

Windows Command Line

Cheat Sheet

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`:

C:\Windows\System32\cmd.exe

Hello World>>arp/?

Displays and modifies the IP-to-Physical address translation tables used by address resolution protocol (ARP).

ARP -s inet_addr eth_addr [if_addr]

ARP -d inet_addr [if_addr]

ARP -a [inet_addr] [-N if_addr] [-v]

-a Displays current ARP entries by interrogating the current protocol data. If inet_addr is specified, the IP and Physical addresses for only the specified computer are displayed. If more than one network interface uses ARP, entries for each ARP table are displayed.

-g Same as -a.

-v Displays current ARP entries in verbose mode. All invalid entries and entries on the loop-back interface will be shown.

inet_addr Specifies an internet address.

-N if_addr Displays the ARP entries for the network interface specified by if_addr.

-d Deletes the host specified by inet_addr. inet_addr may be wildcarded with * to delete all hosts.

-s Adds the host and associates the Internet address inet_addr with the Physical address eth_addr. The Physical address is given as 6 hexadecimal bytes separated by hyphens. The entry is permanent.

eth_addr Specifies a physical address.

if_addr If present, this specifies the Internet address of the interface whose address translation table should be modified. If not present, the first applicable interface will be used.

Example:

> arp -s 157.55.85.212 00-aa-00-62-c6-09 Adds a static entry.

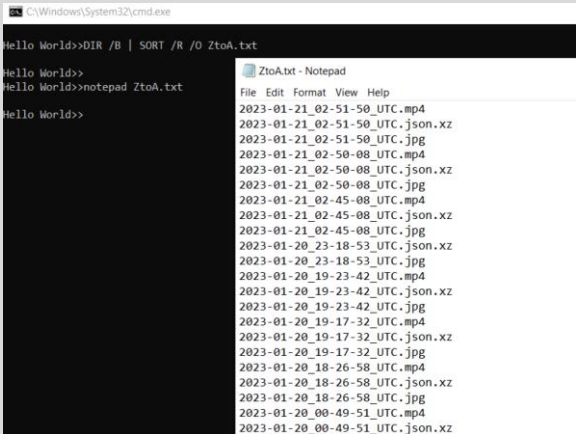
> arp -a Displays the arp table.

Hello World>>_

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 <code>new_folder</code> located in the current working directory
CD /D d:\videos\	Change the current drive to D:\ and access the folder <code>videos</code> on it.
DIR	Display files and folders in the current directory
DIR /A c:\apps\	Display files and folders in the directory <code>c:\apps\</code>
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 <code>C:\music\playlist.m3u</code> 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 <code>ZtoA.txt</code> :
	
MOVE	Move a file or files
MOVE c:\f1\text.txt c:\f2	Move a file <code>text.txt</code> from one folder <code>c:\f1</code> to another folder <code>c:\f2</code>
MD new_folder MAKEDIR new_folder	Create a new folder called <code>new_folder</code> in the current directory
RD new_folder RMDIR new_folder	Delete the folder called <code>new_folder</code> 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

