CopyQM

Quick Multiple Format/Copy/Verify for Diskettes

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Table of Contents

CopyQM
A Quick Diskette Duplicator for Multiple Drives

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What is CopyQM?

If you're eager to get going with CopyQM, skip to the section titled "Getting Started".

Basically, **CopyQM** duplicates diskettes in a single pass.

Introduced in 1987, **CopyQM** has been continually improved and updated. It now boasts the largest number of features of any PC-based diskette duplicating package.

CopyQM reads a master diskette and formats, writes and verifies duplicates of the master diskette. Copying can be performed on up to six drives in a single session; copies are written on only one drive at a time. "No Hands" operation is featured--after you've started things, you needn't touch the keyboard again; just insert diskettes in drives as needed.

In addition to the basic operating mode, the basic **CopyQM** package features the following:

1. **Conversion between different formats.** Unlike competing products which just copy the same format to different drives, **CopyQM** actually rebuilds the diskette format to match the drive. It's possible to convert from a 360K format to a 1.44M format. And the result is a "real" 1.44MB diskette with 1.44MB worth of diskette space.

2. **Support of diskette image files.** An image file created by **CopyQM** is a complete description of the information on a diskette. A comment may be included in the file with **CopyQM**'s built-in editor. The image file is checksummed with a 32-bit CRC.

3. **Copying of Macintosh HD and DOS diskettes with no special processing.** **CopyQM** will copy most PC-readable diskettes regardless of format with the "Blind" option. However, **CopyQM** will *not* copy low-density Apple Macintosh 800K diskettes.

4.   **Formatting of diskettes only when needed with "SMART" mode option.**

5.   **Faster copying by copying only active data.** The empty area on a partially-filled diskette is not copied.

6.   **Verifying of copies can be performed in several modes,** ranging from none to a byte-by-byte comparison of copied data with the master diskette.

7.   **Selection of menu or command-line interface** with complete on-line help.

8.   **Choice of direct hardware controller access** or use of BIOS routines.

CopyQM is also offered in a commercial "Plus" package with the following features:

1.   **Support of ASCII or binary serial numbering of copies.**

2.   **Insertion of copy-protection information into copies.**

3.   **Maintenance of a diskette usage log.**

4.   **Diskette drive maintenance utility.**

5.   **Creation of self-extracting diskette image files.**

6.   **Execution of DOS commands or custom code overlays** after each copy for support of labeling or auto-feeder devices.

CopyQM will not:

*   Write copies on more than one drive simultaneously. However, Sydex does offer SyDupe, which will write on up to three diskette drives at the same time. For more information on SyDupe, please contact Sydex.

*   Copy proprietary (e.g., Amiga, Apple][, Atari 820) or copy-protected formats.

*   Copy individual files. The smallest unit of information that **CopyQM** can deal with is an entire diskette.

*   Copy one hard disk to another. **CopyQM** is a diskette-copying utility.

*   Copy individual files from a hard disk to a diskette.

CopyQM is fast--in most cases it will copy at the best-case theoretical speed. The primary limitation in any diskette operation is the time that it takes the diskette to complete one revolution. Our timings indicate that CopyQM can format, copy and verify a full 360K diskette in about 50 seconds. Larger capacity diskettes will, of course, require more time.

Requirements

At a minimum, the following four files are necessary for operation of CopyQM:

> **CINSTALL.EXE** installs **CopyQM**.

> **COPYQM.EXE** implements the primary functions needed for diskette copying.

> **CQMENU.EXE** contains a menu interface and all on-line help.

> **VIEWCONF.EXE** is a utility to display the diskette configuration information being used by **CopyQM**.

Other text and program files may be present which describe the operation of **CopyQM** or support additional features, but the four files mentioned above are essential for successful operation.

In almost all cases, **CopyQM** will be able to determine the configuration of a system without any sort of intervention. Unusual or special disk drive configurations, however, may require that the configuration be explicitly specified. For more information on how to construct a configuration file for all Sydex utilities, consult the section titled "Specifying a Diskette Configuration" near the end of this document.

CopyQM requires the following operating environment for execution:

1. **An IBM PC-compatible** with an 8088, 80286, 80386 or 80486 processor. Other system operating environments, such as PC emulation on non-PC systems (e.g., Commodore Amiga or Apple Macintosh) may work, but operation under them is not supported by Sydex.

2. **PC-DOS or MS-DOS Version 3.3 or later.** CopyQM has been successfully tested in a DOS session under IBM OS/2 Versions 1.3 and 2.1, but OS/2 operation is not supported by Sydex. Other DOS-compatible systems such as Novell's DR-DOS or The Software Link's PC-MOS may result in successful operation, but these have not been fully tested by Sydex.

3. **At least 256K** of available base memory, sometimes referred to as "RAM".

4. **A hard disk** with at least 2MB of free space for temporary files created by **CopyQM**.

5. **At least one diskette drive** local to the system running **CopyQM**. Network diskette drives are not supported.

CopyQM does *not* require, but can make use of the following:

1. **Extended memory** that is managed by an XMS-compatible memory manager such as Microsoft's **HIMEM.SYS** or Quarterdeck's **QEMM**.

2. **Expanded memory**, or **LIM** (Lotus-Intel-Microsoft), that is managed by a driver that is compliant with EMS 4.0 or later.

3. **Additional diskette adapters.** Sydex has tested the Micro Solutions Compaticard I, II and IV adapters. Certain non-standard diskette adapters, such as the IBM PS/2 5.25" Diskette Adapter/A or the Micro Solutions Backpack ^{tm} drive may require that the BIOS interface option of **CopyQM** be selected.

CopyQM will operate under Microsoft's Windows^{tm} or Quarterdeck's Desqview^{tm}. However, because diskette copying is a time-critical application, performance under any multi-tasking environment will be degraded somewhat. The actual amount of the degradation depends on several factors, including the scheduling algorithms used by the multitasking software. Use of the BIOS interface option is recommended for multi-tasking applications.

Executing more than one copy of **CopyQM** under control of a multitasking executive, such as Microsoft Windows is not recommended. Severe performance degradation will result. If two sets of diskette copies are required, running two **CopyQM** sessions consecutively will result in significantly better performance than attempting to execute the sessions concurrently. For efficient concurrent operation on several diskette drives, contact Sydex about the SyDupe duplicating package.

CopyQM will support a total configuration of up to twelve diskette drives. A **CopyQM** session can make use of up to seven diskette drives--one for reading and six for writing.

Getting Started

To install **CopyQM**, execute the CINSTALL program. CINSTALL will copy all necessary files and perform several system checks related to **CopyQM** execution. For example, if **CopyQM** is to be installed from drive A:, enter the following command at the DOS prompt:

```
A:CINSTALL
```

If you're using a portable computer with an LCD display, you may want to select a monochrome color set to improve display readability:

```
A:CINSTALL /MONO
```

In most cases, this is all that will be required to get **CopyQM** up and running.

First-time users should execute **CopyQM** through the menu interface furnished by CQMenu. Entering the following command at a DOS command prompt will initiate execution of CQMenu:

```
CQMENU
```

CQMenu displays a menu and translates the menu choices into a command line for **CopyQM**. After all selections have been made, COPYQM.EXE is located and read into memory overlaying CQMenu.

CQMenu also contains a full on-line help facility for **CopyQM**. Help related to the current selected menu item can be obtained by pressing F1. In addition, a general help facility which describes command-line syntax and configuration file setup can be displayed by pressing F1 a second time.

All of the features of **CopyQM** are not available through CQMenu's interface. Some of the more obscure facilities are accessible only through the DOS command line interface to **CopyQM**.

