

<b>Title:</b>	Windows – find command
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<b>Synopsis:</b>	<p>Have you ever had a large text file that you wanted to extract lines from that contain a specific string? Have you ever executed a command, via command line, with voluminous output, but you only want to view lines containing a specific string? What about the opposite, a large text file, or lots of lines returned from a command, in which you want to see all lines not containing a specific text string?</p> <p>The “find” command can be utilized to facilitate the aforementioned. The command can be thought of as a command having scaled back functionality of the global regular expressions (grep) command in Linux or the “findstr” command in Windows.</p> <p>The “grep” and “findstr” commands enable searching based on patterns (regular expressions), logical operators (i.e. and, or etc), and wild cards. The find command does not provide such functionalities.</p> <p>Search functionality, via the find command, is limited to explicitly specified strings. In example the command “find “Apple” <a href="#">fruit.txt</a>” will output all rows containing the string “Apple”.</p>
<b>Data File:</b>	<a href="#">fruit.txt</a>

A. Command description and options. This window was invoked via the command, “find /?”.

```
Microsoft Windows [Version 10.0.22621.2428]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Amar Chhabra>find /?
Searches for a text string in a file or files.

FIND [/V] [/C] [/N] [/I] [/OFF[LINE]] "string" [[drive:][path]filename[ ...]]

/V          Displays all lines NOT containing the specified string.
/C          Displays only the count of lines containing the string.
/N          Displays line numbers with the displayed lines.
/I          Ignores the case of characters when searching for the string.
/OFF[LINE] Do not skip files with offline attribute set.
"string"    Specifies the text string to find.
[drive:][path]filename
             Specifies a file or files to search.

If a path is not specified, FIND searches the text typed at the prompt
or piped from another command.
```

- B. To examine functionality of the “find” command we utilize a file, [fruit.txt](#), containing 200 lines. Each line contains a fruit(s) [i.e. apple, apples, banana, bananas, orange, oranges, etc.] or fruit product [i.e. Apple Fruit Roll, Apple Pie, etc.]. The [file](#) contains repeating entries.

Excerpt of the file:



- C. The objective of this exercise is to query the [fruit.txt](#) file for every line containing the word “Apple”. To accomplish this with the find command. The anatomy of this command is:

find “Text to search for in file” file\_name.txt

As such, we execute the following command:

find "Apple" fruit.txt

```
C:\Users\Amar Chhabra\Documents\find_command>find "Apple" fruit.txt
```

```
----- FRUIT.TXT
```

```
Apple  
Apples  
Apple Pie  
Apple Fritter  
Apple  
Apples  
Apple  
Apples  
Apple  
Apples  
Apple  
Apples  
Apple Turnover  
Apple Candy  
Apple Soda  
Apple Fruit Roll  
Apple  
Apples  
Apple Cider  
Baked Apple  
Ambrosia Apple  
Apples  
Apple  
Appleberry  
Apple  
Apples  
Black Apple  
Apple  
Apples  
Apple  
Apples  
Buddha Apple  
Apple  
Apples  
Apple  
Apples  
Cashew Apple  
Apple  
Apples  
Apple Pie
```

- D. To ease viewing the command output above we utilize the pipe key ["|"] to send the output to the "sort" command. The "sort" command alphabetically groups and orders the output.

```
C:\Users\Amar Chhabra\Documents\find_command>find "Apple" fruit.txt | sort
```

```
----- FRUIT.TXT  
Ambrosia Apple  
Apple  
Apple  
Apple  
Apple  
Apple  
Apple  
Apple  
Apple  
Apple  
Apple  
Apple  
Apple  
Apple  
Apple Candy  
Apple Cider  
Apple Fritter  
Apple Fruit Roll  
Apple Pie  
Apple Pie  
Apple Soda  
Apple Turnover  
Appleberry  
Apples  
Apples  
Apples  
Apples  
Apples  
Apples  
Apples  
Apples  
Apples  
Apples  
Apples  
Apples  
Baked Apple  
Black Apple  
Buddha Apple  
Cashew Apple
```

Per manual count we noted there are thirteen (13) instances of the string "Apple".

