Windows Command Line Cheat Sheet

STATIONX
THE CYBER SECURITY COMPANY

What Is the Windows Command Line?

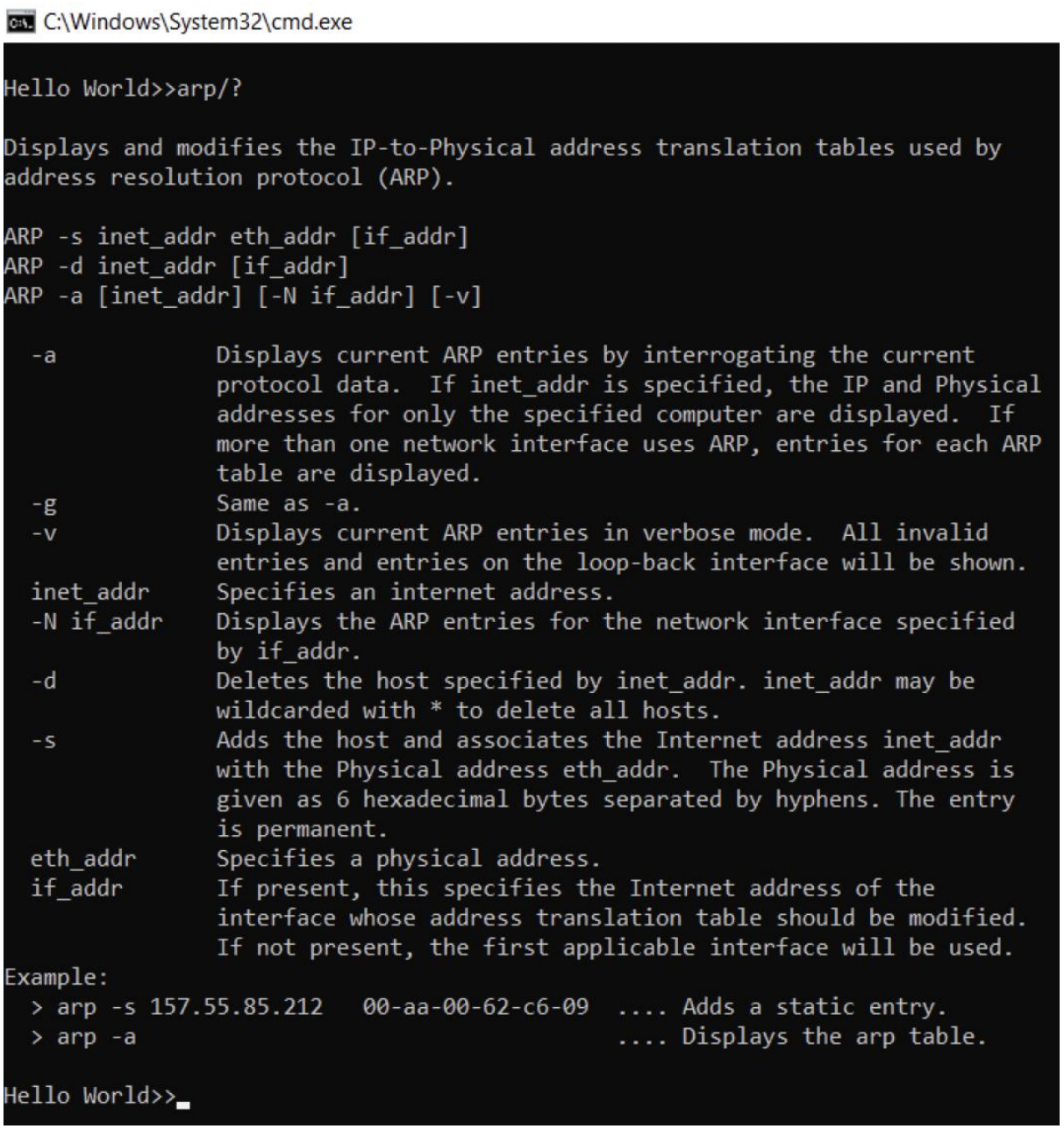
The Windows command line (Windows command prompt) is the command-line interface (CLI) on Microsoft Windows machines, analogous to the Terminal in Unix/Linux. It emulates many command-line abilities in Microsoft's deprecated text-only operating system MS-DOS (but it's not MS-DOS).