On-line help is available for the command-line syntax of **CopyQM** by entering the following command:

```
COPYQM /HELP
```

```
                          CopyQM 3.10
                     ┌──────── A: ═════════════════════┐
        ┌──────────┬─────────────────────────────────┐
        │ Drive A: │ ▓▐┬┬┬┤┼┼┼┼┤┬┬┬┬┤┼┼┼┼┤            │
        │ 1.44M 3.5"│ Reading                         │
        │   DSHD   │                                  │
        └──────────┴─────────────────────────────────┘


        ┌──────────── Diskette Analysis ──────────────┐
        │     Diskette format:          1440K DSHD    │
        │     Diskette type:            Macintosh HD   │
        │     Sector size:              512           │
        │     Sectors/track:            18            │
        │     Sides:                    2             │
        │     Density:                  High          │
        │     Data cylinders:           70            │
        │     Base memory used (KB):    405           │
        │     Extended+Expanded (KB):   864           │
        │                                             │
        │                                             │
        │     Volume Label:             Sydex Test     │
        └─────────────────────────────────────────────┘

                 ‖ Press ESCape to quit ‖
```
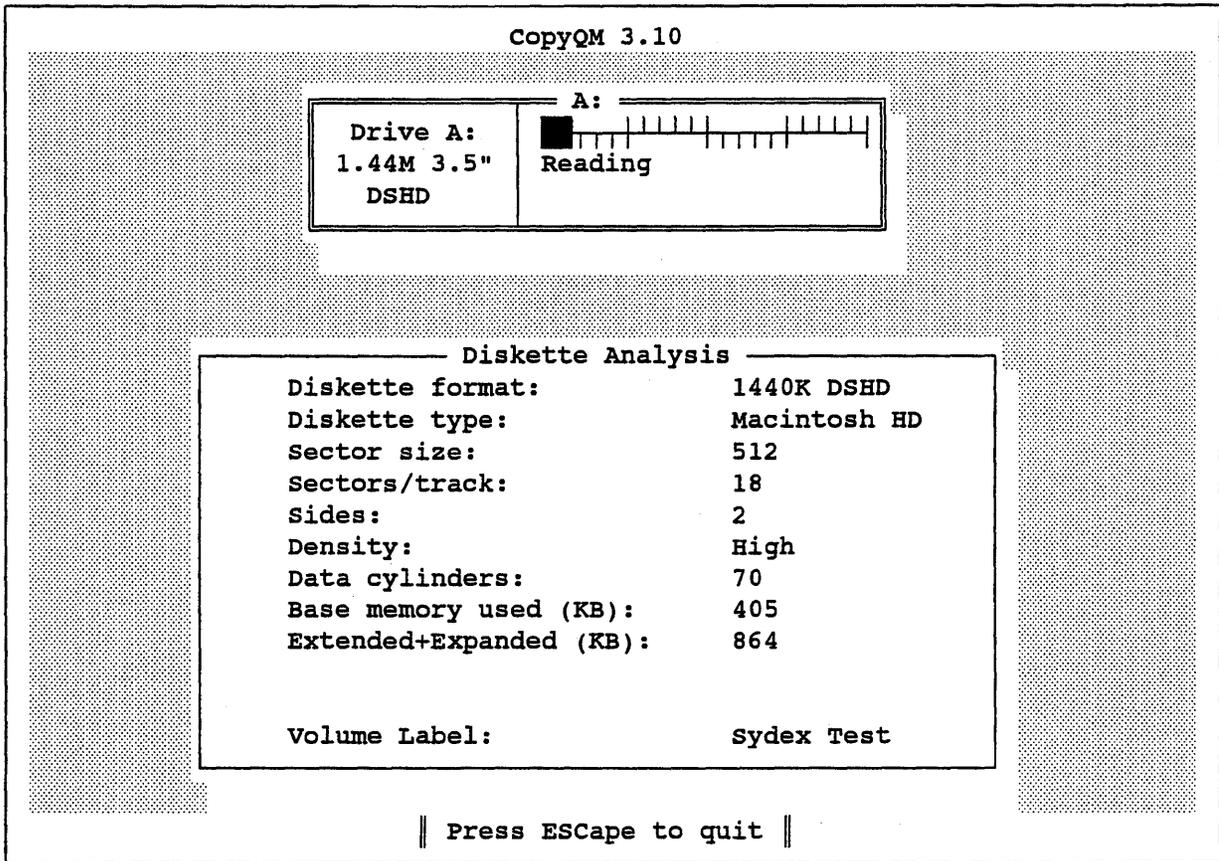
Figure 1: CopyQM Read Display

CopyQM Operation

Once menu selections have been made from CQMenu or the command line for **CopyQM** has been entered, **CopyQM** begins execution. Operation of **CopyQM** is divided into two phases, reading the master diskette or image file, and writing the copies or diskette image file. A sample display is shown in Figure 1.

Because **CopyQM** continuously accesses diskette drives to obtain their operating status, diskette changes are permitted when drive lights are illuminated. In addition, since **CopyQM** is sensitive to drive changes, it may be necessary to remove a diskette and then re-insert it into the same drive to indicate to **CopyQM** that a change has occurred.
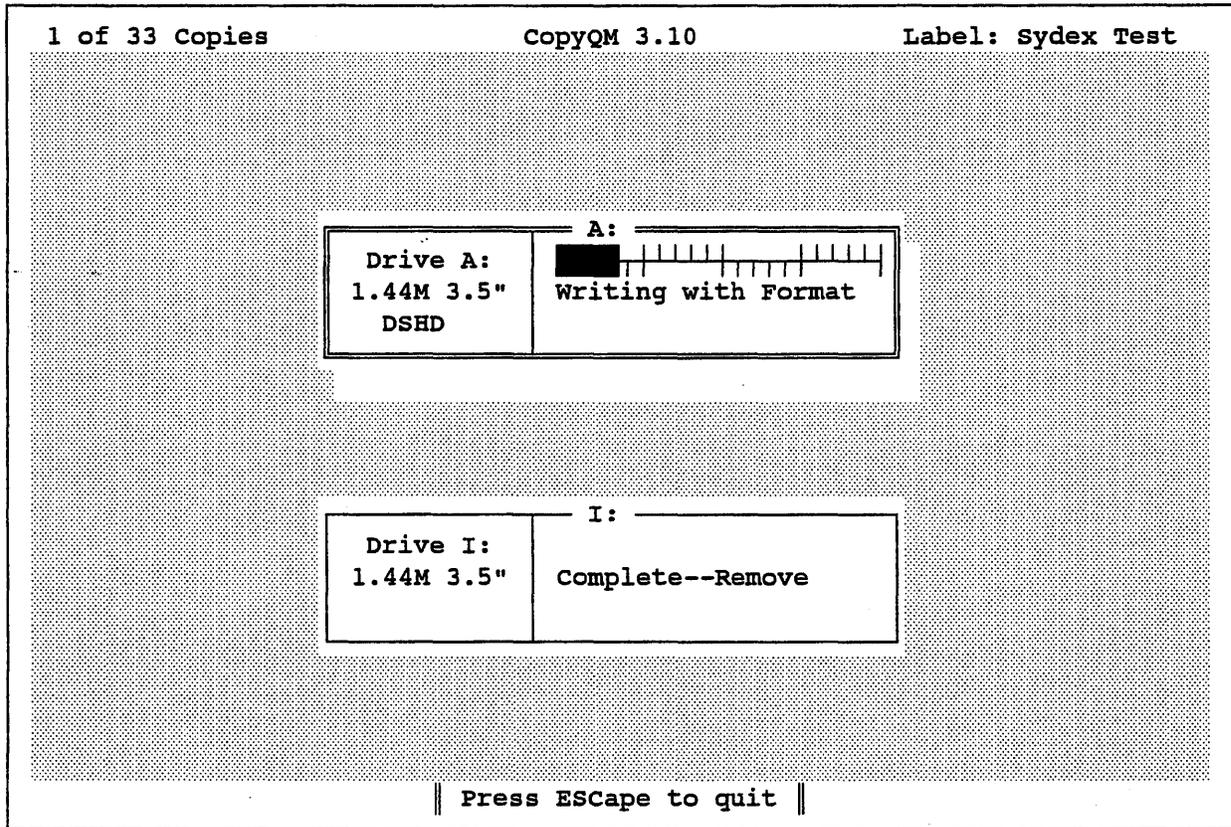
```
                        ══ A: ══
   ┌──────────┬─────────────────────────┐
   │ Drive A: │ ██▌┬┼┼┼┼┤┬┬┬┬┼┤┼┼┼┼┤      │
   │ 1.44M 3.5"│ Writing with Format     │
   │   DSHD   │                         │
   └──────────┴─────────────────────────┘


                        ══ I: ══
   ┌──────────┬─────────────────────────┐
   │ Drive I: │                         │
   │ 1.44M 3.5"│ Complete--Remove        │
   │          │                         │
   └──────────┴─────────────────────────┘


              ‖ Press ESCape to quit ‖
```

