

RETRIEVE Utility for MCP Systems

Reference Manual

Version 1.09

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Version 1.09

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1. Overview

RETRIEVE makes the transfer of files to your MCP system easy. The RETRIEVE utility can be run from a WFL job stream or a MARC/CANDE terminal to easily copy remote files via FTP or from a Windows share to your MCP system. RETRIEVE is a complement to the DELIVER utility.

RETRIEVE does automatic, intelligent ASCII translation and record formatting, based on known Programmers Workbench file extensions and the contents of the remote file. Of course, RETRIEVE also supports a binary “stream” transfer, where your file is replicated on the MCP system without a byte of information being changed.

RETRIEVE can also retrieve a list of the files in a specific FTP or Windows directory, transfer a directory of files, and rename or remove files.

Like the DELIVER utility, RETRIEVE uses industrial strength internal client modules developed by MGS, Inc. These internal modules have been tested against a wide range of Unisys and non-Unisys servers to insure reliable operation in the operating conditions found in the open software environment.

2. Installation and Operation

The RETRIEVE program can be downloaded from the MGS website by linking to

<http://www.mgsinc.com/deliverdl.html>

This will cause the MCP wrapped file DELIVER.CON to be downloaded to your PC, which contains both the DELIVER and RETRIEVE utilities.

2.1 System Requirements

RETRIEVE will run on any ClearPath NX, LX, CS or Libra system running MCP 8.0 or later. Of course, TCP/IP connectivity to the remote FTP or Windows server is required.

2.2 How to Install RETRIEVE

First, you must use a binary file transfer to get the DELIVER.CON wrap file to the host; the easiest way to do this is using Windows Explorer to drag and drop the wrapped file to a ClearPath MCP share.

Next, unwrap the RETRIEVE and DELIVER code files using the following command from a CANDE session logged on to a privileged usercode:

```
WFL UNWRAP *= AS (<usercode>)= OUTOF "DELIVER.CON"  
TO <family> (PACK, RESTRICTED=FALSE)
```

where <usercode> is the usercode you want to install RETRIEVE and <family> is the family you want to install the file OBJECT/RETRIEVE.

Important Note: Without an activation key, the RETRIEVE utility will run for only five days from the date it is downloaded. To re-activate RETRIEVE, you can request a longer demonstration key or you can purchase an “activation key” from MGS, Inc (e-mail sales@mgsinc.com for details). When you are provided with a key by MGS, Inc, run RETRIEVE (or DELIVER) once using the KEY command (see Section 4.7 of this document) to re-activate the product.

2.3 How to Run RETRIEVE

RETRIEVE can be used within a WFL job using the following syntax:

```
RUN OBJECT/RETRIEVE (" <RETRIEVE parameters> ");
```

If the file is successfully copied, the RETRIEVE program’s TASKVALUE will be zero when it completes; if the copy fails, RETRIEVE’s TASKVALUE will be non-zero.

An example of using RETRIEVE within a WFL is as follows:

```
BEGIN JOB RETRIEVE/SAMPLE;  
  TASK T;  STRING S;  
  
  RUN OBJECT/RETRIEVE ("COPY \\loc2\shared\daily_report.txt") [T];  
  
  IF T(VALUE) EQL 0 THEN  
    DISPLAY("FILE SUCCESSFULLY COPIED")  
  ELSE  
    S:=ACCEPT("FILE COPY FAILURE");  
  
END JOB.
```

Fig 3. Example RETRIEVE Workflow

The RETRIEVE program can be executed via the MARC interface using the RUN Choice. RETRIEVE can also be run directly from a CANDE terminal using the following syntax:

```
RUN RETRIEVE (" <RETRIEVE parameters> ")
```

RETRIEVE will then display a series of progress messages and a final message indicating whether the transfer was successful or not.

Important Note: If you use the CANDE Utility command to run RETRIEVE (“U RETRIEVE <parameters>”), make sure that you enclose any items that contain lowercase characters (such as path/file names or passwords) in single or double quotes. The quotes are required because the Utility command will translate to uppercase any non-quoted text before passing it to RETRIEVE as a parameter.

3. Requirements Needed to Run RETRIEVE

This section gives you the minimum basic hardware, software and information required for RETRIEVE to run successfully. Before you run the RETRIEVE utility you will need to confirm that you have the required hardware/software and gather the following basic information.

The information below is organized by transfer type.

