

## Macsubug 6.6 Commands

### Editing

Type a command and then press Return or Enter to execute it. Pressing Return without entering a command repeats the last command. You can enter more than one command on the command line by separating commands with a semicolon (;).

### Editing commands

Command-V	Scroll command buffer down and copy command line to current command line.
Command-B	Scroll command buffer up and copy command line to current command line.
Option-Left Arrow	Move cursor left one word.
Option-Right Arrow	Move cursor right one word.
Option-Delete	Delete the word to the left of the cursor.
Command-Left Arrow	Move cursor to beginning of command line.
Command-Right Arrow	Move cursor to end of command line.
Command-Delete	Delete the line to the left of the cursor.
Command-0	Types a ')' and a matching '(' (Cmd-zero)
Command-"	Types quotation marks (") around the word you just typed.

### Selecting procedure names

Command-D or ;	Display list of embedded symbols
Command-E	Display list of external symbols
Command-R	Display list of external symbols with resource information

Select a procedure from the list by using the up and down arrows. Copy the selected procedure name to the insertion point of the command line by pressing Return. Copy the selected absolute address by pressing Option-Return. Press Escape to leave command line unchanged. Display a selected (qualified) list of procedure names by typing the first letter(s) of the procedure name (after displaying the list with Command-D, E, R, or ;). Pressing Delete undoes the qualification one letter at a time. With C++ and Object Pascal names you may use the Tab key to qualify the class.

### Expressions

The general form of an expression is: value1 [operator value2]. Use parentheses to control the order of evaluation. Expressions always evaluate to a 32 bit value unless .W or .B follows the value. Expressions evaluate to either a numeric or a boolean value based on the operators used. The action of some commands change based on this result. For instance, BR addr expr will break each n times if expression is numeric or it will break when expr is true if expression is boolean.

### Values

Registers	All 68000 family registers use their Motorola names. MMU 64 bit registers and floating point registers are not allowed in expressions.
Numbers	Numbers are hex by default but can be preceded by a '\$' in the case of conflicts with registers An and Dn. Numbers are decimal if they are preceded by a '#'. A trailing "K", "M", or "G" multiplies the number by 1,024 (2 <sup>10</sup> ), 1,048,576 (2 <sup>20</sup> ), or 1,073,741,824 (2 <sup>30</sup> ), respectively. A trailing 'B' (kabillion)

## Macsbug 6.6 Commands

pads a hex number to 8 digits (01B = #16M).

**Symbols** Symbols are found by searching the heap and evaluate to an address. To give priority to a ROM-map symbol, use '@'; to give priority to a CFM symbol, use '©'.

**Traps** Trap number in the range A000 to ABFF or a trap name. Trap names can be preceded by a '+' in the case of conflicts with symbol names. To use a trap's number instead of its address, use '++' before the name.

**'.'** The last address referenced by certain commands. For instance, SM sets dot to the first address that was changed and sets the last command to DM. Typing return will display the memory that was changed.

**':'** The address of the start of the proc shown in the PC window. Not valid if no proc name exists for PC.

**'...'** (Option-';') The address shown in the comment field at the current PC, if any.

### Operators

Arithmetic	+	-	*	/ or ÷	MOD
Boolean	AND or &	OR or	NOT or !	XOR	
Shifting	<<	>>			
Equality	= or ==	<> or != or ≠	<	>	<= >=
Indirection	@ (prefix)	or ^ (postfix)			

### Flow control

**G [addr]**

Resume execution at addr or PC if no addr. Command-G is the same as entering G and pressing Return. ("Go")

**GP**

Resume execution at current PC, ignoring the PowerPC exception that caused our last entry. This propagates the exception to the next handler in the PowerPC exception chain (usually the current application's handler). If executed when in 68K code, this acts like the "G" command. ("Go and Propagate exception")

**GT addr [';cmds']**

Go till addr is reached and optionally execute one or more commands. The addr can be in ROM but execution will be much slower.

**GTP addr [';cmds']**

Go till PowerPC code addr is reached and optionally execute one or more commands.

**S [n | expr]**

Step n instructions or until expr is true. Command-S is the same as entering S and pressing Return.

**SO [n | expr] (T [trace] is the same as SO)**

Step n instructions or until expr is true. JSRs, BSRs and Traps are treated as one instruction. T or Command-T (Trace) are the same as SO. -- If n is zero then clear all pending step points (when you've tried to step over something but re-entered MacsBug before the step over is complete).

