

## .EXE - DOS EXE File Structure

| Offset | Size | Description   |
|--------|------|---|
| 00     | word | "MZ" - Link file .EXE signature (Mark Zbikowski?)                                     |
| 02     | word | length of image mod 512   |
| 04     | word | size of file in 512 byte pages  |
| 06     | word | number of relocation items following header   |
| 08     | word | size of header in 16 byte paragraphs, used to locate the beginning of the load module |
| 0A     | word | min # of paragraphs needed to run program   |
| 0C     | word | max # of paragraphs the program would like  |
| 0E     | word | offset in load module of stack segment (in paras)                                     |
| 10     | word | initial SP value to be loaded   |
| 12     | word | negative checksum of pgm used while by EXEC loads pgm                                 |
| 14     | word | program entry point, (initial IP value)   |
| 16     | word | offset in load module of the code segment (in paras)                                  |
| 18     | word | offset in .EXE file of first relocation item  |
| 1A     | word | overlay number (0 for root program)   |

- relocation table and the program load module follow the header
- relocation entries are 32 bit values representing the offset into the load module needing patched
- once the relocatable item is found, the CS register is added to the value found at the calculated offset

Registers at load time of the EXE file are as follows:

AX: contains number of characters in command tail, or 0  
BX:CX 32 bit value indicating the load module memory size  
DX zero  
SS:SP set to stack segment if defined else, SS = CS and SP=FFFFh or top of memory.  
DS set to segment address of EXE header  
ES set to segment address of EXE header  
CS:IP far address of program entry point, (label on "END" statement of program)