

# PRO COPY ST

BACKUP  
UTILITY  
FOR THE  
ATARI  
ST SERIES

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### **About ProCopy**

This product is intended to help you in the process of backing up your valuable software. As far as possible within the hardware limitations of the ST and the ever-changing nature of copy-protection, it will make backup (working) copies of all ST software.

However, most copyright software is intended for single-owner, single-system use. Please respect the time and effort spent by professional programmers in creating commercial software. PROCO PRODUCTS is not responsible for misuse of this product, or for problems, including legal problems, that may arise from such misuse.

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### **Registration and Upgrades**

Please fill-in and return the registration card immediately. Not only does this help you protect your investment, but it helps us keep you informed of product developments.

If there is ever a problem backing up a particular piece of software, please contact us, for we are always interested in improving our products. It is extremely helpful if you run the ANALYZE option of ProCopy on both the original disk and the unsuccessful copy and compare them. The data you obtain from this will make it easier for us to trace the problem.

Upgrades of ProCopy are available for \$13.50, this price includes postage and handling.

### **What ProCopy can do**

ProCopy is designed to copy all the data from one floppy disk to another, even if the format has been modified to create copy-protection. It ignores any RAMdisks or hard disks. It can format the destination disk while copying, and can copy double-sided disks (using a double-sided drive). It can also make multiple copies without re-reading the source disk. An extra attraction of ProCopy is the option to analyze the track and

sector headers and data. You can use this feature to detect and examine non-standard formats. The information you gain will be of interest if you would like to better understand the structure of data on the disk.

ProCopy will run with either a color or monochrome monitor.

### **Backing-up ProCopy**

Before you run ProCopy, you should make a working copy. When you've done this, store your original ProCopy disk upright in a cool, dry, dust-free place. This way it will always be possible to make a new working copy in case of an accident. ProCopy is copyright, so please do not make copies other than for your own personal use.

ProCopy is not copy-protected. This means that you can use the Desktop 'file copy' procedure to transfer it to a working disk, and include any other programs on the same disk for your convenience.

To do this, turn on your ST, and if necessary load TOS from your system disk. For safety's sake, whenever you are copying, *write-protect the source disk* (the disk from which you are copying). This is a good habit: it ensures that you don't accidentally erase files by mistakenly selecting the trash can instead of a disk drive icon, or overwrite the disk with garbage when copying on a one-drive system.

Place the original ProCopy disk in the disk drive, and click the mouse on the appropriate drive icon to open it. Select PROCOPY.PRG, drag it to the destination drive icon, and follow the prompts. If you are unsure of the procedure, check your ST Owner's Manual for complete details.

When the file has been copied, remove the original ProCopy disk, and put it away for safe keeping.

### Using ProCopy

Load ProCopy in the normal fashion by opening a disk directory. If you already have an open window for a particular drive, you can get a new directory by inserting the disk, clicking on the window to make it the top, or active, one (if it isn't already), then hitting the ESC key. Double-click on PROCOPY.PRG, or click on it and then click on 'Open' from the File menu.

When the program has loaded, the following menu will appear on your screen.

Begin:01	End:80
F1: Read	A:
F2: Write	A:
F3: Format	No
F4: Double	No
F5: Protect	No
F6: Multiple	No
F7: Verify	No
F9: Analyze	
F10: Start	
Esc: Quit	

BEGIN and END refer to the first and last tracks to be copied. The values can be adjusted with the cursor arrow keys. The UP and DOWN arrows increase and decrease the starting track, while the LEFT and RIGHT arrows do the same to the finishing track. The minimum and maximum values are 1 and 82. Normal (un-protected) disks finish at track 80.

The options are selected with the function keys on the top row of the ST keyboard. F1 to F6 are toggles: pressing these keys will flip-flop back and forth between two choices. For example, pressing F1 will toggle between reading Drive A: and Drive B:.

If an option currently has no choices (e.g. there is no Drive B: on a one drive system), then when the key is pressed the item will not change, but the bell will ring if the sound is turned up on the monitor. This indicates that the option is not available.

