

Lab – File System Commands

Introduction

In this lab, you will use CLI commands to manage files and folders in Windows.

Recommended Equipment

- A computer running Windows

Instructions

Step 1: Access the Windows command prompt.

- a. Log on to a Windows computer. The account **ITEUser** is used as the example user account throughout this lab.
- b. To access the Windows command prompt, click **Start** and enter **cmd**. Select **Command Prompt** or **cmd.exe** to continue.

Step 2: Create and change directories.

In this step, you will use the change directory (**cd**), make directory (**md**), and directory (**dir**) commands.

Note: A directory is another word for folder. Directory and folder are used interchangeably throughout this lab.

- a. Type **cd** at the command prompt.

```
Microsoft Windows [Version 10.0.26100.6584]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Admin>cd
C:\Users\Admin

C:\Users\Admin>
```

Question:

What is the current directory?

C:\Users\Admin

- b. Type **dir** at the command prompt to list the files and folders that are in the current folder.

```
C:\Users\ITEUser> dir
Volume in drive C has no label.
Volume Serial Number is 9055-35E9

Directory of C:\Users\ITEUser

04/27/2019  09:21 AM    <DIR>        .
04/27/2019  09:21 AM    <DIR>        ..
04/25/2019  11:39 AM    <DIR>    3D Objects
```

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```
04/25/2019 11:39 AM <DIR> Contacts
04/26/2019 10:29 AM <DIR> Desktop
04/25/2019 11:39 AM <DIR> Documents
04/25/2019 11:39 AM <DIR> Downloads
<some output omitted>
          0 File(s)           0 bytes
      15 Dir(s) 32,671,969,280 bytes free
Directory of C:\Users\Admin
13/10/2025 06:01 pm <DIR> .
11/08/2025 09:07 pm <DIR> ..
26/08/2025 08:51 pm <DIR> .android
01/09/2024 01:03 pm <DIR> .ms-ad
30/09/2025 09:02 pm 176 .packettracer
11/10/2025 10:40 pm <DIR> .VirtualBox
19/03/2025 09:11 am <DIR> .vscode
29/07/2024 08:06 pm 11,835 AMDRM_Install.log
29/07/2024 08:03 pm 3,479,742 AMD_RyzenMaster.log
29/07/2024 08:06 pm 2,702,110 AMD_RyzenMaster_Uninstall.log
30/09/2025 09:01 pm <DIR> Cisco Packet Tracer 7.2.2
28/02/2025 06:07 pm <DIR> Contacts
13/10/2025 06:01 pm <DIR> CrossDevice
01/01/2025 12:05 pm <DIR> Desktop
01/01/2025 12:05 pm <DIR> Documents
16/10/2025 09:15 am <DIR> Downloads
28/02/2025 06:07 pm <DIR> Favorites
28/02/2025 06:07 pm <DIR> Links
28/02/2025 06:07 pm <DIR> Music
16/10/2025 07:20 am <DIR> OneDrive
01/01/2025 12:05 pm <DIR> Pictures
28/02/2025 06:07 pm <DIR> Saved Games
28/02/2025 06:07 pm <DIR> Searches
27/04/2025 04:55 pm 362 Sti_Trace.log
28/02/2025 06:07 pm <DIR> Videos
11/10/2025 09:48 pm <DIR> VirtualBox VMs
      5 File(s)   6,194,225 bytes
     21 Dir(s) 265,947,656,192 bytes free
```

- c. In the current directory, use the **md** command to create three new folders: **ITEfolder1**, **ITEfolder2**, and **ITEfolder3**. Type **md ITEfolder1** and press **Enter**. Create **ITEfolder2** and **ITEfolder3**. (Note: The command **mkdir** performs the same function as the command **md**.)

```
C:\Users\ITEUser> md ITEfolder1
C:\Users\ITEUser> md ITEfolder2 ITEfolder3
C:\Users\Admin>md ITEfolder1
C:\Users\Admin>md ITEfolder2 ITEfolder3
```

- d. Type **dir** to verify that the folders have been created.

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```
Directory of C:\Users\Admin

16/10/2025  09:20 am    <DIR>        .
11/08/2025  09:07 pm    <DIR>        ..
26/08/2025  08:51 pm    <DIR>        .android
01/09/2024  01:03 pm    <DIR>        .ms-ad
30/09/2025  09:02 pm    176 .packettracer
11/10/2025  10:40 pm    <DIR>        .VirtualBox
19/03/2024  09:11 am    <DIR>        .vscode
29/07/2024  08:06 pm    11,835 AMDRM_Install.log
29/07/2024  08:03 pm    3,479,742 AMD_RyzenMaster.log
29/07/2024  08:06 pm    2,702,110 AMD_RyzenMaster_Uninstall.log
30/09/2025  09:01 pm    <DIR>        Cisco Packet Tracer 7.2.2
28/02/2025  06:07 pm    <DIR>        Contacts
13/10/2025  06:01 pm    <DIR>        CrossDevice
01/01/2025  12:05 pm    <DIR>        Desktop
01/01/2025  12:05 pm    <DIR>        Documents
16/10/2025  09:15 am    <DIR>        Downloads
28/02/2025  06:07 pm    <DIR>        Favorites
16/10/2025  09:20 am    <DIR>        ITEfolder1
16/10/2025  09:20 am    <DIR>        ITEfolder2
16/10/2025  09:20 am    <DIR>        ITEfolder3
28/02/2025  06:07 pm    <DIR>        Links
28/02/2025  06:07 pm    <DIR>        Music
16/10/2025  07:20 am    <DIR>        OneDrive
01/01/2025  12:05 pm    <DIR>        Pictures
28/02/2025  06:07 pm    <DIR>        Saved Games
28/02/2025  06:07 pm    <DIR>        Searches
27/04/2025  04:55 pm    362 Sti_Trace.log
28/02/2025  06:07 pm    <DIR>        Videos
11/10/2025  09:48 pm    <DIR>        VirtualBox VMs
      5 File(s)   6,194,225 bytes
     24 Dir(s)  265,947,676,672 bytes free
```

