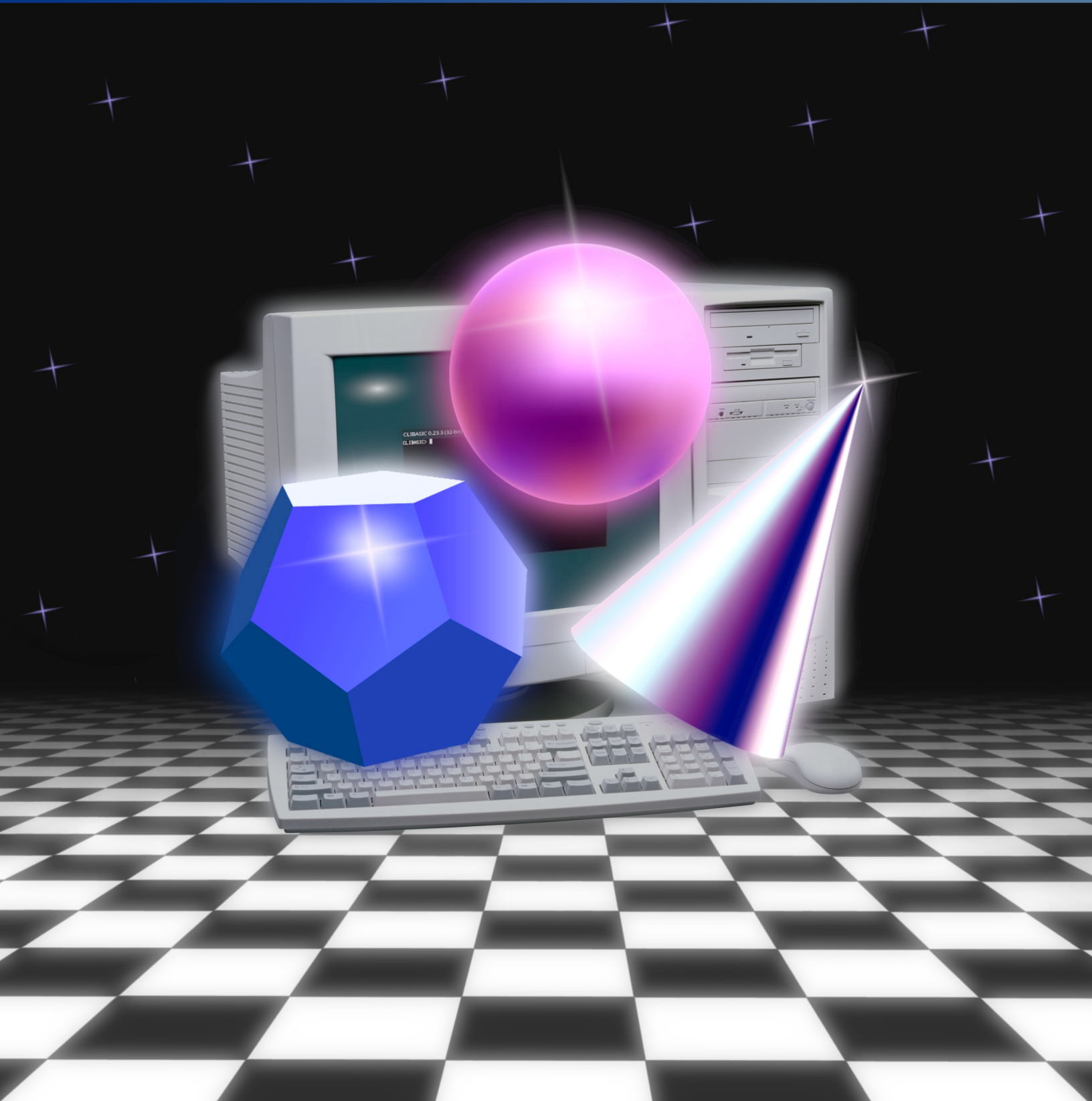


# CLIBASIC

## Language Manual



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## Manual symbols:

{ } = choose from

[ ] = optional

| = choice separator

/ = continuous choice separator

... = continue

## Syntax:

- Commands are separated by newlines or colons.
- Command, function, and variable names are not case sensitive.
- Variable names are allowed to contain A-Z, 0-9, #, \$, %, !, ?, @, and \_.
- Variables must have at least one non numeric valid character to be a valid name.
- Variables can be addressed as an array by appending a [, the element index, and a ] to the end of the variable name.
- Function names are allowed to contain the same characters as variable names.
- Functions can be called by adding (, a comma separated list of arguments, and a ) to the end of a function name.
- Arguments are separated by commas.
- Adding a comma with nothing after it will count as a argument but the command/function will be aware that the argument is empty.
- Strings must have one " to begin and another " to end.
- Strings can only be added together.
- Numbers can include . And 0-9.
- Logic compares must have blocks of a value, a =, >, <, >=, <=, ==, !=, or <>, and another value. These blocks must be separated by a &, or |.
- A whole number greater or equal to 0 may be prefixed before a command to indicate a line number.

## Behavior:

- All file I/O functions and commands set an internal variable which can be queried using the `_FILEERROR()` function.
- Command, function, variable, and label names are case insensitive and are internally converted into upper-case before interpretation.
- For performance purposes, strings are not bounds-checked to be larger than `CB_BUF_SIZE` and counters/pointers are not checked to prevent `int/int32_t` overflow.
- On Unix-based systems such as Linux, to mimic the Windows behavior of opening CLIBASIC in a console window, CLIBASIC will attempt to open in xterm if `GUI_CHECK` is defined.
- On Windows, due to lack of a better solution, the `EXEC` command and `EXEC()` and `EXEC$()` functions are passed through `system()` and will be interpreted by CMD which can be insecure and/or buggy.

## Commands:

BELL [COUNT [, DELAY]]	Rings the terminal bell COUNT times or 1 time if COUNT is not provided with a delay of DELAY milliseconds or 750 milliseconds if DELAY is not provided, between the rings.
CALL FILENAME\$ [, {ARG ARG\$}...]	Runs FILENAME\$ in the current session and passes ARG/ARG\$ to it.
CALLA ARRAY\$	Runs ARRAY\$[0] in the current session and passes the remaining elements of ARRAY\$ to it.
{CHDIR CD} DIR\$	Changes the current directory to DIR\$.
CLS [COLOR]	Clears the screen with optional color.
COLOR {FGC [, BGC]   [FGC], BGC}	Sets the foreground color to FGC and the background color to BGC.
DEFRAG	Defragments the internal variable list for faster variable access.
DEL {VAR\$ VAR}...	Deletes the variable VAR\$ or VAR. Multiple variables can be specified.
DIM {VAR\$ VAR}, MAX [, {INIT\$   INIT}]	Makes an array with the max index being MAX and the initial value for each element being INIT\$/INIT. If INIT\$/INIT is not specified, ""/0 is used.
EXEC PROGRAM\$ [, {ARG\$/ARG}...]	Executes PROGRAM\$ and passes the remaining arguments to PROGRAM\$.
EXECA ARRAY\$	Executes ARRAY\$ where element 0 is the program and the rest of the elements are passed as arguments.
{EXIT QUIT} [CODE]	Exits with CODE (or 0 if CODE is not supplied).
FCLOSE FILENUM	Closes file number FILENUM. If -1 is passed then all open files will be closed.
FILES [DIR\$]	Lists the files and directories in the directory specified by DIR\$ or the current directory if DIR\$ is not provided.