("Step Over")

**SS addr [addr]**

Step until checksum of addr range changes. If you do not specify a range, step until long word at addr changes. ("Step Spy")

**MR [offset | addr]**

Break after the current procedure returns by replacing its return address. If the parameter is less than A6 then the return address

## Macsbug 6.6 Commands

is at A7+offset. If the parameter is greater than or equal to A6 then the return address is at addr+4. If no parameter then the return address is at A7. Example: MR A6 to return from a 68K subroutine any time after executing a LINK A6 instruction.  
("Magic Return")

### Breakpoints

BR addr [n | expr] [';cmds']  
Break at 68K code addr each n times or when expr is true and optionally execute one or more commands. If no n or expr then break always. The addr can be in ROM but execution will be much slower. (Setting a BR in PowerPC code is an error. Use BRP instead.)  
BRP addr [n | expr] [';cmds']  
Break at PowerPC code addr each n times or when expr is true and optionally execute one or more commands. If no n or expr then break always. The addr can be in ROM but execution will be much slower. ("BReakpoint PowerPC")  
BRM string  
Set breakpoints at all procedure names that contain string. String can occur anywhere in the name, not just at the beginning. (Automatically knows the difference between 68K and PowerPC code.) ("BReakpoint Multiple")  
BRC [addr]  
Clear breakpoint at addr or all breakpoints if no addr.  
BRD  
Display breakpoint table.

### Watch points

WP addr1 [addr2] [n | expr] [';cmds']  
Break on write to addr1 each n times or when expr is true and optionally execute one or more commands. If no n or expr then break always. If addr2 is specified, watch that range. If no addr2 then the range is a long. Requires a PowerMac 9500 or later and the latest emulator.  
WPC [addr]  
Clear watch point at addr or all watch points if no addr.  
WPD  
Display watch point table.

### ATraps

Appending A to an A-Trap command name specifies that the command applies only to A-Traps that are called from the application heap. Entering two traps as parameters defines a trap range. Entering no traps defines the range A000 to ABFF.

ATB[A] [trap [trap]] [n | expr] [';cmds']  
Break at traps each n times or when expr is true and optionally execute one or more commands. If no n or expr then break always. ("A-Trap Break") NOTE: To break from PowerPC code, see TVB.  
ATT[A] [trap [trap]] [n | expr] [,intlev]  
Display trap information each time a specified trap is called. Intlev specifies the maximum interrupt level at which to record traps. 0 records only non-interrupt level calls, 7 records all. ("A-Trap Trace")  
ATHC[A] [trap [trap]] [n | expr]  
Check the heap each time a specified trap is called. ("A-Trap Heap Check")

## Macsubug 6.6 Commands

ATSS[A] [trap [trap]] [n | expr], addr [addr]  
Checksum addr range each time a specified trap is called. If the checksum has changed then break into MacsBug. If no second addr then checksum the long word at addr. ("A-Trap Step Spy")

ATBA  
See ATB.

ATTA  
See ATT.

ATHCA  
See ATHC.

ATSSA  
See ATSS.

ATC [trap [trap]]  
Clear trap range or all traps if no parameters. ("A-Trap Clear")

ATD  
Display the A-Trap tables. ("A-Trap Display")

ATR[A] [ON | OFF | NOW]  
Turns trap recording on or off. Toggle if no parameters. Information about the most recent trap calls is recorded. ("A-Trap Record")

ATRA [ON | OFF | NOW]  
See ATR.

ATP  
Plays back the information recorded while ATR is on. ("A-Trap Play")

DSC[A] [ON | OFF | str]  
Turns Discipline on or off. Toggle if no parameter. Any parameters other than ON or OFF are passed to Discipline for interpretation. Discipline examines parameters before trap calls and examines results after trap calls. Any errors break into MacsBug.

DSCA  
See DSC.

DSCX [OFF | ON | NOW]  
Turn discipline breaks on or off. Default ON.

TVectors  
Passing a library name and prefixing a ':' specifies all symbols imported by that library. Postfixing a ':' specifies all symbols exported by that library.  
Appending A to a TVector command name specifies that the command applies only to TVectors that are called withing the current application's context.

TVB[A] symbol | library [n | expr] [';cmds']  
Break at CFM symbol or library each n times or when expr is true and optionally execute one or more commands. If no n or expr then break always. ("TVector Break")

TVT[A] symbol | library [n | expr] [,intlev]  
Display information each time a specified CFM symbol or library is called. Intlev specifies the maximum interrupt level at which to record. 0 records only non-interrupt level calls, 7 records all. ("TVector Trace")

TVHC[A] symbol | library [n | expr]  
Check the heap each time a specified CFM symbol or library is called. ("TVector Heap Check")

TVSS[A] symbol | library [n | expr], addr [addr]  
Checksum addr range each time a specified CFM symbol or library

## Macsubug 6.6 Commands

is called. If the checksum has changed then break into MacsBug.  
If no second addr then checksum the long word at addr.  
("TVector Step Spy")

TVBA

See TVB.

