

## HELP

The HELP command with no arguments prints out a list of available help subjects (as you've probably guessed by now, since you are indeed reading this). The HELP.MEX file must, of course, be located in the drive and user areas as specified in your overlay configuration.

Help will print a list of available topics. To see this list, do this:

```
HELP ?
```

To query the HELP database for any of the selected topics, do this:

```
HELP <topic-name>
```

for any topic-name displayed by "HELP ?".

In general, HELP frames explain syntax with the use of the '[' and ']' characters (which denote optional items) and the '<>' characters (which indicate a data-type, such as <filename> or <string>).

You may move freely among drives/user areas while the HELP file is opened; MEX will remember where to find it.

Once opened, the HELP file will remain open for the duration of the session, unless a LOG command is executed.

## WECHO

WECHO is a STAT value variable that affects the use of the SENDOUT command. WECHO is the time, in seconds, that SENDOUT will wait between characters during a reply from the remote, before considering the reply ended. This should not be confused with the REPLY variable, which is the maximum amount of time to wait, after sending a string, before considering that no reply is forthcoming.

## QUEUE

QUEUE is a STAT variable that enables or disables the MEX queued I/O functions. The overhead associated with the queues may cause you to lose characters in terminal mode at speeds above about 4800 baud (using a 4 MHz CPU); if you commonly run higher-speed hardwired connections, you'll want to turn QUEUE off.

Although used for various purposes, the most significant use of queues within MEX is to catch 'overflow' characters from the remote after an X-OFF flow character is sent in terminal mode (when the ASCII capture buffer fills). With QUEUE turned off, there is a possibility of lost characters in capture files if the size of such files exceed available memory space.

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#### SODELAY

SODELAY is a STAT switch variable. When ON, SENDOUT strings and keystings sent from terminal mode are tied to the WCHAR and WLINE delay variables, allowing convenient entry of passwords, etc. from a READ file. Note that, for SODELAY to have any effect, the WTECHO switch variable must be OFF (WTECHO takes precedence if both are active).

#### CAPTURE

CAPTURE is a STAT switch variable that enables and disables recording of the save-in-memory terminal file. It works similarly to the terminal mode <escape>-S and <escape>-U commands, but allows access from the command line (and hence from a READ file). This variable can only be changed if a terminal mode capture file is open (see the TERM command).

#### PRECHO

PRECHO is a STAT switch variable that enables and disables the logging of incoming characters to the printer. It is similar to the <escape>-P toggle command used in terminal mode. Changing this variable is most useful when executing from a READ file.

#### TERM

TERM is very similar to the 'T' single-character command ... it takes a filename as an argument, and opens that file as an ASCII-capture file, but does not actually enter terminal mode. This is most useful within a READ file.

#### TERMA

TERMA does the same thing, but opens the file in APPEND mode (as if the single-character T had been entered with the A option).

Examples:           TERM WILLOW.SES           <== opens file, returns to cmd mode  
                  TERMA SOURCE.LOG         <== same, but opens file in appnd mode

For more information on terminal mode, do HELP TERM-MODE. For more information on append mode, do HELP APPEND.

#### ALT

The ALT command supports the ALternate drive/user for READ files as well as .PHN and .KEY (phone libraries and keysting files), and, if the 'A' (append) secondary option is in effect, the terminal-modem capture file. ALT allows you to change the alternate drive/user; its syntax is:

ALT <du-spec>

Examples:

ALT B3:

## ALT A5:

For more information on how alternate DU's are used, and how to set up the ALT search path, see SEARCH.

Documentation for MEX114, extracted from MEX.HLP. Page 2 of 22.

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## SEARCH

SEARCH is a STAT variable that may take on the values 0, 1, 2 or 3. SEARCH specifies a search path for READ files, phone libraries, keystring files, and (if the append secondary option, 'A' is specified) terminal-mode ASCII capture files. These files normally are taken only from the currently logged DU; by modifying SEARCH, you can change the way MEX finds these files.

Two drive/user areas are possible: the currently logged area ("logged" D/U) and the Alternate DU (do HELP ALT for information on changing the alternate).

If SEARCH=0, then only the LOGGED DU is searched.

If SEARCH=1, then only the ALT DU is searched.

If SEARCH=2, then the LOGGED DU is searched; if the file is not found, then the ALT DU is searched.

If SEARCH=3, then the ALT DU is searched; if the file is not found, then the LOGGED DU is searched.

## HEX and DECIMAL modes

HEX and DECIMAL are STAT value variables; they are mutually exclusive (ie, turning one ON turns the other OFF). These variables specify the default input radix of commands that take numeric arguments (e.g., SLEEP, STAT VAL <#>, the '#' spec in CALL commands, etc). If HEX mode is ON, then these numbers are considered Hexadecimal; if DECIMAL mode is on (MEX is distributed with DECIMAL ON), then they are considered decimal values.

You can force a decimal number, regardless of the HEX or DECIMAL mode, by preceding the number with a '\$' character; similarly, the '#' character implies a decimal number.

HEX mode has a side effect: it turns on HEX record count reporting in file transfers.

## SPLIT

SPLIT is a STAT switch variable that affects the screen display of the phone library (done from the PHONE command or the CALL command).

This variable may be turned off to force a more compact display (two entries per line, instead of one), but to work properly, requires a terminal with an 84-character line width.

If SPLIT is disabled, any baud-rate codes associated with an entry will not be displayed.

MEX has a special feature that allows you to maintain 'log' files of your sessions; this is the 'A' secondary option (specified with the T, E or L primary commands when entering terminal mode IF a filename is specified).

