

INSTRUCTIONS FOR PRINTING THE GEOFAX MANUAL

The complete documentation for geoFAX U2.0 is included on side 2 of your geoFAX disk. The font that is used throughout the manual is CourierNLQ. You will find this font on side 2 of your geoFAX disk. Copy the font to the disk that you will use Geokrite from when you either view the manual on screen or print it out. This font can take the place of the Commodore 10 point font which will allow you to print the manual using your printer's own internal fonts. This will make the printing go much faster. There's no excuse for not printing out this manual!

The following files are used in constructing the manual:

pa.faxcover - This is a GeoPaint file that you can print out. It will be the front cover of your manual.

pa.faxcopyright - This is also a GeoPaint file. After printing the cover, print this GeoPaint image on the inside of the front cover.

wr.faxcontents - This is a Geokrite document. It is one page long and should be printed on a sheet all by itself. Leave the back side blank. Use Geokrite's NLQ mode for printing.

wr.faxmanual - This is a Geokrite document and makes up the body of the manual. It is 37 pages long. You can print each page on individual sheets if you'd like, or the preferred method is to first print all the odd numbered pages and then flip the stack over and print the even numbered pages. Use Geokrite's NLQ mode for printing.

Once you have printed out all the pages, you might want to take them to your local quick copy center and have the pages bound either with a spiral binding or a tape binding. A nice added touch is to have the copy center copy your cover page to a heavier cover stock. Normally the cost for the binding including a cover is only around \$2.

The other files you will find on side 2 are:

gateWayPatch - gateWay users must use this to patch gateWay before inserting a disk containing geoFAX printer drivers.

gwPatchDocs - documentation for gateWayPatch. Please read this before patching gateWay.

pa.scaninterface - This is a GeoPaint file showing how to build an interface to connect your fax machine directly to your modem for those particular combinations that do not allow a direct connection. There is information about scanning in chapter 6 of your geoFAX manual.

Extra files on side 1:

geoMorph - This is an application that will morph two photo scraps. Documentation is on the disk.

MenuChase - This is a fun little game that challenges your GEOS skills. It helps when you feel like taking a break. Documentation is on the disk.

-Maurice



Hi-Performance Software

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The FCC requires that all facsimile documents that are transmitted
over the telephone lines be accompanied by the sender's or sending
company's name and telephone number at the top or bottom margin of
the document.

geoFAX is produced entirely in the United States of America

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1. AN INTRODUCTION TO GEOFAX

geoFAX is the first program of it's kind ever developed for the Commodore 64 or 128. You now have the capability to exchange a fax document over the telephone lines with a facsimile machine or even another computer running it's own version of fax software.

The GEOS operating system makes this program very useful in many ways. Since many GEOS applications have some sort of compatibility with GeoPaint, either directly or through a Photo Scrap, it was felt that geoFAX should provide compatibility with GeoPaint also.

With geoFAX, you can send a GeoPaint file to a remote fax machine. Now you must be thinking that the machine at the other end would also have to have compatibility with GeoPaint files, but not so. As far as you, the user of this program is concerned, a GeoPaint file is being sent. But at the other end, a real fax document is being received. geoFAX takes care of the conversion for you. When you select a GeoPaint file to send, geoFAX will convert it into a fax document as it is being transmitted to the other machine.

An incoming fax must be saved as a geoFAX document, and then if desired, converted to GeoPaint after the transmission is complete. The reason is due to the fact that it takes longer to convert from a fax to a GeoPaint than it does to convert from a GeoPaint to a fax. When sending and receiving faxes, timing is very critical. It is actually best this way, because a geoFAX document retains the full resolution of the incoming fax, while as a GeoPaint, you will lose some detail due to GeoPaint's much lower resolution. But you will have the benefit of having both formats if you choose.

geoFAX can print a fax document for you as long as your printer supports a higher resolution than the fax document. The fax document will have a resolution of 284 dots per inch horizontally and 196 dots per inch vertically. Most printers today can print with a higher resolution than this. Some special printer drivers are supplied with geoFAX for this purpose. Your regular printer driver will not work in this case, because it expects the standard GEOS resolution of 80 x 72 dpi.

GeoPaint files are naturally the easiest and most logical files to work with, however you are not limited to just GeoPaint files. Almost any application that allows printing can also create a GeoPaint file. You would do this through the use of the paint drivers that are supplied with GEOS. A paint driver can be installed in place of your regular printer driver. Then, using Geokrite as an example, you could create a document, and instead of printing it, the document would get converted to a GeoPaint file. Then, when you send the file to another fax machine, it will look just like it would have looked, had you printed it on your own printer.

With your incoming faxes, a text document with small, fine print will not convert very well to a GeoPaint file. Some of the characters will lose some detail. A hand-written document, however would probably convert quite nicely. A document with graphics should also look ok depending on how great the detail is.

Most of the time, the incoming fax will be of a moderate size, although still larger than an equivalent GeoPaint file. Like GeoPaint, it is in a compressed format.

However, for certain patterns of pixels, the compression format is not as good as the GeoPaint method. This is not the fault of geoFAX, rather it is the method that is used throughout the industry. Some grayscale patterns actually increase the size of the file, rather than decrease it, using these compression methods. The worst case would be if the file was one large grayscale pattern consisting of alternating black and white pixels. The chance of this happening is slim. Nobody would have any reason to send you a solid gray page with nothing else on it. Most fax documents will have a lot of white space, and this keeps the size of the file down. In addition to solid white areas, solid black areas also compress nicely.

When you wish to send a fax to someone else, your GeoPaint files will come out on the other machine just like you see it in GeoPaint. Many other computers allow their own incoming faxes to also be imported into a paint program. Because of this, you now have a very handy method for exchanging graphics between your computer and another computer of a different type. You might also realize that by faxing a document into your computer, geoFAX can be utilized as a method for digitizing images into GeoPaint, or as a full-page scanner. You will discover that geoFAX can be a very useful tool for purposes other than just sending and receiving faxes.

THE SCREEN IMAGE

Some thought was put into the screen appearance as you can see when you are running geoFAX. Everything is controlled either on the front of the simulated fax machine that appears on the screen or from within dialogue boxes that pop up as though they were a piece of paper coming out of the top of the fax machine. At times, you will notice a fax document scrolling up out of the machine. You will see this only when a GeoPaint file is involved in one way or another. If you are sending a GeoPaint file, you will see an image of it as it is being sent. Or if you are converting a fax document to GeoPaint format or vice-versa, you will see this feature. If a GeoPaint document is not involved, you won't have a simulated fax document scrolling out of the machine. The reason is simple. geoFAX is optimized when it is working entirely with a fax document. It has little time to do anything else, hence the need to avoid this little feature.

WHAT THE BUTTONS MEAN

The simulated fax machine that you will see on the screen, has buttons that you can push by clicking on them with your mouse. This is the method you will use to make geoFAX do what you want it to do. This is just like pushing a button on a real fax machine. Here is a brief description of each button in the order that they appear from left to right:

The START Button

This button is used to initiate a fax transmission manually. If your intentions are to send a fax, you will click on the START button after you have set up geoFAX to send a fax, via the SEND button. You will know that geoFAX is in send mode if the LED above the SEND button is lit. When the LED is not lit, then geoFAX is in receive mode. Pressing the START button will then tell geoFAX to answer the line and receive a fax document, or to send a document, depending on the mode it is in.

The AUTO Button

If you wish to have geoFAX automatically answer your incoming fax calls, just click on this button to turn on the auto-answer mode. Click it again to turn off the auto-answer mode. The LED above the button will be lit if geoFAX is in auto-answer mode. From this point on, geoFAX will operate entirely on it's own. It will answer the line when it rings and handle the entire incoming fax transmission automatically.

The SEND Button

When you wish to send a fax document, you begin by clicking on the SEND button. You will then be allowed to select the file you want to send from the disk directory. Once you have completed your selection, and chosen your method of dialing, geoFAX will be ready to send it. You will notice that the LED above the SEND button will be lit. This indicates that you are in send mode. If you are ready to proceed with the fax transmission, just click on the START button.

The PRINT Button

Most of the printer functions are accessed by clicking on the PRINT button. One of the functions allows you to print an already existing file. You can also change your standard GEOS and geoFAX printer drivers by clicking on this button.

The DISK Button

Most of the disk functions are accessed by clicking on this button. You can also access desk accessories here. Other functions that are available from the DISK button are the conversion utilities. These allow you to convert your GeoPaint files into geoFAX files and vice-versa.

The OFF Button

The easiest button to describe is the 'OFF' button. Think of this as your ON-OFF switch. The machine is already on, so by clicking on this button, you will end the program and exit back to the Desktop, geoSHELL, or whatever alternative desktop that you are using. When doing so, geoFAX will first reset your modem and it will also make sure that the modem's auto-answer mode is disabled. Then the screen will clear and you are done.

THE STOP KEY

There is one more button that deserves mentioning, except that this button does not appear on your screen, instead it is located on your keyboard. It is common for a 'real' fax machine to have a STOP button that can be pressed to stop most of it's ongoing functions. With geoFAX your STOP key has this function. The reason a STOP button does not appear on your screen is because while geoFAX is sending or receiving a fax document, the mouse must be disabled. geoFAX needs every bit of processing time it can get and can't afford to have the mouse hogging some of it. So instead of GEOS watching for a mouse press on a STOP button, geoFAX manually monitors the STOP key at selected intervals. The STOP key will get you out of most operations including the printing functions. If you press the STOP key while a fax is being sent, geoFAX will promptly stop and hang up the phone line. When you click on the 'OFF' button to exit out of geoFAX, you might notice some activity at your modem. geoFAX is trying to reset your modem from fax mode back to a data mode. It's possible that maybe you didn't have your modem running this time, because maybe all you wanted to do was to print an existing fax or do some converting. In this case, there may be a slightly longer pause when you exit geoFAX until geoFAX realizes that the modem is not available. In this case, you can press the STOP key and geoFAX will simply ignore it's attempt to reset your modem and you will exit faster.

2. SENDING A FAX DOCUMENT

geoFAX is capable of sending two different types of documents. The type you are likely to send most of the time are GeoPaint files. Since most fax machines transmit documents in the form of a graphic, rather than text, a GeoPaint file lends itself nicely to this application. The other type of file that may be transmitted would be an actual fax document. This would be in a file that you may have already received previously from another fax machine. A file in this form would be sent out exactly as you received it. In a sense, you would have received it from one fax machine and forwarded it to another.

geoFAX also allows you to take a GeoPaint file and convert it into a fax document prior to sending. This allows a slightly higher baud rate to be used since the conversion is done ahead of time. When geoFAX transmits to another fax machine, it is always sending the document in a form that the receiving machine understands. This is why the conversion is necessary either prior to or during the transmission. Another advantage to converting a GeoPaint file ahead of time would be that you could print the file to see exactly how it will appear when the other machine receives it.

