



MODERN OPERATING SYSTEMS

LECTURE 4

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AGENDA

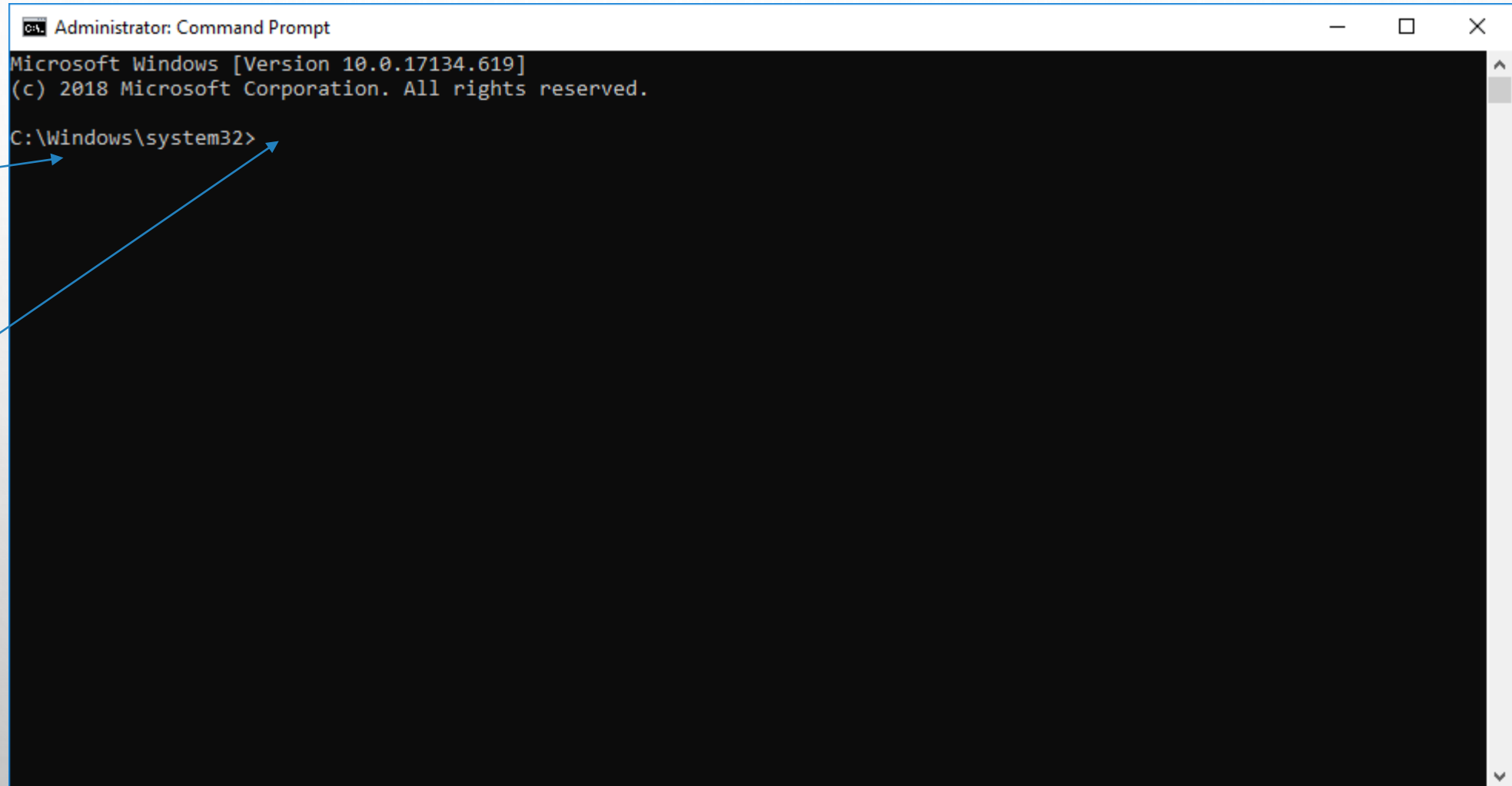
➤ COMMANDS

- ✓ COMMANDS WITH DIRECTORIES
- ✓ COMMANDS WITH FILES
- ✓ OTHER USEFUL COMMANDS

➤ BATCH FILES

- ✓ DEFINITION AND STRUCTURE
- ✓ SPECIFIC COMMANDS
- ✓ PARAMETERS
- ✓ VARIABLES

COMMAND PROMPT WINDOW



```
Administrator: Command Prompt
Microsoft Windows [Version 10.0.17134.619]
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C:\Windows\system32>
```

Current directory
as a prompt
(invitation to input
a command)

It is necessary to type a
command here

COMMAND GENERAL SYNTAX

COMMAND_NAME PARAMETER1 PARAMETER2 ... /KEY1 /KEY2 ...

WHERE:

