





Wheels 64 Owner's Manual

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General Information

ORDERING INFORMATION

All orders, registrations, and replacement disks may be obtained through the following address:

Maurice Randall
%Click Here Software Co.
P.O. Box 606
Charlotte MI 48813-0606
USA

TECHNICAL SUPPORT

Technical support is available free of charge to the original owner of the Wheels system package. However, if using phone support, no collect calls will be accepted, nor will long distance calls be returned.

The preferred method for technical support is through Maurice Randall's BBS: The Speed Zone BBS at (517) 322-2386, 24 hours a day. Messages may be left in either of two public message areas called "GEOS" or "Maurice Randall's Software". Responses are normally provided within 24 hours or less.

OTHER METHODS OF SUPPORT

PH: (517) 543-5202 and ask for Maurice (pronounced as "Morris")

email: arca93@delphi.com

fidonet: Direct your messages in the CBM-GEOS echo to Maurice Randall

website: <http://people.delphi.com/arca93>

Technical support for Wheels may be limited to the use of Wheels and its supplied contents, and not so much in the use of GEOS applications not supplied with Wheels. However, general help with GEOS is still available through The Speed Zone BBS.

WARRANTY AND DISK REPLACEMENT POLICY

The original Wheels system disk is warranted to be free of unintentional defects for a period of 90 days from the date of original purchase. Please note: The inability for some disk copy programs to make backup copies of your original disk does not indicate defectiveness. Only if the included utility, MakeSysDisk, is unable to create new system boot disks for you, or if the original disk fails its initial installation under GEOS 2.0, will the original disk be deemed defective. If it is found to be defective under either of these circumstances, you may return the disk, along with proof of purchase date, for a free replacement. After the expiration date, defective disks may be replaced if accompanied by a fee of \$10 in US funds, plus \$4 for shipping and handling to North American locations, or \$6 to all other locations.

COPYRIGHTS AND TRADEMARKS

The Wheels package as well as the products contained within it are all Copyright 1998 by Maurice Randall and Click Here Software Co., and are also trademarks of the same. The indicated package contents include:

- Wheels Owner's Manual
- Dashboard 64
- Toolbox 64
- MakeSysDisk
- Wheels kernal (SYSTEM1, SYSTEM2)

ADDITIONAL COPYRIGHTS AND TRADEMARKS

Various portions of your original GEOS 2.0 kernal contained within Wheels is still copyrighted by Geoworks (formerly Berkeley Softworks).

GEOS is a trademark of Geoworks and Berkeley Softworks.
FDSeries drives, HDSeries hard drives, RamLink, SmartMouse, SuperCPU, SuperRAM, 1750XL, and JiffyDOS are products and trademarks of Creative Micro Designs.
RamDrive and BBGRam are products of Performance Peripherals, Inc.
geoRAM is a product of Berkeley Softworks
Commodore 64, Commodore 128, 1541, 1571, 1581, 1350, and 1351 are products from the now defunct Commodore Business Machines, Inc.

LICENSING AGREEMENT TO ORIGINAL OWNERS

By purchasing and installing this product you are agreeing to the following:

- To use the product for your own purpose and enjoyment.
- To install the product ONLY on computers you will use for yourself or will be used by your immediate family in your own home or by employees in your own place of business.
- NOT to install the product onto computers owned or used by other persons outside of your home or place of business.
- NOT to copy and distribute the product to others by any means.
- To give up all rights to the use of the product and to stop using the product if you should sell your original Wheels package disk.

LICENSING AGREEMENT TO SECOND-HAND OWNERS

All possible benefits, such as technical support, warranties, and upgrade discounts, will apply only to the original purchaser of this product. If you've obtained your original Wheels package used or second hand, these benefits are not transferred to you automatically. As the new owner, you must send in the original Wheels package disk along with a replacement fee to obtain these benefits and to obtain the rights to the use of the product. The cost of this fee is \$20.00 in US funds, plus \$4 for shipping and handling to North American locations, or \$6 to all other locations, and includes a new original system disk licensed for your own use. This does not include the Wheels Owner's Manual. Make sure you received the manual from the original owner.

Introduction And Overview

INTRODUCTION

This new operating system comes about ten years after the release of GEOS 2.0. If you've been a loyal GEOS user all along, then you've likely grown to appreciate the many nice features of GEOS and the common sense that went into the original development of it. GEOS is a remarkable enhancement to the Commodore computer and has had much to do with keeping this computer platform alive all these years.

Throughout the years, we've had new pieces of hardware released and methods employed to be able to use these products with our GEOS systems. But there's nothing like having the support for the hardware built directly into the operating system, rather than patching it up to do the job. That was one of the goals of the Wheels operating system, to better utilize what we have available to us today and to provide better support for the future.

These computers will be around for awhile longer yet, and your new Wheels system will pick up where GEOS left off.

What you have before you is a whole package designed to work together, just like the original GEOS concept. If you're a GEOS fan, don't worry, you've still got GEOS here. One of the priorities in the development of Wheels was to maintain backwards compatibility with all the wealth of GEOS applications that have been developed over the years. Chances are just about every popular application you're currently using will still function as it always has. But the way you're going to be able to manage your overall system has been greatly improved.

In addition, there are many enhancements to the operating system that will improve the way new applications can be written to function on your system. New applications can be made more powerful than before. One of the reasons is Wheels absolutely requires ram expansion now. GEOS didn't require it but would take advantage of it if you had it. From a programmer's standpoint, GEOS applications had to be written with the idea that only the ram in the computer was available, and that was very limited. With Wheels, the programmer is automatically given 30K of free additional ram to use, and if you have additional ram not being entirely used by the operating system or your ramdisks, then the programmer can take advantage of even more ram when it's there.

This additional ram really improves the functionality of an application. For instance, the Dashboard is the new replacement for the old deskTop, and with the extra ram that's available, it can load itself entirely into memory while it's running. Whenever you had to perform a special function with the old deskTop, such as validating a disk, or even loading and running an application, the deskTop first had to load in the code from disk necessary to perform that function. It was a noticeable thing with the 1541 drive, and even more so if the deskTop wasn't on the disk that was in the drive. It would ask you to reinsert a disk with the deskTop on it before it could proceed.

The work you have before you within the Wheels operating system is a culmination of work spread out over the past few years. There's always room for improvement, and Wheels is no exception. But for you, the user, you'll find a much improved environment for managing your entire system. And with your feedback from this release, you might even play a part in the further

development of additional features and improvements.

As you're reading through this manual, you'll notice references to you, the user. You might also notice the user referred to as "he" or "him" or "himself." In these cases, reference is being made to the user in general and not necessarily to a male user. If you're a female, just read these references as she, her, or herself. This method merely makes reading easier.

Dig this manual out of the glovebox whenever you get lost. Now, let's boot that new system up and go cruisin'.

WHAT DO I NEED TO USE WHEELS?

Wheels can be used with many different configurations. If your setup worked with GEOS 2.0, it'll work with Wheels. The only exception to this is the ram expansion requirement.

THE HARDWARE THAT'S NEEDED

The following is the *minimum* hardware you'll need to be able to use Wheels:

Commodore 64 (or 128 in 64 mode)

Commodore 1541 disk drive

Commodore 1700 REU (128K model)

Good quality color monitor (monochrome or a TV will do, but the screen appearance will suffer)

Although the above system can be used to run Wheels, this is not the ideal setup. The more power your system has, the better it will perform. A high-performance custom setup will always feel better and run better. Go ahead and put all your goodies on your system. Wheels can deal with it, and you'll love the results.

Please note, ram expansion is a *requirement* unlike GEOS 2.0 where it was an *option*. On the plus side, most of the popular types of ram expansion units are supported. See "SECTION 5: Toolbox 64" for more information on the ram expansion units.

THE SOFTWARE THAT'S NEEDED

To start with, you'll need an original GEOS 64 V2.0 system boot disk in order to run the Wheels installer program. This must be an original system boot disk. A copy of the system disk or a boot disk created with a boot maker utility cannot be used.

If you've purchased Wheels and do not own GEOS 2.0, you can still purchase the GEOS software from Creative Micro Designs. You'll find ordering information in the Appendix.

And obviously, you'll need your original Wheels system disk to get up and running. Installation instructions are covered in "SECTION 3: Installing Wheels".

Additionally, you'll need your GEOS 2.0 application disk because the major GEOS applications such as GeoWrite and GeoPaint are not supplied with the current release of Wheels. The main thing Wheels replaces is the deskTop and Configure. The replacements for these are Dashboard 64 and Toolbox 64, respectively. Plus a good amount of operating system enhancements are included in the Wheels kernal, many features not found in GEOS 2.0.

Installing Wheels

INTRODUCTION

Please follow these installation instructions exactly as they are presented to you. If you pay attention and do the installation correctly, you'll have very few problems, if any at all.

One important consideration is to be sure you're familiar with using GEOS. Since Wheels is released as an upgrade to GEOS 2.0, it's assumed you're already familiar with the use and operation of GEOS when it comes to pointing and clicking, as well as other general things such as the difference between an application and a desk accessory. Things like mouse drivers and printer drivers should already be understood too. Wheels is a major enhancement to an already existing product, and before using Wheels, you should make sure you are completely familiar with GEOS first.

If you just purchased GEOS 2.0 in order to be able to use Wheels, you'll need to install GEOS first. And then, don't even attempt to install Wheels until you have used GEOS for at least a short while and have become familiar with its operation. Many of the functions you'll use in Wheels will be very similar to GEOS, and much of what you need to know is contained in your GEOS 2.0 manual and most of it is not repeated on these pages. This manual concentrates primarily on the new features of Wheels instead.

INSTALLING FOR THE FIRST TIME

Installing Wheels is a one-time thing. You must follow the instructions exactly because the installer program won't let you do it any other way.

Your initial Wheels installation **MUST** be done from GEOS. You'll need your original GEOS 64 V2.0 boot disk for this installation. If you have the geoRAM boot disk, **DO NOT** boot from that disk, but use your original GEOS 2.0 disk instead. If your original system disk is damaged, it's ok to use your original backup system disk.

The installation may be performed using a 64 or a 128 in 64 mode. If you use a 128D, make sure your internal drive functions correctly, if that's the drive you'll be using for the installation. If not, make sure the drive is somehow disabled or use a different computer for the installation.

Obviously, you'll need a 1541 or 1571 drive to boot up GEOS. It's not recommended you use any other type of drive, such as the various 1541 clone drives that were manufactured, although they might work. However, the installation is not guaranteed to work on anything but a 1541 or 1571 running as device 8.

Unplug any ram device you have on your computer. You'll need a bare, stock system with one single drive for the installation. The best setup you can have for this first time installation is one single 1541 with one single serial cable connecting it to your computer. It's best to disconnect any other drive from the system for this initial installation. Don't worry about GEOS, it will boot up and run on a single drive system. Let's try to keep any interference to an absolute minimum and make it work the first time.

Now boot up GEOS 2.0 as a one drive system with no ramdisk. When the deskTop appears, you should see just one drive icon at the right of your screen. If not, turn off your entire system, unplug the extra device from your system, and reboot. Now that you have a one-drive GEOS

system running, you can run the Wheels installation program.

RUNNING THE INSTALLER UTILITY

Before proceeding, verify that GEOS is properly booted and functioning. Try loading one of your GEOS applications such as GeoWrite or GeoPaint. If you experience any problems at all such as disk errors or lock ups, don't attempt to install Wheels until you've resolved your problem.

STEP 1.

Begin by removing your GEOS boot disk from the drive. Now take your original Wheels system disk and insert it into the drive. Do not use any write-protect tabs on the Wheels disk yet. The installation procedure will be writing to the disk and will fail if you've write-protected it.

Click on the drive icon and the deskTop will open the disk directory onto the deskTop pad. You'll see just one file icon on your deskTop pad called "Installer." Double click on this file icon to begin the installation process.

STEP 2.

As soon as Installer has started, it will ask you to insert your original GEOS 2.0 system boot disk. Installer won't be writing anything to your GEOS disk, so to be safe, you can put a write-protect tab on it prior to inserting the disk.

After inserting your GEOS disk, either click on the OK button or hit RETURN. Installer will then read the information it needs from your GEOS disk. This step can fail if you're not using an original GEOS 2.0 system boot disk or backup system disk. It can also fail if your boot disk is corrupted in certain ways. You must also use the same GEOS disk you booted from.

If you can't get past this stage, then shut down and start all over again using another GEOS boot disk if you have one. The worst that can happen, if this step keeps failing, is you will have to get your GEOS boot disk replaced. Creative Micro Designs can replace it for a nominal fee. Contact them for more information.

If your GEOS boot disk checks out and the necessary data is retrieved from it, then the installer will proceed to the next step.

STEP 3.

Installer will now ask you to reinsert your Wheels disk. Remove your GEOS disk and put it away for safe keeping. Reinsert your Wheels disk and click the OK button.

The installer will now perform a test of your Wheels disk to be sure there are no errors and that it can be properly installed. This operation may take a few minutes. Please be patient and make sure nobody trips over your power cord while this is going on!

NOTE:

If the installer reports an error at this point, something is wrong. Either you have received a bad disk, or your disk drive might be faulty. Before returning the disk, shut the system down and try using a different disk drive if you have one available. You must have a properly aligned drive for the installation to work correctly. There may also be a communication problem with your computer. Keep in mind the position of your drive in relation to your monitor can sometimes affect its operation. Try repositioning your drive. Also try a different serial cable. And be sure no other drives are connected. Even if they are turned off, unhook them from the serial bus. If you have a RamLink, disable it.

If you start the installation process over again, and still get an error, and you've ruled out any possibility of a faulty disk or communication problem, then send the disk in for a free replacement. You'll find the address and warranty information in section 1, "General Information."

If no errors are reported at this stage, then you'll be taken right into the next step.

STEP 4.

A dialogue box will appear asking you to enter your FIRST name. Enter your first name and hit the RETURN key when finished. Another dialogue box will then appear asking for your LAST name. Enter your last name and hit RETURN.

Your Wheels system disk is assigned to you, and will be identified as such by your own name. You must enter your name correctly. And remember, *don't pass around* copies of your Wheels boot disks! You never know where it will end up. Remember, it's going to have your name in it and you don't want to take the blame for passing around illegal copies of this software.

FINISHING UP

When this is all finished, a dialogue box will appear stating the installation was successful. Remove your Wheels system disk at this time and put a write-protect tab on it. Then turn your computer off and reconnect any disk drives or ram expansion units you would like to use. Remember, to boot up Wheels, you need to have one of the ram expansion units that are supported by Wheels. It would be a good idea to read section 6, "Toolbox 64" at this time. It contains the information you need to know about the various types of devices you can use with Wheels.

BOOTING UP WHEELS FOR THE FIRST TIME

You can now boot up Wheels from your Wheels system disk. The installation program has altered the disk and set up the necessary files needed to get Wheels up and running.