F9 and F10 start the Analyze and Copy routines respectively.

Generally speaking, pressing the ESC key exits from the current routine or exits the program.

Using ProCopy is simple. Set the tracks and options for your needs, then press F10. Follow the prompts, and your copies will be done in almost no time at all.

## The Options

### F1: READ

This option selects the drive from which the source disk will be read. A two-drive system will allow you to flip from A: to B: or back. With a single-drive system there is only one choice, A:. (ProCopy does not support RAMdisks and hard disks.) Pressing F1 when using a single drive rings the bell to remind you that you can't change drives.

### F2: WRITE

This option selects the drive to which the copy will be written. The choices are the same as for F1; A: or B: with two drives, only A: with a single drive.

Remember that in order for the computer to recognize both drives, they must be connected and powered up *before* you turn on the system. Turning the second drive on after the computer is already on will not reset the system to use the second drive. In that case, re-boot the system.

### F3: FORMAT

Here the two choices are NO and YES. With NO selected, ProCopy will make a copy on your destination disk, but you must use a previously formatted disk (check your ST Owner's Manual if you don't know how to format a disk).

Selecting YES causes ProCopy to format the destination disk while making the copy. Just put in your unformatted disk, set FORMAT to YES with the F3 key, and ProCopy will take care of the rest. While this takes slightly longer than 'plain vanilla copy', it saves time overall, because you don't have to format the disk as a separate operation.

Some disks use non-standard formats for copy-protection. With these disks, ProCopy must reformat the destination disk in order to create an exact duplicate of the altered format. Because of this, when PROTECT (F5) is set to YES, it automatically sets FORMAT to YES and 'locks' it there. Pressing F3 at this point results only in ringing the bell. This way you won't try to copy a protected disk to a normal format. The copy process would probably succeed, but the copy program would not run.

Notice that resetting PROTECT to NO does not perform the corresponding action to FORMAT; it only 'unlocks' the option. If necessary, you can now press F3 to select NO.

#### F4: DOUBLE

Again, the selections for this option are NO and YES. NO is for copying single-sided disks, and YES takes care of double-sided ones. You must use a double-sided drive when copying double-sided disks; use of a single-sided drive will cause an error. On a double-sided drive with NO selected, only one side of the disk will be copied.

#### F5: PROTECT

PROTECT is for backing up disks with copy-protection. You don't need to do anything other than set PROTECT to YES. ProCopy will check the disk and adjust the copy process automatically.

As mentioned above, setting PROTECT to YES will set FORMAT (F3) to YES and lock it. It also sets and locks MULTIPLE (F6) to NO. (To make sure that the format is correct, protected disks are re-read each time a copy is made, and therefore the use of MULTIPLE with protected disks is not possible.)

Putting PROTECT back to NO does not change FORMAT or MULTIPLE; it only unlocks them.

#### F6: MULTIPLE

With MULTIPLE set to YES, you can make multiple copies of an un-protected disk without having to re-read it. When a copy is finished, you receive the prompt *Press RETURN to write, ESC to re-read*. Remove the finished copy from the destination drive, replace it with the next disk, and hit RETURN.

ProCopy will make multiple copies of the same source disk as long as you continue to repeat these steps. Hitting the ESC key will return you to the original menu where you may read another disk, change the options, or exit the program.

If there is not enough free RAM to hold a complete disk's worth of data (for example if you have installed many desk accessories or a RAMdisk, or you are copying a double-sided disk using a 520ST), you can still easily make multiple copies. Each time the prompt appears, insert another destination disk, and hit RETURN. ProCopy will write the part of the disk currently in memory. When you have done this for all the disks, press ESC, and you will be prompted to insert the source disk for the next pass.

Unless you have an extremely large part of the memory allocated to another application, ProCopy should be able to do a copy in one or at most two passes. If it takes more passes than that, re-boot the system without any RAM-resident programs (desk accessories, RAMdisks, or printer spoolers).