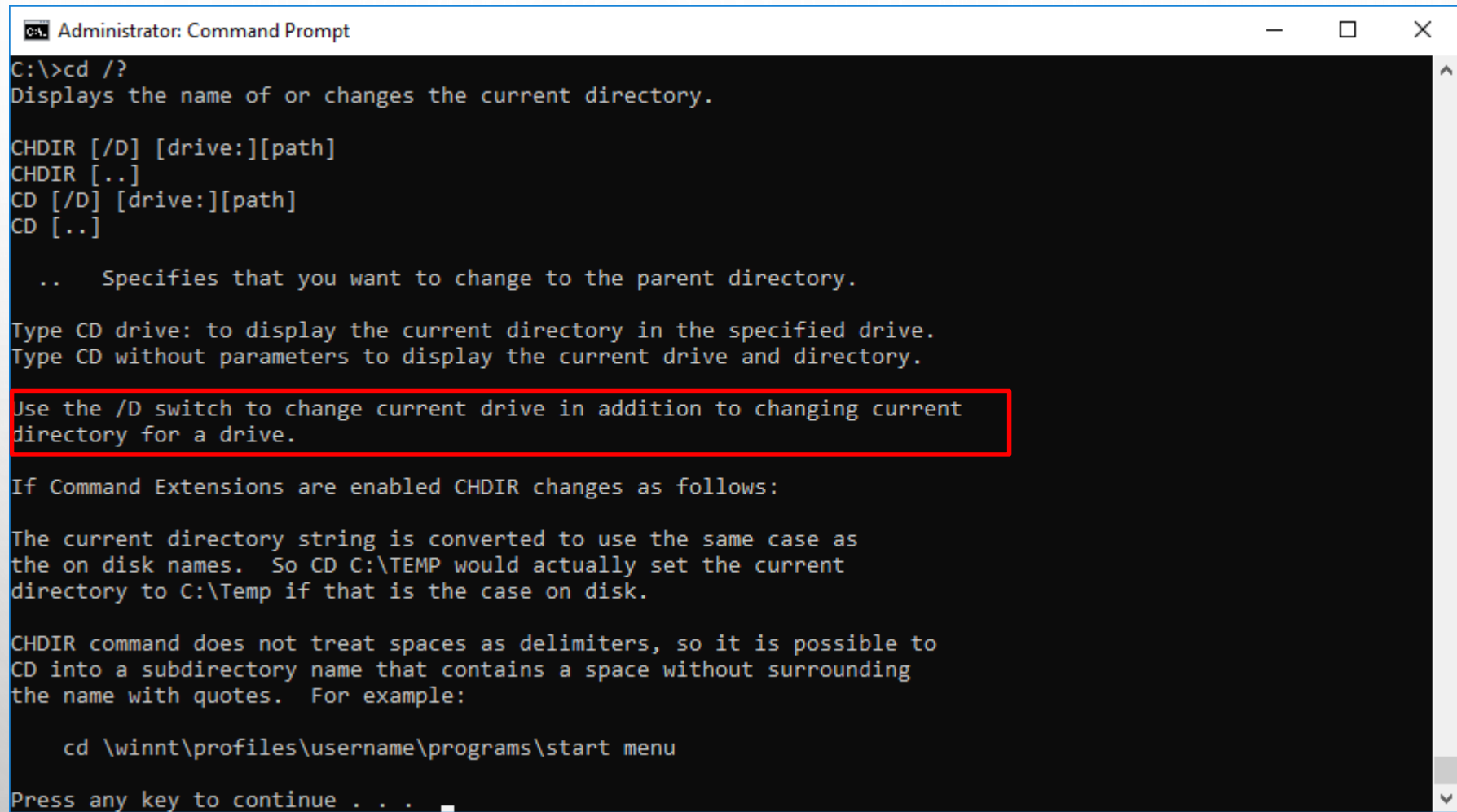
- COMMAND_NAME – DETERMINE THE ACTION TO BE DONE (COPY, TYPE, MOVE, DELETE, AND ETC.)
- PARAMETER – THE OBJECT TO BE PROCESSED
- KEY – DETAILS HOW IT WILL BE DONE



WORKING WITH DIRECTORIES

DIRECTORY == FOLDER

TO CHANGE CURRENT DIRECTORY



```
Administrator: Command Prompt
C:\>cd /?
Displays the name of or changes the current directory.

CHDIR [/D] [drive:][path]
CHDIR [..]
CD [/D] [drive:][path]
CD [..]

    .. Specifies that you want to change to the parent directory.

Type CD drive: to display the current directory in the specified drive.
Type CD without parameters to display the current drive and directory.

Use the /D switch to change current drive in addition to changing current
directory for a drive.

If Command Extensions are enabled CHDIR changes as follows:

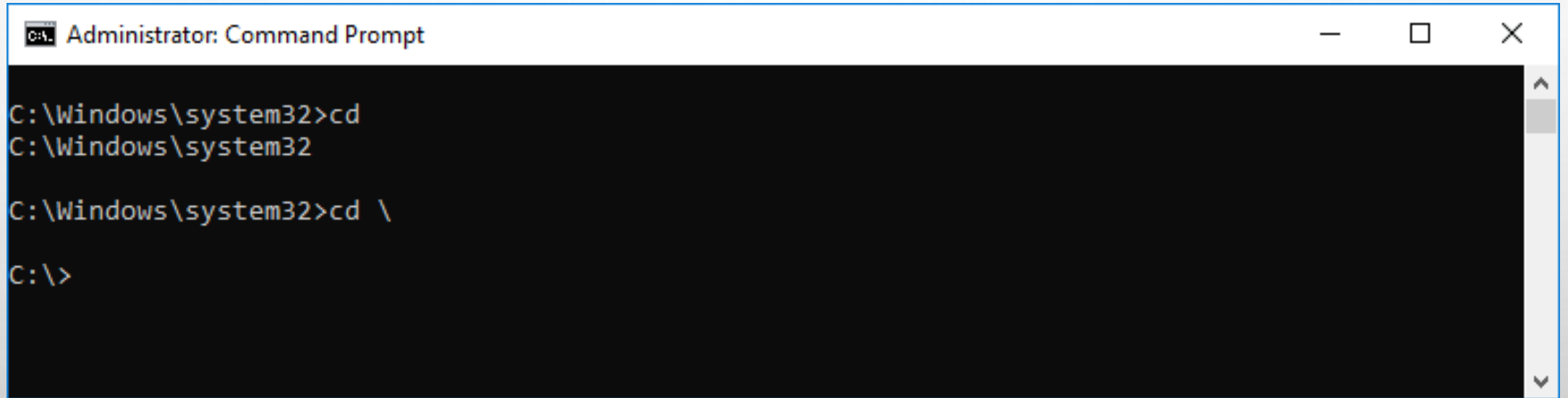
The current directory string is converted to use the same case as
the on disk names. So CD C:\TEMP would actually set the current
directory to C:\Temp if that is the case on disk.

CHDIR command does not treat spaces as delimiters, so it is possible to
CD into a subdirectory name that contains a space without surrounding
the name with quotes. For example:

    cd \winnt\profiles\username\programs\start menu

Press any key to continue . . .
```

EXAMPLE 1



```
C:\Windows\system32>cd  
C:\Windows\system32  
  
C:\Windows\system32>cd \  
C:\>
```

The image shows a screenshot of a Windows Command Prompt window titled "Administrator: Command Prompt". The window has a black background and white text. The command history shows the user navigating from the current directory to the root of the C: drive. The commands entered are: `cd`, `C:\Windows\system32`, `cd \`, and `C:\>`. The window includes standard Windows window controls (minimize, maximize, close) in the top right corner.

