

PL/9 EDITOR/COMPILER/TRACER

COMMAND REFERENCE

PL/9 EDITOR COMMAND SUMMARY

S Y M B O L S

| | |
|-----------|---|
| <CR> | represents a carriage return. |
| <> | symbols are used to enclose a variable. |
| [] | symbols indicate that the enclosed data is optional. |
| <NUMBER> | a decimal number such as 36 or 192. (defaults to one) |
| <TARGET> | represents the decimal <u>number of lines</u> specified by the command, and defaults to one if none is given. |
| <#TARGET> | represents the decimal <u>line number</u> specified by the command. |

M O D E C O N T R O L

| | |
|------------|---|
| I | INSERT lines mode. Prompt will change from (#) to (+) and the following commands are available: TAB.....generates three spaces BACKSPACE...moves the cursor to the left one place. CANCEL.....erases the entire line. ESCAPE.....(in left col) terminates the insert session. RETURN.....generates a new line. |
| X | EXIT to FLEX. |
| M | MONITOR. Enter the ROM System Monitor. |
| /<COMMAND> | Execute a FLEX command. |

L I N E P O S I T I O N I N G C O M M A N D S

| | |
|-------------------|---|
| <NUMBER>[COMMAND] | Make <NUMBER> the current line, then execute [command]. |
| 1 or ^ | Go to the first line in the file. |
| B or ! | Go to the bottom (/EOF) of the file. |
| +<NUMBER> | Move down <NUMBER> lines from the current position. |
| -<NUMBER> | Move up <NUMBER> lines from the current position. |
| <CR> | Display the current line. |
| <ESCAPE> | Display the next line. |

PL/9 EDITOR COMMAND SUMMARY

FILE ORIENTED COMMANDS

| | |
|------------|---|
| N | NEW file. Erase the current file. |
| P<TARGET> | PRINT <TARGET> number of lines on the terminal. |
| D<TARGET> | DELETE <TARGET> number of line(s). |
| D<#TARGET> | DELETE from current line to <#TARGET> line. |

LINE EDITING

| | |
|---------|---|
| O<CHAR> | OVERLAY the current line. |
| E | EDIT the current line. (leaves cursor at end of line). |
| =<TEXT> | REPLACE the current line with <TEXT>. |
| \ | SPLIT the line into individual lines at each semicolon. |
| Z | CONCATENATE two lines. |

GLOBAL EDITING

| | |
|-----------------------|---|
| F<NUMBER>/<STRING> | FIND the next <NUMBER> occurrences of <STRING>. |
| C<NUMBER>/<ST1>/<ST2> | CHANGE the next <NUMBER> occurrences of <ST1> to <ST2>. |

DISK FILE HANDLING

| | |
|-------------------------|--|
| Q or ? | Query the default filenames. |
| L[=<FILENAME>] | LOAD a disc file. |
| S[=<FILENAME>] | SAVE the file on disc. |
| W<TARGET>[=<FILENAME>] | WRITE <TARGET> number of lines to disk. |
| W<#TARGET>[=<FILENAME>] | WRITE from current line to <TARGET> line number to disk. |
| R[=<FILENAME>] | READ in a file above the current line. |

PL/9 COMPILER COMMAND SUMMARY

| | |
|---------------------|---|
| A | Compile only showing errors. |
| A:N | Compile with symbol table only. |
| A:R | Compile code using ROM interrupt vectors @ \$FFF2 - FFFF. |
| A:T | Compile with a listing on the terminal. |
| A:P | Compile with a printer listing. |
| A:C[,T,P,L] | Display the code generated for each source statement. |
| A:M | Write object code directly into memory. |
| A:O[=FILENAME] | Write object code to disc. |
| A:L[=FILENAME] | Write the compile listing to disc into the named file. |
| A:\$XXXX | Offset the object code. (used with the M or O options). |
| A:[P T C],<N1>-<N2> | Generate output for specified range of line numbers. |

MULTIPLE COMMAND EXAMPLES

| | |
|------------------|--|
| A:T,C | Compile to the terminal, generating a listing with object code. |
| A:P,C,281-305 | Compile to the printer, displaying the generated object code for lines 281 through 305. |
| A:T,C,O=[object] | Compile to the terminal, displaying the generated object code and write a binary record to [file]. |
| A:O,R | Compile to default object file substituting ROM interrupt vectors for users vectors defined by SETPL9. |

CALLING THE COMPILER FROM FLEX

| | |
|--|---|
| +++PL9,[source] | Compile and check for errors. |
| +++PL9,[source],T | Compile to terminal. |
| +++PL9,[source],P,C | Compile to printer with object code. |
| +++PL9,[src],O=[obj],C,P | Compile to terminal with object code shown. Write binary file [name] to disk. |
| +++PL9,[src],L=[list],C,R | Compile to listing file with object code shown. Use ROM interrupt vectors. |
| +++PL9,[src],O=[obj],\$XXXX,L=[list],C | Compile to listing file with object shown. Write binary file [name] to disk with offset \$XXXX. |

PL/9 TRACER COMMAND SUMMARY

M O D E C O N T R O L C O M M A N D S

#T Invoke the tracer from within the editor. The prompt will change from (#) to (&) to signify you are now in the tracer.

