

COPY Q
COBY Q



**THE HIGH-SPEED DISK BACK-UP PROGRAM
FOR THE COMMODORE 64,
THAT BACKS UP YOUR COPY-PROTECTED SOFTWARE**

Copy-Q 3.0

Programmed by Don Sidoroff

Copyright 1985, by Q Research & Development
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The Copy program for use with the Commodore 64 (tm)
and one or two Commodore 1541 (tm) disk drives.

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Q R&D will notify registered owners of Copy-Q products in the event of a product update. Registered owners of previous Copy-Q products will then be allowed to purchase program updates at a reduced purchase price. To be notified of a product update, and qualify yourself for a reduced update charge, you must fill out and return your warranty/registration card.

Introduction

Copy-Q 3.0 is the high-speed diskette backup program for the Commodore 64 (tm) computer that backs up your copy-protected software. Copy-Q 3.0 is designed for ease of use, speed, and reliability. Copy-Q 3.0 will make backup copies of almost any diskette-based program for the Commodore 64 (tm).

Copy-Q 3.0 is designed to load and run on a Commodore 64 (tm) or Commodore sx-64 (tm) computer using one or two Commodore 1541 (tm) disk drives. Copy-Q 3.0 will not run on most "compatible" disk drives such as the MSD Super Disk Drive (tm). However, Copy-Q 3.0 will run on disk drives that have the Q-DOS (tm) operating system by Q R&D such as the CS-1 by PSA.

Copy-Q 3.0 erases, formats, and makes an archival copy of any diskette in just a few minutes. All data and diskette errors are automatically and accurately reproduced. Copy-Q 3.0 copies your protected software exactly. Copy-Q 3.0 does not make modifications to your original program to by-pass protection schemes.

Your Copy-Q 3.0 diskette contains utilities that will allow you to quickly copy unprotected diskettes, or diskettes with data errors. Such diskettes may be copied in under two minutes when using two Commodore 1541 (tm) disk drives, and such diskettes may be copied in less than two minutes and forty seconds when using one Commodore 1541 (tm) disk drive.

Your Copy-Q 3.0 diskette contains a fast load utility that will allow you to load many programs in about half the time usually required.

Your Copy-Q 3.0 diskette contains a complete set of programs on both sides of the diskette. This provides you with an immediate backup should any program fail.

Copy-Q 3.0 is fast, reliable, and easy to use. No other copy program for the Commodore 64 (tm) works better at any price. Q R&D is committed to making Copy-Q 3.0 as effective as possible. Therefore, Copy-Q 3.0 will be updated. Registered owners of Copy-Q 3.0 will receive notice of updates and will be provided updates at a reduced purchase price.

Please let us know what diskette-based software you are unable to backup with Copy-Q 3.0 as well as the features that you would like to see in future versions of Copy-Q. This will help us to improve our product.

How to use this Manual

This manual describes how to use all of the features that Copy-Q 3.0 has to offer. The "Getting Started" section will show you the easiest way to back up most diskette-based programs using Copy-Q 3.0 and a single Commodore 1541 (tm) disk drive. The following sections contain a complete description of the many uses and features of Copy-Q 3.0. These features have been designed to maximize the potential and efficiency of your Commodore 1541 (tm) disk drive(s). Please take a few minutes to read and learn about them.

Whenever you see either of the terms Enter: or Type: in this manual, you should type all the characters following the colon, including all capitals and punctuation. When you see [RETURN], [STOP], [F1], [F3], [F5], [F7], press the key labeled RETURN, the run/stop key, or the appropriate function key.

Escaping

If at any time during the programs you wish to "escape" to the previous menu, or terminate a particular input, press the left arrow key while holding down the [CNTRL] key (these keys are located next to each other in the upper left hand corner of your keyboard).

The last page of this manual contains your Copy-Q 3.0 Registration/Warranty form. Please fill out this form immediately and mail it to:

Q Research & Development
4520 Excelsior Blvd.
Minneapolis, MN 55408

Getting started with Copy-Q 3.0

First, before you do anything, put a write protect tab over the notch on your Copy-Q 3.0 diskette to protect from accidentally writing over important data on the diskette.