- e. Type **cd ITEfolder3** at the command prompt and press **Enter**.

```
C:\Users\Admin>cd ITEfolder3

C:\Users\Admin\ITEfolder3>
```

Question:

Which folder are you in now?

C:\Users\Admin\ITEfolder3

- f. Create **ITEfolder4** in the current directory. Within the **ITEfolder4** folder, create a folder named **ITEfolder5**. Use the **dir** command to verify the folder creation.

```
C:\Users\Admin>cd ITEfolder3

C:\Users\Admin\ITEfolder3>md ITEfolder4

C:\Users\Admin\ITEfolder3>dir
 Volume in drive C is Acer
 Volume Serial Number is 460D-5241

 Directory of C:\Users\Admin\ITEfolder3

16/10/2025  09:24 am    <DIR>        .
16/10/2025  09:20 am    <DIR>        ..
16/10/2025  09:24 am    <DIR>        ITEfolder4
      0 File(s)          0 bytes
     3 Dir(s)  265,912,446,976 bytes free

C:\Users\Admin\ITEfolder3>cd ITEfolder4

C:\Users\Admin\ITEfolder3\ITEfolder4>md ITEfolder5

C:\Users\Admin\ITEfolder3\ITEfolder4>dir
 Volume in drive C is Acer
 Volume Serial Number is 460D-5241

 Directory of C:\Users\Admin\ITEfolder3\ITEfolder4

16/10/2025  09:24 am    <DIR>        .
16/10/2025  09:24 am    <DIR>        ..
16/10/2025  09:24 am    <DIR>        ITEfolder5
      0 File(s)          0 bytes
     3 Dir(s)  265,911,857,152 bytes free

C:\Users\Admin\ITEfolder3\ITEfolder4>
```

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Question:

What command or commands did you use to create the nested folders?

I used the “cd” and “md” together to access folders and create nested folders.

- g. Change directory as necessary until you are in ITEfolder5.

```
C:\Users\Admin\ITEfolder3\ITEfolder4>cd ITEfolder5  
C:\Users\Admin\ITEfolder3\ITEfolder4\ITEfolder5>
```

- h. Type **cd ..** to change the current directory. Each .. is a shortcut to move up one level in the directory tree.

```
C:\Users\Admin\ITEfolder3\ITEfolder4\ITEfolder5>cd ..  
C:\Users\Admin\ITEfolder3\ITEfolder4>
```

Question:

After issuing the **cd ..** command, what is your directory now?

Back to ITEfolder4

What would be the current directory if you issue this command at C:\Users\ITEUser\ITEfolder3\ITEFolder4?

I will go back to ITEfolder3

Step 3: Create text files.

- a. Navigate to the C:\Users\ITEUser\ITEfolder1 directory. Type **cd ..\ITEfolder1** at the prompt.

```
C:\Users\Admin\ITEfolder3>cd ..\ITEfolder1  
C:\Users\Admin\ITEfolder1>
```

- b. Type **echo This is doc1.txt > doc1.txt** at the command prompt. The **echo** command is used to display a message at the command prompt. The **>** is used to redirect the message from the screen to a file. For example, in the first line, the message **This is doc1.txt** is redirected into a new file named **doc1.txt**. Use the **echo** command and **>** redirect to create these files: **doc2.txt**, **file1.txt**, and **file2.txt**.

```
C:\Users\ITEUser\ITEfolder1> echo This is doc1.txt > doc1.txt  
C:\Users\ITEUser\ITEfolder1> echo This is doc2.txt > doc2.txt  
C:\Users\ITEUser\ITEfolder1> echo This is file1.txt > file1.txt  
C:\Users\ITEUser\ITEfolder1> echo This is file2.txt > file2.txt
```

```
C:\Users\Admin\ITEfolder1>echo This is doc1.txt > doc1.txt  
C:\Users\Admin\ITEfolder1>echo This is doc2.txt > doc2.txt  
C:\Users\Admin\ITEfolder1>echo This is file1.txt > file1.txt  
C:\Users\Admin\ITEfolder1>echo This is file2.txt > file2.txt
```