Methods to open the Windows CLI:

- On Windows 10 or above, click **Start** on the bottom left corner, type **cmd**, and select **Command Prompt**.
- On Windows 8.x or earlier, press **Ctrl+R** to open the **Run** dialog box, type **cmd** into it, and press **Enter**.

Hence, another name for Windows CLI is "cmd."

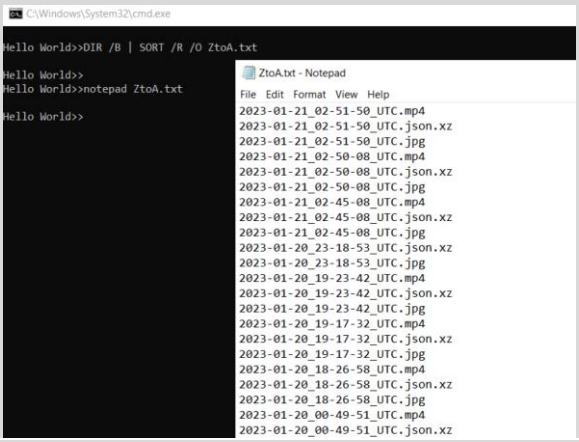
Scripts containing Windows commands (batch scripts) have ".bat" as the file extension. All cmd commands are case-insensitive, so `arp` and `ARP` are the same. If you need help using any command, add `/?` to it, e.g., `ARP /?` will show the manual for `ARP`:



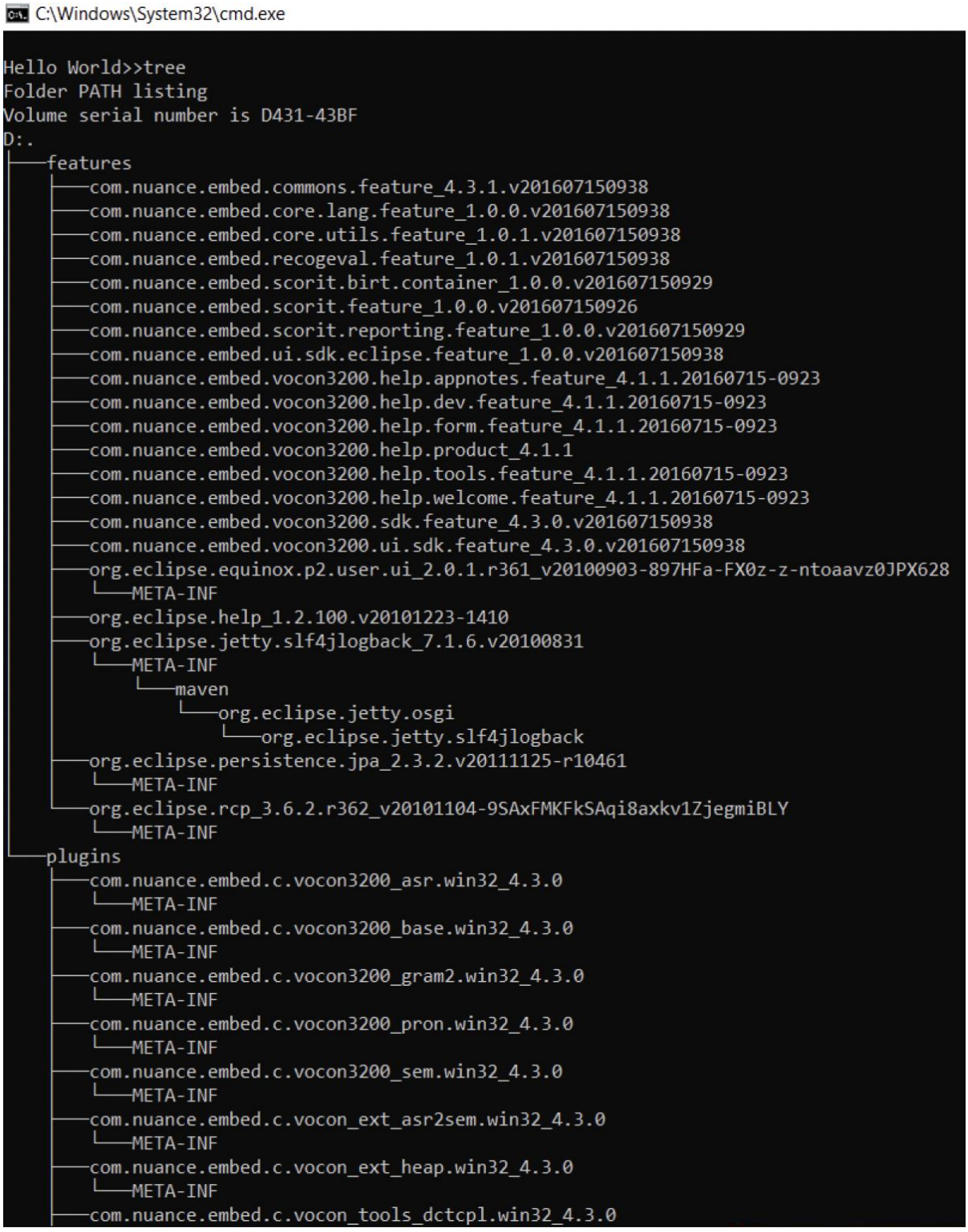
Directory Navigation

These commands help you view directories and move directories around.

Command	Explanation
`c:`	Change the current drive to the C:\ drive
`d:`	Change the current drive to the D:\ drive
`CD c:\path\to\my_folder`	Change directory to `c:\path\to\my_folder`
`CD ..`	Navigate to the parent directory of the current working directory

`CD .\new_folder`	Navigate to the folder `new_folder` located in the current working directory
`CD /D d:\videos\`	Change the current drive to D:\ and access the folder `videos` on it.
`DIR`	Display files and folders in the current directory
`DIR /A c:\apps\`	Display files and folders in the directory `c:\apps\`
`DIR /A:D`	Display only folders (`D`: directories)
`DIR /A:-D`	Display only files (`D`: directories; `-`: not)
`DIR /A:H`	Display hidden files and folders
`DIR /O`	Display files and folders sorted alphabetically
`DIR /O:S`	Display files and folders sorted by file size from smallest to largest
`DIR /O:-S`	Display files and folders sorted by file size from largest to smallest
`DIR /B`	Display only the names of files and folders in the current working directory
`SORT`	Take input from a source file/pipeline, sort its contents alphabetically (default: A to Z; in reverse: Z to A), and display the output
`SORT "C:\music\playlist.m3u"`	Sort the contents of `C:\music\playlist.m3u` line by line
`DIR /B | SORT /R /O ZtoA.txt`	List all file and folder names in the current working directory, sort them in reverse alphabetical order, and save the sorted output to a file `ZtoA.txt`: 
`MOVE`	Move a file or files
`MOVE c:\f1\text.txt c:\f2`	Move a file `text.txt` from one folder `c:\f1` to another folder `c:\f2`
`MD new_folder` `MAKEDIR new_folder`	Create a new folder called `new_folder` in the current directory
`RD new_folder` `RMDIR new_folder`	Delete the folder called `new_folder` in the current directory
`TREE`	Show the directory structure of a disk/folder
`TREE "C:\Program Files"`	Show the directory structure of the folder “Program Files” on the disk C:\
`TREE C:\ /F`	Display the names of the files in each folder

	in the directory structure of the C:\ drive
`ATTRIB`	Display/set the attributes of the files in the current directory
`ATTRIB +H +S +R myItem`	Hide a file/folder `myItem`
`ATTRIB -H -S -R myItem`	Unhide a file/folder `myItem`



TREE demonstration

File Management

The following commands are for managing and manipulating files.

Like Unix, cmd supports pipelines: you may pass the output of a command to the next one by sandwiching the pipe character "|" between both.

Command	Explanation
`COPY text.txt C:\schoolwork`	Copy the file `text.txt` to a folder with the path `C:\schoolwork`
`DEL text.txt` `ERASE text.txt`	Delete the file `text.txt`
`REN text.txt script.bat` `RENAME text.txt script.bat`	Rename a file `text.txt` to `script.bat`
`REPLACE .\src\hey.txt .\dest`	Overwrite; replace a file named `hey.txt` in a local folder `src` with another `hey.txt` in a local folder `dest`, both files sharing the same name. **Warning:** Don't specify `.\dest\hey.txt` anywhere here.
`XCOPY`	Copy files and directory trees to another folder. XCOPY is similar to COPY but with additional switches to specify the source and destination paths in detail.
`XCOPY /S folder1 folder2`	Copy folders and subfolders of `folder1` to `folder2`
`ROBOCOPY`	Robust copying of files and directories: by default, such copying only occurs if the source and destination differ in time stamps or file sizes.
`EXPAND gameData.cab`	Decompresses the compressed .CAB cabinet file `gameData.cab`
`FC file1.ext file2.ext`	Compare the contents of two files (`file1.ext`, `file2.ext`) and display non-matching lines
`COMP file1.ext file2.ext`	Compare the contents of two files (`file1.ext`, `file2.ext`) and display non-matching items
`FIND "python" in run.bat`	Output every line that contains a text string (which you must enclose in quotation marks) `"python"` in the file `run.bat`
`FIND /C "python" in run.bat`	Count every line that contains a text string (which you must enclose in quotation marks) `"python"` in the file `run.bat`
`PRINT resume.txt`	Print contents of a file `resume.txt`
`OPENFILES /QUERY`	Query/display open files
`OPENFILES /DISCONNECT`	Disconnect files opened by network users.
`TYPE test.txt`	Displays the contents of the file `test.txt`