Figure 2: CopyQM Write Display

When a diskette or image file is being read, a box corresponding to the drive currently being accessed is shown containing a message indicating the status of the current operation. If the ESCape key is pressed before **CopyQM** is able to read the master diskette, execution terminates and **CopyQM** exits to DOS.

A summary of information relating to the diskette is also shown. Sector size indicates the size in bytes of each sector. **Sectors/track** specifies the number of sectors that occur on each track. **Sides** reports either 1 for single-sided formats, or 2 for double-sided. **Density** can show values of low for double-density (360K and 720K), high for high density (1.2M and 1.44M), or extended for 2.88M media. **Data cylinders** indicates the number of cylinders containing active data. The amount of memory used to hold the data from the diskette is also shown.

The DOS volume label name, or the first 11 characters of an Apple Macintosh volume label is shown. If no volume label can be found, ** **NONE** ** is displayed.

If creation of a diskette image file has been requested, the file is written after the diskette has been completed. If the conversion option has been specified, a temporary diskette image file will be written and the requested conversion will be performed as the image file is read back into memory.

If copying to diskettes has been requested, the following prompt will be displayed:

Enter copy count (ESCape to exit) -

Between 1 and 9,999 copies may be requested; after the desired number is entered, the Enter key is pressed. If the ESCape key is pressed instead, **CopyQM** will exit to DOS.

After the master diskette or image file has been read and processed, **CopyQM** begins the writing phase. A sample writing phase display is shown in Figure 2.

Up to six drives can be shown on the writing status display. Note that only those drives which support the diskette format currently being copied are shown. For example, if a high-density 5.25" (1.2M) master diskette were being copied, only drives capable of high-density support would be displayed.

The "thermometer" bar displayed when writing diskettes shows the progress of the copy operation. A solid, red bar indicates that active data is being transferred; a hatched, green bar indicates that an inactive area is being formatted.

When all requested copies have been completed, the following message appears:

All copies done. Press any key to continue...

If the ESCape key is pressed before all copies have been written, the following message appears:

ESCape pressed. Press any key to continue...

If the ESCape key is pressed again, **CopyQM** exits to DOS. Any other key causes **CopyQM** to request the next master diskette for reading.

Command Line Syntax

In order to get an idea of how to use **CopyQM**, consider the following hypothetical PC setup:

Drive A: is a 1.44M 3.5" diskette drive
Drive B: is a 1.2M 5.25" diskette drive
Drive C: is a hard disk
Drive D: is a 1.44M 3.5" diskette drive
Drive E: is a 1.2M 5.25" diskette drive

The following commands illustrate how to construct commands to perform most common copying tasks:

1. *Copy a 3.5" diskette using one drive:*

    COPYQM A:

2. *Copy a 5.25" diskette using one drive:*

    COPYQM B:

3. *Copy a 5.25" diskette using two drives for writing:*

    COPYQM B: E:

4. *Copy a 5.25" 360K diskette to 3.5" 720K diskette:*

    COPYQM A: SOURCE=B: CONVERT=720K

5. *Copy a 3.5" diskette using pre-formatted diskettes:*

    COPYQM A: SMART

6. *Make an image file (MYIMAGE) of a 3.5" diskette:*

    COPYQM A: RECORD=C:MYIMAGE

7. *Make a 3.5" diskette from an image file (MYIMAGE):*

    COPYQM A: PLAYBACK=C:MYIMAGE

8. *Make one copy each of a set of 3.5" diskettes:*

COPYQM A: COUNT=1 REPEAT

In general, the format of a **CopyQM** command is:

COPYQM *<drives>* *<options>*

Where <drives> are drive letters (each followed by a colon) and <options> are either single words or a word followed by an equals sign (=) and a value.

Many options are available with **CopyQM**. What follows is a description of all options, grouped by function. For more examples of command lines, consult the section titled **Command Line Examples**.

Some options require a value; others do not. A value may be assigned to an option by following the option with an equals sign (=) and the value. For example, the COUNT option, which controls the number of copies to be made, requires a value. COUNT=10 specifies that 10 copies will be made.

Most options also have an abbreviation which can be used instead of the full spelling. Thus, **WRITEPROTECT**, which causes **CopyQM** to make sure that the master diskette is write-protected, can be abbreviated as **WR**.

Basic Operating Options

These options change, in a basic way, the manner in which **CopyQM** operates.

BIOS specifies that the system BIOS should be used for diskette access. Normally, the controller hardware is directly accessed by **CopyQM**, but operation under some multi-tasking environments, such as Microsoft Windows may require that this option be specified. The word **BIOS** can be abbreviated as **BI**.

BLIND specifies that **CopyQM** should not consider the content of the diskette to be copied, but only its format. This option is useful when the diskette to be copied was not created on a DOS or Apple Macintosh system, or has a non-standard boot sector. Caution: If a DOS diskette produces the Not a DOS Diskette error message, this may indicate that the diskette contains a boot sector virus. Before switching to **BLIND** copying, use any of the commercially available virus scanning packages to determine that the diskette does not contain a virus.

BLIND may be abbreviated as **BL**. To control the way in which BLIND mode processes a diskette, see the section titled **BLIND Mode**.

CHECK disables the writing of copies and enables a byte-by-byte comparison of copies with a master diskette. Use **CHECK** to verify that a diskette is a true unmodified copy of the original master. **CHECK** may be abbreviated as **CH**.

HELP or **/HELP** gets an on-line help display. **H** and **/H** will also activate the **CopyQM** help display.

Specifying A Different Drive for Reading

CopyQM normally uses the first drive specified to read the master diskette. However, there are some situations where the drive used for reading should not be used for writing the copies.

SOURCE specifies the drive to be used to read the master diskette. For example **SOURCE=A:** indicates that drive A: should be used to read the master diskette. Unless the same drive occurs in the drive list portion of the **CopyQM** command line, it will not be used for writing. **SOURCE** may be abbreviated to **SO**.

