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## Z-DOS v4 CONFIG.SYS Documentation

by Steven Vagts  
Editor, "Z-100 LifeLine"

### Z-DOS v4 CONFIG.SYS

With the introduction of Z-DOS v4 and ZROM v4, there were many new changes to CONFIG.SYS.

As you may recall, the MS-DOS CONFIG.SYS file, often referred to as the configuration file, is a text file containing the names of device drivers to load at boot time, in addition to other installation-specific settings. MS-DOS needs to know about this information before you start your system.

Along with the COMMAND.COM and AUTOEXEC.BAT files, MS-DOS checks for instructions in the CONFIG.SYS file whenever you startup or reboot your system. All three files must be in your root directory to be read at startup.

The CONFIG.SYS file can be edited with EDLIN (the MS-DOS line editor) or any text editor.

Remember when the file CONFIG.SYS used to have just a few lines:

```
DEVICE=DRIVER.SYS /d:02 /f:0
BUFFERS=25
FILES=24
BREAK=ON
```

Well, with all the BIOS changes to accommodate the greater capabilities of each new Monitor ROM, the authors, John Beyers and Mike Zinkow, were able to let us write and use multiple CONFIG.SYS files. Each file could be made for specific applications.

Now, with the latest changes, multiple CONFIG.SYS options are put in a single file, rather than a different CONFIG\_x.SYS file for each option.

While there were a few minor errors in the copy I received, Z-DOS v4 CONFIG.SYS was shipped with about 173 lines of code and an abundant supply of comments to help you tailor your CONFIG.SYS file to your own needs.