`TYPE playlist.m3u | SORT /unique /o C:\work\unique_play.m3u`	Sort a file `playlist.m3u` and output only the unique values to a file `C:\work\unique_play.m3u`
`MORE`	Display contents of one or more files, one screen at a time.
`ASSOC`	Display or change the association between a file extension and a file type
`NOTEPAD`	Open the Notepad application from cmd
`NOTEPAD filename.ext`	Open a file `filename.ext` in Notepad

Disk Management

It's easy to handle and automate the following tasks on cmd.

Command	Explanation
`CHKDSK`	Check and repair disk problems (local disks only)
`CHKDSK /F A:`	Fix errors on `A:` drive
`CHKDSK /R A:`	Recover data on `A:` drive
`CHKDSK /X A:`	Dismount drive `A:`
`CIPHER /E classified`	Encrypt the folder `classified`
`CIPHER /D secret_recipe.txt`	Decrypt the file `secret_recipe.txt`
`DEFRAG`	Disk Defragmentation
`CHKNTFS`	Display/modify disk-checking on startup
`COMPACT`	Display/change the compression of files in NTFS partitions
`CONVERT`	Convert FAT disk volume to NTFS
`DISKPART`	Display and adjust disk partition properties
`FORMAT`	Format the disk
`FSUTIL`	File system management
`LABEL d:x`	Rename disk D:\ to X:\
`SUBST p: c:\taxes`	Assign drive P:\ to the local folder `c:\taxes`
`SUBST p: /D`	Remove the path represented by P:\
`RECOVER d:\data.dat`	Recover a file `data.dat` from a bad or defective disk D:\
`VOL`	Display current disk volume label and serial number
`POWERCFG`	Control power settings and configure Hibernate/Standby modes
`SFC /SCANNOW`	Scan and update protected system files

System Information and Networking

The following commands are helpful in troubleshooting computers and computer networks.

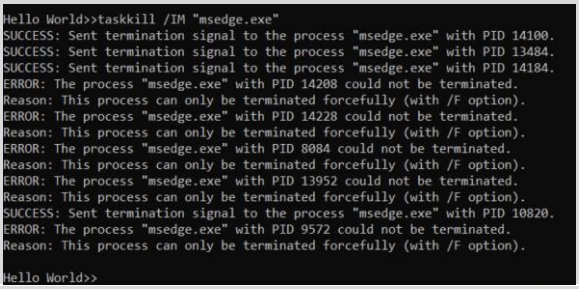
Command	Explanation
`VER`	Display the current operating system version
`SYSTEMINFO`	List system configuration

`HOSTNAME`	Show the computer's hostname on the network
`DRIVERQUERY`	Show all installed device drivers
`DATE`	Display/set system date
`TIME`	Display/set system time
`GPRESULT`	Display Resultant Set of Policy (RSoP) information for a remote user and computer.
`GPUPDATE`	Update group policies
`IPCONFIG`	Display Windows IP network configurations
`IPCONFIG /release`	Release your current local IP address
`IPCONFIG /renew`	Request a new local IP address
`IPCONFIG /flushdns`	Reset the contents of the DNS client resolver cache
`PING google.com`	Send ICMP requests to the target google.com and check host availability
`PATHPING`	Trace route and provide network latency and packet loss for each router and link in the path
`NET`	Provide various network services
`NET use M: \\gameServ /user:"ReadyPlayerOne" player1`	Assign as disk M:\ the path `\\gameServ`, logging in as "`ReadyPlayerOne`" and password "`player1`"
`TRACERT`	Find the IP address of any remote host
`NSLOOKUP`	Find IP addresses on a nameserver
`ROUTE`	Manipulate network routing tables
`ROUTE PRINT`	Displays network route details
`ARP -A`	List IP addresses and corresponding physical addresses (Address Resolution Protocol)
`NETSH`	Configure network interfaces, Windows firewall, routing, and remote access
`NETSTAT`	Display current TCP/IP network connections and protocol statistics
`GETMAC`	Shows all MAC addresses of the network adapters