Display and Sounds

These options control the appearance of the display or the use of the PC's speaker:

MONO forces **CopyQM** to use a monochrome color set for all displays. Normally, **CopyQM** will detect the presence of monochrome-only displays and change its operation accordingly. However, some lap-top systems with LCD or plasma displays may give a more readable display if this option is used. **MONO** may be abbreviated as **MO**.

NAG activates a "wake-up!" audio signal. If approximately 20 seconds of inactivity occur, a short tone will be sounded every 20 seconds until some action has been taken.

SILENT specifies that no audible signaling should be used at all. This is useful in environments where noise must be kept to a minimum, such as in a crowded office. **SILENT** may be abbreviated as **SIL**.

NOPAUSE disables a "Press any key to continue" message after the master diskette has been read and between each set of copies. The pause is normally inserted to give the user an opportunity to read any important status messages before the screen is erased. **NOPAUSE** may be abbreviated to **NOP**.

Converting Between Formats

The **CONVERT** option may be used to change the format of a master diskette and may be used with normal, record and playback copy operations.

CONVERT specifies that the data on the master diskette is to be converted to a different format. A target format must be specified with this option and can be **360K**, **720K**, **1.2M**, **1.44M** or **2.88M**. The diskette drive used for writing must be capable of supporting the target format. For example, specifying **CONVERT=360K** when using a 3.5" DSDD master diskette will cause the data from this diskette to be re-formatted for writing to a 5.25" DSDD (360K) diskette.

The exact nature of the re-formatting operation depends on whether or not the **BLIND** option has been specified. If a normal DOS-mode copy is being done, the boot sector and file allocation tables from the master diskette are modified to conform to the new format and the result will be a readable DOS diskette. It is important that the amount of data on the master diskette fit the new format. In other words, don't try to pour a quart of data into a pint-sized diskette.

If, on the other hand, the **BLIND** copy option has been specified, no alteration of the data read from the master diskette is performed. Data is simply "re-packed" into the appropriate-sized tracks on the target diskette. In this context, Apple Macintosh HD diskettes are considered to be "blind" copies. Note that it is not possible to produce a low-density Apple Macintosh diskette from a high-density one. The electronic encoding of the information on a low-density (800K) Macintosh diskette utilizes a different technology that is incompatible with the PC diskette controller. **CONVERT** may be abbreviated as **CON**.

Each target format has the following characteristics:

360K 40 tracks, 5.25" DSDD, 9 512-byte sectors
720K 80 tracks, 3.5" DSDD, 9 512-byte sectors
1.2M 80 tracks, 5.25" DSHD, 15 512-byte sectors
1.44M 80 tracks, 3.5" DSHD, 18 512-byte sectors
2.88M 80 tracks, 3.5" DSED, 36 512-byte sectors

Memory Usage

Several options control how memory is used by **CopyQM**. Normally, **CopyQM** stores data from the master diskette first in main memory, then, after main memory has been used up, XMS (extended memory) is used if it is present. If no XMS is present, or if it cannot contain the remainder of the diskette data, EMS (expanded memory) is used. Finally, a hard disk file is created to hold any excess. In the absence of any explicit information, **CopyQM** will scan each hard disk partition for sufficient free space to hold any overflow data. It is possible, however, to specify the location of the hard disk partition and directory that is used. By setting either the **TEMP** or **CQTEMP** environment variables to the drive and path name of a hard disk subdirectory, **CopyQM** will be forced to use that partition and subdirectory exclusively for its temporary data storage. For example, to specify that **CopyQM** should create its temporary files in the directory called **MYDIR** on the C: drive, the following DOS statement could be placed in the **AUTOEXEC.BAT** file:

```
SET CQTEMP=C:\MYDIR
```

The setting of the **CQTEMP** environment variable takes precedence over the setting of **TEMP**.

> The **NOEMS** option specifies that EMS (expanded memory) must not be used by **CopyQM**. This option can be used when EMS is to be reserved for use by other programs.

> **NOXMS** specifies that XMS (extended memory) must not be used by **CopyQM**.

If both **NOEMS** and **NOXMS** are specified, all data that will not fit into main memory is written to hard disk. If hard disk storage is not available, an **Out of Memory** error is displayed.

Formatting and Verifying

Several options are available to control the manner in which **CopyQM** formats and verifies diskettes.

> **SMART** indicates that **CopyQM** should assume that the current diskette is formatted and bypass the formatting operation. Should an error occur while writing or formatting, **CopyQM** will format the remainder of the diskette before writing to it. If no errors in the existing format have been detected at the point where the last cylinder of active data has been written, **CopyQM** will end processing of the diskette without checking the remainder of the diskette to see if it is formatted. However, if **CopyQM** has begun formatting after detecting an error in the exist-

ing format, the area between the last cylinder of active data and the end of the diskette will be formatted unless the **QUICK** option (see following) has also been specified. **SMART** may be abbreviated as **SM**.

QUICK specifies that CopyQM should write copies only as far as the last cylinder containing active data. If **QUICK** is specified, no formatting is performed between the last cylinder of data and the end of the diskette, even if the diskette is not formatted. This will normally not affect reading from the diskette, but will inhibit writing any large amount of data to the diskette if it has not been preformatted. **QUICK** may be abbreviated to **QU**.

COMPARE changes the way in which data just written is verified. Normally, CopyQM simply reads the written data back without inspecting its actual content. If a computer system's hardware is operating correctly, the probability of an undetected error is vanishingly small and should suffice for all but the most demanding applications. If **COMPARE** is specified, data is read back from the copy and compared with the data from the master diskette. The performance of CopyQM will be degraded somewhat if this option is specified because of added CPU overhead. **COMPARE** may be abbreviated as **COM**.

VERIFY specifies the extent and type of verification of written data that should be performed. Normally, **CopyQM** verifies data that lies between the start of the diskette and the last cylinder of data, but not between the last cylinder of data and the end of the diskette.

Specifying **VERIFY=ALL** will cause the entire diskette to be verified by **CopyQM**.

Specifying **VERIFY=NONE** will bypass the verification process for the entire diskette.

VERIFY=DATA is the default which specifies that only active data will be verified.

VERIFY may be abbreviated as **VE**; **ALL**, **NONE** and **DATA** may be abbreviated as **A**, **N**, and **D**, respectively.

Diskette Image Files

One of the unique features of **CopyQM** is its ability to create a DOS file which represents the exact image of a diskette. To make a DOS file from a diskette, one records the diskette. Re-creating the diskette from an image file is called playback. Any diskette that can be read by **CopyQM** can be recorded.

In addition, the ability to add a comment to the image file is offered. An image file's integrity is assured by a cyclical redundancy checksum (CRC) of the contents of the entire diskette image.

Diskette image files may be treated just as if they were master diskettes.

They may be converted to other formats (see the **CONVERT** option), and may be serial-numbered (**CopyQM Plus** only).

> The **RECORD** option specifies that a diskette image file is to be created. A file name must be given with this option; for example, **RECORD=MYFILE** would cause a diskette image to be written to the file called MYFILE. A special case occurs when the file name contains one or more question marks (?). **CopyQM** starts by substituting the number zero (0) for each question mark. Before each diskette image file is recorded, the rightmost question mark position is increased by one and the resulting file name used to record the next diskette image. In other words, a file name of A?B?C?D? would result in image files named A0B0C0D1, A0B0C0D2...A9B9C9D9. Thus many diskette image files can be created in a single session. If the file name given for **RECORD** is /ASK, a prompt for a file name will be displayed after each master has been read. **RECORD** may be abbreviated to **REC**.