Here is the new CONFIG.SYS, with sample lines for every occasion:

```
=====  
Rem      Section 1 - Common commands  
Comment=      ;  
; Permit comments on line after cmd  
Break=On      ; Check for CTRL-C  
Device=\Sys\Z205disk.sys  
; Z205 Memory disk driver  
;          /t = test  
;          /v = verbose.  
;          /1:RW /2:RW = Fast read drives 1 & 2 &  
;                   fast write drives 1 & 2.  
;          /w:45 0124 = Wait 45 for all drives.  
Device=\Sys\Llscsi.sys/t /1:RW  
Multitrack=On  
Stacks=0,0  
;          Section 2 - Custom commands  
:0          ; Default - No key pressed  
Buffers=32,8 ; 32 buffers, 8 sector R/W  
Files=35     ; 35 open files  
Lastdrive=Z  
:A          ; Autocad ( A )  
Buffers=40,8 ; 40 buffers, 8 sector R/W  
Files=13     ; 13 open files  
FCBS=12,10  ; 12 FCB files, 10 protected  
Lastdrive=W ; Permit 23 drives  
Rem      Environment = 240 bytes, display err msgs  
Shell=\Command.com /e:224 /p /msg  
:B          ; Normal - larger environment ( _B )  
#0          ; Buffers=32,8, Files=30  
#1          ; Fcbs=25,20, Install=Share.exe,  
;                   Lastdrive=X  
Rem      Environment = 800 bytes, display err msgs  
Shell=\Command.com /e:800 /p /msg  
:C          ; CompuServe ( C )  
Buffers=20,8 ; 20 buffers, 8 sector R/W  
FCBS=20,18  ; 20 FCB files, 18 protected  
Files=15     ; 15 open files  
Install=\Dos\Share.exe ; Permit big drives  
Lastdrive=S ; Permit 23 drives
```

```

Rem Environment = 384 bytes, display err msgs
Shell=\Command.com /e:328 /p /msg
:D ; Minuet Internet/WWW access
    thru CompuServe (_D)
#0 ; Buffers=32,8, Files=30
#1 ; Fcbs=25,20, Install=Share.exe,
    Lastdrive=X
Rem Environment = 368 bytes, display err msgs
Shell=\Command.com /e:356 /p /msg
:E ; Ez-tape (_E)
Buffers=10,8 ; 10 buffers, 8 sector R/W
Install=\Dos\Share.exe ; Permit big drives
Lastdrive=X ; Permit 24 drives
:F ; Flight Simulator (_F)
Buffers=32,8 ; 32 buffers, 8 sector R/W
Files=10 ; 10 open files
Install=\Dos\Share.exe ; Permit big drives
Lastdrive=X ; Permit 24 drives
Rem Environment = 100 bytes (min)
Shell=\Command.com /e:87 /p
:G ; Generic CAD (_G)
#0 ; Buffers=32,8, Files=30
#1 ; Fcbs=25,20, Install=Share.exe,
    Lastdrive=X
Rem Environment = 512 bytes, display err msgs
Shell=\Command.com /e:511 /p /msg
:H ; HyperAccess Modem program (_H)
#0 ; Buffers=32,8, Files=30
Device=\Dvd\Ha.dvr ; HyperAccess Modem pgm drv
#1 ; Fcbs=25,20, Install=Share.exe,
    Lastdrive=X
Rem Environment = 608 bytes, display err msgs
Shell=\Command.com /e:593 /p /msg
:I ; Install (_I)
Buffers=32,8 ; 32 buffers, 8 sector R/W
Country=001,,e:\sys\Country.sys
; Country code=USA, Code pages=437,850
Device=\sys\Display.sys CON=(,,)
#2 ; Fcbs=25,20, Install=Share.exe,
    Lastdrive=Z
Files=25 ; 25 open files
Install=\dos\Fastopen.exe e:=10,10
; 10 files, 10 file extents
Install=\dos\Nlsfunc.exe
; National language support
Rem Environment = 800 bytes (50 paragraphs),
display err msgs
Shell=\Command.com /e:800 /p /msg
:J ; JB's config.sys (_J)
FILES=30
BUFFERS=30,8
LASTDRIVE=Z
REM device=eemdisk.sys
COUNTRY=001,,\sys\COUNTRY.SYS
DEVICE=\sys\DISPLAY.SYS CON=(,437,1)
Install=\dos\Share.exe
SHELL=\COMMAND.COM/p/e:256/msg
:K
Rem
:L ; Lifeline Library (_L)
#0 ; Buffers=32,8, Files=30
#1 ; Fcbs=25,20, Install=Share.exe,
    Lastdrive=X
Rem Environment = 672 bytes, display err msgs
Shell=\Command.com /e:662 /p /msg
:M ; Minimum Memory Module (_M)
Buffers=20,8 ; 20 buffers, 8 sector R/W
Files=15 ; 15 open files
Install=\Dos\Share.exe ; Permit big drives
Lastdrive=X ; Permit 24 drives
Rem Environment = 720 bytes, display err msgs
Shell=\Command.com /e:720 /p /msg
:N ; Normal (_N)
Buffers=37,8 ; 37 buffers, 8 sector R/W
#1 ; Fcbs=25,20, Install=Share.exe,
    Lastdrive=X
Files=30 ; 30 open files

Rem Environment = 656 bytes, display err msgs
Rem No Drive F or H else environment=720 bytes
Shell=\Command.com /e:660 /p /msg
:O ; Other Normal (_O) - No LLSCSI
#0 ; Buffers=32,8, Files=30
#2 ; Fcbs=25,20, Install=Share.exe,
    Lastdrive=Z
Rem Environment = 608 bytes, display err msgs
Rem No Drive F or G
Shell=\Command.com /e:593 /p /msg
:P
Rem
:Q ; O:\INTS (_Q)
#0 ; Buffers=32,8, Files=30
REM Device=Atapi Cd.sys /D:Mscd000
/I:0 ; /n:0 /p:2c0 ; CD-ROM driver
#2 ; Fcbs=25,20, Install=Share.exe,
    Lastdrive=Z
Rem Environment = 656 bytes, display err msgs
Rem No Drive F or H
Shell=\Command.com /e:648 /p /msg
:R
Rem
:S
Rem
:T ; Test (_T)
#0 ; Buffers=32,8, Files=30
FCBS=25,20 ; 25 files, 20 protected
Install=\Dos\Share.exe ; Permit big drives
Lastdrive=W ; Permit 23 drives
Rem Environment = 720 bytes, display err msgs
Shell=\Command.com /e:720 /p /msg
:U
Rem
:V ; Vdisk (_V)
Buffers=32,8 ; 32 buffers, 8 sector R/W
Rem 42Kb, 128 byte sectors, 8 directory entries
Device=Vdisk.sys Size=42 Secsize=128 Dirs=8
#1 ; Fcbs=25,20, Install=Share.exe,
    Lastdrive=X
Files=25 ; 25 open files
Install=Fastopen.exe e:=10,10
; 10 files, 10 file extents
Rem Environment = 193 bytes, display err msgs
Shell=\Command.com /e:193 /p /msg
:W
Rem
:X ; XTree Gold (_X)
#0 ; Buffers=32,8, Files=30
#1 ; Fcbs=25,20, Install=Share.exe,
    Lastdrive=X
Rem Environment = 608 bytes, display err msgs
Shell=\Command.com /e:593 /p /msg
:Y ; Secondary Default (_Y)
Buffers=50 ; 50 buffers
Files=40 ; 40 open files
Install=\Dos\Share.exe ; Permit big drives
Lastdrive=X ; Permit 24 drives
Rem Environment = 208 bytes, display err msgs
Shell=\Command.com /e:191 /p /msg
Rem If 0,0 then NO stacks, else # of stacks,
Stackframe size
:Z
Rem
::
; Section 3 - Condensed commands
#0
Buffers=32,8 ; 32 buffers, 8 sector R/W
Files=35 ; 35 open files
#1
FCBS=25,20 ; 25 files, 20 protected
Install=\Dos\Share.exe ; Permit big drives
Lastdrive=X ; Permit 24 drives
#2
FCBS=25,20 ; 25 files, 20 protected
Install=\Dos\Share.exe ; Permit big drives
Lastdrive=Z ; Permit 26 drives
##
; Section 4 - Secondary custom commands
=====

