GS+®

January
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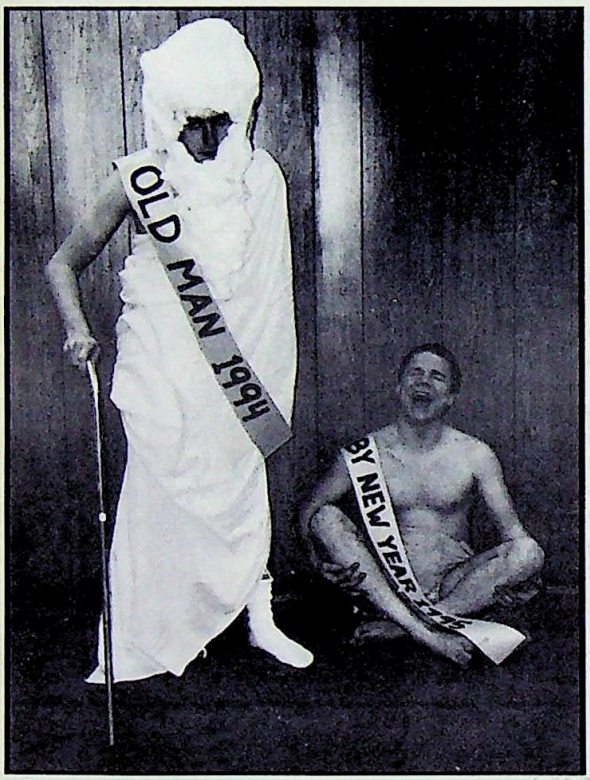
1995

Volume 6
Number 3

The *First* Apple IIGS® Magazine + Disk Publication!

HAPPY NEW YEAR!



We Kick Off the New Year With a Great Selection of Old Favorites . . .

Cool Cursor v2.0.2
Now Works With Spectrum v2.0!

AnnaMatrix v1.0.1
Improved Cool Cursor Editing!

Working With the Toolbox
Part 15: The Print Manager

A Bunch of New Stuff . . .

All About Nifty List
How to Write a Spectrum v2.0 XCMD
EllieFont - Lets You View *Any* Font in the Finder, Just by Double-Clicking!

And Reviews of . . .

Financial Genius • GS Invaders • Stalactites • Switch-It!

Writer's Block

By Steven W. Disbrow

Today I got a postcard in the mail that asked the following simple question:

"Dear *GS+*:
The publication *II Alive* offers a *four* year subscription. Why don't you offer a four year subscription?"

Well, the simple answer is that *II Alive* has about twenty times the number of subscribers that we have, and they have a huge corporation behind them to guarantee that all that subscription money can be paid back. We, on the other hand, have neither of those things. The not-so-simple answer to this question is that I can't *guarantee* that we'll be around that long, so I don't want to go so far into debt that I have no way of getting out.

You see, EGO Systems is not a corporation, it is a sole proprietorship. This means that when you subscribe to *GS+* Magazine for one year, I *personally* owe you six magazines and disks or your $36 back. Multiply that $36 by a couple thousand subscribers and you can see that I'm already in quite a nice money pit here.

Holy Deficit Spending!

Of course, it's not really *that* grim. The money we make from advertisers, back issue and stand alone product sales, makes up some of that money and allows us to continue publishing the magazine.

Most magazines make their profits not from subscriptions, but from advertising. We do take in a fairly good sum from advertising, but frankly, it's only just enough to pay our printing costs on each issue. Now, I know what you are thinking, "Raise your advertising rates!" That's a great idea, but the fact is that most Apple IIGS publishers probably wouldn't pay us anything more than what we ask right now. Why? Because we have a *very* small number of subscribers (compared to *II Alive*), and, therefore, we can't guarantee an advertiser a positive return on their advertising investment. (Yes, I realize no magazine can *guarantee* a positive return on an advertisement, but with our low subscriber base, we *really* can't guarantee it!)

The best solution is to somehow increase the number of subscribers that we have, so that we *can* increase our advertising revenues. I tried the "soft sell" approach to this in the last issue when I asked everyone to go out and get us one new subscriber. Unfortunately, that was a tremendous flop, so I'm going to have to come up with some other ideas. (Your suggestions are welcome!)

So, the bottom line is: We don't offer four (or three or two) year subscriptions because it's simply not in our best long term interests to do so. However, if someone out there can round up another ten or fifteen thousand subscribers for me, I'll certainly reconsider it. (Actually, I'd settle for another 2,000 subscribers!)

Let's Move on

Well, let's see, what else has been happening since our last issue . . . .

I suppose the big news here in the states is the fact that we had some elections a couple of months ago, and that the winning party (the Republicans) has taken out a Contract On America. (Ooops! I mean a Contract *With* America. My mistake.) Hopefully, the incoming Congress of these United States can put aside the petty bickering that plagued the last Congress and get down to the business of running the country. If not, I suppose we'll just have to boot them out in the next election. (I believe it was the comedian Gallagher that said the opposite of "progress" must be "congress.")

Even Bigger News

A few days ago, I was watching the national news and, lo and behold, they actually did a positive story about America's space program! Specifically, the story was about the fact that the Hubble Space Telescope had recently taken pictures of structures that were *12 billion* light years away. Apparently, the cosmic structures shown in these pictures are unlike *anything* any astronomer has ever seen. (I know I had never seen anything like them before!) Combine these two things with the fact that astronomers have recently revised their thinking and are now guessing that the universe is, at most, only 12 billion years old, and what you have here may be pictures of what the universe looked like just after it came into existence!

Of course, if this is really what these pictures show, this would make these the most important photographs ever taken. Period.

So, NBC News gave this story a minute and a half of coverage and buried it at the "back" of the newscast. I think the day's proceedings from the O.J. Simpson trial got five minutes of coverage and was the second or third story.

Now, it's not really that big a secret that the national media thinks the American populace are a bunch of tabloid reading, beer swilling, nose picking, wife beating, child slapping, non voting, cross dressing, check bouncing, Pop-Tart eating, leash law breaking morons—but dammit, I'm getting sick of being treated like a complete idiot by the mainstream press! And I hope to heaven that there are people other than myself that are *sick* of all the negative crap that gets focused on in our society. I mean, we're talking about the beginning of the entire freaking *universe* here! Don't these people realize that some of us might actually have more than just a passing interest in this sort of information? The theological and philosophical implications alone could be overwhelming! But did they talk about that? Nooooo . . . !

Because of this, I've been forced to take a long hard look at what I've personally done to reinforce this sort of crass behavior. The first and foremost problem I've identified is that I watch too much bloody television. So, as a protest I'm cutting back to just the essentials: The Simpsons (*not* the trial!), Deep Space Nine, Beavis and Butt-Head (new episodes only), and The X-Files (new episodes only). I might watch the news occasionally, but that's it. Beyond that, I'm going to spend my free time listening to music, reading, exercising, writing angry letters to the news media, and trying to figure out how to run for one of those public offices that always has only one candidate on the ballot.

Of course, some of the blame for this problem lies with NASA and the scientific community. If these guys (and gals) would just hire some decent public relations people, maybe the public would be a bit more interested and then the media would have to start giving this information the treatment it truly deserves. (If P.T. Barnum had been a scientist, we'd probably be on Mars now.)

Whoa Boy!

Well, this has ended up being a bit like one of those old Saturday Night Live skits where John Belushi comes out to give a serious editorial and ends up on the floor thrashing around like a rabid dog, *but*, I hope that I've made the point that we are being treated like children by the media (and, now that I think of it, our government), and it's about time that we let them know that we don't like it.

Diz

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On the Cover

Out with the old man Wankerl!
In with the Baby New Bob!

Fashions by the House of Bob "n" Nory

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Letters

Diz,
How about an article covering [the construction of] tape drives and [how to back up to them] to supplement the hard drive assembly articles you've done recently [*GS+* V5.N5 and *GS+* V5.N6]. After all, now that your subscribers are building their own two gig drives, ya' gotta tell em how to back 'em up too!

Jim Brandt
Memphis, TN
Internet: J.Brandt1@genie.geis.com

That's a good point Jim. I'll run this idea past Mr. Priceguide and see what he can come up with.
Diz

Dear Diz:
. . . I have now read six issues of *GS+* Magazine and in my opinion the latest issue, Nov/Dec 94, is the best one yet. I am not an active programmer, but I like to know what's going on behind the scene and I find the [technical] explanations included in your articles very interesting . . . .

I'd like to add that the "Letters" section [in *GS+* Magazine] has to be the best I've seen in any Apple computer magazine. *Nibble* used to have a pretty good one when Apple IIs were hot, but the *GS+* presentation is miraculous with the Apple IIs gone from the marketplace. I sure hope they keep those letters coming!

James Morrison
Oshawa, Ontario, Canada
Internet: james.morrison@canrem.com

Thanks for the comments James! Over the last few years, we've tried to tone down the technical "mumbo-jumbo" aspects of GS+ *Magazine. Based on the feedback that we've been getting it seems that we are moving in the right direction! (But, just in case you* love *that technical stuff, don't forget to take a look at the* GS+ *Disk, that's where we put most of the real down and dirty technical information.)*

I'm also glad to hear that you like the expanded "Letters" section. At first, I was a little worried that the increased number of pages for letters would be considered as "filler," but it turns out that just about everyone loves it!
Diz

Diz,
I've been having some problems with EGOed [last seen in *GS+* V5.N3] and printing lately. Every time (9 out of 10) I print from EGOed it crashes. I'm using the ImageWriter CL driver from AppleWorks GS, don't know if this is the problem. Most printing is from Draft mode. The mouse will move when the crash occurs but I cannot select anything . . . .

I don't use EGOed for much printing but it would be nice if it didn't crash . . . .

Rod O'Brien
Sherman Oaks, CA
Internet: Rod@genie.geis.com

Actually, we've gotten this question a couple of times in the last few months. So, I have the answer close at hand. Here it is: NEVER, EVER, NEVER, EVER, use the ImageWriter CL driver that comes with AppleWorks GS! *This driver was written a* long *time ago and it was written specifically for use with System 4.0. It is is* not *safe to use with anything later than System 4.0!*

So, if anybody *out there is still using the ImageWriter CL driver,* get rid of it and start using the ImageWriter driver that comes with the latest system software!
Diz

Diz,
. . . In response to the letter in *GS+* V6.N2 from Christopher Barron, . . . I can say from personal tragedy, *never* use Copy II+ with System 6 and your hard drive! Shortly after I purchased my TMS Shadow drive with System 6, I used Copy II+ to catalog a file. The result was I wiped out an entire partition and about 30MB of material [was lost] . . . .

P.S. I have System 6 with the manuals. Is there some place I can get update pages for System 6.0.1 . . . ?

Roberta McDonald
Elizabeth, NJ

Thanks for writing Roberta. Hopefully, your letter will convince people that they should stop *using Copy II+ before they have a similar disaster!*

As for your question about additional documentation for System 6.0.1, as far as we know, there wasn't ever any printed. However, there were three files ***(Read.Me, Whats.New and Shortcuts)*** *on the System 6.0.1* ***SystemTools2*** *disk that detail all of the changes from System 6 that users need to be aware of. If you have the books for System 6 and you read those files, you should be OK.*
Diz

Diz,
I enjoyed the review in *GS+* V6.N2 of Ultima I. I bought my copy about two months ago directly from Vitesse and took about a week and a half to get my character maxxed out. But I've run into a problem that I can't seem to get around. Perhaps you have a suggestion. I have all the gems, and am a "Space Ace," I've rescued all the princesses and have fulfilled all the requirements that I know of to go after the time machine. However outside to the hint to "go northwest," I cannot find the time machine. I have looked over every square inch of the four continents and all the islands more than once. (I used your Ultimiter I program [from *GS+* V6.N2] to max out my character just in case I missed something, but that didn't help.) Any ideas on how to find the time machine . . . ?

John Massura
Chicago, IL
Internet: johnm@rci.ripco.com

OK, it sounds like you've done everything right so far. Every time you rescue a new princess, she puts a new time machine on the planet. As soon as you exit the castle, hit the "V" key to view a map of the current continent you're on. In the upper left-hand corner (i.e. the "north west," get it?) of the map there will be an island or corner of a continent where you'll find the time machine. Just go up there and look for a multi-colored time machine and from there . . . . Well, I'll let you find out the rest for yourself!
Joe

Dear *GS+*:
I have a question about incompatibility among IIGS-expansion cards.

Using a RamFAST/SCSI card (Rev 3.0.1e) and an older ZipGS accelerator card (v1.0.1) the machine crashes, making serious working impossible. Removing the ZipGS releases the problems totally.

Is it possible to upgrade the old Zip card, or do I have to buy a new one? What about compatibility between the different ZipGS cards (i.e. 7, 8, 9, 10MHz cards) and the RamFAST card?

Leif Johannessen
Gummersbach
Germany

Well, Leif, I passed your letter along to Jawaid Bazyar at Sequential Systems (makers of the RamFAST SCSI card), and according to him, the fault probably lies in the ZipGS card. Apparently, early versions of the ZipGS (v1.0.1 and earlier) had some problems with Direct Memory Access (DMA) processing, and this is probably the reason your ZipGS and RamFAST are conflicting. A temporary solution would be to turn DMA off on your RamFAST card. (See your RamFAST owners manual for information on how to do this.)

A more permanent, and much better, solution would be to get your ZipGS upgraded to v1.0.2 or later. (Jawaid also tells me that all the speed variations of v1.0.2 of the ZipGS card are compatible with the RamFAST card.) Upgrading your Zip will cost about $100. For information on upgrading, contact Zip/MCTA Technology at (310) 568-2002. (You can also contact Zip by writing to them at 5601 Slauson Ave. STE 283, Culver City, CA 90230.)
Diz

Dear Diz:
In Part 4 of the "Programming the IIGS" series [*GS+* V6.N2], you mention repeatedly that [when] building menu definitions and windows, etc., [it] is easier for the beginner to use Genesys or Design Master. As I recall, Genesys seems to be regarded as the better of the two. My question is, since Genesys is no longer available, how do we get it? If I find one used, what's the latest version and what's a reasonable price?

Paul Creager
San Jose, CA
Internet: P.CREAGER@genie.geis.com

This is a very good question. Unfortunately, since Genesys is out of publication, about all I can tell you is that the last version that I am aware of was version 1.2.4. As for actually finding a copy, your best bet is to try and find a used copy. The first thing I would try would be to place a "wanted to buy" ad on the comp.sys.apple2.marketplace newsgroup on the Internet. But, you might first want to ask around at your user group or just go through the classifieds of your local newspaper. If you see an Apple IIGS for sale, call the owner up and see if they have a copy of Genesys they would be willing to sell separately. Finally, regarding a "reasonable" price for Genesys, the retail price was about $100 (perhaps a little more), so you probably shouldn't have to pay more than $40 for a used copy.

This lack of availability is the main reason that I included Design Master in the article. Simply put, you can get Design Master easily, but Genesys is a much better program. Of course, if the ByteWorks would update Design Master this dilemma would be solved . . . .
Diz

Diz,
I just read all the letters in response to your editorial in *GS+* V5.N6. As the leader of the Apple IIGS SIG here in Germany I strive very hard to support the IIGS and to get our members to buy software instead of pirating it. But it gets more and more difficult. With the exception of Seven Hills, WestCode, Byte Works, and Vitesse, which are online on GEnie, you get as good as no support at all when you're from outside the U.S. Quality [Computers] has been discussed at length. It's just not worth the money to order a single item from Quality due to the high costs for shipping and handling charged by them.

We IIGS users overseas need desperately a vendor like Resource Central which will charge only the actual shipping costs for a parcel and carries possibly the whole product line for the IIGS. I always see the ads for Shreve Systems, Sequential Systems, Alltech Electronics, and Other World Computing, but you can't even get a catalog from them or a quote of what they charge for shipping and handling. Although some of the above mentioned are online on GEnie, you either don't get an answer to your e-mail or it takes longer than a snail-mail letter. I'd like to support them, because they support the Apple IIGS (somewhat), but I won't risk our members money on them when I don't get information first.

Udo Huth
Wittmar, Germany
Internet: U.HUTH@genie.geis.com

I appreciate *GS+* Magazine very much even though some of it is still way over my head (I'm a novice). My reason in life for owning an Apple IIGS was/is based purely on the reputation of Apple. I am a self trained MIDI keyboardist/singer/songwriter who wants to actively participate in the Independent Producer/Publisher arena of the Music Industry.

I am planning to upgrade my studio, and as with all options the IIGS is on my upgrade or for sale list. What I need to know is how do I go about turning my IIGS into a digital recording studio (record to hard disk). I need a minimum of 32 minutes stereo recording time. I plan to buy a DAT also for mix down. Upgrading my IIGS is preferable to buying an AKAI Hard Disk Recorder (340 MEG), or an eight track DAT.

I am also in need of a desktop scanner for publishing.

Steven E. Ragland
Anderson, SC

First off, the best scanner for your IIGS would probably be the Quickie from Vitesse. It makes very decent scans and you can even get optical character recognition (OCR) software for it from WestCode. [See our review of the Quickie in GS+ V2.N2, and our review of the InWords OCR software in GS+ V2.N4.] If you'd like to make color scans, the Quickie can now handle that too (we should have a review of the Quickie-C in the next issue).

As for your professional music goals, the IIGS isn't a bad machine for doing MIDI work. There are two independent tool sets devoted completely to MIDI (the MIDI tool set and the MIDI Synth tool set). Of course, you'll need a good MIDI interface and MIDI related programs (like a sequencer) to get any work done. The synthLAB program which comes with System 6 and 6.0.1 is a decent bare bones sequencer, but if you want to do fancy editing of your sequences you'll probably need a more powerful sequencer. If you can still find it, MasterTracks Pro for the IIGS was the most powerful IIGS sequencer years back, however I believe that Passport, the makers of MasterTracks, doesn't produce that IIGS product anymore. (I believe you can still buy this and some other IIGS MIDI products through Sound Management Electronic Music Products. Phone them at 800-548-4907 for more information. [They also have an ad in the "GS+ Classifieds" elsewhere in this issue.])

Your ambition of upgrading your studio is admirable . . . however, if you're at all serious about it, you might want to consider starting your own company and taking out a huge loan to get some good equipment. Although hard disk recorders sound nice, hard disk space is limited. Once you fill it up, you have to back the hard disk up to some other medium (tape or floppies) so you might as well work with tape in the first place. For serious recording work, I'd stay away from hard disk recorders. You have to have a very high sustained transfer rate to the hard drive, which a lot of drives can't handle, and the IIGS, even with a RamFAST SCSI interface card, would have to pull out all

the stops to get a decent recording. Plus you'd need some kind of interface and recording software which isn't available for the IIGS. If it were me, I'd invest in two *Alesis ADAT eight track digital recorders (trust me here: One is great, but two and a BRC [Big Remote Controller] is heaven), a BRC for the ADATs, a good mixing board (Mackie 1606s are used a lot with the ADATs, I'm told), and the best near field reference monitors you can get your hands on. A DAT [Digital Audio Tape] machine for final mix downs is good, too, since just about every compact disc pressing agency in the world accepts that format. (The great thing about the ADATs is that you can mix down from the ADAT to the DAT completely in the digital domain if you have a sample rate converter!) What I've outlined here is rather costly (about $4000 for one ADAT alone) but if you pay for the best, you won't be sorry. Take a trip down to your local Alesis dealer and ask to sit down and play with the ADAT—you'll be amazed (I was).*
Joe

To Whom it May Concern:
. . . . [I am having a problem with the Table Scraps program from *GS+* V6.N1.] The only real problem I have experienced so far is that I can not figure out how to take the "Pig Boy" sound from Table Scraps and copy it into either the Sound control panel or the Sonics control panel . . . . I tried copying it using both the Edit menu Copy item and the Command-C keystroke, and then I tried to Paste it (using both the Paste item from the Edit menu and the Command-V keystroke), to both the Sound and Sonics control panels. I also tried taking the clipboard file and putting it directly into the **CDevs** folder in the **System** folder, and none of this worked. I realize I am reaching in the darkness into something I really don't know that much about, but at least I tried! What should I do? Also, how can I get more sounds in my Sound/Sonics control panels and where can I get them?

Sue Colker
St. Clair Shores, MI

Well, the first thing to realize here is that, sadly, neither Sonics or the Sound control panel support the Paste operation for adding new sounds. (However, as you may have found through experimentation, the Sound control panel will *let you copy sounds out of it. [I don't think that Sonics can do this either.]) So, that leads to the question, "How do I add new sounds?" Well, to add new sounds to the Sound control panel, the sound you want to add has to be stored in a rSoundSample resource, and you have to copy the file containing the sound into the* **Sounds** *folder in your System folder. Now, it's not easy to tell if a sound is stored in rSoundSample resource format, but we did recently publish a program that can help in figuring this out. It's called Playful (published in* GS+ *V5.N4), and it will scan a file (of any type) and check to see if there are any rSoundSample sounds in it. When Playful finds one of these sounds, it plays it for you. After you determine that there are rSoundSamples in a file, all you have to do is copy that file to the* **Sounds** *folder and they will then show up in the Sound control panel. (Note however, that this is a "brute force" way to do this. A better way to add sounds to your Sound control panel is to use a sound editing program like Digital Session [available with the SoundMeister stereo card from AllTech Electronics, 619-724-2404] to extract only the sounds you want and then save those sounds as rSoundSamples into a new file in the* **Sounds** *folder.)*

As for where to get these sounds, the best place is to check with your user group or to go online and download some from there. There are literally thousands *of rSoundSamples available on GEnie and Delphi. You can also make your own, if you have the SoundMeister card and the Digital Session software. You can also get ready to use rSoundSamples taken from Star Trek and Terminator 2 from Sound Source Unlimited (805-494-9996).*

Finally, the Sonics control panel doesn't use the same kinds of sounds that the Sound control panel does. Sonics uses sounds stored in the HyperStudio sound format (you can use HyperStudio to make more sounds of this format), and most of the "raw" sound data formats that are out there. To add sounds to Sonics, just click on the Add button in the Sonics control panel and follow the instructions in the Sonics documentation.
Diz

Steve,
Thanks for the mention of Contacts GS in the latest issue of *GS+* Magazine. ["What's New?" in *GS+* V6.N2 - Ed.] You might want to let your readers know that the price you quoted for Contacts GS was the full retail price, and that no one need pay full retail price for computer software.

The Special Introductory Price for Contacts GS is only $25, plus $3 shipping/handling to U.S. destinations (or $5 for delivery anywhere else in the galaxy).

That Special Introductory Pricing will be in effect until the end of the Decade, the end of the Century or the end of the Millennium—whichever comes first.

Joe Kohn
Publisher, Contacts GS
San Rafael, CA
Internet: Joko@crl.com

Dear *GS+*:
I have a problem resetting my IIGS! Neither Command + control + reset or option + control + reset works properly. Here's the background: I have a ROM 01 IIGS and felt a need for speed some years ago. So, I got myself an Applied Engineering (AE) TransWarp GS card. I thought it was the greatest thing made for the IIGS. When AE came out with a 32K cache expansion card, I had to have it. That is when I started having problems. I followed the installation instructions on removal, cutting the traces, reinstalling and testing. Everything was fine until a program hanged the system and I tried to reset. The reset seems to hang the system. The screen varies, but most often it's a low res screen with colored blocks every other line . . . . I called AE . . . . They . . . said to try "holding the reset button down for at least 30 seconds" . . . . So, I tried it. You can hold the button down until doomsday and nothing will happen! . . . I have removed all other cards with no change . . . . Over the years I've learned to live with it, but I shouldn't have to! Short of reinstalling the 8K cache and "fixing" the traces, is there a solution to this problem?

David Pregont
Wausau, WI

I hate to admit this David, but I have absolutely no clue as to what you can do to fix this problem. Hopefully, one of our readers can help us out here . . . .
Diz

If you have a question, comment, or criticism about *GS+* Magazine, we want to hear it! Due to space limitations, letters may be edited and we can not answer every letter here in *GS+* Magazine.

If you want a personal reply, please include an e-mail address (preferred), a daytime phone number (and the best time to call), or enclose a self-addressed, stamped envelope with your letter.

Please address all letters to:

GS+ Letters
P. O. Box 15366
Chattanooga, TN 37415-0366 *GS+*

Mr. Priceguide Goes Modem Shopping

By Erik "Lurch" Kloeppel

One of the most important aspects of any computer is it's ability to communicate. In fact, the ability to communicate is absolutely essential: Without it, your computer couldn't store data, couldn't print anything—indeed, could not even function!

On a more macroscopic level, without the computer's ability to communicate, you'd never even know if your computer was operating at all.

Of course, there is an entire host of devices out there in the cold cruel world just waiting to communicate with your computer: Mice, hard drives, printers, even your house. Odds are, if it's out there, somebody has connected it to a computer (or they are trying to). Unfortunately, these devices are generally limited—they are either designed for a specific environment, or restricted in use to your immediate surroundings. (It's rather pointless to put your mouse in the next room.)

So, you have all the cool equipment you can buy for your IIGS, but you need to get this huge file to your friend in West Dimblip. You could print it out (and kill a forest) and mail it to him. Or better, since he might have to make some changes, you could simply save the file to floppy and send him that.