When you specify the 'A' secondary option, MEX will search the logged area (and/or the ALT area: do HELP ALT and HELP SEARCH for more information on searching) for the file specified. If found, MEX will scan to the end of the file, and append new data on to the end, rather than querying the user for an erase.

Documentation for MEX114, extracted from MEX.HLP. Page 3 of 22.

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If 'A' is not specified, MEX will limit its search to the currently logged DU, and, if the file is found, will ask you if it should erase the file.

In either case, if the file is NOT found, MEX will create a new file in the currently logged DU.

#### WCHAR and WLINE

WCHAR and WLINE: These are value variables that may be manipulated with the STAT command. They specify delay times in simple file transmissions done within terminal mode (with the <ESC> T command). When you transfer a file, MEX will ask you whether you want to use these delays.

WCHAR is the delay to use between characters. (0-9, in 10's of milliseconds)  
WLINE is the delay to use between lines (0-9, in 100's of milliseconds)

WCHAR and WLINE delays are often needed for timesharing mainframes and BBS's written in BASIC, to allow the slower remote end to catch the entire file.

#### READ

The READ command causes MEX to take command lines from a disk file. This can be handy for such things as controlling a set of file transfers (especially when you can't be present for the entire session) and executing complicated login sequences automatically. READ, used with the EXTEND function (do "HELP EXTEND" for information on how to enter EXTEND mode) provides a means of extending MEX's command set.

The syntax for READ is:

```
READ <filename> [<parm1>] [<parm2>] ...  
                \ _____ \ _____> optional!
```

<parm1>, <parm2>, ... etc. are described in succeeding frames.

The READ file may contain any valid command EXCEPT another READ command. These commands may freely move among drives and user areas; MEX will re-

member where the READ file is located.

Typically, READ files are created with a text editor, and may contain STAT commands to set MEX for a particular type of connection, DIAL commands to actually make the connection, and SENDOUT commands to log in at the destination. It's possible for an entire session to take place under a READ command.

A READ file will terminate when the file ends, or when a CONTROL-C is seen at the console (aborting any command with CONTROL-C will abort the READ file).

It's important to note that, while you can use a READ file to enter the terminal mode, the READ file is not used while the terminal mode is active. When you exit terminal mode, the READ file starts again.

Documentation for MEX114, extracted from MEX.HLP. Page 4 of 22.

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Normally, READ commands echo on the screen when they execute. You can inhibit this, however, by manipulating the SILENT variable (do STAT SILENT ON to inhibit the command echo).

#### READ with PARAMETERS

READ parameters are very similar to CPM's SUBMIT parameters; they are called ACTUAL parameters. If they are present in the command line, they will be plugged into the FORMAL parameters in the READ file. This substitution facility provides a powerful tool for generating multiple-purpose command files, as we'll see in the proceeding frames.

Formal parameters occur in the READ file, and take the form {n}, where n is the parameter number; these numbers correspond sequentially with the ACTUAL parameters entered on the command line. The ACTUAL parameters in the command line are substituted for the FORMAL parameters in the READ file when the file is executed. A special form of FORMAL parameter allows a default value to be used if an ACTUAL parameter is not specified on the command line; this form is {n:<text>} where n is the parameter number, and <text> is any arbitrary text to be used as the default.

If the default form of the formal parameter is not used, AND no actual parameter is specified in the command line, execution will continue, but the parameter will be blank.

Normally, the parameters in the READ command line are terminated by the space between parameters (or the end-of-line); spaces can be imbedded in the ACTUAL parameter by enclosing it in braces.

Example, READ with parameters

FILEGET.MEX contains the following lines:

```
SENDOUT XMODEM S{2} {1:SENACA.DQR}  
R{2} {1:SENECA.DQR}
```

( {2} and {1:SENACA.DQR} are FORMAL parameters). This file can be used in several ways:

```
  READ FILEGET           will simply transfer SENACA.DQR to your system  
  READ FILEGET MEX.UPD   will transfer MEX.UPD to your system  
  READ FILEGET *.NEW B   will transfer all NEW files in batch mode  
  READ FILEGET USQ.DOC VT will transfer FILEGET, View it, goto Term mode
```

The following line illustrates how to expand a parameter, using the above file:

```
  READ FILEGET {*.BOO NEWSTUFF.DOC} BX [use if MEX is running on remote]
```

(Transfers all .BOO files and NEWSTUFF.DOC) in batch mode, then disconnects)

If you turn the command extender on (STAT EXTEND ON), the READ in the above lines can be omitted, making the READ file look like a built-in command. This affects single-character commands somewhat: the disk is searched before the the command is checked for a single; you can avoid this by prefixing single-character command lines with a '\*' (eg, \*RQ FILE.FOO).

Documentation for MEX114, extracted from MEX.HLP. Page 5 of 22.

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#### EXTEND

EXTEND is a STAT switch variable. When turned on, it modifies the way MEX's command decoding works: if a command is not found in MEX's command table, MEX will pass the entire command line on to READ, causing the command to look like a READ command (without READ being present on the command line). For more information, see "READ".

#### DIAL

The DIAL command performs the same task as the CALL command, except that after calling, DIAL returns to command mode (CALL goes to terminal mode).

The syntax for DIAL is exactly the same as the syntax for CALL (do "HELP CALL" for more information on how to use both DIAL and CALL).

DIAL is intended to be used in READ files, where it is desirable for the READ file to retain control after calling a number (READ files have no effect in terminal mode; thus using CALL in a READ file would pause execution of the read file when the distant end is reached).