The important thing now is to protect your original Wheels system disk. Keep a write-protect tab on the disk from now on and don't use it any more than you have to. The only problem the write-protect tab will cause is the Toolbox won't be able to save any configuration settings to the disk. But that's ok, we want to keep this original disk in its default state.

On your Wheels system disk is a utility called "MakeSysDisk". This program is capable of making additional boot disks or boot partitions for you on any of your bootable devices. From now on, any changes we make in the Toolbox or other programs will be saved to these boot disks or partitions.

Plug your disk drives and ram expansion device back in now. Pay attention to how your drives are numbered. Wheels will boot from any device numbered 8 through 11. Be certain you do not have two devices set to the same numbered drive. Make sure you have a ram expansion or a DACC partition on your RamLink (128K or larger) available.

SETTING UP YOUR RAM EXPANSION

Wheels will automatically make use of your ram expansion during the bootup sequence. The only type of ram expansion that needs explaining here is the RamLink or RamDrive. You must use the RAM-TOOLS utility supplied with your RamLink to set up a DACC (foreign) partition. This partition must be a minimum of 128K (512 blocks) in size. The location of the DACC partition within your RamLink or RamDrive doesn't matter. It also doesn't matter what the partition number

or name is. During bootup, the Toolbox will look for all the DACC partitions it can find and will provide you with a dialogue box to pick one from. After that, the Wheels operating system will use this partition each time you boot up. You'll only see this dialogue box one time.

If you have a ram expander that can plug into one of the two ports on the RamLink, you can have Wheels use that instead. If the NORMAL/DIRECT switch is set for NORMAL and you have a ram expander in the front port (nearest to the computer), the Toolbox will see it and use it instead of a DACC partition. If the switch is in the DIRECT position, the Toolbox will check the rear port for a ram expander. Keep in mind any ram expansion in the rear port is also used by the RamLink and occupies the area of memory where your partitions begin.

If the Toolbox finds more than one type of ram expansion, you'll be able to choose which one you want to use when you begin booting up Wheels. A dialogue box will appear showing the available ram expansions. Just pick one from the list.

STARTING YOUR SYSTEM

Let's boot up Wheels now from your new system disk by hitting the SHIFT-RUN key combination if you have JiffyDos, or by entering the following command:

```
LOAD"STARTER",8,1
```

If everything goes well, you'll see a title screen while the booting is taking place. Soon after, you'll get a dialogue box asking you which ram expansion unit you would like to work with. Pick from the choices presented to you and hit RETURN to finish booting. You'll only get this dialogue box the first time you boot up. The section on Toolbox 64 has more information about using the various types of ram expansion devices as well as how you can change the ram expansion device that Wheels will use.

The next dialogue box that will appear gives you 5 different bootup options you can turn on or off. For the first time, leave options 1-3 turned on. You can read more about this dialogue box in section 6, "Bootup options."

One more dialogue box will appear that lets you pick the input driver you wish to use. You'll find more information about the input drivers in section 6. For the time being, if you have a 1351 mouse, the C1351D driver will work just fine and it will also work with the SmartMouse. All Wheels input drivers work with or without accelerators, also. If you're using a joystick, then select the JOYSTICK driver.

You'll want to use MakeSysDisk NOW. Turn immediately to the next section, "MakeSysDisk," and create a few extra boot disks and/or boot partitions for yourself. Then put your original system disk away for safe keeping. Only get it out when you need to create another new boot disk with MakeSysDisk.

MakeSysDisk

INTRODUCTION

Just like GEOS, your Wheels system must be booted from disk. Even though your original Wheels system disk is copy-protected, you still have the ability to create additional boot disks using the utility "MakeSysDisk" that is supplied with your system.

Your original Wheels disk is a "WHEELS MASTER" disk. MakeSysDisk can only be loaded and run from a WHEELS MASTER disk. Not only can MakeSysDisk create bootable disks, it can also create MASTER disks. Only 1541, 1571, and 1581 formatted disks can become MASTER disks. The main difference between a Wheels boot disk and a WHEELS MASTER disk is that a MASTER disk can be used to create additional boot or MASTER disks.

Be aware that creating additional boot disks should only be done for your own use. Be sure to study section 1, "General Information" about your responsibility regarding the copyright laws.

The added benefit of MakeSysDisk is it can also create bootable partitions on your CMD devices. This was one of the primary goals behind the creation of this operating system and the use of MakeSysDisk.

COMPATIBLE DRIVES

As already mentioned, MakeSysDisk can create MASTER disks on any of the following:

- 1541 drive*
- 1571 drive with single sided disk*
- 1581 drive*
- FD drive with 1581 disk*

MakeSysDisk can also create regular bootable disks/partitions on any of the following:

- 1541 drive*
- 1571 drive with single or double sided disk*
- 1581 drive*
- FD drive with 1581 disk*
- FD drive with 1581 or native partition*
- CMD HD with 1581 or native partition*
- RamLink/RamDrive with 1581 or native partition*

In addition, the device you boot from must have a device number between 8 and 11. The only deviation from this is with the RamLink.

RAMLINK DEVICE NUMBER

If you boot from a RamLink in a 1581 partition and its device number is 12 or higher, it will be used with the RAM1581 driver for backwards compatibility with the way the RamLink was used in GEOS 2.0. However, you'll be limited to just 1581 partitions in this mode.

If the RamLink's device number is between 8 and 11, it will be treated as a DOS device instead of a ramdisk, and you'll be able to use both 1581 and native partitions, and freely able to switch back and forth between the two partition types. See section 6, "Toolbox 64" for more information on the use of the RamLink or RamDrive.

Note: The RamLink's device number having to be between 8 and 11 to be used as a DOS device is only really important during bootup. After bootup, you can manually install the RamLink as a DOS device no matter what its device number is by clicking on "Install drive" in the Toolbox. The Toolbox will alter the device number to match the location where you're installing the RamLink.

USING MakeSysDisk

When you run MakeSysDisk, you'll have a dialogue box that will let you choose between making a MASTER disk or a BOOT disk. Just select the operation you wish to perform.

CREATING A WHEELS MASTER DISK

MakeSysDisk will check the drives you currently have on your system and will present you with a dialogue box that lets you choose among the drives that are allowed to create MASTER disks. Pick the desired drive and have a blank disk ready. If need be, you can use the same drive you loaded MakeSysDisk from. MakeSysDisk is able to copy files from one disk to another. If doing so, you'll be prompted when to insert the source or destination disk.

Unlike when creating boot disks, MakeSysDisk will always format the disk that will become a new MASTER disk. Be sure not to use any disk that has data on it that you wish to keep.

The next dialogue box will ask you to insert the new disk. The disk should be placed in the drive you have chosen to create your MASTER disk in. If you chose the same drive that you loaded MakeSysDisk from, remove your current MASTER disk and insert the new disk now.

MakeSysDisk will immediately begin formatting your new disk. The only way to cancel this operation is to not insert the disk, but click OK anyway. This will produce an error and the operation will cease.

If the disk formatting is successful, the operation will continue without any further action on your part unless you're using a single drive for the operation. Keep track of which disk is which as MakeSysDisk requests you to change disks. This will take quite a number of disk swaps to get the whole job done. It's much easier if you can load MakeSysDisk from one drive and create your new MASTER disk on another.

When the operation is complete, you'll have a new WHEELS MASTER disk. A dialogue box will inform you that the operation was a success. This new MASTER disk can serve as a backup boot disk or it can also be used to create additional MASTER disks or BOOT disks/partitions.

ALWAYS write-protect your new WHEELS MASTER disks. Even though it's possible to add additional applications and other files to these disks and to be able to boot from these disks, it's not a good idea. These are mainly intended for creating regular Wheels boot disks and they also prevent you from having to use your original Wheels system disk for this purpose.

CREATING A WHEELS BOOT DISK

If you chose to create a BOOT disk or BOOT partition instead of a MASTER disk, you'll have a few different options to pick from. Mainly this involves selecting the drive and partition to use for the boot system.

STEP 1.

A dialogue box will appear giving you the opportunity to select amongst one or more choices for the drive you wish to work with. Only the drives capable of booting Wheels will be displayed in this dialogue box. Click on the desired drive. If you choose to abort, you can click on "CANCEL" and you'll be returned to the initial dialogue box.

STEP 2.

Next, you'll be shown the drive you have selected along with the name of the disk currently in the drive. If the drive is partitionable, the current partition will also be shown. At this point, you can switch partitions if you'd like, or use the one listed in the dialogue box. If you choose to switch partitions, MakeSysDisk will call on the operating system's own function for switching partitions. If you've chosen a floppy drive, you can also insert a different disk. Just click on "Change disk/partition" and you'll either be asked to insert the new disk or a dialogue box will open allowing you to select the desired partition on a CMD device.

When you're ready to proceed creating a boot disk, click on "OK", or if you change your mind, click on "CANCEL".

STEP 3.

MakeSysDisk will perform a test on the disk now to be sure it's formatted. MakeSysDisk can format the disk for you if needed. If it appears to not be formatted, you'll be presented with a dialogue box asking if you'd like to format the disk or cancel the operation. Click on "OK" to proceed or "CANCEL" to abort the operation.

STEP 4.

The next thing MakeSysDisk checks is whether or not you might need a program called "TURBOBOOT." This is a program used only during the initial bootup for systems that don't have JiffyDOS. If you don't have JiffyDOS, TURBOBOOT can knock about 30-40 seconds off your bootup time. If you're creating a boot partition on a RamLink or RamDrive, MakeSysDisk will proceed straight to the next step, but on all other devices, you'll receive a dialogue box asking if you'd like to install TURBOBOOT on the boot disk. If you're going to use this boot disk without JiffyDOS, click "YES" and TURBOBOOT will be added to your boot disk. When booting, don't load TURBOBOOT, the system will do it for you. You'll still load and run "STARTER" to get Wheels up and running. STARTER is a small program that loads quickly because of its size. If TURBOBOOT is on your boot disk, STARTER will find it and use it. TURBOBOOT will work even if you have JiffyDOS, so selecting to use it is always safe. You can always delete it from your boot disk at any time if you'd like. Wheels will boot with or without it.

STEP 5

If your WHEELS MASTER disk isn't in the drive, MakeSysDisk will ask you to insert it. Make sure you have write-protect tabs on the MASTER disk and then put it into the drive. If this is the same drive you're creating a boot disk on, don't worry, MakeSysDisk will prompt you to change disks as needed. After you've inserted your MASTER disk, click on "OK" to proceed.

STEP 6.

The process will continue now without any further action on your part unless you're creating the

boot disk on the same drive that contains your MASTER disk. If so, you'll be asked to swap disks as needed.

FINISHING UP

When finished, MakeSysDisk will inform you if the process was successful or not. If successful, you'll have the opportunity to create additional boot disks. If you wish to create another boot disk, just click on "OK" or click on "QUIT" to exit MakeSysDisk and return to the Dashboard.

From the Dashboard, you can now copy any other files you might want on your new boot disk. Refer to section 5, "Dashboard 64," for more information on copying files.

With the new boot disk or boot partition you've created, you'll no longer need to boot up Wheels from your original disk or MASTER disk if you've created extra ones. You can put your original Wheels system disk and MASTER disks away in a safe place and only use them when you need to create additional boot disks.

Even if you've created a boot partition on a CMD device, make some extra boot disks for your floppy drives in case something ever goes wrong that might prevent you from booting up again. You can still access your CMD devices when you boot from a floppy drive, so making extra boot disks is an important thing to do at this point. Protect yourself in case unexpected problems arise.

After making your new boot disk or partition, you may copy any other files that you'd like to have on the disk. MakeSysDisk only copies those files that are absolutely needed for booting up the system. Be sure to copy any input drivers you'll wish to use as these are not copied by MakeSysDisk.

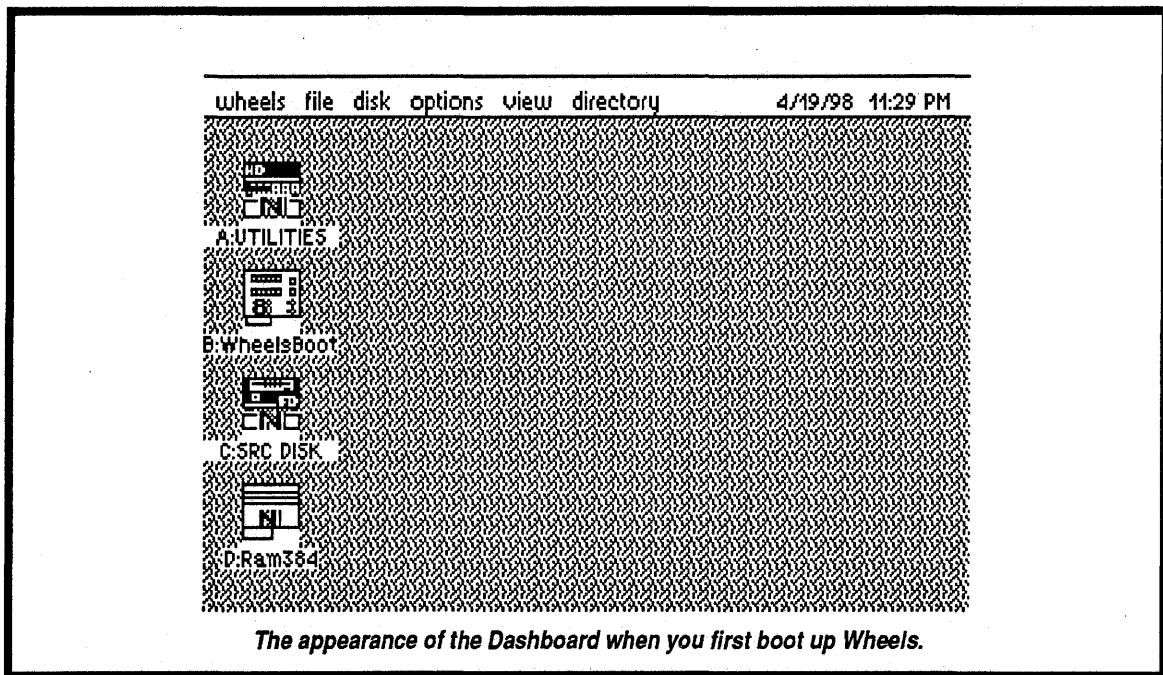
Dashboard 64

INTRODUCTION

The Dashboard is your new desktop interface, and is the main link to your system. It will likely be the application you'll use the most. From the Dashboard, you can gain access to all of your files. Most of the basic tools needed for working in a normal day to day environment are provided by the Dashboard. For the most part, the primary use for the Dashboard is to gain access to your disk drives and to be able to launch your applications. When you exit an application, the operating system will return you to the Dashboard.

You'll discover many other features of the Dashboard will become indispensable. Being able to have multiple directory windows open is a feature that allows you to quickly bounce between your various projects or to move and copy files between the various directories on your system.