Yeah. Right. There are two major problems with this approach (totally disregarding the incredibly high cost of all that paper, and *oh Lordy*, the postage!). The first problem is time: It turns out that your friend has to have the file tonight. Even the best overnight delivery service only promises next day delivery and that is only to metropolitan centers. No way will they promise to deliver that fast to West Dimblip. The other problem is the assurance of delivery. No respectable delivery service will flatly guarantee to deliver a package within any time frame. All they will (and should) promise is to make "any reasonable attempt" to deliver your package. If they can't deliver it, they'll either call you for additional instructions, return it to you, or simply toss it into deadmail. Under the best circumstances, you won't know of any delivery problems until later on in the day (and remember, your friend needed that file last night). If your data ends up in deadmail, the first you'll know of any delivery problem is when your now ex-friend calls to scream at you for not getting him the file on time.

Hmmmm . . . it didn't take him long to get hold of you with the telephone, did it?

No. No It Didn't . . .

Enter: The Modem. Using this inexpensive bit of electronic wizardry with your computer and your telephone line, you can get the file to your friend in a matter of minutes. With delivery guaranteed, even. (Assuming he has a modem too, of course!) Using a modem, the file could be at its destination faster than it might take you to get to your local post office and back.

Not only is it good for point-to-point communications such as those described above, your modem can open up the entire world to you and your computer. Some time ago (I have no idea when, but it was probably around 1979), somebody had the bright idea of making all the files on his computer available to all his friends. Since they all had modems he created the first Bulletin Board System (BBS). OK, so I oversimplified what happened, but the idea caught on, and pretty soon BBSs were popping up all over the place, and programmers were writing commercial BBS software (GBBS, ProLine, and METAL, just to name a few). Soon, even large corporations took note and saw potential for a modest increase in their profit margins. Today there are literally thousands of BBSs across North America alone, and at least five major commercial public access BBSs (called on-line services). By using your modem to connect to a BBS or on-line service you can get anything from the latest weather in Tea Tree Gully, Australia, to the complete works of Shakespeare, to the most up-to-date software for your computer. More importantly, you can use your modem to talk to other computer users and get answers to all your computer related questions (and I know you have them).

(By the way, you should also read "The World at Your Fingertips," in *GS+* V4.N3 for more specific information about modems, cables, and software.)

Hi Ho! Hi Ho!

Did you know that you can even work over the modem?

For example, I'm sending this article via my modem to DELPHI (my favorite on-line service), where Diz downloads it via his modem. He sees it the same day I upload it, makes changes and recommendations, and reverses the process. (OK, so it's not work for me, but it sure is for Diz!)

While it's nice that a modem can bring your office to you, it can also bring you the rest of the world! In fact, such is the wealth of information available via the modem that a computer without one is almost as handicapped as a person who is blind, deaf, and mute. In fact, I might even go so far as to suggest that it is the most important peripheral you can buy for your computer besides a hard drive.

But, How Does It Work?

Now that we've touched ever so briefly on some of the reasons to own a modem, let's take a look at the basics of what a modem actually does.

Of course you know your computer is a purely digital device. Everything it does is by-the-numbers, and those numbers are either ones or zeros. Not a whole lot of room for gray in that, is there? And when that information is dumped onto a wire, it's transmitted as timed pulses of electric current, with "no current" usually representing a zero, and "current" representing a one. On the other side of the coin, your voice is what is called analog. Instead of discrete pulses of electricity defining your voice, it's expressed in a continuously changing series of complex audio waveforms.

Sample Prices For 2,400bps Modems

Model Name	Vendor Code	Price
Harmony 2400	B	$49
Harmony 2496	B	$69
ATI 2400 ETC	B	$79
Hayes Optima 2400 FaxModem	B	$119

Note: Vendor codes and addresses appear in Table 1 at the end of this article.

Guess what your generic telephone system is designed to work best with? (Hint: Alexander Bell did not own a modem.)

At this point, I should mention an error that nearly everybody makes when discussing modems. You will hear the terms "baud" and "bits per second" thrown around as though they are interchangeable. I'm afraid 'taint so. Bits Per Second (bps) is pretty self-explanatory—it's the number of data bits transmitted in a second. The term baud, or baud rate, is abused throughout the telecommunications community. Frequently used to mean bps, baud actually refers to the number of times the digital signal changes state ("on to off" or "off to on") in a second.

When transmitting data, the modem receives the current signal it gets from your computer and quickly converts it into an analog sound the telephone system can deal with. The modem receiving those tones equally quickly converts them back into the digital signal the computer can use. These processes are what actually gave the modem it's name, since the process of converting the digital data into the audio signal is called "MOdulation," and converting the audio signal back into digital is called "DEModulation." If you find a very old tech sheet for one of these devices, you may find it called a "Modulator/demodulator." Modem is much easier to say, although DEMMO(n) (for DEModulator/MOdulator) may have been more fun . . . .

Since I'm throwing out all of this new terminology, this may be a good point to tell you to go take a look at the "*GS+* Glossary" for this issue. In it, you will find definitions of all the strange and esoteric terms I'm using in this article, and you may want to take a few minutes to familiarize yourself with them. If you can't find the term you are looking for there, be sure to check the **Glossary** file on your *GS+* Disk. It contains all of the other definitions that won't fit in the magazine.

Now, what should you look for in a modem? Some things are absolutely essential, some are considered essential, and some are really nice. I don't know of any feature found on a modem that is a total waste of time, but I'll touch on the essential stuff here first.

The Essentials

Speed is essential: The slowest modem you should buy today is 2,400bps. Once considered "as fast as a modem can go," 2,400bps is now barely adequate for today's telecommunications environment.

Sample Prices For 9,600bps Modems

Model Name	Vendor Code	Price
ATI 9600 ETC	B	$129
Hayes Optima 9600	H	$309
Hayes Optima 9600 FaxModem	B	$339

Note: Vendor codes and addresses appear in Table 1 at the end of this article.

Get the fastest modem you can afford: 14,400bps or 28,800bps modems are pretty much standard these days. While some BBSs and online services charge more for access at these higher speeds, sometimes the reduced time used downloading files makes up for the price difference. If it's more economical for you to connect at a lower speed, most common modems will let you connect at any commonly defined speed up to their maximum speed. Even if you tell your modem to connect at 14,400bps, if the modem you are calling only supports a lower speed (say 2,400bps) your modem will automatically connect at that slower speed. Remember this: The *slowest* modem dictates the rate at which the two modems will exchange data.

Error Checking is essential: Most file transfer protocols included as part of your telecommunications software (ZModem, YModem, XModem, Kermit, etc.) perform some form of error checking to make sure the file received is identical to the file that was sent. The latest ITU-T (International Telecommunications Union, Telecommunications Standards Division [which used to be known as "CCITT"]) standard for error correction in a modem is called v.42 (pronounced "v dot 42" or "v 42"), and if two connected modems are v.42 compliant they can perform error checking internally to the modem instead of making the computer do it. Since v.42 error checking is done "in firmware," that is, the program to do it is built into the modem, it's significantly faster than making the software in the computer spot the error and send a "please resend that" signal back through the modem.

There is another set of "standards" you might run into: MNP. MNP stands for Microcom Networking Protocol, and is not as widely accepted as the ITU-T standards. Largely this is because for quite some time the MNP protocols were proprietary, and because the ITU-T standards now incorporate some of the MNP protocols, in addition to others. In this case, the v.42 standard incorporates LAP-M (Link Access Protocol for Modems) and MNP 2, 3, and 4, so a purely MNP modem is acceptable if you have no other choice.

The Essentials?

Data Compression is considered an essential: How can you get a file from one computer to another, at a speed faster than the rated speed of the modem connection? Shrink the file so less data has to be sent! There are two data compression "standards" in widespread use today: MNP-5 and v.42bis ("bis" means "plus," so this means that it's version "42 plus"). Both MNP-5 and v.42bis use programs built into the modem to compress the data—much the same as ShrinkIt does. Instead of saving the compressed file to disk and then sending it to the receiving modem, with MNP-5 and v.42bis the data is compressed and sent out as the modem receives it from the computer. At the other end, the data is received, decompressed, and sent to the computer in the reverse operation. Using either of these protocols you can, if you're lucky, get file compression ratios of 4:1. That is, the original file is four times the size of the compressed file sent between modems. This means your computer is sending data to the modem four times faster than the modem is sending that same data down the phone line. (Computer nerds refer to the rate of data exchange between modem and computer as "throughput.") This is also why you may hear some people talking about 57,600bps speeds from a 14,400bps modem.

I recommend avoiding a modem that uses only MNP-5 compression, however. The MNP-5 protocol is not very clever and will try to compress every file the modem handles. This may not sound bad, but if the file is already compressed (say, with ShrinkIt), transferring it with MNP-5 active can actually slow the transfer! The v.42bis standard however, not only incorporates the MNP-5 protocol, but it's smart enough to recognize compressed files and to make no attempt to further compress them.

Why have I listed data compression as merely a "considered essential" instead of an "absolute essential"? For the most part, compression comes into play when you are engaged in file transfer, and in the Apple II world, most transferred files are

Sample Prices For 14,400bps Modems

Model Name	Vendor Code	Price
GVC 14.4 FaxModem	E	$85
Boca 14.4	D	$95.95
Intel 14.4 FaxModem	E	$99
Zoom 14.4 FaxModem	L	$104.95
U.S. Robotics Sportster 14.4 FaxModem	F	$108.79
Harmony 14.4 FaxModem	B	$109
Practical Peripherals 14.4 FaxModem	H	$109
Supra 144 ELC	G	$122.36
Hayes Accura 14.4 FaxModem	D	$129.95
Motorolla Fastalk II 14.4 Faxmodem	I	$135
Zoom 14.4 Voice	L	$135.95
Best Data 14.4	C	$148
DigiCom Scout Classic 14.4	C	$148
ATI 14.4 FaxModem	B	$149
AT&T 14.4 Dataport	A	$165
Supra v.32bis FaxModem	G	$169.48
Microcom FaxModem ES 14.4	F	$184.56
Hayes Optima 14.4 FaxModem	E	$349
Hayes Optima 14.4	F	$363.80

Note: Vendor codes and addresses appear in Table 1 at the end of this article.

already compressed. Remember, you can't get much improvement in actual data transfer rates by trying to compress an already compressed file.

Many people consider the Hayes "AT" command set (also called "Hayes compatibility") essential. The Hayes AT command set is a catch-all phrase used to describe a fairly standard set of commands used to actually control a modem. Developed originally by Hayes (of course) the commands are now the de-facto standard for ordering your modem about, and really have very little to do with the ability of the modem to communicate with the outside world. All communications programs I know of provide a way for you to enter modem commands from the keyboard. Using this method you can directly control your modem without the help of your communications program—but it's not much fun. Either way, the whole question is really pretty much a non-issue since virtually all new stand-alone modems support the Hayes AT command set.

Some people consider certain specific protocols essential, but really they are just nice to have: Certain modem manufacturers have their very own proprietary protocols. For example, U.S. Robotics advocates the use of their HST (High Speed Transmission) protocol. Virtually all of their modems come with HST, but some are "dual standard." That is, not only do they include HST, but also the appropriate ITU-T standard. Other companies offer such descriptive protocols as "PEP" and "Terbo." All for a higher price, of course.

The thing to remember about all this is that you can have all the spiffy protocols and standards in the world on your modem, and they will be absolutely meaningless if the modem you are calling doesn't conform to those same protocols and standards. Unless you have a very specific need for a proprietary protocol, I would recommend sticking with those ITU-T compliant modems, even if that protocol is "better" than the nearest ITU-T standard. The standards and protocols described by the ITU-T are very exacting, so any v.32bis modem will connect to any other v.32bis modem.

Speaking of the ITU-T standards, be very careful if you are buying a 28,800bps modem. There are currently two groups of these modems on the market: The v.FC (or "V.Fast") and the v.34 modems. V.FC is very similar to v.34, but the v.FC modems were designed by engineers who were trying to *guess* what ITU-T would finalize as the v.34 standard. The problem is, since they were making their guesses as much as *two years* before ITU-T published the standard, the v.FC modems are not 100% compatible with the v.34 standard—or even with each other. There is no guarantee that a v.FC modem will connect with any other v.FC modem in v.FC mode or, more importantly, to a v.34 modem. Therefore, I would strongly recommend against purchasing a v.FC modem.

"The Display's the Thing"

Most modems come with some form of display to tell you what is going on inside. The display can range from a few simple LEDs burning in the dark to a multi-line LCD display. The simple on-off of LED displays may call for a slightly steeper learning curve to understand what's going on, but when you get right down to it, all displays really tell you essentially the same information, it's up to you to decide how pretty you want it to be. I personally like LEDs—a quick glance at the pattern tells me what I need to know, where I'd likely have to read the words on an LCD screen to get the same information. It's probably the difference between one second and two, but it's what I'm comfortable with. Besides, most modem LCD screens are not backlit, so under certain conditions, they can be quite difficult to read. With its LED display, I can tell what my modem is doing under any conditions, even across a dark room.

This may be why I distrust internal modems . . . I can't see what they are doing at any given instant. I have to rely on the software to tell me what's going on, putting me one more step removed from the equipment. It's an emotional response on my part, but if I can, I like to remove barriers between equipment and myself, not add them. Now, speaking of internal modems . . . .

All in the Families

There are three basic families of modem today: Internal, stand-alone, and PCMCIA. Internal is fairly obvious—it goes into a slot inside the computer. I know of only one 2,400bps internal modem for the Apple II (though I have several different makes of 300 baud internal modems), and no faster internal modems. Add in the fact that not all telecommunications programs work with it (due to the way it was built), and that the company that made it (Applied Engineering) is no longer among the living, you can see why it's not likely to be the modem of choice for most people. In fact, I would go so far as to flat out say "don't buy or use an internal modem."

Stand-Alone modems (also known as "external modems") are significantly different from the internal and PCMCIA modems. They are really too big to shove into a computer slot, not to mention a PCMCIA port. In fact, they are commonly about the size of a paperback

book. External modems have an AC cord that plugs into a wall-socket, a cable that plugs into a telephone jack, and a cable that plugs into one of the serial ports on your IIGS. Trust me, if you buy a modem for your IIGS, this is what you should buy. (Just make sure the external modem you buy comes with a Macintosh modem cable and not a cable for a PC!)

(Note that in the category of stand-alone modems there is a special type called a "rackmount" modem. Mostly designed to fill a very narrow niche, and using very limited and sometimes unusual protocols, rackmount modems simply will not work with your IIGS. Rackmount modem ads are few and far between in most common magazines, fortunately, so you shouldn't worry too much about them, just don't accidentally buy one at a flea market like I almost did!)

The third family of modems on the market these days you can't use at all. PCMCIA modems are appearing in larger and larger numbers. Approximately the size of a credit card, they are designed for use with laptop and sub-laptop computers (like the Newton) and require a special interface. For now, you can safely ignore them.

A Long Way to go

Another factor to be aware of when buying a modem is one I wasn't even aware of until quite recently. When buying your modem, you need to take into consideration the physical distance from your local telephone switching center to your modem. Not measured in a straight line, either—you need to know the actual length of the cable between your exchange and your modem! Telephone companies tend to limit their cable runs to about 50,000 feet (9.46 miles). If you live closer to your exchange than 25,000 or 30,000 feet, you should be able to use any modem on the market, as this factor is a non-issue on any reasonably well maintained telephone system. However, as you get farther away from the exchange, and the farther away the modem you are calling is from its exchange, the more likely you are to need a more expensive modem.

I learned of this factor when I borrowed a friend's modem. I had no end of difficulty connecting to any other modem—even one across the street—and once I connected, I was afflicted with countless disconnections and transmission errors. I never had that problem with my own modem! I then took all my computer stuff—and both modems—to his home and tried it all again. You can imagine my surprise when both modems worked just fine. Obviously, I couldn't explain it, and I was on the verge of calling the modem manufacturers when I happened to mention the problem to a neighbor who works for the local telephone company. He explained it all in words even I can understand:

The problem stems from the fact that telephone cable is not a perfect conductor of electricity. For every given distance a signal has to travel on that copper wire, a certain percentage of the strength of that signal is lost. In other words, the signal fades. Ah! I heard somebody out there ask, "Well, if the signal fades, why not simply add amplifiers to the line?" Because, my friend, the other half of the problem would rear its ugly head. Telephone cable is not particularly well shielded. (For about $1000 or so you can build equipment that will let you listen to telephone conversations—from a distance. But that's illegal.) As a result of this not-so-good shielding, all kinds of signals get imposed on the wire you want to use. Since it's rather disorganized, you might hear it as static or even a background conversation—it's called "line noise" or simply "noise." Put it all together and you'll see that as you get farther away from your exchange the signal gets weaker and the noise gets comparatively louder. This degradation in signal quality is called the "signal to noise ratio."

How does all this really affect you? Well, low-cost modems have to cut quality *somewhere* or they would cost as much as . . . well . . . more expensive modems. Since most modems use a licensed set of communications chips that cost a set amount, and cannot be modified, low cost modem manufacturers have to trim expenses in the supporting circuitry. So, in absolute terms, lower cost modems are usually not quite as capable as higher priced models at picking a weak signal out of the noise. This information should be published as the modem's "receive sensitivity," and if you live way out in the sticks, you'll want a modem with better receive sensitivity. When shopping for your modem, look for a negative number labeled "dBm" or "decibels." The greater the magnitude of the negative number, the better. (i.e. -58dBm is worse than -64dBm. The scale is logarithmic, and for every 6dBm increase in the ratio, the noise effect is doubled. Thus, -58dBm is actually twice as noisy as -64dBm.)

Sample Prices For 28,800bps Modems

Model Name	Vendor Code	Price
Zoom 28.8 FaxModem v.34	I	$125
GVC 28.8 FaxModem	E	$185
U.S. Robotics Sportster 28.8 FaxModem v.34	K	$207
Best Data 28.8	C	$218
U.S. Robotics Sportster 28.8 FaxModem	I	$219
Boca 28.8 FaxModem V.34	D	$219.95
Practical Peripherals 28.8 FaxModem	H	$229
MultiTech v.34	J	$459

Note: Vendor codes and addresses appear in Table 1 at the end of this article.

Just da Fax Jax

Hey! What about all those FAX modems out there? For most of us, FAX capability is a true non-essential, but face it: If you buy a high speed modem these days, you will probably be getting a FAX modem as part of the deal. The FAX equipment is built into the licensed modem chips, so the manufacturer can't really get away from it. Besides, it really doesn't add all that much to the final cost of the modem, nor does it detract from the modem's overall usability. I know of at least two programmers working on FAX software for the IIGS, and at least one company (Vitesse) is advertising their IIGS FAX software as I write this. [And we should have a review of that software in the next issue. - Ed.]

Let's Wrap This up . . .

At this juncture you know why you need a modem, and you know the important features and specifications to look for. If you want to know more about things like "trellis coding" or "phase jitter" . . . sorry, but no way am I going to get into that mess! But you are still left with some important questions like: "Which modem will work on my IIGS?"

In general, if the modem conforms to the ITU-T standards (particularly v.24 and v.28 [these add up to RS-232-C]), you can use it. I'd not bother with the few internal modems which work in the Apple II (too slow or not supported any longer), and I'd steer clear of specialty modems (which are hideously expensive anyway).

I'd also not bother with those modems that support proprietary standards (an oxymoron if I ever heard one) unless you have a very specific need for that particular protocol.

More specifically, for home use, I'd recommend a modem with a street price in the $150 to $250 range or greater. The Supra FaxModem v.32bis is the one I use, but Zoom and Practical Peripherals make perfectly usable modems in that price range also.

Basically, it all boils down to this simple five step program:

1) Decide how much you have to spend. Everything hinges on this.

2) Call the telephone company for the cable length. If it's a long cable, you may have to settle for a high end slower modem (14,400bps) instead of a low end faster modem (28,800bps).

3) Make your decision regarding standards—including bits per second, error correction, data compression, etc. (Remember to avoid the v.FC modems.)

4) Grab copies of all the current computer magazines you can find and pore over the ads for the best prices on various modems that meet and exceed your standards. I wouldn't spend less than $60 for a 2400bps modem, and I'd not buy a 14,400 bps modem with a list price under $150, or buy a 28,800bps modem with a list price under $250. Also see if local dealers can offer better prices.

5) Get online and send e-mail to me at Lurch@delphi.com telling me how much you enjoy your new modem! *GS+*

Table 1 - Modem Vendor Codes & Addresses

Code	Address
A	Multiple Brand Superstore 105 Long Acre Ct. Frederick, MD 27102 800-944-3808
B	Harmony Computers 1801 Flatbush Ave Brooklyn, NY 11210 718-692-3232
C	Blue Line Communications Warehouse 7221 Acacia Ave Garden Grove, CA 92641 714-373-2118
D	Tri State Computer 650 6th Ave New York, NY 10011 212-633-2530
E	Kenosha Computer Center 2133 91 St Kenosha, WI 53143 800-255-2989
F	Computer Discount Warehouse 1020 East Lake Cook Rd Buffalo Grove, IL 60089 800-726-4239
G	Vektron International 2100 Highway 360 STE 1904 Grand Prairie, TX 75050 805-725-0047
H	Arlington Computer Products 1970 Carboy Mt. Prospect, IL 60089 708-228-6333
I	Computability Consumer Electronics Box 17882 Milwaukee, WI 53217 414-357-8181
J	Yokohama Telecom Corp 4095-M E. La Palma Ave Anaheim, CA 92807 714-630-4061
K	TC Computers 1310 Carrol St Kenner, LA 70062 504-733-2527
L	Lyco Computer Box 5088 Jersey Shore, PA 11740 800-233-8760

Note: Every effort has been made to ensure the accuracy of the contact and pricing information shown in this article. However, modem prices can change rapidly as new technology becomes available, and vendors have a tendency to change prices, locations and phone numbers without warning. Also, none of these vendors are associated with EGO Systems or *GS+* Magazine in any way. So, if you plan to order from one of these vendors, be sure to contact them first and get full details on current prices, warranties, and return policies.

The GS+ XCMD For Spectrum

By Josef W. Wankerl

Spectrum 2.0, which should be available by the time you read this, incorporates many changes, and perhaps the most exciting addition is the use of external commands, or XCMDs. An XCMD (pronounced "x command") is a small program that can interact with Spectrum. Although you can use Spectrum's scripting language to control most of Spectrum, there are a lot of cases that aren't covered by scripting alone. For those cases, you can use an XCMD. There are two types of XCMDs: Those that perform work behind the scenes, those that perform work in reaction to an explicit script command, and the third (OK, so there are really three types) that works both behind the scenes and in reaction to script commands.

An example of a XCMD which works exclusively behind the scenes is the Twilight II XCMD. Twilight II normally blanks the screen after a period of inactivity. For most applications, this isn't a problem. However, for Spectrum, a period of inactivity can almost always be found during file transfers. If Twilight II were to perform a foreground blank during the file transfer, the transfer would be unpleasantly interrupted. Spectrum v2.0 ships with a Twilight II XCMD which forces background blanking when Spectrum is busy. To use the Twilight II XCMD, you simply drop it in Spectrum's **Add.Ons:XCMDs** folder and forget about it—no user interaction is needed!

An example of a XCMD which works exclusively because of an explicit script command is the Speech XCMD. A new scripting command, `EXTERNAL` or `EXT`, allows your scripts to invoke XCMDs. To invoke the Speech XCMD, you'd code a script line something like this:

```
EXTERNAL Speech 2 "Hi There"
```

Spectrum would see the `EXTERNAL` command and then attempt to talk to the XCMD with the name following the `EXTERNAL` keyword (in this case, the XCMD's name would be "Speech"). The XCMD then gets the parameters following the XCMD name. In the case of the Speech XCMD, the leading "2" means to speak the string following it. (By the way, the Speech XCMD requires the Talking Tools from the ByteWorks.)

An example of a combination XCMD is the *GS+* XCMD that's on your *GS+* Disk. In the remainder of this feature, I'll use the *GS+* XCMD as my main example.

Using the GS+ XCMD

First off, I'll describe how you go about using the *GS+* XCMD from within Spectrum. After you install the *GS+* XCMD, the XCMD will automatically turn off Cool Cursor cursor animations for you whenever it's not safe for them to occur. (See "Cool Cursor v2.0.2" elsewhere in this issue for more on this.) In addition to the automatic behavior, you also get some new scripting commands. These commands are shown in Figure 1.

0

Although not required, all Spectrum XCMDs are strongly encouraged to support the `0` command. The variable parameter after the `0` is optional. If omitted, the XCMD will simply return without generating an error. If present, the XCMD will return its version number in the variable. Using the `0` command is a convenient way to test to see if a needed XCMD is present. For example, to test for the *GS+* XCMD, you'd code `EXTERNAL GS+ 0` and then check for an error. To get the version of the *GS+* XCMD, you'd code `EXTERNAL GS+ 0 Vers` and then the Spectrum variable `Vers` will contain the version number.

CCCP

The `CCCP` command allows you to modify the internal Cool Cursor inactive flag (see the "Cool Cursor v2.0.2" article elsewhere in this issue for more information on the flag). When you issue the `EXTERNAL GS+ CCCP OFF` command, the Cool Cursor inactive level is incremented, which means that Cool Cursor will not perform any cursor animations. When you issue the `EXTERNAL GS+ CCCP ON` command, the Cool Cursor inactive level is decremented. When the inactive level reaches zero, it means that Cool Cursor will perform cursor animations.