```

As you can see, major changes have been made to the format of the CONFIG.SYS file! It looks pretty intimidating, but let's see if we can break it down. This file just looks overly complicated because it is an example file.

The changes are a result of how multiple CONFIG.SYS options are processed. The difference allows us to put all the options in one file, rather than multiple files, and therefore save considerable disk space, which is a big advantage on our hard drives.

#### CONFIG.SYS FORMAT

```
SECTION 1:      ; Lines that come BEFORE the options
                Lines common for all options.

SECTION 2:      ; Option section.
:0              ; Default selection Identifier Lines
                specific to default option.
:A              ; 1st option ID Line, specific
                to 1st option.
:B              ; 2nd option ID Line, specific
                to 2nd option.
:?              ; More option ID's & specific lines.
:Z              ; Last option ID Line, specific
                to last option.
::              ; Identifier that terminates Section 2.

SECTION 3:      ; Common block section.
                This is where the '#' lines, used
                earlier, are defined.
#0              ; Block 0 Lines to include for
                common block #0
#1              ; Lines to include for common
                block #1.
#?              ; Common blocks #2-#8.
#9              ; Lines to include for common
                block #9.
##              ; Identifier that terminates Section 3

SECTION 4:      ; Lines that come AFTER the options and
                common blocks. These are lines common
                for all options.
```

None of the sections are mandatory, but some configurations are invalid and will result in the normal MSDOS error messages for invalid CONFIG.SYS lines.

Section 2 starts at the first line that starts with a ":" and ends with the first line that starts with a "::" or the end of the file if no Sections 3 or 4 exists.

Each Letter option ID line in SECTION 2 must start with a ":" and have the character option identifier immediately following it. The individual options will be terminated by the first line encountered that starts with a "::", or the end of the file if it is the last one and no Sections 3 or 4 exists.

The one exception is if two or more consecutive lines start with a ':', then the first block of lines not starting with a ':' is used for all preceding options. This is done to save the need for duplicate CONFIG.SYS lines when the reason for different "letters" is really the differences in AUTOEXEC.BAT.

If you really want nothing for a particular option you must include a blank line, a remark, or a comment to ensure exclusion of the next block.

The common blocks in Section 3 are limited to a total of 10 (#0-#9). You may include as many of them as you want in any Section 2 option by starting a line with "#" followed by the common block number you want included.

The section 2 general rules apply to section 3 for block termination. You may not have Section 3 common blocks if no Section 2 exists. In other words you can not include common blocks in Sections 1 and 4. In general, if a section is not the last section it needs a terminator.

The order of the Letter options in SECTION 2 is not important. The order of the common blocks in SECTION 3 only dictates the order of processing by SYSINIT. Only the first two characters on any line that starts with a ":" or a "#" are processed, all others are ignored and can be viewed as comments.

The parameters that you can define in the CONFIG.SYS file are:

**BREAK** - Specifies whether MS-DOS should check periodically for the CTRL-C function.

**BUFFERS** - Specifies how much memory MS-DOS reserves for transferring information to and from disks by setting the number of buffers to allocate.

**COMMENT** - (Undocumented) Same as REM (below).

**COUNTRY** - Sets the language conventions for your system, which allows the proper use of national time, date, currency, decimal separators, and case conversion.

**DEVICE** - Loads an installable device driver - a program that controls a hardware component, such as a memory board.

**FCBS** - specifies the number of File Control Blocks (FCBs) that can be open simultaneously.

**FILES** - specifies the maximum number of simultaneously open files.

**INSTALL** - Loads a memory-resident program (also called a terminate-and-stay-resident (TSR) program. Executes a FASTOPEN, KEYB, NLSFUNC, or SHARE command.