- c. Use the **dir** command to verify the files are in the **ITEfolder1** folder.

```
C:\Users\Admin\ITEfolder1>dir
  Volume in drive C is Acer
  Volume Serial Number is 460D-5241

  Directory of C:\Users\Admin\ITEfolder1

16/10/2025  09:33 am    <DIR>          .
16/10/2025  09:20 am    <DIR>          ..
16/10/2025  09:33 am           19 doc1.txt
16/10/2025  09:33 am           19 doc2.txt
16/10/2025  09:33 am           20 file1.txt
16/10/2025  09:33 am           20 file2.txt
                           4 File(s)        78 bytes
                           2 Dir(s)  265,903,542,272 bytes free
```

```
C:\Users\ITEUser\ITEFolder1> dir
<some output omitted>
04/29/2019  08:05 AM           19 doc1.txt
04/29/2019  08:06 AM           19 doc2.txt
04/29/2019  08:08 AM           20 file1.txt
04/29/2019  08:08 AM           20 file2.txt
                           4 File(s)        78 bytes
                           2 Dir(s)  32,625,397,760 bytes free
```

- d. Use the **more** or **type** command to view the content of the newly created text files.

```
C:\Users\Admin\ITEfolder1>more doc1.txt
This is doc1.txt

C:\Users\Admin\ITEfolder1>type doc2.txt
This is doc2.txt

C:\Users\Admin\ITEfolder1>more file1.txt
This is file1.txt

C:\Users\Admin\ITEfolder1>type file2.txt
This is file2.txt
```

```
C:\Users\ITEUser\ITEfolder1> more doc1.txt
This is doc1.txt
```

```
C:\Users\ITEUser\ITEfolder1> type doc2.txt
This is doc2.txt
```

Step 4: Copy, delete, and move files.

- a. At the command prompt, type **move doc2.txt C:\Users\ITEUser\ITEfolder2** to move the file **doc2.txt** to the **C:\Users\ITEUser\ITEfolder2** directory.

```
C:\Users\Admin\ITEfolder1>move doc2.txt C:\Users\Admin\ITEfolder2  
1 file(s) moved.
```

```
C:\Users\ITEUser\ITEfolder1> move doc2.txt C:\Users\ITEUser\ITEfolder2  
1 file(s) moved.
```

- b. Type **dir** at the prompt to verify that **doc2.txt** is no longer in the current directory.

```
C:\Users\Admin\ITEfolder1>dir  
Volume in drive C is Acer  
Volume Serial Number is 460D-5241  
  
Directory of C:\Users\Admin\ITEfolder1  
  
16/10/2025  09:36 am    <DIR>          .  
16/10/2025  09:20 am    <DIR>          ..  
16/10/2025  09:33 am            19 doc1.txt  
16/10/2025  09:33 am            20 file1.txt  
16/10/2025  09:33 am            20 file2.txt  
                           3 File(s)           59 bytes  
                           2 Dir(s)  265,898,127,360 bytes free
```

- c. Navigate to **C:\Users\ITEUser\ITEfolder2** to change the directory to **ITEfolder2**. Type **dir** at the prompt to verify **doc2.txt** has been moved.

```
C:\Users\Admin\ITEfolder1>cd..\ITEfolder2
```

```
C:\Users\Admin\ITEfolder2>dir  
Volume in drive C is Acer  
Volume Serial Number is 460D-5241
```

```
Directory of C:\Users\Admin\ITEfolder2
```

```
16/10/2025  09:36 am    <DIR>          .  
16/10/2025  09:20 am    <DIR>          ..  
16/10/2025  09:33 am            19 doc2.txt  
                           1 File(s)           19 bytes  
                           2 Dir(s)  265,898,467,328 bytes free
```

- d. Type **copy doc2.txt doc2_copy.txt** to create a copy of **doc2.txt**. Type **dir** at the prompt to verify a copy of the file has been created.

```
C:\Users\Admin\ITEfolder2>copy doc2.txt doc2_copy.txt
1 file(s) copied.

C:\Users\Admin\ITEfolder2>dir
Volume in drive C is Acer
Volume Serial Number is 460D-5241

Directory of C:\Users\Admin\ITEfolder2

16/10/2025  09:39 am    <DIR>          .
16/10/2025  09:20 am    <DIR>          ..
16/10/2025  09:33 am            19 doc2.txt
16/10/2025  09:33 am            19 doc2_copy.txt
              2 File(s)           38 bytes
              2 Dir(s)  265,898,430,464 bytes free
```

```
C:\Users\ITEUser\ITEfolder2> dir
<some output omitted>
Directory of C:\Users\ITEUser\ITEfolder2

04/30/2019  09:07 AM            19 doc2.txt
04/30/2019  09:07 AM            19 doc2_copy.txt
              2 File(s)           38 bytes
              2 Dir(s)  31,753,068,544 bytes free
```