Now, turn on your computer and disk drive(s). If the machine is already in use, turn the machines off and on again to clear and reset the machines. Place your Copy-Q 3.0 diskette in your disk drive. To reach the Copy-Q 3.0 Program Selection Menu,

Type: LOAD ***,8,1[RETURN]

Normally, the device number of your disk drive is 8. If you have more than one Commodore 1541 (tm) disk drive connected to your computer, one of the disk drives must be given a device number other than 8. Generally, the second drive is given the device number of 9. Copy-Q 3.0 can be used with computer connected to two Commodore 1541 (tm) drives with device numbers of either 8 or 9. To reach the Copy-Q 3.0 Program Selection Menu if your Copy-Q 3.0 diskette is in a disk drive with a device number of 9,

Type: LOAD ***,9,1[RETURN]

In approximately five seconds, the Copy-Q 3.0 Program Selection Menu will appear.

Copy-Q 3.0 Program Selection Menu

After running the bootstrap program on the Copy-Q 3.0 diskette, you will be presented with the Copy-Q 3.0 Program Selection Menu. From this Menu, you may go directly into Copy-Q 3.0, or you may use some of the other programs that are on your Copy-Q 3.0 diskette. These programs are the Quick Copier, and the Fast Loader. You may also want to exit to basic at this point. If this is your first time running Copy-Q 3.0, you are ready to create a template diskette using the Quick Copier.

Creating a template diskette

When the Copy-Q 3.0 Program Selection Menu has come up,

Press: 2 (for 1 drive backup)

or

Press: 3 (for 2 drive backup)

to run the Quick Copy program. When this has loaded, backup your Copy-Q 3.0 diskette onto a blank diskette (this process is explained in the Quick Copier section of this manual). This will not make an archival (runable) copy of Copy-Q 3.0, but will backup the templates as well as the other utility programs contained on the original diskette. This backup should be used as your template diskette from now on. After this has been done, you will now have to turn off your computer and disk drive and repeat the process of loading and running the Copy-Q 3.0 Program Selection Menu.

After creating a template diskette, and reloading the Copy-Q 3.0 Program Selection Menu, simply press the number of the option that you want to do as it appears on your screen. To enter the Quick Copier, use the same process as you earlier used to create your template diskette. To enter the main Copy-Q 3.0 program,

Press: 1

To exit to basic,

Press: 0

Or, to enter the Fast Loader (see section on Fast Loader),

Press: 4

After selecting your option, your program will be loaded.

Copy-Q 3.0 Main Menu

Copy-Q 3.0 is not a single program. Instead, it is an integrated system of programs that each do its own specific thing. There are three main parts to this system. These parts are the Copy-Q 3.0 program itself, The Analyzer, and the Disk Utilities. After selecting Copy-Q 3.0 from the Copy-Q 3.0 Program Selection Menu, you will be in the Copy-Q 3.0 Main Menu. From this menu, you may enter any part of the Copy-Q 3.0 system. You may also want to at this point want to exit to basic. To exit to basic,

Press: [F7]

after answering positively to a verification question, you will see your computer temporarily freeze, then re-start with the standard

**** COMMODORE 64 BASIC V2 ****

64K RAM SYSTEM 38911 BASIC BYTES FREE

READY.

message. Copy-Q 3.0 at this point is completely gone from your computer's memory, and you can do anything you want with your computer from this point.

If you prefer to not exit to basic, you may

Press: [F1]

to enter the actual Copy-Q program, or

Press: [F3]

to enter The Analyzer, or

Press: [F5]

to enter the Disk Utilities.

After selecting one of these options, you will be instructed to insert put your Copy-Q 3.0 diskette into your disk drive and to press a key. In a matter of seconds, you will be in the program that you selected.

Copy-Q 3.0 Main Program

The main copy program is where Copy-Q 3.0 does the actual backing-up of your diskette. At this point in the program you can either backup your diskette, go to the options menu, or exit to the Copy-Q 3.0 Main Menu. To enter the options menu (see section on options menu),

Press: [F1]

To go back to the Copy-Q 3.0 Main Menu (see section on Main Menu),

Press: [STOP]

Otherwise, to begin backing-up your diskette, simply

Press: [SPACE]

After pressing the spacebar, you will be asked for the start and end tracks for the copy program to use (see technical notes under tracks). The default settings for these are 1.0 and 38.0 respectively, which will normally copy an entire diskette. These defaults may be entered by simply pressing [RETURN]. If you choose not to use the default settings, simply type your number and press [RETURN].

Note: Copy-Q 3.0 will only accept values that are more than .5 and less than 39.0, and will not allow values other than whole, or half tracks (.0 or .5 respectively).