FILL {ARRAY\$ ARRAY} [, {VAL\$ VAL}]	Fills ARRAY\$/ARRAY with VAL\$/VAL. VAL\$/VAL is re-evaluated for each element. If VAL\$/VAL is not specified, ""/0 is used.
FLUSH FILENUM	Flushes the file number FILENUM.
FSEEK FILENUM, POSITION	Moves the file cursor of file number FILENUM to POSITION.
FWRITE FILENUM, STRING\$	Writes STRING\$ to file number FILENUM.
{GOTO GO} NAME	Jumps to label with the value NAME.
{LABEL LBL} NAME	Creates a label with the value NAME.
LOCATE {X, [Y]   [X], Y}	Moves the cursor to X, Y. If a negative number is provided then the cursor will be moved back by the absolute value of that amount.
{MKDIR MD} NAME\$	Makes a directory named NAME\$.
{MOVE MV RENAME REN} OLD\$, NEW\$	Moves/renames the file/directory OLD\$ to NEW\$.
PRINT [{STRING\$/NUMBER} {,/;} ...]	Prints text on the screen, ';' means print without newline and ',' means print tab.
PUT [{STRING\$/NUMBER} ...]	Puts STRING\$ or NUMBER on the terminal.
REDIM {ARRAY\$ ARRAY}, MAX	Resizes ARRAY\$/ARRAY so the maximum index is MAX.
{REMOVE RM} PATH\$	Removes the file or directory PATH\$.
RESETTIMER	Resets the timer.
RUN FILENAME\$ [, {ARG ARG\$}...]	Runs FILENAME\$ in a new session and passes ARG/ARG\$ to it.
RUNA ARRAY\$	Runs ARRAY\$[0] in a new session and passes the rest of the elements of ARRAY\$ to it.
{{SET LET} {VAR\$ VAR}, {STRING\$ NUMBER} {VAR\$ VAR} = {STRING\$ NUMBER}}	Sets the variable VAR\$ or VAR to STRING\$ or NUMBER.
SH COMMAND\$	Runs COMMAND\$ in sh on Linux and Command Prompt on Windows

<code>{SRAND SRND} SEED</code>	Seeds the random number generator with SEED.
<code>WAIT SEC</code>	Waits for SEC seconds.
<code>WAITMS MSEC</code>	Waits for MSEC milliseconds.
<code>WAITUS USEC</code>	Waits for USEC microseconds.
<code>_AUTOCMDHIST</code>	Enables automatic history saving (saves to <code>.clibasic_history</code> to the user's home directory, remove this file to disable this feature).
<code>_LIMITCMDHIST LIMIT</code>	Limits the command history to LIMIT entries.
<code>_LOADCMDHIST FILENAME\$</code>	Loads the command history from FILENAME\$.
<code>_PROMPT STRING\$</code>	Sets the prompt string to solve to STRING\$.
<code>_PROMPTTAB WIDTH</code>	Sets the prompt tab width to WIDTH.
<code>_RESETTITLE</code>	Resets the terminal title.
<code>_SAVECMDHIST FILENAME\$</code>	Saves the command history to FILENAME\$.
<code>_SETENV NAME\$, VALUE\$</code>	Sets the environment variable with the name NAME\$ to VALUE\$.
<code>_SHATTRIB {ATTRIB\$ ATTRIB}, {VALUE\$ VALUE}</code>	Sets the 'SH' attribute ATTRIB\$ or ATTRIB to VALUE\$ or VALUE.
<code>_TITLE STRING\$</code>	Sets the terminal title to STRING\$.



<pre>_TXTATTRIB {ATTRIB\$ ATTRIB}, {VALUE\$, VALUE}</pre>	<p>Sets the text attribute ATTRIB\$ or ATTRIB to VALUE\$ or VALUE.</p> <p>Available attributes:</p> <ul style="list-style-type: none"> <li>0/"RESET"</li> <li>1/"BOLD"</li> <li>2/"ITALIC"</li> <li>3/"UNDERLINE"</li> <li>4/"DBL_UNDERLINE"/"DOUBLE_UNDERLINE"</li> <li>5/"SQG_UNDERLINE"/"SQUIGGLY_UNDERLINE"</li> <li>6/"STRIKETROUGH"</li> <li>7/"OVERLINE"</li> <li>8/"DIM"</li> <li>9/"BLINK"</li> <li>10/"HIDDEN"</li> <li>11/"REVERSE"</li> <li>12/"UNDERLINE_COLOR"</li> <li>13/"FGC"</li> <li>14/"BGC"</li> <li>15/"TRUECOLOR"/"TRUE_COLOR"/"24BITCOLOR"/"24 BIT_COLOR"</li> </ul>
<pre>_TXTLOCK</pre>	<p>Stops the keyboard from echoing on the terminal.</p>
<pre>_TXTUNLOCK</pre>	<p>Undoes the effect of ‘_TXTLOCK’.</p>
<pre>_UNSETENV NAME\$</pre>	<p>Unsets the environment variable named NAME\$.</p>