USING THE DASHBOARD



THE DRIVE ICONS

Among the first things you'll see when the Dashboard appears on your screen are the icons representing each of your disk drives or ramdisk devices currently in use. Underneath each icon is a string of characters identifying the drive letter as well as the disk or partition name for that device. When you double click on one of these icons, a window will open up on the screen listing all the files currently residing in the directory of that device. Most of the devices such as the 1541, 1571, 1581, and the ramdisks of these various types, have one main directory and this is the one that will

be displayed on these types of devices. If the device is a CMD device in a native partition or a native ramdisk, the directory displayed will be the root directory.

REPOSITIONING YOUR DRIVE ICONS

By default, the drive icons are lined up along the left side of your screen, with drive "A" being at the top and drive "D" at the bottom. If you prefer a different layout, feel free to move the icons wherever you want on the screen. To do this, move the mouse pointer over the icon and then press and hold the mouse button. Within a couple of seconds, a ghosted image of the icon will appear as if attached to your mouse pointer. While still holding the mouse button, move the mouse to a empty portion of the screen where you would like the icon to reside and then lift your finger off the button. The icon will instantly move from its previous position to the new position.

You'll notice when you release the mouse button that the icon might not end up exactly on the spot where you stopped. Due to the color mapping restrictions on the Commodore screen, the icons have to be positioned on boundaries occurring every 8th pixel. So, when you move the icon to a new position, the Dashboard will find the closest 8 pixel boundary and locate the icon at that spot.

Continue moving each drive icon to any desired location. The Dashboard will remember these positions for your entire computing session until you shut down. The next time you boot up, the default settings will once again be used.

CLICKING ON OBJECTS

The Dashboard works by allowing you to point and click on various objects. An object can be a drive icon, a directory window, a single file or group of files within a directory window, etc. There is always at least one object selected even if you haven't selected anything yourself. When the Dashboard first appears, the default drive is selected. You can tell which drive this is because its icon will appear highlighted in comparison to the other drive icons. At this point, it's the highlighted drive icon that is the currently selected object, and any action you perform will occur to the drive or root directory represented by this icon.

When you open up a directory window, the window's border will appear highlighted. If you have other directory windows open on the screen, they will not be highlighted. Only one directory can be highlighted and active at a time. At this point, any action you perform will occur to this window and/or the directory it contains.

CLICKING ON FILES

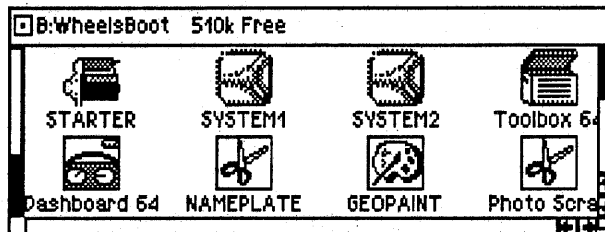
Within a directory window, you'll see the files in that particular directory. If you click on one of them, the appearance of the filename (in text mode) or its icon (in icon mode) will be highlighted. At this point, the highlighted file will be the currently selected object. If you click on a different file, the previous one will be deselected (unhighlighted) and the one you just clicked on will become highlighted and selected. Any action you choose to perform, such as deleting a file, will only affect the file which is currently selected (highlighted). If a file is selected and you want to deselect it without selecting another, hold down the CMDR key and click on the file again. Clicking on an empty area of the screen will also deselect the file in addition to deselecting the window.

CLICKING ON MULTIPLE FILES

Selecting multiple files is also possible. This allows many actions such as filecopying to be performed on more than one file at a time. Just hold down the CMDR key while clicking on each file you wish to select and the files you've already selected will remain highlighted.

B:WheelsBoot 513k Free			
STARTER	1k	Basic	4/15/98 8:28 PM
SYSTEM1	21k	Sys Boot	4/17/98 10:01 PM
SYSTEM2	16k	Sys Boot	4/17/98 9:47 AM
Toolbox 64	51k	Applic	4/17/98 9:30 AM
Dashboard 64	30k	System	4/17/98 4:48 PM
NAMEPLATE	5k	System	11/8/97 1:12 PM
GEOPAINT	38k	Applic	8/1/88 2:35 PM
IMAGE 1	5k	App Data	4/19/98 11:56 PM

Here's a typical directory window displaying files in text mode.



Here's the same files displayed in icon mode.

If you double-click on a file, the Dashboard will make an attempt to load and run that file as long as it's an application file or any other type that's capable of being run from the Dashboard.

While using text mode in a directory window, if the files you wish to select are all grouped together, click and hold the button on the first file you wish to select and then move the mouse pointer over the next file while still holding the button down. Keep moving the mouse until you reach the last file you wish to select and then let go of the button. If you should reach the upper or lower border of the directory window, the directory will begin to scroll and the files will continue to be selected as the mouse passes over them. This action actually toggles the state of the file, which means if you pass over a file that's already selected, it'll be deselected.

THE DIRECTORY WINDOWS

As already mentioned, you can open up a directory window by double-clicking on a drive icon. If the window contains a native mode directory and you find any subdirectories within it, you can double-click on one of them to open up another window containing just that subdirectory.

The windows always open up in relation to where they were opened from. For instance, each drive icon has a default setting determining where its directory window is placed on the screen. When you open the window, it's opened to that position as well as the size defined for that drive.

If you open up a system directory, it will open in a position slightly offset from the main directory it belongs to. Likewise for subdirectories. They'll open up slightly offset from their parent directory window.

A BRIEF DESCRIPTION

Let's take a look at the directory windows. These windows have several important features. Obviously, the directory listing appears within the window. There are two modes for displaying the directory, text mode and icon mode. In text mode, you'll be able to see more information about

each file than you do in icon mode. In icon mode, you'll only see the file's icon image displayed along with its filename.

In text mode you'll be able to see the size of the file listed in KBytes. Following that is the type of file, such as an application, desk accessory, etc. Then comes the date and time the file was either created or last modified. If the date and time stamp on the file isn't valid, then this information won't show up.

THE SCROLLBAR

At the right of the window is a scrollbar allowing you to scroll up and down through your directory listing.

THE FUEL GAUGE

At the left of the window is a fuel gauge. This gives you a quick idea of how much space is in use on your disk. On a freshly formatted disk, the gauge will be near the bottom indicating an empty disk. As you add files or as your files grow, the gauge will rise higher and higher. On a full disk, the gauge will be all the way to the top. If this fuel gauge ever appears as a complete gray shaded area, it's an indication that the Dashboard has detected a problem on the disk and the disk should be validated. An improperly closed file will cause this, as well as a directory showing an invalid number of blocks free. In either case, filecopy all your files to another disk for safety reasons and then validate the disk in an attempt to repair it. The Dashboard won't display an improperly closed file so you can't accidentally copy it to another disk and continue having problems.

THE DIRECTORY HEADER

At the top of the window you'll see a string of characters. This tells you the drive letter and the name of the disk or partition whose directory appears in the window. Just to the right of the disk name is the number of KBytes free on the disk or partition. This is the actual amount of space remaining to be used. If the window isn't wide enough, some of this information might be cut off.

THE CLOSE GADGET

At the top left corner of the window is a gadget looking like a square eyeball which allows you to close the window. Just click on it, and that directory window will disappear from the screen.

ACTIVATING A WINDOW

When you open a window by double-clicking on a drive icon or subdirectory listing, it might open up and overlap or cover other windows you already have on the screen. Only one window can be active at a time and this is always the topmost window. Clicking anywhere away from the currently active window will deactivate it. You'll know this because its color will change to an unhighlighted color. To activate it again, just click anywhere on the window.

If you wish to reactivate one of the other windows, just click on one of them on any portion of the window you can get ahold of. Once you've done this, the window will be brought to the front of all others and it will now be the highlighted and active window.

MOVING YOUR WINDOWS

If you wish to move a window to a different portion of the screen, this is easily done by moving the mouse pointer to the area of the window containing the directory name, near the top of the window. Click the mouse button and hold it until the window disappears and is replaced by an

outlined transparent box. Keep holding the mouse button and move the mouse around on the screen. The box will follow along with you. When it's at the position where you would like it to be, simply release the mouse button. The directory window will be redrawn at this new location.

RESIZING YOUR WINDOWS

If you're not seeing all this information in the window, then you can resize it using a gadget at the lower right corner of the window. If you wish to make a directory window smaller or larger, move the mouse pointer over the lower right hand corner of the window. When you click the mouse button, the window will disappear and be replaced by an outlined transparent box that can be resized by moving the mouse around. Keep the mouse button held down while you stretch the lower right corner to the desired width and height you would like the window to be. When you release the button, the window will be redrawn in the size you have created.

Changing the width of a window will change how much information you will be able to see about a file while in text mode, or it will change how many file icons you will see across to a maximum of four. Changing the height will change how many rows of filenames or file icons you will be able to see in the window at any one time.

CHANGING THE WINDOW DEFAULTS

When you first double-click on any drive, the first window that is opened represents the root directory. When you close that directory window, the position and size of that window will remain as the setting for that drive. When you open a directory window again from that drive, the same position and size will be used. You can make this your default setting each time you boot up. See "Saving your default settings."

SCROLLING THE DIRECTORY

At the right of each directory window is a scrollbar and two arrows, one for scrolling up and one for scrolling down. The scrollbar's size in relation to the height of the window gives a visual idea of how many files are in the directory listing. The more files in the list, the smaller this scrollbar will be. The smaller scrollbar allows for more movement within its defined area. You can click on this scrollbar and while holding the button, move it up or down to move through your list of files. If you don't have enough files to more than fill the size of the window, then the scrollbar will completely fill its area and won't be able to move up or down.

If there is any space above or below the scrollbar, you can click in these regions to move your directory listing up or down a page at a time. A page in this case refers to the number of rows of files or file icons fitting into the window.

The position of the scrollbar within its defined area also gives you a rough idea of where you are currently located within the directory display. If the scrollbar is at the top then you are at the beginning of the directory listing and if it's at the bottom you're at the end of the listing. Anywhere in between the top and bottom is the approximate position you're at in your file listing.

NATIVE MODE PARTITIONS

If you have one or more of the CMD devices and have used native mode partitions from BASIC, then you'll quickly appreciate the functionality of these partitions while using the Dashboard. It's easier to navigate around within your native partitions in Wheels because you can point and click on the subdirectories in order to access them. Native partitions also permit better organization of your files while maximizing the available space in the partition.

1541 and 1581 disks have one main directory. In a native partition the main directory is known as the "root" directory. You can place files in this root directory and work from it just like you would any other type of disk directory. One difference is you can have as many as 2,040 files in this directory. It would be unwise to place this many files in the directory, however the capability is there if you need it.

Within this root directory, you can create branches to other directories. These would be filenames representing what's known as subdirectories. Normally, when you double-click on a filename, the Dashboard makes an attempt to load and run that file. But if you double-click on a subdirectory name, the Dashboard will instead open up an additional directory window containing that subdirectory. Within this subdirectory, you could have more files and/or subdirectories. Even though your files show up in different subdirectories, they are all still within the same partition.

THE SYSTEM DIRECTORIES

Remember the GEOS deskTop and the area at the bottom of the screen known as the 'border area'? You could pick up a file icon and place it in this border area. When you did this, the icon would disappear from the main directory pad and reappear on the border. On your disk, there was actually a 256 byte sector where the deskTop could store as many as 8 directory entries. It would actually remove the entry from the main directory and place it within this border sector. From BASIC, you would no longer be able to see the filename in the directory, but from within GEOS you could see it on the deskTop's border and the deskTop could still access it like it would from the normal directory. If it was an application, you could double-click on it and run it from the border.

This border sector is still in use, however it's now known as the 'system directory'. The big difference is the system directory can be more than one sector in size now. In fact, it can have as many as 255 sectors even on a 1541 disk which means it can hold as many as 2040 files!

When an application is running and searching for a file, the operating system treats the system directory as though it's a part of the main directory. As a file search is taking place, the main directory is first searched, and then the search will continue through the system directory just as though it's one long directory. The Dashboard let's you view the system directory separately from the main directory in its own window just like any other directory. When using drive types such as the 1541, this allows you to organize your files in two separate directory windows from the Dashboard, but to also have them visible as though they were in one big directory outside of the Dashboard. You might organize your applications and fonts, for instance, in the system directory, while placing your data files in the main directory. Existing GEOS applications will place their data files in the main directory when they are created. New applications written for Wheels can create files in either directory.

OPENING A SYSTEM DIRECTORY

To open a system directory, click on the "directory" menu and select "open sys dir." A system directory will open up for the directory that is currently active. If only a drive icon is highlighted, the system directory that's attached to the root directory for that drive will open. If a directory is active in one of the directory windows, then the system directory that's attached to that directory will be opened.

You'll notice the system directory window has a different color than the main directory windows. This helps you to identify them on the screen easily. They also open up in a default size which may be different from the other windows. In text mode the window will show 8 filenames or in icon mode you'll see 2 icons. You can scroll through the system directory listing just like you would any other directory window as well as being able to move and resize the window

You can tell which directory a system directory belongs to because a system directory doesn't have its own disk name. It uses the same name as the main directory it's attached to. And it'll show the same bytes free message and, likewise, the fuel gauge will appear the same.

If, when you select "open sys dir," and there isn't a system directory already created for this directory, you'll be presented with a dialogue box asking if you wish to proceed to create a new system directory. This will happen on disks formatted from BASIC, or on newly created subdirectories in a native partition. A GEOS-formatted disk or one formatted in Wheels always has a system directory on it. When a new system directory is created on a disk that isn't GEOS-formatted, the disk will be converted to the GEOS format. The system directory is the main difference between the two formats. You can still use both types of disks from BASIC, however, always remember to never validate a GEOS-formatted disk from BASIC, unless you're using a CMD device. (CMD DOS in the FD, HD, and RL will properly validate GEOS files, whereas Commodore DOS in the 1541, 1571, and 1581 will not.)

SYSTEM DIRECTORIES WITH NATIVE PARTITIONS

Using native partitions has an additional advantage when using system directories. A subdirectory can share the same system directory as its parent directory. What this means is you can have a system directory attached to the root directory and any one or all of the subdirectories in the root directory can also use this same system directory. This allows you to place all your common files, such as applications, fonts, printer drivers, etc., into one system directory and organize other files such as your different types of data files into their own subdirectories.

One good example would be if you're the local computer club's newsletter editor and you're working on the newsletter each month. You could place GeoPublish and GeoWrite along with your fonts into the system directory. Then you could create separate subdirectories for each month's edition of the newsletter. This way, you can keep each month's data files separate, while only requiring one copy of GeoPublish and GeoWrite and all the fonts. In fact, you can keep creating additional subdirectories until you run out of disk space in that partition. Imagine the mess you'd have if you put all your newsletter files into one single directory. You'd have a hard time keeping track of which file belonged to which month.