> **PLAYBACK** does exactly the opposite of what **RECORD** does--**CopyQM** creates diskettes from the diskette image file. At least one file name is required, but more than one may be specified if the file names are separated by commas (,). Thus, **PLAYBACK=AFILE,BFILE,CFILE** would result in diskettes being created from the files AFILE, BFILE and CFILE. File name "wild card" characters of "*" and "?" are permitted to specify more than one file. **CopyQM** builds a list of all matching file names and sorts the list by file name and extent. Thus, a specification of **PLAYBACK=B,A,D,C** would result in reading the specified files in the order A, B, C and D. If the file name given for **PLAYBACK** is /ASK, a prompt will appear onscreen for a file name whenever a master diskette is required. **PLAYBACK** may be abbreviated to **PL**.

NOCOMMENT suppresses both the prompt for and the display of the comment record associated with an image file. In other words, if **NOCOMMENT** is used, a comment will not be requested when an image file is created, nor will one be displayed when an image file is "played back"; even if the image file has a comment associated with it. **NOCOMMENT** can be abbreviated to **NOC**.

Comment entry is not enabled with unregistered copies of **CopyQM**. However, a comment may be added to an image file with the ICOMMENT utility which accompanies registered copies of **CopyQM**.

NOSQUEEZE disables the run-length encoding used on image files. If a very slow (PC XT-class) system is being used, this option may significantly improve the speed at which a diskette image file is created. However, any disk space benefits gained by compression will be lost. **NOSQUEEZE** can be abbreviated to **NOS**.

Blind Mode

If the **BLIND** copying option is specified, (see "Basic Operating Options" above), **CopyQM** will attempt to determine the format of the master diskette automatically. However, if the format of the master diskette is sufficiently different from "normal" diskettes, it may not be possible to correctly determine the format. There are several parameters which can be used to explicitly describe various aspects of a diskette format.

TRACKS specifies the number of tracks or cylinders to be copied. Normally, **CopyQM** assumes either 40 or 80 tracks, depending on the diskette density and drive type. However, there are some diskette formats which use a different number of tracks. For example, **TRACKS=41** specifies that 41 tracks are to be copied. **TRACKS** may be abbreviated to **TR**.

SIDES explicitly specifies the number of diskette sides to be copied. Often, a single-sided format will contain unrelated data from another system on its second side. **SIDES=1** will override **CopyQM**'s determination that a diskette is double-sided. **SIDES** may be abbreviated to **SID**.

FIRST specifies the number of the first sector on a track. Normally, this sector is assumed to be 1, but some diskette formats use non-standard values, such as 0, for the first sector. **FIRST=128** would specify that the first sector on a track is number 128. **FIRST** may be abbreviated to **FI**.

"Shelling Out" Between Copies

For special processing of copies, such as creation of labels, or maintenance of a copy log, **CopyQM Plus** offers facilities to execute DOS commands after each copy is written.

CopyQM Plus also has a facility for serial numbering; contact Sydex for details about upgrading a standard license to **CopyQM Plus**.

CopyQM Plus offers a method to insert copy-protection information.

Please contact Sydex for pricing and information about **CopyQM Plus**.

Miscellaneous Options

Several options do not fit neatly into any of the above categories and are described here:

> **CMD** specifies that a **CopyQM** command is continued in a named ASCII file. Within such a file, line boundaries are ignored and a statement may be up to 512 characters long. For example,
>
> **COPYQM A: CMD=MOREPARS**
>
> indicates that extra command information is contained in the file MOREPARS. A command file may itself include a **CMD** option; however, a "circular" command file structure is not detected by **CopyQM** and will result in a never-ending loop. Options and parameters specified in succeeding files are cumulative. Each command file must be no longer than 1,024 charactrers in length. A command file may extend over several lines; each line is assumed to be separated from the next by a space. For example, consider two files, FILE1 and FILE2, with the following contents:

FILE1:

```
    SMART NAG CMD=FILE2
```

FILE2:

```
    VERIFY=ALL
```

The statement:

COPYQM A: CMD=FILE1

is equivalent to:

```
COPYQM A: SMART NAG VERIFY=ALL
```

RETRIES specifies that **CopyQM** writes should be retried a specified maximum number of times in case of an error. For example **RETRIES=13** specifies that write operations that fail may be retried up to 13 times. Normally, write failures are retried a maximum of three times. **RETRIES** may be abbreviated to **RET**.

VSN requires no value and specifies that random volume serial numbers should be placed in the boot sector of every DOS diskette copy made by **CopyQM**. For this option to take effect, the boot sector of the master diskette must have been generated by a DOS system later than PC-DOS or MS-DOS Version 4.0.

WRITEPROTECT ensures that every master diskette is write-protected. If a master is read by **CopyQM** that is not protected (either by adhesive tab for 5.25" diskettes or protect "slider" on 3.5" diskettes), an error message is generated and the master diskette is rejected. **WRITEPROTECT** may be abbreviated to **WR**.

STATUS is used where diskette drives without hardware change status lines are used. Drives without this feature are primarily 5.25" 360K drives, though some 3.5" 720K drives also lack the change-detection capability. If a copy involving drives without change status lines is attempted and the BIOS option is specified, a test for diskette change is not made until the completion of a copy. **STATUS** can be used to override this mode of operation and specifies that drives must be checked for status changes after a specified number of cylinders have been written. Thus, **STATUS=8** specifies that status checking is performed after every 8 cylinders have been written.

The COPYQM Environment Variable

Any of the above options may be assigned to the environment variable **COPYQM** for use by all **CopyQM** sessions. However, since the equal sign "=" is illegal inside of an environment string, terms requiring values must use the semicolon ";" instead of the equal sign. Thus, to specify by default that all **CopyQM** sessions are to verify all data and sound a 20-second inactivity signal, the following DOS command is used:

```
SET COPYQM=NAG VERIFY;ALL
```

Locating Temporary Files

In addition to the **COPYQM** environment variable, the variable **CQTEMP** can be used to explicitly specify a drive and path to be used to hold copy data that exceeds the limit of memory. If **CopyQM** cannot find the **CQTEMP** environment variable, it searches for one named **TEMP**. If neither variable is defined, the root directory on the first hard disk that contains a sufficient amount of free space is used. The following DOS command specifies that all hard disk overflow data be kept in the TEMPFILE subdirectory on drive G:

<div align="center">SET CQTEMP=G:\TEMPFILE</div>

Command Examples

Here are some more examples of **CopyQM** command lines:

<div align="center">COPYQM A: B:</div>

Reads the master diskette in A:, writes copies in A: and B:.

<div align="center">COPYQM SOURCE=B: A:</div>

Reads the master in B:, writes copies in A:.

<div align="center">COPYQM SOURCE=A: B: COUNT=1 REPEAT CONV=720K</div>

Reads a set of master diskettes in A:, converts each master to 720K format, writes one copy of each master in B:.

<div align="center">COPYQM SOURCE=A: RECORD=MYFILE</div>

Reads a master diskette in A:, produces a diskette image file called MYFILE.

<div align="center">COPYQM A: CHECK</div>

Reads a master diskette in A:, reads and compares diskettes read in A:. No diskette writing is done.

<div align="center">COPYQM A: SMART COMPARE NOEMS</div>

Reads a master diskette in A:, writes copies in A:, skips formatting of the copies if possible, performs verification of the copies by reading back copies and comparing the data with the master. Expanded Memory, if available, will not be used.

```
COPYQM A: PLAY=DISK* COUNT=3 REPEAT
```

Reads diskette image files whose names satisfy the file specification of DISK* and makes three copies of each file using drive A:.

Differences from Earlier Versions

Users of previous versions of **CopyQM** will notice many differences in Version 3.1. A few of the more significant ones are as follows:

1. **Improved display.** More information has been incorporated into an easier-to-read display.