<ESCAPE> at the start of the line will return to the editor.

E This command also causes a return to the editor.

X EXIT to the disk operating system.

M MONITOR. Exit to the ROM system monitor.

S O U R C E F I L E R E L A T E D C O M M A N D S

<CR> Display the line about to be executed.

<NUMBER> P <TARGET> Print part of the source file.

T R A C E R C O N T R O L C O M M A N D S

G GO. Run the program, continuing until: (1) a breakpoint is encountered. (2) a control C is typed. (3) the program ends.

S SINGLE-STEP the program.

R<NUMBER> RUN <NUMBER> lines of the program.

T<NUMBER> TRACE <NUMBER> lines of the program displaying source line before it is executed.

W<NUMBER> WAIT. Slow down TRACE by a time dependant on the value of <NUMBER>.

N<N1>--<N2>[,<N3>--<N4>..] NO TRACE. The tracer will not stop at any line in any of the ranges specified.

Q QUIT. Restart the program without re-compiling it.

PL/9 TRACER COMMAND SUMMARY

B R E A K P O I N T S

B<CR> Clear all breakpoints.

B<N1>[,<N2>,...]

Set breakpoints at the specified line(s). Existing breakpoints are kept active.

V A R I A B L E S

?<VARIABLE LIST> Print the values of specified program variables. Simple variables and vector elements (with numeric indices, not other variables) can be specified, and may be separated by either a semicolon (print on the same line) or a comma (start a new line).

D<VARIABLE LIST> Print variable values whenever a source line is displayed. The values are specified as for (?) above and are printed before the source line. To prevent variable printing, use the command D<CR>. The variable list is "remembered" from one compilation to the next.

ASCII CODE REFERENCE CHART

| ASCII | HEX | BINARY | DEC | OCT | ASCII | HEX | BINARY | DEC | OCT |
|-------|------|-----------|-----|-----|-------|------|-----------|-----|-----|
| NUL | \$00 | 0000 0000 | 000 | 000 | SP | \$20 | 0010 0000 | 032 | 040 |
| SOH | \$01 | 0000 0001 | 001 | 001 | ! | \$21 | 0010 0001 | 033 | 041 |
| STX | \$02 | 0000 0010 | 002 | 002 | " | \$22 | 0010 0010 | 034 | 042 |
| ETX | \$03 | 0000 0011 | 003 | 003 | # | \$23 | 0010 0011 | 035 | 043 |
| EOT | \$04 | 0000 0100 | 004 | 004 | \$ | \$24 | 0010 0100 | 036 | 044 |
| ENQ | \$05 | 0000 0101 | 005 | 005 | % | \$25 | 0010 0101 | 037 | 045 |
| ACK | \$06 | 0000 0110 | 006 | 006 | & | \$26 | 0010 0110 | 038 | 046 |
| BEL | \$07 | 0000 0111 | 007 | 007 | ' | \$27 | 0010 0111 | 039 | 047 |
| BS | \$08 | 0000 1000 | 008 | 010 | (| \$28 | 0010 1000 | 040 | 050 |
| HT | \$09 | 0000 1001 | 009 | 011 |) | \$29 | 0010 1001 | 041 | 051 |
| LF | \$0A | 0000 1010 | 010 | 012 | * | \$2A | 0010 1010 | 042 | 052 |
| VT | \$0B | 0000 1011 | 011 | 013 | + | \$2B | 0010 1011 | 043 | 053 |
| FF | \$0C | 0000 1100 | 012 | 014 | , | \$2C | 0010 1100 | 044 | 054 |
| CR | \$0D | 0000 1101 | 013 | 015 | - | \$2D | 0010 1101 | 045 | 055 |
| SO | \$0E | 0000 1110 | 014 | 016 | . | \$2E | 0010 1110 | 046 | 056 |
| SI | \$0F | 0000 1111 | 015 | 017 | / | \$2F | 0010 1111 | 047 | 057 |
| DLE | \$10 | 0001 0000 | 016 | 020 | 0 | \$30 | 0011 0000 | 048 | 060 |
| DC1 | \$11 | 0001 0001 | 017 | 021 | 1 | \$31 | 0011 0001 | 049 | 061 |
| DC2 | \$12 | 0001 0010 | 018 | 022 | 2 | \$32 | 0011 0010 | 050 | 062 |
| DC3 | \$13 | 0001 0011 | 019 | 023 | 3 | \$33 | 0011 0011 | 051 | 063 |
| DC4 | \$14 | 0001 0100 | 020 | 024 | 4 | \$34 | 0011 0100 | 052 | 064 |
| NAK | \$15 | 0001 0101 | 021 | 025 | 5 | \$35 | 0011 0101 | 053 | 065 |
| SYN | \$16 | 0001 0110 | 022 | 026 | 6 | \$36 | 0011 0110 | 054 | 066 |
| ETB | \$17 | 0001 0111 | 023 | 027 | 7 | \$37 | 0011 0111 | 055 | 067 |
| CAN | \$18 | 0001 1000 | 024 | 030 | 8 | \$38 | 0011 1000 | 056 | 070 |
| EM | \$19 | 0001 1001 | 025 | 031 | 9 | \$39 | 0011 1001 | 057 | 071 |
| SUB | \$1A | 0001 1010 | 026 | 032 | : | \$3A | 0011 1010 | 058 | 072 |
| ESC | \$1B | 0001 1011 | 027 | 033 | ; | \$3B | 0011 1011 | 059 | 073 |
| FS | \$1C | 0001 1100 | 028 | 034 | < | \$3C | 0011 1100 | 060 | 074 |
| GS | \$1D | 0001 1101 | 029 | 035 | = | \$3D | 0011 1101 | 061 | 075 |
| RS | \$1E | 0001 1110 | 030 | 036 | > | \$3E | 0011 1110 | 062 | 076 |