C:\Windows\System32\cmd.exe

```

Hello World>>tree
Folder PATH listing
Volume serial number is D431-43BF
D:.\
├── features
│   ├── com.nuance.embed.commons.feature_4.3.1.v201607150938
│   ├── com.nuance.embed.core.lang.feature_1.0.0.v201607150938
│   ├── com.nuance.embed.core.utils.feature_1.0.1.v201607150938
│   ├── com.nuance.embed.recogeval.feature_1.0.1.v201607150938
│   ├── com.nuance.embed.scorit.birt.container_1.0.0.v201607150929
│   ├── com.nuance.embed.scorit.feature_1.0.0.v201607150926
│   ├── com.nuance.embed.scorit.reporting.feature_1.0.0.v201607150929
│   ├── com.nuance.embed.ui.sdk.eclipse.feature_1.0.0.v201607150938
│   ├── com.nuance.embed.vocon3200.help.apnotes.feature_4.1.1.20160715-0923
│   ├── com.nuance.embed.vocon3200.help.dev.feature_4.1.1.20160715-0923
│   ├── com.nuance.embed.vocon3200.help.form.feature_4.1.1.20160715-0923
│   ├── com.nuance.embed.vocon3200.help.product_4.1.1
│   ├── com.nuance.embed.vocon3200.help.tools.feature_4.1.1.20160715-0923
│   ├── com.nuance.embed.vocon3200.help.welcome.feature_4.1.1.20160715-0923
│   ├── com.nuance.embed.vocon3200.sdk.feature_4.3.0.v201607150938
│   ├── com.nuance.embed.vocon3200.ui.sdk.feature_4.3.0.v201607150938
│   ├── org.eclipse.equinox.p2.user.ui_2.0.1.r361_v20100903-897HFz-z-ntoaavz0JPX628
│   │   └── META-INF
│   ├── org.eclipse.help_1.2.100.v20101223-1410
│   ├── org.eclipse.jetty.slf4jlogback_7.1.6.v20100831
│   │   └── META-INF
│   │       └── maven
│   │           └── org.eclipse.jetty.osgi
│   │               └── org.eclipse.jetty.slf4jlogback
│   ├── org.eclipse.persistence.jpa_2.3.2.v20111125-r10461
│   │   └── META-INF
│   └── org.eclipse.rcp_3.6.2.r362_v20101104-9SAXFMKfKSAqi8axkv1ZjegmiBLY
│       └── META-INF
├── plugins
│   ├── com.nuance.embed.c.vocon3200_asr.win32_4.3.0
│   │   └── META-INF
│   ├── com.nuance.embed.c.vocon3200_base.win32_4.3.0
│   │   └── META-INF
│   ├── com.nuance.embed.c.vocon3200_gram2.win32_4.3.0
│   │   └── META-INF
│   ├── com.nuance.embed.c.vocon3200_pron.win32_4.3.0
│   │   └── META-INF
│   ├── com.nuance.embed.c.vocon3200_sem.win32_4.3.0
│   │   └── META-INF
│   ├── com.nuance.embed.c.vocon_ext_asr2sem.win32_4.3.0
│   │   └── META-INF
│   ├── com.nuance.embed.c.vocon_ext_heap.win32_4.3.0
│   │   └── META-INF
│   └── com.nuance.embed.c.vocon_tools_dctcpl.win32_4.3.0

```

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

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: <pre>Hello World>>taskkill /IM "msedge.exe" SUCCESS: Sent termination signal to the process "msedge.exe" with PID 14100. SUCCESS: Sent termination signal to the process "msedge.exe" with PID 13484. SUCCESS: Sent termination signal to the process "msedge.exe" with PID 14184. ERROR: The process "msedge.exe" with PID 14208 could not be terminated. Reason: This process can only be terminated forcefully (with /F option). ERROR: The process "msedge.exe" with PID 14228 could not be terminated. Reason: This process can only be terminated forcefully (with /F option). ERROR: The process "msedge.exe" with PID 8084 could not be terminated. Reason: This process can only be terminated forcefully (with /F option). ERROR: The process "msedge.exe" with PID 13952 could not be terminated. Reason: This process can only be terminated forcefully (with /F option). SUCCESS: Sent termination signal to the process "msedge.exe" with PID 10820. ERROR: The process "msedge.exe" with PID 9572 could not be terminated. Reason: This process can only be terminated forcefully (with /F option).</pre>
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.

C:\Windows\System32\cmd.exe

```
Hello World>>CHOICE /T 15 /C ync /CS /D y /M "Press y=Yes, n=No, c=cancel:"
Press y=Yes, n=No, c=cancel: [y,n,c]?y

Hello World>>PAUSE
Press any key to continue . . .

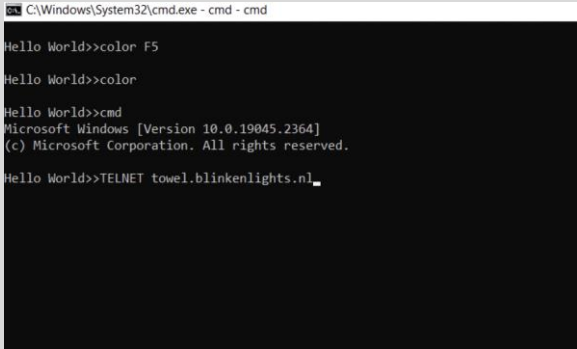

Hello World>>TIMEOUT 3

Waiting for 0 seconds, press a key to continue ...

Hello World>>_
```

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 <u>topSecret^>\$\$</u>	Changes the command line prompt to <u>topSecret>\$</u> 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](#).