COMMAND “DIR”

```
Administrator: Command Prompt
C:\>dir /?
Displays a list of files and subdirectories in a directory.

DIR [drive:][path][filename] [/A[[:]attributes]] [/B] [/C] [/D] [/L] [/N]
  [/O[[:]sortorder]] [/P] [/Q] [/R] [/S] [/T[[:]timefield]] [/W] [/X] [/4]

  [drive:][path][filename]
    Specifies drive, directory, and/or files to list.

  /A      Displays files with specified attributes.
attributes  D Directories          R Read-only files
              H Hidden files        A Files ready for archiving
              S System files        I Not content indexed files
              L Reparse Points      - Prefix meaning not

  /B      Uses bare format (no heading information or summary).
  /C      Display the thousand separator in file sizes. This is the
           default. Use /-C to disable display of separator.
  /D      Same as wide but files are list sorted by column.
  /L      Uses lowercase.
  /N      New long list format where filenames are on the far right.
  /O      List by files in sorted order.
sortorder  N By name (alphabetic)    S By size (smallest first)
              E By extension (alphabetic) D By date/time (oldest first)
              G Group directories first - Prefix to reverse order

  /P      Pauses after each screenful of information.
  /Q      Display the owner of the file.
  /R      Display alternate data streams of the file.
  /S      Displays files in specified directory and all subdirectories.
  /T      Controls which time field displayed or used for sorting
timefield  C Creation
              A Last Access
              W Last Written
```


EXAMPLE 2

```
Administrator: Command Prompt

C:\>dir /A /O:N
Volume in drive C has no label.
Volume Serial Number is 9E87-56B0

Directory of C:\

02/20/2019  02:50 AM    <DIR>          $Recycle.Bin
03/10/2019  07:38 AM    <DIR>          1
03/10/2019  07:47 AM    <DIR>          2
03/10/2019  07:49 AM    <DIR>          3
03/06/2019  04:37 AM    <DIR>          Config.Msi
02/20/2019  08:40 AM    <JUNCTION>     Documents and Settings [C:\Users]
03/10/2019  02:26 AM      6,827,986,944 hiberfil.sys
02/20/2019  12:51 AM    <DIR>          Intel
02/20/2019  01:20 AM    <DIR>          MSOCache
03/06/2019  04:37 AM      2,550,136,832 pagefile.sys
04/11/2018  04:38 PM    <DIR>          PerfLogs
03/03/2019  01:06 AM    <DIR>          Program Files
02/20/2019  01:33 AM    <DIR>          Program Files (x86)
03/03/2019  01:23 AM    <DIR>          ProgramData
02/20/2019  08:40 AM    <DIR>          Recovery
03/06/2019  04:37 AM      16,777,216 swapfile.sys
03/08/2019  05:50 AM    <DIR>          System Volume Information
02/20/2019  01:28 AM    <DIR>          Users
02/20/2019  04:12 AM    <DIR>          Windows
               3 File(s)  9,394,900,992 bytes
               16 Dir(s)  448,338,165,760 bytes free

C:\WINDOWS\system32>dir *.log
Том в устройстве C не имеет метки.
Серийный номер тома: 129B-FE90

Содержимое папки C:\WINDOWS\system32

14.05.2018  11:49                50 090 NetSetupMig.log
               1 файлов                50 090 байт
               0 папок  36 694 544 384 байт свободно
```