ASCII CODE REFERENCE CHART

| ASCII | HEX | BINARY | DEC | OCT | ASCII | HEX | BINARY | DEC | OCT |
|-------|------|-----------|-----|-----|-------|------|-----------|-----|-----|
| @ | \$40 | 0100 0000 | 064 | 100 | ` | \$60 | 0110 0000 | 096 | 140 |
| A | \$41 | 0100 0001 | 065 | 101 | a | \$61 | 0110 0001 | 097 | 141 |
| B | \$42 | 0100 0010 | 066 | 102 | b | \$62 | 0110 0010 | 098 | 152 |
| C | \$43 | 0100 0011 | 067 | 103 | c | \$63 | 0110 0011 | 099 | 143 |
| D | \$44 | 0100 0100 | 068 | 104 | d | \$64 | 0110 0100 | 100 | 144 |
| E | \$45 | 0100 0101 | 069 | 105 | e | \$65 | 0110 0101 | 101 | 145 |
| F | \$46 | 0100 0110 | 070 | 106 | f | \$66 | 0110 0110 | 102 | 146 |
| G | \$47 | 0100 0111 | 071 | 107 | g | \$67 | 0110 0111 | 103 | 147 |
| H | \$48 | 0100 1000 | 072 | 110 | h | \$68 | 0110 1000 | 104 | 150 |
| I | \$49 | 0100 1001 | 073 | 111 | i | \$69 | 0110 1001 | 105 | 151 |
| J | \$4A | 0100 1010 | 074 | 112 | j | \$6A | 0110 1010 | 106 | 152 |
| K | \$4B | 0100 1011 | 075 | 113 | k | \$6B | 0110 1011 | 107 | 153 |
| L | \$4C | 0100 1100 | 076 | 114 | l | \$6C | 0110 1100 | 108 | 154 |
| M | \$4D | 0100 1101 | 077 | 115 | m | \$6D | 0110 1101 | 109 | 155 |
| N | \$4E | 0100 1110 | 078 | 116 | n | \$6E | 0110 1110 | 110 | 156 |
| O | \$4F | 0100 1111 | 079 | 117 | o | \$6F | 0110 1111 | 111 | 157 |
| P | \$50 | 0101 0000 | 080 | 120 | p | \$70 | 0111 0000 | 112 | 160 |
| Q | \$51 | 0101 0001 | 081 | 121 | q | \$71 | 0111 0001 | 113 | 161 |
| R | \$52 | 0101 0010 | 082 | 122 | r | \$72 | 0111 0010 | 114 | 162 |
| S | \$53 | 0101 0011 | 083 | 123 | s | \$73 | 0111 0011 | 115 | 163 |
| T | \$54 | 0101 0100 | 084 | 124 | t | \$74 | 0111 0100 | 116 | 164 |
| U | \$55 | 0101 0101 | 085 | 125 | u | \$75 | 0111 0101 | 117 | 165 |
| V | \$56 | 0101 0110 | 086 | 126 | v | \$76 | 0111 0110 | 118 | 166 |
| W | \$57 | 0101 0111 | 087 | 127 | w | \$77 | 0111 0111 | 119 | 167 |
| X | \$58 | 0101 1000 | 088 | 130 | x | \$78 | 0111 1000 | 120 | 170 |
| Y | \$59 | 0101 1001 | 089 | 131 | y | \$79 | 0111 1001 | 121 | 171 |
| Z | \$5A | 0101 1010 | 090 | 132 | z | \$7A | 0111 1010 | 122 | 172 |
| [| \$5B | 0101 1011 | 091 | 133 | { | \$7B | 0111 1011 | 123 | 173 |
| \ | \$5C | 0101 1100 | 092 | 134 | | \$7C | 0111 1100 | 124 | 174 |
|] | \$5D | 0101 1101 | 093 | 135 | } | \$7D | 0111 1101 | 125 | 175 |
| ^ | \$5E | 0101 1110 | 094 | 136 | ~ | \$7E | 0111 1110 | 126 | 176 |