3.1 FTP Transfers

- There must be a TCP/IP LAN connection between the MCP system and the FTP server.
- You must know the TCP/IP hostname of your FTP server.
- If your FTP server requires authentication, then you will need a valid username and password for the FTP server.
- You will need to know the directory name on the FTP server where the file is to be found.

3.2 Windows Transfers

- There must be a TCP/IP LAN connection between the MCP system and the Windows server.
- You must have the TCP/IP host name or IP address of your Windows server.
- You must know the Windows share name on your Windows server.
- You will need valid log on credentials (a user name, password, and optionally a domain name, or a Unisys MCP credentials file) for the Windows share.
- You will need to know the folder name (if any) on the Windows Share where the file is to be found.

4. RETRIEVE Parameters

Regardless of how it is initiated, you pass the program a single string parameter.

4.1 Detailed Syntax

The following contains the details of the RETRIEVE input parameter syntax. Note that forward (“/”) and back slashes (“\”) can be used interchangeably.

```

----- COPY ---- <source> ----- <COPY options> -----
| - * - | |-- CUT ---- <source> ----- <COPY options> -----|
|         |-- RENAME -- <source file name> -- <RENAME options> ----|
|         |-- REMOVE -- <source file name> -- <standard options> --|
|         |-- FILES --- <source directory> -- <FILES options> -----|
|----- KEY ---- <activation key> -----|

```

<source file name> ::=

```

----- <file name> ----
|-- <server name> --| |-- <directories> --|

```

<source directory> ::=

```

--- <server name> --- <directories> --- /= ---

```

<source> ::=

```

----- <source file name> -----
|-- <source directory> --|

```

<server name> ::=

```

----- \\ <Windows server name> ----- \ ---
|-- <FTP server name> -----|

```

<directories> ::=

```

|<-----|
----- <directory> -- \ -----

```

<COPY options> ::=

```

|<-----|
----- AS ---- <MCP file title> -----
|-- SIZE -- <gigabytes> -----|
|-- <standard options> -----|
|-- <data conversion options> --|

```



```

<RENAME options> ::=
  |<-----|
  ----- TO -- <new file name> -----
  |-- <standard options> -----|

<FILES options> ::=
  |<-----|
  ----- TO ----- <MCP file title> -----
  |           |-- TERM -----|
  |-- <standard options> -----|

<standard options> ::=
  |<-----|
  ----- FROM ----- <FTP server name> -----
  |-- USER ----- <user name> -----|
  |-- PASSWORD -- <password> -----|
  |-- SIZE ----- <gigabytes> -----|
  |-- PASSIVE --- <boolean value> ----|
  |-- DOMAIN ---- <Windows domain> ---|

<data conversion options> ::=
  ----- BINARY -----
  |-- STREAM -----|
  |-- TRANSLATE -- <boolean value> --|

<boolean value> ::=
  ----- YES -----
  |-- NO ---|

```

Important Notes:

- RETRIEVE assumes the server name refers to a Windows server if it is prefixed with two slashes (“\\”). Otherwise, RETRIEVE assumes it is an FTP server name.
- Use single quotes to enclose any options that contain either spaces, or lowercase/special characters.

4.2 Source File Name Specification

The server name, share (for Windows servers), directories, and file name of the source file to be transferred can be specified either together in the <source> parameter, or separately with the <source> and **FROM** option.

For example, the following statements are all valid and copy the same file from a Windows server:

```
copy \\server\share\directory\file_name ...
copy file_name from \\server\share\directory ...
copy directory\file_name from \\server\share ...
```

Note that forward (“/”) and back slashes (“\”) can be used interchangeably.

Directory names must end with the literal “/=”.

4.3 Commands and Options

The following commands are used to specify the type of transfer to be performed by the RETRIEVE utility program. Each section also discusses the command specific options.

4.3.1 COPY

This command will download either a single file or a directory of files from an FTP server or Windows share.

If you specify a <source directory> rather than a <source file name>, RETRIEVE will download all of the files in the directory and combine them into a single MCP file.

The **AS** option allows you to override the default title of the destination file created on the MCP system. By default, the source file name or directory (including the server name, directories and file name, but excluding file extension) is used to generate the destination file title. For example, the file “ftp.domain.com/directory/my_file.dca_m” would be named FTP_DOMAIN_COM/DIRECTORY/MY_FILE (under the usercode RETRIEVE is running under and on the primary family from RETRIEVE’s FAMILY attribute value).

Security is controlled by the remote server. For FTP servers, the **USER** and **PASSWORD** options will be required if the server requires authentication. For Windows servers, the **USER** and **PASSWORD** options (and optionally the **DOMAIN** option) can be used to specify authentication information, or you can use a Unisys MCP credentials file. Please see the “MAKECREDENTIALS Utility” section in the *IO Subsystem Programming Guide* for more information on creating credentials files.