TVTA

See TVT.

TVHCA

See TVHC.

TVSSA

See TVSS.

TVC symbol | library

Clear symbol or all symbols if no parameters. ("TVector Clear")

TVD

Display the TVector action table.

Code Fragments

CFIB library

Break when the named library's CFM init routine (if any) is called.

CFTB library

Break when the named library's CFM term routine (if any) is called.

Disassembly

All commands assume the PC if no addr is specified.

IL [-c] [addr [n]]

Disassemble n lines from addr. If no n then display half page.

If -c, use the current ISA: Disassemble PowerPC or 68K code, whichever the PC window is currently showing (-c is mainly useful in macros). ("Instruction List")

ILP [addr [n]]

Disassemble n lines of PowerPC code from addr. If no n then display half page. ("Instruction List PowerPC")

IP [-c] [addr]

Disassemble half page centered around addr. (See IL for the -c option.) ("Instruction list Page")

IPP [addr]

Disassemble half page of PowerPC code centered around addr. ("Instruction list Page PowerPC")

ID [-c] [addr]

Disassemble 1 line starting at addr. (See IL for the -c option.) ("Instruction Display")

IDP [addr]

Disassemble 1 line of PowerPC code starting at addr. ("Instruction Display PowerPC")

IR [addr]

Disassemble until the end of the routine addr is in.

IRP [addr]

Disassemble PowerPC code until the end of the routine addr is in.

DH expr ... | -r start end/count [inc]

Disassemble one or more exprs as a sequence of 16-bit 68K opcodes, or disassemble a range of opcodes. Example: dh -r 4E60 10 2 disassembles 4E60, 4E62 ... 4E7E. ("Disassemble Hex")

DHP expr ... | -r start end/count [inc]

Disassemble one or more exprs as a sequence of 32-bit PowerPC opcodes, or disassemble a range of opcodes.

## Macsbug 6.6 Commands

Emulator instruction-level tracing

ETR

Enables and disables recording of emulator state into a circular buffer. Requires a PowerMac 9500 or later and the latest emulator.

ETD

Displays the current emulator trace buffer.

Heaps

HX [addr | n | 'crtr' | "name"]

Set the current heap to the heap at addr, or the Nth heap as shown by HZ, or the heap belonging to the process with the specified creator type or name. If no parameter then toggle between the Application, System and user heaps. Example: HX TheZone^

HX 'MACS' HX "Finder" (Also try: SYS, APP, PM)  
("Heap eXchange")

HZ [addr]

List all known heap zones. If parameter then list all heap zones embedded inside the heap at addr.

HD [F|N|R|L|P|Q|RS|TYPE] [-s addr] [-e addr] [-d] [,<=> size] [,<=> size]  
Heap Dump:

- Display specific blocks in the current heap, or all blocks if no parameter. The -s option starts dumping heap blocks from the addr. The -e option dumps blocks until the specified ending addr (if smaller than the starting address, this is a byte count). The -d option is used for debugging the Memory Manager by interpreting the size expressions as size corrections, and not block sizes.
- A '!' beside a relocatable block means the master pointer is not within the heap; a '?' means master pointer does not point to the block data. A '.' at the left marks all locked blocks and all nonrelocatable blocks, for your convenience in spotting heap fragmentation.
- The possible block specifiers on the command line are:
  - F: Free blocks
  - N: Nonrelocatable blocks
  - R: Relocatable blocks
  - L: Locked blocks
  - P: Purgeable blocks
  - Q: Questionable blocks
  - RS: Resource blocksTYPE: Resource blocks of this type
- To limit display to blocks of certain sizes, you can use up to two options of the form "<,>". The possible tests are <, =, >, <=, >=.
- Example: HD RS,>#10K,<20K shows resource blocks with sizes between 10K and 32K (numbers with no "#" are in hex)  
HD,=#50 shows all blocks of size 50 decimal

HT

Display a summary of the current heap ("Heap Totals").

HP [-i increment] [-c min\_count]

Heap Profile of the current heap. Shows the number of blocks of each size. With -c, only displays sizes with at least the given block count.

Examples:

HP -- counts blocks of each size  
HP -i 1k -- counts blocks <1K, 1K..2K, 2K..3K, etc.

HC [ALL]

## Macsubug 6.6 Commands

Check all heaps or current heap if no parameters for inconsistencies. Possible command line options are:

ALL: Check all known heaps (same as shown by HZ)

HS [addr]

Turn on scrambling of the heap at addr or ApplZone if no addr. Calling NewPtr, NewHandle, ReallocHandle, SetPtrSize or SetHandleSize checks the heap before the call. If good then the heap is scrambled. If bad then a MacsBug break is forced. Scrambling continues until next HS or a bad heap is detected.