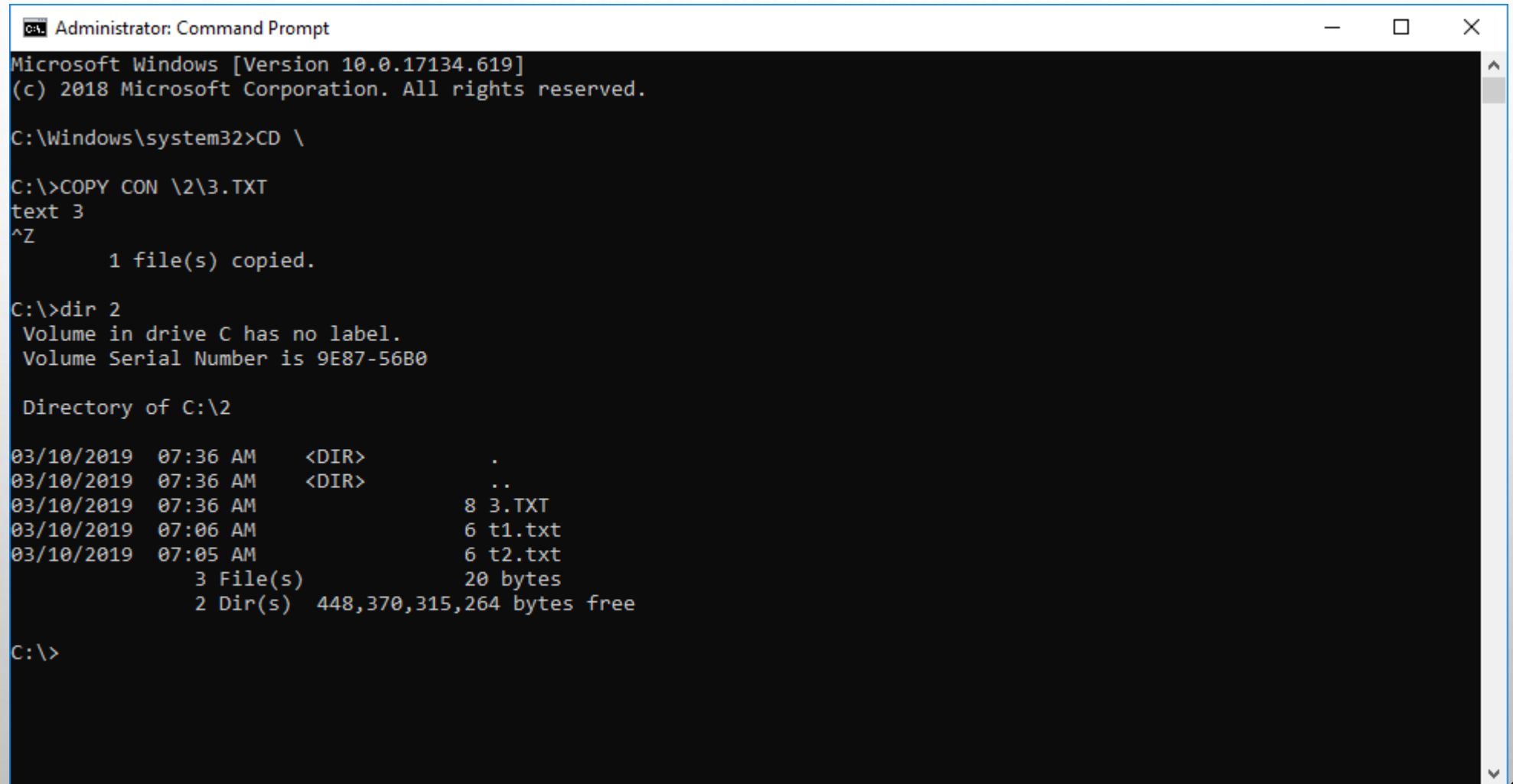
OTHER DIRECTORY COMMANDS

- TREE - GRAPHICALLY DISPLAYS THE DIRECTORY STRUCTURE OF A DRIVE OR PATH
- XCOPY - COPIES FILES AND DIRECTORY TREES
- MKDIR (MD) – CREATE NEW DIRECTORY
- RMDIR – DELETE DIRECTORY

The background of the slide is a light gray gradient. It is decorated with several realistic water droplets of various sizes, some clustered in the top left and others in the bottom right. In the upper center, there is a faint, circular logo or watermark that appears to contain a globe or a similar abstract design.

WORKING WITH FILES

EXAMPLE 2



```
Administrator: Command Prompt
Microsoft Windows [Version 10.0.17134.619]
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C:\Windows\system32>CD \

C:\>COPY CON \2\3.TXT
text 3
^Z
        1 file(s) copied.

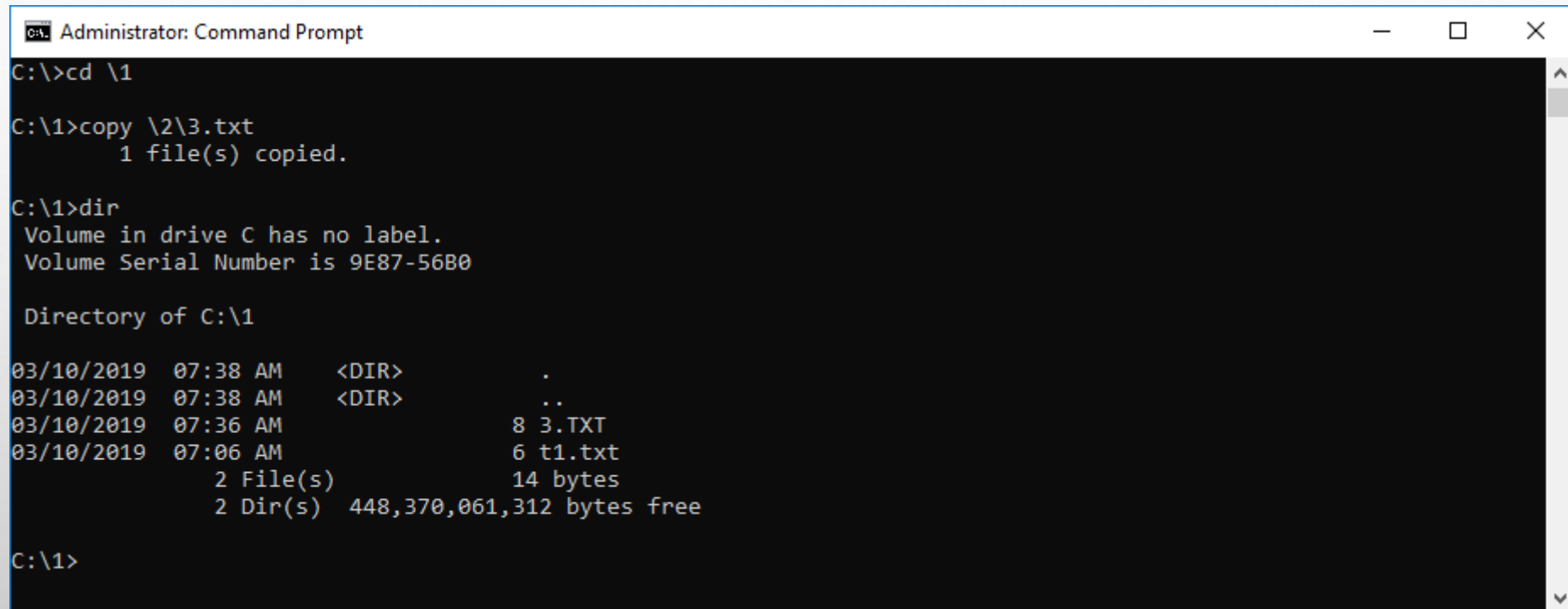
C:\>dir 2
Volume in drive C has no label.
Volume Serial Number is 9E87-56B0

Directory of C:\2

03/10/2019  07:36 AM    <DIR>        .
03/10/2019  07:36 AM    <DIR>        ..
03/10/2019  07:36 AM                8 3.TXT
03/10/2019  07:06 AM                6 t1.txt
03/10/2019  07:05 AM                6 t2.txt
                3 File(s)                20 bytes
                2 Dir(s)  448,370,315,264 bytes free

C:\>
```