An example COPY WFL command:

```
RUN OBJECT/RETRIEVE (
  "COPY /DBDUMP/SAT/01.DMP AS (PROD)DBDUMP/SAT " &
  "FROM FTP.MYCOMPANY.COM BINARY " &
  "USER TEST PASSWORD 'test' " &
);
```

In the above command, RETRIEVE will:

- Copy the file "01.DMP" from the "/DBDUMP/SAT" directory on the FTP server FTP.MYCOMPANY.COM.
- The file will named "(PROD)DBDUMP/SAT" and will be placed on the primary family of RETRIEVE's FAMILY attribute value.
- The new MCP file will be a record-oriented DATA file, with 30-word records and no translation of the source data (the BINARY option).

4.3.2 CUT

This command will rename, download and remove ("cut") either a single file or a directory of files from an FTP server or a Windows share.

If you specify a <source directory> rather than a <source file name>, RETRIEVE will download all of the files in the directory and combine them into a single MCP file.

RETRIEVE uses the following steps to perform the "cut" operation:

1. All source files are checked to ensure that no duplicate file names will result from the file extension change. If two or more files would be renamed to the same file name, the operation is aborted.
2. All source files are renamed using the ".bak" file extension. This is to prevent the possible loss of data if a file were to be updated between the time it is downloaded and the time it is removed.
3. All source files are downloaded and combined into a single MCP file.
4. The ".bak" files are then removed from the server.

The **AS** option allows you to override the default title of the destination file created on the MCP system. By default, the source file name or directory (including the server name, directories and file name, but excluding file extension) is used to generate the destination file title. For example, specifying the directory "ftp.domain.com/directory/=" would result in the destination file title FTP_DOMAIN_COM/DIRECTORY (under the usercode RETRIEVE is running under and on the primary family from RETRIEVE's FAMILY attribute value).

Security is controlled by the remote server. For FTP servers, the **USER** and **PASSWORD** options will be required if the server requires authentication. For Windows servers, the **USER** and **PASSWORD** options (and optionally the **DOMAIN** option) can be used to specify authentication information, or you can use a Unisys MCP credentials file. Please see the "MAKECREDENTIALS Utility" section in the *IO Subsystem Programming Guide* for more information on creating credentials files.

An example CUT WFL command:

```
RUN OBJECT/RETRIEVE (  
  "CUT /DBDUMP/SAT/= AS (PROD)DBDUMP/SAT " &  
  "FROM \\server\share BINARY " &  
  "USER TEST PASSWORD 'test' " &  
);
```

In the above command, RETRIEVE will:

- Rename, download and remove all of the files in the "/DBDUMP/SAT" directory on the Windows share "\\server\share."
- The combined MCP file will named "(PROD)DBDUMP/SAT" and will be placed on the primary family of RETRIEVE's FAMILY attribute value.
- The new MCP file will be a record-oriented DATA file, with 30-word records and no translation of the source data (the BINARY option).

4.3.3 RENAME

This command will rename an existing file on an FTP server or Windows share. This command cannot be used to rename a directory.

The **TO** option, used to specify the new file name, is required. The new file name cannot include directories (if any directory names are included with the <new file name>, they will be ignored).

Security is controlled by the remote server. For FTP servers, the **USER** and **PASSWORD** options will be required if the server requires authentication. For Windows servers, the **USER** and **PASSWORD** options (and optionally the **DOMAIN** option) can be used to specify authentication information, or you can use a Unisys MCP credentials file. Please see the "MAKECREDENTIALS Utility" section in the *IO Subsystem Programming Guide* for more information on creating credentials files.

4.3.4 REMOVE

This command will delete an existing file from an FTP server or a Windows share. You cannot delete a directory using this command.

Security is controlled by the remote server. For FTP servers, the **USER** and **PASSWORD** options will be required if the server requires authentication. For Windows servers, the **USER** and **PASSWORD** options (and optionally the **DOMAIN** option) can be used to specify authentication information, or you can use a Unisys MCP credentials file. Please see the "MAKECREDENTIALS Utility" section in the *IO Subsystem Programming Guide* for more information on creating credentials files.

4.3.5 FILES

This command will retrieve the list of file names in the specified directory on an FTP server or Windows share, and either write the names to a file or display the names on your terminal. Subdirectories within the <source directory> are not included in the list.