2. **Image file embedded comments.** A comment can now be entered at image file creation time or added later to an image file with the ICOMMENT utility. Image file comments are displayed when the image file is read by **CopyQM**.

3. **Choice of direct or BIOS interfaces.** All versions of **CopyQM** prior to version 3.00 directly accessed the diskette controller hardware for operation. Versions 3.00 through 3.05 used the computer BIOS to accomplish the same thing. Version 3.1 offers a choice of either the direct or BIOS interface, with the direct interface assumed to be the default. Many users have found that the direct hardware interface provides superior performance over the BIOS interface.

4. **Persistent CQMenu options.** CQMenu now "remembers" many of the more common option choices made during previous sessions.

This represents only a partial list; there are many other changes, refinements and additions to **CopyQM**.

Memory Usage

CopyQM reads a master diskette or image file in one uninterrupted pass. Because most diskette formats can hold more data than can be contained in conventional memory on a system, **CopyQM** uses a variety of methods to store the "overflow" data:

1. As much data as can be contained in conventional memory is first read. Sufficient memory must be available for **CopyQM** execution; this can be as little as 256K.

2. A test for extended memory is then performed. Extended memory, if it is to be used by **CopyQM**, must be managed by a high memory manager, such as Microsoft's HIMEM.SYS. Unmanaged high memory will not be used by **CopyQM**. If the **NOXMS** command line option has been specified, no check is made for extended memory.

3. After extended memory has been filled, or if extended memory could not be located, a test for expanded memory is performed. Expanded memory, or EMS, must conform to the Lotus/Intel/Microsoft Expanded Memory Specification level 4.0 or later. If the **NOEMS** option has been specified on the command line, no check is made for expanded memory.

4. Finally, after expanded and extended memory have been used, a search for an environment variable named **CQTEMP** is performed. If found, it is taken to specify a drive and directory on which a temporary file can be created. If the **CQTEMP** variable cannot be located, a search for an environment variable named **TEMP** is performed and the drive and path specified by it is used. If neither environment variable is found, the first hard disk partition is used that has enough free space available for the temporary file.

5. If sufficient memory or disk space cannot be located, the master diskette or image file is rejected by **CopyQM** and an **Out of Memory** error message is displayed.

When converting between formats, **CopyQM** writes a temporary image file and then reads it back into memory. A sufficient amount of hard disk space must be available for the temporary image file and any overflow storage required for the master diskette image.

Diskette Image Files

CopyQM has the ability to save the information contained on a diskette in the form of a hard disk file called a diskette image file. Diskette image files contain all of the data that would be processed in the course of a diskette copy, along with other information necessary to construct a copy. After an image file has been created, it can be read later by **CopyQM** to produce copies of the original master diskette.

Diskette image files are unlike "archive" files in that individual diskette files cannot be manipulated. However, image files of non-DOS diskettes can be created.

When **CopyQM** options are called out using the DOS command line interface, the **RECORD** and **PLAYBACK** options respectively are used to specify creation and reading of diskette image files.

Format conversion can be performed when creating a diskette image file, as well as when reading it as a master image. In other words, an image file corresponding to a 2.88M diskette can be created from a 360K diskette, even though the system used to create the file does not support 2.88M diskettes.

An on-screen editor is provided for adding comments to an image file. Image files contain a 32-bit Cyclical Redundancy Checksum (CRC) which is computed from the data read from the master diskette. This checksum is re-computed and verified when the diskette image file is read back.

Although a limited amount of data compression is performed within a diskette image file, it is recommended that sufficient hard disk space be reserved equal to the capacity of the master diskette when diskette image files are created.

Copying Modes

CopyQM contains logic to optimize copying of DOS and Apple Macintosh high-density diskettes. A master diskette is processed by **CopyQM** only as far as the highest cylinder containing active data. While this ensures that all active data is copied, areas of a diskette which contain erased data may not be copied. Normally, this presents no problem and the result is a fully functional diskette. However, some copy-protected products may record their protection information as erased data.

When the DOS utility DISKCOMP is used to compare a master diskette with a copy, it may report mismatches when erased data from the master diskette is compared with the corresponding areas on the copy.

If all areas of a diskette are to be copied, **BLIND** mode copying may be specified. In this mode of operation, **CopyQM** does not attempt to interpret the data being copied and no "shortcuts" are taken. Usually, **BLIND** mode is specified when a diskette was not created by a DOS or Apple Macintosh system. However, **BLIND** mode may also be used for DOS and Macintosh diskettes when it is desired that all data contained on a master diskette be transferred to the copies.

Note that format conversion, described below, operates differently in "blind" mode.

Format Conversion

CopyQM can be used to translate one diskette format to another. For example, a 360K 5.25" diskette can be converted to a 3.5" 1.44M diskette. This conversion can be specified by a CQMenu menu choice or by the **CopyQM CONVERT** command-line option.

When DOS diskettes are being copied, **CopyQM** adjusts track sizes and File Allocation Table (FAT) lengths and updates the information contained in the boot sector. The resulting combination of active data and new system tables must fit on the new format specified. Thus, a 1.44M diskette containing less than 360K of data can be copied to a 360K diskette.

When non-DOS diskettes are being copied in **BLIND** mode, conversion is performed differently. Data from the master diskette is "re-packed" to fit the new track size; no other adjustments are performed.

A special case occurs when conversion of a DOS 1.2M or 1.44M master to a 2.88M format is specified. Because of limitations in the conversion process, the result will exhibit only 2.04M of available data space, rather than the entire 2.88M.

CopyQM also supports non-conversion copies between some formats. This capability, undocumented in previous versions, allows copying of some smaller formats to larger ones without any processing of the data. For example, a 1.2M 5.25" diskette can be copied to a 1.44M 3.5" diskette. The result is a 3.5" 1.2M diskette.

Copy Verification

Several methods of checking the accuracy of data are offered by **CopyQM**. CQMenu offers a menu selection for each verification method.

By default, **CopyQM** checks the part of a diskette known to contain active data for readability by reading the copy diskette and discarding the data. The part of the copy not containing active data is not checked. This corresponds to the **VERIFY=DATA** command line option.

An entire diskette can be checked for readability by specifying the **VERIFY=ALL** option on **CopyQM**'s command line. Note that the accuracy of the copied data is not checked, but only the readability of the data.

Read-back checks can be completely disabled by specifying **VERIFY=NONE**. This option is usually selected when the speed of the copy operation is more important than the accuracy of the copy.

A byte-by-byte compare can also be specified by use of the **COMPARE** command-line option. Comparison is performed only on the part of the diskette containing active data. Inactive areas can be checked for readability only.

Checking Copies

An option not covered by a CQMenu selection alters the basic operation of **CopyQM**. If the **CHECK** option is specified on the **CopyQM** command line, copies are not formatted or written. Instead each copy is compared with the data from the master diskette. This option is useful when the validity of a number of copies needs to be checked against a master standard copy.

Audible Signals

CopyQM provides several audible "cues" during its operation:

    1.   A high-pitched "warble" that indicates that an operation has been successfully completed. This tone is sounded after a master diskette has been read, after each copy has been written, and after keyboard entries have been selected.

    2.   A low-pitched "beep" that signals an error condition. This tone is sounded after unsuccessful disk read or write operations, and when an erroneous keyboard entry is made.

    3.   A medium-pitched "warble" that signals a need for attention. This tone can be selected as an option and is sounded after intervals of 20 seconds of inactivity. The command line option for this tone is **NAG**.

All audible signaling may be disabled by CQMenu menu selection or by the **SILENT** command line option.