EXAMPLE 3



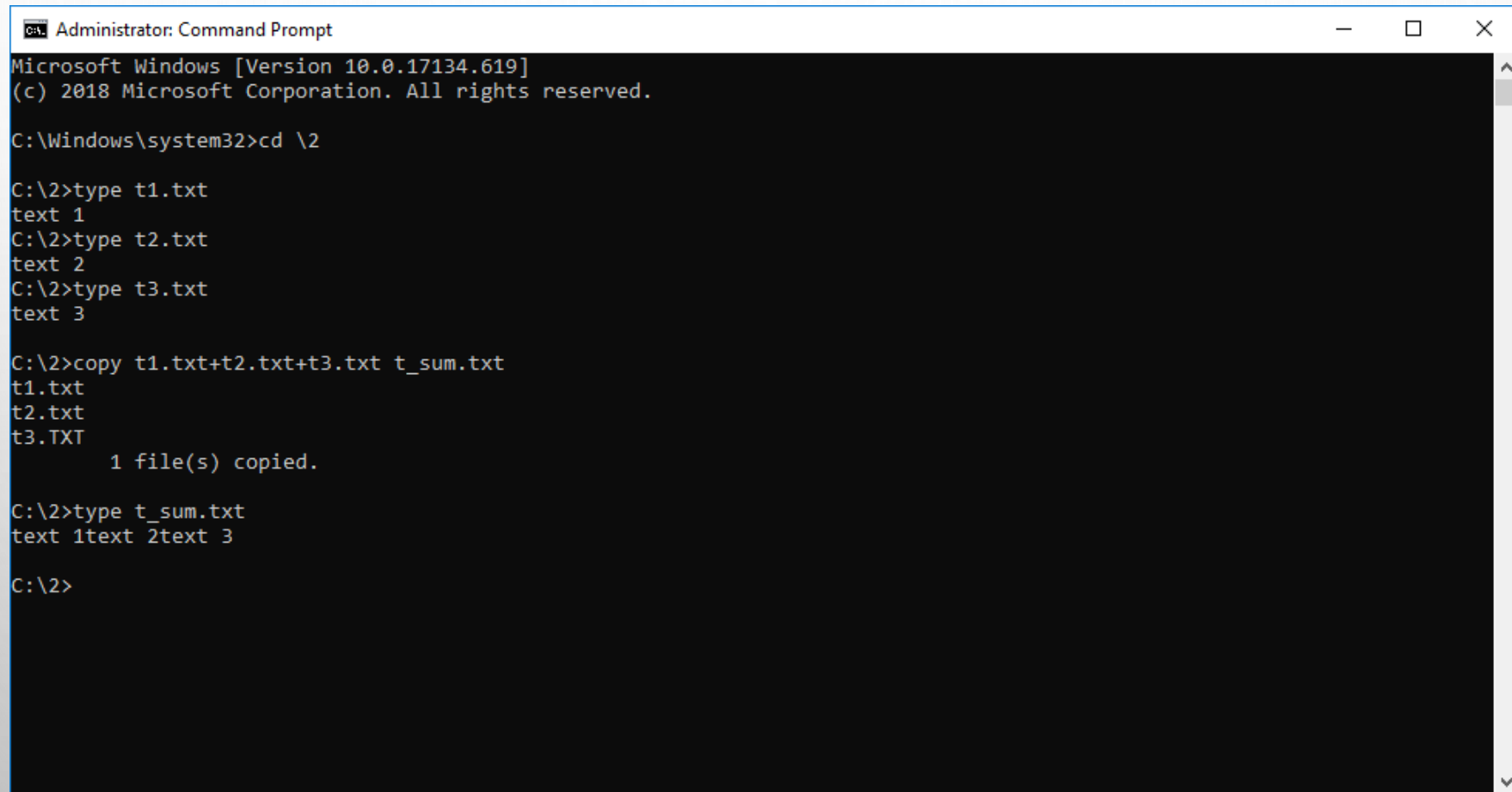
```
Administrator: Command Prompt
C:\>cd \1
C:\1>copy \2\3.txt
        1 file(s) copied.
C:\1>dir
Volume in drive C has no label.
Volume Serial Number is 9E87-56B0

Directory of C:\1

03/10/2019  07:38 AM    <DIR>        .
03/10/2019  07:38 AM    <DIR>        ..
03/10/2019  07:36 AM             8 3.TXT
03/10/2019  07:06 AM             6 t1.txt
                2 File(s)              14 bytes
                2 Dir(s)  448,370,061,312 bytes free

C:\1>
```

EXAMPLE 4



```
Administrator: Command Prompt
Microsoft Windows [Version 10.0.17134.619]
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C:\Windows\system32>cd \2

C:\2>type t1.txt
text 1
C:\2>type t2.txt
text 2
C:\2>type t3.txt
text 3

C:\2>copy t1.txt+t2.txt+t3.txt t_sum.txt
t1.txt
t2.txt
t3.TXT
        1 file(s) copied.

C:\2>type t_sum.txt
text 1text 2text 3

C:\2>
```

XCOPY

```
Administrator: Command Prompt
C:\1>xcopy /?
Copies files and directory trees.

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] [/B] [/J]
                                [/EXCLUDE:file1[+file2][+file3]...]

source       Specifies the file(s) to copy.
destination  Specifies the location and/or name of new files.
/A           Copies only files with the archive attribute set,
             doesn't change the attribute.
/M           Copies only files with the archive attribute set,
             turns off the archive attribute.
/D:m-d-y     Copies files changed on or after the specified date.
             If no date is given, copies only those files whose
             source time is newer than the destination time.
/EXCLUDE:file1[+file2][+file3]...
             Specifies a list of files containing strings. Each string
             should be in a separate line in the files. When any of the
             strings match any part of the absolute path of the file to be
             copied, that file will be excluded from being copied. For
             example, specifying a string like \obj\ or .obj will exclude
             all files underneath the directory obj or all files with the
             .obj extension respectively.
/P           Prompts you before creating each destination file.
/S           Copies directories and subdirectories except empty ones.
/E           Copies directories and subdirectories, including empty ones.
             Same as /S /E. May be used to modify /T.
/V           Verifies the size of each new file.
/W           Prompts you to press a key before copying.
/C           Continues copying even if errors occur.
```