#### F7: VERIFY

The two choices for this are NO and YES with NO being the default. You may select either one regardless of the setting for PROTECT (F5). The default setting for VERIFY is NO.

Setting VERIFY to YES causes ProCopy to test the integrity of the copy by test reading the sectors before moving on to the next track. If any errors are detected ProCopy will write and test it again and continue doing so until all the sectors are error-free or the Escape key is pressed.

Copying disks with VERIFY takes longer because of the added read cycle required for each track.

It is possible to verify only part of the copy. This is done by adjusting the END (using the LEFT and RIGHT arrow keys) to the last track to be verified before setting VERIFY to YES, then re-adjusting the END to the last track to be copied.

It should never take more than a few re-tries for an un-protected disk.

Although allowing ProCopy to continue may eventually work, this is not recommended.

#### F9: ANALYZE

This option has been included for the technically-minded. You don't need to use it when you are copying, but if you have wondered how data is stored on disks, you might be interested in reading the section on *Using ANALYZE* (page 9).

Pressing F9 will display the screen prompt *Insert the source disk (original). Hit RETURN when ready.* (If you pressed F9 by mistake, press ESC to exit the ANALYZE function.) Place the disk to be analyzed in the drive selected for READING, and hit RETURN. ProCopy then reads and analyzes the entire disk, one track at a time. See page 9 for information on interpreting the results.

If you wish, you can stop the procedure before the whole disk has been read, by pressing ESC. (Allow ProCopy to read a few tracks past the last one you want analysed, to ensure the program has time to do the analysis: reading is a much faster routine and gets slightly ahead.)

#### F10: START

Pressing F10 starts the Copy routine. It displays the prompt *Insert the source disk (original). Hit RETURN when ready.* Take a quick look at the options to make sure they are set how you want them. If you wish to change the current selections, hit ESC, and the menu will be re-displayed to allow you to do so. Hit F10 to re-start after making your changes.

When you're sure the settings are correct, insert the source disk and hit RETURN. As a safety measure, if the disk isn't already write-protected, you will be prompted to protect it. Remove the disk, slide the write-protect tab so that the small hole is open, replace the disk in the drive, and hit RETURN. Alternatively, just hit RETURN to bypass this feature.

On a one-drive system, when ProCopy has finished reading the source disk it will prompt you to insert the destination disk. Do so, hit RETURN, and your copy will be made.

As mentioned above, if there isn't sufficient free RAM to hold all the data, you will receive screen messages instructing you when to swap the source and destination disks. It should not take more than two passes to make a copy.

When you have finished, put the original disk in a safe place and in future use your copy as a working disk. This is good practice, because your original disk remains the source disk if you should need to make another work copy.

With the original disk safely stored away, you need have no qualms about deleting unwanted files from, or copying additional files onto, your working disk. You can create a customised working disk for each application. For word processing for example, your working disk might contain printer drivers, keyboard translation tables, spelling check program, frequently-used text files such as standard memos and letters, and (assuming you will be booting your computer from the working disk) desk accessories such as an address book, file transfer utility, and on-screen clock or calculator.

### Using ANALYZE

When ProCopy has finished the analysis, or if you interrupt it, it will display the information obtained from TRACK 00. You will see a display that looks like this:

	TRACK AA	
BB CC DD EE	BB CC DD EE	BB CC DD EE
BB CC DD EE	BB CC DD EE xxx xxx	BB CC DD EE
BB CC DD EE	BB CC DD EE	BB CC DD EE

(Note that all the numbers displayed are hexadecimal, and so no indication of hex notation such as a leading '\$' or '0x' has been used.)

The meanings of the various data fields are as follows.

*AA Track number*  
Starts at 00.

*BB Track address*  
The number of the track the sector should be on (in a normal format

this matches the track number).

*CC Side number*

00 = Side A, 01 = Side B.

*DD Sector address*

The sector ID number.

*EE Sector size*

00 = 0080 bytes, 01 = 0100 bytes, 02 = 0200 bytes, 03 = 0400 bytes.