After the starting and ending tracks are set, the screen will clear and the Copy-Q 3.0 status display will appear. On this display, there will be numbers between 1 and 38 which indicate the respective tracks, with two lines of text beneath the numbers. On these two lines the current template will appear (see section on The Analyzer). Below this will appear the starting track of the copy. At the far bottom of the screen you will see the question,

"Origin: R)relative positioning? Y"

asking you if you would like to use relative positioning or not (see technical notes under relative positioning). Usually, you should,

Press: Y

which will tell Copy-Q 3.0 to use relative positioning.

Copy-Q 3.0 now has everything it needs to know from you to backup your diskette. Simply follow the prompts that you see on the screen, and your diskette will be copied in a matter of minutes.

During this time, you will see some of the following messages:

"Positioning"

This means that Copy-Q 3.0 is positioning the head to the beginning of the diskette (see technical notes under relative positioning).

"Reading"

This means that Copy-Q 3.0 is reading data from the SOURCE diskette.

"Writing"

This means that Copy-Q 3.0 is writing data to the BACKUP diskette.

"Analyzing"

This means that Copy-Q 3.0 is analyzing the data that it has just read from the SOURCE diskette.

"Insert BACKUP disk and press [SPACE]"

Copy-Q 3.0 is waiting for you to insert your BACKUP diskette into the drive and to press the spacebar.

"Insert SOURCE disk and press [SPACE]"

Copy-Q 3.0 is waiting for you to insert your SOURCE diskette into the drive and to press the spacebar.

During this time, the Copy-Q 3.0 status display will be updated, and the track number will be updated as the program goes along. An inverse space (cursor) will appear below the grid of numbers indicating on what track Copy-Q 3.0 is currently working.

Error Messages

During this time, you may also receive what is known as an error message. Error messages are exactly what they sound like. They tell you when Copy-Q 3.0 has encountered an error it cannot handle. The error messages are:

"Unable to READ this track"

Copy-Q 3.0 was not able to read the current track.

"Unable to WRITE this track"

Copy-Q 3.0 was not able to write the current track.

You will then be prompted to 'reset' your disk drive and press any key (see technical notes under resetting drive). These errors can be caused by a plethora of different things. If you encounter an error, first check to make sure that you have the proper disk in the proper disk drive. If all appears right, and you still consistently get an error, you should consult the section entitled 'Last Resort'.

Options Menu

In the options menu, you may do a number of things. To change set ups (change the SOURCE and BACKUP device numbers),

Press: [F1]

To configure two Commodore 1541 (tm) disk drives with the same device number to be used,

Press: [F3]

To load a template (see section on The Analyzer),

Press: [F5]

To scan your template diskette for available templates (also see section on The Analyzer),

Press: [F7]

After selection your option, you need only to follow the program prompts to continue.

The Analyzer

Copy-Q 3.0 cannot possibly keep track of the infinite number of ways to protect a diskette. Although the vast majority of diskettes may be backed up without extra instructions, there are still some that require further user intervention. This is the purpose of a template. A template is table of information that Copy-Q 3.0 uses to backup a diskette. When you first run Copy-Q 3.0, there is a standard template that is placed in memory that will copy most diskettes. No further intervention is needed. Special templates are only needed for special case protection schemes.

Your Copy-Q 3.0 diskette comes with templates to copy much of the popular software that is currently on the market. When copying your diskette, try to copy it with the standard template which is automatically placed in memory when you first start Copy-Q 3.0. If you are unsuccessful, you need to use a template. From the Copy-Q 3.0 Options Menu,

Press: [F7]

to scan the templates that are on your template diskette. If you see the particular piece of software you are trying to backup, you can load that template. To do this,

Press: [F5]

from the Copy-Q 3.0 Options Menu and enter the template number that your piece of software was. After loading the template for your software, you can then go into the Main Copy-Q 3.0 program and backup your software.

If the particular piece of software you are trying to backup is not in the template list you have one course of action. You need to create a template. Creating a template is something that the average, casual user should not attempt. Templates are of a very technical nature, and would be beyond the scope of this manual to explain them in full.

It is very important to note that creating templates is a very complex thing and that your best solution is to use a pre-defined template, or scan your SOURCE diskette and let The Analyzer create a template for you.

Creating a template

\$60 - normal density for tracks 1 - 17.5,
\$40 - normal density for tracks 18 - 24.5,
\$20 - normal density for tracks 25 - 30.5,
\$00 - normal density for tracks 31 - 38.5

the 'P' means that track #22.5 uses parameter 'P'
the '0' means that track #35 is special track type '0'
the '9' means that track #37.5 is special track type '9'

To edit the template, you can use the arrow keys to move the cursor around the template, and you can press the keys that are on the edit screen (they are the same keys that shows up on the example template display).