- e. Use the **move** command to move **doc2_copy.txt** to **ITEfolder1**. Type **move doc2_copy.txt ..\ITEfolder1**.

```
C:\Users\Admin\ITEfolder2>move doc2_copy.txt ..\ITEfolder1
1 file(s) moved.
```

```
C:\Users\ITEUser\ITEfolder2> move doc2_copy.txt ..\ITEfolder1
1 file(s) moved.
```

- f. A copy of the file **doc2.txt** can be created in a new location using the **copy** command. At the prompt, enter the **copy doc2.txt ..\ITEfolder1\doc2_new.txt**.

```
C:\Users\Admin\ITEfolder2>copy doc2.txt ..\ITEfolder1\doc2_new.txt
1 file(s) copied.
```

```
C:\Users\ITEUser\ITEfolder2> copy doc2.txt ..\ITEfolder1\doc2_new.txt
1 file(s) copied.
```

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- g. The file **doc2.txt** can also be moved to a new location with a new filename using the **move** command.
Type **move doc2.txt ..\ITEfolder1\doc2_move.txt** at the prompt.

```
C:\Users\Admin\ITEfolder2>move doc2.txt ..\ITEfolder1\doc2_move.txt  
1 file(s) moved.
```

```
C:\Users\ITEUser\ITEfolder2> move doc2.txt ..\ITEfolder1\doc2_move.txt  
1 file(s) moved.
```

- h. Type **dir ..\ITEfolder1** to view the content in **ITEfolder1** without leaving the current directory.

```
C:\Users\Admin\ITEfolder2>dir ..\ITEfolder1  
Volume in drive C is Acer  
Volume Serial Number is 460D-5241  
  
Directory of C:\Users\Admin\ITEfolder1  
  
16/10/2025  09:42 am    <DIR>      .  
16/10/2025  09:20 am    <DIR>      ..  
16/10/2025  09:33 am            19 doc1.txt  
16/10/2025  09:33 am            19 doc2_copy.txt  
16/10/2025  09:33 am            19 doc2_move.txt  
16/10/2025  09:33 am            19 doc2_new.txt  
16/10/2025  09:33 am            20 file1.txt  
16/10/2025  09:33 am            20 file2.txt  
                           6 File(s)           116 bytes  
                           2 Dir(s)  265,867,956,224 bytes free
```

```
C:\Users\ITEUser\ITEfolder2> dir ..\ITEfolder1  
<some output omitted>  
Directory of C:\Users\ITEUser\ITEfolder1  
  
04/29/2019  12:08 PM    <DIR>      .  
04/29/2019  12:08 PM    <DIR>      ..  
04/29/2019  08:05 AM            19 doc1.txt  
04/29/2019  08:06 AM            19 doc2_copy.txt  
04/29/2019  08:06 AM            19 doc2_move.txt  
04/29/2019  08:06 AM            19 doc2_new.txt  
04/29/2019  08:08 AM            20 file1.txt  
04/29/2019  08:08 AM            20 file2.txt  
                           6 File(s)           116 bytes  
                           2 Dir(s)  31,467,700,224 bytes free
```

- i. Change the current directory to **ITEfolder1**. Type **cd ..\ITEfolder1** at the prompt.

```
C:\Users\Admin\ITEfolder2>cd ..\ITEfolder1  
  
C:\Users\Admin\ITEfolder1>
```

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- j. Move **file1.txt** and **file2.txt** into **ITEfolder3**. To move all the files that contain the word **file** into **ITEfolder3** with one command, use a **wildcard** (*) character to represent one or more characters. Type **move file* ..\ITEfolder3**.

```
C:\Users\Admin\ITEfolder1>move file* ..\ITEfolder3
C:\Users\Admin\ITEfolder1\file1.txt
C:\Users\Admin\ITEfolder1\file2.txt
    2 file(s) moved.
```

```
C:\Users\ITEUser\ITEfolder1> move file* ..\ITEfolder3
C:\Users\ITEUser\ITEfolder1\file1.txt
C:\Users\ITEUser\ITEfolder1\file2.txt
    2 file(s) moved.
```

- k. To view the content of the file **doc2_new.txt**, use the **type** or **more** command at the prompt.

```
C:\Users\Admin\ITEfolder1>type doc2_new.txt
This is doc2.txt
```

```
C:\Users\ITEUser\ITEfolder1> type doc2_new.txt
This is doc2.txt
```

- l. Use the **ren** command to rename **doc2_new.txt** to **doc3.txt**. Use the **dir** command to display the content in the directory.

```
C:\Users\Admin\ITEfolder1>ren doc2_new.txt file.log
```

```
c:\Users\ITEUser\ITEfolder1> ren doc2_new.txt file.log
```

- m. Use the **type** or **more** command to view the content of the newly rename file **file.log**.

```
C:\Users\Admin\ITEfolder1>more file.log
This is doc2.txt
```

```
C:\Users\ITEUser\ITEfolder1> more file.log
This is doc2.txt
```

- n. To delete a file or multiple files, use the **del** command with the file names at the prompt.

```
C:\Users\Admin\ITEfolder1>del *doc2*
```

Question:

What single command would you use to delete all the files with **doc2** in the filename? Use the command to remove the files with **doc2** in the filename.

del **nameofthefile**

What command would you use to delete all the files in the directory? Use the command to remove the files.

del *

Step 5: Use the **xcopy** and **robocopy** commands.