SELECT A FILE TO SEND

Before being allowed to send a fax, you must select an existing file from disk. To do this, you begin by clicking on the 'SEND' button. A dialogue box will appear that presents you with several icons. One icon says 'GeoPaint', another says 'geoFAX'. If you change your mind at this point, just click the 'CANCEL' icon and the dialogue box will close.

Otherwise, click on either 'GeoPaint' or 'geoFAX', depending on the type of file you wish to send.

Now, the dialogue box will close and another will appear with a list of files on disk that represent your selection.

You may search through this list of files for the desired file. Once you have found the file you want, just click on it to highlight it and then click on the 'OPEN' icon. If you look at the bottom of this dialogue box, you will see anywhere from 1 to 4 icons that represent the drives that you are currently using. The active drive will be highlighted. If the file you are after is on another drive, just click on the desired drive's icon and the disk in that drive will be accessed and a new list of files will be displayed. If you wish to use a different disk in the same drive, it is a simple matter to just change the disk and then click on the drive icon again. This will tell geoFAX to access the drive again. The fact that you have changed disks will be automatically recognized.

While this dialogue box is still displayed, you may change your mind about sending a fax by simply clicking on the 'CANCEL' icon and the dialogue box will close. If you click on the 'OPEN' icon, then geoFAX will still close the dialogue box and return you to the first dialogue box. geoFAX now knows the file you wish to send. Even after you have sent this file, it will remain as your default file until you select a different one. This makes it easy to send the same fax to more than one location. You do not need to reselect the file each time, you merely change the phone number. By the same token, the phone number you choose to send to will remain the same until you change it, thereby allowing you to send to the same number later on without entering the number again.

There are actually two different ways to dial a number. The easiest way is to have geoFAX dial it for you. The other method is for you to dial a number using your

own telephone handset. With geofAX, this method is referred to as 'MANUAL DIAL'. This is the default mode until you have entered a phone number.

Click on the 'PHONE' icon to bring up the phone dialogue box. Simply enter the desired phone number and press RETURN.

At this point, you can also cancel the existing number by clicking on 'MANUAL' to put geofAX back into manual dial mode. You can edit an existing number using the DELETE key and retyping the number. Your change is not official until you press the RETURN key. If you click the 'CANCEL' icon, any changes made will be cancelled.

Also in the phone dialogue box, you will notice that you can adjust the baud rate that will be negotiated between your modem and the remote machine. Whatever selection you use will be the highest rate that will be allowed provided both parties are capable of that speed. If not, then a lower speed will automatically be used. This speed is used when you are sending a fax. The speed for receiving a fax may be different and is selected from the 'AUTO' dialogue box. You will also notice some other speed settings in this box. These settings of 19200 and 38400 refer to the speed at which your computer will communicate with your modem. This has nothing to do with the baud rate that will be used for sending the fax. In most cases, you will not need nor want to adjust this setting.

Once you have a file and a dialing method chosen, geofAX may be used to send your fax. Just click on the 'OK' icon to finish preparing geofAX to send.

The dialogue box will close and you will then notice that the LED above the 'SEND' button remains lit. This means that geofAX has your selected file ready for sending, and knows how you wish to dial out. You still have the opportunity to change your mind about sending the fax, because nothing happens until you click on the 'START' button. If you choose not to go ahead with sending the fax, click on the 'SEND' button again, and then click on the 'CANCEL' icon when the dialogue box appears. If you are sure that you are ready to send, click on the 'START' button. As long as the LED above the 'SEND' button is lit, geofAX is prepared to send a document, the 'START' button will tell geofAX to go ahead and do it.

If you had chosen to manually dial out with your handset, then you must do so before clicking the 'START' button. Just pick up the handset, dial the desired number and wait for the fax machine at the other end to pick up the line. When you hear the tones that are being generated by the receiving fax machine, click on the 'START' button. In some cases, the receiving machine might be waiting to hear the tones coming from your modem. In this case, go ahead and click on the 'START' button. As soon as you see the LED above the 'START' button light up and the off-hook light on your modem light up, hang up your handset. geofAX has picked up the line and will proceed to communicate with the other fax machine.

At this point, geofAX is operating the same way whether you had chosen to dial manually or have geofAX dial for you. You need not do anything further. geofAX will proceed to send the fax document to the receiving machine. If you had selected a GeoPaint file, geofAX is converting the file to a fax document at the same time that it is sending it. If you had chosen a geofAX document, then the file is being sent in the same form without any conversion. You will notice a difference on your screen between sending a GeoPaint or a geofAX document. With a GeoPaint document, you get to watch a simulated piece of paper scrolling up out of the geofAX machine on your screen. If the document is a geofAX document, this function is not used in order to get all the performance possible.

You will know when the transmission is finished, because both LED's above the 'START' and 'SEND' buttons will go out. This indicates that the transmission was successful.

geofAX will try it's best to detect any major errors during the transmission, and if so, will indicate that an error occurred by flashing one or more LED's. Depending on the error, you will in most cases, have the opportunity to resend the document. Just

click on the 'SEND' button again to bring up the dialogue box and click OK once more. Now click the 'START' button, or dial out and then click the 'START' button when you are ready to try again. Most of the time, you will need to do this because the phone line was busy. You can still change your mind and cancel as described earlier.

Whenever the LED above the 'SEND' icon is lit, geofAX will not allow an incoming fax. If the phone should ring, geofAX will ignore it. If you think that it is an incoming fax, you may quickly cancel out of the send mode and then geofAX will be ready to answer the line as soon as you click the 'START' button. To cancel the send mode before you have actually begun to send the fax, just click on the 'SEND' button.

3. RECEIVING A FAX DOCUMENT

Receiving a document using geoFAX is very easy. You don't even need a dedicated phone line. geoFAX works perfectly well with the same line that you use for your voice calls. For this, you would want to manually answer the calls yourself and determine if the call is a fax machine or a voice call.

If you have a line that you wish to dedicate just for fax purposes, then you can put geoFAX into an AUTO-ANSWER mode. Once you have done this, geoFAX will take care of answering the line and saving the incoming fax document to your disk.

Even if the speaker is turned off on your modem, you will know that geoFAX is receiving a fax if the LED above the 'SEND' button is off while the LED above the 'START' button is lit. Anytime the LED above the 'START' button is lit, geoFAX is either sending or receiving a fax. The 'SEND' LED indicates which direction is being used.

If you choose not to use the AUTO-ANSWER mode, you can manually answer the line by picking up your handset at any time a call comes in. If it is an incoming fax, you will know this because of the tones that will be present on the line. At this point, simply click on the 'START' button. When you see the LED above the 'START' button light up and the off-hook light on your modem light up, hang up your handset. geoFAX will do the rest for you, just as if it had answered the line itself.

AUTO-ANSWER MODE

For receiving faxes, the auto-answer mode is the simplest to use since geoFAX will do the whole job for you. Click on the 'AUTO' button to bring up a configuration box. In this box you may choose the desired maximum bps rate that will be negotiated between your modem and the remote fax machine/modem.

The drive that geoFAX will save your incoming faxes to will be highlighted. If this is not the drive you wish to use, just click on the desired icon and that drive will be used instead.

The only other thing to do is to select the method of answering. For auto-answer mode, click on the Auto icon. In a few moments, the dialogue box will disappear and geoFAX is ready to take in your faxes.

If you should walk away from your computer for a period of time and then return, you will know if any faxes have been received if the LED above the 'DISK' icon is lit. This would indicate that a new fax document resides on your disk.

MANUAL-ANSWER MODE

For manually answering, you must still bring up the same dialogue box as you do for auto-answer mode, but instead of clicking on the Auto icon, click on the Manual icon. Even though geoFAX is always in receive mode when the 'SEND' LED is not lit, your modem is not properly configured until you have done this.

Just as with auto-answer mode, the dialogue box will disappear after it has configured the modem and you are ready to answer the line manually by clicking on the 'START' button. After the incoming fax is finished, geoFAX will still be ready for another manually answered call as long as there are no LED's flashing. However, if you should do anything else such as printing or converting a document or running a desk accessory, be sure to click on the 'AUTO' button again and reconfigure the modem before answering an incoming call manually for best results.

When ready to manually answer an incoming fax, click on the start button when you have an incoming fax. Do not hang up your handset until you see the 'off-hook' light on your modem light up. This might take a few seconds.

Also, while you are talking on the phone with another person, you can each manually start a fax transmission. Just agree when to start and then proceed by clicking on 'START'. Again, wait for your modem's 'off-hook' light to come on before hanging up your handset.

4. THE PHONE DIRECTORY

geoFAX's phone directory is a simple little database system that allows you to enter a person's name along with their phone number. Whenever you wish to send a fax to that person, you merely have to select the desired name from the directory and the phone number will automatically be entered as the number to send the fax to. The database is stored directly into the geoFAX file. If you copy geoFAX to another disk, the phone database will be copied along with it.

To get to the phone directory, click on the 'SEND' button and then click the 'DIRECTORY' icon. To enter a new name and number, click on the 'ADD' icon. You will be prompted for the name and upon hitting return, you will again be prompted for the phone number. After entering the number, the new entry will be entered into the database.

To delete an existing name, just select the name you wish to delete and then click on the 'DELETE' icon.

To edit an existing name such as perhaps making a change to the phone number, select the desired name and then click on the 'EDIT' icon. Simply follow the on-screen prompts to edit the entry.

If you double-click a name or select a name and then click on the 'OK' icon, the number corresponding to that name will be the number that will be dialed when you are ready to send a fax.

5. FAXING GEOWRITE AND OTHER DOCUMENTS

geoFAX is not limited to sending just GeoPaints or geoFAX documents. Well, actually it is, but due to the flexibility of GEOS, just about anything that can be printed can also be converted into GeoPaint format. For instance, you can use the PaintPages utility that is supplied with GEOS to convert a GeoWrite document or any other GEOS document into GeoPaint format.

As an alternative to PaintPages, you will find a public domain printer driver on your geoFAX disk called Interceptor. Simply install it like you would any other GEOS printer driver and proceed to print the GEOS document that you would like to send as a fax. Instead of your document being printed on your printer, Interceptor will create a new GeoPaint image of your document. You can then use geoFAX to send this new GeoPaint image as a fax.

If your GEOS document such as a GeoWrite file contains multiple pages, Interceptor will create separate GeoPaint files for each page. In doing so, it will append the page number to the end of the filename of each GeoPaint image. This numbering convention is recognized by geoFAX and every page can be sent all in one fax session.

One thing you will need to remember about Interceptor is that it does not ask you for a filename when creating the GeoPaint images. It always names them 'IMAGE' plus the page number. If any files of the same name are already on your disk, it will first delete those files and then create the new ones. So, it might be wise to rename your GeoPaint files after creating them with Interceptor if you wish to save them.

6. SCANNING GRAPHICS

geoFAX's faxing capabilities make it a natural candidate for using a real fax machine as a graphics scanner. In fact, this is the easiest method around for capturing artwork from a piece of paper and importing it into a GeoPaint file.