What is a parameter?

A parameter is a very specialized table of information that is used by Copy-Q 3.0 during copying. There are two types of parameters. The first type are the user-defined parameters. These are the parameters that you can use and define. The second type of parameters are the "special parameters" which are built into Copy-Q 3.0 to do very specific (bizarre) things, and are very seldom used. These special parameters are not user definable, and cannot be altered (the only template that currently uses a special parameter is the Kwik-load! template).

How to edit a parameter

After you have created a template, and you have used parameters, you can

Press:[F7]

to set (edit) parameters. The Analyzer will wait for you to type a letter A-P to define the parameter that correlates to the key you type (for example, press 'A' to set (edit) parameter 'A'). After you have typed the parameter you want to set (edit), The Analyzer will display the characteristics for that parameter. The characteristics are as follows:

Sync count:

The number of data blocks on a track. Data Blocks (headers are considered data by Copy-Q 3.0) are preceded by a sync, and Copy-Q 3.0 will only copy the number of syncs you specify.

Density:

This is the density of the tracks data. The Commodore 1541 (tm) can read and write in four different densities, and this must be specified by the user. The different densities are:

Erase char:

The character Copy-Q 3.0 will first erase the track with before writing the track out. Some of the common values are:

\$55 - normal erase character,
\$FF - erase character for a sync track.

Trim mode:

It is a rare occurrence that what you read is what you want to write to the BACKUP diskette. Many tracks contain garbage, extra character before the syncs that you don't want to copy. The trim modes that are available are:

\$00 - do not trim,
\$01 - trim longest block to size of 'Long',
\$02 - trim all long blocks to the size specified by 'Long',
\$04 - trim all short blocks to the size specified by 'Short',
\$08 - Trim all blocks 'just a little bit' this is useful in copying on drives that are slightly fast,
\$10 - copy the one block after a sync with the data bytes specified by 'Short'

Short:

Length of short blocks (usually the length of the headers)

Long:

Length of long blocks (usually the length of the data block)

Copy-Q 3.0 Utilities

The Copy-Q 3.0 Utilities program is a program designed to let you do some things that you cannot do anywhere else Copy-Q 3.0. In the Utilities program you can catalog a disk, certify a disk, check your drive speed, or fast format a disk. To exit the Utilities program,

Press: [STOP]

which will return you to the Copy-Q 3.0 Main Menu. To Catalog a disk,

Press: [F1]

To Certify a disk,

Press: [F3]

To Fast Format a disk,

Press: [F5]

To Check your drive speed,

Press: [F7]

Catalog a disk

When the Catalog a disk option is selected, the Utility program will go to the current disk and show you the directory of that disk. When the screen is full, you will be prompted to press the spacebar to continue the listing.

Certify a disk

When the Certify a disk option is selected, the Utility program will perform a disk certify on the current disk. Note: Certifying a diskette completely destroys the data on the test diskette, and the diskette's data will not be recoverable. To certify a disk, simply follow the prompts from the Utility program.

Fast Format a disk

When the Fast Format option is selected, the Utility program will do a fast format on your TARGET diskette. The Utility program will prompt you for a disk name and id, then give you one last chance to stop the format. Note: Formatting a disk completely destroys the data on the TARGET diskette, and the diskette's data will not be recoverable. The format will last about 20 seconds.

Check Drive Speed

When the Check Drive Speed option is selected, the Utility program will perform a drive speed test. On your screen you will see the following:

..299.....300.....301...

After inserting a blank diskette and pressing the spacebar, you will see an arrow appear somewhere around this display. This arrow indicates the drive speed at which your drive is running (in rpm). See the technical notes for more information on drive speed.

Quick Copier

The Quick Copy program is a program that will back up your unprotected (or disks with simple data errors) very quickly. It will backup an average diskette with one Commodore 1541 (tm) disk drive in two minutes and forty seconds. With two Commodore 1541 (tm) disk drives, it will copy the same diskette in under two minutes. To run the Quick Copier, simply select options 2 or 3 from the Copy-Q 3.0 Program Selection Menu (2 for one drive, and 3 for two drives). After a brief wait, you will be confronted with the main Quick Copier screen.

To change the device number for the copy simply

Press: [F1]

and the device number will toggle from 8 through 11. If you selected a two disk back up, you may also

Press: [F3]

to toggle the TARGET device number.