In this step, the **xcopy** and **robocopy** commands are used to copy the content in a directory.

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- a. View the content of **ITEfolder3**.

```
16/10/2025 09:44 am <DIR> .
16/10/2025 09:20 am <DIR> ..
16/10/2025 09:33 am 20 file1.txt
16/10/2025 09:33 am 20 file2.txt
16/10/2025 09:24 am <DIR> ITEfolder4
    2 File(s)        40 bytes
    3 Dir(s) 265,853,644,800 bytes free
```

```
C:\Users\ITEUser\ITEfolder1> dir ..\ITEfolder3
```

```
<some output omitted>
Directory of c:\Users\ITEUser\ITEfolder3

04/29/2019 03:11 PM <DIR> .
04/29/2019 03:11 PM <DIR> ..
04/29/2019 03:05 PM 20 file1.txt
04/29/2019 03:05 PM 20 file2.txt
04/29/2019 03:01 PM <DIR> ITEfolder4
    2 File(s)        40 bytes
    3 Dir(s) 31,492,157,440 bytes free
```

- b. Type **xcopy ..\ITEfolder3 .** at the prompt to copy the content of **ITEfolder3** to **ITEfolder1**. Note the **.** at the end of the command. It is a shortcut for the current directory.

```
C:\Users\Admin\ITEfolder1>xcopy ..\ITEfolder3
..\ITEfolder3\file1.txt
..\ITEfolder3\file2.txt
2 File(s) copied
```

```
C:\Users\ITEUser\ITEfolder1> xcopy ..\ITEfolder3 .
..\ITEfolder3\file1.txt
..\ITEfolder3\file2.txt
2 File(s) copied
```

- c. At the prompt, type **dir** to display the content of **ITEfolder1**. Only the files in the **ITEfolder3** were copied into **ITEfolder1**. The directory **ITEfolder4** was not copied into **ITEfolder3**.

```
C:\Users\Admin\ITEfolder1>dir
Volume in drive C is Acer
Volume Serial Number is 460D-5241

Directory of C:\Users\Admin\ITEfolder1

16/10/2025 09:56 am <DIR> .
16/10/2025 09:20 am <DIR> ..
16/10/2025 09:33 am 20 file1.txt
16/10/2025 09:33 am 20 file2.txt
    2 File(s)        40 bytes
    2 Dir(s) 265,852,612,608 bytes free
```

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```
C:\Users\ITEUser\ITEfolder1> dir
<some output omitted>
  Directory of C:\Users\ITEUser\ITEfolder1

04/29/2019  03:16 PM    <DIR>      .
04/29/2019  03:16 PM    <DIR>      ..
04/29/2019  03:05 PM            20 file1.txt
04/29/2019  03:05 PM            20 file2.txt
                           2 File(s)       40 bytes
                           2 Dir(s)  31,491,321,856 bytes free
```

- d. Use **help xcopy** or **xcopy /?** to determine which switch would allow the **xcopy** command to copy **all** the files and directories.

```
C:\Users\Admin\ITEfolder1>help xcopy
Copies files and directory trees.

XCOPY source [destination] [/A | /M] [/O[:date]] [/P] [/S [/E]] [/V] [/W]
  [/C] [/F] [/I] [/O] [/P] [/U] [/G] [/R] [/H] [/T]
  [/L] [/K] [/X] [/Y] [/Z] [/D[:date]] [/T[:date]] [/I] [/Q] [/R] [/S]
  [/EXCLUDE:file1[+file2][+file3]... ] [/COMPRESS]
  [/I-[SPARSE]] [/NOCLOBNE]

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.
/o          Copies files with the same modification date.
/r          Copies files with newer modification dates than 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 on an separate line in the file. 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
           extension .obj.
/p          Prompts you before creating each destination file.
/s          Copies directories and subdirectories except empty ones.
/e          Copies directories and subdirectories, including empty ones.
/v          Verbose mode (displays progress).
/w          Prompts you to press a key before copying.
/c          Continues copying even if errors occur.
/i          If destination does not exist and copying more than one file,
           assumes that destination must be a directory.
/-i         If destination is a directory, copies into it a single specified file,
           assumes that destination must be a file.
/q          Does not display file names while copying.
/f          Displays full source and destination file names while copying.
/l          Displays files that would be copied.
/g          Allows copying of encrypted files to destination that does
           not support encryption.
/h          Copies hidden and system files also.
/r          Overwrites read-only files.
/t          Creates directory structure, but does not copy files. Does not
           include empty subdirectories. /t /e includes
           empty directories and subdirectories.
/u          Copies only files that already exist in destination.
/k          Copies attributes. Normal Xcopy will reset read-only attributes.
/n          Copies using the generated short names.
/o          Copies file ownership and ACL information.
/x          Copies file audit settings (implies /o).
/y          Suppresses prompting to confirm you want to overwrite an
           existing destination file.
/-y         Causes prompting to confirm you want to overwrite an
           existing destination file.
/z          Copies read files in restartable mode.
/b          Copies the symbolic link itself versus the target of the link.
/j          Copies using unbuffered I/O. Recommended for very large files.
/compress  Request network compression during file transfer where
           applicable.
/-[SPARSE]  Enables or disables retaining the sparse state of files during
           copy. /-SPARSE overrides /SPARSE if both are provided.
/noclobber  Do not attempt block cloning as an optimization.

