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Internal and External Commands of MS-DOS

DOS Commands are divided into 2 types:

1. **Internal Commands**

   These are for performing basic operations on files and directories and they do not need any external file support.

2. **External Commands**

   These external commands are for performing advanced tasks and they do need some external file support as they are not stored in COMMAND.COM

   Command.com has built in commands, called as "internal commands" and a few of them are "date", "time", "dir", "type", "vol", "date", etc. These commands are programmed into the command.com file and do not require other files in order to work. On the other hand, we have commands such as "edit", "lable", "xcopy", etc. that are external commands, meaning that they require the actual application/file in order to use them, along with command.com.

Most Commonly Used Internal DOS Commands

1. **DATE**

   This command is used to display the system current date setting and prompt you to enter a new date. The syntax is: **DATE [/T | date]**

2. **TIME**

   This command is used to displays or set the system time.
   The syntax is: **TIME [/T | time]**

3. **COPY CON**

   It is used to create a file in the existing directory. Here CON is a DOS reserved word which stands for console.
   Syntax is: **COPY CON filename** after that press Enter and start typing your text and after you're done typing your text, to save and exit hit F6 key.

4. **TYPE**

   This command is used to display the contents of a text file or files. The syntax is: **TYPE [drive:][path]filename**

5. **CLS**

   It is used to clear the screen. Syntax is **CLS**

6. **REN**

   This command is used to change/modify the name of a file or files.
   Syntax is: **REN [drive:] [path] filename1 filename2.**

   Here, filename1 is source file for which you wanted to change the name, and filename2 will obviously becomes your new file name.

7. **DIR**

   This command displays a list of files and subdirectories in a directory. Syntax is: **DIR [drive:] [path] [filename] [/A[[:]attributes]] [/B] [/C] [/D] [/L] [/N] [/O[[:]sortorder]] [/P] [/Q] [/S] [/T[[:]timefield]] [/W] [/X] [/4]**

8. **PATH**

   This command displays the path that how we have come to the present position or sets a search path for executable files.
   Its Syntax is **PATH [[drive:]path[;...][;%PATH%]]**

9. **VER**

   This command displays the version of the Microsoft Windows running on your computer.

10. **VOL**

    It displays the disk volume label and serial number, if they exist for the drive specified. If no drive is specified it displays for the active drive.
    Syntax is **VOL [drive:]**

11. **DEL/ERASE**

    Used to delete one or more files.
    Syntax is **DEL [/P] [/F] [/S] [/Q] [/A[[:]attributes]] names**
    Here,

12. **COPY**

    This command is useful in copying one or more files to another file or location.
    Syntax is **COPY [/D] [/V] [/N] [/Y | /-Y] [/Z] [/A | /B] source [/A | /B] [+ source [/A | /B] [+ ...]] [destination [/A | /B]]**
    The different switches that can be used with this command as follow along with their use.

    For appending multiple files for source use wildcard or file1+file2+file3 format and make sure to specify a single file for destination.

13. **MD, CD and RD**
    - **MD (or MKDIR)** command stand for make directory and it is used to create a directory. Syntax is **MD [drive:]path**

- **CD (or CHDIR)** stands for create or change directory and it allows to display the name of or change the current directory or rather we can say come out of a directory. Syntax is **CD [/D] [drive:][path]**
  → Typing *CD drive:* displays the current directory in the specified drive. This CD (or CHDIR) command does not treat spaces as delimiters due to which it allows to CD into a subdirectory name that contains a space without surrounding the name with quotes.
  For example:
  CHDIR \program files\mozilla firefox
  is the same as:
  CHDIR "\program files\mozilla firefox"

  → If you type *CD* without any parameters it displays current drive and directory. *CD..* specifies that you want to change to the higher directory in the current path. Whereas, using *CD*\ you can directly change to parent/root directory from any location in the current drive.

  →Using /D switch changes current drive in addition to current directory for a drive.

- **RD (or RMDIR)** command removes or deletes a directory. There are two conditions to remove any directory - (1) Directory to be removed should be empty. and (2) We should be outside the directory we are commanding to delete.
  Syntax is **RD [/S] [/Q] [drive:]path**
  Here, using the switch /S removes a directory tree meaning it removes all directories and files in the specified directory in addition to the directory itself. And using /Q is the quiet mode that doesn't asks for ok approval to remove a directory tree.

14. **PROMPT**

    This changes the cmd.exe command prompt. By default the prompt is always set to the name of current drive followed by > sign.

Most Commonly Used External DOS Commands

1. **EDIT**

This command is used to modify or change the data of a file.
Syntax is **EDIT [/B] [/H] [/R] [/S] [filename(s)]**

Using switch /B you can force the edit in monochrome mode. /H displays the maximum number of lines possible for your system hardware. Whereas using /R and /S one can load files in read-only mode and force the use of short filenames respectively. [filename(s)] is used to specify file(s) to go edit. You can use wildcards (* and ?) to specify multiple files.

2. **XCOPY**

This command is used to copy files and directory trees from one disk to another disk.
Syntax is **XCOPY source [destination] [/A | /M] [/D[:date]] [/P] [/S [/E]] [/V] [/W] [/C] [/I] [/Q] [/F] [/L] [/G] [/H] [/R] [/T] [/U] [/K] [/N] [/O] [/X] [/Y] [/-Y] [/Z] [/EXCLUDE:file1[+file2][+file3]...]**

3. **LABEL**

It is used to create, change, or delete the volume label of a disk.
Syntax is **LABEL [drive:] [label]**
LABEL [/MP] [volume] [label]

Here, [drive:] is for secifying the drive letter of a drive to be labelled and [label] specifies the label of the volume disk. [/MP] is used to specify that the volume should be created as a mount point and [volume] is used to specify volume name, usually mentioned after drive letter followed by colon and then giving volume name required.