To begin the copy, simply

Press: [SPACE]

then follow the prompts. To end the Quick Copy programs, you must turn off the machine and your drive(s), then turn them back on to re-load the Copy-Q 3.0 Program Selection Menu.

Fast Load

The Fast Load Utility is a program that will allow you to fast load programs in a fraction of the time normally required to load a file. To use the Fast Load utility, selection option 4 from the Copy-Q 3.0 Program Selection Menu and the Fast Load utility will load itself into memory, and exit you into basic. From basic, you are now able to use the Fast Load utility anytime you want to. To use the utility from basic,

Type: FLOAD "filename",device number[RETURN]

where "filename" is any legal Commodore 1541 (tm) filename, and device number is the logical device number of your disk drive (normally 8).

Relative Positioning

When you first begin to copy a diskette, there must be a way for Copy-Q 3.0 to know where the disk drive head is currently looking. Normally, the best way to do this is to calibrate the drive. This is the 'crunchy-frog' clacking sound that you hear when you turn on your Commodore 1541 (tm). Calibrating the drive, no matter how bad it sounds does not hurt your drive or diskette. Another way of doing this is to go to the diskette and find a track that must be there (track 18) and move the head from there a set amount (sort of like finding your way in the dark by finding a reference point, then taking 8 steps to the right). Sometimes it is necessary to use an alternate mode of positioning the drive. If a particular piece of software does not copy with one type of positioning, try the other mode, and it should work.

Technical Notes

The following is a brief explanation of some of the more technical terms and problems that confront Copy-Q 3.0 users.

What is a Track?

A track is the unit of storage on which a disk drive stores its data. On a normal Commodore 1541 (tm) formatted diskette, there are 38 possible tracks that are numbered 1-38. It is possible to store data between these tracks, and this is what is called a half-track. These are numbered 1.5-38.5

Drive Alignment

The alignment of a Commodore 1541 (tm) disk drive cause some interesting problems for copy programs. Drives that are poorly aligned will still often load software, but copiers may fail to successfully copy on these drives. This is because the Commodore 1541 (tm) DOS automatically re-reads sectors it had trouble reading, it does this by checking certain things for accuracy. For normal data, this is fine, but many protection schemes rely on these things to be wrong, thus making it hard if not impossible for you to read. Now, since copy programs have to copy these errors, they sometimes copy the wrong information. If this happens consistently, it may be that your drive is out of alignment, or it may be the diskette you are trying to copy was written on a drive that was out of alignment. If it seems that Copy-Q 3.0 fails on some software that you can load and run, this is more than likely the problem.

Drive Speed

The drive speed of your Commodore 1541 (tm) also poses some interesting problems to copy programs. Once again, disk drives that are not running at perfect speed may load programs, but when it comes to writing programs they fail. An easy way to test your Commodore 1541's (tm) drive speed is to use the Check Drive Speed utility that is on your Copy-Q 3.0 diskette. The best drive speed to have is somewhere slightly below 300 rpm.

Resetting your disk drive

If at some point you encounter an error the Copy-Q 3.0 cannot handle, you will be given an error message, and you will be instructed to 'reset' your disk drive and press any key. Resetting your disk drive means to turn it off, wait a second or two, and turning it back on

Last Resort

This section is for users who have had difficulty in backing-up a particular piece of software. The first thing to check of course is that you have the proper diskette (you must use an original diskette, or the copy may fail) in the proper disk drive. If this is not the cause of your problem, it can be a plethora of different things. The following is a list of things for you to check:

1. disk drive alignment
2. disk drive speed
3. bad SOURCE diskette
4. bad TARGET diskette

If these problems do not exist, then it is a software problem. The templates on the Copy-Q 3.0 diskette have been tested at Q R&D on a number of different disk drives, and they do work. If you are using a template that is supplied on your Copy-q 3.0 diskette, and it does not backup the noted piece of software, it is probably because of a different protection scheme. Templates are scheme dependant, and some software has been published with 2 or 3

Copy-Q 3.0 Warranty/Registration Card

variations of protection schemes. Q R&D is constantly updating the Copy-Q templates, and will make the updated lists available to you. It is also possible that the piece of software that was published after the publishing of Copy-Q 3.0, and Copy-Q 3.0 might not have provisions to handle it. Again, Q R&D is constantly developing new techniques (as are the people protecting software) to backup the newer schemes.

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COPY COPY



THE HIGH-SPEED DISK BACK-UP PROGRAM
FOR THE COMMODORE 64,
THAT BACKS UP YOUR COPY-PROTECTED SOFTWARE