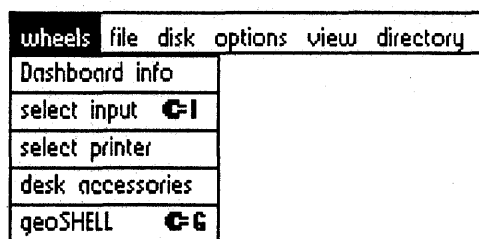
MULTIPLE SYSTEM DIRECTORIES

When you create a subdirectory, it won't have a system directory attached to it yet. You have to create the system directory as a separate operation through a menu selection. Open up a subdirectory and then click on the "directory" menu and select "open sys dir." You'll be given two options in the dialogue box that appears. You can use the same system directory as the parent directory, or your subdirectory can have a new system directory created for it. If you choose the latter, only this subdirectory and any subdirectories below it can have access to this particular system directory. Any subdirectory above it will not have access to this system directory. Likewise, this subdirectory will not be able to access any other system directory either, since any one directory can only access one system directory.

THE MENUS

Like most applications, the Dashboard uses the menu capabilities of the operating system. Along the top of the screen, you'll find the main menu. Clicking on various menus will invoke some of the different functions built into the Dashboard. Some of these functions may also be invoked through a keyboard control. When this is the case, keyboard equivalent will be listed next to the menu item as a reminder.

One important thing to remember when clicking on certain menu selections is to pay attention to the object currently selected on your desktop. Many of the menu items act on the currently selected object. For info about selecting objects, see "Clicking on objects." Menu items you'll access from the "file" menu will act on files you have selected in a directory window while menu items from the "disk" menu will act on the disk or partition currently represented by the highlighted drive icon.



The "wheels" menu

From within this menu are various system functions:

Dashboard info

This pops up a dialogue box displaying the Dashboard title and copyright information. Click your mouse anywhere on the screen to close the box.

select input

This lets you choose an input driver from the currently active directory. Only the keyboard is needed to choose a driver. Obviously you need an input device working in order to activate the menu, but you can also select this by pressing CMDR/i. When the dialogue box appears, just press "y,n, or c" to represent yes, no, or cancel as each available input driver is displayed.

Before activating this, you can press CMDR/a - CMDR/d to activate drives "A" through "D" if the desired driver is on one of those drives.

select printer

This lets you choose a printer driver from anywhere on your system.

desk accessories

This lets you choose a desk accessory from anywhere on your system.

geoSHELL

If you're a geoSHELL user, this menu item will take you right into geoSHELL provided geoSHELL can be found on your system.

wheels	file	disk	options	view	directory
	open				C-O
	info				C-Q
	duplicate				C-H
	copy				C-K
	rename				C-R
	delete				C-E
	print				C-P

The "file" menu

Before selecting one of these menu items, click on one or more files. The action you choose from this menu will act upon the selected file(s).

open

After clicking on a file, select this menu item to load and run the file.

info

Display a dialogue box containing information about the file(s).

duplicate

This will copy the selected file(s) within the same directory. It also allows you to choose a new name for the duplicate file(s).

copy

This will copy a file after presenting you with a dialogue box for choosing the destination directory.

rename

This will pop up a dialogue box asking you for a new name for the file(s).

delete

This will delete the selected file(s).

print

This will load and run the parent application of the data file you've selected and inform the application to print the file.

wheels	file	disk	options	view	directory
	open				C-O
	close				C-Z
	info				C-Q
	copy				C-K
	rename				C-R
	format				C-F
	erase				C-E
	validate				C-V
	swap				

The "disk" menu

Clicking on items in this menu will act upon either the disk or partition of the currently selected drive icon or the directory of the currently active window.

open

This will open up a directory window for the drive that is currently active.

close

This will close the currently active directory window.

info

This will pop up a dialogue box displaying information about the current disk or partition that represents the selected drive icon or directory window that is currently active.

copy

This lets you choose a destination disk or partition to perform a whole disk copy with the source being the currently active disk or partition.

rename

This lets you rename the currently active disk or partition.

format

This will let you format the currently active disk or partition. A dialogue box will appear asking you for a disk name and will also allow you to cancel the operation if you choose not to proceed.

erase

This will erase the currently active disk or partition. You'll first get a dialogue box asking if you wish to proceed.

validate

This will validate the currently active disk or partition.

swap

This will pop up a dialogue box that lets you choose a drive position to swap with.

wheels	file	disk	options	view	directory
			copy settings		
			function keys		
			save defaults		
			*DA color		
			BASIC		

The "options" menu

This menu pertains to various settings within the Dashboard.

copy settings

This lets you change some of the settings used for disk copying and file copying.

You can choose to have the disk copier copy each and every sector when copying disks or only copy those sectors that are actually in use, as indicated by the block allocation map on the source disk. When a disk have very little data on it, this makes the copying go much quicker.

The file copy options are "Ask, Skip, and Replace, plus Refresh dest. window." If you choose "Ask," you'll get a dialogue box whenever the filename you're copying already exists on the destination drive. "Skip" will force duplicate files to be skipped and not copied, while "Replace" will delete the duplicate file prior to copying the file. If "Refresh dest. window" is turned on, the window you're copying files to will be redrawn so the copied files will appear right away when the copying is finished. If this is turned off, you won't see the files until the next time you active the destination window. If you're using an accelerator such as the SuperCPU, you might want to leave this setting turned on since the time required to redraw the windows is negligible. For stock speed machines, the delay can sometimes be annoying.

function keys

Click on this to pop open a submenu that will pop up one of four different dialogue boxes that lets you change your function key settings. These settings affect how your directories will appear when opening them using the function keys. You can also configure how the mouse clicks will open up directories.

save defaults

Use this to save your current settings as defaults for the next time you boot up.

DA color

Some desk accessories don't support color. When you open a DA on the Dashboard's screen, the colors might make the DA look strange. Toggle this feature on or off with this menu item. When off, the Dashboard will switch to a monochrome appearance while the DA is running.

BASIC

This option will allow you to exit the Wheels environment cleanly and return to BASIC.

wheels	file	disk	options	view	directory
					display mode
					single window
					toggle files <input checked="" type="checkbox"/>
					reset Dashboard

The "view" menu

This menu contains various items that affect what you see on the Dashboard.

display mode

This lets you choose between text mode and icon mode for the current drive icon or directory window.

single window

Selecting this will open subdirectories into the same window instead of opening up an additional window.

toggle files

If no files are selected in the current directory window, then clicking this will select all files. If you've already selected some files, this will then toggle the state of your files. Selected files will be deselected and files that are not selected will become selected.

reset Dashboard

Click on this to reset the Dashboard screen back to its default state. All windows will be closed and drive icons will return to their default positions.

wheels	file	disk	options	view	directory	
					change dir	C-S
					make subdir	C-M
					open sysdir	C-Y
					open parent	C←
					open root	C/

The "directory" menu

This menu deals with items relating to directories.

change dir

Use this to open up a dialogue box allowing you to change partitions or subdirectories within the current drive, disk, or partition. This works on the FD, HD, RL, and native ramdisks.

make subdir

This lets you create a new subdirectory within a native partition on a CMD device or within a native ramdisk.

open sys dir

This will open up the system directory for the currently active disk, partition, or subdirectory.

open parent

If you're currently working within a subdirectory and not the root directory, this will open up the parent directory for that subdirectory.

open root

This will open up the root directory for the native partition or native ramdisk you're currently working in.

SETTING THE SYSTEM CLOCK

At the upper right of the Dashboard screen is the clock showing the current setting. If the clock is currently set wrong it will flash a message saying "set clock." Whether it says this or is displaying a valid date and time, you can click your mouse in this area and two dialogue boxes will appear allowing you to change the current date and time.

The first dialogue box asks for the date and the second one asks for the time. You'll see the current setting displayed in the dialogue box and the cursor will be blinking in the spot where you enter the new date. A date is already entered for you to help show the format needed. You must enter six numerical digits altogether, representing the month, day, and year. For example, if you wish to set the date to April 20, 1998, you would enter "042098" without the quotes. Enter the desired date and hit RETURN. If you change your mind, there is a CANCEL button allowing you to exit the clock setting sequence without making any changes.

After setting the date, the time dialogue box appears. This is very similar except that you enter the time instead of the date. In this case, 4 numerical digits and one letter is expected. The 4 digits represent the hour and minute and the letter will be either an "a" or a "p" for AM or PM. Let's say you want to enter the time as 6:08 PM. You would enter "0608p" without the quotes. Hit return and the new setting will appear in the upper right of the Dashboard screen.

THE FILE COPIER

COPYING FILES

Copying files with the Dashboard is simple. Just select the file or files you wish to copy (see "Clicking on objects") and then click once and hold the button on any of the selected files. A ghosted icon will appear that you may drag to the destination directory window where you would like the file(s) to be copied. If you only have one file selected, you'll see the icon for that file as you move the mouse to the destination window. If you have more than one file selected, then a special "multi-file" icon will be shown instead.

CHOOSING THE DESTINATION

Most of the time, you'll be copying files from one drive to another. As an example, let's say you have selected a group of files from drive A and you wish to copy them to drive B. You can do this one of two ways, either by dropping the file icon directly onto drive B's drive icon, or by dropping the icon into a directory window that has been opened for drive B.

If you dropped the icon directly onto a drive icon and that drive happens to be a CMD device, the files will be copied to the root directory of the partition the drive icon is currently representing. If you want the files copied to one of the partition's subdirectories, then you will have to first open the subdirectory into its own window prior to selecting the files you wish to copy to that subdirectory.

OVERWRITING EXISTING FILES

You may freely copy files from one directory window to another, however, when a file of the same name is on the destination directory the Dashboard will place a dialogue box on the screen with three options. At this point, you can replace the file, skip it, or perform the copy with a new filename. If you choose the latter, the existing file on the destination will remain unchanged and the file being copied will receive the new name. You may also choose to cancel the entire operation and any other files you have also selected will not be copied.

When a file is copied to a destination directory, the system directory for that destination is also checked for a file of the same name since the system directory is an extension to the main directory, and it's not wise to have two files of the same name in the same directory.

If you don't care to have this dialogue box appear, you have the option to change it to always skip or always replace the file without asking first. This setting can be changed from the "options" menu, called "copy settings". See "The Menu" and also "Saving your default settings" if you wish to use the new setting each time you boot up.

MOVING FILES

When you copy a file from the main directory to a system directory on the same disk, the file is not actually copied, the directory entry is 'moved' to the system directory. The filename will disappear from the main directory and reappear in the system directory. This prevents two files of the same name from appearing in the directory since the main directory and the system directory are seen as one long directory.

There are other times when you might copy a file and find the file was instead 'moved' to the destination instead of being copied. This will happen with native partitions when you pick up a file from a directory's system directory and drop it onto another main directory that uses this same system directory. You may have forgotten the two main directories share the same system

directory. However, if you copy a file between these two main directories, a copy will occur since the two main directories are not shared, only the system directory is shared between them.

There's one instance where you'll get caught into having two files of the same name, and this can only happen in a native partition. Let's say you have two directories sharing the same system directory and both of them have a file with the same name. If you move the file from one of these directories to the system directory, the other directory in question will now have a file of this name in it's main directory as well as it's system directory. A case like this is unavoidable by the operating system since it would take way too much time to check the entire partition for all the directories using this same system directory. You'll just have to watch out for this yourself. Organization is the key to preventing it. If it should happen, then you can either rename the file in the main directory or delete it. When renaming or deleting files, the first file found with that name is the one acted upon.

FORCING A MOVE INSTEAD OF A COPY

If you hold down the CMDR key while dropping the file icon onto the destination, you'll force the file to be moved instead of being copied. You can only do this when the destination is in the same partition as the source. This allows you to move files from one subdirectory to another. The operating system will double check this and if a move isn't allowed (such as when copying to another drive or partition), the file will automatically be copied instead.

SINGLE-DRIVE FILECOPYING

On a floppy drive, you can force the operating system into doing a single drive copy. This allows you to copy a file from one disk to another using the same drive. You may have a need to do this if you only have one drive of a specific type, such as the 1581.

If you drop the file icon onto the drive icon of the same drive, you'll force the single drive mode. The operating system will prompt you to insert the source disk and the destination disk as required.

Another way to copy to a different disk using the same drive is to first insert the desired destination disk and double click on the drive icon to open the disk into a directory window. Then insert the disk containing the file you wish to copy and double click on the drive icon again. Even though you're using the same drive, a different window will open since this is a different disk. Now, pick up the file(s) you wish to copy and drop them onto the destination window. Since these windows represent two different disks on the same drive, you'll force the operating system into it's single-drive copy mode and you'll be prompted to insert the source and destination disks as required.

On the ram devices and the CMD devices without removable disks, this mode isn't needed nor is it used since dropping the file icon onto the drive icon in this manner will copy to the root directory of the partition the drive icon represents. Also, since you can freely open different windows on the same device, the directory represented in the window is always available on the device. This is the case with devices such as the CMD HardDrive or RamLink. With the CMD FD Drive, since it uses removable media, dropping a file icon from the FD onto the FD drive's icon will force a single-drive copy mode just like any other floppy drive and will request you to insert the source and destination disks. If you're using an FD and want to copy between partitions or subdirectories on the same disk, be sure to open up the two different directories into separate windows first to avoid the single-drive mode with it's additional dialogue boxes.

CHOOSING A DESTINATION

We've seen how to select a destination when copying files, but this can also be accomplished by using a menu selection. This avoids having to open up through a series of windows to get to the destination when it's not already open. After selecting the files you wish to copy, click on the "file" menu and then select "copy". This will open up a dialogue box allowing you to select the destination drive along with the destination subdirectory or system directory, if desired.

This method does not allow a single drive to be used for copying files between two different disks, however. For that you must invoke the single drive filecopier as explained in "Single drive filecopying."

THE DISK COPIER

THE TWO DRIVE DISK COPIER

Copying disks is as easy as picking up a drive icon and dropping it onto another drive icon. Since this action can also be used for swapping drives, you'll first be prompted with a dialogue box asking which operation you wish to perform. Select "Copy drive A to B" and then click "OK" to proceed. The dialogue box may not say "A to B", but will actually specify the two drives you've acted on. In this case, "A" is the drive icon you picked up and "B" is the drive icon you dropped "A" onto.

The drive icon you pick up is the source drive and the disk or partition represented by that drive will be copied to the destination drive or partition represented by that drive, which is the drive you dropped the icon onto. Provided the two drives or partitions are of similar types, the copying will proceed until finished.

The operating system's disk copier is not a highly specialized one and is made to be rather flexible, and as such, it requires the destination disk to already be formatted. If it's not formatted, you'll be prompted by a dialogue box asking if you would like to format the disk first. If so, just click on "OK" and the disk will be formatted, after which the copying will take place.

COPYING BETWEEN PARTITIONS

If you wish to copy an entire disk to a particular partition, open up the destination partition into it's own window and, instead of dropping the drive icon onto another drive icon, pick it up and drop it into this window you just opened. Make sure there are no files or subdirectories you wish to keep in the destination, because they'll all be overwritten by the contents of the source disk.