- E. The “find” command outputs any line containing the string “Apple”. To remove those lines, containing extraneous strings/text [i.e. “Ambrosia” (contained in the first line “Ambrosia Apple”)] the above output is piped to the “find” command with the “/V” switch and the string to omit [“Ambrosia”] from the output. This is accomplished with the following command:

This command is appended to the original command, in the screenshot above, to exclude lines containing the word “Ambrosia” but still output all other lines containing the string “Apple”.

```
C:\Users\Amar Chhabra\Documents>find "Apple" fruit.txt | sort | find /V "Ambrosia"
```

```
----- FRUIT.TXT
```

```
Apple  
Apple  
Apple  
Apple  
Apple  
Apple  
Apple  
Apple  
Apple  
Apple  
Apple  
Apple  
Apple  
Apple  
Apple Candy  
Apple Cider  
Apple Fritter  
Apple Fruit Roll  
Apple Pie  
Apple Pie  
Apple Soda  
Apple Turnover  
Appleberry  
Apples  
Apples  
Apples  
Apples  
Apples  
Apples  
Apples  
Apples  
Apples  
Apples  
Apples  
Apples  
Apples  
Baked Apple  
Black Apple  
Buddha Apple  
Cashew Apple
```

Examining the above screenshot, we note absence of the “Ambrosia Apple” strings contained in the item [D] screenshot. This demonstrates functionality of the exclusion capability facilitated with the “/V” option/switch.

- F. To distill the data set, to exclude any/all lines not solely containing the string “Apple”, we pipe the output to the “find” command with the “/V” option/switch invoked followed by the string to exclude. We repeat this step for each string to exclude. The command to accomplish this is as follows:

```
find "Apple" fruit.txt | sort | find /V "Ambrosia" | find /V "Candy" | find /V "Cider" | find /V "Fritter" | find /V "Roll" | find /V "Pie" | find /V "Soda" | find /V "Turnover" | find /V "Appleberry" | find /V "Apples" | find /V "Baked" | find /V "Black" | find /V "Buddha" | find /V "Cashew"
```

- The portion of the command, highlighted in yellow, facilitates exclusion of any/all lines containing any string(s) contained within the double quotes.

```
C:\Users\Amar Chhabra\Documents\find_command>find "Apple" fruit.txt | sort | find /V "Ambrosia" | find /V "Candy" | find /V "Cider" | find /V "Fritter" | find /V "Roll" | find /V "Pie" | find /V "Soda" | find /V "Turnover" | find /V "Appleberry" | find /V "Apples" | find /V "Baked" | find /V "Black" | find /V "Buddha" | find /V "Cashew"

----- FRUIT.TXT
Apple
Apple
Apple
Apple
Apple
Apple
Apple
Apple
Apple
Apple
Apple
Apple
Apple
Apple
Apple
```

- G. To determine the output count of lines with the string “Apple” the option/switch “/C” is leveraged. The command to facilitate this is:

“find /C “Apple”

The above command is appended to the original command, in the screenshot above,

```
find "Apple" fruit.txt | sort | find /V "Ambrosia" | find /V "Candy" | find /V "Cider" | find /V "Fritter" | find /V "Roll" | find /V "Pie" | find /V "Soda" | find /V "Turnover" | find /V "Appleberry" | find /V "Apples" | find /V "Baked" | find /V "Black" | find /V "Buddha" | find /V "Cashew" | find /C "Apple"
```

- The portion of the command, highlighted in yellow, facilitates output of the number of iterations the string “Apple” is contained from the input received from the left of the pipe [“|”].

```
C:\Users\Amar Chhabra\Documents\find_command>find "Apple" fruit.txt | sort | find /V "Ambrosia" | find /V "Candy" | find /V "Cider" | find /V "Fritter" | find /V "Roll" | find /V "Pie" | find /V "Soda" | find /V "Turnover" | find /V "Appleberry" | find /V "Apples" | find /V "Baked" | find /V "Black" | find /V "Buddha" | find /V "Cashew" | find /C "Apple"
13
```

The command output specifies there are 13 instances of lines containing the string “Apple”.