Quick DA

The `Quick DA` command allows you to tell the Quick DA control panel (from *GS+* V4.N1) to open a desk accessory for you. For example, coding `EXTERNAL GS+ Quick DA CDA "Nifty List 3.4"` will instruct Quick DA to open the Nifty List classic desk accessory. Coding `EXTERNAL GS+ Quick DA NDA "Table Scraps"` will instruct Quick DA to open the Table Scraps new desk accessory. Coding `EXTERNAL GS+ Quick DA CDev "Cool Cursor"` will tell Quick DA to open the Cool Cursor control panel.

Programmer Notes

If you're interested in the nitty-gritty details of programming a Spectrum XCMD, then read on! Spectrum XCMDs are written almost exactly like you'd write a Finder extension. Spectrum communicates to its XCMDs by sending requests, so any request procedure you install in the system should be able to listen for Spectrum's requests. There are only two requests that Spectrum sends: A "process script" request and an informational request. When Spectrum sees the `EXTERNAL` keyword, it uses the next keyword as the name for the target request procedure to send a message to. The remainder of the script line is sent to the request procedure in a process script request. (This is how your XCMDs can add additional commands to Spectrum's scripting language.) Whenever something "special" happens in Spectrum, an informational request is sent to all installed Spectrum XCMDs. In addition to sending the two request types, Spectrum also will accept requests that tell it to process a block of text as a script. Your XCMDs can create scripts

Figure 1 - The *GS+* XCMD Commands

`EXTERNAL GS+ 0 {variable}`
This tests to see if the XCMD is present and returns its version in `{variable}`.

`EXTERNAL GS+ CCCP [On|Off]`
This modifies the internal Cool Cursor inactive flag.

`EXTERNAL GS+ Quick DA [type] [name]`
This tells Quick DA to open a desk accessory.

Figure 2 - dataIn and dataOut For the "Process Script" Request

`dataIn` is a pointer to a buffer which contains:

$00	`pCount`	Word—Number of parameters in the `dataIn` request (should be 4)
$02	`stringPtr`	Long—Pointer to string to parse for input
$06	`quoteValue`	Word—Current quote character
$08	`tokenValue`	Word—Current control character token (usually the "^" character)
$0A	`caseSense`	Word—Case sensitive flag for string comparisons ($5F or $7F)

`dataOut` buffer:

$00	`recvCount`	Word—Number of times the request was received

and then tell Spectrum to interpret them. In this way, you can do just about anything that a normal script could from within your XCMD.

Process Script

The process script request is sent to your XCMD when Spectrum sees a line beginning with EXTERNAL followed by the name of your XCMD. When your XCMD gains control, typically you'll want to parse the remainder of the line to see what additional information is there. Almost always, you'll want to check and see if the 0 command has been issued and then return the version number of your XCMD. For example, the *GS+* XCMD checks for the CCCP and Quick DA commands in addition to the 0 command.

Parsing the Input

There are a few special rules you should follow when parsing the input line for parameters. Before Spectrum calls your XCMD, all replacement items have been filled in (i.e. if the $Date replacement item were in the line, it would be replaced with the current date before your XCMD sees the line), all comments have been removed, and the line has been cleaned up so that there is only one space between parameters. The line will start with the very first parameter (i.e. the EXTERNAL keyword and the name of your XCMD are not on the line). All parameters are delimited by a space character. However, parameters (like strings) can have spaces in them if the entire parameter is enclosed in quotes. When Spectrum calls your XCMD, it passes the value for the current quote character. You need to explicitly check for the quote value and not hard code the normal double quote. Be sure to check out the GetNextToken routine in the *GS+* XCMD source code to see how to retrieve a parameter from the line.

Information

When Spectrum knows that something "special" has happened, an informational request is sent to your XCMD. Something "special" is defined as: Spectrum has started up, Spectrum is shutting down, a script has started running, a script has finished running, an online display was opened, an online display was closed, Spectrum is idle, a file transfer has started, a file transfer has finished, interrupts are not safe, interrupts are safe, Spectrum has faded the screen, Spectrum has restored from a faded screen, or a file was transferred successfully. Mostly informational messages are used by XCMDs that operate automatically to provide additional actions when something special in Spectrum occurs.

Figure 3 - dataIn, dataOut & code Values For the Information Request

dataIn is a pointer to a buffer which contains:

$00	pCount	Word—Number of parameters in the dataIn request (should be 2)
$02	code	Word—Information code for what just happened
$04	infoPtr	Long—Pointer to an information block specific to code

dataOut buffer:

$00	recvCount	Word—Number of times the request was received

The code parameter is defined as:

code	Name	Description
$0001	StartedUp	Spectrum has started
$0002	ShuttingDown	Spectrum is shutting down
$0003	ScriptOn	A script has just started to run
$0004	ScriptOff	A script is about to finish running
$0005	OpenedDisplay	An online display has just opened
$0006	ClosingDisplay	An online display is about to be closed
$0007	SpectrumIsIdle	Called every 340 idle events
$0008	XFerStart	File transfer started (interrupts not safe)
$0009	XFerStop	File transfer stopped (interrupts are safe)
$000A	IntNOTSafe	Interrupts are not safe
$000B	IntARESafe	Interrupts are safe
$000C	DimON	Spectrum faded the screen
$000D	DimOFF	Spectrum restored a faded screen
$000E	FileReceived	Spectrum successfully received a file

Run This Script

The way your program controls aspects of Spectrum from your XCMD is by sending a request to Spectrum telling it to run a block of text as a script. For example, when the 0 command is detected, your XCMD should build a script containing the text "Set Variable *name* v1.0" and send it to Spectrum to be run as a script. Of course you should set *name* to be the variable name passed to the 0 command and the version number should accurately reflect the current version of your XCMD.

Detailed Requests

When you install the request procedure for your XCMD, it should be named "Spectrum XCMD~NAME OF XCMD~Your Company Name~". The "NAME OF XCMD" should, of course, be replaced with the name of the XCMD you're writing, and it should be all uppercase. When you send requests to Spectrum, you should send them by name to "SHS~Spectrum~".

When Spectrum processes a script line which is directed to your XCMD, it will send you request number $8001. The request is sent to all XCMDs that have the same base name. (You could have two XCMDs installed with names like "Spectrum XCMD~MYX~EGO Systems" and "Spectrum XCMD~MYX~GS+ Magazine".) The parameters are shown in Figure 2.

When something special happens, Spectrum sends all XCMDs request number $8002. The parameters are shown in Figure 3.

The infoPtr parameter is defined differently for every code. The FileReceived code receives an infoPtr parameter which points to the GS/OS class 1 input string containing the pathname of the file which was just received successfully. Currently, every code except the FileReceived code receives an infoPtr parameter which points to the Spectrum parameter block. The Spectrum parameter block has information pertaining to almost every aspect of Spectrum (e.g. all communications and preference settings). Documenting the parameter block here would take up *way* too much space, so if you think you're going to need information from the Spectrum parameter block, be sure to read the programmer's documentation that comes with Spectrum.

If your XCMD needs Spectrum to processes a script, it should send Spectrum request number $8801. The dataIn and dataOut parameters are as shown in Figure 4.

Figure 4 - dataIn and dataOut For the "Run This Script" Request

dataIn is a pointer to a buffer which contains:

$00	pCount	Word—Number of parameters in the dataIn request (should be 1)
$02	scriptHndl	Long—Handle to script text (Spectrum disposes of this when done)

dataOut buffer:

$00	recvCount	Word—Number of times the request was received

Need I Say More?

That's basically all there is to Spectrum XCMDs and the *GS+* XCMD for Spectrum. If you find a problem with it, please fill out the problem form on your *GS+* Disk and send it in. *GS+*

It's In Tomorrow's Mail!

GNO/ME - $89

GNO/ME stands for the "GNO Multitasking Environment." GNO/ME is a command shell that brings multitasking to your IIGS. Using GNO/ME, you can start up multiple tasks (like compiling different parts of a program) and have them execute concurrently! GNO/ME can also be used as a replacement for the ORCA command shell and is compatible with all of the ORCA utilities and languages

System requirements: System 6.0 or later, 2MB of RAM and a hard drive. (More RAM is strongly recommended for multitasking!) Price includes First Class shipping to U.S. Surface mail shipping to the rest of the world is an additional $5. Air Mail shipping to the rest of the world is $10.

Splat! - $39.95

Splat! is a *source level* debugger for use with ORCA/C, ORCA/Modula-2, and ORCA/Pascal. With Splat! installed, you can step or trace through your program's source code while your program executes! You can also view and set the values of variables and you can even view complex data structures, like Event records, and watch their contents change as your program executes! If you program the IIGS, you need Splat!

System requirements: System 6.0 or later, 2MB of RAM, a hard drive and either ORCA/C, ORCA/Modula-2 or ORCA/Pascal. Price includes First Class shipping to U.S., Canada, Mexico, and surface mail to rest of the world. Air Mail shipping is an additional $4.

Switch-It! - $39.95

Switch-It! is a program switcher and launcher that allows you to have more than one IIGS application in memory at the same time. You can switch between these applications instantly, just by picking the application you want to work with from the menu bar at the top of the screen! Switch-It! also comes with several new desk accessories (NDAs), that allow you to easily copy data from one application that you have in memory, and then paste it into another application.

System requirements: System 6.0 or later, 2MB of RAM and a hard drive. Price includes First Class shipping to U.S., Canada, Mexico, and surface mail to rest of the world. Air Mail shipping is an additional $4.

Pick 'n' Pile - $20

Pick 'n' Pile is a great game for your IIGS that would probably remind you of Tetris, if Tetris had walls, flowerpots, wildfires, bombs, and death heads! In Pick 'n' Pile, your job is to clear the screen of various colored balls, by stacking them on top of each other. As you try to accomplish this task, some helpful items appear to make your job easier (like the bombs), and other items appear to make your job more difficult (like the death heads). It's extremely addictive, and a lot of fun!

System requirements: System 5.0.4 or later, 1MB of RAM. Price includes First Class shipping to U.S., Canada, Mexico, and surface mail to rest of the world. Air Mail shipping is an additional $3.

ZipGS Accelerator - $189

Are you tired of waiting on your IIGS? Well then, plug in a ZipGS accelerator card and get ready to blow the doors off of your favorite programs! With a ZipGS 8/16 accelerator installed, your IIGS will run at a snappy 8MHz instead of the wimpy 2.6MHz it's running at now. The Finder will run faster, AppleWorks GS will run faster, EGOed will run faster, in fact, just about *everything* that you do with your Apple IIGS will happen faster!

And the ZipGS is simple to install! All you have to do is remove the CPU chip, plug the ZipGS into the CPU socket, plug the ZipGS circuit board into either slot 3 or 4 and then you are ready start computing at ludicrous speed!

System requirements: A ROM 01 or ROM 03 Apple IIGS and a burning desire to go faster!
Price includes First Class shipping to U.S., Canada, Mexico, and surface mail to rest of the world.
Air Mail shipping is an additional $5.

Addressed For Success - $35

Addressed For Success is the *only* IIGS-specific label design and printing application available! With it, you can quickly and easily create and print labels on any IIGS-compatible printer, using any font that you have. Addressed For Success comes with dozens of pre-made label templates for use with Avery brand labels, or you can easily design your own templates for use with other brands of labels. Addressed For Success also performs bulk sortations for reduced postage costs, prints postal bar codes, and allows you to include up to three different graphics on each label!

System requirements: System 6.0 or later, 2MB of RAM and a hard drive. Price includes First Class shipping to U.S., Canada, Mexico, and surface mail to rest of the world. Air Mail shipping is an additional $3.

The Very Fine Print

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EllieFont

By Josef W. Wankerl

Have you ever had the sinister urge to double-click on a font file in the Finder and have a sample of the font be displayed to you in a window? If not, then the EllieFont program is not for you. If you have, well then, have I got a *great* program for you! EllieFont will let you open both bitmap and TrueType fonts in the Finder. For bitmap fonts, a sample of the font is shown to you at the point size of the bitmap. For TrueType fonts, three samples of the font are shown to you: A 9 point sample, a 12 point sample, and an 18 point sample. That's all EllieFont does! Just install it using the Installer that is on your *GS+* Disk, reboot, and start opening font files. (Important! For EllieFont to recognize and display TrueType fonts, you must have Pointless installed, and the TrueType fonts you are trying to look at *must* have the file type $C8 and the auxiliary file type $00000001!)

Some Things to Know

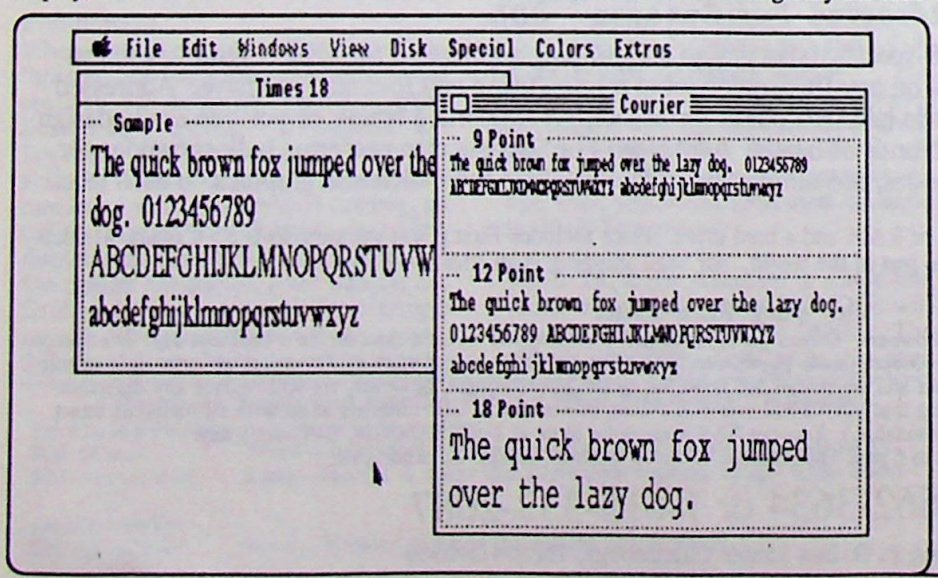
EllieFont will let you open as many font sample windows as your heart desires . . . or as many as your memory allows—whichever comes first. Usually it's the heart, which isn't bad, but when your memory goes you're in some trouble. (Boy, that last sentence sounds like I'm some kind of heart-brain surgeon, doesn't it? Perhaps I should look into that field as my next profession . . . .)

How It's Done

The font display windows are very simple, containing only three types of controls: Static text, rectangle, and picture. You might think that the static text controls would contain the text to display, but that's not how it's done. The static text controls contain the word "Sample" for bitmap fonts, and the words "9 Point", "12 Point", and "18 Point" for TrueType fonts. The actual font sample is contained in the picture control. The reason for this is simple: EllieFont lets you open fonts that aren't installed in your system! If it allowed you to only open fonts you already have installed, EllieFont would have been a trivial program to write (and not very useful). Since you can open any font anywhere, even if it's not installed in your system, I had to create a picture of what the font looks like and display that. That's done by installing the font in the system temporarily, drawing the sample text in a new off screen grafPort, creating a picture of the sample, and then removing the font. This uses far less memory than keeping the sample font installed once you open it. (Perhaps in the future I can make it so that when you open a font, it gets installed in the system on-the-fly, but that's an option for another day.) The methods for temporarily installing the font varies between bitmap and TrueType fonts, so that's what I'll describe next.

Bitmap Fonts

Normally you'll use the Font Manager to make sure you have a font available for drawing. However, EllieFont can work with fonts that aren't currently known to the Font Manager. To use the font, EllieFont must install the font itself. To do this, the font file is opened and the name of the font is found so the sample window can be properly titled. The remainder of the file after the font name is the actual font data that QuickDraw II needs to properly draw a font. To install the font, a handle containing only the font data needs to be available. When QuickDraw draws text, it first draws the text in a special text buffer, and then it copies the text buffer to the grafPort. The text buffer must be large enough for the current font to be properly drawn, so EllieFont makes the `InflateTextBuffer` tool call to ensure that the buffer is indeed the correct size. Once the text buffer is large enough, the font can be set as the drawing font using the `SetFont` call, which takes the handle to the font data. After the font is current for drawing, some important font-related fields in the grafPort are set to reflect the current font. The `SetFontID`, `SetTextFace`, and `SetTextSize` calls make sure everything is kosher for drawing. Once everything is set up, the font sample can be drawn using standard QuickDraw II calls (actually EllieFont uses the LineEdit tool set's `LETextBox2` call to draw the sample so the sample text will wrap properly) and then a picture can be created from the drawn text. Note that the text buffer size is saved and restored around installing the sample font just to keep the system happy. When the off screen grafPort is closed and another port is switched in, the current font is also switched because all that information is contained with the grafPort. All that's left to do after the port is closed is to dispose of the memory for keeping the off screen image and then dispose of the font memory.



TrueType Fonts

If you thought installing a bitmap font in the system was fun, you'll *love* installing TrueType fonts in the system. Since the Font Manager doesn't know about TrueType fonts by itself, you'll need to have Pointless as well. Note that I'm talking about working *through* the Font Manager here. When working with bitmap fonts, you can simply install it directly in the system and ignore the Font Manager completely. Since Pointless is the only engine available for the IIGS to turn TrueType fonts into bitmaps, and since Pointless works only in conjunction with the Font Manager, that means that installing TrueType fonts has to use the Font Manager. That's not too bad—just make the `InstallFont` call to make the font the current drawing font. The problem comes in when you want to open a font that Pointless doesn't have added to its list of TrueType fonts. The way I got around that was by tricking Pointless into thinking it actually knows about the font. This involves creating a TrueType font list containing only one font, saving the

current Pointless list, and then forcing Pointless to look at the new font list. The Font Manager also has to be told about the new font by making the `AddFamily` call if the font isn't already in the system. The font (and all its size variations) can then be installed with the `InstallFont` call. Once all the samples are drawn, the old TrueType font list is restored. Sounds simple enough, eh? But what does the TrueType font list for Pointless look like? Where is it documented? The answer is that the TrueType font list was never publicly documented. However, while working on the TypeSet program, I had access to some internal Pointless information furnished to me by WestCode. The TrueType font list information is shown in Figure 1. The handle to the TrueType font list information is stored at offset twelve in the Pointless direct page. To find the Pointless direct page, you look for the named Pointless message in the message center and the word immediately following the name is the address of the Pointless direct page.

FOND Memories

I've already discussed how a TrueType font is installed, but I haven't discussed how EllieFont knows the name of the font or how many fonts are in a particular TrueType font file. This is the most complex part of EllieFont. The TrueType font files used by Pointless are actually Macintosh files, and the important information is stored in a Macintosh-style resource fork. Luckily, I already had some Macintosh resource code already written in the Miscellaneous Library. The information about all the fonts contained in a TrueType font file is stored in the Macintosh FOND resource. The FOND (Font Family) resource is discussed in the new *Inside Macintosh: Text* book on pages 4-90 to 4-107. EllieFont looks at every FOND resource in a TrueType font file. Each FOND resource contains information about a unique font family. The name of the family is actually the resource name of the FOND resource. The family number is contained in the FOND resource along with information on style variations available for the family. The style variations are available within the font association table in the FOND resource. Each entry in the font association table consists of a font size, a font style, and the resource ID for the actual font data (which is used by Pointless—EllieFont never needs to know about the actual font data) which is associated with the size and style. Font sizes of zero are considered TrueType fonts, so any non-zero size entries are ignored.

Knowing all this, EllieFont traverses all FOND resources. Inside each FOND resource, the entire font association table is traversed. For each TrueType font in the association table, a new sample window is created. Sounds simple enough in this one paragraph, but just look at all the junk you have to go through to get here!

Need I Say More?

That's basically all there is to EllieFont. If you find a problem with EllieFont, please fill out the problem report form on your *GS+* Disk and send it in. *GS+*

Figure 1—The Pointless® TrueType Font List

The TrueType font list consists of a header followed by zero or more TrueType font descriptor entries. (The format for the TrueType font list is the same in memory as it is on disk.) The TrueType font list definition is as follows:

Offset	Type	Description
+000	Word	Length of the TrueType font list (including this word)
+002	Word	File version (should be $0100)
+004	Word	Number of TrueType font descriptor entries
+006	Flag Word	Bits 15 to 2 are reserved and should be zero Bit 1 set displays all characters in the Pointless sample window Bit 0 set tells Pointless to use bitmap fonts when available
+008	Byte	Menu item style for bitmap fonts (0 = plain, 2 = italic, 4 = bold, 6 = outline)
+009	Byte	Menu item style for TrueType fonts (0 = plain, 2 = italic, 4 = bold, 6 = outline)
+010	6 Bytes	Last modification date for ***:System:Fonts** when fonts were added or removed
+016		Start of the TrueType font descriptor entries

A TrueType font descriptor entry is formatted as follows:

Offset	Type	Description
+000	Word	Length of the TrueType font descriptor entry (including this word)
+002	Word	Font family ID
+004	Word	Font style
+006	Long	Handle to "sfnt" resource (valid only in memory)
+010	34 Bytes	Unused
+044	String	Font family name
+xxx	GS/OS Input String	Pathname of the TrueType font file

(A special thanks to the folks at WestCode Software for allowing us to reprint this information.)

Cool Cursor v2.0.2

By Josef W. Wankerl

I had really considered the Cool Cursor program (last seen in *GS+* V5.N1) finished and done . . . until people started complaining that it didn't work with Spectrum, the telecommunications program from Seven Hills Software. As it turns out, Spectrum is a very interrupt intensive program, and Cool Cursor was making Spectrum choke on a lot of incoming characters. This was most notable during file transfers—Spectrum just didn't want to transfer any files with Cool Cursor turned on. So with my tail between my legs, I broke out the Cool Cursor source code and started trying things to see if I could get Spectrum and Cool Cursor to play nicely together. As it turns out, I couldn't! No matter what I tried, Spectrum still refused to download when Cool Cursor was active. Originally I thought the source of the problem was due to the fact that Cool Cursor uses heartbeat interrupts to know when it is time to change cursor frames. I figured I was taking too much time during my interrupt and that made Spectrum unhappy. So I cut my interrupt code down to size resulting in a new safety mode: I had smoothest, safe, and the new "safer" setting. The safer setting just called the Scheduler to delay the time a cursor frame change would take place so changes never took place during an interrupt. This still didn't work. So I thought I might as well not use the heartbeat interrupts at all and just use the RunQ, so yet another safety mode was invented: Safest. I put the safest code in, ran Spectrum, tried to download, and Spectrum *still* didn't work right! I wasn't using any interrupts at all, and Spectrum still didn't like Cool Cursor. I was baffled. I then joined the Spectrum v2.0 beta test team and, with the help of other beta testers and Seven Hills, the underlying problem was discovered. As it turns out, when you change a cursor frame, interrupts are temporarily disabled by the `SetCursor` call and that was what Spectrum didn't like. Now, what this really means is that no cursor animations can take place while Spectrum is running and expecting interrupts to be enabled, which is just about always. The way around this problem is discussed in "The *GS+* XCMD For Spectrum" elsewhere in this issue.

Other Enhancements

Anyhow, once the Spectrum problem was solved, I had the source code to Cool Cursor out, so I made a few more minor changes. First off, Cool Cursor now requires System 6.0.1 to operate. The benefits to this are a slight reduction in the size of the control panel, and you can also only type numbers in the Speed LineEdit control. (Previously you could type anything from letters to numbers to symbols.) I also added in a progress window when Cool Cursor has to rebuild the cursor list. You'll see the the progress window when you open Cool Cursor and you've added or removed cursors from your **Cursors** folder.

What Is Cool Cursor?

Cool Cursor is a control panel which lets you change the drab static watch cursor into an exciting animation of your choice.

Cool Cursor supports smooth cursor animations, random cursor selection, speedy control panel opening, and much, much more! Custom cursor animations can be created for the Cool Cursor control panel by using the Anna Matrix application.

For complete information on using Cool Cursor, be sure to read the file CoolCursor.Docs, which is in the Documentation folder on your **GS+** *Disk.*

Faster Booting

Speaking of the Cursors folder, some people have complained that it takes their system too long to boot when they have a lot of cursors in their **Cursors** folder. This is because Cool Cursor keeps the last known modification date of the cursors directory around in its preferences file, and if the modification date on the cursors directory at boot time is later than the last known date, Cool Cursor rebuilds the list of cursors it knows about at boot time (which can take a long time with lots of cursors). The way to make Cool Cursor remember the current set of cursors is simply to open up the Cool Cursor control panel. Cool Cursor will then rebuild the list of known cursors and save out the new modification date. The next time you boot your system, Cool Cursor will use the remembered list of cursors instead of looking inside the cursors directory for all the cursors. The moral to this story is that whenever you make any changes to your **Cursors** directory, you should also open the Cool Cursor control panel so the changes are recognized.

New Request

The last new feature in Cool Cursor is only of interest to programmers: Cool Cursor has a new request it will accept. The request is called `cccpChangeActive` and it is very similar to the `cccpSetActive` request. The difference is that instead of being an absolute on/off switch for Cool Cursor, the `cccpChangeActive` request increments or decrements an internal "inactive" level. Cursor animations only take place when the inactive level is zero. If you need to turn Cool Cursor off momentarily, you can make the `cccpChangeActive` request to increment the inactive level. When you want to turn Cool Cursor back on again, just make the request to decrement the inactive level. (This is what the Spectrum *GS+* XCMD does to keep Spectrum happy, in case you were just a bit interested.) You can find complete documentation on sending requests to Cool Cursor in the **CCCP.Requests** file in the **GSP.V6.N3.SEA** archive.