XCOPY

```
Administrator: Command Prompt

C:\>xcopy \2\* \3\4\5
Does \3\4\5 specify a file name
or directory name on the target
(F = file, D = directory)? d
\2\t1.txt
\2\t2.txt
\2\t3.TXT
\2\t_sum.txt
4 File(s) copied

C:\>dir \3\4\5
Volume in drive C has no label.
Volume Serial Number is 9E87-56B0

Directory of C:\3\4\5

03/10/2019  07:49 AM    <DIR>        .
03/10/2019  07:49 AM    <DIR>        ..
03/10/2019  07:44 AM                6 t1.txt
03/10/2019  07:05 AM                6 t2.txt
03/10/2019  07:36 AM                8 t3.TXT
03/10/2019  07:47 AM               21 t_sum.txt
               4 File(s)              41 bytes
               2 Dir(s)  448,372,637,696 bytes free

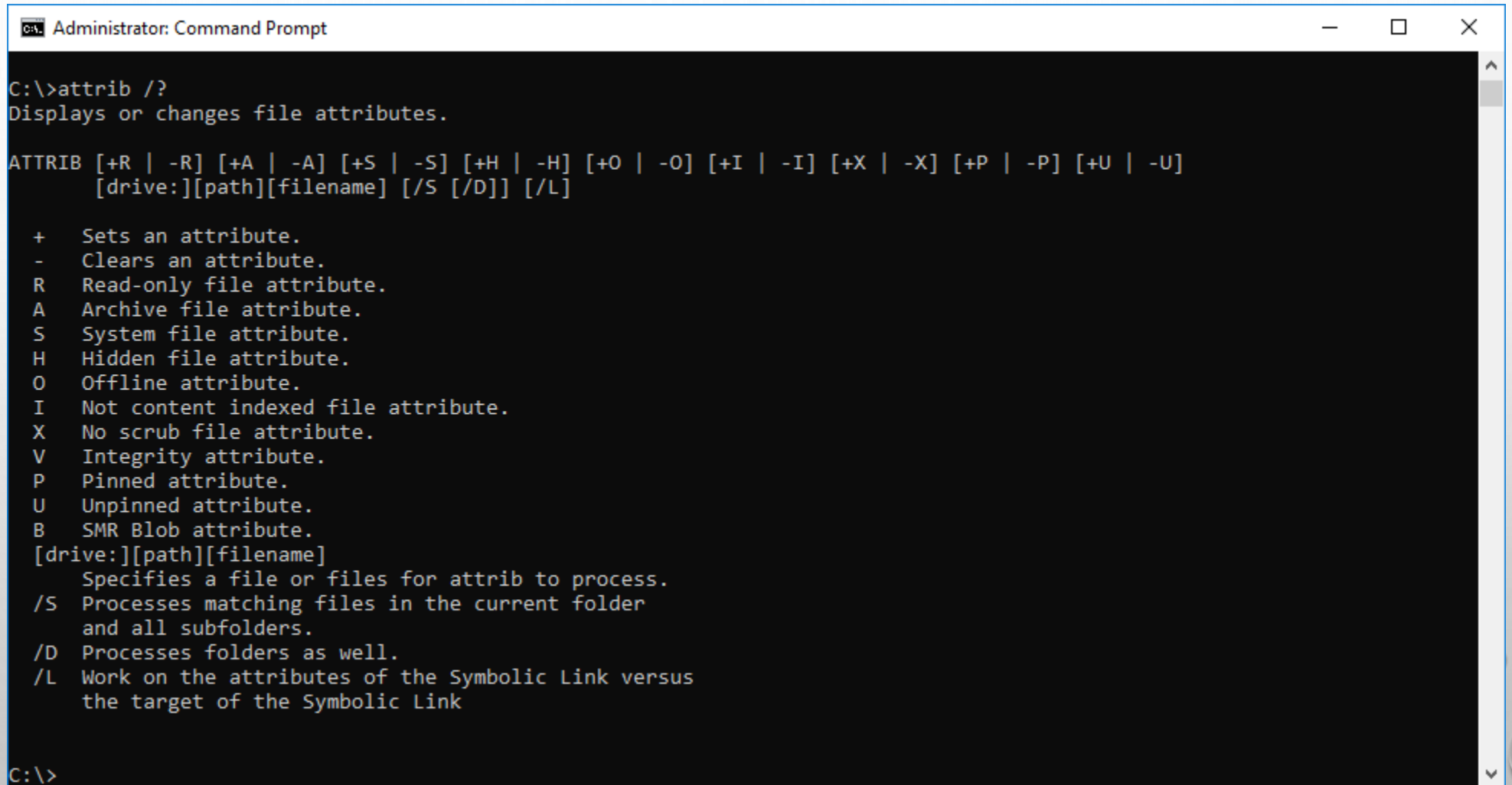
C:\>
```


TO SHOW AND CHANGE FILE ATTRIBUTES

THERE ARE 4 STANDARD FILE ATTRIBUTES:

- H – “HIDDEN” (IT IS NOT INCLUDED IN AN ORDINARY DIRECTORY LISTING)
- R - “READ ONLY” (COULDN'T BE CHANGED OR DELETED)
- A – “ARCHIVE” (HAS TO BE ARCHIVED BY BUILT-IN ARCHIVING PROGRAM)
- S –”SYSTEM” (A FILE OR DIRECTORY THAT THE OPERATING SYSTEM USES A PART OF, OR USES EXCLUSIVELY)

“ATTRIB” COMMAND



```
Administrator: Command Prompt

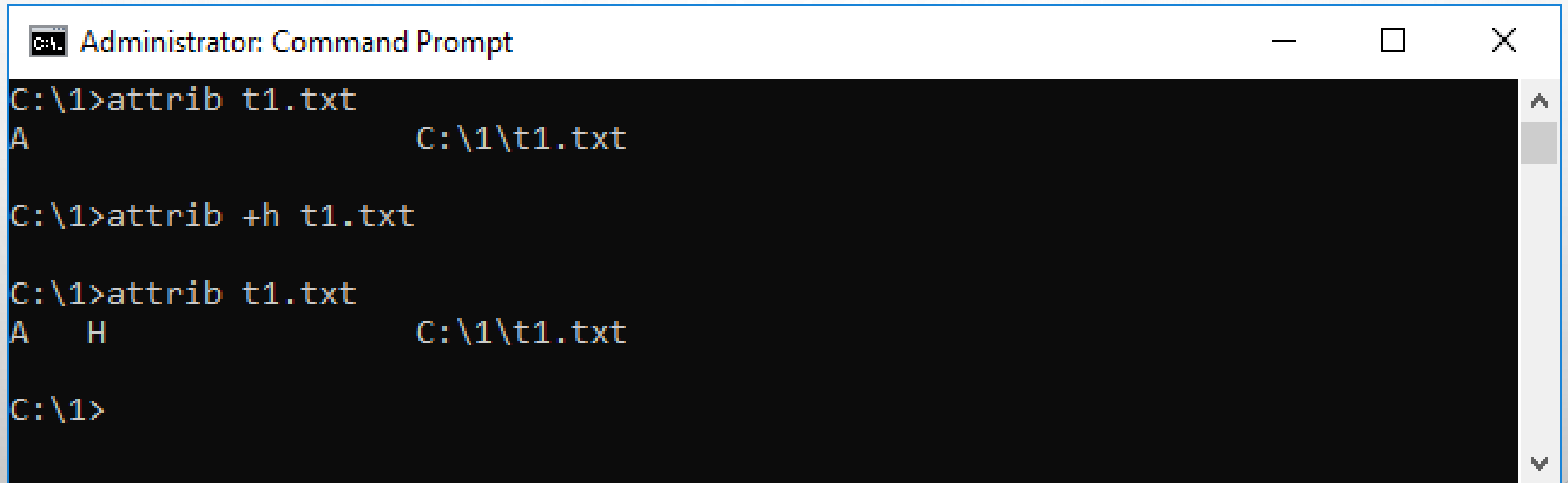
C:\>attrib /?
Displays or changes file attributes.

ATTRIB [+R | -R] [+A | -A] [+S | -S] [+H | -H] [+O | -O] [+I | -I] [+X | -X] [+P | -P] [+U | -U]
      [drive:][path][filename] [/S [/D]] [/L]

+   Sets an attribute.
-   Clears an attribute.
R   Read-only file attribute.
A   Archive file attribute.
S   System file attribute.
H   Hidden file attribute.
O   Offline attribute.
I   Not content indexed file attribute.
X   No scrub file attribute.
V   Integrity attribute.
P   Pinned attribute.
U   Unpinned attribute.
B   SMR Blob attribute.
[drive:][path][filename]
    Specifies a file or files for attrib to process.
/S  Processes matching files in the current folder
    and all subfolders.
/D  Processes folders as well.
/L  Work on the attributes of the Symbolic Link versus
    the target of the Symbolic Link

C:\>
```