### Symbols

RN [expr]

Set the resource file ref num qualifier to expr. If no expr then set it to curMap. Once set, all subsequent symbol references must be from a heap block with a matching file ref num. If expr is 0 then all symbols match.

SD

Command-: or Command-D is now used to select symbol names.

SX [ON | OFF | NOW]

Turn symbols in disassembly on or off. Toggle if no parameter. ("Symbol eXchange")

EXT [expr [pathname]]

External symbols for resource file ref num expr from .SYM file pathname. If no pathname then dispose of external symbols for resource file ref num expr. If no expr then display all load external symbol .SYM files.

### Stack

SC6 [addr [nbytes]] (SC is the same as SC6)

Show the calling chain based on A6 links. If no addr then the chain starts with A6. If addr then the chain starts at addr. If no nbytes then the stack base is CurStackBase. If nbytes then the stack base is addr+nbytes.

SC7 [addr [nbytes]]

Show possible return addresses on the stack. A return address is an even address that points after a JSR, BSR or A-Trap. If no addr then A7 is the stack pointer. If addr then addr is the stack pointer. If no nbytes then the stack base is CurStackBase. If nbytes then the stack base is addr+nbytes.

### Memory

All commands assume the dot address if no addr is specified.

DM [addr [n | template | basic type]]

Display memory from addr for n bytes, or as defined by a template, a basic type, or an enumerated type. The basic types are Byte, Word, Long, SignedByte, SignedWord, SignedLong, UnsignedByte, UnsignedWord, UnsignedLong, PString, CString, Boolean, Text, Pointer, Handle, IORefNum, VRefNum, Seconds, ATrapWord, Binary8, Binary16, Binary32, OSType, AbsTicks, TickInterval, RgnHandle, IOTrapWord, Version, RGBColor, Fixed, ShortFixed, UnsignedFixed, Fract, and Rect. (See also ?SET for DITTO mode.)

Example: DM TIME SECONDS

DMA [addr [n]]

Display memory as ASCII from addr for n bytes. See ?SET for DITTO mode.

TMP [name]

## Macsbug 6.6 Commands

List templates names that match name. If no name then list all template names.

DP [addr]

Display memory from addr for 128 bytes. ("Display Page")

DB [addr]

Display the byte at addr.

DW [addr]

Display the word at addr.

DL [addr]

Display the long at addr.

DS [addr [n [minStringLen]]]

Display the first string in memory at or after address addr, continuing through n bytes ( if n is specified ) or 1 string if not. A string is a sequence of minStringLen characters between ascii #32 and ascii #127, with minStringLen defaulting to 5 if not specified.

SM addr expr | 'string' ...

Assign values to memory starting at addr. Each value determines the assignment size. Specific sizes can be set using SB, SW or SL. Sets the dot to the first address that was changed and sets the last command to DM. Typing return will display the memory that was changed. ("Set Memory")

SB addr expr | 'string' ...

Assign values to bytes starting at addr. Typing return will display the memory that was changed. ("Set Bytes")

SW addr expr | 'string' ...

Assign values to words starting at addr. Typing return will display the memory that was changed. ("Set Words")

SL addr expr | 'string' ...

Assign values to longs starting at addr. Typing return will display the memory that was changed. ("Set Longs")

### Registers

Values can be assigned to registers with commands of the form:

RegisterName := expression or RegisterName = expression

TD

Display CPU registers (stands for "Total Display").

TF

Display 68881 floating point registers (stands for "Total display Floating point").

TV

Display PowerPC vector registers.

TM

Display 68851 MMU registers (stands for "Total display MMU").

RAD [ON | OFF | NOW]

Toggle between specifying registers as RAn or RDn and specifying registers as An or Dn. The default setting does not require the R.

### Macros

MC name 'expr' | expr

Define a macro called name that expands to 'expr' or to the current value of expr. Macros can have up to nine parameters, indicated in the quoted expression as ®1 through ®9. ('®' is Option-R.) If your keyboard has function keys, you can define macros, such as "DoF12" or "DoCmdOptF8", which execute when you press the function keys.

## Macsubug 6.6 Commands

MCC [name]

Clear named macro or all macros if no name ("MaCro Clear").

MCD [name]

List macros that match name. If no name then list all macros.  
("MaCro Display")

### Miscellaneous

Escape or tilde

Toggle between the user screen and the MacsBug screen.

RB

Unmount the boot volume and reboot.

RS

Unmount all volumes except server volumes and reboot.