MORE CURSORS!

On your *GS+* Disk, you'll find only three cursors to use with Cool Cursor. Two cursors (Hungry Dot and Radiating Sun) are completely new and one (Yin-Yang) was slightly redesigned. I wanted to put more cursors on the disk, however due to space constraints, those were the only ones that would fit! I took all the cursors I wanted to put on the *GS+* Disk and put them on a clean separate disk and . . . they filled the disk! I have almost 800K worth of cursors for Cool Cursor. Most of the cursors are ones that have been published in past issues of *GS+* Magazine, however some are good cursors submitted to the Cool Cursor Contest that didn't win and were never published. So where's all this going? To a sales pitch of course! I'm pleased to announce that EGO Systems is now selling "Cool Cursors: Volume 1" for a mere $6.50. If you already have all of the back issues with all of the Cool Cursor updates we've published, you don't really need this disk. But, if you are a new subscriber and this is the first time you've seen Cool Cursor, this disk will give you 75 new cursors without buying a bunch of back issues!

Need I Say More?

That's basically all there is to Cool Cursor v2.0.2. Don't forget that this version *requires* Spectrum v2.0 and the *GS+* XCMD to properly work inside Spectrum. Also don't forget to read the **CoolCursor.Docs** file on your *GS+* Disk for complete documentation for Cool Cursor. If you find a problem with Cool Cursor, please fill out the problem report form on your *GS+* Disk and send it in.

GS+

Anna Matrix v1.1

By Josef W. Wankerl

With a new version of Cool Cursor (see "Cool Cursor v2.0.2" elsewhere in this issue), I felt obligated to produce a new version of Anna Matrix as well. There are four basic changes in the new version of Anna Matrix. The first change is that there is a new menu: The Cursor menu. All the menu items relating to actions to be performed on a cursor frame editing window have been moved from the Special menu to the Cursor menu. The second change is the addition of four new menu items to the Cursor menu: Nudge Up, Nudge Down, Nudge Left, and Nudge Right. The nudge menu items will move the cursor and mask data in one pixel increments. You could accomplish the same task by holding down the shift key and dragging the cursor or mask over, but the nudge commands are easier, quicker, and more accurate if you only want to move the cursor by one pixel.

It's the Inversion! Run For the Hills!

The third change is the addition of the "Work Inverted" menu item to the Special menu. With the Work Inverted menu item unchecked, Anna Matrix works exactly as it has in the past. The fun starts when the Work Inverted menu item is checked. All cursor frame editing windows will draw the cursor and mask data in its opposite color. What this means, essentially, is that you can work on cursors using the colors you want to see in your final cursor instead of working with the confusing opposite colors! (For a description of what this all really means, see the **AnnaMatrix.Docs** file on your *GS+* Disk.)

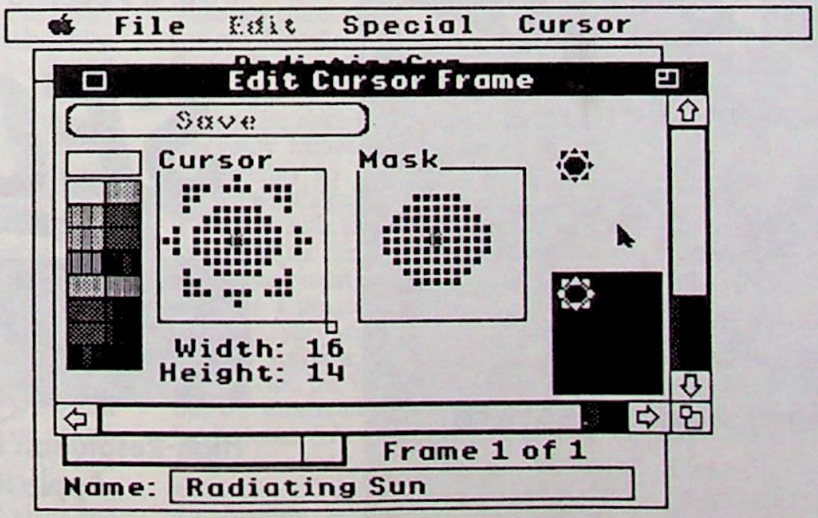
Click me Once. Click me Twice.

The last change in Anna Matrix is somewhat difficult to describe. Anna Matrix has one level of undo, meaning that you can only undo your last change. To implement undo, the cursor to revert to when undo is chosen is saved in memory. Previous versions of Anna Matrix took advantage of that fact to allow you to perform a pseudo-undo function just by drawing. The best way to explain this is by example: Take a totally white cursor, set a black color for drawing, click on any white pixel to turn it black, then (still using the black color) click on the pixel again—it will revert back to white. When Anna Matrix saw that you were trying to draw black on an already black pixel, instead of drawing in black, it picked up the last color for that pixel from the saved undo cursor, which was white. This is an invaluable editing tool . . . however other icon and cursor editors take this idea a lot further. Of all the changes in this version of Anna Matrix, I consider this last one to be the most significant. Instead of getting the last pixel color information from the undo cursor, a separate "conglomerate" cursor image is kept around. Whenever you draw to the main cursor, you also draw in the conglomerate cursor. However when you click on a pixel the same color as your drawing color, the color picked to draw in is chosen from the conglomerate cursor, *not* the undo cursor. This means that you can turn on two different black pixels, then turn both black pixels back to white again. Previously this was impossible because only one level of undo was kept around, and once you turned one pixel back to white, the black pixel was saved in the undo information—any attempt to change it resulted only in black, because that was the color picked up from the undo image. Confused? It is a rather convoluted idea to verbalize, but when you actually see it in use it should make instant sense.

If you have any problems with Anna Matrix, please be sure to fill out and send in a Problem Form so that I can fix them. Also, if you have suggestions for enhancements to Anna Matrix, I'd like to hear those as well. *GS+*

What is Anna Matrix?

Anna Matrix is an application that allows you to create your own cursor animations for Cool Cursor and save them as Cool Cursor documents. You can also modify any existing Cool Cursor documents. Anna Matrix works in both 640 and 320 mode so you can generate beautiful cursors no matter which graphics mode an application uses. For complete information on how to use Anna Matrix, be sure to read the file ***AnnaMatrix.Docs****, which is in the* ***Documentation*** *folder on your* GS+ *Disk.*



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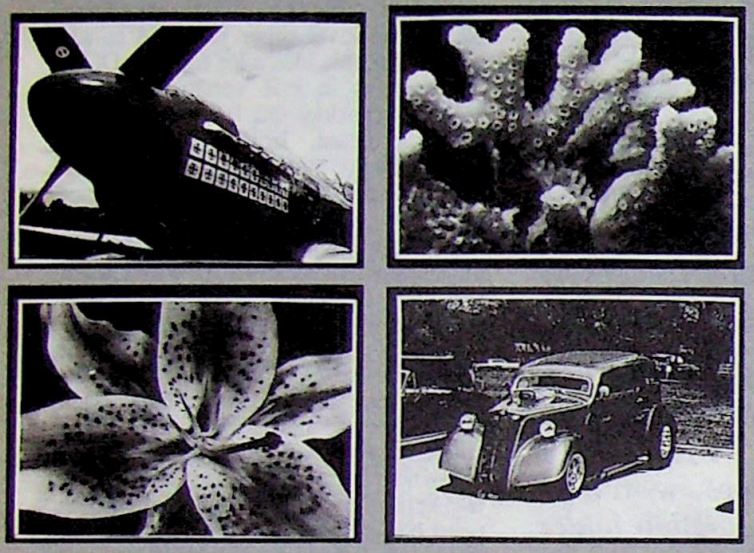
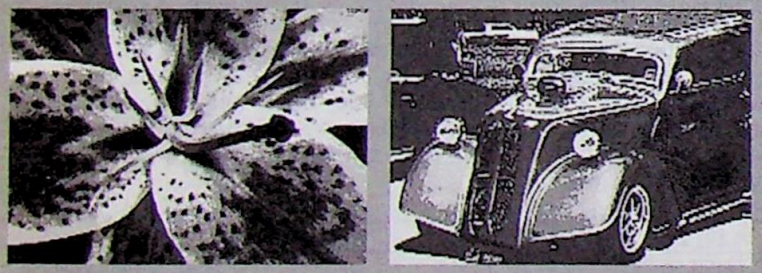


Actual unretouched display photographs of an Apple IIGS with a Second Sight video card and a VGA monitor.

Same images displayed on a standard Apple color monitor without a Second Sight video card.



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All About Nifty List

By Josef W. Wankerl

I do a fair amount of IIGS programming. To help me debug my programs, I use a combination of GSBug and Nifty List. GSBug lets me step through my program's code at its lowest level. Nifty List lets me do everything else. A lot of people know the name Nifty List, but a lot also don't know exactly how helpful Nifty List can be. So in this article, I'll attempt to give you some insights into how to make Nifty List work for you and I'll even tell you how to expand Nifty List so you can make it do things never-before dreamed of. (If you haven't figured it out by now, this article will be of importance mostly to people who aspire to program the IIGS. If you're not a programmer, you might get a little out of reading this, but Nifty List *is* a programming utility, so unless you're programming, Nifty List will be mostly useless to you.)

A Bit of History

I think it'd be a little difficult to explain Nifty List without going a bit into its history. At the start of our history lesson, I see a name . . . a name with a vision . . . the name of Dave Lyons. Dave, the author of Nifty List, probably never envisioned its widespread use as a debugging tool when he first started on the project. He just wanted to be able to disassemble memory from a classic desk accessory. Of course, wouldn't it be useful if the disassembly showed the names of tool calls being made instead of having to look through all your Toolbox reference manuals to find the call? Of course it would! Since there's going to be a table associating tool call names with their numbers, wouldn't it be nice if you could look into the table and see the association between tool call names, numbers, and the parameters a call takes? That'd be great! Hey, and wouldn't it be nice if memory handles could be shown? On the subject of memory, how about adding in ways to view certain structures in memory such as window lists, control lists, control records, desk accessory headers, and more? And maybe after years of adding new features, you'd end up with the be-all, end-all, general-purpose IIGS programmers' utility! That's pretty much what happened with Nifty List.

The Manual

Of course, the first thing you should do is sit down and read through the Nifty List manual, which basically consists of two text files which are in the Nifty List package: **NList.Manual** and **NList.Rev**. The manual isn't too bad and gives you some great pointers on how to use Nifty List. However, a lot of people I've met have Nifty List installed on their system simply because "everyone else does" but they never bothered to read the manual to find out all the neat stuff that Nifty List can actually do. I personally don't understand that concept—I like to know what all of the stuff installed on my computer does. Anyhow, after reading the manual, you still might be left with a few questions in your mind as to how you can best apply Nifty List to your programming and debugging tasks. Experience is usually the best teacher, so the rest of this article will be geared toward performing actual tasks with Nifty List. Once you get the hang of it, Nifty List will probably become your next-best friend.

Help Me!

The first command you should master is the Nifty List help command. There are two help commands. The first is the "?" command. When you type the question mark in Nifty List (and press the return key) you'll be shown an abbreviated page of all of Nifty List's features. To describe a feature in more detail, you use the second help command, the "=" command. For example, to get help on the "L" command, you'd type "=L" (and press the return key). Of all the commands I issue in Nifty List, about half of them are "=" commands. Even though you should read the Nifty List manual, you can get away with not reading it if you can use the "=" command.

Disassembling

Starting at the roots of Nifty List, let's first take a look at disassembling memory. Of course, for a disassembly to make any sense to you, you should know a little bit about assembly language. Even if you don't know assembly language, a disassembly can be informative since tool calls and embedded procedure names will be shown in the disassembly so you might be able to discern what's going on "in general" even if all those little letters seem meaningless. (Note that for the procedure names to be shown, they must actually be in the object code for a program. If you're using a compiler, you won't see your procedure names.) Anyhow, to view a disassembly, simply type the memory location you'd like the disassembly to start at followed by the letter "L". (The L stands for List, which is what you're doing: Listing memory.) For example, to view a disassembly at 00/0300, you'd type "0/300L". (If you'd typed 300L, Nifty List would have used the last known bank as the bank, so you might or might not have gotten bank 0. Instead of 0/300, you could have also typed 00300 or 0/0300 or 00/0300 . . . as long as the bank was explicitly in the address.) To continue the disassembly, just type "L" again (without an address) and the disassembly will continue from the last disassembled location. You can also type "LLLLL" to get five pages of disassembly in a row (or six L's will get six pages, etc.). (You can generally put multiple commands in a row on the same line and they will all be executed.) If you want to disassemble just 00/0300 to 00/0305, you could type "0/300.305L" to get it. The period denotes a range in an address. If you wanted to start at 00/0300 and disassemble the next eight bytes, you could type "0/300,8L" to get it. The comma denotes a range by length. Nifty List can automatically sense when the disassembly should change register widths, and it will also show the names of Toolbox calls being made as well as embedded inline procedure names.

Stopping and Starting

When you're viewing a large amount of informaton, and all of it is quickly scrolling off the top of your screen, you need a way to pause the display. To do this in Nifty List, simply press the space bar. The display will then freeze. To continue scrolling information, press any key other than the space bar. If you press the space bar once the display is frozen, the display will scroll up one line and one new line of information will be displayed. This is an *extremely* useful way to view information! So go try it . . . perhaps on a disassembly. Try "0/300,500L" and practice freezing the display with the space bar and single-stepping through the range. If you get bored, you can cancel out of any listing by hitting the escape key or by typing Command-period.

Handles

There are three commands that deal with displaying handles. The first is the "H" command. When given a handle, the "H" command displays information on the handle such as its location, size, attributes, memory ID, and if available, the pathname of the application which owns the memory block. (The H stands for Handle.) So, if you want to get information on a handle in your program, and the handle is E06730, you could type "E06730H" to find out information on the handle. If you don't know the handle, but

you know a certain memory location contained *in* the handle, you can use the "W" command to get the same information. (The W stands for "What handle?", since you're finding out which handle encompases the given memory location.) For example, you could type "63323W" to find information on the handle that contains the memory location 06/3323. The final memory related command is the "I" command. The "I" command is very useful, so don't forget about it! The "I" command displays information (the same information a "H" or "W" command shows) about all the handles that belong to a given memory ID. (The I stands for Information on handles.) So, if you know your program has the memory ID of 1003, you could see a list of all its handles by issuing the "1003I" command. Alternately, if you wanted to see all the handles that are locked in your memory ID range, you could issue the "1003.8000I" command. The word after the period is an attributes word to match. Note that when matching attributes, the attributes must match *exactly*—no partial matching is done, so matching "8000" would not show a handle with attributes of "C000", even though the high (locked) bit is set. If you want to see all the handles in the system, you can issue the "0I" command, which is affectionately called "oink." So now, when someone tells you to "oink in Nifty List," you'll know what they're talking about.

Addresses

Nifty List makes it very easy for you to view memory. The "^" command does a three-byte indirection. Or, if you're more familiar with the term, it will dereference a handle or pointer. So, if you've got a handle at E06730 and you wanted to start disassembling what's there, you could type "E06730^L" to accomplish the task. Another, less common type of indirection is the two-byte indirection, which is performed by the "@" command. This performs an indirection leaving the current bank byte alone. If you want to modify memory at a certain address, the ":" will help you. You can store a 60 at location 00/0300 by issuing the "0/300:60" command. The "#" command will retrieve the last address shown by a H, W, I, T, or " command. (I'll discuss the T and " commands in the next section.) So, for example, if you've just typed "E06730H", you could then type "#L" to start disassembling memory at the start of the handle. (You could also type "E06730^L" to do the same thing, since "^" would dereference the handle, you just wouldn't get to see the handle information first.)

Tool Sets

Nifty List really comes in handy when you have to work with the IIGS Toolbox. Nifty List can show you an abundance of information on the state of the system, including individual tool sets. First off, you can see which tool sets are started or

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///SHH Systeme

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loaded in the system by issuing the "V" command. (The V stands for tool set Versions.) The "V" command will show the tool set number, whether the tool is started or not, the tool set's version number, the number of tool functions in RAM and ROM, the tool set's work area pointer, and in case you don't remember tool set numbers, the tool set name is also shown. The next useful command is the "T" command, which prints the name and entry point for a tool call. (The T stands for Tool call.) So, for example, if you wanted to know what name was related to tool number 0504, you could say "504T" and Nifty List will tell you that it's the `QDReset` tool call and it will also tell you where in memory the tool call starts. On my machine, that's at FE/0E54, so I could immeditately do "FE0E54L" to start seeing what the `QDReset` tool call does. Note that you can also type "504T#L" to start the disassembly as well. If the function number is zero when the "T" command is issued, all the functions contained in the tool set will be listed. For example, "4T" would display the entire function table for QuickDraw. Finally, if you type "0T" then the addresses for the system and user tool pointer tables and work area pointer tables are shown.

Let's say you're writing a program, but you forget the parameters for the `NewHandle` tool call. Instead of breaking out your reference manual and looking it up, Nifty List will help you! Type ""NewHandle" (note the double quote before NewHandle) and Nifty List will search for the tool call by name, show you it's tool call number, it's entry point, and an abbreviated list of parameters it takes and what it returns. Note that I said abbreviated—if you've used the call before, you can usually figure out what the parameters are, but if you haven't you may still have to look up exactly what they mean. However, this is so helpful, I'm tempted to say that if all Nifty List did was the """ command, I'd be a very happy camper. (Of course Nifty List does *way* more, so I'm even happier.) If you wanted to disassemble the `NewHandle` tool call, you could do it by typing ""NewHandle" then "#L". Note that you have to type each of these commands on separate lines because the """ command will treat the string "NewHandle#L" as a search for the tool call that is named "NewHandle#L", which is probably not what you wanted to search for!

Finally, we've worked our way down to the great "_" command! The "_" command actually lets you issue a Toolbox call from within Nifty List! So, for example, if you wanted to allocate a new handle, you could say "_NewHandle(0,1003,0,0)" to allocate a new empty handle. Nifty List will then show you the result of your tool call, which in this case would be the address of the newly allocated handle. The ability to issue tool calls is one of the best features of Nifty List. Note that the "_" is, in terms of Nifty List, just evaluating a Toolbox-call expression. (A general expression is evaluated using the "=" command. So, if you wanted to see the results of negating the value one, you could type "=-1" and Nifty List would show that to you.)

The ";" Command

The ";" command shows structured content for a memory location. You can view memory as ASCII text with ";a" or do a hexadecimal dump with ";h". So, if you knew a five character string was at location 00/0300, you could type "0/300,5;a" to view it as ASCII text or "0/300,5;h" to view it as hexadecimal bytes. Additional parameters for the ";" command are as follows:

;c — Displays memory as a classic desk accessory (CDA) or as a control. If the address given is a pointer to a classic desk accessory header, Nifty List will show the CDA's entry and init points as well as its name. If the address is a control handle, the control record is displayed. Nifty List is smart enough to distinguish between a handle to a control and a classic desk accessory header. If you type "0/0;c" then all the controls in the frontmost window will be shown. If the address given is a window pointer, then all the controls in the window pointed to by the address will be shown. (This is a *very* handy command when you're playing with controls.)

;m — Displays memory as a menu bar. The address given must be a handle to a menu bar, or "0/0" can be given to use the system menu bar.

;n — Displays memory as a new desk accessory. The address given is a pointer to a new desk accessory header. Nifty

List will show the new desk accessory's name and entry points.

;p — Displays a grafPort. The address given is a pointer to a QuickDraw II grafPort. Useful information contained in the grafPort will be shown.

;r — Displays a rectangle or a region. If the address given is a pointer to a rectangle, the rectangle will then be shown in the convienent form of (V1, H1)(V2,H2). If the address given is a handle to a region, then useful information about the region will be displayed.

;s — Displays a stack summary. The address given is the start of the stack, and Nifty List will then look at the stack and try to figure out how the information on the stack got there (i.e. subroutine calls and tool set calls will be shown). This command is mostly useful after your machine has crashed and you want to see which routines were executed before the crash occurred.

;w — Displays a window record. The address given is a pointer to a window. Useful information for the window will be shown.

Miscellaneous

Nifty List has a bunch of other commands that don't really fit in a big category, however they are still extremely useful. The "R" command (R stands for Resources) displays open resource file IDs. You can issue "1003R" to find the open resource files for memory ID 1003, or you can find the current application's open resource files with "0R". The "S" command (S stands for Status) displays various status information about your system. The "~" command displays a list of information contained in the system. You can issue "~H" to view the entries in heartbeat queue, "~M" to view the entries in message center (which also includes all installed request procedures), "~P" to view some important grafPorts, "~S" to view all the scraps on the system clipboard, and "~W" to view the window list.

But That's Not All!

Although I haven't gone over every basic command that Nifty List accepts, I've gone over the most important ones. However, there is one command that deserves special mention: The "\" command. If there's a feature that Nifty List doesn't have that you think it should, you can always write an external command module to perform the command. The "\" command calls an external command module. To get a list of all the installed external commands, type "=\" to display the list. If you want to get help on a particular external command, for example the "\files" command, you'd type "=\files" to see the help information. Some of the more useful external commands that come with Nifty List are:

\err — Displays the name associated with an error number. ("201\err" would show "memError (couldn't allocate memory)". "0\err" would display a list of the error codes known to Nifty List.)

\files — Displays all open GS/OS files (this command is *very* useful when you're working with GS/OS!)

\idinfo — Displays information about memory in a given ID range. ("1003\idinfo" would total up the size of all handles in the 1003 ID range broken down by auxiliary IDs and give a total count of all handles and the amount of memory they all consume.)

\res — Displays useful information about the Resource Manager. All memory IDs which have started the Resource Manager are shown along with lists of resource converters.

\ri — Displays loaded resource handles by type. ("8006\ri" would show all loaded rPString resouces.)

\rtype — Displays a resource type name. ("8006\rtype" would display "rPString". "0\rtype" would list all the resource type names.)

\runq — Displays all entries in the run queue.

Although I won't go into great detail on writing external command modules here (complete documentation on how to write an external command module is included with the Nifty List package), I have provided sample source code for Templates v2.0 on your ***GS+*** Disk. The Templates external command module lets you display GSBug-style templates from within Nifty List. The Templates v1.0 external command module that comes with Nifty List (I wrote v1.0 as well, in case you didn't know) was freeware, so in keeping with the Templates tradition, I'm making Templates v2.0 freeware as well! That's right, you heard it here first, folks, ***GS+*** Magazine is finally publishing a freeware product. OK, there's one stipulation to this, though: The source code is *not* — let me repeat that — *NOT* freeware. You can give the Templates v2.0 external command module and its documentation to anyone, but you may not give away the source code. If someone wants the source code, let them buy their own copy of the magazine, OK?

Anyway, the main difference between v1.0 and v2.0 of Templates is that v2.0 can now recognize Splat!-style templates as well as ordinary GSBug-style templates. (The Templates manual goes into more detail on what that means, so be sure to read it!)

Although I didn't want this article to turn out to be a Nifty List user guide, it looks almost like that's what I've done. However, there is still a lot of information contained in the Nifty List manual which I have not covered here. If you're going to use Nifty List, be sure to read the manual first! At the least, however, I hope I've given you enough additional information to make your Nifty List sessions more informative and productive. ***GS+***

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Rumors, Wishes & Blatant Lies

By Prof. G. S. Gumby

Wolfenstein 3D For the IIGS

By the time you read this, Vitesse should be shipping Wolfenstein 3D for the IIGS! If there isn't already a review of it in this issue, we will definitely have one in our next issue! In the meantime, contact Vitesse at (818) 777-7344 for more information on this great new IIGS game.

Still Got Some Zip In 'em . . .

Did you know that Zip Technology is still alive and selling accelerators for the IIGS? You didn't? Well, they are, although they now go by the name "MCTA". For more information on contacting them, check out this issue's "Letters" column.

Easy Undoes It

If you have an extended keyboard that you use with your IIGS, and you have a problem with keys repeating, there is a simple solution: Disable Easy Access! Apparently, Easy Access is buggier than the White House's security system, and it causes some keys to repeat indefinitely.

The Final Word (For Now)

I think both the boss man and I have addressed this particular rumor in the past, but we just keep getting calls about it. So, here is the final word on this (at least until we tell you otherwise).

At this point in time, EGO Systems is *not* going to be acquiring or publishing ECON Technologies' Universe Master. This *may* change in the future, but it is doubtful. If something does change, we will let you know! (In other words, don't call us, we'll call you. Oh, I should probably also point out that there is no truth to the rumor that The Phoenix Project has been given control of Universe Master.)

This Is a Lie, OK?

It seems that even when I label things as "Blatant Lies," some folks have trouble separating them from reality. This is not surprising really: In a recent world-wide survey of literate humans, Americans ranked 15th in the ability to separate fact from fiction. (Citizens of Moscow ranked first and the people of Metropolis ranked last.) It's also widely known that most American teenagers think the capital of Georgia is Atlantis, and that many American voters think the Republican party is the party of "real change." Even worse, a separate study found that 75% of all Americans simply accept 50% of statistics without even bothering to question them.

Shine on You Crazy Diamond You

Rumor has it that the company responsible for the original GEM Apple II CD is contemplating a second GEM disk. This disk would be similar to the first and would contain only freeware and shareware files. That would make about four such collections available for the Apple II. That's nice, but when are people going to start developing *new* software for the IIGS on CD-ROM?