#### INITFILE

INITFILE is a STAT switch variable. It determines whether or not MEX will look for the start-up file INI.MEX when it is first started.

INITFILE is intended to be used prior to running CLONE, to prevent the

cloned MEX from looking for INI.MEX. For more information about the CLONE command, see "CLONE".

#### ALERT

ALERT is a STAT value variable; it determines the number of times the console bell will ring when a remote computer is reached with the CALL command. ALERT works only on calls that have taken more than one dialing attempt to reach.

ALERT is handy for dialing with the repeat option (do "HELP CALL" for more information about the repeat option): you can enter a number (or group of numbers) to be dialed; with ALERT set non-zero, you'll have an audible signal that a call has been completed.

#### PHONE

The PHONE command may be used to query the phone number library, as well as for adding and deleting numbers. To add a number, use this form:

```
PHONE <id>=<number> [<baud-rate>]
```

Where ID is a string (up to 8 characters) that you want to use to call out the number and <number> is the telephone number. If <id> already exists, it will be replaced. <Baud-rate> is an optional rate to be associated with the number, used by the CALL command. To remove a number, do

```
PHONE <ID>=
```

Documentation for MEX114, extracted from MEX.HLP. Page 6 of 22.

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To see the entire library, do

```
PHONE
```

To see a single entry, do

```
PHONE <ID>
```

#### STAT

The STAT command lets you examine certain system variables, and change certain others. In general, the syntax is as follows:

```
STAT <KEYWORD> <<== to examine a variable
STAT <KEYWORD> <NEW-VALUE> <<== to change a variable
```

The NEW-VALUE will depend on the context of the keyword in question. For example, most of the switch-type variables are either ON or OFF, hence,

```
STAT BAKFIL <<== prints out ON or OFF
STAT BAKFIL ON <<== turns on BAKFIL
```

STAT BAKFIL OFF

<<== turns off BAKFIL

The value-type variables, on the other hand, will print the number or text associated with that variable. Setting the value requires the entry in units associated with that value. For example,

```
STAT REPLY 5          <== sets 5 seconds as SENDOUT reply time
STAT WCHAR 4          <== set 40 ms as transmit-character delay tim
                        during a terminal-mode file send
```

Some variables are read-only, most notably STAT BUFFER (which prints out the save-buffer and printer-buffer statistics).

To obtain a list of all of the options that can be viewed or changed with the STAT command, do

```
STAT ?
```

You'll note that most of the keywords you'll see printed have their own HELP section.

### SENDOUT

SENDOUT allows you to send an arbitrary string out to the modem [see STRINGS]. This is most useful in indirect command file [see READ], but can often be useful in normal interactive mode.

The syntax for SENDOUT is

```
SENDOUT <string>
```

Documentation for MEX114, extracted from MEX.HLP. Page 7 of 22.

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Before the specified string is transmitted, a PREFIX string, if any, is transmitted, followed by the string specified to SENDOUT, and terminated by a SUFFIX string (if any; the default suffix string is a return-code, normally terminating the line to the remote). After transmitting the string, MEX will wait for a reply from the remote, up to a pre-set number of seconds; any reply will printed on your screen.

Following are settings and variables which affect the SENDOUT command:

```
SUFFIX: \ Both of these are described in the previous frame, and are
PREFIX: / further explained in their own information sections.
```

WTECHO: Manipulated by the STAT command, this switch-variable determines whether or not SENDOUT validates its transmission by waiting for characters to be echoed from the remote. If set to ON, then



SENDOUT checks each printing character it transmits with the character as echoed by the remote. If a mismatch occurs, SENDOUT marks an error, sends a CANCEL character, and awaits a TRIGGER character from the remote. It then begins again, and repeats this cycle until either the transmission occurs without error, or the error count is exceeded (which aborts SENDOUT).

If you use SENDOUT with WTECHO off, you'll also likely want to set TRIGGER to null (STAT TRIGGER ""), to avoid trigger-wait.

More factors affecting SENDOUT:

RETRY Manipulated by the STAT command, this value-variable specifies the error-retry count for SENDOUT before aborting.

CANCHR: Manipulated by the STAT command, this string-variable (single character) specifies the character to be transmitted to the remote to cancel the transmitted line after an error.

TRIGGER: Manipulated by the STAT command, this string-variable (single character) is the character the SENDOUT command waits for after an error-cancel, before proceeding with the retry. If the other end doesn't echo, set TRIGGER to 0 (and WTECHO to OFF), and MEX will simply send its arguments and not worry about validating the echoed string (this is the technique you should use to send Smartmodem command strings, for example).

#### REPLY

REPLY is a STAT keyword, and specifies the amount of time (in seconds) that the SENDOUT command will wait, after sending a string, for the remote end to send a reply.

To query the REPLY constant, do: STAT REPLY

To set the REPLY time, do: STAT REPLY <value>

where <value> is the number of seconds to wait, between 0 and 255.

Documentation for MEX114, extracted from MEX.HLP. Page 8 of 22.

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#### RETRY

RETRY is a STAT keyword, and specifies the number of times the SENDOUT will attempt to send a string before aborting. Note that if the Wait-For-Echo switch (WTECHO) is off, RETRY will have no effect, since no error can occur.

To query the RETRY constant, do: STAT RETRY

To set the RETRY constant, do: STAT RETRY <value>

where <value> is the number of retries, between 1 and 255.