"Smart" Formatting

By default, **CopyQM** formats all copies before writing data. However, it is possible to direct **CopyQM** to check for pre-formatted media before writing. This option is available by a CQMenu choice, or by the **SMART** command line option.

"Smart" mode attempts to write data without first formatting a copy. If writing and verification succeed, the inactive area on the copy is skipped. However, if an error is detected while writing active data, all remaining tracks on the diskette are formatted before being written.

"Smart" mode can result in substantial time savings over normal format-then-write operation.

Quick Mode Copying

When copies of partially full DOS diskettes are made, a considerable increase in copying speed can be obtained by specifying the **QUICK** command-line option. When this option is selected, only the part of the master diskette that contains active data is copied or formatted.

However, when using unformatted blank diskettes, it is important to realize that tracks at the end of each diskette will not be formatted. This may make it impossible for users of the copies to successfully write to the copies or duplicate them using the DOS DISKCOPY utility.

This option is not available from within CQMenu.

Display Color Set

In some instances, it may be desired that **CopyQM** show all displays with a black-and-white (monochrome) color palette. This may be specified by means of the **MONO** command line option. This option is not available from CQMenu, but if CQMenu is started with the "MONO" command-line option, the monochrome color set will be used for **CopyQM** also.

A monochrome color set is particularly useful when portable systems with liquid crystal displays (LCD) are used. Many of these systems support color as shades of gray, rather than actual colors. A monochrome color set will be found to be more readable in this case.

Status Messages

CopyQM displays the following status messages during the process of reading and writing diskettes:

DRIVE NOT READY

Meaning: The drive has become not ready during reading or writing. This is usually the result of opening the drive door or removing the diskette from the drive. The current read or write operation is canceled and the operation is retried from its beginning.

INSERT MASTER

Meaning: CopyQM is awaiting insertion of the master diskette. If there is a diskette already in the diskette drive, the diskette should be removed and re-inserted into the drive to signal that the correct diskette has been inserted.

READY TO WRITE

Meaning: CopyQM has noticed that the last diskette written in this drive has been removed. A blank diskette may be inserted in the drive, but the message will not change until CopyQM is ready to write to the drive.

INSERT BLANK

Meaning: CopyQM is awaiting insertion of the next blank copy diskette. This message persists after the blank diskette has been inserted and is changed only when writing has begun on the drive.

INSERT COPY

Meaning: This message occurs only when CopyQM is being run with the CHECK option. The next diskette copy to be verified should be inserted. This message is not removed until verification of the copy has actually begun.

ANALYZING

Meaning: CopyQM has begun reading the master diskette and is evaluating its structure and contents.

READING

Meaning: The structure of the master diskette has been determined and data is being read and stored for later writing.

WRITING

Meaning: CopyQM is in the process of writing a copy. No formatting is being performed.

WRITING WITH FORMAT

Meaning: CopyQM is formatting and writing a copy.

RECORDING

Meaning: A diskette image file is being written to disk.

CONVERTING

Meaning: Diskette data is being converted to the requested format.

CHECKING

Meaning: This message occurs only in **CHECK** mode. **CopyQM** is reading a diskette copy and comparing the data with the master.

REMOVE MASTER

Meaning: **CopyQM** has finished reading the master diskette. The diskette should be removed from the drive.

RE-INSERT MASTER

Meaning: The current diskette should be removed from the drive and inserted again. **CopyQM** is attempting to ensure that the diskette in the drive is, in fact, the diskette to be copied.

READ ERROR

Meaning: The master diskette did not read without errors. Reading of the same diskette can be attempted again, or a new master diskette may be inserted.

NOT A DOS DISK

Meaning: The boot sector on the master diskette does not conform to any DOS standard layout. If the diskette is not a standard DOS format, it may be possible to copy the diskette by specifying the **BLIND** option. **This message may also occur if the diskette contains a computer virus in its boot sector.** Diskettes infected with the so-called "Stoned" virus will cause this message to be displayed.

OUT OF MEMORY

Meaning: Not enough memory and hard disk storage could be located to contain the data from the master diskette. It may be possible to avoid this message by explicitly specifying the location of the overflow hard disk file.

READ COMPLETE

Meaning: The specified diskette image file has been read. A blank diskette can be inserted into the drive for copying.

NOT PROTECTED

Meaning: The **WRITEPROTECT** option has been specified and the master diskette is not write-protected.

COMPLETE - REMOVE

Meaning: A diskette copy has been successfully completed and can be removed from the diskette drive.

DISK UNUSABLE

Meaning: Writing the diskette failed because of an unrecoverable error. Either the wrong media type (high density instead of low density) has been used or the diskette contains a permanent flaw.

VERIFIED - REMOVE

Meaning: This message occurs only when **CopyQM** is being run with the **CHECK** option. The diskette copy has been successfully verified and may be removed from the drive.

PROTECTED--TRY AGAIN

Meaning: Writing has failed on a diskette because the diskette was write protected. The diskette should be re-inserted after the diskette has been write-enabled.

BAD IMAGE FILE

Meaning: CopyQM has detected an error in the diskette image file being read. No recovery from the error is possible. This message can occur if a version of CopyQM prior to 2.20 was used to create the image file.

FILE WRITTEN

Meaning: The requested diskette image file has been written and the master diskette can be removed from the drive.

OUT OF FILE SPACE

Meaning: There was not enough hard disk space to successfully create the requested diskette image file. This message also occurs when there is insufficient hard disk space to hold temporary files when format conversion has been requested.

TARGET TOO SMALL

Meaning: After the requested format conversion was performed, **CopyQM** determined that the data from the master diskette would not fit on a single diskette of the requested format.

The ICOMMENT Utility

ICOMMENT can be used to add comments to diskette image files or edit comments already contained in image files. In addition, **ICOMMENT** adds or re-computes the Cyclical Redundacy Checksum (CRC) for image file data.

To run **ICOMMENT**, the following command format is used:

ICOMMENT *file-list*

Where *file-list* represents a diskette image file name or the name of several diskette image files. Wildcard file specifiers of "*" and "?" are allowed. In addition, the switch /**MONO** can be used. For example, the command:

ICOMMENT /MONO MYIMAGE.*

selects a monochrome color palette and processes all image files satisfying the file specification "MYIMAGE.*".

ICOMMENT is included only with registered and Plus versions of CopyQM.

Specifying a Diskette Configuration

Normally, CopyQM can determine a system's configuration without intervention. However, there are cases where add-on diskette adapters make it impossible to accurately sense the system setup.

To determine if CopyQM has correctly sensed your system's configuration, use the VIEW-CONF command that is included with CopyQM.

If necessary, a text file, named DISKETTE.CFG can be prepared using any text editor or word processing program in non-document mode. This file can be placed anywhere in the DOS command search path and will be automatically located by CopyQM.

The layout of the configuration file is straightforward. Each line in the file begins with the letter of the diskette drive being described, followed by a colon (:). The rest of the line contains keywords and numeric values which specify the configuration for that drive. Each item on the line is separated by one or more spaces. In most cases, keywords can be abbreviated.

A configuration file line can contain any of the following keywords. The minimum abbreviation for each keyword is shown in parentheses:

360K (3) specifies a 5.25" 360K drive.

720K (7) specifies a 3.5" 720K drive. Most utilities also support the less common 5.25" 720K quad-density drive.

1.2M (1.2) specifies a 5.25" 1.2M drive.

1.44M (1.4) specifies a 3.5" 1.44M drive.

2.88M (2.8) specifies a 3.5" 2.88M drive.

