-4234
Regina	1565-0111	1565-0181
Saskatoon	1665-6660	1665-7758
Swift Current	1778-3901	1778-3921

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Registration Card

Please complete this card to register for product support and new product information.

Name _____
Address _____
City _____ State _____ Zip _____
Phone () _____
Place of Purchase _____ Date _____

Purchaser's age?

under 18 18-24 25-34 35-49 over 50

Purchaser's sex?

male female

Primary user's age? (if other than yourself)

under 18 18-24 25-34 35-49 over 50

Primary user's sex? (if other than yourself)

male female

What system do you own?

C 64 C 128

What is the primary use for your computer?

Business Home applications Programming
 Education Entertainment Graphics

Rank, in order of preference, GEOS applications you would like to purchase. (#1 would be your most favorite.)

___ Word processing ___ Spreadsheet ___ Database
___ Telecommunications ___ Educational ___ Utilities
Other _____

Which magazines do you read?

Commodore Magazine Compute!'s Gazette
 Computer! Run Family Computing
 Ahoy BYTE

What type of peripherals do you own?

Disk Drive _____ Monitor _____
Printer _____
Input device (joystick, lightpen, etc.) _____

POSTAGE

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