#### MISCELLANEOUS COMMANDS

BYE, SYSTEM, EXIT and CPM are keywords used to exit MEX and return to the operating system. Any open terminal file is closed before exiting.

DEL is used to close and erase an open terminal file.

DSC disconnects the modem (may not be implemented in all overlays).

WRT is used to close and save an open terminal file.

SET is a command defined entirely by the overlay; if your overlay doesn't implement SET, MEX will print an error message when SET is invoked.

SSET is a similar command, intended for the Smartmodem overlays.

BELL <n> rings the console bell <n> times (regardless of the BELL switch).

CLS clears the screen (if supported by the overlay)

#### SLEEP

SLEEP is used to invoke a delay (handy sometimes in READ files).  
Syntax is:

SLEEP n

where n is the number of seconds to wait (a ^C from the console will abort the SLEEP command, as well as any active READ file).

Sleep, used with the STAT CLOCK function, can be used to "tweak" the timing constants in MEX (by timing the actual SLEEP period, and adjusting the CLOCK value until the SLEEP argument agrees with the actual measured time). This is especially useful with multi-tasking operating systems, such as MP/M and TurboDOS, where background processing wreaks havoc with the internal MEX timing constants.

#### WTECHO

WTECHO is a STAT keyword, and determines whether or not keystrokes and SENDOUT command lines transmitted to the remote are validated by comparison with their echoed characters.

Documentation for MEX114, extracted from MEX.HLP. Page 9 of 22.

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When WTECHO is ON, all printing characters transmitted to the remote must echo correctly back from the host; this effectively halves the transmission rate, but provides error correction feedback for the SENDOUT

command, allowing it to cancel a line and re-try.

If you're sending command strings out to a line that doesn't echo the characters, you'll want to set WTECHO off. Additionally, if you're using the SENDOUT facility, you'll need to remove the trigger string (you can do this with STAT TRIGGER "", which effectively removes the trigger character.

#### TRIGGER

TRIGGER is a STAT keyword, and specifies the character the SENDOUT command will look for before sending out its argument. To disable the trigger-wait function altogether, do STAT TRIGGER "".

#### CANCEL

CANCEL is a STAT keyword, and specifies the character the SENDOUT command will send to the remote to cancel the line after an error.

#### SEP

SEP is a STAT keyword, and allows you to change the command-line separator character.

#### ESC

ESC is also a STAT keyword, and specifies your terminal-mode escape character, used to activate terminal-mode functions (such as capture and printer buffer on/off, etc). The argument is a single-character string. Example:

```
STAT ESC "^I"
```

changes your escape character to the TAB key.

#### CALL

Use the CALL command to dial numbers either from the library, or from the keyboard. If you specify more than one number on the command line, CALL will try each until one answers with a carrier tone. For example

```
CALL 16165559033 SENACA
```

will dial the first number; if busy, CALL will try the second. The special number '#' will cause the entire command line to be repeated if none of the dialed numbers responds with a carrier:

```
CAL WESTWOOD 1-616-555-2040 TCBBS #
```

will try all three numbers repeatedly until one answers.

You may optionally place a limit on the number of retries by including a decimal number after the '#':

```
CAL 555-1212 #48
```

Note that a ^C will abort dialing at any time.

Note that phone-library numbers may specify an optional baud rate (see PHONE for information on how to specify a baud rate for a number). If a baud-rate is present, CALL will change the baud rate before dialing the number.

Note that, for this feature to work, your hardware must be capable of changing the rate AND your overlay must implement the NEWBD vector. Most MEX overlays (overlays whose names start with "MXO-") allow this, if the hardware is capable of baud-rate change; most MDM overlays do NOT.

#### CLONE

The CLONE command allows you to save a new copy of MEX, with the current options intact (including any defined keystings and phone numbers). The syntax is:

```
CLONE <filename>
```

#### COLD

The COLD command re-starts MEX and erases any defined keystings along with the phone library. This is the only way to erase the entire phone library with one command. The COLD command also allows you to remove the CIS protocol module (for those who don't need it): do this:

```
STAT CIS OFF  
COLD  
CLONE <filename>
```

Note that this removes the CIS module altogether (you can't get it back with the STAT CIS command). This frees up roughly 1K of memory.

#### ERA

The ERA command erases files. The syntax is as follows:

```
ERA <filename> [V]
```

The filename may be ambiguous (e.g., \*.ASM, BOOT?.BAK). ERA always displays a list of the files that are being erased. If you specify the optional 'V' after the filename, ERA will ask for verification before actually erasing the files (after displaying the names).

#### DIR

The DIR command works similarly to the CP/M DIR command, and displays the disk directory on the screen. DIR takes advantage of the DU specification, thus "DIR B7:" will display all of the files in user 7 on drive B. System files will be excluded if the STAT variable 'EXCLUDE'

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is set to ON. If EXCLUDE is OFF, all files will be displayed.

More examples:

```
DIR C3:*.*Q?  
DIR LOGIN.MEX  
DIR 3:
```

#### LOAD and SAVE

LOAD and SAVE are used to load and save phone number and keystring files. Both commands take a filename argument. Examples:

```
LOAD A5:CBBSPHON.PHN      <<== loads a phone # file  
LOAD ARPA.KEY             <<== loads a keystring file  
SAVE C:NEWPHONE.PHN      <<== saves phone # file  
SAVE 9:COMPUSRV.KEY      <<== saves keystring file
```

Note that the filetype determines what type of file is being saved (.PHN for phone number files, .KEY for keystring files). Any other filetype will generate an argument error.