By default, RETRIEVE will write the file names to a data file with 30-word records, one file name per record.

The **TO** option allows you to override the default title of the data file created on the MCP system. By default, the source file name or directory (including the server name, directories and file name, but excluding file extension) is used to generate the destination file title. For example, for a directory named “ftp.domain.com/source/app_one/=” the default file title would be FTP_DOMAIN_COM/SOURCE/APP_ONE (under the usercode RETRIEVE is running under and on the primary family from RETRIEVE’s FAMILY attribute value).

If you specify **TO TERM**, the file names will be written to your terminal, or, if RETRIEVE is run from a WFL, displayed on the ODT.

Security is controlled by the remote server. For FTP servers, the **USER** and **PASSWORD** options will be required if the server requires authentication. For Windows servers, the **USER** and **PASSWORD** options (and optionally the **DOMAIN** option) can be used to specify authentication information, or you can use a Unisys MCP credentials file. Please see the “MAKECREDENTIALS Utility” section in the *IO Subsystem Programming Guide* for more information on creating credentials files.

4.4 Standard Options

The following standard options are supported.

FROM <server name>

You use the FROM option to specify the name of the remote FTP server or Windows share if you do not include the server or share name with the <source> part of the command.

USER <user name>

Use this option to specify the user name to use when logging on to the remote server.

PASSWORD <password>

Use this option to specify the password to use when logging on to the remote server.

SIZE <gigbytes>

By default, RETRIEVE stores the data from the remote server into a temporary stream file that can store up to about eleven gigabytes. If the file(s) you are transferring are larger than that, use the SIZE command to specify how many gigabytes will be transferred. (RETRIEVE uses the value of this option to set the AREALENGTH of the temporary stream file.) For example, "SIZE 20" forces RETRIEVE to use a large enough area size to hold 20GB.

PASSIVE <boolean value>

Use this command to force RETRIEVE to use an active or passive data connection with the FTP server. The default is to use passive mode ("PASSIVE YES"). This option is not valid when transferring from a Windows server.

DOMAIN <Windows domain>

This option is used to specify a Windows domain name for the user name included in the command. This option is not valid when transferring from an FTP server.

4.5 Data Conversion Options

This section describes the default data conversion RETRIEVE performs during transfer, and the options available to override the default behavior.

4.5.1 Default Data Handling

When downloading a file or a directory of files, RETRIEVE stores the downloaded data into a temporary stream file with no translation. As the data is being written to the temporary file, RETRIEVE scans it to detect the format of the source data and whether ASCII to EBCDIC translation is required. Based on the results of scanning the data and the options set for the transfer, RETRIEVE then copies the data from the temporary file to a permanent file with the correct file structure, record size and FILEKIND.

If the source data contains characters outside the standard visible ASCII character set (which includes the characters 48"20" through 48"7E", and carriage returns, line feeds, tab characters and nulls), RETRIEVE assumes the data is binary and does not need to be translated. For DATA files, if translation is required during the transfer, RETRIEVE sets the destination file's EXTMODE attribute to EBCDIC; otherwise, if no translation is done, the file's EXTMODE is set to OCTETSTRING. Files with a FILEKIND other than DATA always have their EXTMODE attribute set to EBCDIC.

RETRIEVE also scans the source data for carriage returns, which it recognizes as record delimiters. It attempts to match the record format of the source data with four FILEKIND record formats: COBOL85SYMBOL, ALGOLSYMBOL, JOBSYMBOL and SEQDATA. RETRIEVE recognizes these four FILEKINDs in two different formats: "native" and "text."

- **Native record format** means the file's records are formatted exactly as they are on the MCP system, with the sequence numbers in the correct columns and the records all the correct length. (For example, an ALGOLSYMBOL file in native format would have its sequence numbers in columns 73 through 80, and each record would be 90 characters long.) Records must be separated by a carriage return/line feed pair, carriage return only or line feed only characters.
- **Text record format** has the sequence number (of the correct length for the FILEKIND) at the beginning of each record, optionally followed by a space, followed by the record's data. Each record must be terminated by a carriage return/line feed pair, carriage return only or line feed only characters.

For both native and text formats, the line numbers in each record are checked to ensure that they are in numerical order.

If the source data matches one of the four FILEKINDs, RETRIEVE will then use the file extension of the source file to set the FILEKIND of the destination file, but only if the record format of the file extension's FILEKIND matches the record format of the actual data. If the file extension's FILEKIND does not match the actual record format, or the file does not have a file extension, or you are downloading more than one file from a directory, RETRIEVE sets the FILEKIND of the destination file based on the actual format of the data.

