

GXCOP\$ - File Copy Routine

The GXCOP\$ routine can be used to copy a Windows file between the Global Client PC and the PC that is running the current GX session. The following file transfers are allowed:

- From the Global Client PC to the PC that is running the current GX session;
- To the Global Client PC from the PC that is running the current GX session;
- Between two files/directories on the Global Client PC;
- Between two files/directories on the PC that is running the current GX session.

1. Invocation

To copy a Windows file code:

```
CALL GXCOP$ USING fd1 fd2 [cp] [ba]
```

where *fd1* is a **closed** FD containing the pathname of the file to be copied and *fd2* is a **closed** FD containing the pathname of the output file. Both *fd1* and *fd2* must be either the Open Direct file organisation or the GX Direct file organisation. **No other file organisations are allowed.**

The optional *cp* parameter is a control block of the following format:

01	CP			
02	CPVERS	PIC 9(2)	COMP	* CONTROL BLOCK VERSION NUMBER * MUST BE 1, 2,3 OR 4
02	CPDIN	PIC 9	COMP	* 0 = DO NOT DELETE INPUT FILE AFTER COPY * 1 = DELETE THE INPUT FILE ON COMPLETION * OF A SUCCESSFUL COPY (I.E. MOVE FILE)
02	CPDOU	PIC 9	COMP	* 0 = OUTPUT FILE IS ALWAYS TO BE DELETED * IF IT ALREADY EXISTS * 1 = OUTPUT FILE IS NEVER DELETED IF IT * ALREADY EXISTS * 2 = PROMPT USER FOR DELETE IF THE OUTPUT * FILE ALREADY EXISTS
02	CPDLINE	PIC 9(4)	COMP	* LINE NUMBER OF "FILE DELETE" BOX * OR 0 TO DISPLAY CENTRED
02	CPDCOL	PIC 9(4)	COMP	* COLUMN NUMBER OF "FILE DELETE" BOX * OR 0 TO DISPLAY CENTRED
02	CPBAR	PIC 9	COMP	* 0 = NO PROGRESS BAR * 1 = DISPLAY PROGRESS BAR (WITH A * "CANCEL" BUTTON * 2 = RESERVED FOR INTERNAL USE ONLY * 3 = DISPLAY PROGRESS BAR (WITHOUT A * "CANCEL" BUTTON
02	CPLOCAL	PIC 9	COMP	* THIS FIELD IS ONLY RECOGNISED IF CPVERS * IS HIGHER THAN 1 * 0 = ALWAYS COPY BY SERIES OF READ/WRITE * 1 = IF BOTH THE INPUT AND OUTPUT FILES * ARE ON THE GX PC THEN USE A LOCAL * CopyFile FUNCTION TO PERFORM THE COPY
02	CPMKD	PIC 9	COMP	* THIS FIELD IS ONLY RECOGNISED IF CPVERS * IS HIGHER THAN 2 * 0 = NEVER ATTEMPT TO CREATE THE OUTPUT * FOLDER IF IT DOES NOT EXIST * 1 = IF THE OUTPUT FILE IS A GX DIRECT * FILE, CREATE THE OUTPUT FOLDER * IF IT DOES NOT EXIST
02	CPSHARE	PIC 9	COMP	* THIS FIELD IS ONLY RECOGNISED IF CPVERS * IS HIGHER THAN 3 * 0 = OPEN INPUT NORMALLY (EXCLUSIVELY)

02 CPDIAG

PIC 9 COMP

- * 1 = OPEN INPUT FILE SHARED
- * THIS FIELD IS ONLY RECOGNISED IF CPVERS IS HIGHER THAN 3
- * 0 = NORMAL OPERATION
- * 1 = DISPLAYS DIAGS DURING THE COPY

The optional *ba* parameter is the standard control block for the GXBAR\$ routine.

2. STOP Codes and Exception Conditions

The following STOP codes may be generated by GXCOP\$:

STOP code	Description
7604	GXCOP\$ has been called by an application that is not running on GX.
7605	Unknown version of CP control block (i.e. CPVERS does not contain 1, 2, 3 or 4)
7606	The combined length of the 2 file names exceeds 8Kb.