Up, Up and Away!

Well, after months (and months) of waiting (and waiting), the buzz around the office is that the AutoArk update is almost finally ready to go. Whew! After all this waiting, you're probably hoping that it's going to be worth it right? Well, the word has just come down that not only will this update include a new version of AutoArk, it will also include a completely new version of our amazingly popular Balloon program. For those of you with foggy memories, the original Balloon (published in *GS+* V5.N2) was a Finder extension that let you unpack ShrinkIt archives without ever leaving the Finder! This new version of Balloon (which will *only* be available with AutoArk), will be a new desk accessory that will work from *any* program. Even better, the new Balloon will let you *create* ShrinkIt archives as well as extract from them!

May the Source be With You

A few months ago, there was a "hush-hush" rumor floating around that someone had acquired the source code for System 6.0.1 and was working on an update. Unfortunately, this rumor vanished just as soon as it started making the rounds of the online services. So, is it true? Well, if it is, *nobody* wants to talk to me about it.

Caught In the WarpField

Last issue, I told you to be on the lookout for more new products from WarpField Engineering (a spin-off company of Applied Engineering). Well, they have a couple of new products that I thought you should know about.

• First up is the new "WarpCore" replacement power supply for the IIGS. This power supply puts out a whopping 500 watts of power, which should be more than enough to power any combination of expansion cards you can plug into your IIGS. Best of all, the WarpCore has a built in uninterruptible power supply (which WarpField Engineering refers to as "auxiliary power") which can power your IIGS for up to 15 minutes if the power goes out. Also included with the WarpCore is a control panel (code named "Fat Engineer With No Career") that allows you to monitor the status of both the primary and auxiliary power levels in the WarpCore.

• Next up is a new program launcher called "The Nexus." According to WarpField, The Nexus is a complete and total replacement for the IIGS Finder that will let you run *any* Apple II program you can get your hands on, regardless of how old, tired, and worn out it is.

• Finally, WarpField has announced the upcoming release of a product called "VISOR." Apparently, VISOR is a pair of "virtual reality" goggles that plugs into your IIGS and gives you a Super-VGA quality "heads up" display. In other words, no extra monitor is needed, you just put on the VISOR goggles and away you go! (Of course, VISOR will be incompatible with both the Second Sight and TurboRez video boards.)

If you want more information on these products, be sure to give WarpField Engineering a call at (555) 224-4543. [That's (555) ABI-GLIE for those of you that can't remember numbers - Ed.]

My Board Can Whip Your Board

With the recent announcement of the Second Sight video board, the IIGS world seems to be splitting into two camps: Those that think the Second Sight board will be the cats pajamas, and those that think the TurboRez board will be the numero uno video boardo. Personally, I think the board that actually *ships* first will be the far superior choice. But, hey, I'm funny that way . . . .

The House of Retreads

The boss man tells me that, if and when the AutoArk update ever gets out the door, he's thinking of buying the rights to another "neglected" piece of IIGS software. He won't tell me what it is though . . . .

Missing Heifer, 7 Months Along

A few weeks ago, a guy walks in and asks if we know the street address of the phone company. I tell him no. Then, just the other day, this guy walks into the office and asks if we've seen this cow of his that had just run away from his farm. I tell him no. We now keep the doors locked all the time. ***GS+***

How to Use Your GS+ Disk

The first thing you need to do is **make a backup copy of your *GS+* Disk with the Finder!!!** Do *not* make your backup on your hard disk! Instead, copy the *GS+* Disk to another 3.5-inch disk (this is *very* important). Next, put the original in a safe place. If you are having a problem making a backup copy, give us a call at (615) 332-2087. If your disk is damaged, let us know, and we'll get a new one to you as soon as possible.

Installing the Software

To install the software on this issue's *GS+* Disk, start up your computer using System Software v6.0.1 or later. (Note that all of the programs on this issue's disk [except EGOed lite] *require* System 6.0.1!) Next, place your *backup* copy of the *GS+* Disk in a drive. (You *did* make a backup didn't you?) Now run the Installer program that is on your backup *GS+* Disk. (From the Finder, just double-click on the Installer icon.) *It is* extremely *important that you use the Installer that is on your backup* GS+ *Disk! Do* not *use any other copy of the Installer!*

When the Installer window appears, select the item you want to install from the list on the left-hand side of the window, and the disk you want to install it on from the list on the right-hand side of the window. Then click on the Install button. For more information on using the Installer, refer to your IIGS owner's manual.

Before you attempt to use your backup *GS+* Disk, please take a few minutes to read the **a.Read.Me** file for any last minute corrections or information. If you do not already have our EGOed lite text editor installed in your system, you can use the Teach application supplied with System Software v6.0 to read this file.

Installing EGOed lite

The following is a detailed example of how to install EGOed lite. The other programs are installed in a similar manner.

- Start up your IIGS with System Software v6.0 or later—the version of EGOed lite that is on this *GS+* Disk *requires* System 6! (Your *GS+* Disk is *not* a startup disk, so don't try starting your computer with it.)

- Insert your backup copy of the *GS+* Disk into a drive and run the Installer program that is on your backup *GS+* Disk. It is *very, very* important that you run the Installer that is on your backup *GS+* Disk and *not* some other copy of the Installer.

- When the Installer finishes loading, click on the Disk button on the right-hand side of the Installer window until your startup disk appears. (If you only have one 3.5-inch disk drive, you will have to remove the backup *GS+* Disk from the drive and replace it with your startup disk. You should also refer to the "Making Room" section below for hints on how to free up room on your boot disk.)

Please Remember . . .

The contents of the GS+ Disk are not public domain or shareware! We depend on your honesty to stay in business. Please do not give away copies of the GS+ Disk or any of the programs on it. If you do, we will not be able to stay in business. It really is that simple!

- On the left-hand side of the Installer window, you will see a list of the items on the backup *GS+* Disk. One of the items in this list should be "EGOed lite." (If EGOed lite is *not* in this list, quit the Installer and begin again. Be sure that you are running the copy of the Installer that is on your backup *GS+* Disk!) Once you see the EGOed lite item, click the mouse on it so that it becomes highlighted.

- Click the mouse on the Install button in the middle of the Installer window. The Installer will then install EGOed lite on your startup disk. If you only have one 3.5-inch disk drive, you may have to switch disks several times. Just insert each disk as the Installer asks for it.

- When the Installer has finished, click on the Quit button in the middle of the Installer window. This should cause your IIGS to restart.

- When your IIGS finishes restarting, pull down the Apple menu and select EGOed lite (note that you have to be in a desktop program like the Finder to have access to the Apple menu).

- When it finishes loading, notice that EGOed lite has its own menu bar. Select Open from the *EGOed lite* File menu and then put your *GS+* Disk in a drive. You should see a list of the files and folders on the *GS+* Disk.

- Open the **Documentation** folder on your backup *GS+* Disk and then open the file **EGOed.lite.Docs**. This file contains complete documentation on how to use EGOed lite. *Please take a few minutes to read this documentation.*

Making Room

If you do not have a hard drive, you will probably have to remove some files from your startup disk to make room for the new desk accessories, control panels, and other system files on your *GS+* Disk.

Towards that end, we have prepared the following list of "expendable" files that you can "safely" remove from your System Software v6.0.1 startup disk to free up some space. (We've put quotes around "expendable" and "safely" because almost *all* of the files in the IIGS System Software have some sort of use! The files listed here are the ones that are the "least" useful for a specified hardware setup.)

Be sure that you *never* delete *any* files from your original System Software boot disk! Always work on a backup copy!

System Software v6.0.1

If you use the System 6.0.1 **:Install** disk to create a minimal, 800K, System 6.0.1 boot disk, that disk will have 26K free when the installation is finished.

It must be noted that *all* of the files on this disk are *very* important and the files that you can *safely* remove depend, for the most part, on your hardware setup. So, please read these instructions carefully before removing *any* files.

The first two files you can delete depend on what you will be doing with your IIGS. If you will not be running AppleSoft BASIC programs, you can remove the file **BASIC.System** (11K) from the root directory of the disk. If you will not be running ProDOS 8 software, you can remove ***:System:P8** (18K).

If you do not care what time it is, you can delete the following file:

***:System:CDevs:Time** (10K)

After that, the files that you can safely remove depend on your *hardware setup*.

If you have a ROM 01 IIGS, you may delete the file:
***:System:System.Setup:TS3** (42K)

If you have a ROM 03 IIGS, you may delete the following file:
***:System:System.Setup:TS2** (37K)

If you do *not* have a 5.25-inch drive, you may delete the following 8K file:
***:System:Drivers:AppleDisk5.25**

If you do *not* have a printer, you may delete the following file:
***:System:CDevs:Printer** (5K)

Finally, if you have deleted all control panels, and you won't be installing any control panels from the *GS+* Disk, you can also delete the 18K file:
***:System:Desk.Accs:ControlPanel**

Removing some or all of these files will give you ample room (up to 138K on a ROM 01 IIGS and up to 133K on a ROM 03 IIGS) on your startup disk to install EGOed lite or any of the other system utilities from your backup *GS+* Disk.

What is EGOed lite?

EGOed *lite is a new desk accessory (NDA) text editor that we provide in each issue of* GS+ *Magazine.*

When you install EGOed lite on your startup disk, you can use it to edit and print ASCII text, Teach, AppleWorks Classic and AppleWorks GS word processor files from inside any desktop program that properly supports NDAs.

To use EGOed lite, you must install it on a IIGS System Software v6.0 (or later) startup disk with at least 40K of free space.

Note: You will *not* be able to print from EGOed lite or any other desktop program when using an 800K, System 6.0 boot disk. (There isn't enough room for all of the required drivers and control panels.)

If you want to save even *more* space, you might want to consider using Autopilot (from *GS+* V4.N1) as a replacement program launcher. With Autopilot installed on the minimal System 6.0.1 boot disk, initial free space goes up from 26K to 163K! You can then use Autopilot to autolaunch the Finder from a second 3.5-inch disk drive and still have plenty of room on your boot disk for lots of system extensions. For more information on Autopilot, refer to the "Autopilot v2.0" article in *GS+* V4.N1 or give us a call.

Self-Extracting Archive

We use GS-ShrinkIt v1.1 to compress the *source code* and related files on the *GS+* Disk into a *self-extracting archive*. To extract the files from the archive, simply double-click on the **GSP.V6.N3.SEA** program on your backup *GS+* Disk. ***You do not need to have a copy GS-ShrinkIt in order to use any of the programs or other materials on this GS+ Disk!***

DISKLESS?

If you did not receive the disk with this magazine and have decided you would like to have it, just send a check or money order for $6.50 to:

***GS+* V6.N3 Disk Offer**
P. O. Box 15366
Chattanooga, TN 37415-0366

Or call us at 1-800-662-3634, Monday through Friday between 9 a.m. and 5 p.m. Eastern Time, to bill it to your MasterCard or VISA.

Tennessee residents please remember to add 7.75% sales tax.

Price includes First-Class delivery to the U.S., air mail to Canada and Mexico, or surface mail to all other countries. Add an extra $3 ($9.50 total) for air mail to all other foreign countries.

IMPORTANT!
Use scissors or a knife to open disk bag!
Do not attempt to pull bag away from magazine!

However, you will gain better control over the files you wish to extract if you have GS-ShrinkIt v1.1. If you do not have GS-ShrinkIt v1.1 and you would like a copy, check with your local user group or give us a call here at *GS+* Magazine and we will try and help you locate a copy.

What's on the Disk

There are eight items in the root directory of this disk:

a.Read.Me

A lot can happen from the time we send this magazine to the printer and the time we get ready to mail them out. If anything does happen, we will put everything we can find out about it in this file. Please try to read this file before using the *GS+* Disk.

Documentation

This folder contains the Anna Matrix, Cool Cursor, and EGOed lite documentation files and the complete *GS+* Glossary. The documentation files are Teach files which can be read using Teach, EGOed lite, or any other TextEdit based editor. The *GS+* Glossary file is a text file containing all of the terms from past installments of the "*GS+* Glossary."

GSP.V6.N3.SEA

This is a self-extracting archive (SEA) containing the source code and related files for all the programs contained on this *GS+* Disk. The archive also contains the Miscellaneous Library, the Templates v2.0 Nifty List external command module, and its source code. Technical information, such as the Miscellaneous Library documentation is supplied in the archive as well. To extract the files from the archive, simply double-click on this file from the Finder. You will then be presented with a dialog asking you where you want the files extracted to. Note: If extract *all* of the files from this archive at once, they will *not* fit on an 800K disk!

Icons

This folder contains Finder icons used by the various programs on the *GS+* Disk. This folder also contains the **FType.GSPlus** file type descriptors file. This file contains file type descriptions for all the programs that have been published in *GS+* Magazine.

Installer

This is the program you run to install the other programs on this issue's disk. It requires System Software v6.0 or later. For more help with using the Installer, please read the example on the previous pages, and refer to your owner's manual.

Programs

This folder contains the Anna Matrix, Cool Cursor, EGOed lite, EllieFont, and the Spectrum *GS+* XCMD programs. The folder also contains the Cursors folder, which has some cursors for use with Cool Cursor. Use the Installer on your backup *GS+* Disk to install these files. EGOed lite requires System 6 to operate. All the other programs on this disk require System 6.0.1 to operate.

Scripts

This folder contains the scripts that are used by the Installer to install the files from this *GS+* Disk.

Talk.To.GSPlus

This folder contains our feedback form, a troubleshooting guide, a problem form, and our writer's guide.

The feedback form is a plain ASCII text file. Fill it out and send it in to let us know what you thought of this issue.

The troubleshooting guide contains tips on how to resolve some of the more common problems you may experience while trying to use the programs on your *GS+* Disk. If you are having a problem, *please* read this file before you fill out a problem form! But, if these tips don't help, *please* fill out the problem form and send it to us! These are Teach files, you may use EGOed lite to view them.

The writer's guide is a Teach file that explains what you need to know to write for *GS+* Magazine—you may view it with EGOed lite or the Teach application. *GS+*

How to Get System 6.0.1

Everyone should have a copy of System 6.0.1. Fortunately, we have a license to distribute it to our magazine-and-disk subscribers as a part of their subscription. Unfortunately, we can't afford to mail all five of the disks that System 6.0.1 takes up to every magazine-and-disk subscriber. However, we still want to make it easy for you to get System 6.0.1. So, if you are a subscriber to *GS+* Magazine with the companion *GS+* Disk (sorry, but we can *not* distribute System 6.0.1 to our magazine-only subscribers), send us the following items and we will send you System 6.0.1:

1) Five (5) *blank* and *formatted*, 3.5-inch diskettes to our P. O. Box address (which is shown on the back of your magazine). We are asking for "blank and formatted" disks because formatting takes time that we don't have, and it's a great way to tell if a disk is good before you send it to us. *If you send us a bad disk, we aren't going to replace it.*

2) A *self-addressed* return disk mailer with enough postage on it to mail the five disks back to you. (Foreign subscribers without access to United States postage may include International Postal Coupons instead. See your local post office to obtain these.) *If you don't provide a postage-paid, self-addressed return mailer, your disks will be considered "gifts" and will be used for backups.*

3) That's all. Don't send any money. We don't want any money for this.

How Else Can You Get It?

If you are a magazine-only subscriber, here are some other ways to get System 6.0.1.

Your Apple dealer. Bug them until they get it in for you. The retail price is $39, but that includes manuals. The part number is #A0077LL/A. For the name of your local Apple dealer, call (800) 538-9696.

Your user group. Take your own disks and they should only charge you a small copying fee. Some user groups may have it already copied for you and available for a nominal charge. (Note that some user groups make these services available only to their members. Of course, you do plan on joining, don't you?) If you need to know where your local user group is, call the Apple User Group Connection at (800) 538-9696 extension 500.

The Byte Works. You won't have to bug them, they have it in stock, and ready to ship. The item number is "APDA-47" and the price is $24.95. To order, give the Byte Works a call at (505) 898-8183.

And, of course, if you have a modem, you can download it from your favorite online service. The total download time is about 5 hours. *GS+*

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METAL, GBBS Sysops. HST/v.32bis hardware hndshk cables! (Specify)...$14.95
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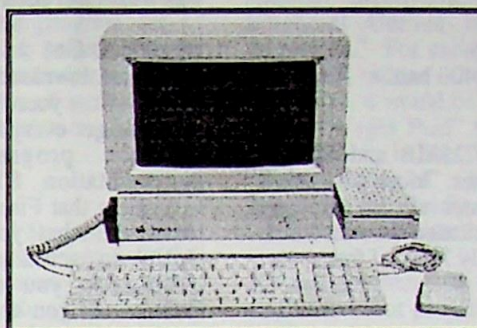

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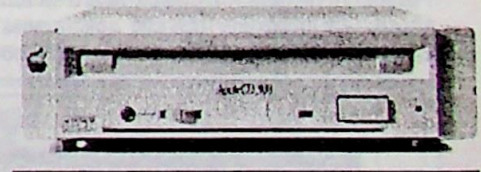

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Reviews

Financial Genius

By Rick Adams

Shareware price: $35
Download time (at 2400 baud): About 50 minutes

Requires at least 1.25MB and System Software 6.0 or higher. More memory, a hard disk, and printer are all strongly recommended. Installation on a hard disk requires approximately 720K of free space.

Rick Adams
1627 Ball Street
Galveston, TX 77550
Internet: R.ADAMS48@genie.geis.com

Reviewed by Steven W. Disbrow

First of all, I have a confession to make: I normally keep track of my business finances using Quicken on my Mac PowerBook. I do this for a couple of reasons, the first of which is that the PowerBook is portable, and I can take it with me when I visit the accountant or the tax man. The second (and most important) reason is that, frankly, there isn't a program anywhere near as good for the IIGS.

In the past few years though, there have been a couple of attempts to correct this situation and produce a solid financial program for the IIGS. The first of these, Your Money Matters (see review in *GS+* V4.N6) was too clumsy and buggy for my tastes, so I gave it a miss. The latest contender is a shareware program called Financial Genius. I hadn't heard much about this program, but the author was kind enough to send us a review copy, so I thought I would give it a try and see if it was what I had been looking for.

What You Get

If you just download the Financial Genius program from your favorite online service, you will get everything you need to try out the program, including a documentation file that spells out everything that Financial Genius can do. However, what you won't get is the ability to actually *save* any of the information you type into Financial Genius. As you can imagine, this is an *excellent* incentive to send in your shareware fee. When you do send in your money, you'll get back a completely functional version of Financial Genius, along with a very nice, and very large (100+ pages), printed manual.

The best thing about Financial Genius is that it is pretty much exactly what it says it is: A IIGS application that allows you to track your income and expenses. Since it's a IIGS desktop application, you're probably thinking that Financial Genius is simple and straightforward to use .... Well, that's true for a lot of the program, but some parts of its operation are confusing or just plain inconvenient. But, I'm getting ahead of myself here. Let me back up and start my discussion of Financial Genius by going over the contents of its manual.

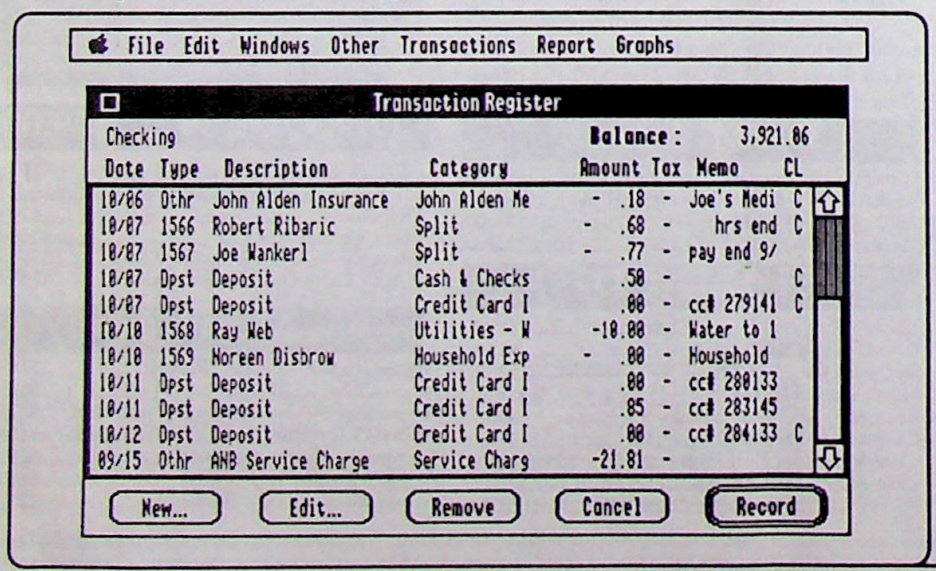
Manual Overread

The Financial Genius manual is divided into two sections: Tutorial and Reference. The Reference section is a straightforward discussion of every menu item and option to be found in Financial Genius. However, like most reference manuals, these discussions are presented outside of the context of actually using the program. So, you might not always be able to determine how a feature fits into the overall flow of the program just from its entry in the Reference section of the manual. (Of course, this is a problem with all reference manuals.) This is where the Tutorial section comes in handy.

The Financial Genius Tutorial is a step by step description of how to create and work with a Financial Genius accounts file. By working through the Tutorial, you will learn how to use just about every feature of the program. For example, the Tutorial discusses how to create and edit transactions, how to utilize categories to track exactly where your money goes, and how to create and use Auto Transactions for those transactions that occur on a regular basis.

To use Financial Genius you first create an Account file that will hold information about all of your financial transactions. After you have this file created, you must define one or more "Base Categories" to organize your transactions. This is a very good place for me to stop and mention that some of the terminology used in Financial Genius is a little strange. For example, whenever I think of an "account," I think of a single financial relationship that I have with an institution. For example, my MasterCard represents an account that I have with CitiBank and my checking account is an account that I have with American National Bank here in Chattanooga. In Financial Genius however, an "account" is a file containing all the relevant information for one or more of my actual accounts (i.e. my MasterCard and my checking account would both be tracked in a single Financial Genius account file). Financial Genius uses the term "base category" when talking about individual financial relationships within an account file. So, if I create an account file called **Diz.Stuff**, I would then need to specify two base categories inside that file, one for my MasterCard and another for my checking account. Confused? You bet I am. Fortunately, this odd terminology is used consistently throughout the program and the documentation, so if you can get used to it, it's fairly easy to work with. (But, I really do wish that the terminology weren't so odd.)

Once you have your base categories specified, you can then define regular



"categories" that will be used inside your base categories to specify where your money goes. For example, you can define a category for "Groceries" so that when you write a check for groceries, you'll be able to specify exactly what that money was spent on.

(Yes, "categories" and "base categories" *are* very different, but it's not easy to see that from the names, is it? In fact, it's making this review very difficult to write, so, I'm going to start calling "base categories" "accounts." Also, when I want to talk about a Financial Genius "account" file, I'll call it a "data file." Ah! I feel better already!)

Financial Genius lets you "split" the money in a single transaction among several different categories so that you can tell exactly where all the money involved in that transaction went. For example, if you write a check for $55, you can split that money among two or more categories. (Perhaps $10 was for groceries, $15 was for cigarettes, and $30 was for lottery tickets.) By splitting the transaction, you can note all of these categories and the exact dollar amounts that went to each one.

Once you get all of your transactions entered, you will probably want to be able to go back and review them. Financial Genius gives you several different ways to review your entered transactions, the most basic of which is to simply look at them in a window. But, perhaps you are only interested in a certain subset of your transactions. For example, maybe you only want to see all of your checks that haven't yet cleared. Financial Genius handles this by means of a Transaction Filter that lets you view only those transactions that meet certain criteria. You can select transactions by date, amount, category and a bunch of other criteria. You can even mix the selection criteria (i.e. all the checks from October that were made out to the Oliver North election committee) to give you a very focused view of your data. This is a very cool feature.

While it's great to be able to view your data on the screen, it's even nicer to be able to get a printout of that data that means something. So, Financial Genius allows you to print more than a dozen different types of reports. Among the reports it can generate are Monthly Budgets, Cash Flow, and an Income Summary. To be honest, I really didn't have much chance to play around with the reports (for reasons I'll explain later), but the reports that I did create looked very nice and quite useful.

No Can do?

While the features I've outlined above sound good (and there are a *lot* more features in Financial Genius that I didn't mention), I had a real devil of a time putting them to use on a daily basis. After working with the program for a couple of months, I think I can break ny difficulties down into two main problems: The interface takes a lot of getting used to, and the program tended to crash on me quite a bit.

The Interface

Now when I talk about the interface to Financial Genius, I'm not just talking about the menus and buttons that appear on the screen, I'm also talking about some of the underlying accounting conventions the program uses. I've already mentioned the confusing terminology, but I consider that a fairly minor problem, if you can get used to it.

The first, and most troublesome, problem here is that Financial Genius doesn't appear to automatically use the double entry method of accounting. For example, if you have a credit card account defined, and you pay the bill for that credit card out of your checking account, you have to *manually* enter the transaction twice: Once in the checking account and once in the credit card account. It would be *much* more convenient if you could simply enter the transaction in the checking account and then Financial Genius would automatically post the transfer of funds to your credit card.