If the source data does not match any of the four FILEKINDs in either native or text format, RETRIEVE stores the source data in a record-oriented file if the longest record in the source data is less than 513 characters. In this case, the record size is set to the longest record (rounded up to the next highest word boundary), and shorter records are blank-filled.

If the longest record is longer than 512 characters, the source data is stored in a 30-word (180-byte) record-oriented file, with the last record of the file null-filled.

There are two exceptions to the default data conversion outlined above:

1. If the source file is a MCP wrap container, it is stored in a stream file with no translation.
2. If the source file is a compressed file created by DELIVER, the destination file is created using the file attributes from the compression header in the file.

4.5.2 Known File Extensions

RETRIEVE uses the file extension of the source file name to set the FILEKIND only if the data in the source file is in a matching format. RETRIEVE supports the standard Programmer Workbench file extensions, as shown in the table below.

<u>MCP Filekind</u>	<u>File Extensions</u>
ALGOLSYMBOL	.alg
BASICSYMBOL	.bas
BINDERSYMBOL	.bnd
CCSYMBOL	.ccc, .c, .h
CDATA	.cdt
COBOLSYMBOL	.cob
COBOL74SYMBOL	.c74
COBOL85SYMBOL	.c85
CPPSYMBOL	.cpp
CSEQDATA	.csd
DASDLSYMBOL	.das
DCALGOLSYMBOL	.dca
DMALGOLSYMBOL	.dma
FORTRANSYMBOL	.for
FORTRAN77SYMBOL	.f77
JAVASYMBOL	.java
NEWPSYMBOL	.nwp
PASCALSYMBOL	.pas
PASCAL83SYMBOL	.p83
RPGSYMBOL	.rpg
SEQDATA	.sqd
JOBSYMBOL	.wfl

RETRIEVE also recognizes all of the file extensions listed above with the “_m” characters added (as created by Programmers Workbench).

4.5.3 Data Conversion Options

You can override the default data conversion behavior using the following data conversion options as part of the RETRIEVE command.

BINARY

This option forces the destination file to be a DATA file with 30 word (180 byte) records, with no ASCII-to-EBCDIC translation done during the transfer. If the source file data does not fill the last record of the destination file, the rest of the record will be set to nulls (48"00").

STREAM

This option forces the destination file to be a stream file, with one byte records. This option does not affect ASCII to EBCDIC translation.

TRANSLATE <boolean value>

This option can be used to control just the ASCII to EBCDIC translation done during a transfer. Set TRANSLATE to YES to force ASCII to EBCDIC translation, or set it to NO to prevent any translation at all, regardless of the contents of the source file.

4.6 OPTIONS Files

To eliminate the repetitive input of required or frequently used options in every RETRIEVE command, RETRIEVE supports a hierarchy of “default” option settings that are discovered and applied whenever a command is processed. When run, RETRIEVE looks for the following two files from which to acquire default option settings.

```
*RETRIEVE/<server type>/OPTIONS      (un-usercoded)
RETRIEVE/<server type>/OPTIONS      (under the current usercode)
```

The file name node <server type> is either FTP or WINDOWS.

When RETRIEVE is run it first looks for *RETRIEVE/<server type>/OPTIONS and changes the option defaults noted in this document based on the commands in that specific file. RETRIEVE then looks for RETRIEVE/< server type >/OPTIONS (under the running usercode) and further changes the option defaults based on the commands in that specific file. Finally the option settings from the actual command line are then applied and the transfer command is executed.

Important Note: To totally eliminate the use of OPTIONS files (ie, only use the program standard defaults), you can include a “*” preceding the RETRIEVE command in the parameter string.

4.7 KEY Command

Without an activation key, the RETRIEVE utility will run for only five days from the date it is downloaded.

To re-activate RETRIEVE, you can request a longer demonstration key or you can purchase an “activation key” from MGS, Inc (e-mail sales@mgsinc.com for details). When you are provided with a key by MGS, Inc, run either RETRIEVE or DELIVER once using the KEY command to store the key on your system (the activation key is stored in the NOTE attribute of the RETRIEVE or DELIVER code file). To install the key use the following CANDE command:

```
U RETRIEVE KEY <activation key>
```

Note that both RETRIEVE and DELIVER can use the key in either code file – you only have to install the key in one of them.

Appendix I Release Notes

1.08 Release Notes

1. This is the RETRIEVE utility's initial release version.

1.09 Release Notes

1. No changes.