Process Management

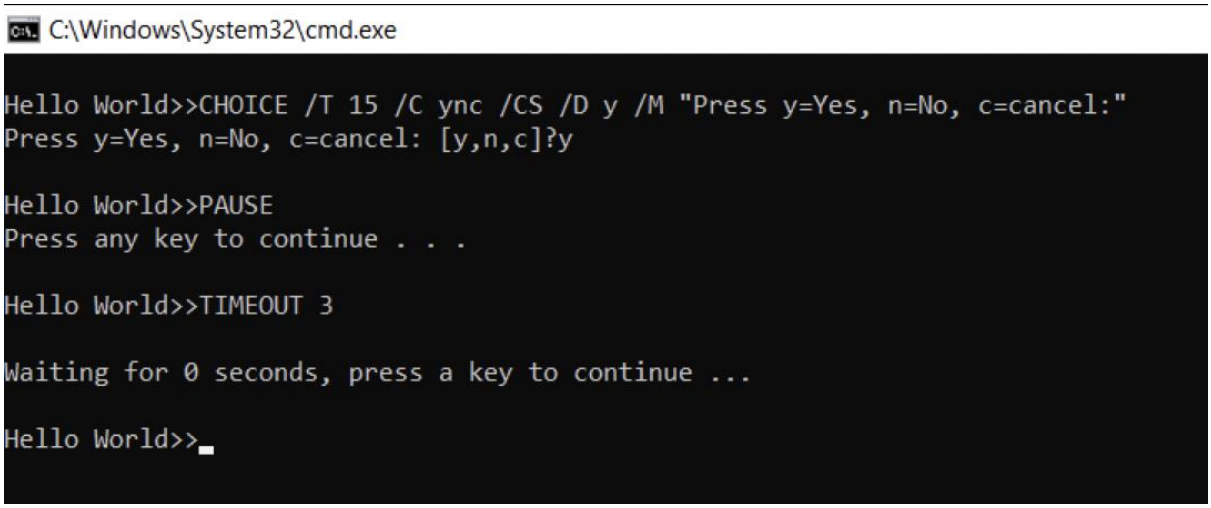
The commands below are Task Manager-like functions. Note that you call variables in arithmetic or logical expressions by enclosing each with two "`%`" signs (e.g., "`%a%`").

Command	Explanation
`SCHTASKS`	Create/edit a job on Task Scheduler. Use this to create scheduled tasks in Disk Management.
`SET`	List environment variables
`PATH`	Display/change the list of folders stored in the `%PATH%` environment variable
`SHUTDOWN /R`	Restart the computer
`SHUTDOWN /S /T 60`	Shut down the computer 60 seconds from now
`TASKLIST`	List running tasks

`TASKLIST /SVC`	Show services related to each task
`TASKLIST /V`	Display detailed task information
`TASKLIST | FIND "1234"`	Get the name of the executable associated with the process ID (PID) of `1234`
`TASKKILL`	End one or more tasks
`TASKKILL /IM "msedge.exe"`	Terminate all Microsoft Edge instances: 
`TASKKILL /PID 10736`	Terminate process with PID of 10736
`REG` `REGEDIT`	Registry Editor
`RUNAS /USER:user2 program1`	Execute a program `program1` as another user `user2`
`POWERSHELL`	Open a Powershell instance

Batch Scripting

These commands are for constructing and debugging batch scripts (.bat). To suppress the output of a certain command, add `@` in front of it, e.g., `@echo off`.