Perhaps the only limitation is the fact that faxes are all in black and white, but even if they could scan in color the results wouldn't be as good since GeoPaint and the 64's hardware do not support the color resolution that a color scanner can support. However, this does not mean that we cannot scan color images. In fact, many of today's newest fax machines do quite a remarkable job of scanning color photographs and converting them into black and white images using grayscale halftoning. You will be amazed at the kind of quality you will be able to achieve with a good fax machine.

The trick is to take advantage of the fax machine's halftone resolution settings. All fax machines support a standard resolution of 204 dpi horizontally and 98 dpi vertically. And most of them also support a finer vertical resolution of 196 dpi. But many of them also support a grayscale or halftone mode. What this does is to interpret the colors that are in the image to be scanned and convert those colors into high resolution patterns that appear to have many different shades of gray, sort of like how a black and white photo would look in a newspaper.

The more grayscales that your fax machine supports, the better the resulting images will look. Some support 16 grayscales while others support 32 or 64 or even more. A fax machine that supports at least 32 grayscales can do a fairly nice job of interpreting a color image. Always use the highest setting that your fax machine will handle. You may have to refer to your fax machine manual to find how to adjust the settings. Most are quite easy to set using the control panel on the front of the fax machine.

The reason a fax machine with more grayscales can do a better job is because it can differentiate between more colors than one with fewer grayscale capabilities. In other words, certain shades of green might appear the same as certain shades of blue. The better fax machines will see these two colors as being different and will display them as such.

When you are scanning images, it is always your fax machine that will decide how to create the image. The sender decides how to create the fax image and the receiver will either agree to the setting that will be sent or negotiate lower settings. In the case of geoFAX, it will always accept whatever your fax machine can send it. In order to scan an image, you must first have a setup that will allow a direct connection between your modem and your fax machine. Not all fax machines or modems allow this. By direct connection, I mean that you can actually take a plain phone cord and connect it from the fax machine phone line port to the modem's phone line port without being connected at all to the phone company.

With some combinations of fax machines and modems this won't work. The only way to find out if it works is to try it. If it doesn't work, then you will need a device that places a voltage on the wires that run between the fax machine and modem.

When you are connected to a phone company line, this voltage is present and allows the units to function. I will explain how to tell if the connection isn't working for you, but first we need to go through the motions of an actual scanning process. First you need to get geoFAX ready for the scan. Click on the 'AUTO' button. Now select a slow baud rate such as 2400 so that you will get the best possible scan with little or no errors in it. Then click on 'MANUAL' to get geoFAX ready to run. We will need to use the manual mode of answering the incoming fax since there won't be an actual incoming call with a ringing.

You will also have to use your fax machine in a manual mode for sending the image to geoFAX. To begin, place the image to be scanned into the fax machine.

This lets your fax machine know that it is being put into send mode. Since there is no phone company involved, there is no dial tone, however you will still proceed as if a call has already been placed.

Take the handset off it's hook or press the speakerphone button if your fax machine is equipped with one. Then press the start button on the fax machine. At this point, it will begin to send out some tones to signal geoFAX that it is attempting to begin a fax session.

Now, on your geoFAX screen, click on the 'START' button and geoFAX will attempt to begin the fax session on it's end also. If everything is working correctly, you will soon see your fax machine draw the image in and proceed with sending the fax image to geoFAX. Just wait until the whole process is finished. And then you will find a fresh fax image of on your disk. At this point you can either print it out or convert it to a GeoPaint file.

Now, if things didn't go right, chances are that your combination of fax machine and modem don't work with a direct hookup. The way you can tell is that geoFAX will error out and disconnect the modem or actually hang up the line and the fax machine will never actually perform the scan but will likely just eject the page or wait until you manually eject it.

If you are one of the lucky ones, your setup worked just fine, but if not you will find a GeoPaint file on your geoFAX disk called 'fax.interface'. This is a simple schematic of a device that can be built for about \$10 worth of parts to connect between your modem and fax machine. It will provide the voltage that the equipment needs to do a direct hookup without the phone company.

Another method is to simply use two actual phone lines and perform a regular fax session and have your fax machine dial out to the line that geoFAX is connected to. If you only have one phone line, you can still take advantage of the phone company's system and use the voltage that it provides. For this, you need a Y-connector that will allow you to connect your fax machine and modem together and also to the phone line on your wall. Now, go to another extension phone and pick up the handset. Wait until the phone company's recording and loudtones stop and the line is quiet. Then proceed to perform the manual faxing process as outlined above. It's a little bit of a hassle, but it works.

When you scan a page, just remember to use your fax machine's halftone mode in it's highest available resolution if the image is a color photograph. If the image is merely a type-written page, then you would be better off with one of the standard modes since you want solid black making up the imagery that will form the characters on the page. With experience, you will learn the settings that work best for you.

7. PRINTING A FAX DOCUMENT

Once you have received a fax document, you have the opportunity to process it further.

You can use geoFAX to print the GeoPaint or geoFAX file for you. In fact, geoFAX can be used to print any GeoPaint file.

If you are fortunate to have a printer that can print at a high enough resolution, you will be able to take advantage of the higher resolution of the fax images. The document will look just as good when you print it as it did when the other fax machine sent it to you. The disadvantage is that some fax documents can be quite large, in terms of file size, depending on what is on the page.

In order to begin printing an existing document, click on the 'PRINT' button. From the dialogue box that will appear, you can choose to print a GeoPaint or a geoFAX document. You will also notice two icons that allow you to select different printer drivers.

When you are ready to print, make sure that your printer is ready. If you forgot to set up the printer, geoFAX will let you know. It will try to make sure the printer is ready before proceeding. Some printer drivers might hang up your system if the printer is not turned on, so just like with any other application, be sure that your printer is connected, turned on, and ready.

To select a file for printing, click on either the GeoPaint or the geoFAX icon. Another dialogue box will come up with a listing of files according to the type you have selected. Find the desired file in this list and click on the 'OPEN' icon to begin printing it.

If you change your mind about printing a file, simply click on the 'CANCEL' icon.

PRINTING A GEOPAINT DOCUMENT

When printing a GeoPaint file, your standard printer driver must be available. With GEOS 128, the printer driver should already be within the memory of the computer, provided you have used the regular means of installing the printer driver during bootup, or at any other time. With GEOS 64, unlike with many other applications, geoFAX does not require that the printer driver be on the same disk as the application. geoFAX will search all available drives for the printer driver and load it from there.

Once you have found the file to print and clicked the 'PRINT' icon, the printer driver will be loaded, and then the GeoPaint file will begin to load and printing will begin. While printing is in progress, you can stop it by holding down the STOP key. Keep holding the key down until the printing stops. At times this might take a few seconds if the printer driver is busy making multiple passes.

PRINTING A GEOFAX DOCUMENT

geoFAX does not use your regular printer driver for printing a geoFAX document. This is because your normal printer driver expects the resolution to be 80 × 72 dpi. It will not work properly with a geoFAX document. There are some special printer drivers supplied with geoFAX that recognize the resolution that geoFAX desires to use. Your printer will be used in a resolution that is best suited for printing a geoFAX document. In order for a printer to be able to print a geoFAX document, it must be capable of printing at a resolution greater than 284 × 196 dpi. Whatever your printer's capability is, the geoFAX printer drivers will increase the resolution of the document to match. They will not decrease the resolution. If your printer is of a lower resolution, then you will need to convert the document to a GeoPaint before printing it.

SELECTING A PRINTER DRIVER

When choosing to print a GeoPaint file, your regular printer driver will be used. You can select that through your normal means outside of geoFAX or from within geoFAX. If you wish to print a geoFAX document, you must select a special printer driver designed for geoFAX that will work with your printer. Your regular printer driver cannot print a geoFAX document because it does not expect the resolution that is sent to it to be any greater than 80 × 72 dpi. A geoFAX document is 204 × 196 dpi and so it requires a special printer driver.

You can select a special printer driver from the dialogue box that comes up when you click on the 'PRINT' button. Your two default printer drivers are also listed within this dialogue box. If you need to change drivers, simply click on the appropriate icon. To change your geoFAX driver, click on the icon that says 'FAX' and another dialogue box will come up with a list of printer drivers that you may choose from. If you do not see the one you need, click on one of the drive icons in this box to display a list from a different drive.

Once you have selected a printer driver, the disk it is on must remain in the drive since the driver is not stored in memory. The only printer driver that remains in memory is the standard GEOS printer driver if GEOS 128 is being used. The printer driver is not loaded at this time, it is only selected. So, at the time of printing, the driver must be available on one of the drives that are currently online. geoFAX will search all of the drives for it.

There are a few printer drivers supplied with geoFAX that will work with most of the common printers. As the demand increases, more drivers will be made available.

There is a standard method used to identify the type of printer driver that you will need for your own use. The filename pretty much explains it all. If the filename begins with an 'E', it is intended for an Epson compatible printer. These particular printer drivers will have an E followed by a number such as 240. This indicates that the driver will work with an Epson 8 or 9 pin printer that supports 240 × 216 dpi resolution. Usually the next part of the filename indicates the relative speed and quality of output that the driver is capable of. Normally this is indicated as 'Low', 'Med', or 'High'. The Low drivers would have a lower quality of output but might have a faster printing speed, while the Med and High drivers take longer to print but tend to produce nicer looking documents.

There is another icon called 'FAXPORT'. Clicking on this icon will select the type of connection that you use with your printer for the fax printer driver. The two main choices are 'SERIAL' and 'PARALLEL'. The parallel selection will send all output through a geoCable connected to the user port while the serial selection will go to the serial port to either a Commodore ready printer or a printer interface that is then connected to a parallel printer.

The FAXPORT icon also lets you choose between 3 different secondary addresses to use for the serial selection. The secondary addresses supported are 0, 5, and 7. With a printer interface, you would normally use a secondary address of 5 while a Commodore-ready printer might work properly with a secondary address of 0 or 7. Experimentation will prove which one works for you.

In all cases, the printer drivers expect you to have your dip switches set to turn off any automatic linefeeds. If your needs require otherwise, please contact the author with the specifics of your printer.

Here again is a summary of the filename breakdown:

E240 series - for Epson compatible 8/9 pin printers with 240 × 216 dpi capability
E360 series - for Epson compatible 24 pin printers with 360 × 360 dpi capability
HP series - for HP LaserJet and DeskJet compatible printers.

BJ series - for Canon and some other inkjet printers.

PSFAX series - for laser printers and other printers equipped with PostScript.

Low - This type of driver is generally used for quicker printouts and/or proofreading or for faxes where quality output is not important. Fresh ribbons are desired.

Med - A fairly decent quality printing is possible with this driver. For most faxes, this is the best choice since it comes close to the resolution of the original fax document. For some very dense images, this might work better than 'High' since it puts slightly less ink on the paper.

High - For the best quality output, this driver is the one to use. There is a tradeoff in speed, however. Also, some printers make dots too large with the result that the dots can overlap each other and in some cases cover up nearby white dots. This would result in images that look too dark. Use your own judgement according to your own printer. The resolution of these drivers is the best and will reproduce every little detail of the fax image.