Since the partition you wish to make as the source disk might not be the one currently assigned to the drive icon, you can still copy it to another partition or disk, by first having it's directory (root directory if native) opened up into a window and with the window selected, choose "copy" from the "disk" drop-down menu. You'll be presented with a dialogue box which will allow you to select the destination for the copy. Choosing "copy" from the "disk" menu can be used with any drive, not just the partitionable devices.

THE ONE DRIVE DISK COPIER

If the source drive is a floppy, you may invoke the single-drive disk copier from the "disk" drop-down menu. Select "copy" and a dialogue box will be presented for selecting the destination. In this box, select "SINGLE DRIVE" and then click "OK" to proceed. The operating system will prompt you for the source and destination disks as required. The source disk is always the one currently selected and must be in the drive at the time you begin the selection.

Optionally, you can first open up the desired destination disk into a window and then remove the disk and insert the desired source disk into the same drive. Then double-click on the drive icon to open the source into its own window. This assigns the new disk to the drive icon. Then simply pick up the drive icon and drop it onto the destination window. The operating system will proceed to prompt you for the source and destination disks as required.

SPEEDING UP DISK COPYING

If you have extra ram expansion available that isn't currently in use, the operating system will use it when copying disks. The more ram it's able to make use of, the faster the copying will be. With extra ram to use, larger chunks of data can be read in from the source disk before switching to the destination to write the data. This is especially helpful when using the single-drive mode since fewer disk swaps will be required.

DISK COPY COMPATIBILITY

Before the disk copying proceeds, the source and destination are checked for compatibility. For instance, if the source is a 1581 disk, 1581 partition, or a 1581 ramdisk, the destination must also be one of those 3 types. The following table outlines the compatibility between the various disk device types:

Source types	Allowable destination types
1541 or RAM1541	1541, 1571 w/single-sided disk, 1571 w/double-sided disk*, RAM1541, RAM1571**
1571 w/single-sided disk	1541, 1571 w/single-sided disk, 1571 w/double-sided disk*, RAM1541, RAM1571**
1571 w/double-sided disk or RAM1571	1571 w/double-sided disk or RAM1571
1581, RAM1581, FD w/1581 partition, HD w/1581 partition, RL w/1581 partition	1581, RAM1581, FD w/1581 partition, HD w/1581 partition, RL w/1581 partition
1581 w/FDNative disk, RAMNative, FD w/native partition, HD w/native partition, RL w/native partition	1581 w/FDNative disk, RAMNative, FD w/native partition, HD w/native partition, RL w/native partition

* The destination disk will still be double-sided when finished.

** The destination ramdisk will still be double-sided 1571 type

Note when copying native partitions:

Since a native partition or ramdisk can be of various sizes, the source and destination are checked for compatible sizes. If the source has the same number of tracks or less than the destination, the copying will proceed since the source will fit entirely onto the destination.

However, if the source is larger than the destination, the tracks that won't fit will be tested to see if they contain any data. If this area of the source is empty, the copy will still proceed, but if it contains any data, then you will be informed the copying cannot proceed. Instead, you will have to use the filecopy functions to copy the individual files.

SELECTING COPY FROM THE MENU

If you select "copy" from the drop-down "disk" menu, a dialogue box will appear allowing you to choose a destination drive. You can use this mode instead of dropping a drive icon onto another drive icon. The advantage here is that you can also select a destination partition even if the partition's window is not currently open on the Dashboard screen.

Another benefit of this method is it allows you to open up a partition into a window and then use that as the source instead of the drive icon. You can copy from the currently active partition to another partition or another disk.

The one thing you can't do when you choose copy from the menu is copy from one disk to another disk using one drive. For this you must initiate the single drive copier as explained in "The one-drive disk copier."

DISK COPY OPTIONS

Since the disk copier built into the operating system requires the destination disk to be formatted, it's not necessary to copy every track and sector when doing a whole disk copy. In other words, there's no advantage to copying a portion of the disk that doesn't contain any data. This only wastes time. However, you have the option of either method. You can copy the entire disk or just the portions in use. The selection for this option can be found in the "options" menu. Drop down the menu and select "copy options". See "Saving your default settings" on how to make your choice the default selection each time you boot up.

SWAPPING DRIVES

When GEOS was first created, it was basically a two drive system. The main applications written for it only worked with drives A and B. Then when GEOS 2.0 came along, a third drive was added as drive C. However, the applications weren't upgraded to take complete advantage of this additional drive. Instead, a feature known as drive swapping was put into use. Unfortunately, since many old applications are still in use today, we must still support this feature.

The act of swapping drives does nothing more than switch the device numbers between the two devices, as far as the user is concerned. In other words, if you swap drive A with drive D, what used to be drive A will now be drive D and vice-versa.

Nowadays, there is no reason why a newly written application can't be run from any of the 4 available drives and be able to access its data files from any of the 4 drives as well as any partition or subdirectory. The new operating system makes it easy for a programmer to access any drive, partition, or subdirectory. But if you find you absolutely must swap two drives, just pick up either one's drive icon and drop it onto the other one. A dialogue box will appear asking you if you want to swap drives or copy disks. Select "Swap drives A and B" and then click "OK" and the operation will proceed. The dialogue box will actually specify the two drives you are swapping, not necessarily A and B. The two icons will exchange places on the screen and their device numbers will also be switched. If you have any windows currently open that are assigned to either of these two drives, their assignments will also be changed.

If one of the drive icons is partially or completely covered by a directory window, you may

have to reposition the window to uncover the icon. Or, you can also select one of the icons and then select "swap" from the "disk" drop-down menu. You'll be presented with a dialogue box asking you which drive you wish to swap with. Simply click on the desired drive and then click "OK" and the swap will proceed. If you change your mind, just click on "CANCEL". One advantage to selecting swap from the menu is that it allows you to swap with a non-existent drive.

YOUR DEFAULTS

Various settings can be changed while using the Dashboard. Different people have different tastes and this is why the Dashboard allows you to alter the look and feel to suit your own needs and tastes. The following settings are adjustable from within the Dashboard:

- desk accessory color on/off**
- drive icon locations**
- root directory window sizes and locations**
- directory display modes**
- function key settings**
- copy settings**

Anytime you change these settings, they are automatically saved in a temporary memory location so as you run an application and then exit it to return to the Dashboard, your same settings will be retained. When you shut down your system, you'll lose any settings you have changed unless you save your settings to your boot disk.

SAVING YOUR DEFAULT SETTINGS

If you wish to save your default settings, activate a directory that is holding the copy of the Dashboard you wish to save your settings to. Then click on the "options" menu and select "save settings." When you save your settings, they are written directly into the file containing the Dashboard.

Let's say you've got a copy of the Dashboard on a particular disk. Insert the disk into one of your drives and then double-click on that drive icon so it opens the directory up into a window and makes the window active. Scroll through your directory listing to make sure the Dashboard is there and then select "save settings" from the menu. Your settings will be saved to that copy of the Dashboard.

RESTORING THE DASHBOARD SCREEN

Sometimes you may have numerous windows open and you just want to close everything and start over with a fresh screen. If you wish this to happen, click on the "options" menu and select "restore Dashboard." This will force all windows to close and the screen to be redrawn with the drive icons reappearing in their default locations according to the way your settings are saved. All your defaults are reloaded from the Dashboard file on disk.

THE FUNCTION KEYS

In the Dashboard, the function keys are used for changing the way a directory is displayed. By default, when you use the mouse to open a directory window, you'll see every file displayed. But you can also use any of the function keys to open a directory window. If a drive icon is currently

selected that you wish to open, just press one of the four function keys and however that particular function key is programmed will determine how your directory is displayed.

As an example, F5 comes preprogrammed to display only APPLICATION DATA files. If you had pressed F5 to open the directory, only data files would be showing. If the directory window was already open and active, pressing F5 would alter the display and show the only the data files.

Pressing F1 will always display every file in the directory. Therefore, when you have used a function key to show a selective directory and wish to view all the files once again, just press F1.

The method used for opening a directory window will remain in effect until you either change it with a different function key press or close the window.

ALTERING THE FUNCTION KEY SETTINGS

If you wish to alter the way a function key works, just press a SHIFT key along with the function key you wish to alter. In other words, to change the setting for F5, press F6 (shifted F5). A dialogue box will appear containing all the settings you can change.

The only deviation to this is with the F1 key. Pressing F2 doesn't provide for changing the F1 key, but instead allows you to change the way your mouse will open up directories. By default, using the mouse to open up a directory will display every file. If you wish to hide certain types of files, simply turn them off in the dialogue box that opens up when you press F2.

In the dialogue box that appears, you'll see all the different filetypes that are used in Wheels as well as in GEOS. Simply click on any of the filetypes to turn it on or off. At the right of the dialogue box are three buttons that allow quick changing. These are "All, None, and Toggle." Clicking on "All" will select all the filetypes just as if you selected each of them with your mouse. Clicking on "None" will turn all of them off. And "Toggle" will change each setting opposite of it's current setting.

In this dialogue box, you can also choose to display only those files that have their time/date stamps falling within a certain range. There is a setting for both "To" and "From." When you select "From", only the files that have a date and time that is either the same or later than the date and time showing will be displayed. If you select "To", then only the files that have a date and time up to and including the date and time showing will be displayed. If both are selected, then only the files that equal or fall in between the two dates and times will be displayed.

When either "From" or "To" is selected, non-GEOS files will not be displayed since they are assumed to not have valid time stamps.

If you wish to change the date and time setting for either "From" or "To", simply click on the date/time display that is showing next to either "From" or "To." You'll get two more dialogue boxes that allow you to change the date/time settings. These are very similar to the dialogue boxes that let you change your system clock when you click on the Dashboard's clock display.

To the right of "From" and "To" are two special selections. You'll see two check boxes along with the word "TODAY". If either of these is selected and the corresponding "From" or "To" is also selected, then the date and time showing is overridden and only today's date is checked when displaying files. Any file created or modified today will be displayed, provided it's filetype is also selected. Keep in mind that selecting "TODAY" only sets the date and time that is checked. You must also select "From" or "To" to make use of it.

MODIFY MODE

At the upper right of the dialogue box is a special selection. This says "Modify." When this is selected, all the other selections are completely ignored. Selecting "Modify" will cause every file to

be displayed including empty directory spots. Empty directory spots are created when deleting a file. While a directory window is in "Modify" mode, it's locked into icon mode and cannot be switched to text mode.

Modify mode allows you to move file icons around within the directory. There are several ways to do this. You can select one file at a time and move it to another location by clicking once to highlight a file, pause a moment and then click again and hold the mouse button down. While still holding the button, drag the file icon to the location where you want to move it and let go of the button. If you drop the icon onto an empty spot, the file will be moved there. If you drop it onto another icon, the two icons will exchange places.

If you select more than one file and then pick up a "multi-file" icon, then modify mode works a little bit differently. Beginning with the location where you drop the multi-file icon, the Dashboard will look for the first empty spot and place the first of the multiple files in that position. The next file will go into the next empty spot found and so on until no more empty spots are available. If there's still more files remaining to be moved, then new positions will be created at the end of the directory unless the directory is all filled up.

Relocating files in this manner will only work if the icon you wish to move and the location you wish to move it to are both visible in the directory window without scrolling it to the desired position. Obviously, you can't pick up an icon and scroll the directory at the same time. However, you can still accomplish the same thing by first scrolling to the location where you want to move the icon and then click on the spot while pressing the CMDR and LEFT-SHIFT keys together. This will have the same effect as if you dropped an icon on this spot.

Toolbox 64

INTRODUCTION

Remember the old Configure program in GEOS 2.0? The Toolbox is the new replacement for Configure. The Toolbox is a very important part of Wheels. It allows you to configure and to access 4 drives within your operating system, designated as drive devices "A" through "D." There must be a copy of it on your bootdisk, since the operating system specifically looks for it during the bootup process.

In GEOS 2.0, Configure was an AUTO-EXEC file and was automatically loaded and run just like any other AUTO-EXEC. But the Toolbox is an APPLICATION file and isn't loaded during that part of the boot process. Instead, the operating system specifically looks for it and runs it before the AUTO-EXEC's are run.

If you load and run the Toolbox from the Dashboard after you've completely booted up, you'll have a user interface to work with allowing you to change your drive and ramdisk configuration as needed. This also allows you to save your ramdisk configuration so your ramdisks will be installed automatically during bootup.

BOOTUP PROCESS

Normally, you won't see the Toolbox appear on your screen while booting (except for the very first time), but it's still busy getting your system up and running with all the correct device drivers in place and operating properly. This even includes your input driver (mouse) and your printer driver. In GEOS 2.0, the deskTop always installed these drivers during bootup. The problem with this was an AUTO-EXEC program couldn't make use of the mouse for user input, if need be.

The first thing the Toolbox does during bootup is to test what type of ram expansion you have on your system. It then installs the correct routines into the operating system for you. If you don't have any one of the allowable ram expansion devices on your system, you'll be presented with a dialogue box informing you the boot process can't proceed any further.

During bootup, the Toolbox checks to see what kind of 'real' disk drives you have on your system having device numbers between 8 and 11. If any are found, these will be installed in their respective positions as drives A through D. Following this, if you have any ramdisks configured, they'll be installed into their drive positions as long as a real drive isn't already occupying the spot. Ramdisks are not automatically formatted like they were with the old Configure, unless you specifically make the setting in the Toolbox to format them during bootup. This allows the battery-backed ramdisks to retain their contents each time you boot up.

RAM DEVICES

In GEOS 2.0, you had to make sure you had the correct Configure program on your boot disk in order to have any ram expansion recognized for use with GEOS. There were different versions of Configure for each of the different types of ram expansion units. GEOS was originally designed to use the 17xx series ram expansion units, but later on came the geoRAM and a different setup was required. You couldn't use the same boot setup with either REU. As time went on, more innovative

hardware appeared and it was important for the new hardware to support GEOS, so new versions of Configure kept showing up. Not a really big deal, you just had to keep yourself organized as to which boot disk setup belonged to which ram expansion unit. Those problems are all behind us now with the new Toolbox.

ALLOWABLE RAM EXPANSION DEVICES

There are several types of ram expansion devices you can use with your system. At least one of the following is mandatory:

- 1700, 1764, 1750, and any 1750 clone
- 1750XL and expanded 17xx series REU's
- geoRAM and expanded geoRAM's
- BBGRam's of any size
- SuperCPU/SuperRAM with 1 to 16 megs
- RamLink or RamDrive DACC partition at least 128K or larger

SELECTING YOUR DEFAULT RAM DEVICE

During bootup, your system is checked to determine what type of ram expansion you have available. If one of the allowable ram expansion types are found, it will be properly installed for you. If more than one type is found, you'll be presented with a dialogue box during the initial bootup allowing you to pick the one you would like to use. At this point, you also have the option of saving this choice so the same device is always used from there on.