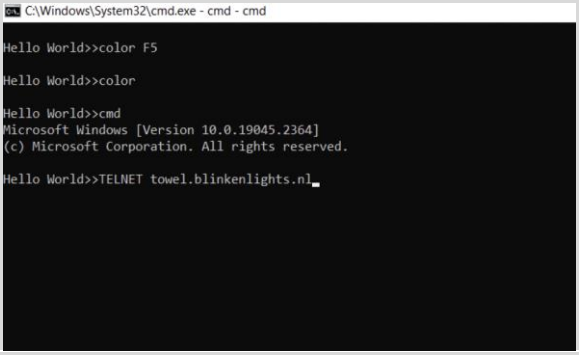
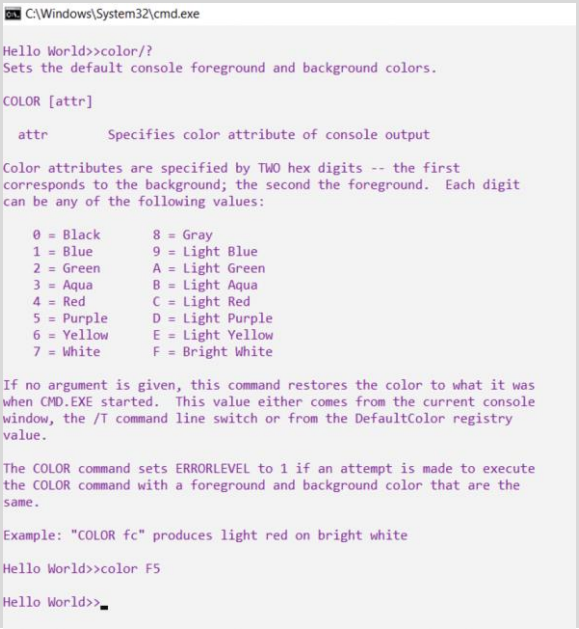


Demonstration of CHOICE, PAUSE, and TIMEOUT

Command	Explanation
`REM comment. . .` `:comment. . .`	Prefix for the single-line comment "`comment. . .`"

`GOTO end`
`<comment_block>`
`:end`
	Format of multi-line comments represented by `<comment_block>` enclosed by delimiters `end` and `:end`

`SET /A c = %a% + %b%`	Assign the arithmetic expression `a+b` to the variable `c`

^	Escape character
some_command > output.txt	Redirect output of some_command to a file output.txt
?	Wildcard representing one character
*	Wildcard representing multiple characters
&	Introduce a new command on the same line
TIMEOUT 3600	Tell the command prompt to sleep for 3600 seconds (= 1 hour)
PAUSE	Prompt the user to continue
CHOICE	Prompt the user to pick an on-screen option
CHOICE /T 15 /C ync /CS /D y /M "Press y=Yes, n=No, c=cancel:"	You have 15 seconds to press Y, N, or C keys without capitalization, defaulting to “y” if time runs out without a decision
CLS	Clear screen
CMD	Restarts Windows command prompt window: 
COLOR	Set text and background color of cmd: 
ECHO ON	Display each command executed
ECHO OFF	Only display command output
ECHO a string of characters	Display a string of characters
HELP	Display help
PROMPT topSecret^>$$	Changes the command line prompt to topSecret>$ for the current session

`PROMPT`	Reset the command line prompt to default
`START X`	Start/open a program/document `X` in a new window
`TITLE top Secret`	Set the title of the current session of Windows command prompt to `top Secret`
`/?`	Add this to the end of any command word (shown in ALL CAPS in this cheat sheet) to get help on the command, e.g., `CD/?` = manual for `CD` (change directory) command
`| CLIP`	Append this to the end of a command to copy the command output to the clipboard
`EXIT`	Exits the command line

Flow Control

Note the `condition` is a Boolean expression e.g., `%a%==5`.

Conditional	Syntax
If	`IF (condition) do_something`
If-else	`If (condition) (do_something) ELSE (do_something_else)`
Nested if	`IF (condition1) IF (condition2) do_something`

Infinite loop	`:marker`
	`do_something`
	`GOTO marker`

While loop	`:marker`
	`IF (condition) (`
	`  do_something`
	`  GOTO :marker`
	`)`

Shortcut keys

Any Windows CLI cheat sheet must include methods to speed up your work, such as the following.

Key	Effect
Tab	Autocomplete
Ctrl+F	Find text in console (opens dialog box)
F1, F3, F5, F8	Retype command
F2	Copy the current command leftward of the cursor
F4	Delete the current command rightward of the cursor
F6	Insert end-of-file character
F7	List previous commands from which you choose
F9	Retype a command by typing its line number in the command history

Conclusion

We sincerely hope this Windows cmd commands cheat sheet helps you finish your work quickly and efficiently today, especially if you're prone to confusing Windows command prompt commands with other terminal scripting languages in the past.

Remember to check out our course offerings on Windows.