The following drivers are supplied with geoFAX:

E240Low - Epson 8/9 pin, 240 × 216 dpi, draft quality.

E240High - Epson 8/9 pin, 240 × 216 dpi, high quality.

E360Low - Epson 24 pin, 360 × 360 dpi, draft quality.

E360Med - Epson 24 pin, 360 × 360 dpi, medium quality.

E360High - Epson 24 pin, 360 × 360 dpi, high quality.

HP300 - HPLaserJet/DeskJet compatible, 300 × 300 dpi.

This driver produces nice output on most any HP compatible device and understands that the printer device uses single sheets.

BJ360High - Canon bubblejet, 360 × 360 dpi, high quality.

This driver requires that your Canon bubble-jet be configured into BJ mode. It will not work in Epson mode. Even though the Epson drivers can be used with the Canon, you will find that this driver is not only faster, but also produces a better looking document and it also understands the fact that your Canon uses single sheets.

PSFAX - PostScript devices, any dpi resolution.

This driver can be used with any laser printer that contains Adobe PostScript. With a good quality laser printer, this combination produces the best output that you can get with geoFAX.

PSFAX14 - This is the same as PSFAX but allows the use of legal size paper. Make sure your printer is configured for this size paper.

UFAX40 - Special driver for viewing faxes on screen. Install this just like any fax printer driver and view your faxes on your monitor instead of sending them to your printer.

Remember, if you don't see a driver listed that will work with your printer, write to the author with details of your printer. If however, your printer is not capable of a resolution that exceeds the 284 x 196 dpi of the fax images, then the best solution is to convert the image to a GeoPaint and use your standard printer driver to print the GeoPaint image.

8. HANDLING ERRORS

geoFAX is designed to catch most of the errors you are likely to encounter. In most cases, it should be easy for you to figure out what went wrong. You will know when an error occurs, because geoFAX will either pop up a dialogue box with the error listed in it, or it might make one or more of the LEDs start blinking. Before you can continue, you must act on the error and correct it.

THE LED's

The LED's above the buttons on the front of the geoFAX machine have two purposes. Usually, they indicate what geoFAX is doing or the mode that geoFAX is in. At other times, when they are blinking, they indicate that an error has occurred. Usually a disk error will cause the 'DISK' LED to flash. A printer error will normally cause the 'PRINT' LED to flash.

In any case, you will not be able to send or receive a fax if one of the LED's are flashing. This helps to prevent further problems from occurring.

Clicking on the button below the flashing LED will normally turn it off unless you have a dialogue box opened up.

YOUR MODEM IN FAX MODE

At times during a fax transmission or reception, things can and will go wrong. Noise on the phone lines cause havoc with faxes. Unlike normal telecommunications, the fax mode of the modem is not as good at handling line noise and errors will occur. Sometimes the modem either at your end or the fax machine at the other end can get confused. Pay attention to the lights on your modem. They will tell you a lot about what is going on. Once a fax page is either being sent or received, the transmit or receive lights on your modem should be lit or appear to be blinking as data is being transferred. If these lights stop, then something might be wrong. Don't be alarmed, however, if there appears to be a long pause during the beginning of the fax session or the end of the session. This is normal. But during the actual sending/receiving of the page data, one of the lights should be working fairly constantly. After using geoFAX a few times, you will get familiar with what the lights are doing and will easily recognize when something is wrong.

If something does go wrong, you can usually terminate the fax session by pressing the stop key. After fixing the problem, just make another attempt to either send or receive the fax.

Believe it or not, your modem can crash just like your computer can. Your modem has it's own little computer built into it. It will get itself into a state that you can't shake it out of. If you fail to get any response from the modem, exit out of geoFAX and turn the modem off. Then turn the modem back on and go back into geoFAX and it will be working properly once again. The fax mode is really quite peculiar, but for the most part it works quite well under most circumstances.

9. DOCUMENT FILENAMES AND MULTIPLE PAGES

When sending a fax, geoFAX does not care about what you have named the file. It will recognize the type of file that it is by checking it's filetype and also by examining it's file header block. You can only work with geoFAX or GeoPaint documents.

For receiving a fax, since geoFAX is creating the file on disk, it has a special method that it uses for naming the new file. If you look through the directory, you can find the new file by it's filename. Since geoFAX does not really know what you would like to name each file, nor does have the time to ask you, it names the file according to the date and time that it was received. As an example, a file received on March 20th, 1997 at 3:15pm might have the following filename:

F032097.0315P

A breakdown of this format is as follows: Characters 2 through 7 indicate the date the file was received. Of this, the first two characters can have a value of 01-12 for the month. The next two characters indicate the day of the month and will be 01-31. The next two represent the year and can be 00-99. (00 will be used in the year 2000)

The 8th character is always a period.

Characters 9 through 13 indicate the time in 12 hour mode with the 12th character always being an 'A' or a 'P' to indicate am or pm.

Don't forget to set your GEOS clock! This should be an automatic habit when you first boot up GEOS, unless you have a built-in real-time clock and make use of it.

The filenames are based on the time when the phone line is first answered.

Of course, it is perfectly acceptable for you to rename these files with any name you wish. If you wish to send out more than one page, you would need to have each page in it's own separate file on disk. Each filename should be the same except for the last two characters. If the last two characters of the filename are 01-99, then geoFAX will send the file, followed by any file with the same name but with the last two characters representing the next sequential number. Let's assume you have a file called 'newsletter01' that you are sending. As soon as geoFAX finishes with this file, it will look through the directory for a file called 'newsletter02'. If it finds a file with this name, it will send that one as the next page of the fax document. The first file does not necessarily have to use an 01 for the first page. Anytime a two-digit number is found at the end of the filename, geoFAX will still look for the second page with the next number in line. This allows you to send pages beginning from the middle of a document if any errors have occured during the transmission of a previous page. You don't have to resend the pages that have already been successfully sent. Remember that a fax that you received with geoFAX can have more than one page contained within that single file, and each page will be sent.

geoFAX will actually allow you to use more than one method of numbering your pages. In each case, the filenames will still end with a number. The following examples will each result in 3 pages being sent:

Example 1:

filename01
filename02
filename03

Example 2:

filename1
filename2
filename3

Example 3:

filename 1
filename 2
filename 3

Whatever method is used for the first page must also be used for the following pages or they will be ignored.

You can also begin with a page number of 0 if you wish. Then the filename for the second page would end with a 1. This allows you to resend a fax that you have received and to attach a cover page ending with 0.

10. CONVERTING TO/FROM GEOPAINT

For the average GEOS user, the most practical format to use for faxing, naturally, is GeoPaint. This allows you to use the document in many other ways with other applications. You must remember that with some fax documents, you are going to lose some detail in the GeoPaint format.

Don't forget that a fax document is just a big graphic. It is just like a GeoPaint document, but with greater resolution. It has more dots per inch. When a fax document is converted to a GeoPaint file, the dots that make up the original image are altered a certain way. There is usually 2 or 3 dots that are combined together to make 1 dot. This might affect the appearance of some images, but surprisingly, most faxes will convert quite nicely.

With the incoming fax being saved as a geoFAX document, all of the resolution of the original will be retained. The disadvantage is that geoFAX is presently the only application that supports this format. And the current version of geoFAX does not provide any means with which to edit a geoFAX document. You can only print it on your printer.

The biggest advantage to sending and receiving a geoFAX document is the transmission speed. You can send a GeoPaint document if you'd like, but geoFAX must convert it to a fax document as the transmission is occurring. This slows things down slightly. A geoFAX document does not need any conversion as it is being sent. When receiving a fax, it must be saved as a geoFAX document. It takes considerably longer to convert to a GeoPaint and so is not really feasible to do 'on the fly' when receiving a fax. The machine at the other end won't wait, it expects geoFAX to keep on taking the incoming bytes without stopping.

If the speed of transmitting GeoPaint files is satisfactory, then by all means, use that method since it is the easiest for you.

When sending a GeoPaint file, all of the detail is retained since the resolution is being increased and not decreased.

Another advantage to converting to a geoFAX file prior to sending is that you can preview it on your printer if you'd like to see how the conversion turned out prior to sending it. But don't worry, it will look just as good as a fax document as it does in GeoPaint.

GEOPAINT TO GEOFAX

Converting a GeoPaint file is very easy. Click on the 'DISK' button to bring up a dialogue box. Within this box, click on the 'GEOPAINT' icon and another dialogue box will open. In this box you will be able to select a file to convert. The 'CANCEL' icon will allow you to change your mind.

The usual disk icons are available allowing you to switch to a different drive, or you can insert a different disk and click the same drive icon to read the new disk. After you find the desired file, click on the 'OPEN' icon. Another box will open prompting you for a filename to give to the new file. The destination drive will be highlighted or you can select a different one if desired. As soon as you hit the RETURN key, the conversion will take place. You will still retain the original file and a new copy in geoFAX format will be created.

GEOFAX TO GEOPAINT

Now for the most useful conversion utility in geoFAX. This is the part that allows you to import your fax documents into GeoPaint format. With this utility, we have a few more things we can play with. Since we are going from a high resolution image to a

low resolution, the settings you choose will affect how the resulting image turns out. If we were going from low-res to high-res, no adjustments would be needed since the end result would still look the same. But in our case here, we are losing resolution which means we are losing black and white dots from the image. So, depending on how the original image looks and how we would like the resulting image to look will depend on the settings that we will apply to achieve that image. To convert a geoFAX image to GeoPaint, select the file just like explained previously for selecting a GeoPaint file and once selected, you will be presented with another screen where you can apply the various settings and adjustments that geoFAX provides.

One difference here is that you will not be allowed to select your own filename. Instead, geoFAX replaces the first character of the geoFAX filename with a 'P' when it creates the new GeoPaint file.

On this screen you will be able to adjust brightness, contrast, and lines per inch (lpi). You can also select which pages to convert if the fax is a multi-page fax. Each file will have 01, 02, 03, etc. appended to the filename. You can also limit how much of the fax image is used up to the maximum allowable 10 inches which is the limit of a GeoPaint image. This helps speed up the process in those cases where you already know that the image might be shorter than a full page.

When you make a change to the brightness, contrast or lpi settings, you will notice that a change takes place in a special horizontal bar on the screen that helps to represent how the changes will affect your converted image. Here is a general idea of what takes place:

BRIGHTNESS - higher settings will add more white dots in the lighter area and remove black dots in the darker areas giving an overall lighter appearance to the image. Some photo scans will turn out better with a brighter setting to help enhance to the darker areas.

CONTRAST - higher settings will make the dark areas darker and the lighter areas lighter, while lower settings have the adverse effect.

LPI - there are two lpi settings, 27 and 38. These represent the number of lines per inch that make up the halftoning in the resolution of the GeoPaint image. A setting of 38 will appear to have a higher resolution, but with fewer apparent grayscales. The setting of 27 will on the other hand provide a lower resolution, but with most photo scans, there will appear to be more apparent grayscales and so most images that were originally color photos will look better at this setting.

If the image is primarily line art or bold black and white graphics, then the setting of 38 lpi might be preferred along with a high contrast setting.