## Functions:

AND (VAL1, VAL2)	Returns the result of a bitwise and on VAL1 using VAL2. Both values are read as a 64-bit unsigned integer.
ASC (STRING\$ [, POSITION])	Returns the ASCII code of character POSITION (starting at and defaulting if not specified to zero) of STRING\$.
BASENAME\$ (FILENAME\$)	Returns the file name out of the file path provided by FILENAME\$.
BGC ()	Returns the current background color.
{CHDIR CD} (DIR\$)	Attempts to change the current directory to DIR\$ and returns 0 on success and an error code on failure (the error code is taken directly from the C variable 'errno' set by the C 'chdir()' function).
CHR\$ (CODE)	Returns ASCII character CODE.
CHRAT\$ (STRING\$, POSITION)	Returns the character at POSITION of STRING\$.
CWD\$ ()	Returns the current working directory.
CINT (NUMBER)	Returns NUMBER rounded.
COS (NUMBER)	Returns the cosine of NUMBER.
COSH (NUMBER)	Returns the hyperbolic cosine of NUMBER.
CURX ()	Returns the X position of the cursor.
CURY ()	Returns the Y position of the cursor.

DATE (ATTRIB\$   ATTRIB)	<p>Returns the date attribute ATTRIB\$ or ATTRIB.</p> <p>Available attributes:</p> <p>0/"SEC"/"SECOND"</p> <p>1/"MIN"/"MINUTE"</p> <p>2/"HR"/"HOUR"</p> <p>3/"DAY"</p> <p>4/"MON"/"MONTH"</p> <p>5/"YEAR"</p> <p>6/"WDAY"/"WEEKDAY"</p> <p>7/"YDAY"/"YEARDAY"</p> <p>8/"DST"/"DAYLIGHT"/"DAYLIGHTSAVING"</p>
DIRNAME\$ (FILENAME\$)	Returns the directory name out of the file path provided by FILENAME\$.
EOF (FILENUM)	Returns 1 if the end of file number FILENUM has been reached and 0 otherwise. -1 is returned if an invalid FILENUM is passed.
EOFD (FILENUM)	Returns 1 if the file cursor for file number FILENUM has passed the size of the file data and 0 otherwise. -1 is returned if an invalid FILENUM is passed.
EXEC (PROGRAM\$ [, {ARG\$/ARG}...])	Executes PROGRAM\$, passes the remaining arguments to PROGRAM\$, then returns the exit code of the program or 127 if running PROGRAM\$ failed.
EXEC\$ (PROGRAM\$ [, {ARG\$/ARG}...])	Executes PROGRAM\$, passes the remaining arguments to PROGRAM\$, then returns the output of PROGRAM\$.
EXECA (ARRAY\$)	Executes ARRAY\$ where element 0 is the program and the rest of the elements are passed as arguments, then returns the exit code of the program or 127 if running PROGRAM\$ failed.
EXECA\$ (ARRAY\$)	Executes ARRAY\$ where element 0 is the program and the rest of the elements are passed as arguments, then returns the output of PROGRAM\$.
EXP (NUMBER)	Returns the exponent of NUMBER.