It's actually possible to have as many as 3 different types of ram expansion on your system at one time. Only one may be used by the operating system, though. You could have a CMD SuperCPU with a SuperRAM card and a RamLink with a DACC partition plugged into it. Plugged into the RamLink, you might have a 1750. If the Normal/Direct switch is set to Direct, the 1750 will be seen as a 1750 in addition to being a part of the RamLink's own ram. This would be a total of 3 different types of ram expansions.

CHANGING YOUR DEFAULT RAM DEVICE

If you have more than one type of ram expansion on your system, and you have chosen one of them to be your default each time you boot up, but you want to start using a different one, you can change the next time you reboot. After loading the "STARTER" program, immediately press the CMDR and LEFT-SHIFT keys and hold them while the title screen is displayed. Keep holding them until a dialogue box appears.

This dialogue box is the same one that appeared the very first time you booted up Wheels. It will display the different ram expansion types it has found on your system. The ones that are listed in an italicized typeface are not available. Just select the one you wish to use and hit RETURN. At this point, the mouse driver hasn't been turned on, but you can use the number keys to make your selection and the RETURN key will activate the OK button.

If when you boot up, your default ram expansion unit is not found on the system, this dialogue box will automatically appear anyway.

ACCELERATORS

Wheels is a graphical-based operating system and therefore the applications you use will appear much slower on the screen than an equivalent program running from BASIC on a text screen.

Putting any kind of data on a graphics screen takes time. The operating system generates the characters you see as little graphical bitmaps. A text-based program can put text on a screen faster because of the specialized hardware contained inside your computer, but a graphical-based program draws each character pixel by pixel. One single byte stored to screen memory will get a normal text-based character on the screen, while the same size character drawn in graphics mode requires 64 dots to be calculated and drawn. This is the reason graphical-based programs seem so much slower than text-based programs.

No program can benefit from a faster computer more than a graphical-based program. And the Wheels operating system is no different. You'll really appreciate the difference an accelerator can make to your system.

SCHEDLER'S TurboMaster

The first popular accelerator for the 64 was the TurboMaster by Schnedler. This piece of hardware speeds up your 64 about 4 times, but they are becoming hard to find as they have been out of production for several years now.

The presence of the TurboMaster is automatically detected during bootup and will greatly enhance your system if you have one, or are fortunate enough to find one.

CMD's SuperCPU

An even better choice for your system is the SuperCPU from Creative Micro Designs. Like the TurboMaster, this accelerator is also fully supported by the operating system and these units are still available from the manufacturer. The advantage the SuperCPU has over the TurboMaster is speed and expandability. It runs about 5 times faster than the TurboMaster and also allows you to add additional ram to your system inside the SuperCPU with the addition of an optional SuperRAM card.

The Toolbox can take advantage of this additional ram by managing its use by any application that might wish to use it. In order for the system to use this ram, it must be chosen as your default ram expansion device during bootup. See section x.x.x, "Selecting your default ram device".

INPUT DRIVERS

YOUR DEFAULT INPUT DRIVER

During bootup, the Toolbox will check your boot disk for the first input driver it finds. This will be the driver it'll install. If no driver is found, then the default driver built into the operating system will be used. This default driver is a 2-button mouse driver for the 1351 mouse.

If you don't have the correct driver for your input device, or the correct input device for your driver, you'll have a difficult time using your system since most everything is based on being able to point and click.

Once your system is up and running, if the mouse pointer fails to respond, chances are you have the wrong driver installed. Refer to "Installing Drivers" in section 5.

USING OLDER INPUT DRIVERS

The input drivers supplied with your Wheels system are all new and won't work on your older GEOS 2.0 system. However, you can still use your older GEOS 2.0 input drivers with your new system if you so desire.

The new system leaves a little extra programming room for the input driver, and as time goes

on, you may see additional input drivers being created to meet increasing needs of the users.

USER INTERFACE

Once you're booted up and operating from the Dashboard, you can double-click on the Toolbox 64 icon or file entry from the directory window of your boot disk or any other disk containing Toolbox 64. When the Toolbox is run this way, you're presented with a user interface allowing you to perform certain functions needed to setup your system or change your drive configuration.

CURRENT CONFIGURATION

On the main Toolbox screen you'll see 4 boxes in the upper half of the screen and 4 boxes in the lower half. The 4 upper boxes represent your current drive configuration. Each box contains a little bit of information about the drive in that spot. If you click on one of these boxes, you'll be presented with a dialogue box permitting you do take further action concerning the drive box you just clicked on.

SAVED CONFIGURATION

On the bottom half of the main Toolbox screen are 4 boxes representing your "saved" configuration. The Toolbox attempts to create this configuration for you during bootup. As long as the devices saved in this configuration are present the next time you boot up, they will be installed for you.

Each of the 4 boxes shows you what you've chosen as your default boot configuration. If it's a ramdisk, then this ramdisk will be installed for you during bootup. If it's a real disk drive, then certain actions can take place with this drive during bootup. For instance, if it's a CMD HardDrive, the partition listed will be the partition that will first be seen for that drive when the Dashboard appears on the screen. The same thing for a RamLink. This is how you can have default partitions upon bootup.

CHANGING YOUR CONFIGURATION

It's important to know your system, especially the drives you have connected to your computer. What are their default device numbers when you first turn them on? What type are they and what kind of disk do they take?

The operating system allows you to have as many as 4 drive devices running at the same time, however, sometimes this isn't enough. For this reason, we must occasionally change our configuration by being able to switch a drive in and out of the system.

REMOVING A DRIVE

If you wish to change your drive configuration, you might have to first remove a drive from the system if it's located in the place where you wish to install another drive or ramdisk. To remove a drive from your system, open the Toolbox, and from the upper half of the screen, click on one of the 4 drive boxes from the Toolbox's user interface. In the dialogue box presented to you, select "Remove drive." This will remove a real drive or a ramdisk. If the device is a real drive, it's best to turn it off at this point so it doesn't interfere with the normal operation of Wheels. If the drive is the internal 1571 in a 128D, the Toolbox will alter its device number to 24 so that it's out of the way of any normal serial bus activity.

If the device was a ramdisk (not a RamLink partition), you'll have the option of deleting the

ramdisk entirely or saving it for later use. If you choose to delete it, the space it occupies will be freed up for use by either another ramdisk or an application requiring additional ram expansion. If you choose to save it, the space it occupies will be preserved and the system won't allow another application to use that area. You'll have the opportunity to reinstall the same ramdisk at a later time. See "Installing a ramdisk".

INSTALLING A DRIVE

Installing a drive for use on your system is easy with the Toolbox. From the Toolbox's user interface, you'll see the drive devices currently in operation. If you're currently using 4 devices, all 4 spots will be occupied and you won't be able to install another drive. If one of the 4 spots is available, you'll see [no drive] in that position. You can install another drive at that location. Just click on that box and a dialogue box will appear. In this box, select "Install drive."

If you have a drive already turned on having the same device number belonging to that drive position, the drive will automatically be installed. So, if you know for sure the drive has the correct device number when it's first turned on, you can turn it on before clicking on "Install drive."

If the drive isn't numbered correctly, leave it turned off. Just click on "Install drive" and another dialogue box will appear asking you to now turn the desired drive on. When you see the list of drives currently available, click on the desired one and it will be installed and placed into the desired position.

It's important to know that the Toolbox will search for any drives numbered between 8 and 24, except for 14, and will present you with a list of drives to pick from. Device 14 is not checked because it's reserved for the Xetec Super Graphics Gold printer interface. For this reason, be sure not to number any drive as 14. Locations 26-29 aren't searched because the drives you currently have running are temporarily relocated to these positions to avoid interfering with the drive you're just now turning on. They'll be put back to their correct positions after the new drive is installed. This precaution is taken because it's not uncommon to have more than one device numbered the same. One of them either has to remain turned off or have its device number changed. Thus, device numbers 26-29 are merely temporary device numbers reserved for this purpose. Device number 30 is reserved for the CMD HD. If the HD doesn't have its operating system installed yet, it will default to device number 30. Device number 24 is reserved for the 128D's internal 1571 for when you wish to have it removed from the system. Device number 23 is reserved for the RamLink or RamDrive when removing it from the system. Neither the 1571D or the RamLink/RamDrive have on/off switches, so when removing these devices, the Toolbox simply renumbers them with device numbers that will be ignored by the system. See "Removing a drive" for more info.

THE SPECIAL 1581 NATIVE DRIVER

A new innovation included with your Wheels system is the ability to use your 1581 drive with 800K disks that have been formatted for use in the CMD FD with a native partition. There are some advantages to this. You can easily share the disk between your 1581 and an FD if you have one. You'll have the advantage of using the native style partition complete with true subdirectories. And if you take advantage of the native ramdisk capability of your system, your 1581 can be used to make whole disk backups of your native ramdisk, or to quickly fill it by doing a whole disk copy from your 1581 native disk to the native ramdisk.

Unlike the FD drive, the 1581 can only be used in one mode or the other, with a 1581 formatted disk or with a native formatted disk. You must use the Toolbox to install either 1581 mode or native mode or to switch between them.

SWITCHING BETWEEN 1581 AND NATIVE DISKS

To activate the native driver, if you already have a 1581 up and running, open the Toolbox and click on the box representing your 1581 drive in the upper half of the screen. In the dialogue box that appears, click on "Remove Drive." Don't do anything to your 1581. Leave it turned on and when the next dialogue box appears, click on "Install Drive." The Toolbox will recognize that you have a 1581 drive in this spot and a dialogue box will prompt you to choose the desired mode in which you wish to operate. You now have a choice of using "True 1581 disks" or "FDNative 800K disks." Just select the FDNative mode and the correct driver will be installed for you.

It doesn't matter if you don't have any FDNative formatted disks because you can format them correctly right in your 1581! If you choose to format a disk, either from the Toolbox or the Dashboard, the disks will be formatted with one native partition large enough to fill the whole disk.

This disk can be used just like you would use it in an FD drive. You can add subdirectories to it and keep better organization of your files as well as making better use of the available space. You'll notice there is less space available on a native mode disk than on a 1581 disk, however it's rare anybody ever fills up a 1581 disk because they tend to use different disks for different projects. With the native mode disk, you can put different projects into different subdirectories and make more efficient use of the available disk space.

If you wish to use a disk that was originally formatted and partitioned on an FD drive, you need to be made aware of a few limitations. The 1581 Native driver can't switch partitions if the disk has more than one partition. It can only use the first partition on the disk and it must be a native partition. Presumably, you would want only one partition to fill the entire disk since an 800K disk isn't overly large, and you can still use subdirectories to keep things organized.

The operating system knows all about this special driver and you won't find any other limitations while using it. You'll be able to format disks, validate disks, copy whole disks, and do operations on files such as copying, moving, renaming, deleting, etc. Even your applications won't complain. They'll treat this setup just like any other disk device on your system.

INSTALLING A RAMDISK

The first time you boot up your system, you won't have a ramdisk running even though the system recognizes that you have a ram expansion unit. This is because the Toolbox doesn't know what kind of ramdisk you'd like to use yet. There are 4 different kinds of ramdisks available:

RAM1541 - this emulates a 1541 disk.

RAM1571 - this emulates a 1571 disk.

RAM1581 - this emulates a 1581 disk.

RAMNative - this emulates a CMD Native partition complete with subdirectory capability.

All but the RAMNative ramdisks are fixed in size. They provide the same amount of disk storage space as their real counterparts.

The RAMNative, however, can vary in size depending on the amount of ram you have available. The native ramdisk can vary in increments of 64K. One track on a real native disk contains 256 sectors of 256 bytes each. This equals a total of 65,536 bytes (64K) per track and the same concept is used in setting up the size of your native ramdisks.

To install a ramdisk, click on an empty drive box from the Toolbox's main user interface

screen. In the dialogue box that pops up you'll see a selection called "Install ramdisk". Click on this and another dialogue box will appear. In this box will be the choices you have depending on the amount of available ram.

If you have at least 64K of ram available still, you'll be able to install a 64K native ramdisk. You always have the opportunity to install a native ramdisk if at least 64K is available. If you have more ram, then the available amount will show in this dialogue box. There are scroll arrows you can click on to adjust the size you want the ramdisk to be. To begin with, it always shows the largest size ramdisk you can create. Click on the arrows to adjust this size down, or back up.

If you have more ram, at least 192K, you'll be able to create a RAM1541 ramdisk. With 384K, you can create a RAM1571 ramdisk and with 832K or more, you can create a RAM1581 ramdisk. The maximum allowed showing for the RAMNative ramdisk will indicate to you how much ram expansion is available for a ramdisk.

A RAMNative ramdisk can be almost as large as 16 megs, if you have that much ram on your system. For this to happen, you'd need either a RamLink with 16 megs of ram and one big DACC partition (not a good decision) or a SuperCPU with 16 megs on a SuperRAM ramcard. Keep in mind, though, the SuperRAM isn't battery backed and filling that ramdisk with subdirectories and files can take time. It makes much more sense to partition this ram off with ramdisks equaling the size of your floppy drives, or the size of a partition on your hard drive. This allows easy backup and restore operations through whole disk copying.

Also, SuperCPU/SuperRAM users should leave several megs of free ram for new applications to make use of.

FORMATTING A RAMDISK

The very first time you create a ramdisk, it won't be ready to use because you haven't formatted it yet. It must be formatted just like a real disk. However, if you install a ramdisk and it's exactly the same type and size as one you've previously used, and your ram expansion hasn't lost its power, you might notice the ramdisk is still formatted and contains the files it had the last time you used it.

It's important to keep track of what you've done previously, though. Did you use a program from BASIC that may have used part of your ram expansion unit and overwritten a portion of your ramdisk, thereby corrupting some of the files? Be aware this can happen. If so, then it would be wise to reformat your ramdisk even though it may at first appear ok to you.

If you're still in the dialogue box that describes your ramdisk, you'll notice a selection allowing you to format the ramdisk. If you've clicked this dialogue box off, click on the drive box representing your ramdisk to get back to it. Then just select "Format disk". You'll be prompted for a disk name and also have the opportunity to back out of the operation. Alternatively, you could exit out of the Toolbox and format the ramdisk from the Dashboard.

RAMDISK PARTITIONS

Once you've made a selection for a ramdisk, you'll be asked for a name for the ramdisk. This isn't the name that will appear as the disk name for the ramdisk. This is the name that will be used as the ramdisk is stored in it's own partition within your ram expansion unit. The operating system allows you to have as many as 8 ramdisk partitions provided you have enough ram available.

When you remove a ramdisk (see "Removing a drive"), you'll be asked if you want to save this ramdisk or delete it. If you save it, the ram it occupies will remain protected from other applications and you can reinstall it later, if you wish. To do this, proceed just like you would if you were going to install a new ramdisk (see "Installing a ramdisk"). Only instead of selecting one of the possible

choices, at the bottom of the dialogue box select "Load ramdisk".