“ATTRIB” COMMAND



The screenshot shows a Windows Command Prompt window titled "Administrator: Command Prompt". The window has a black background with white text. The command prompt shows the following sequence of commands and outputs:

```
C:\1>attrib t1.txt
A                C:\1\t1.txt

C:\1>attrib +h t1.txt

C:\1>attrib t1.txt
A H             C:\1\t1.txt

C:\1>
```

The output shows that the file t1.txt has attribute A (Archive) and then attribute H (Hidden) added. The file path C:\1\t1.txt is displayed next to the attribute output.

OTHER FILE COMMANDS

- DEL – DELETES FILE OR FILES
- FC – COMPARES TWO FILES OR SETS OF FILES, AND DISPLAYS THE DIFFERENCES BETWEEN THEM
- FIND – SEARCHES FOR A TEXT STRING IN A FILE OR FILES
- MOVE – MOVES FILE(S) FROM ONE DIRECTORY INTO ANOTHER (REGISTER FILE IN ANOTHER DIRECTORY)
- MORE - DISPLAYS OUTPUT ONE SCREEN AT A TIME
- RENAME - RENAMES A FILE OR FILES
- TYPE –DISPLAYS THE CONTENTS OF A TEXT FILE

The background of the slide is a light gray gradient. It is decorated with numerous realistic water droplets of various sizes. Some droplets are large and prominent, while others are small and subtle. They are scattered across the slide, with a higher concentration in the top-left and bottom-right corners. Each droplet has a soft highlight and a slight shadow, giving it a three-dimensional appearance.

SOME OTHER USEFUL COMMANDS

- DATE - DISPLAYS OR SETS THE DATE
- ECHO – DISPLAYS MESSAGES, OR TURNS COMMAND ECHOING ON OR OFF
- FOR - RUNS A SPECIFIED COMMAND FOR EACH FILE IN A SET OF FILES (CYCLE)
- PATH - DISPLAYS OR SETS A SEARCH PATH FOR EXECUTABLE FILES.
- PROMPT - CHANGES THE WINDOWS COMMAND PROMPT
- SET - DISPLAYS, SETS, OR REMOVES WINDOWS ENVIRONMENT VARIABLES
- SHUTDOWN - ALLOWS PROPER LOCAL OR REMOTE SHUTDOWN OF MACHINE
- START - STARTS A SEPARATE WINDOW TO RUN A SPECIFIED PROGRAM OR COMMAND
- SYSTEMINFO - DISPLAYS MACHINE SPECIFIC PROPERTIES AND CONFIGURATION
- TASKLIST - DISPLAYS ALL CURRENTLY RUNNING TASKS INCLUDING SERVICES