FCLOSE (FILENUM)	Closes FILENUM and returns 1 if successful, otherwise returns 0. If -1 is passed then all open files will be closed.
FILES\$ ([DIR\$])	Returns a list of files and directories in the directory specified by DIR\$ or the current directory if DIR\$ is not provided.
FLUSH (FILENUM)	Returns 1 if flushing file number FILENUM was successful and 0 otherwise. -1 is returned if an invalid file number is passed.
FOPEN (FILE\$, MODE\$)	Opens file FILE\$ with mode MODE\$ and returns a file number if successful, otherwise -1 is returned.
FREAD (FILENUM)	Returns the next character of file number FILENUM as a number or -1 if unsuccessful or the end of the file was reached.
FREAD\$ (FILENUM)	Returns the next character of file number FILENUM. An empty
FSIZE (FILENUM)	Returns the position of the last character in FILENUM or -1 if the file number does not exist.
FWRITE (FILENUM, STRING\$)	Writes STRING\$ to file number FILENUM and returns 1 if successful, otherwise returns 0.
FGC ()	Returns the current foreground color.
HEIGHT ()	Returns the height of the terminal.
HEX\$ (NUMBER)	Returns the hexadecimal version of NUMBER.
INKEY\$ ()	Returns a character from the terminal.
INPUT\$ (PROMPT\$)	Returns a string after prompting for PROMPT\$ (asks “?: ” if PROMPT\$ is not supplied).
INT (NUMBER)	Returns NUMBER rounded down.
ISFILE (PATH\$)	Returns 1 if PATH\$ is a file, 0 if PATH\$ is a directory, or -1 if PATH\$ cannot be found.
LCASE\$ (STRING\$)	Returns the lower-case version of STRING\$.
LEN (STRING\$)	Returns the length of STRING\$.

LIMIT(NUMBER, {MAX   MIN, [MAX] })	Returns NUMBER trimmed to MIN and/or MAX.
LINE\$(LINE, STRING\$)	Returns line LINE (starting at zero) of STRING\$.
LINES(STRING\$)	Returns the line count of STRING\$.
LOG(NUMBER)	Returns the natural logarithm of NUMBER.
LOG10(NUMBER)	Returns the common logarithm of NUMBER.
{MKDIR MD}(PATH\$)	Makes a directory with the location of PATH\$ and returns 1 if successful, otherwise returns 0.
MOD(NUMBER)	Returns the modulus of NUMBER.
{MOVE MV RENAME REN}(OLD\$, NEW\$)	Moves/renames the file/directory OLD\$ to NEW\$ and returns 1 if successful, otherwise 0 is returned.
NOT(VAL)	Reads VAL as a 64-bit unsigned integer and returns the result of a bitwise not.
OCT\$(NUMBER)	Returns the octal version of NUMBER.
OR(VAL1, VAL2)	Returns the result of a bitwise or on VAL1 using VAL2. Both values are read as a 64-bit unsigned integer.
PAD(STRING\$/NUMBER, WIDTH [, CHAR\$])	Returns STRING\$/NUMBER padded to WIDTH using CHAR\$. CHAR\$ must contain one character, if CHAR\$ is not provided then ' ' is used for STRING\$ and '0' is used for NUMBER.
PI()	Returns Pi.
{RAND RND}([MIN,] MAX)	Returns a random number from MIN (0 if MIN is not supplied) to MAX.
{REMOVE RM}(PATH\$)	Returns 1 if the removal of PATH\$ was successful, otherwise returns 0.
RGB(RED, GREEN, BLUE)	Returns a 24-bit color code from separate red, green, and blue values.
SH(COMMAND\$)	Runs COMMAND\$ in the command line or shell and returns the exit status.