The switch /Y may be preset in the COPYCMD environment variable.
This may be overridden with /-Y on the command line.
```

Question:

What option allows you to copy all the files and directories, including the empty directories?

/E option

- e. Because **ITEfolder4** is a subfolder and **ITEfolder5** is both a subfolder and an empty folder, **/E** is needed to copy all the contents of **ITEfolder3** and the empty subfolder.

Type **xcopy /E ..\ITEfolder3** . at the prompt to copy the files. When prompted, type **a** to allow overwriting the existing files.

```
C:\Users\Admin\ITEfolder1>xcopy /E ..\ITEfolder3
Overwrite C:\Users\Admin\ITEfolder1\file1.txt (Yes/No/All)? y
..\ITEfolder3\file1.txt
Overwrite C:\Users\Admin\ITEfolder1\file2.txt (Yes/No/All)? a
..\ITEfolder3\file2.txt
2 File(s) copied
```

```
c:\Users\ITEUser\ITEfolder1> xcopy /E ..\ITEfolder3
```

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```
Overwrite C:\Users\ITEUser\ITEfolder1\file1.txt (Yes/No/All) ? a
..\ITEfolder3\file1.txt
..\ITEfolder3\file2.txt
2 File(s) copied
```

- f. Verify that the **ITEfolder4** and **ITEfolder5** were also copied in **ITEfolder1**.

```
C:\Users\Admin\ITEfolder1>dir
 Volume in drive C is Acer
 Volume Serial Number is 460D-5241

 Directory of C:\Users\Admin\ITEfolder1

16/10/2025  09:59 am    <DIR>      .
16/10/2025  09:20 am    <DIR>      ..
16/10/2025  09:33 am            20 file1.txt
16/10/2025  09:33 am            20 file2.txt
16/10/2025  09:59 am    <DIR>      ITEfolder4
2 File(s)           40 bytes
3 Dir(s)   265,847,963,648 bytes free
```

```
c:\Users\ITEUser\ITEfolder1> dir
<some output omitted>
Directory of c:\Users\ITEUser\ITEfolder1

04/29/2019  04:41 PM    <DIR>      .
04/29/2019  04:41 PM    <DIR>      ..
04/29/2019  03:05 PM            20 file1.txt
04/29/2019  03:05 PM            20 file2.txt
04/29/2019  04:41 PM    <DIR>      ITEfolder4
2 File(s)           40 bytes
3 Dir(s)   31,493,193,728 bytes free
```

```
C:\Users\Admin\ITEfolder1>dir ITEfolder4
 Volume in drive C is Acer
 Volume Serial Number is 460D-5241

 Directory of C:\Users\Admin\ITEfolder1\ITEfolder4

16/10/2025  09:59 am    <DIR>      .
16/10/2025  09:59 am    <DIR>      ..
16/10/2025  09:24 am    <DIR>      ITEfolder5
0 File(s)           0 bytes
3 Dir(s)   265,846,206,464 bytes free
```

```
c:\Users\ITEUser\ITEfolder1> dir ITEfolder4
<some output omitted>
Directory of c:\Users\ITEUser\ITEfolder1\ITEfolder4

04/29/2019  04:41 PM    <DIR>      .
04/29/2019  04:41 PM    <DIR>      ..
04/29/2019  03:00 PM    <DIR>      ITEfolder5
0 File(s)           0 bytes
3 Dir(s)   31,493,193,728 bytes free
```

- g. The robocopy command can also be used to copy the content of a directory to a new destination. The robocopy command has more capabilities than the built-in Windows copy and xcopy command, such as resume copying after a network interruption, skip files that appear to be identical to the files in the