- H. To output the line numbers, of lines containing the string “Apple”, invoke the “/N” option/switch. The command to facilitate this is:


“find /N Apple”

The above command is appended to the original command in the screenshot above,

```
find "Apple" fruit.txt | sort | find /V "Ambrosia" | find /V "Candy" | find /V "Cider" | find /V "Fritter" | find /V "Roll" | find /V "Pie" | find /V "Soda" | find /V "Turnover" | find /V "Appleberry" | find /V "Apples" | find /V "Baked" | find /V "Black" | find /V "Buddha" | find /V "Cashew" | find /N "Apple"
```

- The portion of the command, highlighted in yellow, facilitates output of line numbers based on output of the “sort” command.

```
C:\Users\Amar Chhabra\Documents\find_command>find "Apple" fruit.txt | sort
| find /V "Ambrosia" | find /V "Candy" | find /V "Cider" | find /V "Fritter
" | find /V "Roll" | find /V "Pie" | find /V "Soda" | find /V "Turnover" |
find /V "Appleberry" | find /V "Apples" | find /V "Baked" | find /V "Black"
| find /V "Buddha" | find /V "Cashew" | find /N "Apple"
[3]Apple
[4]Apple
[5]Apple
[6]Apple
[7]Apple
[8]Apple
[9]Apple
[10]Apple
[11]Apple
[12]Apple
[13]Apple
[14]Apple
[15]Apple
```



Line 3 ties to the 3<sup>rd</sup> line output of the sort command on the screenshot on the next page.

The output cites the line numbers of the output of the “sort” command [screenshot below].



```
C:\Users\Amar Chhabra\Documents\find_command>find "Apple" fruit.txt | sort
```

```
----- FRUIT.TXT
Ambrosia Apple
```

Apple

Apple

Apple

Apple

Apple

Apple

Apple

Apple

Apple

Apple

Apple

Apple

Apple

Apple Candy

Apple Cider  
Apple Fritts

Apple Fritter  
Apple Fruit B

Apple Fruit Roll  
Apple Pie

Apple Pie  
Apple Pie

Apple Pie  
Apple Sods

Apple Soda  
Apple Turn

Apple turnover  
Applecherry

## Apples

Apples  
Apples

Apples  
Apples

Apples  
Apples

Apples

Apples

## Apples

## Apples

Apples

Apples

## Apples

## Apples

## Apples

## Baked Apple

## Black Apple

## Buddha Apple

## Cashew Apple

Lines 1 & 2

Line 3

- I. Additionally, output from a command can be piped to the “find” command to query for specific strings.

The “systeminfo” command displays operating system configuration information for a local or remote machine, including service pack levels.

```
C:\Users\Amar Chhabra\Documents\find_command>systeminfo /?

SYSTEMINFO [/S system [/U username [/P [password]]]] [/FO format] [/NH]

Description:
    This tool displays operating system configuration information for
    a local or remote machine, including service pack levels.

Parameter List:
    /S      system      Specifies the remote system to connect to.

    /U      [domain\]user Specifies the user context under which
                        the command should execute.

    /P      [password]   Specifies the password for the given
                        user context. Prompts for input if omitted.

    /FO      format      Specifies the format in which the output
                        is to be displayed.
                        Valid values: "TABLE", "LIST", "CSV".

    /NH      Specifies that the "Column Header" should
                        not be displayed in the output.
                        Valid only for "TABLE" and "CSV" formats.

    /?      Displays this help message.

Examples:
    SYSTEMINFO
    SYSTEMINFO /?
    SYSTEMINFO /S system
    SYSTEMINFO /S system /U user
    SYSTEMINFO /S system /U domain\user /P password /FO TABLE
    SYSTEMINFO /S system /FO LIST
    SYSTEMINFO /S system /FO CSV /NH
```

- J. An excerpt of output from the “systeminfo” command (from my computer) is as follows:

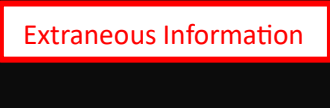
```
C:\Users\Amar Chhabra\Documents\find_command>systeminfo

Host Name:                MSI
OS Name:                   Microsoft Windows 11 Home
OS Version:                10.0.22621 N/A Build 22621
OS Manufacturer:          Microsoft Corporation
OS Configuration:         Standalone Workstation
OS Build Type:              Multiprocessor Free
Registered Owner:          Windows User
Registered Organization:
Product ID:                 00325-96728-67901-AAOEM
Original Install Date:      9/26/2023, 11:06:56 PM
System Boot Time:           10/19/2023, 9:11:09 PM
System Manufacturer:        Micro-Star International Co., Ltd.
System Model:                GF75 Thin 10SCSXR
System Type:                 x64-based PC
Processor(s):                1 Processor(s) Installed.
                             [01]: Intel64 Family 6 Model 165 Stepping 2 GenuineIntel ~2496 Mhz
BIOS Version:               American Megatrends Inc. E17F3IMS.50E, 9/14/2020
Windows Directory:          C:\WINDOWS
System Directory:            C:\WINDOWS\system32
Boot Device:                 \Device\HarddiskVolume3
System Locale:                en-us;English (United States)
Input Locale:                 en-us;English (United States)
Time Zone:                   (UTC-05:00) Eastern Time (US & Canada)
Total Physical Memory:       32,588 MB
Available Physical Memory:   15,065 MB
Virtual Memory: Max Size:    38,604 MB
Virtual Memory: Available:   9,717 MB
Virtual Memory: In Use:      28,887 MB
Page File Location(s):       C:\pagefile.sys
Domain:                       WORKGROUP
Logon Server:                 \\MSI
Hotfix(s):                    5 Hotfix(s) Installed.
                             [01]: KB5030651
                             [02]: KB5012170
                             [03]: KB5031455
                             [04]: KB5031592
                             [05]: KB5031893
Network Card(s):              4 NIC(s) Installed.
                             [01]: Intel(R) Wi-Fi 6 AX201 160MHz
                                 Connection Name: Wi-Fi
                                 DHCP Enabled:    Yes
                                 DHCP Server:      172.16.0.1
                                 IP address(es)
                                 [01]: 172.16.0.38
                                 [02]: fe80::cbd0:edd4:21db:ca6
```

- K. The first 5 fields output by the “systeminfo” command, OS Name, OS Version, OS Manufacturer, OS Configuration, and OS Build Type, are attributes of the computer’s operating system. We can extract/isolate these fields with the “find” command. This is accomplished through executing the “systeminfo” command and piping its output to find via the following command:

```
systeminfo | find "OS"
```

```
C:\Users\Amar Chhabra\Documents\find_command>systeminfo | find "OS"
OS Name:                        Microsoft Windows 11 Home
OS Version:                     10.0.22621 N/A Build 22621
OS Manufacturer:               Microsoft Corporation
OS Configuration:              Standalone Workstation
OS Build Type:                  Multiprocessor Free
BIOS Version:                   American Megatrends Inc. E17F3IMS.50E, 9/14/2020
```



Through utilization of the find command, to extract all lines containing the string “OS”, an extraneous field [BIOS Version] was output. The reason for this is the string “OS” is contained in “BIOS”.

- L. Exclusion of the “BIOS Version” line is facilitated with the “/V” option/switch via the following command:

```
find /V "BIOS"
```

This command is piped to the end of the command in item (K) above.

```
systeminfo | find "OS" | find /V "BIOS"
```

```
C:\Users\Amar Chhabra\Documents\find_command>systeminfo | find "OS" | find /V "BIOS"
OS Name:                        Microsoft Windows 11 Home
OS Version:                     10.0.22621 N/A Build 22621
OS Manufacturer:               Microsoft Corporation
OS Configuration:              Standalone Workstation
OS Build Type:                  Multiprocessor Free
```