The following exception conditions may be returned by GXCOP\$:

EXIT code	\$\$COND	Description
7614	14	For GSM SP-18, and earlier: Error opening input or output files. The exact Windows error code is available in the \$\$CRES System Variable. For GSM SP-19, and later: Error opening input file. The exact Windows error code is available in the \$\$CRES System Variable.
7615	15	Input file not found
7616	16	Unable to allocate memory for a temporary work buffer
7617	17	Output file already exists
7618	18	File copy cancelled by operator

7619	19	Error reading from the input file. The exact Windows error code is available in the \$\$CRES System Variable.
7620	20	Error writing to the output file. The exact Windows error code is available in the \$\$CRES System Variable.
7621	21	Error returned by GX from the CopyFile function. The exact Windows error code is available in the \$\$CRES System Variable.
7622	22	Unexpected error from GX when attempting the CopyFile function. The exact Windows error code is available in the \$\$CRES System Variable.
7623	23	Error opening output file. The exact Windows error code is available in the \$\$CRES System Variable. This exception will only be returned by GSM SP-19, or later.
7624	24	Soft error on output file. This exception will only be returned by GSM SP-19, or later.

3. Programming Notes

GXCOP\$ is only available when running on GX. Any attempt to use GXCOP\$ on a non-GX terminal will result in a STOP code.

If the *cp* parameter is omitted, the *ba* parameter cannot be specified. If the *cp* parameter is omitted the input file is never deleted, the output file is always deleted if it already exists, and the progress bar is suppressed.

If the *cp* parameter is specified and CPBAR is zero the progress bar is suppressed.

If the *cp* parameter is specified and CPBAR is nonzero a progress bar is displayed. If the *ba* parameter is omitted a "default" progress bar will be displayed. The default progress bar includes a Cancel button (if CPBAR = 1). The default progress bar does not include a Cancel button (if CPBAR = 3). Note that CPBAR = 2 is reserved for internal use only and **MUST** not be used by external applications.

To specify the features of the progress bar both the *cp* and *ba* parameters must be specified. The *ba* block is in the same format as described for the GXBAR\$ sub-routine. GXCOP\$ will establish the text for the 2nd and 3rd text items defined in the GXBAR\$ BA-block. These text items will contain the name of the file being copied or moved, the amount of data that has been copied and the time remaining. If the Cancel button is specified and is subsequently pressed by the operator GXCOP\$ will delete the output file and close the input file.

If CPVERS is higher than 1 then the CPLOCAL flag is considered. If CPLOCAL is 0 then no special action is taken and the file copy proceeds by a series of read and write operations. The optional *ba* block, if supplied, is recognised.

If CPLOCAL is 1 **and** both the input and output files are on the PC that is running the GX session then the file transfer is performed locally on the GX PC. This feature is only supported by GSM SP-16 (or later) and GX.EXE V3.5f (or later). A Progress Bar is **NOT** displayed. The *ba* block, if supplied, is ignored. Performing the file transfer locally on the GX PC, when appropriate, can significantly improve the performance of GXCOP\$.

The CPMKD is 1 and the output file is on the PC that is running GX.EXE; and if the output folder does not exist GXCOP\$ will attempt to create it. This feature is only supported on GSM SP-21, or later. Note that if a folder other than the last one in the file-path does not exist then GXCOP\$ will be unable to create that folder. For example, if the pathname of the output file is:

C:\FOLDER1\FOLDER2\FOLDER3\FILE.XXX

then GXCOP\$ will create FOLDER3, if it does not exist, but will not attempt to create FOLDER2, or FOLDER1, if they do not exist.

The filename specified by a GX Direct file organisation FD can specify either:

- an absolute filename (on the filing system of the PC that is running GX);
- an absolute UNC filename on a shared directory (as "seen" from the PC that is running GX);
- a file on, or under, the current directory on the PC that is running GX;
- a file on, or under, the Windows directory on the PC that is running GX;
- a file on, or under, the LocalTempDirectory specified in the GX.INI file;
- a file on, or under, the folder "PFPrintImage", relative to the current GX folder;
- a file on, or under, the folder "XML", relative to the current GX folder;
- a file on, or under, a free-format directory keyword specified in the GX.INI file;
- a file on, or under, a free-format directory keyword specified as a Windows environment variable;

For example assuming that the "current directory" for GX is "C:\GX"; the "Windows directory" is "C:\Windows"; the GX.INI file contains the following setting in the [general] section:

LocalTempDirectory=C:\TEMPORARY

and the following settings in the [folders] section:

DTEMP1=D:\TEMPORARY
DTEMP2=F:\TEMPORARY

And the following Windows environment variable is defined:

DTEMP3=G:\TEMPORARY

then the following *filename* parameters will be mapped to the following pathnames on the PC running GX:

<i>filename</i> parameter	Filename on PC running GX.EXE
C:\WINDOWS\EXAMPLE.TXT	C:\WINDOWS\EXAMPLE.TXT
\\SERVER1\SHARE\EXAMPLE.TXT	\\SERVER1\SHARE\EXAMPLE.TXT
EXAMPLE.TXT	C:\GX\EXAMPLE.TXT
.\EXAMPLE.TXT	C:\GX\EXAMPLE.TXT
SUBDIR\EXAMPLE.TXT	C:\GX\SUBDIR\EXAMPLE.TXT
%TEMP\EXAMPLE.HTML	C:\TEMPORARY\EXAMPLE.HTML
%WINDOWS\EXAMPLE.XML	C:\WINDOWS\EXAMPLES.XML
%DTEMP1\EXAMPLE.TXT	D:\TEMPORARY\EXAMPLE.TXT
%DTEMP2\EXAMPLE.TXT	F:\TEMPORARY\EXAMPLE.TXT
%DTEMP3\EXAMPLE.TXT	G:\TEMPORARY\EXAMPLE.TXT
C:\%DTEMP3\EXAMPLE.TXT	The results of including a variable parameter in the middle of a <i>filename</i> string are undefined.

If a %variable exists both as a Windows environment variable **and** as an option in the [folders] section of the GX.INI the GX.INI file setting will be used.

The %TEMP and %WINDOWS strings are effectively reserved words and cannot be used to define either Windows environments variables or options in the [folders] section of the GX.INI file. The %TEMP string is mapped to the value of the LocalTempDirectory setting in the [general] section of the GX.INI file. If the LocalTempDirectory setting is not defined, the %TEMP string is mapped to the Windows temp directory. The %WINDOWS string is always mapped directly to the Windows folder.

The %XML and %TCPIIMAGES strings are also reserved words and cannot be used to define either Windows environments variables or options in the [folders] section of the GX.INI file. Both these special strings are reserved for internal use only. The %XML string is always mapped directly to the folder "XML", relative to the current GX folder. The %TCPIIMAGES string is always mapped directly to the sub-folder "PFPRINT\IMAGES", relative to the current GX folder.

Except for the local GX copy option (i.e. when CPLOCAL = 1 and both files are on the GX PC) GXCOP\$ uses the specific BDAM access methods specified via the ORGANISATION clauses of the FD's passed as parameters to GXCOP\$. Thus, on return from a GXCOP\$ call the \$\$RES and \$\$CRES System Variables will reflect the last file operation attempted by GXCOP\$. If a "soft" error occurs (i.e. one that which would normally return \$\$COND = 2 from the Access Method) \$\$RES will be set to one of the following "soft" errors: "3" = file not found; "4" = file already exists on open new; "5" = out of file on read. If a "hard" I/O error occurs (i.e. one that would normally return \$\$COND = 1 from the Access Method) \$\$RES will be set to "I" for a

Windows error on **either** the Global Client PC or the GX PC (with the Windows error number in \$\$CRES); or "K" for an internal GX interface error on the GX PC (with the GX error code in \$\$CRES).

The following table summarises the situation:

Error Type	\$\$RES	\$\$CRES	Error type
Soft	"3"		File not found
Soft	"4"		File already exists on Open New
Soft	"5"		Out of file on read
Hard	"I"	Windows error number	Hard Windows error on Global Client PC (i.e. the PC/server running GLOBAL.EXE)
Hard	"I"	Windows error number	Hard Windows error on the GX PC (i.e. the PC running GX.EXE)
Hard	"K"	GX error code	Hard error from the interface to GX (by definition on the GX PC)

For example:

\$\$COND	\$\$RES	\$\$CRES	Error type
15	"3"	Not applicable	Server file not found
24	"3"	Not applicable	Illegal path in GX PC filename
23	"I"	32	GX PC file in use by another Windows application

A CPVERS value of 3 is only recognised by GSM SP-21, or higher.

A CPVERS value of 4 is only recognised by GSM SP-29, or higher.

4. Examples

[EXAMPLE REQUIRED]

5. Copy-Books

None.

6. See Also

GXBAR\$ Display Progress Bar

FADEL\$ Display standard "File Already Exists, Delete?" message

Open BDAM Access Method

GX BDAM Access Method