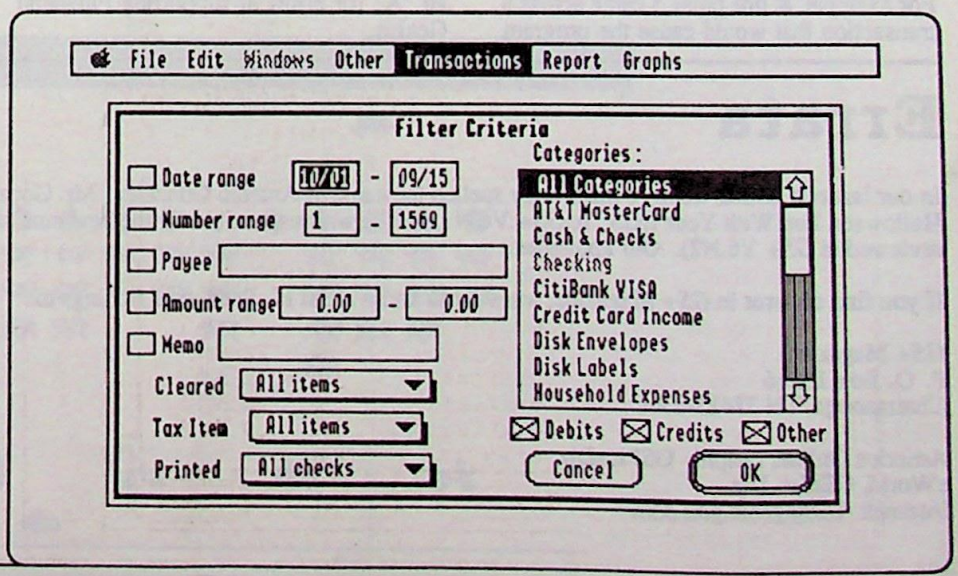
Speaking of credit card accounts, another strange thing is that Financial Genius doesn't have a "credit card" type of account that you can specify. Instead, you have to enter credit card accounts as "liabilities" and treat them as such. This means that there is no easy way to keep track of your credit limit (and how close you are to going over it) using Financial Genius. This convention *is* mentioned in the manual, but you have to hunt for it.

Another inconvenient omission from Financial Genius is lack of "sub-categories." For example, being a small business owner that has to write paychecks, it would be very nice to have a single "Wages Paid" category with sub-categories in it like "Joe Wankerl" and "Robert Ribaric." Instead, I have to define two completely different categories, one for each different employee.

Another problem with Financial Genius is that it does not properly sort transactions by date. When you type in a transaction date, it is simply treated (and sorted) like a character string. So, for example, a transaction dated "10/15/94" will be listed *before* a transaction dated "9/15/94." Why? Because "1" comes before "9" when sorting character strings. This may seem like a small problem, but the more transactions you have the more of a pain it becomes.

Finally, there are times when the user interface of Financial Genius just gets in the way of what you want to do. For example, the Transaction Filter I discussed earlier *is* very neat, but you have to go through it *every time* you want to look at your transactions! Actually, you can turn the Transaction Filter off using the Financial Genius preferences dialog, but once you do, there is *no way* to get to it again without going back to the preferences dialog and turning it back on!

Another place the interface gets in the way is in the process of entering and editing transactions. Normally, Financial Genius presents a list of your transactions in a



window. You might expect that you would be able to edit those transactions in that same window, but unfortunately that is not the case. Instead, you must bring up another window (by double-clicking on the transaction you wish to edit) and edit the transaction there. And, if the transaction is a split transaction, there's a *third* window you have to deal with for that!

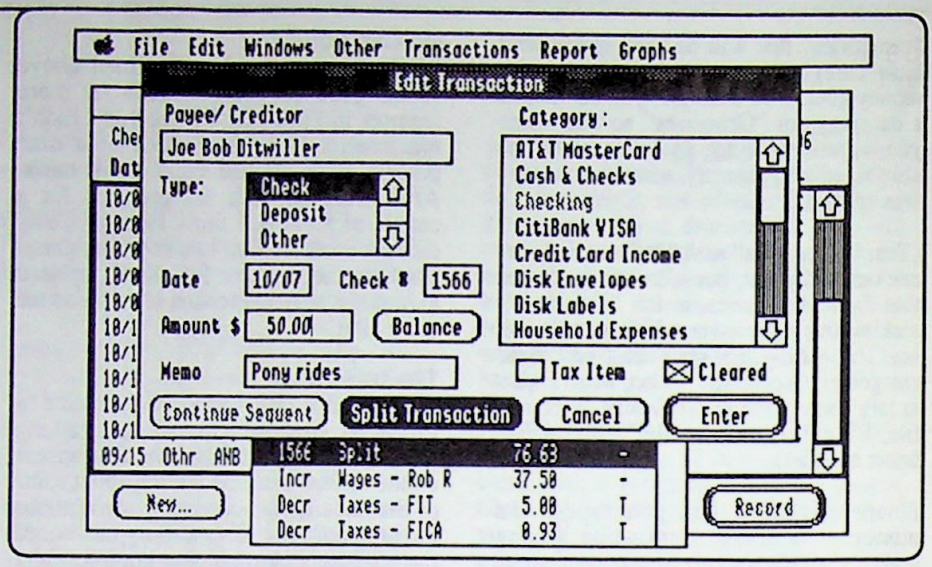
Now, to be fair, I need to point out that, with the exception of the improper sortation of dates, these aren't "bugs" in Financial Genius, they are just design and interface conventions that I don't agree with. However, they did tend to make the program very frustrating to use, so I do consider them to be problems. (Still, this may just be because of my previous experience with Quicken. In other words, you might not consider these things to be problems.) Having said that, I did come across a couple of real bugs that you should know about.

Ahh! Real Bugs!

First of all, if you have the split transaction window open, *do not* try to close it by clicking in its close box! If you do, Financial Genius will crash. (There shouldn't even *be* a close box in this window, but there is, so you need to remember to watch out for it!)

Beyond that one reproduceable problem, I experienced general crashes and lock ups while using Financial Genius that made it very difficult to use the program for any serious data entry or editing. This is the reason I didn't get to mess with the reports much, I couldn't get enough data input to create a meaningful report! (I could never get more than 50 transactions typed in my data file before I began to have problems.)

For example, at one point, I came across a transaction that would cause the program to lock up every time I tried to mark it as having cleared the bank. This in turn made it very difficult to reconcile my Financial Genius records with my bank statement at the end of the month.



So, I tried to delete the offending transaction, and that also locked up the computer—with the added bonus of corrupting the file. After this happened a couple of times, I just gave up.

The good news here is that when I reported these problems, the author of the program was very eager and willing to look into them and correct them. (He also told me that I was the only person that had reported such problems. So maybe it's just me . . . .) In fact, Mr. Adams *was* able to fix my corrupted data file, but he wasn't able to determine how it got that way, so I don't have any guarantee that it won't happen again. Still, since he *did* send us a review copy of Financial Genius and since he is so eager to make things right, I definitely give Mr. Adams an "A" for effort in supporting Financial Genius.

Conclusion

Honestly, my overall impression with Financial Genius is one of disappointment. I *really* wanted to like and use this program. Unfortunately, I just can't get past the klunky interface, "non-double entry" accounting methodology and the frequent file corruptions. If the interface were streamlined, and the file-corrupting bugs fixed, I'd probably be able to give Financial Genius a hearty endorsement. Still, it does show a lot of promise and if Mr. Adams continues to improve Financial Genius, it may end up being a very good program.

Until then, Financial Genius is a great example of a program that you should "try before you buy." Fortunately, it's shareware and you can do just that. So, if you are *desperate* for a financial program and you don't mind spending a couple of dollars downloading it, it won't hurt to give it a try. *GS+*

Errata

In our last two issues, we have incorrectly spelled the name of Antonio Gonzalez. Mr. Gonzalez was the author of the article "II Scary: Halloween Fun With Your IIGS" in *GS+* V6.N1, and he was responsible for the new musical score in Ultima I for the IIGS (which we reviewed in *GS+* V6.N2). Our apologies.

If you find an error in *GS+* Magazine, we want to know about it! Send your findings to:

GS+ Magazine
P. O. Box 15366
Chattanooga, TN 37415-0366

America Online, Delphi: GSPlusDiz
eWorld, GEnie: Diz
Internet: Diz@genie.geis.com

GS Invaders

By David Ong Tat-Wee

Freeware
Download time (2400 baud): Less than 25 minutes

Not copy protected
Requires System 6.0 or later and 2MB RAM. Installation on a hard disk requires approximately 300K of disk space. File number 23428 in the A2 area on GEnie.

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Reviewed by Steven W. Disbrow

The first time I ever saw an Apple II computer, it was an Apple II+ and it was being used to play a game of Space Invaders. So, when I heard that someone had done a IIGS version of Space Invaders, I just had to find it and try it out.

Now, for those of you that missed the late 1970's, Space Invaders was the first really detailed and interesting video game that came along. (Oh sure, Pong came first, but it wasn't quite as interesting.) The premise of Space Invaders is that you are a lone human operating a laser cannon. Your job is to destroy wave after wave of alien invaders as they march slowly down from the sky towards the Earth.

As each wave of invaders marches down the screen, they begin to move faster and faster. If even one alien touches the ground, you lose. Oh, I almost forgot, they shoot at you too.

Good Stuff

GS Invaders has all the action of the original Space Invaders, and it also lets you set several options that change the feel of the game:

• You can play using either the keyboard or a joystick

• You can change the number of shots you can make at one time (between one and three). One shot at a time makes the game difficult, three shots at a time makes it a breeze.

• You can change the number of bombs the aliens can drop on you at one time.

• You can make the aliens shoot "zig-zag" bombs. Normally, bombs come straight down at you, but with this option turned on, they weave back and forth across the screen.

• You can turn the sound effects on and off. (Not a spectacular feature, but a nice touch.)

• You can choose between two music soundtracks: The first is the classic Space Invaders "music" that sounds like a group of aliens marching towards you. The second is a new piece of music that, as far as I know, is unique to GS Invaders.

Bad Stuff?

Frankly, there isn't that much wrong with this game. In fact I only had a few problems with it:

• Like most shareware and freeware games for the IIGS, GS Invaders doesn't let you access the menu bar or your new desk accessories. This really stinks because it forces me to leave the game to get to EGOed and work on this review. (However, you can get to your classic desk accessories from GS Invaders.)

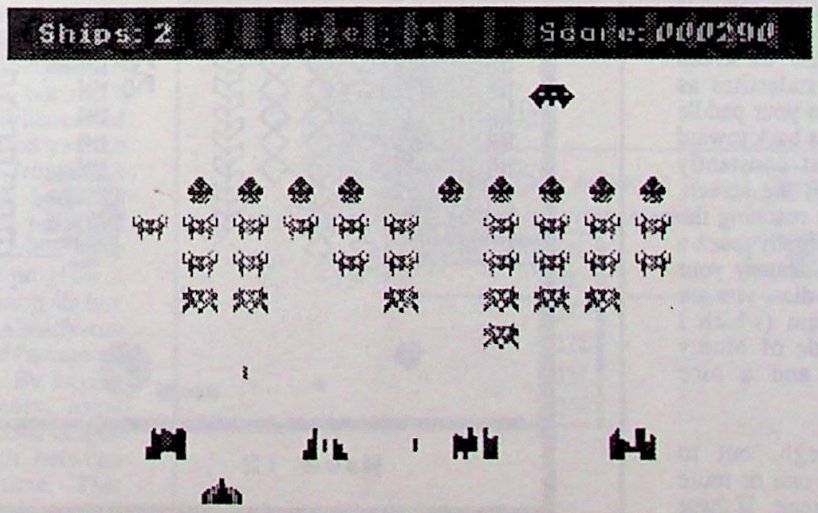
• According to the documentation, if you are using a ROM 01 and you turn on the sound effects, the program can crash when you quit from it. I have a ROM 01, and I haven't had this problem happen to me, but it is kind of annoying that the problem exists.

• Speaking of sound effects, you can only hear them if you have musical track number one selected. (This is because the sound effects are actually held in the musical score of track number one.) I didn't particularly like sound track number two, but the main reason I didn't was because I couldn't hear the sound effects with it!

Conclusion

Hmmm, let's think about this. It's freeware, it takes less than 30 minutes to download, and it's a pretty darn good recreation of the original Space Invaders.

So, the inescapable conclusion is: If you liked Space Invaders, get it! *GS+*



Stalactites

By "Burger" Bill Heineman

Shareware fee: $10
Download time (2400 baud): Less than 15 minutes

Not copy protected
Requires System 6.0 or later and 2MB of RAM. Installation on a hard drive requires approximately 125K of disk space. File number 23480 in the A2 area on GEnie.

Bill Heineman
7734 S. Broadway Ave.
Whittier CA, 90606-2304
Internet: BURGERBILL@Interplay.com

Reviewed by Steven W. Disbrow

Over the past few years, "Burger" Bill Heineman has become the IIGS game player's bestest buddy. He's brought great games like "Out of This World" (see *GS+* V4.N2) and "Ultima I" (see *GS+* V6.N2) to the IIGS when no one else would or could. But, he doesn't just port blockbuster titles to the IIGS, he also releases some pretty keen shareware games.

His most recent shareware game is called Stalactites, and it's a port of a game that originally appeared on the IBM PC, and later, on the 3DO game system. (Don't look for the 3DO version of Stalactites in the store though, it's "hidden" in the midst of another game Bill ported to the 3DO).

So, What's It Like?

Stalactites seems to be based on Tetris, but it has a lot of odd twists that make it unique.

Basically, you are at the bottom of a cave and there are several bizarre stalactites growing down from the ceiling towards you. Using the arrow keys on your keyboard, you move a "paddle" on screen and position it under the stalactites as they grow downward. When your paddle is under a stalactite, it retreats back toward the ceiling. So, you must constantly move back and forth across the screen, keeping the stalactites from reaching the ground. Be careful not to actually *touch* a stalactite, because that will destroy your paddle. When your paddle dies, you are treated to a digitized scream (which I think came from an episode of Monty Python's Flying Circus) and a nice explosion.

That sounds simple enough, but to complicate things there are one or more balls bouncing around the screen. If these balls touch your paddle, they destroy it and the game is over (you only get one "life" in this game). So, you have to avoid the balls *and* the stalactites at the same time. This is *not* easy at all. In fact, it's downright difficult.

When a column reaches the ground, it doesn't kill you, but it does severely limit where you can run to. As the speed of the balls increases, this can become a royal pain.

Fortunately, if you live long enough you will be granted a boon in the form of a shield that you can use to destroy the bouncing balls. There are two types of shields: Purple and Green. A purple shield can destroy one ball for you, then it disappears. A green shield will destroy as many balls as you can get to before the time for the current wave of stalactites runs out.

When time does run out, the stalactites all go back to the top of the ceiling, you get a fresh complement of balls to dodge, and the whole process starts all over again for the next level. Oh, and your shield vanishes, too.

As the game progresses, the stalactites grow faster, the balls move faster and your expletives get more and more vulgar.

Bad Stuff

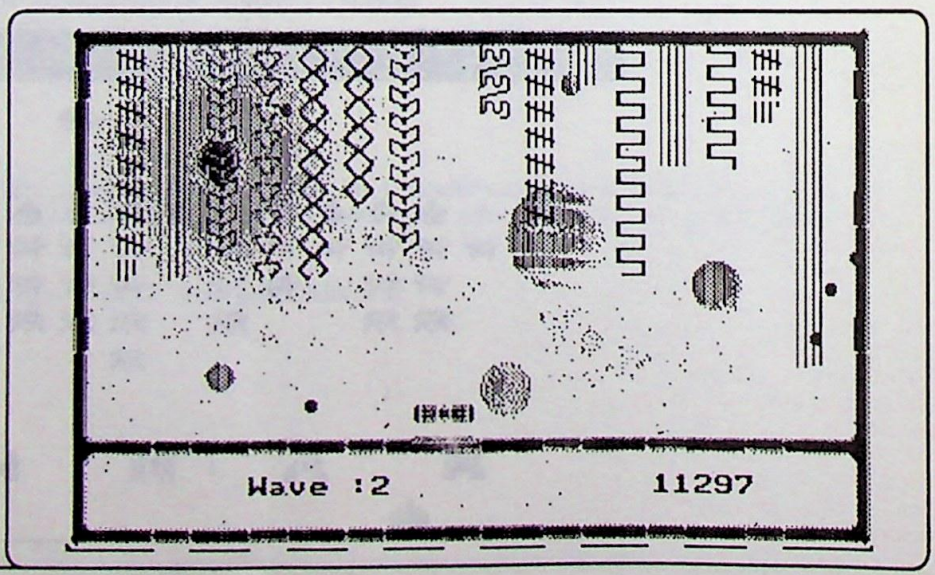
If Stalactites sounds like a simple game to figure out and play, it is. This is a good thing because the documentation that comes with it is woefully inadequate. It doesn't really even tell you everything I just did. (It doesn't even tell you how to quit the game. Fortunately, all you have to do is press Command-Q.) But, like I said, the game is very easy to figure out and you should be able to get the hang of it in no time at all.

Another problem is that the game has no way to access the menu bar, which means that you can't get to your new desk accessories. (Which means I couldn't write this review while playing the game. I had to run the game, make some notes, quit, type the notes into EGOed, run the game again, etc. This sort of thing really bugs me.) But, you can get to your classic desk accessories. This is a good thing, but I'd prefer to be able to get to all my desk accessories.

Izit Fun?

Well, I guess so. Yeah, OK, it's fun—for a little while. This game is definitely *more* fun at the higher levels, where you have four or more balls whizzing around the screen and stalactites dropping like rocks. (No pun intended.) Sadly, the process of getting to the higher levels isn't easy, and once you get there, you don't stay very long. If you got more than one life per game, it would definitely make it easier to play at these high levels and would make Stalactites more rewarding to play.

As it is though, this game just isn't 10 bucks worth of fun. But, that may just be me. If you are a game fanatic, and you have a modem, you should probably spend the 15 minutes needed to download and try this game. The game is entertaining (for a little while at least), the graphics and sounds are good, and you might just find it has more replay value than I did. *GS+*



Switch-It!

By Jawaid Bazyar

Price: $39.95

Requires System 6.0 or later, 2MB of RAM and one 3.5-inch drive. A hard drive and more RAM are recommended. Installation on a hard disk requires approximately 100K of disk space.

Procyon/Sequential Systems
1200 Diamond Circle
Lafayette, CO 80026
(303) 666-4549

Reviewed by Steven W. Disbrow

Well now, if this isn't a genuine conflict of interest, I don't know what is! Here I am reviewing a product that we just started selling. Why? Well, when I decided to branch out into selling other peoples' products, I wanted to be sure that we were only selling stuff that we had reviewed and that we knew were good products. When we started selling the Procyon line of products, I realized that, for some reason, we had never reviewed Switch-It! So, I thought I should put the program through it's paces and decide if it was something that we should continue to sell. Now, with that little disclaimer held firmly in your mind, let's take a look at Switch-It.

What Is It?

Back in the early days of the Macintosh, there was this guy that worked for Apple. This guy (whose first name was Andy and whose last name escapes me completely), wrote a *lot* of amazingly cool utilities for the Macintosh that later became incorporated directly into the Macintosh system software. One of those utilities was a program switcher that was originally called "Servant." The brass monkeys at Apple liked it so much that they changed its name to "Switcher" and made it a part of the Macintosh system software. (I think it was Mac System 5 that first had Switcher in it, but don't quote me on that.) What Switcher did was this: You ran Switcher, then you ran another program. Then, from that program, you could jump back to Switcher and run yet another program! Then, from that program, you could jump to Switcher (and run another program if you wanted) or you could jump to any other program that you had already run from Switcher! The main advantage of this setup is pretty obvious: By having all these programs in memory, users didn't have wait for them to load or quit when they wanted to switch between them—which saved tons of time. This was amazingly cool, and this is exactly what Switch-It allows you to do on your IIGS.

What Switch-It Gives You

The Switch-It disk contains the Switch-It application, as well a some other goodies to help you get the most out of your time working with multiple applications.

As I said, Switch-It is an application. That means that you can install Switch-It on any of your disks and run it just like you would any other application. (This also means that Switch-It doesn't have to take up any room on your boot disk.) Now, while Switch-It is a program launcher itself, most folks will probably want to use the Finder to run their applications. So, Switch-It has two handy options: "Launch Finder on Startup" and "Keep Finder across Launches." This first option tells Switch-It that you want to automatically run and use the Finder after Switch-It starts up. The second option tells Switch-It to keep the Finder in memory after you run another program, so that you can easily switch back to it. (If this second option is not turned on, Switch-It removes the Finder from memory when you run another application from the Finder.) These options make Switch-It very easy to use together with the Finder.

But, if you don't want to use the Finder (after all, it eats up a lot of memory), Switch-It has a feature called SpeedyLaunch that allows you to maintain a menu of applications that you commonly use. To launch one of these items, you just select it from the SpeedyLaunch menu and away you go.

Once you have a couple of applications running, all you have to do to switch between them is to pick an application from the Switch-It menu (which is on the right hand side of the menu bar). If you don't want to take your hands off the keyboard, you can simply press the Switch-It "hot key" combination of "option-tab" and you will be taken to the next application that is in memory.

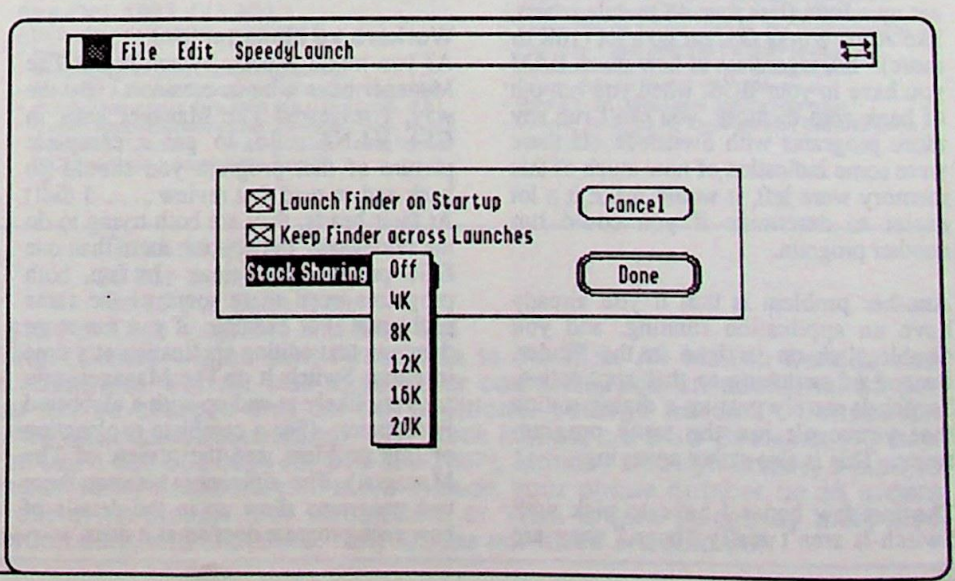
Furthermore . . .

In addition to the Switch-It application, you also get three rather useful new desk accessories (NDAs) that you can use with Switch-It to make the juggling of multiple applications more productive.

The first of these NDAs is called Memory Bar. Memory Bar (which was written by former Apple IIGS System Software programmer Dave Lyons) is a nifty little NDA that shows you various statistics about the memory in your Apple IIGS using a graphical display format. Memory Bar shows you the total memory in your IIGS, the amount of memory currently in use, the amount of purgeable memory (i.e. memory that is currently in use, but can be freed up if it is needed), the total amount of free memory and the size of the largest block of contiguous memory that is currently available. In a word, Memory Bar is "cool."

The second NDA that comes with Switch-It is called "Clip It." When you select Clip It from the Apple menu, your cursor turns into a set of cross-hairs and you can then use those cross-hairs to select a rectangular area on the screen. The area that you select with Clip It is then turned into a picture scrap and placed in the system Clipboard. This is a *really* neat thing to be able to do, especially if you want to take a graphic from one program and then paste it into another.

The last NDA that is included with Switch-It is a companion program to Clip It; a scrapbook program called



ScrapMaster. With ScrapMaster installed, you can copy things out of a program (using either Clip It or the standard Copy function of any desktop program) and then paste what you have copied into ScrapMaster for later retrieval. Unfortunately, ScrapMaster is a fairly old program and it only supports two kinds of scraps: Text and pictures.

Sadly, all three of the NDAs that come with Switch-It are old freeware programs. And since none of them were written by Procyon, they aren't very likely to be updated. However, since they are NDAs and not a built-in part of Switch-It, you can replace them with your own NDAs that do the same things. For example, instead of using ScrapMaster, I use our own TableScraps NDA (from *GS+* V6.N1). It works perfectly well with Switch-It and can handle more than just text and picture scraps.

Any Problems?

Sadly, yes—there are a few problems. The first of these is that there is no "restart" option in Switch-It. This may not sound like a big deal, but it can be. For example, in my case, I have a removable hard drive hooked to my IIGS. When I do an actual shut down of my system, the removable hard drive spins down and won't restart until I actually turn the power off and back on. I don't have this problem when I do a simple restart. So, I have to quit Switch-It and then do a restart from the program I ran Switch-It from. This is annoying.