**LASTDRIVE** sets the maximum number of valid drive letters (accessible logical drives).

**MULTITRACK** - turns multiple-track fixed disk access on and off.

**REM** - indicates that the text that follows is a descriptive remark, not a command.

**SHELL** - configures COMMAND.COM or specifies that a command interpreter other than COMMAND.COM should be used.

**STACKS** - specifies how much memory to reserve for processing hardware interrupts by setting the number and size of stack frames.

**SWITCHES** (Undocumented) - inhibits extended keyboard functions.

You can enter any of these parameters in the CONFIG.SYS file by specifying the parameter name, the equals (=) sign, and the definition of the parameter.

The installable device drivers provided with Z-DOS for the Z-100 are:

- **DISPLAY.SYS** supports code page switching on the console.

- **PRINTER.SYS** provides code page support for parallel printers.

- **RAMDRIVE.SYS** defines a portion of RAM memory as a disk drive.

- **ZCACHE.SYS** retains frequently used disk sectors in memory.

Additional device drivers are:

- **LLSCSI.SYS** provides support for SCSI drives connected to the Z-100 Lifeline SCSI/Bootable EEPROM Host Adapter Card.

- **Z205DSK.SYS** provides support for a Z-205 Memory Disk driver.

As an example, let's install the RAMDRIVE.SYS device driver with a size of 42Kb, with 128 byte sectors, and 8 directory entries in the CONFIG.SYS file. Just type:

```
Device=Ramdrive.sys 42 128 8
```

Keep in mind that once you edit the CONFIG.SYS file, you must reboot the system to set the updated parameters.

Time for an example to put this all together for you. Ok, I have an IDE Controller, and a RAM drive that I need to configure during Boot.

Here's what my CONFIG.SYS file looks like:

```
COMMENT= ;
; SECTION 1: Lines always included
FILES=30
BUFFERS=20,8
LastDrive=Z
:0 ; Default Selection
#0 ; Include the Common Block LLIDEHD
:P ; NVsRAM Programming
device=EPROMDSK.SYS /L256/W0
#0 ; Also include LLIDEHD after EPROMDSK
:R ; RAM Disk Installed
device=Z205DSK.SYS
#0 ; Also include LLIDEHD after Z205DSK.SYS
:T ; Test configuration
device=ALTCHRD.SYS
:Z ; Last option ID - don't load anything
; Last option id - don't do anything
:: ; Terminates Section 2
#0 ; Common block 0
DEVICE=LLIDEHD.exe /F
INSTALL=SHARE.EXE
```

```
## ; Terminates Section 3
BREAK = ON
```

Now let's break it down.

```
COMMENT ;
```

or

```
COMMENT= ;
```

This statement just identifies the semicolon (;) as a comment marker. Like in other programming applications, it is a means to add comments to a program. Any text following the semicolon will not be processed.

As you can see, the opening lines in section 1 look familiar.

```
; SECTION 1: Lines always included
```

```
FILES=30
BUFFERS=20,8
LastDrive=Z
```

The last drive can be any proper drive letter and allows me to assign my imaginary drive or RAM drive any letter up to Z:.

Now, if you recall, during the boot process, we get a 3 second pause before loading the normal CONFIG.SYS. During this pause, if I press ANY KEY, we interrupt the loading of the standard CONFIG.SYS and wait for another key to be pressed.

```
:0 ; Default Selection
#0 ; Include the Common Block LLIDEHD
```

This section sets the **default** selection, the normal CONFIG.SYS that loads after 3 seconds, and tells the computer to include the #0 common block, LLIDEHD, which will load the LLIDEHD.EXE device driver and install SHARE.EXE, which is necessary for larger drives.

```
:P ; NVsRAM Programming
device=EPROMDSK.SYS /L256/W0
```

If we press {P}, then CONFIG.SYS will include the :P command, which then executes the command:

```
device=EPROMDSK.SYS /L256/W0
```

This places the NVsRAM in programming mode and assigns a new drive letter to the NVsRAM for programming.

```
#0 ; Also include LLIDEHD after EPROMDSK
```

The #0 line says to again include the LLIDEHD driver after setting the NvsRAM for programming.

```
:R ; RAM Disk Installed
device=Z205DSK.SYS
```

If we press {R}, then CONFIG.SYS will include the :R command. These lines work the same way as the :P command, but this time has CONFIG.SYS load the Z205DSK.SYS driver.