*xxx Sector status*

These fields only appear if the disk format is non-standard. They are interpreted as follows.

crc	Checksum error
ddm	Deleted data mark
dxx	Duplicate sector, xx = value of the first conflicting byte of the duplicates
gap	Abnormal gap size between sectors
shr	Next sector starts before the end of this one
snf	Unaccessible data field
dmg	Sector is damaged, weak, or dirty

If a track is unformatted then the data display is not shown, but is replaced with the message:

\*\*\* UNFORMATTED \*\*\*

To display the other tracks use the cursor arrow keys. Pressing the DOWN arrow will display the next track in numerical order; the UP arrow lists the previous track. Holding SHIFT while pressing either the UP or DOWN arrows will skip 8 tracks in the corresponding direction. If movement either way takes you past the last track analysed, a dashed line (---) is shown.

You can scroll from beginning to end by pressing L for List. This only works in a forward direction and continues until another key is pressed or the last analyzed track is reached. It does not 'wrap' to Track 00, as with the arrow keys.

You may dump the information to the printer by pressing the P key. This will turn the printer on and re-display the last track shown. If the printer is on, and you wish to turn it off, just hit P again.

To exit ANALYZE, hit ESC, and then Y at the prompt. The ProCopy menu will be re-displayed.

### **How ProCopy works**

The TOS file- and disk-copy routines work only with standard formatted disks. They are capable of copying data, but cannot format the disk. They only work when all tracks are formatted, with tracks and sectors numbered properly, and valid sector headers and data. With TOS you *must* use a previously formatted disk.

Program disks are often copy-protected by employing non-standard formats. With such disks, the TOS file or disk copy routines probably won't succeed. You may be able to go through the process, but the program you have copied won't run. If the format is altered a great deal, then the TOS routines may not even be able to finish.

This is because one of the first things a copy-protected program does is to check the disk format. When it gets the message that the disk format is normal, or at least not the altered version it is expecting to find, it takes whatever actions the programmer felt necessary to render the program unusable.

ProCopy, since it is capable of reading strange formats and re-creating them on other disks, does not have these limitations. It is not necessary to run ANALYZE in order for the program to duplicate these different formats: the design of ProCopy allows it to handle all these details internally without requiring user help. We have included the ANALYZE option to increase your enjoyment of the program.

As new formats are designed, ProCopy will be upgraded to deal with these formats appropriately, but it is extremely difficult to check 100% of the new software as it arrives on the market. If ever you cannot successfully copy a disk with ProCopy, let us know. Please include any information gained from analyzing the disks involved.

#### **Limited Warranty**

The publisher warrants to the original purchaser of this product that the recording media will be free from defects in materials and workmanship for a period of ninety (90) days from the date of purchase. If the original disk should become defective in that time, the publisher will replace or repair it, free of charge. Send it to PROCO PRODUCTS, P.O. Box 665, Chepachet, R.I. 02814, along with proof of the date of purchase. This warranty does not apply to disks that are subject to abuse, excessive use, or neglect. Any implied warranties of the media are limited to the ninety day period.

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# **ProCopy ST**

## **Backup utility for the Atari ST Series**

Backup your valuable software! ProCopy copies **all** disks, at the press of a key, even the most heavily protected.\*

Use ProCopy to make a working disk - add your favourite desk accessories, printer drivers and other files to it - and put the original disk away, safe from overwriting or corruption.

ProCopy is fast and easy-to-use. It automatically adapts itself to make the most efficient use of the available memory and disk-drives on your ST.

It'll save you time as well as worry, too. There's a fast format-and-copy routine for unprotected disks - no need to format a new disk. And a multiple copy routine to do all the copies you want, without re-reading the source disk.

And for the technically minded, ProCopy will analyze and list or print the disk track and sector data, giving you a detailed look at standard and non-standard ST disk formats.

This package is guaranteed the most recent version.

Price \$34.95

\* Upgrades will be available to handle new methods of protection.

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