ES

Exit the current application (like Command-Option-Escape in 7.x).  
("Exit to Shell")

STAT [-i]

Displays various interesting facts about the environment.  
Provided with the StdLog macro in mind, but you can type  
STAT whenever you feel like it. -- STAT -i displays  
MacsBug's status (memory usage, etc).

API [-s] [-a] [trap [trap|count]]

Displays information on a specified API routine or a range  
of A-traps. A ° next to a trap name means that the trap  
has selectors (use API on that individual trap to see all  
the selectors). The -s option lists selectors even when  
more than a single trap is displayed. The -a option shows  
trap addresses (directly from the trap table, so come-from  
patches are visible). The "68K" and "PPC" tags that appear  
on each line show whether each routine's entry point is  
implemented as 68K code, PowerPC code, or both. Examples:

```
API A800 A810
API GetFrontProcess
API OSDispatch
API -S -A
```

("API" = Application Programming Interface)

FKEY [n]

Executes an FKEY, just like typing Command-Shift-n while  
Mac OS is running. With no parameter, executes FKEY 3.  
Example: FKEY 3 (or just FKEY) takes a screen snapshot.

WH [addr | trap]

Find the name and addr of the parameter. If no parameter then  
assume WH PC. For better results, use WHT to locate a trap.  
(WHT is a macro that expands to "WH ++".) ("WHere")

HOW

Display the reason MacsBug was entered this time. (If you have  
Stepped or Traced since entering MacsBug, HOW is silent.)

F addr nbytes expr | 'string'

Search from addr to addr+nbytes-1 for the pattern. If pattern is  
an expr then the width of the pattern is the smallest unit (byte,  
word or long) that contains its value. ("F" = Find)

FB addr nbytes expr

Search from addr to addr+nbytes-1 for the byte.

FW addr nbytes expr

Search from addr to addr+nbytes-1 for the word.

FL addr nbytes expr

Search from addr to addr+nbytes-1 for the long.

## Macsbug 6.6 Commands

**FINDMASK** addr nbytes mask1 value1 mask2 value2...  
Search from addr to addr+nbytes-1 for data that, when ANDed with the masks, matches the values.

**FILL** addr nbytes expr | 'string'  
Fill memory with the expr (long, word or byte) or string from addr to addr+nbytes.

**CS** [addr [addr]]  
Checksum addr range and store the value. CS without parameters checksums the last addr range and compares it to the last value. If no second addr then checksum the long word at addr.

**LOG** [-H] [pathname | Printer]  
Log all MacsBug output to a file or to an ImageWriter printer. LOG without parameters turns logging off. LOG with only a file name creates the log file on the desktop of the startup disk. LOG -H saves the scrollback history to the bottom of the current screen to the log file. -- LOG? reveals what log file is open.

**SHOW** [addr | 'addr' [ L | LA | W | A ]]  
Display memory at addr in status region. Quoting addr causes it to be evaluated each time the display is updated. SHOW without parameters cycles thru the display formats. The formats are  
L: Long words  
LA: Combination of Longs and ASCII  
W: Words  
A: ASCII Text

**SWAP**  
If you have a single screen then SWAP toggles between:  
Drawing step and A-Trap trace info without swapping.  
Draw step and A-Trap trace info and swap each time.  
If you have multiple screens then SWAP toggles between:  
MacsBug screen is always visible.  
MacsBug screen is visible only at breaks.

**SET** [option [ON | OFF | NOW]]  
Temporarily change the specified MacsBug behaviour. On/off options toggle if you don't specify ON or OFF. NOW lets you check the setting without disturbing it. The options are:  
AUTOGP: When on, we never stop for bus errors that occur within the PowerPC Modern Memory Manager. When off, all bus errors will cause a stop in the debugger.  
DITTO: When on, DM and DMA show ditto marks (''''''') instead of groups of identical lines.  
ECHO: When on, the commands you type echo onto the screen so folks can see what you typed.  
SET ECHO ON  
MOUSE: When on, you can use the mouse in MacsBug. You may want to SET MOUSE OFF if you're trying to move the Mac OS mouse while hitting frequent MacsBug breakpoints.  
MENUBAR: When on, MacsBug displays a menu bar at the top of the display.  
SCROLLPROMPT: Controls display of "Press return or space to continue..." prompt.  
SUSPENDPROMPT: When on, disables the prompts temporarily. They are automatically re-enabled when you get back to the command line.  
SIMPLIFIED: When on, PowerPC disassembly uses simplified mnemonics for certain instructions. (SET SIMP)

## Macsubug 6.6 Commands

UNMANGLE:           When on, C++ symbols appear as in source code, such as "TFoo::Bar()". When off, you'll see stuff like "Bar\_\_4TFooFv" instead.