#### About Strings

Several MEX command take string arguments. These strings must be surrounded by quotation marks, and may contain imbedded control characters (with the singular exception of binary zero, which will generate an argument error). The caret ("^") is used to prefix a control character.

Thus, you can specify multi-line strings within one string specification. Examples (note that that the control-character ^M is the carriage-return code, and ^J is a linefeed):

```
KEY A="BILL USER;J^MWHATSNEW^MB:^MWHATSNEW^M"  
SENDOUT "SD B:*.ASM^MCRCK *.BIN^M"
```

Note that the command-separator character may be included freely within a string; it separates your command strings outside of quotation marks only.

#### ID

The ID command allows you to configure the MEX ID string (which is printed in the prompt, and in error messages, if the STAT ERRID switch is set to ON). This is useful if you're communicating with another computer running MEX; if each computer has a different ID string, you're never in doubt as to which one you're typing commands to, or which one printed an error message.

The syntax for the ID command is

ID <string>

(see "STRINGS")

Documentation for MEX114, extracted from MEX.HLP. Page 12 of 22.

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The string may be a multi-line string; it's length in the standard distributed MEX may not exceed 28 characters. This length may be different if your system overlay replaces the MEX defaults (in fact, the overlay may disable this command altogether; if the "INVALID COMMAND" message appears when you attempt to use the ID command, then this is probably the case).

#### CRC and CHECKSUM

CRC and CHECKSUM are STAT switches. The two are mutually exclusive (that is, turning one on turns the other off) and set the preferred type of error checking in Christensen file transfers.

CHECKSUM is a simple sum of the outgoing record; CRC uses a more sophisticated technique employing polynomial arithmetic, and is thus a better method (more errors are detected, thus, there is less chance of an incorrect record being received as if it were valid).

The original MODEM2 protocol employed only CHECKSUM detection; however, in the past few years, most versions of Christensen exchange programs have been rewritten to accept the CRC technique as well. MEX will adapt to transmitting programs using either type of validation.

If MEX is the transmitter, it will switch modes after several failed attempts to transmit a file, thus allowing full compatibility with older modem programs.

#### CIS

CIS is a STAT switch: when ON, then Compuserve protocol file transfers are allowed while in terminal mode. If OFF, then the Compuserve transfer sequences from the remote end are ignored altogether (although they are printed on the screen as "normal" terminal-mode characters).

CIS transfers are always done in terminal mode; there is no command to send or receive a file using CIS protocol, since the remote Compuserve end must initiate the transfer.

Note that if you use the COLD command to restart MEX while the CIS switch is set to OFF, then the Compuserve file transfer module will be removed altogether from the running copy of MEX. If you subsequently use the CLONE command to create a new executable MEX.COM, the additional space formerly used by the CIS module (about 1000 bytes) will be available instead for your buffers. You will not be able to use STAT to turn the CIS switch back on (since there is no longer a CIS module in the system). This feature is intended for those users who do not need the ability to do Compuserve-

protocol transfers, and would rather not waste space on a feature they do not need.

## FILTER

FILTER is a STAT switch variable; when ON, then abnormal control characters are ignored when in terminal mode (with the exception of carriage-return, linefeed, backspace and tab). If OFF, then all characters from the remote will be displayed on the screen (and included in the ASCII-capture file, if active).

Documentation for MEX114, extracted from MEX.HLP. Page 13 of 22.

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FILTER ON is useful if you're working with a noisy connection, and random garbage characters on the line are erasing your screen, etc.

If you're using a video-oriented text editor at the remote, you'll want to be sure FILTER is set to OFF, in order to allow the video-control characters to be accepted by MEX.

Note that the CP/M end-of-file mark is specifically excluded from ASCII-capture files regardless of the setting of FILTER (although FILTER ON allows this character to go to the screen).

## Miscellaneous STAT arguments

BAKFILE: Switch: when ON, new files overwriting old files of the same name are renamed to type BAK. If off, such files are erased.  
PAGE: Value: sets the length of the screen page (0 stops pagination)  
CHAR: Lists all of the STAT variables that are CHARACTERS  
SWITCH: Lists all of the STAT variables that are SWITCHES  
VAL: Lists all of the STAT variables that are VALUES  
BELL: Switch: enables or disables the console BELL  
BUFFER: Prints out status information on the ASCII-save buffer.  
RUB: Switch: If ON, converts local backspace key to RUB  
TAB: Switch: enables or disables the MEX tab expander  
LIST: Switch: enables or disables the LIST device  
LF: Switch: if ON, linefeed append to carriage rtn in T-mode file send  
EXTEND: sets command-extend mode (command names not defined in MEX are passed to the READ command, which will search for a file of the same name).  
SILENT: inhibits command-echo in READ files.

## EXCLUDE

EXCLUDE is a STAT switch variable; it modifies the action of commands that take multiple-filename arguments (such as DIR and the batch-transmit SB).

If EXCLUDE is ON, then SYS files are skipped over by these commands.

If EXCLUDE is OFF, then SYS files are included.

Thus, you can exclude SYS files from a batchfile transmission by STATting

the EXCLUDE switch ON. These files will also be exclude from DIR listings while EXCLUDE is ON.

#### DEBUG

DEBUG is a STAT switch that affects the Terminal mode in MEX. If DEBUG is ON, then characters received in Terminal mode are displayed in a form similar to CP/M's DDT dump (D) command: hex values on the left side of the screen and the ASCII block (as the output progresses) on the right.