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destination folders, and mirror a directory by keeping the destination directory in sync with the source directory.

```
C:\Users\Admin\ITEfolder1>robocopy /E C:\Users\Admin\ITEfolder3\ITEfolder4\ C:\Users\Admin

ROBOCOPY    ::      Robust File Copy for Windows

Started : Thursday, 16 October 2025 10:06:02 am
Source  : C:\Users\Admin\ITEfolder3\ITEfolder4\
Dest    : C:\Users\Admin\
Files   : *./*
Options : *.*/S /E /DCOPY:DA /COPY:DAT /R:1000000 /W:30

                                         0  C:\Users\Admin\ITEfolder3\ITEfolder4\
*EXTRA Dir     -1  C:\Users\Admin\.android\
*EXTRA Dir     -1  C:\Users\Admin\.ms-ad\
*EXTRA Dir     -1  C:\Users\Admin\.VirtualBox\
*EXTRA Dir     -1  C:\Users\Admin\.vscode\
*EXTRA Dir     -1  C:\Users\Admin\AppData\
*EXTRA Dir     -1  C:\Users\Admin\Application Data\
*EXTRA Dir     -1  C:\Users\Admin\Cisco Packet Tracer 7.2.2\
*EXTRA Dir     -1  C:\Users\Admin\Contacts\
*EXTRA Dir     -1  C:\Users\Admin\Cookies\
*EXTRA Dir     -1  C:\Users\Admin\CrossDevice\
*EXTRA Dir     -1  C:\Users\Admin\Desktop\
*EXTRA Dir     -1  C:\Users\Admin\Documents\
*EXTRA Dir     -1  C:\Users\Admin\Downloads\
*EXTRA Dir     -1  C:\Users\Admin\Favorites\
*EXTRA Dir     -1  C:\Users\Admin\ITEfolder1\
*EXTRA Dir     -1  C:\Users\Admin\ITEfolder2\
*EXTRA Dir     -1  C:\Users\Admin\ITEfolder3\
*EXTRA Dir     -1  C:\Users\Admin\Links\
*EXTRA Dir     -1  C:\Users\Admin\Local Settings\
*EXTRA Dir     -1  C:\Users\Admin\Music\
*EXTRA Dir     -1  C:\Users\Admin\My Documents\
*EXTRA Dir     -1  C:\Users\Admin\NetHood\
*EXTRA Dir     -1  C:\Users\Admin\OneDrive\
*EXTRA Dir     -1  C:\Users\Admin\Pictures\
*EXTRA Dir     -1  C:\Users\Admin\PrintHood\
*EXTRA Dir     -1  C:\Users\Admin\Recent\
*EXTRA Dir     -1  C:\Users\Admin\Saved Games\
*EXTRA Dir     -1  C:\Users\Admin\Searches\
*EXTRA Dir     -1  C:\Users\Admin\SendTo\
*EXTRA Dir     -1  C:\Users\Admin\Start Menu\
*EXTRA Dir     -1  C:\Users\Admin\Templates\
*EXTRA Dir     -1  C:\Users\Admin\Videos\
*EXTRA Dir     -1  C:\Users\Admin\VirtualBox VMs\
*EXTRA Dir     -1  C:\Users\Admin\WPS Cloud Files\
                                         176  .packettracer
*EXTRA File    11835  AMDRM_Install.log
*EXTRA File    3.3 m  AMD_RyzenMaster.log
*EXTRA File    2.5 m  AMD_RyzenMaster_Uninstall.log
*EXTRA File    17.2 m  NTUSER.DAT
*EXTRA File    1.5 m  ntuser.dat.LOG1
*EXTRA File    4.5 m  ntuser.dat.LOG2
*EXTRA File    65536  NTUSER.DAT{9005fea3-f5b9-11ef-a77a-b6da07968de2}.TM.blf
*EXTRA File    524288  NTUSER.DAT{9005fea3-f5b9-11ef-a77a-b6da07968de2}.TMContainer00000000000000000000000000000001.regtrans-ms
*EXTRA File    524288  NTUSER.DAT{9005fea3-f5b9-11ef-a77a-b6da07968de2}.TMContainer00000000000000000000000000000002.regtrans-ms
*EXTRA File    20  ntuser.ini
*EXTRA File    362  Sti.Trace.log
New Dir        0  C:\Users\Admin\ITEfolder3\ITEfolder4\ITEfolder5\

                                         Total    Copied   Skipped  Mismatch  FAILED  Extras
Dirs :          2        1        1        0        0       34
Files :         0        0        0        0        0       12
Bytes :         0        0        0        0        0      38.27 m
Times : 0:00:00  0:00:00                  0:00:00  0:00:00

Ended : Thursday, 16 October 2025 10:06:02 am
```

Copy the ITEfolder4 content to ITEUser folder using the robocopy command.

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```
C:\Users\ITEUser\ITEfolder1> robocopy /E  
C:\Users\ITEUser\ITEfolder3\ITEfolder4\ C:\Users\ITEUser
```

Note the information provided by the command during the copying process.

- h. Navigate to **C:\Users\ITEUser** to verify that the folder ITEfolder5 is copied.

```
C:\Users\Admin\ITEfolder1>cd ..  
  
C:\Users\Admin>dir  
Volume in drive C is Acer  
Volume Serial Number is 460D-5241  
  