You will soon learn the settings that provide you with the best looking images as you gain experience. There is no better method than just doing it and trying different settings.

11. FILE MANAGEMENT

geoFAX has some very useful utilities built-in for managing your faxes. These utilities save you from having to exit geoFAX back to the Desktop. geoFAX allows you to copy, delete, and rename data files. Only GEOS data files will show up in the file requestors for these utilities. But keep in mind that some data files are not geoFAX or GeoPaint files.

Once you have received a fax and printed it, you might not need to save it any longer. For this you can use the built-in file deleter. Or you may wish to rename a fax to give it a more meaningful name than that which geoFAX gives it.

Perhaps the most useful of all is geoFAX's ability to copy files. This allows you to use your ramdisk for higher speed and then to copy the files to another disk for permanent storage. Following this, you can delete the files from your ramdisk to make room for more faxes.

Each of these utilities are available by clicking on the 'DISK' icon. In the screen that pops up, you will see a corresponding icon for each utility. Just follow the on-screen prompts for each utility. They are each self-explanatory and very easy to use.

The biggest limitation might be with the file copier in that it requires the source and destination drive to be different from each other. It will let you know if you have chosen the same drive for the source and destination.

12. RUNNING DESK ACCESSORIES

Like most major GEOS applications, you can load and run a desk accessory from within geoFAX. This gives you access to your favorite utilities from within geoFAX. This will also allow special utilities to be written for geoFAX without having to incorporate them directly into geoFAX itself.

To run a desk accessory, click on the 'DISK' button. A dialogue box will appear with several icons in it. One of these icons says 'DA's'. Click on this icon and another dialogue box will appear with a file requestor. Simply scroll through and select the DA that you wish to run and click on the 'OPEN' icon. If you change your mind, click on the 'CANCEL' icon. You can also select a desk accessory from any of your other drives that you are using. Just click on the appropriate disk icon and that drive will be searched for any desk accessory that is on it.

You may find that some desk accessories do not support colors. These will tend to look odd since the colors on the geoFAX screen will still be there. DA's that support color will alter the colors in the area of the screen that they occupy and will look proper. All future desk accessories should support color. Most of the major ones provided by GeoWorks do support color.

13. COMMANDING YOUR MODEM

A program that works with a modem wouldn't be complete if it didn't allow you to send commands to the modem. After all, with so many different modems on the market, some of them just need that extra little command sent to them to make them work properly.

There seems to be somewhat more of a standardization of the modem manufacturers with their fax/modems. Most of the manufacturers attempt to stick to the Hayes command set as closely as possible. This is a good idea, since most of the software authors try to utilize these command sets. Even still, there is some variations with certain features of the modems. geofAX attempts to make life as easy as possible for you, but it can't possibly cover every possible problem.

This is where you may have to intervene on occasion.

SENDING A COMMAND

Your fax/modem was designed to accept type-in commands. These commands must be sent as plain old ASCII characters. Every command begins with the two characters 'AT'. If the string of characters does not begin with AT, the modem will simply ignore the string. This is how geofAX sends it's own commands to your modem. You just don't see it happening on the screen. This is taking place in the background.

Click on the 'SEND' button and bring up it's dialogue box. One of the options in this box is an icon called 'MODEM'. Click on this icon and another dialogue box will appear. Here you will find an icon that allows you to enter geofAX's simple built-in terminal program. Click on the 'TERMINAL' icon for this. This is where you can manually send a command to your modem.

What you have here, is a simple terminal program. You will notice a blinking cursor in this new little screen. In this screen, whatever you type will be sent to your modem.

Keep in mind that geofAX is not really designed to be a terminal program. It is optimised for sending and receiving faxes. Don't expect any fantastic results if you try using the ATDT command to dial out, although it does work.

While data is being returned from the modem, if more than one line is being displayed, the data will fill up the display window and then proceed to scroll off the screen and you could miss something. You can pause the incoming data by holding down the CONTROL key.

To exit out of the terminal mode, just hit the STOP key. Here is how certain keys are affected in this terminal mode:

STOP - exit terminal
LEFT ARROW - ESCAPE key (Chr\$(27))
CMDR/X - Send BREAK signal
CONTROL/ A through Z - Send corresponding control key character.
SHIFT/CLR - clear the terminal screen.

Most all other keys will send the character that corresponds to the key pressed.

14. INSTALLING AND REGISTERING YOUR COPY OF GEOFAX

geoFAX is not copy-protected in the way that most of us are used to. You can make as many backups of the software for your own use as you'd like and it may be installed on any disk device that you presently use with GEOS. However, before you can begin to use it, you must install it on your system. The most important thing you must do is to enter your own name and the phone number you will be using the software with.

According to the FCC, all fax transmissions must be accompanied with the calling machine's phone number and the name of the person or company sending the fax. The author chose to take advantage of this and created a unique form of copy protection in the program that will not allow it to be used until the name and phone number you intend to use the software with is programmed into it.

The first time you load geoFAX, you will be presented with a dialogue box that will allow you to enter your name and phone number. Just follow the onscreen prompts and enter the information correctly. What you enter at this point is exactly the way your name and phone number will appear at the top of every fax document that you send. Enter your name and number the way you would like them to appear. For example, some people prefer to enclose the area code within parentheses, others prefer not to. It is your choice.

At the top of every fax that you send, your name and phone number will appear similar to the example below showing the author's name as it appears on his faxes. At the upper left corner of your outgoing faxes is the ID of your own personal copy of geoFAX.

geoFAX (GF-1001A) Maurice Randall 517-543-5202

If you ever change your phone number, you will need to make a new copy of geoFAX as this part of the program will only appear the first time it is used. For this reason, do not install your original disk. Make a backup copy of it first.

Another thing that is unique about geoFAX is that each copy is different. Do not give a copy of geoFAX to a friend. Make your friends buy their own original copy. Every time you send out a fax, in addition to your name and number, a special identification is also sent which corresponds to your copy of geoFAX. If it ever becomes necessary, the original source of the software could be easily determined. One of the requirements of any distributor of geoFAX is to turn in a list of where each copy of geoFAX was sent. So please keep this in mind when someone asks you for a copy. Just tell that person that you can't share this one.

Be sure to send in your registration to let the author know that you have geoFAX. This way, you will be kept informed of any new upgrades or additional utilities that will be made available.

If you ever decide to quit using geoFAX and to sell it to someone else, be sure to write to the author informing him of this. This way, you will be protected. By the same token, inform the new owner of geoFAX to do the same thing and to register himself as the new owner of the software. There is no charge to the new owner for this.

PROTECT YOUR DISK

Keep this one thing in mind: Your copy of geoFAX belongs to you personally. It is assigned to you and only you. Do not lose it while you are using it. If you ever stop using geoFAX and decide to sell your copy, do not sell your installed copy. Destroy it or reformat it. It has your name and phone number in it. Sell your original disk so that the new owner can install his own copy of the disk with his name and phone number. Be sure to inform the new owner of your disk that he/she will be required to send a letter of registration. If you should ever sell your disk and it is re-registered by the new owner, it will no longer be registered to you and you will not be allowed to legally use geoFAX.

Once you have sold your original copy of geoFAX, destroy or reformat any other disks that you have copied it to. You will no longer be permitted to use the software yourself.

Keep in mind that geoFAX is a program that is capable of dialing a phone number and if the program is tampered with to remove the special identification, who knows, geoFAX just might call up the author's phone number and report the violation!

REGISTERING FOR EXTRA PHONE LINES

For those of you who expect to use geoFAX with more than one phone line, you may do so. Just don't forget about the FCC ruling. The author will allow you to use geoFAX with one additional phone line for free without purchasing additional copies. This allows a person to use the software at home and at work. However, you must include the information for the additional phone line on your registration. If you need to use geoFAX on more than two phone lines, you still do not need to purchase additional copies but are required to register additional copies of your existing disk for a modest charge of \$5.00 for each additional phone line or computer station that will be using the software. For this, you must send a letter to register the additional copies, and the \$5.00 fee for each phone line/computer station must be accompanied along with the registration. (Remember, the first two lines are free.) Be sure to include the names that will be assigned to those lines. Many software companies require that complete additional copies be purchased in order to use the software at more than one station. So, \$5.00 per each additional station is more than fair. This does not give you the freedom to register additional copies for other people. The additional copies may only be used by you or people that are directly connected to you such as employees at your place of business. Please don't abuse this, it is a policy that is more than fair.

The honor system is being used here, and the \$5.00 charge for registering additional phone lines is not too much to ask. Remember, it is much cheaper than purchasing another copy of geoFAX. The savings can be applied to the additional hardware you will need to buy.

To register additional copies, or to inform the author of any ownership changes, write to:

Maurice Randall
P.O. Box 606
426 Sumpter St.
Charlotte, MI 48813

15. MAKING GEOFAX PERFORM WELL

The biggest thing to worry about to make geoFAX perform is to watch your baud rate settings. The fax modems have a very nasty bug contained within them that the 64 and 128 have a hard time dealing with. But don't feel alone, even the bigger and faster computers can have problems. If they are doing any serious multitasking, they will also have the same problem that geoFAX has. A multitasking computer becomes several smaller and slower computers in one package. So a multitasking computer is not better at sending and receiving faxes than your 64/128 is. The only advantage they have is the additional onboard memory for holding incoming and outgoing data. geoFAX has to use your disk storage devices for this purpose.

In a nutshell, here is what the fax modem bug is all about. Every line of fax code consists of 1728 dots from the left to right of the page. They are either black dots or white dots. These 1728 dots are sent in a compressed format and have an additional set of at least 11 or more '0' bits tacked on to the end. This is then terminated with a single '1' bit. The receiving machine now knows that the next bits received belong on the next line down.

The computer sends a line of data to the modem and the modem holds this data in it's own ram buffer and sends the data out to the remote fax machine one bit at a time at the negotiated bps rate. The bps rate between the computer and the modem is always faster than this negotiated rate. This allows the computer to put data into the modem faster than the modem can send it out to the remote fax machine. The modem expects more data to be given to it before it completely sends the data that it is currently holding.

While the computer is preparing the next line of data to send, it is holding off on putting that final '1' bit into the modem. That means that if the modem's buffer empties before more data is provided, the last 8-bit byte that is sent out is a zero byte. The modem now knows that the computer needs time to get the next line ready. So, the modem is supposed to continue sending '0' bits at this time to the remote fax machine. The remote machine knows that this signals a pause in the action. It will wait for up to a maximum of 5 seconds for that final '1' bit to arrive. The modem must keep sending these '0' bits until the computer gets more data into the modem. The remote fax machine must keep receiving something without stopping which explains why the modem is supposed to keep on sending the '0' bits.

BUT!!! The modems do not send '0' bits like they are supposed to. They instead send '1' bits. This is extremely uncalled for. The remote fax machine sees the first one of these as the end of the line and the rest of them as actual compressed data for the next line down. Chances are that the number of '1' bits that are sent will not equal 1728 dots. So in most cases it will treat this line as being corrupted. If the data were valid, it would look like a dotted line when uncompressed. Some fax machines will print this dotted line, while others will reprint the previous good line. Either way, the image comes out wrong. By printing the previous good line, the image becomes elongated at that point. If a dotted line is added, the image still comes out longer because a line was added that doesn't belong there.