You'll now be presented with a file requestor showing any ramdisks that have been created but aren't currently in use. Just click on the one you wish to use again and it will be reinstalled into the drive slot you're currently acting on.

As long as you either leave your computer turned on with it's ram continuously powered, or if your ram has it's own power source that's left on, your ramdisk partitions will always be preserved for use each time you boot up.

HOW RAM IS ALLOCATED

When creating a ramdisk, the largest single chunk of ram available is the amount that will show as being available for a native ramdisk. At times, you might possibly have more ram available than what's showing, since it might not all be available in one chunk. This depends on how your system and applications and other ramdisks are currently using the ram on your system.

Also, if you've created and removed ramdisks, your ram allocation might be spread around in various chunks. When you save a ramdisk, the location within your ram expansion is recorded and this position will always be used for that particular ramdisk until you delete it. For that reason, it might be wise to occasionally recreate your ramdisks from scratch in order to make better use of the available ram you have.

To understand how your ram is used, the operating system always uses 128K for itself. It'll use the first 64K and the last 64K. If you have 512K to begin with, this will leave you with 384K to use for one or more ramdisks. Or you can use less, such as 320K, which will leave 64K for an application to use, if it needs it. Not many applications need extra ram, but the operating system provides the means for it, if need be. So keep in mind as new applications come along, they may be inclined to require a certain amount of additional ram since they know everybody using the Wheels operating system has ram expansion in use.

SAVING YOUR CONFIGURATION

If you have a current drive configuration you would like the Toolbox to setup for you every time you bootup, you can save it as such. Click on the "options" menu and select "save all." Each drive listed in your current configuration will be saved into the copy of Toolbox you are using. Your saved configuration will also appear on the lower half of the Toolbox screen. If you wish these settings to be saved to the copy of Toolbox that is on your boot disk, then be sure to load and run the Toolbox from your boot disk. Saving to copies on other drives will not affect the initial bootup process.

If you only wish to make a change to one of the saved configuration positions in drive A through D, first click on the desired drive in the upper half of the screen and when the dialogue box appears, click on "SAVE." This one drive will then be saved into the same spot in the saved configuration.

CLEARING A SAVED CONFIGURATION

There will be times when you want to change your saved configuration such as when you no longer want to install a particular ramdisk during bootup. You can either resave a setting as already described, or clear the setting altogether. Click on the particular drive box in the saved configuration part of the screen and a dialogue box will appear asking if you would like to clear this setting. Click on "OK" if you'd like to clear it or "CANCEL" if you change your mind.

If you'd like to clear the entire saved configuration, you can do this by clicking on the "options" menu and selecting "clear all." All four drive positions in your saved configuration will be cleared.

FORMATTING RAMDISKS DURING BOOTUP

In GEOS 2.0, Configure always formatted your ramdisk during bootup. This was a problem for those people that have powered ram expansion units. They were forced to recopy the files they wanted in their ramdisk each time they booted up their system. There were ways developed to get around this, but you had to know the correct steps to take.

But now, we have a new problem. This time the problem lies with those that don't have powered ram expansion units. In this case, the user finds himself having to reformat and reload files into his ramdisk each time he boots up his system. Nothing is harmed in this case, but the extra steps needed to get your system going can become a real hassle over time. Wheels allows you a way to avoid this.

With the Toolbox, you can have your ramdisks formatted automatically during the initial bootup. When you create a ramdisk and click the "SAVE" button, the ramdisk configuration will be saved into the Toolbox so it will be installed during bootup. You'll also be presented with a dialogue box asking if you wish to have the Toolbox format the ramdisk during bootup. If you have ram expansion that is not powered or battery backed, go ahead and choose "YES." If your ram expansion retains its contents when you turn the computer off, choose "NO."

- NOTES -

Miscellaneous

YOUR EXISTING GEOS APPLICATIONS

If you've been using GEOS for several years, chances are you have a fair number of GEOS applications at your disposal. Switching over to the new Wheels system isn't going to handicap all those nice applications. You can still use most of them and you'll find a few features in the new system will even enhance some of your old applications.

APPLICATIONS TO AVOID

There are a few applications or utilities you'll want to avoid. For instance, if you've had a favorite directory organizing program, it may have worked great with your 1541 or 1581 disks, but it might not understand your native mode directories. It's best to steer clear of these types of programs.

When you're first getting started with Wheels, don't fill your boot disk up with all the same **AUTO-EXEC** files you used to use with GEOS 2.0. Some of them may have been patch programs and you may not want to use them with the new system. Patch programs tend to write code directly into the operating system kernel, and that's fine for GEOS 2.0. Those programs were written for GEOS 2.0, but not for Wheels. They just might put code where it doesn't belong and you'll likely get strange results or big crashes.

A popular **AUTO-EXEC** for GEOS 2.0 was known as **DBGetFiles**. This patched GEOS so you could have more than 15 files show up in the file requestors. This was a nice enhancement to GEOS 2.0 but is no longer necessary, because Wheels supports up to 255 files in the file requestor box.

AUTO-EXEC files that read your built-in real-time clocks aren't needed anymore either. You can configure the Toolbox to set your system clock for you from any of the popular real-time clocks available for our computers.

When you're thinking about using an application you're unsure of, learn what its intended purpose is before using it. In most cases, an old application will work just fine. Just be careful with those programs that modify parts of your system.

There are a couple of applications that utilize a 64K bank of ram with your REU. In GEOS 2.0, there wasn't a good way for an application to know if a bank of ram was in use or not. In the new Wheels system, programmers won't have this problem, but these older applications were written before Wheels came along and you can have problems with them. **geoCanvas** by Nate Feidler is one example. It's a nice program, but it tends to destroy the bank of ram that's reserved for the Wheels operating system. Try it out and see if it works on your setup. If you experience a crash either while using **geoCanvas** or soon after exiting it, it probably wiped out the system ram bank. If this happens to you, you'll need to boot up GEOS 2.0 to use **geoCanvas**. When a patch is released for **geoCanvas** to fix this problem, then you'll be able to safely use it with Wheels.

GeoWizard can't be used with Wheels since it patches code directly into the operating system. This is a good program for GEOS 2.0, but keep it away from your new Wheels. The same goes for most of the screen blanker programs written for GEOS. These have to patch code into the operating system. Avoid using these also.

Supplied with the SuperCPU is an auto-exec file called **SUPERGEOS**. Don't put this on your

boot disk, Wheels doesn't need it at all. SUPERGEOS was designed only for GEOS 2.0. It patches the kernal for use with the SuperCPU. About the only function that's safe to use with this program is the GEOS Optimize switch that you can turn on and off after running the program from any disk other than your boot disk (after you've already booted up.) Turning GEOS Optimized mode off is only needed for programs that operate in a different screen other than the default 40 column screen used by Wheels. **KoalaVert** is one such program and **geoBASIC** is another. You can also turn optimized mode on and off from the Toolbox in the "options" menu. Be sure not to use any other feature of SUPERGEOS, it will corrupt your system if you do.

Never try to run any version of **Configure** from any version of GEOS. You will experience a nasty crash. Configure will likely attempt to install a replacement disk driver for the one currently in use and the older drivers do not work in Wheels.

For this very reason, **geoSHELL** users should not use the "learn" command. This command only understands how to deal with GEOS 2.0 disk drivers. If you've created any disk driver commands with **geoSHELL**, avoid using them in Wheels or you'll have problems. Always use the Toolbox to install and remove disk drives and ramdisks.

USING NEW WHEELS FEATURES

There are several new features added to the Wheels operating system that was not available in GEOS 2.0. This section of the manual will cover some of those features.

THE FILE REQUESTOR

When you load up an application like GeoWrite, you'll appreciate the fact you can now have more than 15 files on a single disk and still be able to access any one of them from the file requestor. This is not a modification to GeoWrite itself, this file requestor has always been a part of the GEOS operating system, and in Wheels it has been improved somewhat. You now can have as many as 255 files showing in this file requestor. At the bottom of the file requestor are 4 different tools you can click on for moving up and down through the file listing. There is room in the file requestor window for 5 files and when you have more than 5 files to display these tools will show up. The first tool on the left takes you to the beginning of the list and the second tool takes you to the end of the list. The third and fourth tools scroll you up and down through the list, 5 files at a time.

When you get to the file you want to open, there are two ways to do it. You can click once on the filename to highlight it and then click on the "OPEN" button, or you can do the same thing by double-clicking on the filename.

THE SYSTEM BUTTONS

When you're using dialogue boxes, you'll encounter similar buttons such as OK, Cancel, Yes, NO, OPEN, and DISK. These are all system buttons and they now have keyboard equivalents allowing you to select them with the keyboard. In GEOS 2.0, the RETURN key always activated the OK button and it still does in Wheels. But now, you can activate the rest of these buttons with the key that represents the first character of each button. For instance, pressing the 'c' key will do the same as if you click on the "Cancel" button.

There will be times when the keyboard won't activate these buttons. This will be when you're requested to enter some text, such as a filename or any other string of characters the dialogue box needs. The keys are instead being used for entering this string of characters, and you'll have to use the mouse for clicking on the buttons.

THE DISK BUTTON

Whenever you have a file requestor on the screen, the application might also have placed a "DISK" button in the dialogue box. Most of the major applications do this. The idea for this in GEOS 2.0 was to allow you to be able to insert a different disk into the drive and then the application would open that new disk and display its files in the file requestor.

A new feature of Wheels is to intercept the DISK button and present the user with a system dialogue box whenever the drive being used is either a partitionable CMD device or a native mode ramdisk. For instance, on a CMD hard drive you can't insert a different disk, but this gives the user the opportunity to select a different partition or subdirectory for an application like GeoWrite to look for data files in. As an added bonus, you can even switch between 1581 and native partitions from within this system dialogue box.

You'll notice times when GeoWrite or GeoPaint isn't providing this DISK button. This will happen when you're accessing the same drive for data files as the one you loaded the application from. The application needs to be able to leave the disk containing itself in the drive. These older applications weren't programmed to be able to access themselves from any partition like the new ones will be able to in the future. But at least you can take advantage of this feature when you put the application on one drive and access your data files on another drive.

The other times when GeoWrite or GeoPaint won't display the DISK button is when you're accessing your data files on a ramdisk. The application understands a ramdisk is not removable and won't display the button in this case. Unfortunately, it doesn't understand a ramdisk can be a native type with subdirectories.

You'll get used to the layout that will work in these cases. For instance, if GeoWrite is on your hard drive and you access your RamLink, you'll see the DISK button as long as you've configured your RamLink as a DOS device numbered between 8 and 11. But if it's configured as a 1581 ramdisk with its device number 12 or higher, GeoWrite will think it really is a ramdisk and won't display the DISK button, and you won't be able to switch to a different 1581 partition while in GeoWrite.

THE SYSTEM PARTITION DIALOGUE BOX

It's much easier to change partitions on a CMD device in Wheels than it was in GEOS because the operating system has those provisions built in. Most of the time when you're in a dialogue box that is showing a "DISK" button, you can click on this button to activate the partition dialogue box. This dialogue box is also used by the Dashboard, the Toolbox, and MakeSysDisk for selecting partitions and subdirectories.

Using it is simple. If the current drive is in a native partition, you can either change partitions or move into different subdirectories within the same partition. It all depends on the device you're using and the manner in which the application requests the dialogue box to operate.

You'll soon get a feel for how this dialogue box operates. At the right are various buttons and they can change depending on the device and type of partition you're using. You might see buttons that say "Subdir" or "Part." on them. If you're in a 1581 partition, the "Subdir" button won't be available. If you're working from a ramdisk, the "Part." button won't be available since you can't switch partitions in a ramdisk.

Note: In actuality, you can have as many as 8 ramdisk partitions, however, only the Toolbox has the means for switching between them.

If you switch partitions or subdirectories outside of the Dashboard, such as from within another application, you can work in that directory. When you return to the Dashboard, you'll be put back into the same directories that you were in when you left the Dashboard. This may be confusing at first, but you'll soon get used to it.

Appendix

SYSTEM DISK CONTENTS

When you first receive your Wheels system disk, it will contain only one file and there will be 0 KBytes free. Once you've run the installer successfully, the contents will change. The following are the files the disk will contain along with a brief description.

STARTER - this is the main boot program you load and run from BASIC.

TURBOBOOT - this gets Wheels up and running quicker. On machines with JiffyDOS, this file can be deleted.

SYSTEM1 - the first of two main system kernel files.

SYSTEM2 - the second of two main system kernel files.

Toolbox 64 - this is the application that gets your system configured.

Dashboard 64 - this is your graphical user interface.

NAMEPLATE - the title screen which is simply a photo scrap renamed.

MakeSysDisk - an application for creating boot disks.

RESTART - used for rebooting from your ram expansion.

C1351D - a two button input driver with the right button simulating a double click.

C1351S - a two button input driver for accelerators with the right button simulating a left button click at 1mhz.

C1351DR - the C1351D driver with the buttons reversed.

C1351SR - the C1351S driver with the buttons reversed.

Smart4 - an input driver for the CMD SmartMouse.

Smart4R - the SmartIII driver with the buttons reversed.

JOYSTICK - an input driver for a joystick or 1350 mouse.

The remaining files on the disk are new commands for geoSHELL users. These commands will only work with Wheels and not GEOS. A more detailed description can be found later on in the appendix.

chdisk - allows changing disk types on the FD.

chpart - change partitions.

DESKTOP - exit back to the Dashboard.

erase - erase a disk directory.

format - format any disk, partition, or ramdisk used in Wheels.

makedir - create subdirectories in native partitions and native ramdisks.

ncopy - whole disk copier to replace the dcopy command.

nswap - new command to use in place of the swap command.

parentdir - move to the parent directory.

rootdir - move to the root directory.

subdir - move into a subdirectory.

validate - validate a disk, partition, or ramdisk.

The main GEOS applications are noticeably missing. Wheels is basically an operating system upgrade and therefore doesn't include applications such as GeoWrite and GeoPaint. This is one of the reasons why you need your GEOS 2.0 system disks.

TROUBLESHOOTING

Anytime you're experiencing problems, try to diagnose the source of the problem. With a little thought and reasoning, you can usually figure out the problem yourself. Just because a particular application crashes every time you use it doesn't mean the application is at fault. Crashes can be caused by many different things. A bad disk will create all sorts of problems. An internal failure in your computer might be the cause but may not be readily apparent. Many times, problems occur from poorly written software, or from something you might have used that may have either corrupted your disk or destroyed a portion of the operating system. Problems like these don't always show up while the culprit is in use. These are really difficult to diagnose.

Make every effort possible to resolve any difficulty you might be having. You'll learn best from fixing your own problems. If you get stuck, there's always someone somewhere that can help. Try contacting a technical support line if necessary, but first exhaust all other possible resources. There's always online help for those who have a modem and can access an online service or BBS. If you belong to a local computer user group, someone in the club can usually help. The same problems you're having has probably already been experienced by someone else. Just ask around, because other people can be more helpful than you might think.

