



2021 Cyber Security Academy - MTU June 8th - 11th  
Can You Hack it?

## Windows command line (MS-DOS)

### Open cmd.exe terminal

- Press the “windows key” or “command key”
- Type “command prompt” or “cmd”
- Open the Command Prompt

### Help page – help

- Most command prompt commands have a help function
- `> help`
  - This will display all available commands
- `> help commandname`
- `> commandname /?`

### Clear Screen – cls

- `> cls`

### Make a variable

- `> set variablename=variablevalue`
- Print variable
- `> echo %variablename%`

### File structure

Print your working directory.

- `> cd`

List all files and directories (folders) in your working directory.

- `> dir`
- `> dir /B` (prints bare minimum)

Change to a different directory

- `> cd directory`
- `> cd directory\directory`



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Go to your home directory (User Directory)

- > `cd %HOMEPATH%`

Make this easier? Yes

- > `set ~= %HOMEPATH%`
- > `cd %~%`

Go back to parent directory (C:\>)

- > `cd /`

Go back one or more directory(ies) (C:\>)

- > `cd ..`
- > `cd ../../`

Example output:

```
cmd Command Prompt

C:\Users\IEUser>cd Desktop

C:\Users\IEUser\Desktop>dir
Volume in drive C is Windows 10
Volume Serial Number is B009-E7A9

Directory of C:\Users\IEUser\Desktop

04/06/2021  16:03    <DIR>          .
04/06/2021  16:03    <DIR>          ..
19/03/2019  14:00                896 eula.lnk
01/06/2021  18:21    <DIR>          Example
04/06/2021  16:03                13 hello.txt
               2 File(s)              909 bytes
               3 Dir(s)  25,728,454,656 bytes free

C:\Users\IEUser\Desktop>cd %HOMEPATH%

C:\Users\IEUser>cd /

C:\>
```



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### Creating and editing files

Make a directory

- `> mkdir directoryname`

Create a file in that directory

- Change directory:
  - `> cd directoryname`
- Then create the file using:
  - `> echo > filename.txt`
  - `> copy con filename.txt` (this opens the file and we can input text from command line, to close ctrl+c)
- (Or `> command directoryname\filename.txt` if we don't want to move into the directory)

Place text in the file

- `> echo Hello World > filename.txt`
- To add more text to the file:
- `> echo Hello World 2 >> filename.txt`
- Note that `>` will overwrite anything in the file whereas `>>` adds to the existing content.

View file

- `> more filename.txt`

Open file (view and edit)

- `> notepad filename.txt`
- `> preferredtexteditor filename.txt` (text editor needs to be on system path)

Remove file

- `> del /P filename`
- `/P` does a check before removal (type y when check appears)

Remove directory

- `> rmdir directoryname`
- `> rmdir /S directoryname`
- `/S` means remove directory and all subdirectories



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Example output:

```
C:\Users\IEUser\Desktop>mkdir Academy
C:\Users\IEUser\Desktop>cd Academy
C:\Users\IEUser\Desktop\Academy>copy con Test.txt
Hello World
        1 file(s) copied.
C:\Users\IEUser\Desktop\Academy>more Test.txt
Hello World
C:\Users\IEUser\Desktop\Academy>dir
Volume in drive C is Windows 10
Volume Serial Number is B009-E7A9

Directory of C:\Users\IEUser\Desktop\Academy

04/06/2021  18:47    <DIR>          .
04/06/2021  18:47    <DIR>          ..
04/06/2021  18:47                13 Test.txt
                1 File(s)                13 bytes
                2 Dir(s)  25,728,069,632 bytes free

C:\Users\IEUser\Desktop\Academy>dir /B
Test.txt

C:\Users\IEUser\Desktop\Academy>del /P Test.txt
C:\Users\IEUser\Desktop\Academy\Test.txt, Delete (Y/N)? Y

C:\Users\IEUser\Desktop\Academy>cd ..

C:\Users\IEUser\Desktop>rmdir Academy

C:\Users\IEUser\Desktop>_
```

## More file commands

### Copy

- > **copy** filename1.txt filename2.txt

### Move

- Move filename2.txt to filename3.txt will rename filename2.txt to filename3.txt
- > **move** filename2.txt filename3.txt
- (We can also give file paths e.g. > **move** filename2.txt C:\Users\admin\Desktop\filename4.txt )

### Display contents of a file

- > **type** filename1.txt
- We can easily send the output to a new (or existing) file using the ">" operator:
- > **type** filename1.txt > filename4.txt

### Joins two files together

- > **copy** filename1.txt+filename3.txt filename4.txt



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### Search

- `> find /I "Hello" filename4.txt`
- This searches for the word Hello in filename4.txt. `/I` means ignore case.
- To search through all files that begin with file and end with .txt:
- `> find /I "Hello" file*.txt`
- The output will indicate which file each result comes from.

### Example output:

```
C:\Users\IEUser\Desktop\Academy>type file1.txt
Hello

C:\Users\IEUser\Desktop\Academy>copy file1.txt file4.txt
1 file(s) copied.

C:\Users\IEUser\Desktop\Academy>type file4.txt
Hello

C:\Users\IEUser\Desktop\Academy>move file4.txt file5.txt
1 file(s) moved.

C:\Users\IEUser\Desktop\Academy>type file4.txt
The system cannot find the file specified.

C:\Users\IEUser\Desktop\Academy>type file5.txt
Hello

C:\Users\IEUser\Desktop\Academy>type file5.txt > file6.txt

C:\Users\IEUser\Desktop\Academy>type file6.txt
Hello

C:\Users\IEUser\Desktop\Academy>find /I "Hello" *.txt

----- FILE1.TXT
Hello

----- FILE2.TXT
Hello1

----- FILE3.TXT
Hello2

----- FILE5.TXT
Hello

----- FILE6.TXT
Hello

C:\Users\IEUser\Desktop\Academy>
```



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### Combining commands

#### Piping

- We can pipe “|” the output from one command to another command.
- For example, if I want to sort the text in a file, I could first run `> type filename1.txt` and then pipe the output to `sort`:
- `> type filename1.txt | sort`

#### Multiple commands

- Use `&&` to run a second command
  - `> program1 && program2 && program3`
  - Note this will only run the next program in sequence if the previous one runs.
- If we want the next program to run, no matter the outcome of the previous one then we can use “;”
  - `> program1 & program2 & program3`

### Tips

#### Tab completion

- If you begin typing a file or directory name press tab to autocomplete it.
- If there is only one option for autocompletion, it will choose this option
- If there are multiple options then it will display all options

#### Previously typed commands

- To re-run the same command again press the up arrows on your keyboard to load previously typed commands and press enter to execute.
- Press F7 to get a GUI interface

#### Change cmd color scheme

- `> color` (This will revert the color scheme to default)
- `> color /?` (This will show available colors)
- `> color fc` (This will produce light red on bright white )

For more explanation: Follow the steps in the lecture!