DX [ON | OFF | NOW]  
Turn user breaks (that is, Debugger() and DebugStr()) on or off. Toggle if no parameter. ("Debugger eXchange")

DV [V]  
Display MacsBug version.  
    V: Display version only, do not show credits.

MBUG [name]  
Displays lots of internal globals for debugging MacsBug itself.

STOPIF expr ["reason"]  
If expr is true, terminates processing of the command line and optionally displays a reason. This is useful in macros, and in DebugStr calls with imbedded commands.

DCMD [name]  
Shows a table of all installed DCMDs (modular debugger commands) that match name. If no name, shows all DCMDs. Use "HELP" ("?" with an individual DCMD name for the full help on that command, or "HELP DCMDs" ("?dc") for full help on all DCMDs.  
Example: dcmd v shows all DCMDs whose names start with "v".

HELP [cmd | topic]  
Display info about a specific command or topic. If no parameter then display all topics. You can use "?" instead of HELP. For example: ?set is the same as help set .

dcmds  
  UserFns  
v1.0  
  Displays VM deferred user functions.  
  (by Jim Luther)  
  Vol [vRefNum|drvNum|"vol name"]  
v3.0.2  
  Displays volume information for the given vrefnum, volume name or all mounted volumes. Flags are D/d=Dirty, S/s=Software locked, H/h=Hardware locked.  
  VMDump [addr [length] [ -F | [ -T | -N [ -D | -V | -I | -M | -U | -P | -H | -L | -B ]]]]

v3.0  
  Displays the status of pages of memory.  
  Options:  
    -F: Show only a list of file-mapped files (ignores other options)  
    -T: Show all page table descriptor bits, hold count, and lock count (other options are ignored when -T is used)  
    -N: If H or L option is passed, show the hold or lock counts  
    -D: Show all page table descriptor bits (other page table descriptor bit options are ignored when -D is used)  
    -V: Show 'VM cleaned' page table descriptor bit  
    -I: Show 'Cache Inhibited' page table descriptor bit ('Cache mode' page table descriptor bits on 68040 MMU)  
    -M: Show 'Modified' page table descriptor bit  
    -U: Show 'Used' page table descriptor bit  
    -P: Show 'Write Protected' page table descriptor bit  
    -H: Show page hold count  
    -L: Show page lock count

## Macsubug 6.6 Commands

-B: Show state of non-resident backing  
PageState values:  
  InMemory  
  OnDisk  
  NotPaged  
Page table descriptor bits:  
  V/v = VM cleaned / not  
  I/i = Cache Inhibited / not  
  w/c/s/n = writethrough / copyback / serialized / nonserialized  
          (68040 MMU only)  
  M/m = Modified / not  
  U/u = Used / not  
  P/p = Write Protected / not  
(by Jim Luther, Jim Murphy, and Dave Lyons)

VBL

v3.0

Lists tasks in the regular and slot VBL queues.

thing ["thing type" | tRefNum | -o]

Displays thing information matching given criteria or for all known things (components).

Parameter must be one and only one of:

- "thing type" - a four character string enclosed in quotes
- tRefNum - the thing refnum for a particular thing
- o - a flag indicating that all open things be listed

StopAS [-a[talk]] [-t[cp]]

v3.0

Closes open AppleShare file server sessions.

Options:

- a[talk]: Close AppleTalk-based sessions
- t[cp]: Close TCP-based sessions

Notes: if no options are specified, both  
  AppleTalk and TCP sessions are closed.  
  The options are ignored by  
  pre-v3.7.2 AppleShare Chooser extensions.

Scream [param1 [param2]] (Threads information display)

v2.1

Displays Thread Manager threads information for the current application.

Options:

- a : Dumps thread manager app globals and thread queues
- g : Dumps thread manager globals
- r : Dumps threads in the ready queue
- s : Dumps threads in the stopped queue
- c : Dumps threads in the running queue
- ## : Dumps complete information on the given thread ID

Note: Providing no params is the same as using the -a option

RD [-c] [-s] [-o] [-f ref#] [-i id] [[-t] 'xxxx'] [-h hndl] (Resource Display)

v3.0.3

Dumps resource information.