8INCH (8) specifies an 8" drive.

BIOS (B) specifies the BIOS drive number for the drive. The word BIOS is followed by a a number between 0 and 127. This number is also the same one used for the /D: parameter when DRIVER.SYS is used to support the drive in the system's CONFIG.SYS file.

PORT (P) specifies the base I/O port of the adapter connected to the drive. The first or primary adapter is always described by the number 3F0H (observe the "H" at the end of a hexadecimal number.) Secondary adapters are usually addressed by the number 370H and sometimes by 360H or 3E0H. If not specified, a PORT value of 3F0H is assumed.

UNIT (U) specifies the physical unit number of the drive on the adapter. This unit number must be within the range of 0 to 3 and should not be confused with the BIOS unit number.

DMA (DM) specifies the Direct Memory Access channel which services the adapter. If omitted, DMA channel 2 is assumed.

INTERRUPT (I) specifies the system interrupt which services the adapter. If omitted, interrupt 6 is assumed.

SEEK (S) specifies the track-to-track stepping time of the drive in milliseconds. If omitted, 6 milliseconds is assumed.

CHANGE (CH) specifies that the drive possesses diskette change detection circuitry. If this term is omitted, the drive is assumed not to support change detection. Usually, 1.2M, 1.44M and 2.88M drives have change detection circuitry; 360K, 720K and 8 inch drives do not.

DUAL (DU) is applicable for 1.2M 5.25"drives only. Some inexpensive secondary adapters require that 1.2M drives be configured for dual-speed operation in which the spindle motor spins at 360 revolutions per minute for high-density operation and 300 revolutions per minute for low-density operation. If omitted, normal single-speed operation is assumed.

COMPATICARD (CO) specifies that the drive is connected to a MicroSolutions Compaticard I™ or Compaticard II™ adapter. **If the Compaticard IV™ is being used, this term should not be specified.**

2X indicates that the drive is a double-speed drive; that is, a drive which spins at twice the normal speed.

A number is required to follow the following words:

BIOS
PORT
UNIT
DMA
INTERRUPT
SEEK

A number is assumed to be a decimal value unless suffixed by the letter "H" which indicates a hexadecimal quantity. Thus, 1000 and 3E8H refer to the same quantity.

Here is an example of a DISKETTE.CFG file:

```
A: BIOS 0 UNIT 0 1.44M CHANGE
B: BIOS 1 UNIT 1 1.2M CH
Q: BIOS 4 PORT 370H UNIT 0 360K
```

There are two other items which may start a configuration line.

> **DEFAULT:** (note the final colon) initializes the configuration to the values that would be obtained if automatic configuration sensing were to be performed. Use of **DEFAULT** is useful if automatic sensing has correctly sensed all but one or two drives. For example, suppose that the configuration given above is correctly sensed, with the exception of drive Q:. The DISKETTE.CFG file just mentioned could also be stated as:
>
> ```
> DEFAULT:
> Q: BIOS 4 PORT 370H UNIT 0 360K
> ```
>
> **DEFAULT:** must appear as the only item on a line.
>
> **NOTE:** causes the remainder of a line to be ignored. Comments may be inserted into the DISKETTE.CFG file in this manner. For example:

```
NOTE:   Automatic sensing gets everything but
NOTE:   drive Q: connected to a special second
NOTE:   adapter.
DEFAULT:
Q: BIOS 4 PORT 370H UNIT 0 360K
NOTE:   This is the end of the configuration file.
```

Addendum to CopyQM Documentation for Version 3.1

October, 1994

The following changes have been made in **CopyQM** and are not yet reflected in the standard documentation:

Five new command-line options have been added:

> **INTERLEAVE** allows the specification of a physical sector interleaving on all tracks. Normally, **INTERLEAVE=1** is assumed and sector numbers follow consecutively. However, if **INTERLEAVE=2** were to be specified for a 9-sector format, the sector numbers would be placed on each track thus: 1,6,2,7,3,8,4,9.5. Note that two revolutions of the diskette are necessary to consecutively read all sectors on a track. **INTERLEAVE** is abbreviated **IN**.

> **SKEW** allows the specification of a track "skew". That is, the track format is offset by a specified amount on each cylinder. Specifying **SKEW=3** with a 9-sector format would place sectors as 1,2,3,4,5,6,7,8,9 on the first cylinder; 7,8,9,1,2,3,4,5,6 on the second cylinder; 4,5,6,7,8,9,1,2,3 on the third cylinder, and so on. Note that the content of the disk is not affected, but access time may be improved somewhat. **SKEW** normally defaults to zero (no skew). **SKEW** is appreviated **SK**.

> **GO** suppresses the "Re-insert Master Diskette"message that appears when reading the first diskette of a session. If a diskette is in the source drive, **CopyQM** will immediately begin processing it.

> **FLAW** permits copying master diskettes with flawed areas. The data content of erroneous sectors is not repaired, but as much data as possible will be recovered from the bad sectors.

> **SELFEXTRACT**, available only with **CopyQM Plus**, allows a user to create self-extracting diskette image files without the use of **MAKESXD**. When used with **RECORD**, the **SELFEXTRACT** keyword causes **CopyQM Plus** to record a self-extracting diskette image file directly. **SELFEXTRACT** is abbreviated **SELF**.

INTERLEAVE and **SKEW** were introduced to handle the new Microsoft DMF 1.68MB diskettes. **INTERLEAVE=2** is implied when copying Microsoft DMF distribution diskettes. We recommend that you specify **SKEW=3** on the command line to optimize performance of DMF copies.

A new **CONVERT** format has been added: 1.68M or 1680K, which is similar to the Microsoft DMF format. Sydex also offers a special device driver, **DMFDISK.SYS**, which permits a user to format, read, write and copy DMF-formatted diskettes.

Supplemental Information for DBCS System Users
(Chinese and Kanji Systems)

Sydex, Inc.
P.O. Box 5700
Eugene, OR 97405

Overview

Commencing with version 3.12, allowances for certain aspects of displays using double-byte character (DBCS) encoding have been incorporated into the **CopyQM** product set. Certain ideographic writing systems, such as Chinese and Japanese Kanji make selective use of two-byte character sequences to represent certain symbols. This causes display problems when a program attempts to use the PC extended character set for line drawing and other purposes.

Description of Changes

All of the **CopyQM** product set has been modified to check for the presence of the E-Ten Chinese System display software. In addition, all **CopyQM** products accept a command-line switch of either **/7BIT** or **7BIT** which will manually force use of alternate character sets and display color schemes that do not conflict with the requirements of a DBCS-aware system.

In most cases, displays are altered to supplant line-drawing graphic characters with contrasting color schemes. In the case of a monochrome display, where color cannot be used for contrast, line-drawing characters have been replaced with the asterisk "*", usually as a border character in boxed text.

In all cases, when DBCS operation is specified, no character with a value above decimal 127 will be used in displays by **CopyQM**. However, 8-bit text which is entered by the user will be displayed without modification.

If the **/7BIT** switch is used as a command-line option for **CQMENU**, it is passed to **CopyQM**, as is the **/MONO** (monochrome display) switch.

Users of the Taiwanese E-Ten display system should not have to explicitly specify **7BIT**, as detection of the E-Ten software is automatically performed by all products. However, if the E-Ten system is placed in the non-DBCS mode, **CopyQM** will execute in full 8-bit PC mode, even if the E-Ten display mode is changed during the session.

Examples

To start **CopyQM** in 7-bit display mode and copy using drive **A:**:

```
COPYQM A: 7BIT
```

To view the diskette configuration:

```
VIEWCONF /7BIT
```