4. **DISKCOPY**

This command copies the contents of one floppy from the source drive to a formatted or un-formatted floppy disk in the destination drive. This command copies the data from particular position on the source disk to exactly the same position on the destination disk. Syntax **Diskcopy A: B:**
copies contents of A: to B: drive. This command can be used with /V switch which verifies that the disk is copied correctly.

5. **CHKDSK**

This command is used to check a disk and display a status report with properties of disk like serial number, volume label, memory and other properties along with errors

on the disk if any.
Syntax is **CHKDSK [volume path] [/F] [/V] [/R] [/X] [/I] [/C] [/L[:size]]**

[volume path] is where you specify the drive letter followed by a colon and volume name to be checked. using /F switch allows you to fix errors on the disk. /V display full path and/or cleanup message if any. /R is used in tandem with /F and used to locate bad sectors and recover readable information. If you wanted to perform a less vigorous check of index entries on the disk then the right option is to use /I or /C rather then /R as they skip checking of cycles on the volume and helps in reducing the amount of time required to run chkdsk. Using /X forces the volume to dismount first before checking is performed. /L:size is all about specifying the log file size in kilobytes.

6. **TREE**

This command is very useful to view the list of directories and subdirectories present on the disk in graphical form. If you wanted to include files also with directories and subdirectories, then you'll have to give the command line as tree/f which presents the tree view of all the content on your disk. Here is the syntax for this command with allowed switches:
TREE [drive:path] [/F] [/A]
In case you wanted use ASCII instead of extended characters, then go ahead include /A in the command line.

7. **DELTREE**

This command is used to remove a directory along with its contents.
Syntax is **deltree [drive:path]**
here, [drive:path] specifies the directory name to be deleted. All the subdirectories and files in this directory will be deleted without prompt and there's not getting back. So, keep caution while using this command.

8. **DOSKEY**

This command is generally used to edits command lines and recalls commands.
Syntax is **DOSKEY [/REINSTALL] [/HISTORY] [text]**

Here, /REINSTALL installs new copy of doskey, /HISTORY is used to display all previously given commands stored in memory. And [text] specifies the commands you want to record.

9. **FIND**

This command searches for a specific text string in a file or files. Syntax is**FIND [/V] [/C] [/N] [/I] [/OFF] "string" [[drive:][path]filename[...]]**

The basic essential elements in the command line for find are - the string enclosed in " " and [[drive:][path]filename(s)]. String specifies the text string to find in the file and [[drive:][path]filename(s)] specifies the file or files where the text string search is to be done. If a path is not specified, FIND searches the text typed at the prompt or piped from another command. When you append /OFF in the command line, it searches and finds even those files with offline attribute set. Apart from searching the text string, this command is useful in:

- Displaying all lines not containing the specified string @ /V
- Displaying only the number count of lines containing the text string @ /C
- Displaying line numbers with the displayed lines @ /N

10. **SORT**

This command is used to arrange the data of a file in alphabetical order (A-Z, 0-9) or reverse alphabetical order.

Syntax is **SORT [/R] [[drive1:][path1]filename1] [/T [drive2:][path2]] [/O [drive3:][path3]filename3]**

/R in command line reverses the sort order; that is, the data of the specified file sorts sorts Z to A, then 9 to 0. [drive1:][path1]filename1 specifies the file to be sorted.
/T [drive2:][path2] is used in cases of data overflow in main memory and it specifies the path of the directory to hold the sort's working storage. And
/O [drive3:][path3]filename3 specifies the file where the sorted input is to be stored.

11. **FORMAT**

This command creates a new root directory and a File Allocation Table (FAT) for the disk. In order for MS-DOS to be able to use a new disk you must use this command to format the disk.

FORMAT with /S switch

When the disk is formatted with **/s** option, the disk can be used as a booting disk. **C:\>DOS>Format A: /s**
The above command copies the OS files MSDOS.SYS, IO.SYS and

COMMAND.COM which are required for booting the machine from your system startup drive to the newly formatted disk. The disk can then be used for booting.

FORMAT with /U switch

Here's the command **C:\DOS>Format A: /U**
This command specifies an Unconditional Format which destroys all existing data and prevents you from later unformatting the disk.

FORMAT with /Q switch

This can be used only with the previously formatted disk. This deletes FAT, Root directory and data of disk but doesn't scan for the bad errors. This is generally used for Quick formatting.
Warning As Format command deletes all existing data, use this command with extreme caution. Any disk formatted (except with /U switch) may be later unformatted using the UNFORMAT command.

12. **BACKUP**

The Backup command backs up one or more files from one disk to another. You can backup files onto either a hard disk or on a floppy disk. Syntax is
BACKUP Source Destination

Here source specifies the location of files to be backed up and destination drive specifies the drive on which you want to store the backup files. The backed-up files are stored in backup.nnn and control.nnn files where nnn represents the backup disk number.

Backup with Switches

- The /S switch can be used to backup the contents of all files in the source including the contents of sub-directories.
- The /N switch can be used to backup only those files that have changed since the last backup.
- Backup command with /D:mm-dd-yyyy switch will backup files that have changed since the data specified.

13. **RESTORE**

The RESTORE command restores files that were backed up by using BACKUP command. Syntax: **RESTORE drive1 drive2:path**

Here drive1 specifies the drive on which backup files are stored.
drive2:path specifies the path to which those backup files will be restored.
► Using backup command with /S switch is used to restore all backup files to their original directories and sub-directories.