You'll note that the ASCII right-side display is "buffered" until 16 characters have been received. After the 16th, the ASCII right-side is printed. Therefore, if the remote's output pauses, you'll see only the hex values until the remote sends more output. Also, exiting Terminal mode will display any buffered ASCII.

Documentation for MEX114, extracted from MEX.HLP. Page 14 of 22.

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DEBUG is useful whenever it's necessary to know exactly what the remote is sending (for example, if you're connected to a time-share network, and can't transfer files, a DEBUG session can prove illuminating in determining just what is happening).

In DEBUG mode, the FILTER flag is ignored, allowing all characters to reach the screen. Additionally, the CIS protocol is disabled while DEBUG is ON.

#### ERRID

ERRID is a STAT switch that enables and disables the printing of the MEX ID string in error messages.

The ID string is useful in applications where you're communicating with a remote computer running MEX (if each end has a different ID code, there is no problem confusing error messages), but if you typically use MEX only with RCPM systems or timesharing systems that don't run MEX, you'll likely want to turn off the ERRID switch, and shorten the error messages.

#### RTIME

RTIME is a STAT value variable, and affects Christensen-protocol file transfers.

RTIME is the amount of time (in seconds) that MEX will wait for a character from the remote end before declaring a timeout, and initiating a record-retransmission sequence.

RTIME is set for one second in the standard distribution MEX; this is more than adequate for RCPM work, and MEX-to-MEX file transfers where each end is running under a single user operating system. But when working with a mainframe-type connection (and sometimes when a remote MEX is running under MP/M), especially when a packet-switched network



is part of the connection, character delays can easily exceed one second. In these environments, you'll want to set RTIME to a higher value (16 seconds is recommended; the maximum is 255).

## LOG

The LOG command allows you to reset the drive (for switching disks) and, optionally, simultaneously change drive and/or user area. The command syntax is:

```
LOG <DU-SPEC>
```

where DU-SPEC is either or both of the new drive to log into and the new user area. An optional colon may follow the DU-SPEC. Examples:

```
LOG B7          <<= reset, log in drive B user 7
LOG 7:          <<= reset, log user 7 current drive
LOG B:          <<= reset, log drive B current user
LOG             <<= reset, retain current user/drive
```

If either a terminal file or a READ file is open, the disk-reset will be denied (although any new drive/user will be logged) and a message printed.

Documentation for MEX114, extracted from MEX.HLP. Page 15 of 22.

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If you want to change drive and/or user without a disk reset, you can do so without the LOG command: just enter the DU spec at the MEX command prompt (in this case, the terminating colon is required).

## KEY

The KEY command is used to manipulate the keystings that are available in terminal mode. There are several forms of the command:

```
KEY             <<= prints out all of the keystings
KEY <keyname>=[<string>] <<= defines a new keystring
```

Keyname is any valid ASCII character, except for the set defined as the terminal mode escape-sequence commands.

In the second form, above, if <string> is omitted, then the specified keystring is erased.

Examples:

```
KEY %="ATDT 14145559932" <<= sets up the '%' key
KEY Q=                  <<= erases the Q keystring
```

Note that KEY names that duplicate terminal-mode commands will be rejected by the KEY command, and an error message will be printed.

## XLINE

XLINE is a STAT switch that affects terminal-mode file transfers. If XLINE is set to ON, then the file will be transmitted, one line at a time; each succeeding line will not be transmitted until an X-ON character is received from the remote.

XLINE is used with some timeshare and network computers, almost never with RCPM and BBS systems.

#### GLOBAL

The GLOBAL command allows you to set the secondary options for the single-character commands. Any options set this way will then be active for the single-character commands whether or not they are specified. For example, if you prefer to go directly to terminal mode after a file transfer, do:

```
GLOBAL T
```

You can also set the VIEW mode for CIS transfers by doing

```
GLOBAL V
```

(note that this is the only way to "view" a CIS file transfer.

For more information about secondary options, see "SECOND".

Documentation for MEX114, extracted from MEX.HLP. Page 16 of 22.

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#### SECONDARY options

The SECONDARY options are used only after the single-character commands (for more information on single-character commands, do "HELP SINGLE"), and modify the way the single-character commands work. Following is a list of the secondary command options:

| OPT  | NAME          | COMMANDS<br>USED WITH | ACTION                                  |
|------|---------------|-----------------------|---|
| ---- | -----         | -----                 | -----                                   |
| A    | Append        | E,L,T                 | Append to a terminal-mode file          |
| B    | Batch         | R and S               | Sets BATCH mode file transfers          |
| D    | Disconnect    | R and S               | Disconnects after a file transfer       |
| E    | Echo          | R and S               | Enter term-mode w/echo after a transfer |
| L    | Local         | T,E                   | Local-character echo                    |
| Q    | Quiet         | R and S               | Sets "quiet mode" for file transfers    |
| R    | Recv-view     | R and S               | Shows received-characters only          |
| S    | Send-view     | R and S               | Shows transmitted characters only       |
| T    | Terminal-mode | R and S               | Enter terminal mode after file xfer     |
| V    | View          | R and S               | Views the file transfer in ASCII        |
| X    | Exit          | R and S               | Disconnect and exit after transfer      |

Note that these options are also effective in CIS transfers, if set with the GLOBAL command (see "GLOBAL").