If the modem chip manufacturer would fix this situation, it would surely help. But as it stands, the only way out is for geoFAX to keep ahead of the modem. It must make sure that it has more data ready to send to the modem before the modem empties it's buffer. This is why there is a limit to the baud rate that you can use. The type of drive you are using can also be a factor. The data that is contained in the page also determines how well geoFAX can keep up. If it weren't for the nasty '1' bit

bug in the modem, geoFAX would perform much better. Don't blame it on geoFAX, blame it on the faxmodem.

When sending faxes, geoFAX communicates with the modem at a default speed of 38,400 baud in order to put data into the modem as fast as possible. While in receive mode, the speed defaults to 19,200 baud. Some modems can work with 38,400 while receiving, but many cannot. You will have to experiment on your own to see what your modems allows. You might also find that you will have to use 19,200 while sending also.

Another thing that will help is to know what you are sending to or receiving from. A fax machine uses a printing mechanism. It requires more time for each line, although they still work quite fast. The printing mechanism gives geoFAX more time and allows it to work better at the higher bps rates. If the other machine is a computer with lots of memory, it can take in the data without the slowdown of a printing mechanism. This means that a lower bps rate should be chosen. The faster your disk storage device is, the better geoFAX will perform. Also, a fax with considerable detail will hinder the performance and would require a slower bps rate. With experience, you will learn what works best for you.

As you can see in the chart below, the bps rates that you can use are really pretty good. geoFAX has some pretty fast routines for loading in data and sending it out. Considerable effort was put into making this program as efficient as possible. But treat these suggestions as the highest settings you should use. There really isn't much time savings between using 7200 as opposed to 9600. If accuracy is important, go for the lower setting.

If you are using geoFAX with a fax machine to scan an image, choose the lower setting for sure. In fact, it is best to capture high-resolution images at 2400. With the lower settings, there is less chance of corruption in your images.

Use a ramdisk when possible and then save your data to a real disk when finished. The time spent while accessing the disk during a send or receive is critical. Remember that the modem and the remote fax machine won't wait very long.

Device	Sending	Receiving
1541/1571	7200	2400/4800
1581/FD	9600	4800/7200
HD	9600	4800/7200/9600
BBG/geoRAM	9600	7200
RamLink	9600	7200/9600
17xx	9600/14.4	7200/9600

If you have trouble getting geoFAX to work at all with your modem, it is likely that your modem is incompatible or there may be some settings that need to be changed. Class 1 modems will not work at all with geoFAX. You must make sure that your modem is Class 2 or Class 2.0 compatible. In addition, geoFAX requires that the modem contain at least 16K of ram. You might get by with less, but experience has found that modems with less than this do not work well with geoFAX.

ADJUSTING GEOFAX

There are some simple adjustments you can make that might make all the difference in the world. To get to the adjustment section, click on the SEND button and then click on the MODEM icon. Now you will see a screen full of settings that can be

made. The most likely settings that you will need to make are the init strings that geoFAX sends at the start of each fax session.

You will see these two strings listed at the top of this screen. For most Hayes compatible modems, these settings will be the ones you will need. But some modems use slightly different commands and these init strings will need to be altered for those modems. This is where you will need your modem's manual to look up the correct commands. If your modem uses commands that are different from these default settings, you can alter these strings to suit. Any string that is not recognized by your modem must be removed and preferably replaced by its corresponding equivalent.

Let's look at each part of the strings and what they mean.

U1 - This makes your modem give responses to geoFAX in ASCII text instead of using numbers. The most common message response is 'OK'. geoFAX looks for this response many times during a fax session.

X1 - This makes your modem ignore the dial tone. This is needed for using geoFAX in its manual mode for scanning with a direct hookup. Some foreign countries also need this setting for normal phone line usage.

Q0 - This makes sure that your modem sends response codes.

&C0 - This forces the carrier detect signal to always be on. geoFAX and the modem interface need this signal to be present.

&Q6 - This tells your modem to help buffer data.

&D2 - This forces the modem to hang up when geoFAX drops the DTR signal. This also disables the modem from auto-answering. geoFAX does not use the modem's auto-answer function but rather monitors the incoming ring itself.

&K4 - Pay close attention to this one. Many modems use this differently. This tells your modem to use XON/XOFF handshaking between geoFAX and your modem. It has nothing to do with any handshaking between your modem and the remote system. (RTS/CTS is not used, XON/XOFF is the default in faxing.)

&R1 - Informs the modem to always leave CTS on. Turbo232/Swiftlink won't allow any data to be sent if the CTS line is off.

If you are using a Class 2.0 modem, the init strings will be slightly different from the Class 2 strings since at the time of this writing, only the USRobotics modems were known to use Class 2.0 and the following changes are used.

&B1 - This keeps the serial port speed from affecting the data link speed.

&H2 - This is used in place of &K4 for XON/XOFF flow control.

&I2 - This is also used for XON/XOFF flow control.

BIT ORDER ADJUSTMENTS

Now we're getting technical! geoFAX sends/receives data to/from the modem and the modem in turn sends/receives data to/from the remote fax machine. geoFAX

communicates with your modem with a byte of data at a time. Each byte is composed of 8 bits. The order in which those 8 bits are transferred is important. They can go with the low bit first or the high bit first. This same screen where you can edit your init strings also allows you to adjust the settings of the order of bits. In most cases you will not need to change these and it is best to leave these settings alone. If geofAX already works for you, making any changes to these settings will make geofAX fail. If you are having trouble getting geofAX to work, try different settings here but keep a note of the original settings so that you can put them back if you need to.

You can make different adjustments for sending and receiving. You can also make different adjustments as to how the bits are transferred between your modem and the remote system.

SERIAL PORT SPEEDS

geofAX allows two different settings for the serial port speed. This is the bps rate that the Turbo232/Swiftlink will communicate at with your modem. It has nothing to do with the speed that will be used with the remote fax machine. Your modem and the remote fax machine will negotiate that setting on their own.

Most modems will allow the serial port speed to be set at 38,400 for sending. This is the default setting. If you have trouble sending at this speed, try 19,200.

As for receiving, most modems require 19,200 and will not function at 38,400. If your modem allows 38,400 for receiving, by all means, use it at that speed. The USRobotics modems that were tested allow it, but most other modems only allow 19,200.

To adjust the serial port speed for sending, click on the SEND button and then click on the PHONE icon. There you will find the icons for making the serial port speed settings. On this screen you will also see the desired rate for your modem to use when sending the fax to the remote system. The setting you choose here will be the highest that the modem will negotiate. It might choose a slower settings on it's own depending on the phone line conditions.

To adjust the serial port speed for receiving, click on the AUTO button. Here you will find similar icons for adjusting the speed settings for receiving.

For best performance, always use the fastest serial port speed that your modem allows, but stay conservative on the data speed that your modem will use during the session negotiations. The slower the baud rate, the less likely you will encounter any errors in your fax transmission.

gateWayPatch Documentation

by Maurice Randall

gateWayPatch is Copyright 1996 by Maurice Randall.
gateWay 64 and gateWay 128 were written by Paul Bosacki and later upgraded by Jim Collette and is copyrighted by Creative Micro Designs.
geoFAX is written and copyrighted by Maurice Randall
geoSHELL is written and copyrighted by Maurice Randall
GEOS 64 and GEOS 128 is copyrighted by Geoworks and distributed by Creative Micro Designs.

THE PURPOSE OF THIS PATCH

This patch works with all versions of gateWay from the early versions on up to the latest ones. It works with both the 64 and the 128 version.
The patch will fix the main portion of gateWay to prevent crashing when displaying unknown filetypes in the directory listing on the screen. The unknown filetypes will appear as "SYSTEM" files. This patch does not fix "BigInfo". BigInfo has the same sort of problem as is found within the main part of gateWay. You will have to avoid using BigInfo with unknown filetypes.

WHO MAY NEED THIS

The people that need this patch the most are geoFAX owners that use gateWay. Even people that do not have geoFAX should use this patch since it fixes a very important bug in gateWay that might show up with other applications later on. gateWay gets corrupted and in most cases will crash when it encounters a geoFAX printer driver in the directory listing.

DISTRIBUTION

This patch program may be freely distributed by any means so that as many owners of gateWay can have access to it. It's actual use should be restricted only to registered owners of gateWay.

A LITTLE BACKGROUND

At the time that gateWay was written, there were only a certain number of GEOS filetypes in use. And so, there were no problems related to using gateWay with any filetype. A GEOS filetype refers to the type of file, such as an application, a data file, a desk accessory, a printer driver, etc. Each of these different filetypes are represented by a number and that number is located right in the directory entry for each file on the disk. A directory entry consists of 38 bytes altogether including the filename, the location of the starting block, the location for the header block, the creation date and time, the filesize, and the filetype.
Here's where gateWay gets in trouble with certain filetypes. GEOS allows filetype numbers to be between 0 and 99. The original filetypes that were established by Berkeley Softworks when GEOS 2.0 was created varied between 0 and 15. Higher numbers were unused at the time. It was possible for software designers to introduce new filetypes and assign new filetype numbers to them. As an example, geoFAX uses special printer drivers that are totally different from the normal GEOS printer drivers. They operate differently, so they should not use the same filetype, which is 9. So,

they have been assigned an unused filetype number, 22. geoSHELL commands were given a filetype of 21.

When you click on a drive icon in gateWay, the disk will be opened and the directory is read. gateWay will proceed to display the directory on the screen and list the filenames along with the filetypes. It has a table of filetype names that it indexes into and then calls a GEOS kernel routine called PutString to display the text on the screen. Unfortunately, GEOS programs have to be careful when calling PutString. PutString will crash the computer or lock it up if it encounters certain unprintable characters. This table of filetype names that gateWay points to for PutString to print contains a total of 22 entries. They include the normal filetypes from 0 through 15. Then for filetype 16, gateWay calls this a folder. Filetype 17 is used for gateWay documents.

Then gateWay uses this same table of names to display certain disk drive types. These are located within entries 18 through 21. Entry number 21 says "Hard Disk". This explains why gateWay identifies a geoSHELL command as a Hard Disk.

Then the table of names ends. Program code follows this table and so when gateWay encounters a geoFAX printer driver, it is pointing at program code, which is unprintable. This is when gateWay locks up trying to display a directory containing a geoFAX printer driver. gateWay should have been written to handle unrecognized filetypes a little differently. It should have pointed PutString at something that says "Unknown Filetype". Any future version of gateWay, I'm sure will be written to work this way.

PATCHING GATEWAY

This is where this patch comes in. This patch modifies a portion of gateWay so that it will no longer crash if an unrecognized filetype is encountered. Any filetypes of 22 or higher will be listed as being a SYSTEM file. This doesn't help you to identify the filetype, but in most cases, you will likely know what the file is for by it's filename. At least, you will be able to use gateWay and not crash the computer anymore, at least not for this reason.