Administrator: Command Prompt

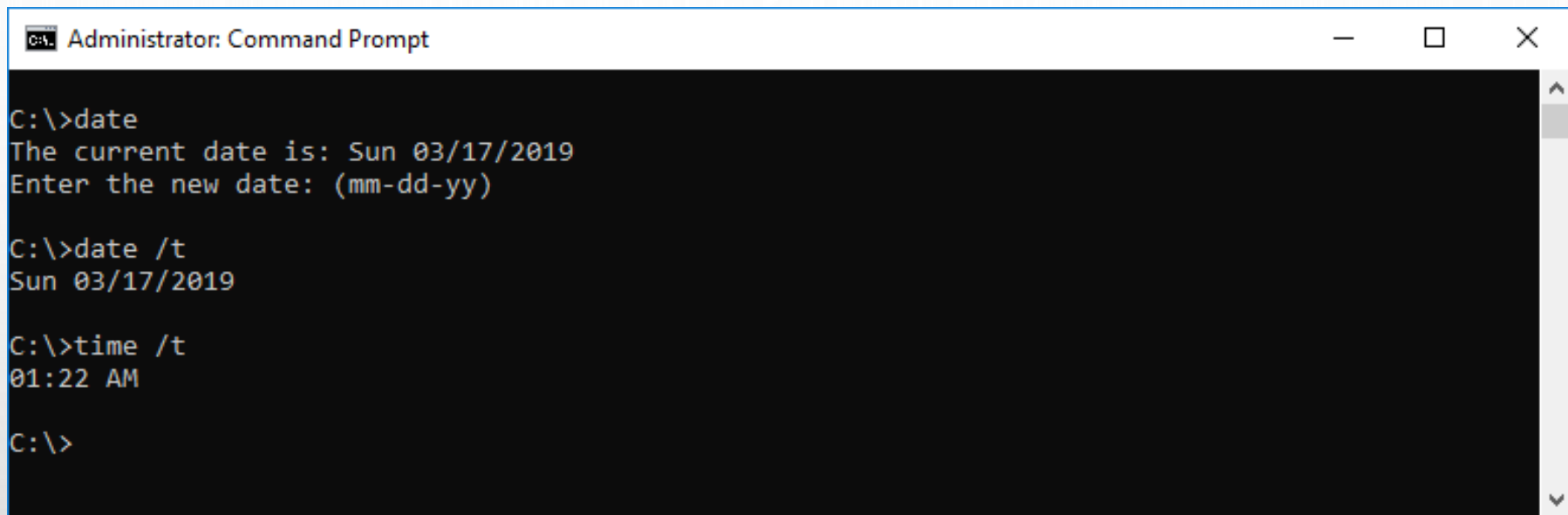
C:\Windows\system32>systeminfo

Host Name: DESKTOP-IV1039D
OS Name: Microsoft Windows 10 Pro
OS Version: 10.0.17134 N/A Build 17134
OS Manufacturer: Microsoft Corporation
OS Configuration: Standalone Workstation
OS Build Type: Multiprocessor Free
Registered Owner: admin
Registered Organization:
Product ID: 00331-10000-00001-AA794
Original Install Date: 2/20/2019, 8:40:19 AM
System Boot Time: 3/6/2019, 4:37:40 AM
System Manufacturer: HP
System Model: HP ProBook 470 G5
System Type: x64-based PC
Processor(s): 1 Processor(s) Installed.
[01]: Intel64 Family 6 Model 142 Stepping 10 GenuineIntel ~1792 Mhz
BIOS Version: HP Q85 Ver. 01.01.07, 10/17/2017
Windows Directory: C:\Windows
System Directory: C:\Windows\system32
Boot Device: \Device\HarddiskVolume2
System Locale: en-us;English (United States)
Input Locale: en-us;English (United States)
Time Zone: (UTC-07:00) Arizona
Total Physical Memory: 16,279 MB
Available Physical Memory: 12,281 MB
Virtual Memory: Max Size: 18,711 MB
Virtual Memory: Available: 14,821 MB
Virtual Memory: In Use: 3,890 MB
Page File Location(s): C:\pagefile.sys
Domain: WORKGROUP
Logon Server: \\DESKTOP-IV1039D
Hotfix(s): 6 Hotfix(s) Installed.
[01]: KB4100347
[02]: KB4103729
[03]: KB4462930
[04]: KB4485449
[05]: KB4487038
[06]: KB4487029
Network Card(s): 4 NIC(s) Installed.
[01]: Realtek PCIe GBE Family Controller
Connection Name: Ethernet
Status: Media disconnected
[02]: Intel(R) Dual Band Wireless-AC 8265
Connection Name: Wi-Fi

```
Administrator: Command Prompt

C:\Windows\system32>tasklist

Image Name                      PID Session Name        Session#    Mem Usage
=====
System Idle Process             0 Services             0           8 K
System                          4 Services            0          872 K
Secure System                   72 Services           0        38,440 K
Registry                       128 Services          0        13,744 K
smss.exe                       552 Services          0           592 K
csrss.exe                      760 Services          0         2,332 K
wininit.exe                    864 Services          0         3,580 K
services.exe                   936 Services          0         7,836 K
lsass.exe                      956 Services          0         1,452 K
lsass.exe                      964 Services          0        13,924 K
svchost.exe                    620 Services          0         1,208 K
svchost.exe                    736 Services          0        23,856 K
fontdrvhost.exe               640 Services          0         1,636 K
WUDFHost.exe                  992 Services          0         2,544 K
svchost.exe                   1096 Services          0        12,640 K
WUDFHost.exe                  1140 Services          0        10,424 K
svchost.exe                   1156 Services          0         5,688 K
WUDFHost.exe                  1268 Services          0        11,748 K
svchost.exe                   1544 Services          0         3,492 K
svchost.exe                   1596 Services          0         5,816 K
svchost.exe                   1640 Services          0         2,436 K
svchost.exe                   1748 Services          0         4,844 K
svchost.exe                   1756 Services          0         5,524 K
svchost.exe                   1824 Services          0         9,912 K
svchost.exe                   1916 Services          0         6,160 K
svchost.exe                   1964 Services          0         1,056 K
svchost.exe                   1988 Services          0         2,400 K
svchost.exe                    856 Services          0        15,524 K
svchost.exe                   2072 Services          0         6,168 K
svchost.exe                   2092 Services          0         2,176 K
```

A screenshot of a Windows Command Prompt window titled "Administrator: Command Prompt". The window has a black background with white text. The text shows the following commands and their outputs:

```
C:\>date
The current date is: Sun 03/17/2019
Enter the new date: (mm-dd-yy)

C:\>date /t
Sun 03/17/2019

C:\>time /t
01:22 AM

C:\>
```

The window includes standard Windows window controls (minimize, maximize, close) in the top right corner and a vertical scrollbar on the right side.

TASK

1. CREATE 2 DIRECTORIES IN THE ROOT DIRECTORY WITH NAMES: DIR1 AND DIR2
2. BY MEANS OF INPUT FROM THE KEYBOARD, CREATE A NEW FILE WITH THE NAME OF “VERY USEFUL FILE” IN THE DIR1 DIRECTORY
3. COPY THIS FILE TO THE DIR2 DIRECTORY WITH THE NAME OF “CORRECTED FILE.TXT”. OPEN IT IN A TEXT EDITOR (I.E. NOTEPAD) AND SLIGHTLY CHANGE ITS CONTENT.
4. COMPARE THESE TWO EARLIER CREATED FILES. HOW THEIR DIFFERENCES ARE PRESENTED IN THE WINDOW?
5. SET TO THE “CORRECTED FILE.TXT” THE ATTRIBUTE “READ ONLY”.
6. CHECK WHAT IS THE WHOLE SET OF ATTRIBUTES FOR THIS FILE
7. TRY TO DELETE THIS FILE. IS THERE ANY PROBLEM?
8. DELETE ALL THE OBJECTS (DIR1, DIR2, AND BOTH FILES) HAVING BEEN CREATED FOR THIS TASK
9. DISPLAY THE CURRENT DATE AND CURRENT TIME. WRITE CURRENT DATE AND TIME INTO THE “FILE-DATE.DAT” FILE IN THE ROOT DIRECTORY.
10. MAKE SURE THAT THE “FILE-DATE.DAT” FILE CONTAINS THE NECESSARY DATA