Options:

- c Show resource chain
- s Show short resource chain (no fonts below system)
- o Show offsets of resources (from start of res data)
- f <refNum> Only show resources from this file (1=ROM)
- i <resID> Only show resources with this ID
- t 'xxxx' Only show resources of this type
- h <handle> Show resources using given handle (0=not loaded)

Attributes:

## Macsubug 6.6 Commands

S/A = System heap / app heap  
P/p = purgeable / not  
L/U = locked / unlocked  
O/o = protected / not  
E/e = preload / not  
C/c = changed / not  
Z/z = compressed / not  
Purged handles are marked with an "\*".  
">" marks the current resource file.  
"+" marks a file that overrides resources below it.  
Printf "format" arg...  
v3.0  
Displays the arguments according to the format (no floating point).  
ProcInfo  
v3.0.2  
Displays information about all processes.  
Status Flags: Front, Bkgnd, BgOnly, BgNoEvts (can't bkgnd).  
PP procInfo  
v2.0  
Parses and displays a MixedMode ProcInfo.  
(by Jeff Cobb, M McDougall, and Jim Murphy)  
JumpTable [expr]  
v3.0.1  
Display the jump table at expr. If no address is specified, the  
jump table is assumed to start at RA5+\$20.  
Gestalt [-n] [[-s] 'xxxx'] (Gestalt selector display)  
v3.2  
Displays Gestalt selectors and results.  
Options:  
-n Show installed selectors, don't call procedures  
-s 'xxxx' Don't display all selectors, just show this one  
  
(Gestalt with no parameters calls and shows all selectors.)  
FSInfo [fsid] (File System info)  
v3.0  
Displays file system information for the given file system ID [fsid],  
or lists all installed foreign file systems registered with the  
File System Manager or Foreign File Access.  
Use the Vol dcmd to get a list of volumes and their fsid numbers.  
Frag [ -r | -a | -s | -d | -i | -m | -f | -o | -e | -c <ctxID> | [-x]  
<fragname> ] v1.1.1  
Displays information about CFM fragments.  
-r display files and libraries registered with the CFM  
-a display all information for each fragment (-e, -s, -d)  
-e display the exported symbols for each fragment  
-s display the sections  
-d display details about each fragment  
-i libraries imported by a fragment  
-m display only memory based fragments  
-f display only file based fragments  
-o display only override fragments  
-c <ctxID> display only fragments in context number <ID>  
-x exact match for fragname string (rather than substring)  
"fragname" display details about only the specified fragment  
File [ [-s] fRefNum | [[vRefNum] ["file name"] [-t "type"] [-p PSN]] ]  
v4.0

## Macsubug 6.6 Commands

With no refNum parameter, displays information on all open files and iterators.

With a (positive) file refNum, displays the control block for a single file or iterator.

Options that can be used with a specified file or iterator refNum:

-s: Displays information about the given file or iterator in summarized

format instead of as a control block.

With a (negative) volume refNum, displays all files and iterators open on the specified volume.

"file 0" displays all open files and iterators except for fonts.

Options that can be used with no refNum, a volume refNum, or

with "file 0":

"file name": Shows all open files whose names begin with the specified quoted string.

-t "type": Shows all files and iterators with the specified filetype.

-p PSN: Shows shows all files and iterators opened by the process

with the

specified process serial number (try ProcInfo)

fcBFlags are:

M/m = file is Modified / not

C/c = file has own Clump / not

L/l = file is Locked / not

S/s = file has Shared write access / not

E/e = file is large (extended 64-bit fields) / not

B/m = file has Byte range locks / not

R/r = file fork is Resource fork / data fork

W/w = file has Write access / not

(by Jim Luther)

Error expr

v3.2

Display text message corresponding to error number in expr.

EBBE [ON | OFF | NOW] [-r rate] [-v value] (EvenBetterBusError dcmd)

v2.1

EBBE detects inadvertent use of NIL handles (or pointers) and jumps to \$0000 as a place to execute code.

Options:

ON Turn the EBBE task on.

OFF Turn the EBBE task off.

NOW Show the current state of the task.

-r <rate> Set the EBBE Time Mgr task rate. Positive values are milliseconds; negative values are microseconds; 0 sets the rate back to the default rate (1/60 second).

-v <value> Overrides the default value EBBE stuffs into location \$0000. (for example, you might use -v DEADBEEF).

Turning EBBE off resets the value to the default value.

No parameters is the equivalent of using the NOW parameter.

EBBE must be ON to change the rate setting or the EBBE value.

by Jim Luther. Loosely based on Greg Marriott's EvenBetterBusError INIT.

DrvR [refNum|num] | -b | -v

v3.1

Displays driver information for the given refNum or all installed drivers. Flags are B/b=Busy, H/P=Handle/Ptr, O/C=Open/Closed.

Stor/Ver field shows the storage for 68k drivers and the version for native drivers.

drvR -b shows only the drivers that are busy.

## Macsubug 6.6 Commands

`drvvr -v` displays the parameter block at `qHead` if a driver is busy.