<code>SH\$(COMMAND\$)</code>	Runs <code>COMMAND\$</code> in the command line or shell and returns the text the command outputs.
<code>SHIFT (VAL, AMOUNT)</code>	Shifts <code>VAL</code> left bitwise by <code>AMOUNT</code> .
<code>SIN (NUMBER)</code>	Returns the sine of <code>NUMBER</code> .
<code>SINH (NUMBER)</code>	Returns the hyperbolic sine of <code>NUMBER</code> .
<code>SNIP\$(STRING\$, {TO   {[FROM], TO   FROM [, TO]}})</code>	Returns the part of <code>STRING\$</code> defined by <code>FROM</code> through <code>TO</code> .
<code>STR\$(NUMBER)</code>	Returns <code>NUMBER</code> as a string.
<code>TAN (NUMBER)</code>	Returns the tangent of <code>NUMBER</code> .
<code>TANH (NUMBER)</code>	Returns the hyperbolic tangent of <code>NUMBER</code> .
<code>TIME ()</code>	Returns the current time in seconds.
<code>TIMEMS ()</code>	Returns the current time in milliseconds.
<code>TIMEUS ()</code>	Returns the current time in microseconds.
<code>TIMER ()</code>	Returns the timer value in seconds.
<code>TIMERMS ()</code>	Returns the timer value in milliseconds.
<code>TIMERUS ()</code>	Returns the timer value in microseconds.
<code>TRUECOLOR ()</code>	Returns 1 if the truecolor attribute is enabled, 0 otherwise.
<code>UCASE\$(STRING\$)</code>	Returns the upper-case version of <code>STRING\$</code> .
<code>VAL (STRING\$ [, TYPE])</code>	Returns the numeric value of <code>STRING\$</code> , <code>TYPE</code> is what type the number is (0/not supplied = DEC, 1 = HEX, 2 = OCT, 3 = BIN).
<code>WIDTH ()</code>	Returns the width of the terminal.
<code>XOR (VAL1, VAL2)</code>	Returns the result of a bitwise exclusive or on <code>VAL1</code> using <code>VAL2</code> . Both values are read as a 64-bit unsigned integer.
<code>_ARG\$ ([N])</code>	Returns argument <code>N</code> or all arguments except #0 if <code>N</code> is not provided. Argument 0 is the full/real path to the program file.
<code>_ARGC ()</code>	Returns how many arguments where passed to the program

<code>_BITS\$()</code>	Returns the executable bit format.
<code>_ENV\$(STRING\$)</code>	Returns the content of the environment variable defined by <code>STRING\$</code> .
<code>_ENVSET(STRING\$)</code>	Returns 1 if the environment variable defined by <code>STRING\$</code> is set and 0 otherwise.
<code>_ERRNOSTR\$(ERRNO)</code>	Returns the corresponding error string for error number <code>ERRNO</code> .
<code>_FILEERROR()</code>	Returns the last error produced by a file I/O command or function.
<code>_HOME\$()</code>	Returns the path to the user's home directory.
<code>_OS\$()</code>	Returns the current operating system name.
<code>_PROMPT\$()</code>	Returns the prompt string.
<code>_RET()</code>	Returns the exit status generated by <code>RUN</code> , <code>CALL</code> , or any <code>EXEC</code> or <code>SH</code> command or function.
<code>_STARTCMD\$()</code>	Returns the full/real path to the command used to start CLIBASIC.
<code>_TEST(CONDITION)</code>	Evaluates and returns the result of testing <code>CONDITION</code> .
<code>_TXTLOCK()</code>	Returns 1 if the text lock is in effect and 0 otherwise.
<code>_VER\$()</code>	Returns the CLIBASIC version.

## Logic Commands:

BREAK	Breaks out of a DO or FOR block.
CONTINUE	Skips the remaining commands in a DO or FOR block.
DO	Begins a DO block.
ELSE	Inverts an IF command.
ENDIF	Ends an IF block.
FOR VAR, INIT, CONDITION, I	Begins a FOR block, sets VAR to INIT and loops while adding I to VAR while CONDITION is true.
IF CONDITION	Begins an IF block and runs commands if CONDITION is true.
LOOP	Jumps to the beginning of a DO block.
LOOPWHILE CONDITION	Jumps to the beginning of a DO block if CONDITION is true.
NEXT	Jumps to the beginning of a FOR block.
REM	Comments out one command.
{WHILE DOWHILE} CONDITION	Begins a DO block while CONDITION is true.



## Symbols:

?	Shortcut to PRINT.
\$	Shortcut to SH.
@	Shortcut to LABEL.
%	Shortcut to GOTO.
~	Shortcut to _TEST().
{' #}	Comment until the end of the line.

## Comparing:

=	Equal to
<>	Not equal to
>	Greater than
<	Less than
{>= =>}	Greater than or equal to
{<= =<}	Less than or equal to
&	And
	Or

## About :

**Cover image:** PQCraft

**Cover image geometric shapes:** pikisuperstar/Freepik

**Cover image creation program:** GIMP

**Manual content:** PQCraft

**Manual content creation program:** LibreOffice