Most importantly, don't give up. If you're having trouble with your system, make it a challenge to figure it out. You'll feel victorious once you get it working correctly.

WHEELS FAILS TO INSTALL

Did you follow the installation instructions correctly as outlined in section 3, "Installing Wheels?" Reread that section and try the installation again. The installer utility won't begin to setup your Wheels system disk until it's reasonably sure your system is functioning correctly. The installer will test your computer and disk drive as best it can. It will also test your Wheels disk for errors. In addition, it will try to spot any possible problems you might have with your GEOS installation. If the installer itself is not corrupted, it will be able to perform these tests for you. If it finds a problem somewhere, it will report the problem in a dialogue box.

You'll know the installer is reporting the error if at the top of the dialogue box it says "Installation failure." Any other error dialogue box that might pop up is not coming from the installer. System errors occurring with GEOS will pop up a dialogue box saying "System error at" along with another message about the error and where in memory it occurred. If this shows up, either GEOS or the installer is corrupted and you have a problem the installer cannot correct. A system error can sometimes be difficult to diagnose. It can be caused by either the software or the hardware.

CHECK YOUR GEOS DISK

If you can't install the Wheels disk because you can't even boot up GEOS 2.0 from your original GEOS disk, there's a good possibility you have a problem with your drive. If GEOS boots up ok, then your drive's alignment and general condition is probably OK.

If other commercial programs load and run ok from their original disks, then your drive is probably ok, and your problem might be your GEOS disk. Contact CMD for replacement information.

CHECK YOUR WHEELS DISK

If you have trouble loading the installer utility from the GEOS DeskTop, your Wheels disk might be bad. If the installer loads up correctly and you get to its initial screen, then the portion of the disk containing the installer is OK. If you never see the installer's initial screen with a copyright message, then either GEOS failed to load it properly or the installer is corrupted. If GEOS has trouble loading other applications, then the problem might not be with your Wheels disk. Try running an application like GeoWrite with the same single drive system you're using for the Wheels installation. If you have problems loading GeoWrite, don't condemn your Wheels disk yet.

The installer will then check the remainder of the Wheels disk for you. If it finds an error, it will report it to you on the screen. If this happens, start completely over by rebooting GEOS and try the installation again. If it still fails and reports an error, return your disk to Click Here Software for a free replacement if you're still within the warranty period. If you're past the warranty period, there's a nominal replacement fee. See section x.x.x for replacement information.

CHECK YOUR HARDWARE

The initial installation of your original Wheels system disk is a critical step. The Wheels system disk was created on a properly aligned drive and the Installer utility supplied on the disk expects your drive to be properly aligned also. A drive that's slightly out of alignment will still function OK, but if your drive is severely out of alignment, the installation will fail.

If the your system locks up during the initial installation, make sure your computer and disk drive are functioning correctly. You might have a problem you're not aware of. Don't blame your disks yet.

The 1541 has been known to be affected by signals that radiate from certain monitors. These signals can affect the drive as it's reading data from the disk. Try moving your drive away from the monitor or to the other side of the monitor.

If you suspect a drive problem, try another drive before blaming the problem on a bad disk. You might even try a different serial cable. A dirty connection at either end of the cable can cause the voltage pulses travelling through to be seen incorrectly.

Boot up GEOS if you can and try running some of the applications. If you experience crashes or your screen appearance doesn't look right at times in the menus or fonts, you might possibly have a memory access problem in your computer. GEOS makes use of the ram lying beneath the I/O addresses in the region from \$D000-\$DF00. Most programs you'll run outside of GEOS never use this area. Neither BASIC nor the 64's own operating system kernal use this area. If your computer has a problem in this area, it'll show up while using GEOS but might never give you a problem with other programs you might use.

WHEELS CRASHES OR WON'T BOOT

Wheels installs itself into your ram expansion unit. By default, Wheels will always reinstall itself each time you boot up. But with ram expansion units that have their own power supply and battery backup, you can configure Wheels from within the Toolbox to skip this step since your ram expansion retains its memory when you turn your computer off. If you've selected this option and somehow this portion of your ram expansion has become corrupted, your system might either fail to boot correctly or it might give you problems later on as the operating system accesses various routines contained within the ram expansion.

If the boot process is able to detect the ram has lost power, it will automatically reinstall itself

during bootup. Or if you suspect something has been corrupted in the ram, you can force the system to be reinstalled by holding down both the CMDR key and the LEFT-SHIFT key at the same time during bootup. As soon as you begin booting, immediately press these two keys and hold them until you see the title screen disappear.

If this doesn't correct the problem, then one or more files on your boot disk may be corrupted somehow. Of course, you made extra boot disks with MakeSysDisk, right? Grab one of them and boot your system with it. Then from the Dashboard, validate the boot disk that is giving you problems. Then run MakeSysDisk again to reinstall the system onto your boot disk or partition. If you didn't make extra boot disks, you'll have to boot Wheels up from your original Wheels system disk. MakeSysDisk will replace all your system files and your disk should function once again. If you have an actual physical problem on your boot disk, MakeSysDisk will most likely catch the problem and inform you of it. See "SECTION 4: MakeSysDisk" for more information.

CHECK YOUR RAMDISK FILES

When you exit an application, you'll be returned to the Dashboard. The Wheels operating system reloads the Dashboard from disk. Loading from a floppy drive is slow, so Wheels always checks your ramdisk first to see if you've copied the Dashboard there. If so, it will load the Dashboard from your ramdisk. Wheels has a particular pattern it uses when it's searching your drives for the Dashboard. If it's the Dashboard that's crashing even after you've replaced it on your boot disk, it might be because you still have a bad copy of it somewhere else on your system. If you suspect this, then delete all copies of it from your ramdisk and other sources and start over with fresh copies. The worst you'll have to do is redo some of your preferred default settings.

SUMMING UP

When you're having a problem there's always a reason for it. Isolating the cause can be a challenge. It's also good to be able to spot trouble before it starts. Knowing how your system reacts is similar to knowing when your car isn't running right. Catch those little problems before they become major ones and you'll get many years of trouble-free use out of your Wheels system.

USING GEOSHELL WITH WHEELS

geoSHELL is a command line interface for GEOS that was released in '92 and '93 and is still a very useful product today. The only version of geoSHELL that anyone should be using is V2.2. Don't try to use these new commands with any other version. When V2.2 was released, it was sent as a free upgrade to all V2.0 owners, so there shouldn't be any problems. If you purchased a used copy of geoSHELL V2.0 from someone, you got cheated. They should have included V2.2 with it also.

geoSHELL works great with Wheels although you'll discover a few limitations when you use it with Wheels. Let's take a look at some of these limitations.

WHAT GEOSHELL CAN'T DO

You must remember that geoSHELL was written with GEOS 2.0 in mind. The deskTop's border files were limited to a maximum of 8 files. They were stored in one sector on the disk. Therefore, geoSHELL tends not to look past the 8th file in what is now known as the system directory. When the dir command is used, it first shows the main directory and then shows the files in the system directory, however, it only shows the first 8 files of the system directory. A patch is in the works that will fix this problem.

It's very important command to avoid using the "learn" command. Also, don't use any of the disk driver commands that you may have created from GEOS 2.0. The GEOS 2.0 disk drivers will crash your Wheels system. Even though the learn command will create a Wheels disk driver command, it may not function properly. One reason is the learn command doesn't understand how to allocate ram in the Wheels operating system. It's best to avoid this command altogether and use only the Toolbox to install and remove drives and ramdisks.

THE NEW COMMANDS

Several new commands have been included on the Wheels disk and more will be developed as time goes on.

chdisk

Let's say you're using an FD drive with a 1581 disk and you want to insert a disk with a native partition. Simply insert the disk and then use the chdisk command so that the operating system recognizes the different disk format. As long as you insert a disk of the same type, this command is not necessary. Another way to force Wheels to recognize the disk change is to use the new "chpart" command.

chpart

You can still use the DOS wedge command @cp to change partitions in Wheels just like you did in GEOS 2.0, however geoSHELL doesn't understand that you can switch partition types at the same time. That's where the chpart command comes in. Just supply the partition number as a parameter and you'll be switched to that partition. The following example will switch to partition 3 on the current drive:

```
chpart 3
```

If you use the chpart command without a parameter, a system dialogue box will appear allowing you to select a partition from the list displayed.

DESKTOP

Without this new command, there is no way to exit geoSHELL to return to the Dashboard. geoSHELL actually thinks it was launched from something called "DESKTOP" instead of "Dashboard 64". If you use the "exit" command or click on geoSHELL's close button, it won't find any desktop on the system called "DESKTOP". A desktop cannot have more than 9 characters in its name and Wheels and the Dashboard perform a little trickery in this area. This was the original limitation of GEOS and the 9 character limit is one of those things that has been retained for certain compatibility reasons.

So, just type in the command **DESKTOP** to exit back to the Dashboard. Or if you type "exit" by itself or click on the close button, a file called "DESKTOP" will be searched for and this command will be found and the **DESKTOP** name will be installed as the default desktop. This command is not really a desktop, but when the name is used, Wheels actually substitutes "Dashboard 64" in its place. The following will also work:

```
exit DESKTOP
```

(Note: if used in a startup or exec file, remember to terminate the filename with the up-arrow.)

erase

This will erase the directory of the disk or partition of the currently active drive. A prompt will appear asking if you wish to complete the operation. You can use this as a quick format if you know the disk is in good shape otherwise. It's the quickest way to delete every file from a disk.

format

This will format any disk, partition, or ramdisk used in Wheels. You can supply a disk name as a parameter, or if used without any parameter, a dialogue box will appear asking you for the disk name. The difference between this and the older format command is that it uses the built-in Wheels format routines to do the work. The older format command doesn't know about all the different devices used in Wheels, so be sure to replace your old command with this one.

makedir

You can still use the DOS wedge command **@MD** to create subdirectories on CMD devices, but you can't use it on a native ramdisk. That's where this command comes in. You can also use the command on CMD devices as well as the **1581** when using native **FD** disks. A subdirectory name must be supplied when using the command. Example:

```
makedir subdirname
```

ncopy

This command takes the place of the "dcopy" command and can be installed in its place using the "external" and "internal" commands. Refer to your geoSHELL manual on how to use those commands. Or you can just keep it as a separate external transient command and use it as such. This command can copy whole disks, ramdisks, or partitions. The source and destination must be of compatible types. The source disk is the currently active drive and the destination is supplied as a parameter. The following example will copy the disk in the current drive to drive D.

```
ncopy d
```

If you wish to copy to a particular partition, add a partition number to the parameter as such:

```
ncopy d3
```

You can also use the letters "f", "h", and "r" to copy to the **FD**, **HD**, or **RL**. If you have more than one **FD** or **HD**, only the first one found will be used. When using f, h, or r as a parameter,

you must also supply the desired partition number. To copy the current disk or partition to partition 5 on the RamLink, use the following:

```
ncopy r5
```

nswap

The old geoSHELL swap command had one bad limitation and it was due to the way the RamLink 1581 partitions were implemented in GEOS 2.0. The old RL1581 disk driver conflicted with any 1571 type device if the 1571 device was used as drive D. For this reason, geoSHELL wouldn't let you swap a RamLink to D if a 1571 device was present, and this included the RAM1571. Wheels doesn't have this conflict, but geoSHELL doesn't know it. There are also some other things that geoSHELL doesn't know about when swapping drives. Therefore, always use this new command in its place. Use it just like the old one. As an example, to swap drives A and D:

```
nswap ad
```

parentdir

You can still use the "parent" command with CMD devices, but it doesn't work with native ramdisks or the native 1581 driver. This new command takes its place.

rootdir

You can still use the "root" command with CMD devices, but it doesn't work with native ramdisks or the native 1581 driver. This new command takes its place.

subdir

You can still use the DOS wedge command "@cd" to move to a subdirectory, but it doesn't work with native ramdisks or the native 1581 driver. This new command works with all native devices.

validate

This command will validate the disk in the current drive. This works with every disk, partition, or ramdisk that is used in Wheels.

ORDERING INFORMATION

CREATIVE MICRO DESIGNS

GEOS 2.0 and all the fine products manufactured by CMD such as the HD Series hard drive, FDSeries floppy drive, RamLink, Turbo232, 1750XL, SuperCPU, and many other hardware and software products are available direct from:

Creative Micro Designs, Inc.
15 Benton Dr.
P.O. Box 646
East Longmeadow MA 01028

(800) 638-3263 (Orders only)
(413) 525-0023 (All other inquiries)

CLICK HERE SOFTWARE CO.

Software products such as geoSHELL, geoFAX, and the Wheels upgrade for GEOS may be ordered directly from:

Maurice Randall
%Click Here Software Co.
P.O. Box 606
Charlotte MI 48813

(517) 543-5202

CREDITS

I seem to be quite fussy about beta testers, it seems. Normally, when I create a new piece of software, I do all the testing myself. From the moment Wheels progressed to a stage where it could actually become my working operating system, I put it to use. GEOS 2.0 got put aside from that point on. As Wheels progressed further, I would continuously upgrade my own system with the latest version. Thank goodness I had geoSHELL to use in the early going. The old deskTop was of no use any longer as it didn't know how to deal with native partitions and native ramdisks. The Dashboard wasn't developed enough to be used as a primary user interface.

The core of Wheels is all about logic and I used my thinking ability to its fullest as I thought out every step of the development process. It's really amazing to see what a Commodore 64 is capable of when you're operating in the Wheels environment.

Although I put my systems through some rigorous testing I can't possibly use it in every way possible. With John Lindemann doing all the beta testing that I wasn't doing, many little problems were discovered that could be corrected before releasing the product. John was also very helpful with ideas that I put to use in the operating system and its supporting applications. A big round of thanks goes out to John for all his help.

I hated spending the time on it, but I wrote the documentation for Wheels and Dale Sidebottom helped to proofread it. Dale found a number of mistakes as well as helping to word certain paragraphs and phrases in different ways. He was thinking of you, the user as he carefully read each word that I had written. I thank Dale for all the help he provided in this.

Commodore may have designed and created the 64 and some of the drives we use, but Creative Micro Designs really made the hardware that makes Wheels roll. If you enjoy using Wheels and don't own a CMD hard drive, RamLink, FD drive, or a SuperCPU, you don't know what you're missing. Without this equipment there would have been no point in developing Wheels. And having a SuperCPU surely helped speed up the development work by a long shot. I don't think I could have done it without all the equipment I have. Thank you CMD.

All of you users that support my computing habit by buying my software, I thank you. This project was really for all of you. I hope you enjoy using it as much as I do.

And finally, my wife Brenda has had to put up with many long hours of me pounding on the keyboard when we could have been doing something else. She's spent many hours sitting in the living room watching TV and listening to the clicking of the keyboard in my computer room. Many times she's heard the keys go silent as I lean back in the chair and fall asleep in front of the monitor.

Thank you everyone...

-Maurice