`Drive [drvNum|dRefNum]` (display info on drives)

v2.0.1  
Displays drive queue information for the given drive number, driver number, or all drives. Flags are L/l=Locked, E/e=Ejectable, R=Recently ejected, W=non-ejectable but wants eject call, I/i=Inserted, D/S=Double/Single sided.

`DRD addr [q | r recNum | s selNum]`

v3.0  
Dumps the contents of a Mixed Mode RoutineDescriptor.

Options:

- `q` : Quiet mode. Disables parsing of bit fields.
- `r recNum` : Only show RoutineRecord #`recNum`.
- `s selNum` : Only show RoutineRecords whose selectors match `selNum`.

NB: you need to sign-extend the selector by hand.  
(by Jeff Cobb and Jim Murphy)

`Cache [[refNum] blkNum] numBlks -d -f -v] | [-s]`

v3.0  
Displays disk cache blocks.

Parameters and options:

- `refNum` Show blocks for specified file fork or volume
- `blkNum` Starting block number
  - file block if file `refNum`;
  - disk block if vol `refNum` or 0 `refNum`
- `numBlks` Number of blocks to show
- `-d` Show block's data
- `-f` Show file blocks in File Order
  - default is Most Recently Used order
- `-v` Show valid blocks in free list
- `-s` Show misc disk cache stats
  - (other parameters ignored)

Cache block flags:

- D/d = block is Dirty / not
- U/u = block is in-Use / not
- E/e = block is Empty (contains no valid data) / not

`ShowPath [vRefNum dirID] | [-f fRefNum] | [-i vRefNum fileID] | [-t folderType] | [-s specA ddr] | [-r refAddr] | [-p fullPathName]`

v1.0  
Displays a full pathname to the specified file or directory.  
The file system object can be specified by `vRefNum/dirID`, by file `refNum`, by `vRefNum/fileID`, by `folderType`, by `FSSpec`, or by `FSRef`. For example:

- `ShowPath vRefNum dirID`
- `ShowPath -f fileRefNum`
- `ShowPath -i vRefNum fileID`
- `ShowPath -t 'folderType'`
- `ShowPath -s fsSpecAddress`
- `ShowPath -r fsRefAddress`

Displays the `dirID` of a directory or the parent `dirID` of a file with:  
`ShowPath -p fullPathName`

WARNING: This dcmd may hang if used at interrupt time (just like Log).  
(by Jim Luther)

`WhatIs PPC mnemonic`

v1.0  
Explains the PPC mnemonic entered.

The mnemonic `stb` has to be entered in quotes (it's a MacsBug macro)

## Macsubug 6.6 Commands

Explanation of symbols used:

<n,m,...,> means concatenation of the values listed

rA: register that is to be used as the source or destination

rB, rS: register that is to be used as the source

rD: register that is to be used as the destination

frA, frB, frC: floating-point register that is to be used as the source

frD: floating-point register that is to be used as the destination

crbA, crbB: specifies bit in CR that is to be used as the source

crbD: specifies bit in CR or FPSCR that is to be used as the destination

crfD: specifies field in CR or FPSCR that is to be used as the destination

crfS: specifies field in CR or FPSCR that is to be used as the source

vA: specifies a vector register to be used as a source

vB: specifies a vector register to be used as a source.

vC: specifies a vector register to be used as a source.

vD: specifies a vector register to be used as a destination.

[ ] specifies a bit range, i.e., [121-124] is bits 121 through 124

(inclusive)

VSCR is the Vector Status and Control Register

SH: shift amount

SHB: shift amount in bytes

MB: specifies first 1 bit in mask

ME: specifies last 1 bit in mask

A mask is made of 1 bits from MB to ME and 0 bits elsewhere

aevt -- Displays the contents of an Apple event record.

v1.1

Usage:

aevt [addr] - address the Apple event to display, param to AESend by default

[-m | -v] - Use minimal or verbose format for display

[-desc | -data] - address is for an AEDesc or \*dataHandle

r2db

Switch to PowerPC debugger.

(v 1.0d1 Bill Kincaid, 9/93)

findsym name

Ask the CFM for info about a named symbol.

(v 1.1 modifications by Jeff Cobb 10/93)

(based on cfm v 1.0a1 Erik Eidt & Bill Kincaid, 10/92,1/93)

findsym <name> prints info about the symbol named <name>

example: findsym NewHandle shows info about all occurrences of

NewHandle

NOTE: findsym is case-sensitive

Patch [ I | O | T | S | P ] (vers 1.0A3)

none - Check all vectors

I - Check Interrupt vectors

O - Check OSTrap vectors

T - Check TBTrap vectors

S - Save all vectors now

P - Print all vectors

MList -- List the menus installed.