Using this patch is quite easy. I recommend that you take a freshly formatted disk and copy gateWayPatch to it. Then copy one more file to the disk. This file would either be GATEWAY or GATEWAY_128. Then open the disk and double click on gateWayPatch to run it.

The only disk that will be accessed is this disk that you are running gateWayPatch from. gateWayPatch will search the disk for either GATEWAY or GATEWAY_128 and proceed to modify it as needed.

The screen will remain blank while the work is going on. When it is finished, a dialogue box will pop up informing you that the patch was successful. The message in the dialogue box will say "Patch Completed...". Just click on "OK" and you will exit out of the program and return to the Desktop, gateWay, geoSHELL, or wherever you loaded gateWayPatch from.

If gateWayPatch failed, an error message will be displayed in the dialogue box instead. One of the following 3 messages will be displayed and will give you a clue as to why the patch failed:

"Disk Error"

This error is obvious. Check your disk or the drive. Perhaps your disk is corrupted, or maybe you left the write protect on.

"gateWay Not Found"

If GATEWAY or GATEWAY_128 is not on the disk, this message will be displayed.

"Unknown Version"

This patch should work with all versions of gateWay, but you never know. If gateWayPatch doesn't recognize your version for some reason, this message will be displayed. This message will also appear if this particular copy of gateWay has already been patched.

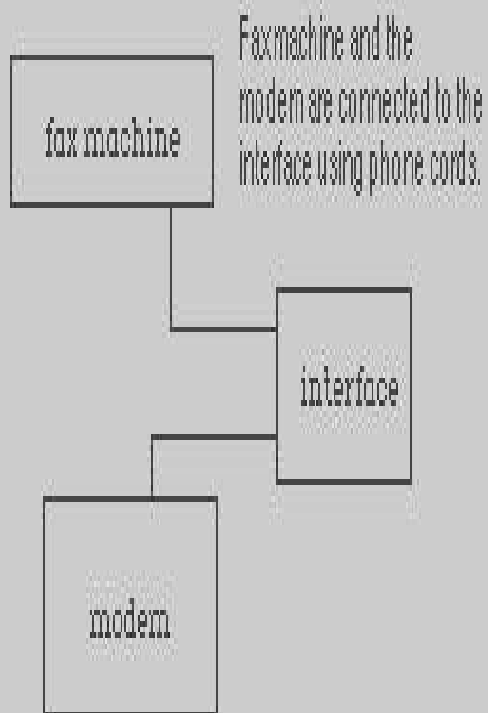
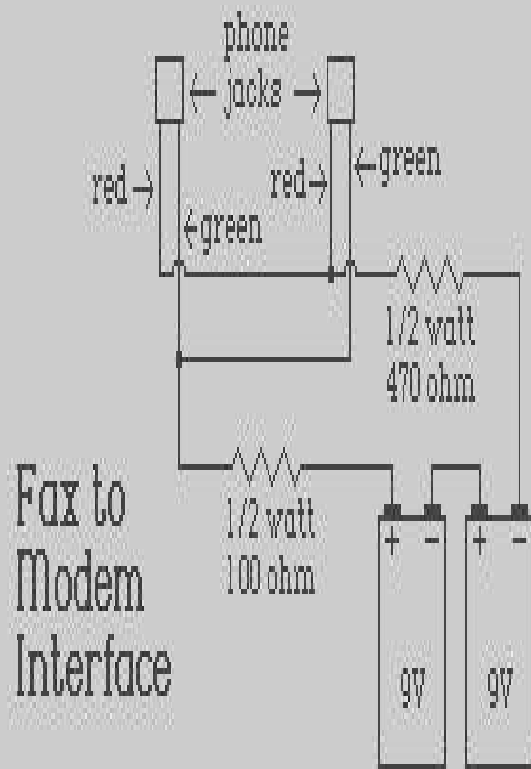
AFTER PATCHING

Once you have patched a copy of GATEWAY or GATEWAY_128, simply copy the file to your boot disk in place of the copy that is already there. If you have GATEWAY or GATEWAY_128 on any other disks, you will want to replace those copied also. The next time gateWay is loaded into memory from disk, the patch will be in effect. Do not copy it to your original gateWay disk! Always leave your original unmodified so that you can start over fresh if needed.

You will want to keep track of this patched version. On the outside, there will be no indication that it has been changed. You might want to change the text in the info box to reflect the fact that you have patched it. If you try to patch gateWay a second time, you will get the error message, "Unknown Version". This might be one way to tell if it has already been patched.

IF PROBLEMS OCCUR

Keep in mind that I did not write gateWay. I don't use it myself and so I can't help you with it's use. However, if you have any problems with gateWayPatch, you can contact me through The Speed Zone BBS at (517) 322-2386. The BBS runs 24 hours a day. All Commodore users are welcome. Just leave a message in one of the message bases to Maurice Randall.



geoMorph U1.0
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AN INTRODUCTION

As far as I know, this is the first program of it's kind for GEOS, and perhaps the first for the 64 and 128, period. I knew of morphing programs for the Amiga, and wondered what the real reason would be for the average person to even need a program of this kind. If you were into some heavy video production work, it might be useful, but the average person doesn't have any big video projects. In fact, the average person doesn't even need a real powerful computer. But in GEOS, we do a lot of work with graphics in our documents. And part of our graphics work includes working with photo scraps. Yes, those versatile graphics that can be transferred from one application to another. We can create a photo scrap in GeoPaint and paste it into GeoWrite or GeoPublish. Any GEOS application that is programmed for it, can utilize photo scraps.

So, here we have a graphical environment to work in, but many of us are not real handy at creating works of art, so why not have the computer help us out with it? Well here's geoMorph, a program that will help you to create some interesting effects on your GEOS system.

We've always had an excellent paint program, GeoPaint, and it came free with the system. There are a couple of others available also, but we could really use an editor to do some neat things with photo scraps. geoMorph is a shareware program and is fully functional in what it is designed to do. It will give you an example of what is being made available for GEOS. A commercial version of geoMorph is a program called 'Photo Frame', and will do everything that geoMorph does, and then some. Photo Frame will be available as a stand alone application and work with both GEOS 64 and GEOS 128 in 40 column mode. There will be an 80 column version for the 128, but it will only be available as part of the complete Publishing Production System (PPS) package known as Finally!, which should be available sometime during the spring of '94.

The basic idea behind geoMorph is to take two different photo scraps and combine them in a gradual transformation to arrive at various combinations of the two images. You start with a primary image and a secondary image and 'morph' the two together one frame at a time. Any frame can be saved as a photo scrap and along with your photo manager, you can save them into an album for later use. Use your imagination and have fun.

A QUICK TUTORIAL

Most of us are anxious to dig right in, so let's do just that. Supplied with geoMorph is the main program itself, this documentation file and one photo scrap. Load and run geoMorph and wait for the main screen to appear. You will see the title, 'geoMorph', smoothly animate itself into the author's name, 'Maurice Randall'. This is taking place within the display window where one of the photo scraps we wish to work on will be displayed. Right now we have the author name in the window. So let's go ahead and work with this. This image is known as the primary image. Whatever image is visible in this window is the primary image. Right now, we don't have a second photo scrap loaded, so there is no secondary image. To the left you will see three icons, click on the lower one. This swaps the two images. The author name will now be the secondary image. Go up to the 'edit' menu and click on 'paste'. If the photo scrap that was supplied is on this disk, you will now have the image that says 'geoMorph' in your display window and it will now be the primary image.

Now, let's create one frame after another. Of the three icons to the left, click on the upper one and then just sit back and watch. What is now taking place is the two images are being processed and a slight variation of the primary image will soon appear in your display window. Then some more processing and the image will change again. With each change, you have created a new frame. Eventually the primary image will appear exactly like the secondary image.

This sequence of frames is exactly how the title animation was created. During the development of geoMorph and before it was completed, it was used to generate a series of frames to use for the title screen. These frames were individually saved to a photo album and then imported into the source code that was used in the creation of geoMorph. Then an animation routine was added to run the title animation. The title animation sequence is a series of fourteen frames being displayed in just a fraction over one second. In fact, there is actually a delay placed in between each frame in order to slow it down to this rate. The animation capability built into geoMorph is only available to this title routine.

This little tutorial just gets you started with the possibilities that geoMorph now gives you. This is just one example.

Let's say that you are drawing a picture in GeoPaint and you want to draw several trees. This could be a very tedious job. How about if you draw just one tree and use geoMorph to help you create the rest of them? Simply paste in a photo scrap of that one tree and morph it with another photo scrap of whatever image you might find that works well. There is no end to it, you now have a tool with many varied possibilities.

Let's take a look at the rest of the program.

THE SWAP ICON

The lower icon in the group of three icons is known as the swap icon. This icon will swap the primary and secondary images with each other. The primary image is always the one that is visible in the display window. The secondary image is stored in memory. When you are processing a frame, the primary image is always the one that is being modified. The secondary image does not change unless you use the swap icon to exchange it with the primary image. The secondary image is used as the model for the primary image.

THE FRAME ICON

The icon in the middle is the frame icon. By clicking on this icon, you will generate one frame. To generate another frame, you must click on it again.

THE MOVIE ICON

The upper icon is known as the movie icon. By clicking on this, you will perform the same action as if you keep clicking on the frame icon over and over again. The movie icon will cause geoMorph to keep generating frames until you click the mouse, or until the primary image eventually becomes exactly the same as the secondary image.

THE GEOS MENU

From the geos menu you will have access to your desk accessories, and most importantly, your photo manager. You will also find the copyright information in this menu.

THE FILE MENU

The only selection available from this menu allows you to quit geoMorph and return to the Desktop or whatever alternative you loaded geoMorph from. If you have an image in memory that you wish to save as a photo scrap, be sure to do so before quitting.

THE EDIT MENU

The selections from the edit menu will give you the ability to cut, copy, and paste photo scraps into and out of geoMorph. The function of these is the same as in GeoPaint and should be familiar to you. When transferring photo scraps in and out of geoMorph, the image is always transferred to and from the primary image in the display window. If you wish to move a photo scrap to and from the secondary image, use the swap icon to aid in doing so.

THE OPTIONS MENU

The only selection from this menu will bring up a control panel where you can make various adjustments to how geoMorph generates it's frames.

THE CONTROL PANEL

You bring up the control panel by selecting it from the options menu. From within the control panel you can define your default drive along with some other settings. The drives that are currently in use will be displayed in the drive box and the default drive will be highlighted. To select a different drive, just click on it's icon. The disk that is in the drive will be read and the desk accessories located on the disk will be logged in and made available from the geos menu. This is how you can access desk accessories from any of the available drives. This is also the drive that will now be used for copying and pasting photo scraps. If you wish to put a different disk in the drive, just click on it's icon and the desk accessories from that disk will be logged in. You can change disks whenever you like. You don't have to exit geoMorph with the same disks as when you first entered it.