Examples of secondary options:

```
Primary --+
Command  | +----->secondary commands
          | | | |
          | | | |
[MEX] A0>>ST  MYFILE.FOO      <<== send MYFILE.FOO, go into Term. mode after
[MEX] B9>>RVT  CRACKER.JAK     <<== receive file with view, enter Term mode
[MEX] A3>>RQX  MONKEY.SHN      <<== recv file quietly, disconnect/exit after
[MEX] A0>>RBT  <<== recv batch files, Terminal mode after
[MEX] A0>>T    DISKFILE.SAV    <<== enter term. mode, allow save to disk file
                                (note that the actual copy to the file must be
                                activated with ESC-S while in terminal mode)
[MEX] B3>>TA   DISKFILE.SAV    <<== Enter term. mode, append to DISKFILE.SAV
[MEX] A0>>E    DISKFILE.SAV    <<== same as previous, but with echo mode
[MEX] A0>>S    HELP.MEX        <<== send file, no options (unless GLOBAL)
[MEX] A0>>R    MXO-SM10.ASM    <<== receive file, no options (unless GLOBAL)
```

The most commonly used MEX commands are implemented as single character commands, for ease of use. These are:

- S: Send a file or group of files using Christensen protocol
- R: Receive a file or group of files using Christensen protocol
- T: Enter terminal mode (may specify an optional ASCII-save file argument)
- E: Enter terminal mode with echo (also takes optional filename argument)
- L: Enter terminal mode with local-echo only (filename ok here too).

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T, E, and L are all variations of terminal mode: T sends keyboard characters to the remote and prints characters received from the remote on the console. E mode echoes received characters back to the remote ("half duplex" mode), and L echoes keyboard characters on the console before they go out to the remote ("half duplex" in the other direction).

Note that certain commands may be modified with secondary options (do "HELP SECOND" for more information on secondary options, and examples of single-character commands with and without secondary options).

#### TERMINAL MODE

MEX terminal mode is entered with any of the single-character commands T, L, or E (for more information of the E and L variations, do "HELP SINGLE").

While in terminal mode, you are communicating as a console with the remote end as a console; your keyboard characters are transmitted to the remote, and the remote characters are displayed on your screen.

There are several functions that are available to you from terminal mode, all of which are invoked by typing the escape-character (do "STAT ESC" at command level if you don't know your escape character) followed by one of several characters.

Terminal mode escape-sequences:

```
<ESC>-E      exits back to command level
<ESC>-?      prints a menu of escape sequences
<ESC>-S      start copying incoming text into file buffer (see below)
<ESC>-U      end (un-start) copying text into file buffer (see below)
<ESC>-P      toggle copy-to-printer on/off (if enabled with STAT LIST)
<ESC>-T      transmit a file to the remote (prompts for a filename)
```

Note that <ESC>-S and <ESC>-U require a filename argument with the T when you enter terminal mode (otherwise, there is no file active to write the incoming text into).

You can use <ESC>-P to copy incoming text to the printer. The text is held in a buffer, and prints only as the printer is ready for a character. Thus, your printer may be slower than the modem, and you won't lose characters unless the buffer fills up.

Terminal-mode files (also called CAPTURE or ASCII-SAVE files) are created by entering a filename with the T (or E or L) command; if the file already exists, you will be asked if the file should be erased. MEX will create the new file, and enter terminal mode.

At this point, incoming text is not yet being saved; to start saving text, you must use the <ESC>-S terminal-mode command. You can stop the save by using the <ESC>-U command. You can perform as many start/stop sequences as you like (when text-save is active, you'll see a colon at the start of each line as a visual signal that the save is active).

Documentation for MEX114, extracted from MEX.HLP. Page 18 of 22.

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You can exit terminal mode and move freely among drives and user areas without affecting an open term-file. The LOG command will still be useable, but will not reset the disk (and will print a message to that effect).

If you enter terminal mode with the T,E or L command WITH a filename, when a file is already open, the open file will be closed, and the new one opened.

You can transfer files using either Christensen or CIS protocols while a TERM file is open -- your buffer may be written to disk to make room, but

nothing will be lost, and the file will still be open.

To close the file when you're done saving text, exit terminal mode with <ESC>-E, and use the WRT command. If you change your mind, and decide you don't want to keep the file after all, use the DEL command to erase the file entry and delete any text already saved in memory.

When your printer or ASCII-save buffer fills, MEX will send an X-OFF character to the remote. MEX will then wait for the remote to stop, and will save up to an additional 150 characters into an auxiliary buffer (this buffer may be increased in size by modifying MEXPATxx.OVR). When the remote stops (or the auxiliary buffer fills) MEX will write the ASCII-save buffer to disk (if ASCII-save is active) and print characters until the printer buffer is half-full (if List-copy is on). Then MEX will re-start the remote by sending an X-OFF character.

Note that for this scheme to work, the remote computer must respond to this X-ON/X-OFF "protocol" (most computers do, but *\*not\** all!).

You can transmit a local disk file to the remote with <ESC>-T; you will be prompted for a filename. If you have the XON and XLINE variables turned off (do "HELP XON" and "HELP XOFF" for information about changing these), MEX will ask if you want to use the character and line delays for the file-send; these delays allow slow remote computers to receive files.

The WCHAR and WLINE variables (see corresponding HELP sections) determine the time-delay values for each character, and each lines respectively (of course, you must have answered "Y" to the "want delays?" prompt).

If either of the the XLINE or XON switches is ON, the delay prompt will be skipped, and delays will not be used.

XLINE is a technique used by some mainframes: after a line is transmitted, MEX will not transmit another until receiving an X-ON character from the remote.

XON is more frequently used: when XON is active, MEX will send characters at full speed, but monitor the remote for an X-OFF character. When an X-OFF is received, MEX will pause until the remote sends an X-ON character.