A more serious problem is that there is no indication of how much "bank zero" memory is still available in your IIGS. This is important because the IIGS has a finite amount of this special memory (about 40K) and every program that you run eats up some of it. Some programs eat up a little (less than 4K) while others, like AppleWorks GS, eat up a lot (16K or more)! So, regardless of how much RAM you have in your IIGS, when you run out of bank zero memory, you can't run any more programs with Switch-It. If there were some indication of how much of this memory were left, it would make it a lot easier to determine if you could run another program.

Another problem is that if you already have an application running, and you double-click on its icon in the Finder, instead of switching to that application, Switch-It merely puts up a dialog stating that you can't run the same program twice. This is also rather annoying.

The last few bones I have to pick with Switch-It aren't really "bugs," they are more along the lines of limitations that Switch-It has inherited from the IIGS itself. But, they are things you should know about before you put down your money.

First of all, when you switch applications, Switch-It automatically closes any NDAs that you have open. This is also a problem that The Manager has (Ha! You thought I wasn't going to talk about The Manager, didn't you? Hold on . . . .), so I can't complain too loudly about this one. However, if you do most of your work with NDAs (I personally use EGOed more than any other program on my IIGS), it can make switching between programs a hassle.

Switch-It doesn't work with ProDOS 8 programs. This is no problem for me personally (I almost never use ProDOS 8 programs), but I realize that lots of folks out there still use these older applications, so I thought I should mention it.

Finally, while Switch-It is less technically complicated than something like The Manager, there *are* still some programs that aren't 100% compatible with it. One such program is the ORCA text-based shell. You can run the ORCA shell from Switch-It, but you won't be able to get back to Switch-It (or any other programs you have in memory) until you quit from ORCA.

This brings me to the last tiny gripe I have about Switch-It. While Switch-It does come with a list of compatible programs, that list seems to be a couple of years old and is definitely incomplete. Personally, with the exception of the ORCA shell, I've not come across anything that won't work with Switch-It. But, it would be much nicer if the compatibility list were more up to date.

Workers vs Management

As you might expect, Switch-It and The Manager have a lot in common. (By the way, I reviewed The Manager back in *GS+* V4.N4. So, to get a complete picture of that program you should go back and re-read that review . . . . I did!) At their hearts, they are both trying to do the same task: Let you run more than one IIGS program at a time. In fact, both programs even share some of the same problems! For example, if you run more than one text editing application at a time in either Switch-It or The Manager, you are very likely to end up with a clobbered Font menu. (For a complete explanation of this problem, see the review of The Manager.) The *differences* between these two programs show up in the details of how each program does what it does.

For example, neither program can provide *true* multi-tasking, but The Manager makes a really good stab at it, while Switch-It is content to only be a program switcher. In fact, the Switch-It documentation takes some pride in the fact that Switch-It doesn't even *try* to be a "Multi-Finder" application as The Manager does.

Another difference is in the amount of feedback each program gives you. For example, The Manager can tell you exactly how much memory each open application is using, as well as telling you how much of that precious bank zero memory is left. Switch-It on the other hand, tells you nothing. You have to use the Memory Bar NDA to get any information on memory usage, and that information is rudimentary at best.

Of course, by trying to do more, The Manager becomes more fragile. In other words, if you push it too hard, The Manager can just up and crash on you. (This is not totally the fault of The Manager, the IIGS just wasn't designed to do what The Manager wants it to do!) Of course, any program will crash under the proper circumstances, and Switch-It is no exception. But, Switch-It has yet to crash on me, and given that it isn't actually doing that much fancy stuff, I think I'd have to push it pretty hard to kill it.

So, the dividing line between these two programs really lies in how far they go towards trying to make your IIGS a true multi-tasking machine. Switch-It tries not at all, preferring to concentrate on the task of launching, suspending and then switching between multiple applications. The Manager however, pushes just as far as it can towards the holy grail of multi-tasking. It comes really close, but the process of getting there can be really frustrating.

Conclusion

So, the bottom line here is that Switch-It is a solid piece of software that performs the same *basic* tasks as The Manager. With Switch-It, you can have multiple applications in memory on your IIGS at the same time and easily switch between them. However, Switch-It is not (and does not claim to be) a multi-tasking or "Multi-Finder" program like The Manager. So, if you just *have* to be able to see the Finder's desktop underneath your Quick Click Calc spreadsheet, Switch-It isn't for you. However, if you don't *need* time-slicing or multi-tasking, Switch-It will make a great "Servant" for your IIGS. *GS+*

GS+ Back Issue Information

Sep-Oct 1989 (V1.N1)
- Fabulous first issue of *GS+* Magazine
- Less than 20 copies left!
- Reviews: Arkanoid II, Crystal Quest, ORCA/C, Rocket Ranger, Silpheed, Test Drive II, TransWarp GS, TurboMouse ADB

May-Jun 1990 (V1.N5)
- Less than 25 copies left!
- AppleFest Report
- Beginner's Guide to System Disks - Part 1
- Brush with Greatness - How your IIGS makes colors
- Reviews: CMS 45MB Removable Hard Drive, S&S-RAMCard, DataLink Express modem, Visionary GS digitizer, GraphicWriter III, ZapLink, McGee, Math Blaster Plus IIGS, The New Talking Stickybear Alphabet, ZipGS

Jan-Feb 1991 (V2.N3)
- AppleFest/Long Beach '90 & Apple II Achievement Awards
- Interview with Jim Carson of Vitesse, Inc.
- Introduction to System Software v5.0.4
- RAM Namer - A CDev that allows you to rename RAM disks
- *GS+* program updates: Battery Brain v1.1, EGOed v1.32c, Teach Translator for GraphicWriter III v1.1
- Reviews: ZipGSX, LightningScan, Design Your Own Home, Print Shop Companion IIGS, Your IIGS Guide, Dragon Wars, 2088: The Cryllan Mission - Second Scenario, Space Ace, Sinbad & the Throne of the Falcon

Sep-Oct 1991 (V3.N1)
- Protecting Your Investment - A Guide to Surge Protection
- A Conversation with Roger Wagner - Part 2
- Working with the Toolbox - Part 4: QuickDraw II
- FGS - A desktop program that generates Fractals
- *GS+* program updates: EGOed v1.36, Autopilot v1.1, NoDOS v1.6
- Reviews: two 100MB hard drives, Nite Owl Slide-On Battery, ORCA/Integer BASIC, ORCA Talking Tools, Storybook Weaver: World of Adventure HyperBole, HoverBlade, Shareware: DeskTop Painter, SoundSmith, IIGS Classic: Bard's Tale IIGS

Jul-Aug 1992 (V3.N6)
- KansasFest 1992
- Introduction to 3-D Graphics - Part 3: Speeding Things Up
- Working with the Toolbox - Part 8: The Control Manager
- Understanding FSTs
- Using rBundles in Your Programs
- Quick Folder - A Finder Extension that allows you to open folders from the Finder's Extras menu. **Requires System 6.**
- Extra Bits - A Control Panel that lets you change the new Battery RAM parameters that System 6 didn't provide a Control Panel for. **Requires System 6.**
- *GS+* program updates: EGOed v1.7 **(requires System 6)**, Quick DA v2.0 **(requires System 6)**, Replicator v1.3
- Reviews: ZipGS (10MHz CPU/64K Cache), Gate, Space Fox, Utility Launch & Utility Works

Sep-Oct 1992 (V4.N1)
- Apple EXPO East
- Open From Desktop - A Finder Extension that allows you to open any item on your desktop from the Finder's Extras menu. **Requires System 6.**
- II Notes - A 20-page NDA notepad. **Requires System 6.**
- Miscellaneous Library - A collection of useful routines to use from any programming language that supports linking to standard libraries
- *GS+* program updates **(require System 6)**: Autopilot v2.0 , Quick DA v2.1, EGOed v1.7.1
- Reviews: ContactsGS, GSymbolix, Kangaroo, ORCA/Debugger, UltraCat, Storybook Weaver: World of Make-Believe

Nov-Dec 1992 (V4.N2)
- Understanding Accelerators
- The Basic IIGS
- Working with the Toolbox - Part 9: The Menu Manager
- Font Reporter - A program that lets you display and print out any font in your system. **Requires System 6.**
- *GS+* program updates: EGOed v1.8, Replicator v1.3.1
- Reviews: AutoArk, 1990 GEM Apple II CD-ROM, IIGS System Transport Case, Out of This World, TrueType Font Collection, Universe Master
- Review updates: Desktop Enhancer v2.0, Pointless v2.0

(All programs after V4.N2 require System 6.0.1, unless otherwise noted)

Jan-Feb 1993 (V4.N3)
- The World at Your Fingertips
- Understanding the Desktop
- Batt Reporter - A program that generates plain English reports from battery RAM configuration files
- Rainbow - Change the colors of your Finder device icons
- *GS+* program updates: Battery Brain v2.0, Open From Desktop v1.0.1, Rebuild Desktop v1.1, EGOed v1.9
- Reviews: CV-Ram Memory Card, StyleWriter printer, ProSel-16, TransProg III v1.1, Ant Wars, FloorTiles,Quest for the Hoard

Mar-Apr 1993 (V4.N4)
- Beginner's Guide to Finder v6.0
- Working with the Toolbox - Part 10: LineEdit
- LASERbeam - A program that lets you download PostScript files to a PostScript printer
- Font Memories - A control panel that lets you keep your bit-mapped fonts on a disk other than your startup disk
- EGOed lite - a smaller, faster version of EGOed
- *GS+* program updates Rainbow v1.0.1, NoDOS v1.8
- Reviews: Salvation—Deliverance, DreamGraphix, The Manager, The Passport House Letter, The Lost Tribe, DuelTris

May-Jun 1993 (V4.N5)
- The Scavenger - Use CD-ROMs from other computers on a IIGS
- Apple EXPO West Report
- Anna Matrix - a Cool Cursor Editor
- *GS+* program update: Cool Cursor v2.0, Miscellaneous Library
- Reviews: Apple Desktop Bus Mouse II, Baccarat, Key Fonts Pro CD-ROM, MAZER II: The Ghost of Mordaine, Pick 'n' Pile, Shanghai II: Dragon's Eye, Solarian GS, Twilight II, TypeWest

Jul-Aug 1993 (V4.N6)
- System 6.0.1—For Users
- KansasFest 1993
- Catch the .WAV: A Guide to Scavenging Sound Files
- Secrets of Writing Twilight II Screen Blankers
- Finder Binder: Avoid the "An application can't be found for this document" dialog by connecting documents to an application
- *GS+* program updates: AutoSave v2.0, EGOed lite v1.0.1, Extra Bits v1.0.1
- Reviews: Castle Metacus, HardPressed, The Lost Treasures of Infocom, Treasures From Heaven: Quest for the Hoard 2, Your Money Matters, Zip Drive

Sep-Oct 1993 (V5.N1)
- So You Bought a Hard Disk . . . Now What?
- Apple (Jive) Talkin'
- An Introduction to Object Oriented Programming
- File Dump: A complete Object Oriented Programming example
- *GS+* program updates: Anna Matrix v1.0.1, Cool Cursor v2.0.1
- Reviews: Applied Engineering's High Density Disk Drive, Apple II SuperDrive Controller Card, MODZap, soniqTracker, ORCA/Pascal v2.0.1, SoundMeister, TypeSet

Nov-Dec 1993 (V5.N2)
- IIGS Maintenance–Part 1: The Mouse and Keyboard
- SCSI ("Simple Connections," Says Igor.)
- Balloon v1.0: A finder extension that lets you extract files from ShrinkIt Archives
- CD-ROaM: An application that scavenges files off CD-ROMs
- KaBlocie! A IIGS version of the game Minesweeper
- Reviews: 3D Logo, Focus Drive Hard Card, Prism, Tulin Floptical Disk Drive

Jan-Feb 1994 (V5.N3)
- IPC (Igor's Playful Code) - A guide to using IPC on the IIGS
- EGOed v2.0: Read and write RTF files, plus a new color menu
- MIDI Surgeon: Convert MIDI data files to MIDI Synth format
- Reviews: Ancient Glory, Apple Extended Keyboard, AudioClips, GNO/ME 2.0, HP DeskWriter 550C Printer, HyperLogo, NCS Pro 240 Hard Disk, Pedigree

March-April 1994 (V5.N4)
- Programming the IIGS - Part 1: Getting Started
- Playful - A Finder extra that plays ALL rSounds in ANY type of file!
- What Is This? - A Finder extra that gives you information on any icon you select.
- LASERbeam v1.1 - Now, download PostScript files and FONTS to your PostScript printer!
- Miscellaneous Library - Now you can read Macintosh resources!
- Reviews - Addressed for Success, ORCA/Debugger vs. Splat!, ORCA/Modula-2

May-June 1994 (V5.N5)
- Programming the IIGS - Part 2: Programming the *IIGS*
- Mr. Priceguide Looks at Hard Disks - Advice on buying a hard disk mechanism.
- FLI Convert - An application that converts PC FLI animations into PaintWorks animations!
- MoreSound - An application that lets you change the events in the Sound control panel.
- Reviews - DiscQuest, MS-DOS File Utilities, Salvation: Bakkup v2.0, Spectrum

July-August 1994 (V5.N6)
- Programming the IIGS - Part 3: GS/OS and the Toolbox
- So You Bought a Hard Drive Mechanism. Now What?
- Working With the Toolbox - Part 12: Standard File
- Clip On - View the System Clipboard from any desktop program
- Sun Dial - A great new clock NDA
- What To Do - NDA to do list manager
- Reviews - Six Pack, The Tinies

Sep-Oct 1994 (V6.N1)
- Halloween Fun With Your IIGS
- All About IIGS Graphic Formats
- Find Original - Easily locate the files your Finder aliases point to
- Table Scraps - The best IIGS scrapbook program yet
- Reviews: DiscQuest Encyclopedia, Quick Click Calc

Nov-Dec 1994 (V6.N2)
- Programming the IIGS - Part 4: Program Building Blocks
- Everything you need to know about buying a laser printer
- Working With the Toolbox - Part 14: The TextEdit Tool Set
- Copy Icon - Copies icons from the Finder desktop
- Elucidation - Edits Finder File Type Descriptor files
- Geeker - Edits the Finder's "geek" preferences
- Ultimiter I - An Ultima I game and character editor
- Reviews: AUGE CD #1, *The SimpleScript Workbook*, Ultima I - The First Age of Darkness

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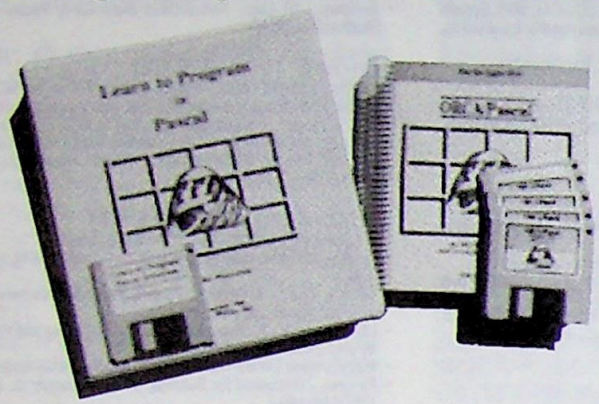

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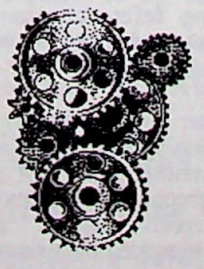

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The GS+ FAQ File

By Steven W. Disbrow

Since I started publishing *GS+* Magazine, I've written a lot of articles to answer specific questions. In that same time, I've answered a lot of letters and phone calls that required me to answer the same questions that, in many cases, I'd just answered in an article I'd recently written. The other day, after I'd finished another such conversation, I realized that I might have been a bit short, and maybe even a little rude, to the caller. So, I decided that I should do something about this problem quickly before the situation got worse . . . .

So, after thinking about it, I decided to borrow an idea from the wild and wooly world of the Internet and create a *GS+* Magazine FAQ. Now, for those of you that don't know what that is, an "FAQ" is a file that contains "Frequently Asked Questions" and their answers. So, in this and future issues of *GS+* Magazine, the "*GS+* FAQ File" will present those questions that we get asked most frequently, along with the answers that we give most frequently. In addition, we'll put previous installments of this column into one big file and put them on the *GS+* Disk, just like we do with our "Glossary" department.

Q: Which Hewlett Packard printers can I use with my IIGS, and how do I use them?

A: Over the years, Hewlett Packard has produced a *lot* of printers. The good news is that using the appropriate software and cable, you can use many of these printers with your IIGS. The bad news is that using these printers requires a little homework on your part, and the purchase of an appropriate cable to hook the printer to your IIGS.

To use one of these printers (don't worry, we'll get to which ones you can use in a moment) you must first have the appropriate printer driver software, and the appropriate cable to hook the printer to your IIGS. Once you have these two things (and a printer, of course), you run the cable between your IIGS and your printer, install the printer driver software on your startup disk, and then restart your computer. When the computer finishes restarting, you need to open the DC Printer control panel and select the port your printer is connected to as well as selecting the printer driver you want to use. From then on, you will be able to print to your new printer just as if you were printing to an ImageWriter. (Note however that you may *not* be able to use the printer from your 8-bit software, like Classic AppleWorks.)

The question of *which* Hewlett Packard printers you can use is best answered by the company that you buy your printer driver software from. At this point in time, only two companies make printer driver software that will let the IIGS work with Hewlett Packard printers: Seven Hills Software and Vitesse. Seven Hills sells its Hewlett Packard printer drivers under the name "Independence," and Vitesse sells its drivers under the name "Harmonie." Each of these packages works with several of the older and/or more common Hewlett Packard printers (i.e. the DeskJet and the LaserJet IIp), but only Harmonie works with many of the newer Hewlett Packard printer models.

The only other thing you need to worry about is getting the right cable to connect your IIGS to the printer. Fortunately, the folks at Seven Hills and Vitesse can probably sell you the correct cable, or at least send you to someone that can.

So, if you are considering using a Hewlett Packard printer with your IIGS, you need to first contact Seven Hills and Vitesse to see exactly which printers their software will let you use and then buy the printer driver software that best fits your needs. (If you are already interested in a particular printer, just ask the folks at Seven Hills and Vitesse if their products are compatible.) Once you know which printers you can use, shop around for the best price on the printer you want, buy it, and hook it up!

Here's how to get in contact with:

Seven Hills Software, Inc.
2310 Oxford Rd.
Tallahassee, FL 32304-3930
(904) 575-0566

Vitesse, Inc.
P. O. Box 929
La Puente, CA 91747-0929
(818) 813-1270

Q: What can you tell me about DiscQuest and the DiscQuest Encyclopedia?

A: I can tell you that we gave each of those products an in-depth review in *GS+* V5.N5 and *GS+* V6.N1 respectively. Those reviews should tell you everything you need to know about these products, including a complete list of supported CD-ROMs, pricing and contact information.

Q: Which SCSI card should I buy for my IIGS, the RamFAST or the Apple card?

A: The SCSI card that we use and recommend is the RamFAST SCSI card. The reasons are:

1) It's faster than the Apple card.
2) It works with a wider variety of hardware (CD-ROMs and hard drives) than the Apple card.
3) Apple no longer sells or supports the Apple card.

(For more information on the RamFAST SCSI card, see the next question.)

Q: CV-Technologies no longer sells the RamFAST SCSI card! Where do I get one?

A: When CV-Technologies left the Apple II market, Sequential Systems took over the manufacturing and sales of the RamFAST SCSI card and CV-Tech's Apple IIGS memory cards. If you need pricing or technical information on the RamFAST SCSI card or any of Sequential Systems other products, contact:

Sequential Systems
1200 Diamond Cir
Lafayette, CO 80026
(303) 666-4549

Q: My *GS+* Disk was bad when it arrived. Will you send me a new disk? Should I send the bad disk back to you?

A: If you have a bad *GS+* Disk, let us know and we'll get you a replacement out as soon as possible! You do not have to send the bad disk back to us to get a replacement. (But, if you do return the disk to us, we can probably get a replacement for it from our supplier, unless the disk was damaged in the mail.)

Q: I keep seeing references to my *GS+*/EGO Systems "customer number" . . . what is that?

A: Your customer number is the 10 character string that appears above your name on your mailing label. It also appears as your "account number" on any receipts that you receive from us. Your customer number is created by combining certain characters from your ZIP code, last name and street address. *GS+*

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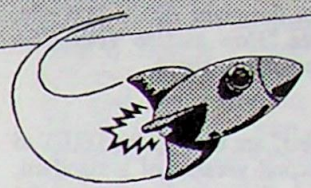

Brilliant Color AND Dynamic Full-Screen Animation on your IIGS ? Yes !

You will have a choice when it comes time to get a video card for your GS. Other products focus mainly on supporting very-high resolution SVGA-type monitors. Here at RezTek, our emphasis is on high-speed, fluid animation for your multimedia application needs. With a TurboRez card installed, your GS will have the power it needs to handle any 2D animation job you pass its way, as well as tackle even more demanding tasks like generating realtime, fully texture-mapped, 3D universes for you to explore (a la DOOM™).

HIGH-SPEED BLITTER

TurboRez incorporates a scalable blitter that operates at 16 megapixels/sec. The scaling hardware allows a source bitmap to be stretched/shrunk as it's drawn.

HARDWARE LINE DRAWING

Extremely fast line-drawing, coupled with the realtime scaling feature of the blitter, is the key to TurboRez's ability to handle high-speed texture mapping.

MULTIPLANE TECHNOLOGY

The multiplane feature allows up to 4 image planes to overlay each other. This eliminates redrawing overlapping objects.

DISPLAY LIST COPROCESSOR

The DLC is a custom microcontroller that can control all aspects of TurboRez operation independently of the GS's cpu.

TurboRez not only allows true- 256 color displays but also has an extended palette feature that lets you put up to 7000+ colors onscreen. The TurboRez card is not slot specific. It is totally transparent to and does not interfere with your regular GS applications. It uses the standard GS video port and RGB monitor. (An adaptor to drive a VGA monitor in 640 mode will be available)

Note: There's no need to order just yet. We're busier than Santa's elves getting TurboRez ready for production. More details and shipping dates should be available in the next issue of GS+.

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GS+ Glossary

This installment of the *GS+* Glossary is a special "modem terminology" edition to go with the article "Mr. Priceguide Goes Modem Shopping." Past installments of the *GS+* Glossary can be found on your *GS+* Disk in the plain ASCII text file, Glossary (see "How to Use Your *GS+* Disk" for more information).

BIS
The letters "bis" are used by the ITU-T to specify a second version of a standard. (i.e. V.32bis is the second version of the V.32 standard.)

Block
In computer terminology, a "block" is usually one of two things: A "disk block" or a generic "data block."

A disk block is chunk of data stored on disk that is a specific number of bytes long. The exact number of bytes that make up a disk block is defined by the disk operating system that the disk is formatted for. For example, a ProDOS disk block is always exactly 512 bytes in length.

A data block is a discrete chunk of data that is sent between two modems or across a network. The size of these data blocks depends on the protocol that is being used to send the information. For example, XModem data blocks are either 128 or 1,024 bytes, and the size of ZModem blocks depends on the quality of the connection that the information is being transmitted over.

Class 1 FAX Machine
This designation is given to FAX machines and FAX modems that do not have the ability to detect if an incoming call is a data or FAX transmission.

Class 2 FAX Machine
This designation is given to FAX machines and FAX modems that *do* have the ability to differentiate between an incoming data or FAX transmission.

Connect Rate
In telecommunications terminology, this is the rate (in bits per second) at which two modems exchange data with each other.

CRC
"CRC" stands for "Cyclic Redundancy Check." A Cyclic Redundancy Check is an error detection scheme (which is used in telecommunications and other fields of computing) where a data block is used to generate a checksum. This checksum is then stored with the data block. This is useful in telecommunications when the checksum is transmitted along with the data block. When the data block is received, the receiver calculates a new checksum for it and compares it to the one transmitted with the block. If they do not match, the block is retransmitted.

CTS
"CTS" stands for "Clear To Send." A modem will send a CTS signal to its host computer when it is ready to receive more data from the computer and then send it out.

DCE
"DCE" stands for "Data Communications Equipment." This is the equipment that you use to perform data communications. In other words, it's your modem.

DTE
"DTE" stands for "Data Terminal Equipment." In the simplest terms, this is just your computer. (i.e. Your computer is your data terminal.)

ITU-T
"ITU-T" stands for "International Telecommunications Union-Telecommunications Standardization Division." This is an international committee (formerly known as the CCITT) established to oversee and set worldwide telecommunications standards.

Receive Sensitivity
Receive Sensitivity is a measure of how well a modem can handle the task of picking an actual data transmission signal out of the background "noise" that may exist on a phone line. This is also called the "signal to noise ratio." This ratio is given as a negative number, with numbers of a greater absolute value being better than numbers with a lesser absolute value. Thus -64dBm is a better Receive Sensitivity than -58dBm. These numbers are based on a logarithmic scale, so every six (6) points of Receive Sensitivity represents a doubling of the amount of noise in the transmission.

RTS
"RTS" stands for "Request To Send." This signal is sent from your computer to your modem, essentially telling the modem that your computer has data it wants to send.

Signal-To-Noise Ratio
See "Receive Sensitivity" above.

TER
The letters "ter" are used by the ITU-T to specify a third version of a standard. (i.e. V.27ter is the third version of at the V.27 standard.)

V.17
This is the ITU-T standard governing FAX transmissions at 14,400bps.

V.21
This is the ITU-T standard governing telecommunications at 300bps. (This standard also accommodates the Bell 103 standard which is used in the U.S.)