Directory of C:\Users\Admin  
  
16/10/2025  10:06 am    <DIR>      .  
11/08/2025  09:07 pm    <DIR>      ..  
26/08/2025  08:51 pm    <DIR>      .android  
01/09/2024  01:03 pm    <DIR>      .ms-ad  
30/09/2025  09:02 pm    176 .packettracer  
11/10/2025  10:40 pm    <DIR>      .VirtualBox  
19/03/2025  09:11 am    <DIR>      .vscode  
29/07/2024  08:06 pm    11,835 AMDRM_Install.log  
29/07/2024  08:03 pm    3,479,742 AMD_RyzenMaster.log  
29/07/2024  08:06 pm    2,702,110 AMD_RyzenMaster_Uninstall.log  
30/09/2025  09:01 pm    <DIR>      Cisco Packet Tracer 7.2.2  
28/02/2025  06:07 pm    <DIR>      Contacts  
13/10/2025  06:01 pm    <DIR>      CrossDevice  
01/01/2025  12:05 pm    <DIR>      Desktop  
01/01/2025  12:05 pm    <DIR>      Documents  
16/10/2025  09:31 am    <DIR>      Downloads  
28/02/2025  06:07 pm    <DIR>      Favorites  
16/10/2025  09:59 am    <DIR>      ITEfolder1  
16/10/2025  09:42 am    <DIR>      ITEfolder2  
16/10/2025  09:44 am    <DIR>      ITEfolder3  
16/10/2025  09:24 am    <DIR>      ITEfolder5  
28/02/2025  06:07 pm    <DIR>      Links  
28/02/2025  06:07 pm    <DIR>      Music  
16/10/2025  07:20 am    <DIR>      OneDrive  
01/01/2025  12:05 pm    <DIR>      Pictures  
28/02/2025  06:07 pm    <DIR>      Saved Games  
28/02/2025  06:07 pm    <DIR>      Searches  
27/04/2025  04:55 pm    362 Sti_Trace.log  
28/02/2025  06:07 pm    <DIR>      Videos  
11/10/2025  09:48 pm    <DIR>      VirtualBox VMs  
      5 File(s)      6,194,225 bytes  
     25 Dir(s)   265,847,857,152 bytes free
```

Step 6: Delete directories.

In this step, you will delete an empty and a non-empty directory using the **rd** command.

- a. Use the **rd ITEfolder2** to delete the empty directory and verify that the directory was deleted.

```
C:\Users\Admin>rd ITEfolder2

C:\Users\Admin>dir
 Volume in drive C is Acer
 Volume Serial Number is 460D-5241

 Directory of C:\Users\Admin

16/10/2025  10:07 am    <DIR>          .
11/08/2025  09:07 pm    <DIR>          ..
26/08/2025  08:51 pm    <DIR>          .android
01/09/2024  01:03 pm    <DIR>          .ms-ad
30/09/2025  09:02 pm          176 .packettracer
11/10/2025  10:40 pm    <DIR>          .VirtualBox
19/03/2025  09:11 am    <DIR>          .vscode
29/07/2024  08:06 pm          11,835 AMDRM_Install.log
29/07/2024  08:03 pm          3,479,742 AMD_RyzenMaster.log
29/07/2024  08:06 pm          2,702,110 AMD_RyzenMaster_Uninstall.log
30/09/2025  09:01 pm    <DIR>          Cisco Packet Tracer 7.2.2
28/02/2025  06:07 pm    <DIR>          Contacts
13/10/2025  06:01 pm    <DIR>          CrossDevice
01/01/2025  12:05 pm    <DIR>          Desktop
01/01/2025  12:05 pm    <DIR>          Documents
16/10/2025  09:31 am    <DIR>          Downloads
28/02/2025  06:07 pm    <DIR>          Favorites
16/10/2025  09:59 am    <DIR>          ITEfolder1
16/10/2025  09:44 am    <DIR>          ITEfolder3
16/10/2025  09:24 am    <DIR>          ITEfolder5
28/02/2025  06:07 pm    <DIR>          Links
28/02/2025  06:07 pm    <DIR>          Music
16/10/2025  07:20 am    <DIR>          OneDrive
01/01/2025  12:05 pm    <DIR>          Pictures
28/02/2025  06:07 pm    <DIR>          Saved Games
28/02/2025  06:07 pm    <DIR>          Searches
27/04/2025  04:55 pm          362 Sti_Trace.log
28/02/2025  06:07 pm    <DIR>          Videos
11/10/2025  09:48 pm    <DIR>          VirtualBox VMs
      5 File(s)       6,194,225 bytes
     24 Dir(s)  265,847,443,456 bytes free
```

```
C:\Users\ITEUser> rd ITEfolder2
```

- b. Navigate to the **C:\Users\ITEUser\ITEfolder3** directory.
c. Use the **rd ITEfolder1** to delete the directory. Verify the directory removal using the **dir** command.

Were you able to delete the directory? Explain.

No I was not able to delete ITEfolder1. This because ITEfolder1 is not inside the ITEfolder3 directory

- d. Use **rd /?** command to determine the switch that allows the deletion of a non-empty directory.

```
C:\Users\Admin\ITEfolder3>rd /S ITEfolder4  
ITEfolder4, Are you sure (Y/N)? y
```

- ```
c:\Users\ITEUser\ITEfolder3> rd /S ITEfolder4
ITEfolder4, Are you sure (Y/N)? y
```
- e. Use the appropriate commands to delete all the text files and folders that you have created in this lab.  
Type **exit** to close the command prompt window.

### Reflection Question

What are the advantages of using CLI vs. GUI?

*CLI has an advantage of being able inside program scripts. This is because it can be ran using a line of code as opposed to GUI that needs a user actions. CLI also has an advantage of being ran faster on very slow systems because they require much less resources than GUI.*