XON is a STAT switch variable that affects the terminal-mode file send (see "TERM-MODE" for a full description of terminal-mode file send).

Documentation for MEX114, extracted from MEX.HLP. Page 19 of 22.

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When XON is set to ON, MEX will send all characters to the remote at full speed, but will monitor for an X-OFF character from the remote. When MEX sees the X-OFF, it will pause, allowing the remote to read all of the

input MEX has transmitted. When MEX sees an X-ON character from the remote, it will resume the file transmission.

### CLOCK

CLOCK is a STAT value variable; you may set this variable to any value between 1 and 255. The value is the CPU clock speed in tens of Megahertz (hence, the speed may vary between .1 and 25.5 Mhz). You can then use the CLONE command to make this change permanent.

CLOCK is useful for "tweaking" MEX under varying conditions of load when running under multi-tasking operating systems, such as MP/M and TurboDOS. When system load is heavy, you can decrease the CLOCK value, causing MEX to spend less time in its internal timing loops.

### REN

The REN command syntax is similar to the normal CPM REN, except that DU specifications may be employed in either the new OR the old filename (but not in both).

In general the syntax is

```
REN <newfilename>=<oldfilename>
```

Examples:

```
[MEX] A0>>REN NEWFILE=OLDFILE           (uses A0)
[MEX] C9>>REN B6:REPORT.OLD=REPORT.DOC   (uses B6)
[MEX] B3>>REN 6:MYFILE=B:YOURFILE       (uses B6)
[MEX] D4>>REN ERROR=C9:BLUNDER          (uses C9)
```

Note that the following REN commands will produce errors:

```
[MEX] A0>>REN B3:SOMETHING=C:ELSE       (ambig drives)
[MEX] A0>>REN 6:ME=7:YOU                 (ambig user #'s)
```

Note that REN will prompt for erasure if the new name already exists. Further, before doing this, it checks for the existence of the old filename, and, if not found, aborts before checking for the the presence of the new name.

### TYPE

The TYPE command prints files on the console, similarly to the CP/M TYPE command, but with pagination: The syntax is:

```
TYPE <filename> <'P'>
```

The optional 'P' will affect pagination at screen boundaries: if pagination is OFF ("STAT PAGE OFF") then 'P' will cause the file to be paged. If pagination is ON ("STAT PAGE ON"), then 'P' will inhibit pagination.

Examples:

```
A2>>COMMAND: TYPE REPORT.DOC      (paged output if PAGE ON)
A2>>COMMAND: TYPE REPORT.DOC P    (inhibits paging if PAGE ON)
```

PREFIX and SUFFIX

PREFIX and SUFFIX are used with the SENDOUT command (do "HELP SENDOUT" for more information on the SENDOUT command). PREFIX is used to manipulate a special PREFIX string, and SUFFIX is used to manipulate a SUFFIX string.

The PREFIX string is transmitted ahead of any SENDOUT string, when the SENDOUT command is used, and the SUFFIX string is transmitted after. This simplifies the construction of complex, repetitive command lines to be sent to the remote.

Either command without arguments prints the current value of the string. To change the string, enter the string on the command line after the command.

Examples:

```
PREFIX "XMODEM S "      <<== sets a prefix
PREFIX ""              <<== sets null prefix string
SUFFIX "^M"           <<== set carriage-return as suffix
```

MEX supports the same drive/user specification for files as Rick Conn's ZCPR and ZCPR2: A file may be prefixed by either the drive name, the user number or both (this extends to batch file transmissions).

Examples:

```
[MEX] A3>>SB B3:*.ASM A9:*.OBJ C6:UPDATE.DOC
[MEX] A0>>DIR A12:*.SUB
[MEX] B3>>TYPE 5:REPORT.DOC
[MEX] C3>>T B6:SESSION.LOG
```

LOGGING DRIVES

MEX supports relogging drive/user in two ways, both of which are pertinent to a discussion of DU specifications:

- LOG command: Takes optional DU spec (trailing colon optional) resets disk system
- At command prompt: simply enter the DU spec (colon required)

Examples:

```
[MEX] A0>>LOG          (relogs current d/u: resets system)
[MEX] A0>>LOG B:       (relogs current user, drive b, resets)
[MEX] A0>>LOG B7:     (relogs drive b, user 7, resets)
[MEX] A0>>B:          (logs current user, drv B, no reset)
[MEX] A0>>A9:         (logs drive A, user 9, no reset).
```

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MEX supports multiple commands on a line, both in READ files, and in directly typed commands. A command line may optionally be entered on the CP/M invocation command line, and this line may also contain multiple commands. Note that a READ command will "stack" any current multiple commands; when input from the READ file is exhausted, the remaining commands will then be executed (a control-C at any time will abort a running READ file and/or a multiple command line).

The multiple command separator in the file as distributed is the semi-colon ";"). This character may be changed with the STAT command ("STAT ESC") or in the patch file.

Examples:

from CP/M:

```
A>MEX DIR;READ MYFILE.MEX;SENDOUT "LOGOUT";BYE
```

This example will bring up MEX, which will first print the directory, then begin executing MYFILE.USE, which may contain SENDOUT commands and R commands to send and receive files. When input from MYFILE.MEX is exhausted, MEX will send the string "LOGOUT" to the remote. Finally, MEX will execute the "BYE" command.

from MEX:

```
A3>>COMMAND: RB;SENDOUT "BYE";BYE
```

This one receives a batch transmission, sends the string "BYE" (gracefully logout from a remote CP/M system, for example), then disconnects and exits to CP/M.