V.22
This is the ITU-T standard governing telecommunications at 1,200bps. (This standard also accommodates the Bell 212 standard which is used in the U.S.)

V.22bis
This is the ITU-T standard governing telecommunications at 2,400bps.

V.23
This is the ITU-T standard governing telecommunications at 1,200bps in Europe and South America. (This also accommodates the MiniTel standard used in Europe.)

V.27ter
This is the ITU-T standard governing FAX transmissions at 4,800bps.

V.29
This is the ITU-T standard governing FAX transmissions at 9,600bps.

V.32
This is the ITU-T standard governing telecommunications at 9,600bps.

V.32bis
This is the ITU-T standard governing telecommunications at 14,400bps.

V.34
This is the ITU-T standard governing telecommunications at 28,800bps.

V.42
This is the ITU-T standard for telecommunications error correction. It includes the MNP and LAP-M error correction schemes.

V.42bis
This is the ITU-T standard for telecommunications data compression.

GS+

The GS+ Index: Part 3

By Steven W. Disbrow

Since the day we started publishing, we've had requests for an index of the programs and reviews that we've printed. So, about a year ago, I put together an index of the programs and reviews that we had published up to that point. This index was split into two parts and covered all the programs and reviews we had published in Volumes 1 through 4 of *GS+* Magazine. (The index for Volumes 1 and 2 was in *GS+* V5.N1 and the index for Volumes 3 and 4 was in *GS+* V5.N2.) I had planned to update the index yearly, but with all the excitement of our fifth anniversary issue, I completely forgot to compile and publish the index for Volume 5 in *GS+* V6.N1. So, "better late than never," here's the index for Volume 5 of *GS+* Magazine!

In the program index, you'll find the name of each program, the issue it first appeared in, the issue the *latest* version is in, and, finally, a brief description of the program. Programs are listed alphabetically, not by the issue they were in.

In the review index, you'll find a listing of each issue and the names of the products that were reviewed in that issue. Reviews are listed alphabetically for each issue. Titles marked by a bullet (•) are shareware or freeware.

Balloon

Current version: v1.0 from *GS+* V5.N2
Balloon is a Finder extension that allows you to unpack ShrinkIt archives simply by double-clicking on them in the Finder!

CD-ROaM

Current version: v1.0 from *GS+* V5.N2
CD-ROaM is an application (written in Object Pascal) that allows you to access ISO 9660 CD-ROMs that your IIGS might not otherwise be able to read. CD-ROaM is not restricted to working only with CD-ROMs though. CD-ROaM is an excellent general purpose file copying utility that allows you to select the files you want to copy using several different criteria (i.e. file type, aux type, name starts with, name contains, etc.) and can also perform batch operations on those files when they are copied.

Clip On

Current version: v1.0 from *GS+* V5.N5
Clip On is a new desk accessory (NDA) that lets you view the system Clipboard from inside any desktop program.

File Dump

Current version: v1.0 from *GS+* V5.N1
File Dump is a stand alone application that allows you to load a file and look at its data and resource forks in either "raw" form or in hexadecimal form. File Dump also lets you save either fork of the file out as a simple Binary file. Or you can select a portion of the file from the File Dump window, copy that information, and paste it into another document via the system Clipboard.

FLI Convert

Current version: v1.0 from *GS+* V5.N5
FLI Convert is a IIGS application that allows you to load FLI animations created on other computers and convert them into PaintWorks animations that are useable with IIGS programs like Twilight II and HyperStudio. FLI Convert can also load and play any PaintWorks animation.

KaBlooie!

Current version: v1.0 from *GS+* V5.N2
KaBlooie! is a full-featured IIGS version of the popular game MineSweeper. It has several different levels of play, and it even allows you to set the size of the mine field you want to play on!

MIDI Surgeon

Current version: v1.0 from *GS+* V5.N3
MIDI Surgeon is a IIGS application that lets you load raw MIDI files created on *any* computer, and convert them into MIDI Synth documents for use on the IIGS. MIDI Surgeon also allows you to perform "surgery" on MIDI files (changing track and channel assignments and removing unwanted entries), and will allow you to play MIDI Synth songs.

More Sound

First appeared in *GS+* V5.N5
Current version: v1.0.1 from *GS+* V5.N6
More Sound is a IIGS application that allows you to easily add additional sound event codes to the Sound control panel.

Playful

Current version: v1.0 from *GS+* V5.N4
Playful is a Finder extension that will play *all* of the rSoundSamples in *any* file. Just select the file in the Finder and then pick "Play rSoundSamples" from the Extras menu, and Playful will search the file for rSoundSamples to play. It also displays the names of all the sounds it plays.

Sun Dial

Current version: v1.0 from *GS+* V5.N6
Sun Dial is a new desk accessory clock program—with a difference! Instead of permanently taking up space in your menu bar or on your desktop, Sun Dial can be set to appear periodically to let you know the time. Or, you can set up Sun Dial so that it never appears, but it announces the time verbally using the special sounds that are supplied with it! Or, it can do both!

What Is This?

Current version: v1.0 from *GS+* V5.N4
What Is This? is a Finder extension that will give you additional information on any icon that you select in the Finder. Simply select the icon and then pick "What Is This?" from the Extras menu and What Is This? will display all the information it has on that particular icon.

What To Do

First appeared in *GS+* V5.N6
Current version: v1.1 from *GS+* V6.N1
What To Do is a new desk accessory that allows you to maintain named "to do" lists. Version 1.1 of What To Do supports Publish and Subscribe so that you can make your to do lists available to What To Do users on an AppleTalk network!

GS+ V5.N1 Reviews

Applied Engineering HD 3.5-inch Drive
Apple II SuperDrive Controller Card
MODZap •
ORCA/Pascal v2.0.1
soniqTracker •
SoundMeister
TypeSet

GS+ V5.N2 Reviews

3D Logo
Focus Drive Hard Card
Prism
Tulin Floptical Disk Drive

GS+ V5.N3 Reviews

Ancient Glory
Apple Extended Keyboard
AudioClips (Star Trek and Terminator 2)
GNO/ME
HP DeskWriter 550C Printer
HyperLogo
NCS Pro 240 Hard Drive
Pedigree

GS+ V5.N4 Reviews

Addressed For Success
ORCA/Debugger vs. Splat!
ORCA/Modula-2

GS+ V5.N5 Reviews

DiscQuest
MS-DOS File Utilities •
Salvation: Bakkup v2.0
Spectrum

GS+ V5.N6 Reviews

Six Pack
The Tinies •

GS+

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- Use the Deferred Send feature to create a fax document when RAM is low, and then send it later when more RAM is available!
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- Answers and receives fax calls automatically, or only by manual command!
- Maintains a log of faxes sent and received!
- Use Send or Receive Logs to view cover information, the actual document, print the document, or change the address and forward it to another person!
- Automatically supports Class-1, Class-2, and Class-2.0 fax modems!
- No knowledge of modems needed! Automatically senses which port and which modem is attached! Simply plug in the modem, install the software, and reboot!
- Optional Call Progress window allows you to see what is happening while sending or receiving a FAX!
- FAXination is a CDEV with an NDA interface to provide quick access to FAXination controls.
- PrintPicker NDA allows switching between the FAXination printer and your printer with ease (GS/OS System 6.0, or higher only)!
- Special desktop application allows even users with less than 2 Meg RAM to send Deferred FAXes!

FAXination requires GS/OS v5.0.4, or higher, 1½ MB RAM, and a hard disk drive. System 6.0, or higher, and 2 MB RAM is highly recommended. ***FAX**ination* supports only external FAX/Modems.
FAXination Only **$79.95** plus S/H. ***FAXination*** with 14,400 Ext. FAX/Modem **$189.95** plus S/H.

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- **NEW** Toning techniques allow users to select the monochromatic palette of their choice!
- **NEW** Toning palettes include: brown, Sepia, blue, green, red, and Selenium.
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Quickie 3.2 requires an Apple IIgs running GS/OS v5.0.4, or later; 1.5MB RAM if running GS/OS v5.0.4, or 2MB RAM if running System 6.0, or later; a 3½" floppy disk drive; a hard disk drive is recommended.

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Fast, Smooth, Uncomplicated

Working With the Toolbox Part 15: The Print Manager

By Josef W. Wankerl

As I mentioned in the last issue, this time I'll discuss the Print Manager. Using the Print Manager is remarkably simple. If you know how to draw things using QuickDraw II (see part 4 of this series in *GS+* V3.N1), you can print things using the Print Manager.

Reading Up

First off, you should sit down with your copy of the *Apple IIGS Toolbox Reference, Volume 1*. The majority of the Print Manager is discussed there. There are a few new calls in volume 3 you should also know about. Of course, if you're doing any kind of programming with the IIGS Toolbox, you should have every last IIGS programming reference you can lay your hands on.

Printing Concepts

Printing using the Print Manager is done by creating a printing grafPort and then drawing into that port using QuickDraw II calls. That's all. It's really that simple! Of course, there are a few details left out of my simple description, but in essence, that's all you'll really be doing. So before we go any further, here are a few things you should know about printing.

Printing grafPorts

As I mentioned before, when you print, you're actually drawing to a printing grafPort. Anything you can draw in a normal grafPort you can draw in a printing grafPort. The difference between the two is in how the low level QuickDraw routines react to what you draw. For a normal grafPort, the low level QuickDraw "bottleneck procedures" (the official name for the low level QuickDraw routines) take the information passed to them and then render the information to be displayed on the super hi-res screen. For a printing grafPort, a custom set of low level bottleneck procedures takes the information passed to them and renders it on the current printer.

Print Records

When you get ready to print, you need to set up a *print record*. A print record is a handle, always 160 bytes long, which contains information about the current printer and what pages are to be printed. (Some documentation, including the *Apple IIGS Toolbox Reference, Volume 1*, says that a print record is 140 bytes long—this is incorrect. A print record is 160 bytes long.) In the "old days," you made the `PrChoosePrinter` call to allow the user to change a printer, however the System Software has evolved so that call is no longer valid. Instead, to change a printer, you use a control panel. (For directly connected printers, you use the DC Printer control panel, and for networked printers, you use the Net Printer control panel. Note that your program can't change the printer itself, the user has to do this by using one of these control panels.) Getting back to print records, you don't have to do much of anything to set up a print record. Simply allocate the handle and then call the `PrDefault` or `PrValidate` routine to make sure the print record is valid for the current printer. The `PrDefault` routine sets up the print record with default values for the current printer. The `PrValidate` routine checks the print record for any invalid values and corrects any mistakes in the print record. (Invalid values in the print record are corrected simply by substituting the default values for the current printer.) Once you have a valid print record, you set the values for a particular print job by calling the `PrStlDialog` and `PrJobDialog` routines. The `PrStlDialog` routine gathers information from the user about the page size and quality of print to be performed. The `PrJobDialog` routine gathers information from the user about which pages are to be printed and how many copies are to be made.

Printing Condensed Text

When you print text, it's usually best if you turn on the condensed printing option for the printer, otherwise the text looks "tall" when printed. (If you're printing mostly graphics, you should probably use uncondensed printing as a default, or the graphics will look "squashed.") Although the user should ultimately be allowed to control the setting of the condensed print option, you can help the user by setting an appropriate default value for them.

When `PrValidate` tells you that the print record was invalid, that (usually) means that the user has changed printers and new default values have been put in the print record for the new printer. You can then look at the print record and check to see if the printer is a type you know about. Currently only the print record formats for the ImageWriter and LaserWriter are published. (However, a lot of printer drivers use print record formats that are identical to the ImageWriter or LaserWriter, and you can check for that as well.) If you don't know the printer kind, you should leave the

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defaults alone. However, if you can recognize the ImageWriter or LaserWriter print record format, you can change the condensed print setting by hand. You should *always* call `PrValidate` after you make any manual changes to the print record so the print driver has a chance to correct any mistakes that you may have made! (See Figure 1 for a sample of how to set condensed printing.)

Printing Text

When you print graphics, generally the object you want to print is transferred to the printed page in a straightforward manner. However, printing text is done using a slightly different process. Because printers usually have a higher resolution than the screen on your IIGS, there are more pixels to fill in. To compensate for that, the print driver requests a bigger font size from the Font Manager during printing to make up for the extra pixels. This results in smooth looking text in the final output. For more in-depth information on how this process works, see the "How Fonts Work" article in *GS+* V3.N2 and the "How Printing Works" article in *GS+* V3.N3.

The Main Print Loop

Your print loop will go through all the pages you want to print and draw them in a printing grafPort. When you exit the print loop, all the pages will be printed. When it's time to print, you should call the `PrJobDialog` routine to find out exactly how much is to be printed. After the `PrJobDialog` routine is done, you should check the print record to find out the range of pages that are to be printed. If your application can simply start printing at the desired page, you should change the range of pages that are to be printed to start at page number one and then print the number of pages specified, starting with the start page. However, if you can't determine in advance where the start of a certain page is, you should leave the page range alone and then print *every* page in your document. The Print Manager is smart enough to really only print the pages in the page range when it comes across them. Now, before you actually start printing pages, it's a good idea to call `PrSetDocName` to tell the Print Manager the name of the document you're printing. Note that you should check the Print Manager's error flag (by making the `PrError` call) after *every* Print Manager call you make when you're inside the print loop. If the error flag is set, you should stop printing. Also, if any other errors occur during printing, you should explicitly set the Print Manager's error flag (by making the `PrSetError` call) so the Print Manager knows what's going on. Finally, before you start printing pages, you need to get a printing grafPort to print in. To do this, call `PrOpenDoc` and it will open a new printing grafPort for you.

Now that everything has been set up, it's time to enter the main part of the print loop. The main print loop prints one page at a time. To tell the Print Manager you're about to print a new page, you issue the `PrOpenPage` call. Then you draw the page into the printing grafPort. When you're finished with the page, you tell the Print Manager the page is complete by issuing the `PrClosePage` call. Simple enough, eh? Just go through and print every page in the exact same way.

Once your print loop is done printing pages, you need to issue the `PrCloseDoc` call to tell the Print Manager that you're through printing and to get rid of the printing grafPort that was created by `PrOpenDoc`. You're not done yet, though. You have to also tell the Print Manager to print any spooled pages. (The Print Manager either prints pages immediately, or it spools the printed pages to disk to be printed after they've all been rendered. Your application shouldn't care which way the Print Manager handles this.) To print any spooled pages, you first make sure there is at least 10K of contiguous memory free, then issue the `PrPicFile` call.

Finally, if you're printing in draft mode on an ImageWriter printer, only one copy of the document will have been printed, no matter how many copies were

Figure 1 — Setting Condensed Printing

```
Procedure SetupPrintRecord (PrintRec : PrHandle);
Const
      cImageWriter = $0001;
      cImageWriteClone = $8001;
      cLaserWriter = $0003;
      cLaserWriterClone = $8003;

Var
      ValidResult : Boolean;
      PrinterType : Integer;

Begin
      { Get the type of printer }
      PrinterType := PrintRec^^.prInfo.iDev;

      { Check for an ImageWriter printer }
      If (PrinterType = cImageWriter) Or (PrinterType = cImageWriterClone)
      Then Begin
          { First clear the quality bit to set best quality }
          PrintRec^^.prStl.wdev := PrintRec^^.prStl.wdev & $FFFB;
          { Then set the condensed mode bit }
          PrintRec^^.prStl.wdev := PrintRec^^.prStl.wdev | $0001
      End;

      { Check for a LaserWriter printer }
      If (PrinterType = cLaserWriter) Or (PrinterType = cLaserWriterClone) Then
          { Set condensed mode for LaserWriters }
          PrintRec^^.prStl.crWidth := 2;

      { Make sure any changes are valid }
      ValidResult := PrValidate (PrintRec)
End;
```

requested in the print job dialog. In this case, you need to decide whether or not to manually loop through your entire print loop again to match the number of copies desired. Then, you're done!

Print Manager Demo

Once again, I've provided a demo program on your *GS+* Disk. The demo program is an extension of the previous TextEdit tool set demo program. Only the ability to print the contents of an editing window has been added. To add printing, only three routines had to be added: `SetupPrintRecord`, `DoPageSetup`, and `DoPrint`. Also, a print record handle is kept for each window.

SetupPrintRecord

The `SetupPrintRecord` routine attempts to turn on condensed printing in a print record. It can turn on condensed printing for ImageWriter and LaserWriter printers as well as printers that use the same generic print record structure as the ImageWriter or LaserWriter printers. It's a small simple routine, but it's called from at least three places in the demo program, so it merits its own special routine.

DoPageSetup

When the Page Setup item is chosen from the File menu, the `PrStlDialog` routine must be called. The `DoPageSetup` routine simply does that. First, however, it checks to see if the print record is valid. If an invalid print record is seen, the bad values will automatically be converted to good ones, but the demo program goes one step farther and makes sure that condensed printing is set. The only reason why an invalid print record should ever be seen would be because a new printer has been chosen by the user. Whenever an invalid print record is passed to `PrValidate`, default values are used for invalid values in the print record, and since default values are being used, it only makes sense to set condensed printing as a default for a text-specific printing application.

DoPrint

When the Print item is chosen from the File menu, it's time to print the document. The `DoPrint` routine is the main printing workhorse. Before printing is started, the print record is checked to see if it is valid. If it's invalid, then the printer has changed, so condensed mode is set and the `DoPageSetup` routine is called to determine the correct page dimensions. Now, with a valid print record, the `PrJobDialog` call can be made to determine the range of pages to be printed. After that, the main print loop is entered to print the pages. Since you can't determine in advance where the start of a page is, all the pages in the document are printed and the Print Manager properly controls which pages are actually output. To print a single page, the `TEPaintText` command is called to paint as much text as possible in the dimensions of a page. After the print loop exits, everything has been printed. That's it! All done!

That's All, Folks!

Using the Print Manager is extremely simple. The source code for the Print Manager demo program covers a lot of Print Manager related material. If you find you need to do more than the Print Manager demo program does, you should read up on the Toolbox references and experiment. If you had trouble following this article, or the Toolbox references, let me know and I'll attempt to clarify.

I've officially run out of "major" tool sets to cover. I never thought I'd see the day when I could type that. However, that doesn't mean that I've covered every tool set. There are still quite a few left to take a look at. However, with the major tool sets out of the way, I don't really have a direction to take the remainder of these articles. So, to help me out, you can write in and tell me that you'd like to see a discussion of the <insert tool set name here> tool set and I'll work on it. I look forward to seeing your requests! *GS+*

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What's New?

Compiled By Steven W. Disbrow

Big Red Not Dead!

After a year of basically bad news, I'm happy to start out 1995 by reporting that Big Red Computer Club decided *not* to close it's doors at the end of 1994!

In the latest issue of their publication, *Scarlett*, Big Red President John Wrenholt announced that he had decided to keep Big Red open for another year (until the end of 1995 that is) and to continue to sell Apple II software. During the coming year, Mr. Wrenholt plans to start a new Macintosh software development company, while continuing to run Big Red Computer Club. This means that the Apple II community still has a trustworthy and reliable source for most of its commercial and shareware software needs.

However, since getting a new business off the ground is a time-consuming task, Mr. Wrenholt has also decided to stick with his earlier plan of suspending the publication of Big Red Computer Club's newsletter *Scarlett*. Also, Big Red has cut their technical support hours to Monday, Wednesday and Friday afternoons.

Overall, though, this is excellent news for the Apple II community as a whole! For more information, or to request the latest Big Red catalog, contact them at:

Big Red Computer Club
423 Norfolk Ave
Norfolk, NE 68701-5234
(402) 379-4680

Animasia 3-D Nears Shipment

After nearly five years of development, Animasia Software has informed us that, by the time you read this, Animasia 3-D will be shipping! Designed to be a powerful and easy to use 3-D modeling and animation workshop, Animasia 3-D has a feature list that looks like it belongs to a PowerMac application! Like what? Well, 'fer instance:

• Animasia 3-D allows you to create animations using three dimensional objects. That is, the objects in your animations all have height, width and depth.

• Object can be animated just by specifying their starting and ending positions in time and space. Animasia 3-D then generates the intermediate frames to get you from the starting to the ending frame.

• Each object has twelve different user-adjustable animation attributes (like acceleration and deceleration) that can control how the object "behaves" in an animation.

• Objects can be linked together to form a more complex object. This new object can then be treated just like any other object. (For example, you could define four "finger" objects and then link them to a "palm" object.)

• Objects can be grouped together in separate layers. Individual layers can be hidden to prevent changes from being made to them while working with other objects.

• Animasia 3-D uses an internal color table of over 200 *trillion* colors! (Whoa!) Wile it can't show all these colors on the screen, this allows it to easily pick the best possible colors to use for its on-screen displays.

• Animation objects can be illuminated using four different types of lighting: Ambient, Directional, Radial, and Spotlight. Lights can be different colors and can be animated just like any other object.

There's *lots* more that this program is supposed to be able to do, but I've run out of space! So, if you are interested, contact Animasia at the address shown below. Animasia 3-D should be available now, and it requires an Apple IIGS with System 6.0.1 and at least 2MB of memory. Four megabytes of memory, a hard disk, and an accelerator are recommended.

The retail price of Animasia 3-D is $99 (plus $3.50 S&H; overseas orders add $5 for air mail shipping). Florida residents add 6% sales tax. School purchase orders are accepted. For more information or to order, contact:

Animasia
3324 Vishaal Drive
Orlando, FL 32817
U.S.A.
(407) 380-9932
Internet: animasia@genie.geis.com

ZipGS Now Available From Us!

Over the last year, you may have noticed that it's gotten harder and harder to find an accelerator card for your IIGS. First, Applied Engineering (makers of the TransWarp GS) went out of business, and then Zip Technologies just seemed to fade from sight. As if that weren't bad enough, the companies that used to sell the ZipGS accelerator just seemed to stop selling them (or, like TMS Peripherals, they went out of business).

Well, Zip Technology is still around (under the name "MCTA"), and effective immediately, EGO Systems is making the ZipGS available again for the IIGS community!

These are the same ZipGS accelerator cards that we've reviewed in past issues of *GS+* Magazine (V2.N3 and V3.N6), and they are the same ones that we've been using here at the office for the last couple of years. With one of these cards installed, just about everything your IIGS does happens at least twice as fast as it did before—it's really, really cool.

At first, we'll only be offering the 8MHz/16k cache model of the ZipGS, but if you want one of the other models (7, 9 or 10MHz) we can get those for you too. The price for the ZipGS 8/16 from EGO Systems will be just $189 (plus shipping), and all ZipGS accelerators we sell will come with a one year manufacturer's warranty and technical support direct from Zip/MCTA Technology. (Note that as I write this, I don't know exactly what the shipping charges will be. So be sure to check the **a.Read.Me** file on your *GS+* Disk for any last minute information that we can come up with. You can also send us e-mail or call us at 615-332-2087 for the latest information on shipping charges.)

For more information on getting your own ZipGS accelerator give us a call at (615) 332-2087 during our normal business hours.

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Readers can place an ad in the *GS+* Classifieds for only $5. This price buys you 25 words in one issue of *GS+* Magazine. Additional words are just 25 cents each. The *GS+* Classifieds are a great way to contact thousands of other IIGS owners.

The deadline for inclusion of a classified ad in the next issue (Volume 6, Number 4) of *GS+* Magazine is February 6, 1995. Simply send your ad along with your name, address, phone number, number of issues to run, and payment (made payable to "EGO Systems") to *GS+* Classifieds, P. O. Box 15366, Chattanooga, TN 37415-0366; or call us at (615) 332–2087, Monday through Friday between 9 a.m. and 5 p.m. Eastern Time, to place an ad with your MasterCard or VISA. You can also FAX us your classified ad by calling (615) 332-2634.

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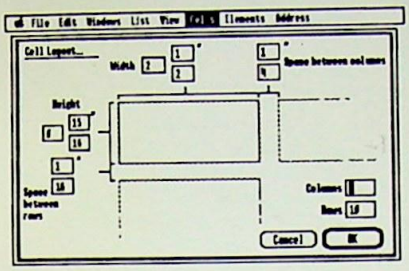

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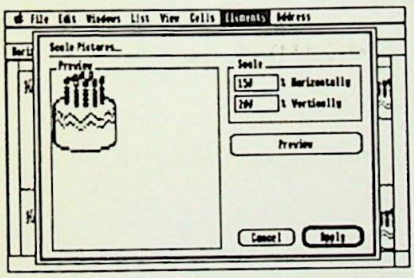

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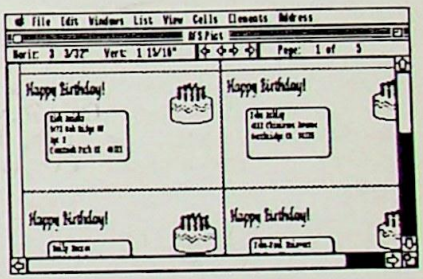

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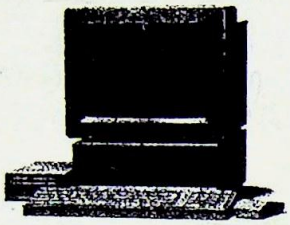

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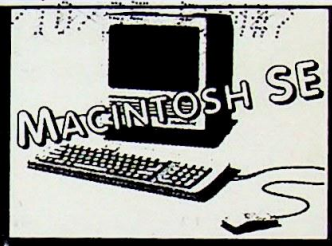

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