The other settings you will find in the control panel will adjust how geoMorph performs it's morphing process. You can choose and adjust the different scanning modes and degree of change that is performed during each frame. Read on to learn more about these different modes.

HORIZONTAL SCANNING

This is the scanning mode that you will most likely use the most. Most images are pictured in a horizontal manner and laid out as rows of pixels. When geoMorph performs a horizontal scan, it will look at a pixel in the primary image and decide where on that row that it should move it to. It does this by studying the same row in the secondary image. Once it has moved the pixel, it looks for another pixel on the same row in the primary image and does the same with this one. Each row is scanned in this manner until all the rows of pixels have been processed. You can have geoMorph scan horizontally in a right hand direction or in a left hand direction or both.

VERTICAL SCANNING

Just like horizontal scanning, geoMorph can scan vertically. The images are treated as vertical columns of pixels in this manner. Vertical scanning can be done in a downward direction or an upward direction or both.

ORPHAN SCANNING

Sometimes geoMorph comes across a pixel in the primary or secondary image and has no real good place to put it on the same row or column (depending on the scan setting chosen) that is currently being scanned. So it must then search for the best direction in which to move the pixel to. When it finds a pixel like this, it considers it to be an orphan pixel with no place to go. So a home is found for the pixel as long as you have the orphan scanning turned on. If orphan scanning is turned off, then a primary orphan will stay right where it is and a secondary orphan will never appear. You can't have just orphan scanning turned on without the horizontal or vertical scanning turned on. This is because geoMorph doesn't recognize an orphan until it has completed a scan to find a place to put it. So, you must choose orphan scanning to go along with the vertical or horizontal scanning or both. You can select orphan scanning for the primary orphans, the secondary orphans, or both.

SCANNING POWER SETTINGS

Each one of the different scan settings can have a high, medium, or low setting. This affects the degree of change that will occur during each frame being processed. By choosing 'high', a greater degree of change will occur than if you choose 'med'. The low setting will cause a more subtle change to occur.

THE SCRAPS THEMSELVES

When you paste in a photo scrap, it is placed into the visible display window. For GEOS 64 users, you will notice that this window is exactly the same size as the GeoPaint window. It is 264 pixels wide and 144 pixels high. GeoPaint 128 uses a slightly wider window in 48 column mode and an even wider one in 88 column mode. When you copy an image from geoMorph back to a photo scrap, the scrap will become the exact size of the window, even if some of the area is blank. If this is not desired, then you must import the scrap into GeoPaint and edit it to a smaller size.

If you paste in a photo scrap that is larger than the display window, only the upper left portion of the scrap will be used. So, for this reason, you are limited to scraps no bigger than the display window, without some loss.

THINGS TO TRY

The best way to learn how to use geoMorph effectively is to simply tear into it and try it out and see what affects what. Take two photo scraps and morph them together for a couple of frames. Then paste the photo scrap back into the primary image again and try a different setting from the control panel. See if the morph takes on a different look.

In most cases, you will find that the horizontal scan settings will do what you want as long as you have the orphan scan turned on. With the orphan scan turned off, if the two images vary in height, then only the areas that line up horizontally will be altered. This same thing applies when doing a vertical scan. Only the areas that line up vertically will be altered, unless the orphan scan is turned on.

Sometimes you can leave the orphan scan turned off and turn on both horizontal and vertical scanning until the basic outline of the image is what you want. Then turn just the horizontal scan or just the vertical scan on to complete the morph to the point you are looking for. When both the vertical and horizontal scans are turned on at the same time, the image might get an out of focus look to it, since the two scan modes interfere with each other slightly. In some cases this may be desirable. You will find that every scrap has it's own fingerprint, so to speak, and so the settings that get the results you are after with one morph may not work with another combination of photo scraps. Use your imagination and the adjustments that are provided for you.

A great deal of processing is taking place when geoMorph is rendering a frame. Obviously, the greater the detail in your photo scraps, the longer it will take to render a frame. Smaller images will render faster than large ones. Also, as the two images become more and more alike, the processing time for each frame will become shorter. You will notice that horizontal scanning is faster than vertical scanning and in most cases will achieve results you are after. However, with some images, vertical scanning will be more appropriate. This is something you will have to decide.

In any case, be patient with the large detailed images. Think about this for a moment. When you have all the scanning modes turned on, there is a total of four scans taking place during each frame. There is a total of 38,816 pixels in each of the two images that are being processed for each scan. That means that 76,832 pixels, scanned four times equals 304,128 pixels being processed during each frame. If there are a lot of orphan pixels to deal with, then this figure is higher yet, perhaps double. But even so, and considering that this is all being done on a machine that is operating at 1 mhz, a full-size detailed image can be rendered in less than two minutes. Smaller images that only occupy about an eighth of the display window can be rendered in 5 seconds or less, depending on the complexity of the two images.

COPYRIGHT NOTICE

This is the part that informs you as to what you can do with this program. This program is being provided with the GEOS user in mind. That means that you can go ahead and use it all you want. Technically, it is a shareware program. But I am not going to require that anybody send me the requested shareware fee of \$5.00 unless he/she desires to do so. I will support it with online advice on the networks (GENie and QLink) either way. Most of the time, there is no advantage to sending in a shareware fee except to show appreciation and encouragement to the author, because you already have the program and can use it as much as you want. I'll admit that I am guilty myself of not sending in shareware fees. But in this case, I will put you on a mailing list along with other users who have programs that I have written and by doing so, I will be able to inform you of future products as they become available. So, at least send me your name and address. I have to put some sort of amount (\$5.00) on the product in case a PD disk dealer wants to sell the program. This gives me something to base a fee for this purpose.

This program may be freely distributed among individual GEOS users and registered Commodore User Groups as long as this complete documentation is included without modification and all copyright notices are left intact. Anybody else that wishes to distribute the program must contact me for written permission and any other agreements beforehand.

I may be contacted at the following address:

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ARCA 93 on QLink

Or on The Lansing Area Commodore Club's BBS at (517) 339-0818. Leave E-Mail to Maurice Randall or User #30.

To join the Lansing Area Commodore Club and receive an on-time and informative monthly newsletter, send \$15.00 to:

LACC
Attn: New Member
P.O. Box 1065
East Lansing, MI 48826

PHOTO FRAME, THE COMMERCIAL VERSION

Ok, here's the advertisement for the commercial version known as 'Photo Frame'. Write for more information on availability and pricing.

Some of it's features:

- * Standard tools for editing photo scraps such as a pen, brush, eraser, etc.
- * Special tools for doing special tricks with photo scraps:
 - Morphing
 - Distorting in many ways
 - Highlighting
 - Shadowing
 - Fading
 - Etc.
- * More involved morphing routines are included that allow you to specify the exact region that is to be morphed, whether it be an area or a boundary or imaginary line, etc.
- * Automatic saving to a photo album without having to repeatedly access the photo manager to do so. Each frame as it is processed can go straight to an album.
- * You can choose the area you wish to save as a photo scrap. You can also paste in photo scraps without erasing the existing image. Areas can be selected and moved about within the display window.
- * Animation capabilities including the ability to create a stand alone application for running your completed animations without having to first load Photo Frame.

That's it for now.

Thanks for your interest in geoMorph, and by all means, please put it to good use.

Sincerely, Maurice Randall

MenuChase Documentation

MenuChase is a game that can be fun, because you will want to try to improve your score each time you play. Creating this game was a change from my usual line of programming. The GEOS community could probably use a few more games.

Besides, I don't mind dropping what I'm doing once in awhile and relaxing with a little challenge at the computer.

This version of MenuChase comes complete with 3 levels of play. More levels will be available as time goes on. These additional levels will be easy to add to your existing program by simply double-clicking on the installation program that will be supplied with the new levels. Meanwhile, get good with the first 3 levels. You will need some experience before you are ready to tackle the levels that are coming.

MenuChase starts out with the 'main menu' where you can decide your course of action. At this point, you may view a little onscreen instruction file, start a new game, resume a game that is already in memory, load a saved game, save a game from memory, or quit. You will find that everything is very easy to figure out at this point.

PLAYING A NEW GAME

Click on 'New Game' from the main menu to start your first level of play. You will then be presented with a title screen for level one and a few moments later, your gamescreen will appear. So be ready to go. I will give you a hint on level one only. You must do just like the title of the level says, 'Don't Lose Count'. Start by clicking on 'one', travel across the bridge to 'two', but don't click on 'two', or you will simply create another bridge that will take you back over to 'one'. The idea now is to click on the correct 'three' that will take you across to 'four'. Keep following this pattern until you've reached the highest number available.

At any level, if you make enough mistakes, your current level will end and the game will be over. Your final score will be displayed. Try playing again and see if you can get a better score.

Each level might allow more or less mistakes and also might provide higher or lower scores. You are also limited on how much time you can spend at each level. A clock is running while MenuChase is awaiting your response. The clock is stopped whenever the screen is being redrawn with new menus or other graphics. The maximum time allowed at any one level will never be more than 60 seconds. Some levels require less time.

MULTI-PLAYER MODE

In it's basic form, MenuChase is a single-player game. However, since it has the ability to save a game in-between levels, there is a way that two or more people could play at the same time. Here is a scenario:

Let's say we have three players, PlayerA, PlayerB, and PlayerC. PlayerA starts out by clicking on 'New Game' just as though he were going to play by himself. Once he has completed level 1, he returns to the main menu and saves his game with a filename such as his own name or PlayerA or whatever. Now PlayerB starts a new game and saves his after the level has ended. Then PlayerC takes his turn. Once each player has played a level, PlayerA loads his game and continues on to level two. Once a player fails at a level, he can no longer save his game, and so he is out. But he can keep track of his score, because it is the 'final' score that determines who the winner is, and not how many levels are completed. A person could complete every level and get a low score if he takes too much time, while a

person who is fast could win by getting high scores on each level, even though he does not complete as many levels.

Since PlayerC in this case would have the advantage of watching each player play each round before taking his turn, it would be wise to alternate who goes first at each level. You decide how you want to organize the method of play. You could also have each player play two or more levels before the next player takes a turn. Have fun at your little get togethers. You might also find this game to have some educational value with children, especially as more levels become available.

THE USUAL STUFF

I didn't spend a great deal of time in creating this program, and I am willing to share it with GEOS users everywhere, and so nobody has the right to make any money on this program unless I am included in the profit-sharing. This is a freebie, so have fun with it. However, I will still retain the copyright to the program and so will not allow anyone to sell this program for profit without first obtaining permission from myself along with a fair amount of compensation. This program may be distributed by any online network or BBS and made available for downloading as long as the only charge incurred by the user is the standard online charge. Any registered Commodore User Group may include this program in it's library and make it available to it's members with their normal disk copying fee. No other form of distribution is allowed without first obtaining my permission, unless it is passed around absolutely free of charge. Also, the program must remain intact and complete with this documentation. It must be distributed with only the first three levels. Additional levels must be distributed separately. Enough of that.

Thanks for trying this out. If you've got any ideas for additional levels, let me know, and meanwhile, have fun.

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