# 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.

Question:

What is the current directory?

***The current directory is C : \Users\Zarina***

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
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
```

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
```

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

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

Question:

Which folder are you in now?

***Right now im in the C:\Users\Zarina\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.

Question:

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

***I used the command md ITEfolder4\ITEfolder5***

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

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

Question:

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

***The directory is C:\Users\Zarina\ITEfolder3\ITEfolder4***

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

***C:\Users\Zarina\ITEfolder3 each time i used cd i move on lever higher in the directory structure.***

## Step 3: Create text files.

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

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

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

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

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_new.txt** at the prompt.

```
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\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.

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\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\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\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\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.

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.

***I used  single command del *doc2*.* This deletes every file that has "doc2" anywhere in itsname.***

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

***I used del *.* This removes every file in the current folder but leaves the folders intact.***

## 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.

a. View the content of ITEfolder3.

```
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\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\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.

Question:

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

***The option is /E. The /E switch tells xcopy to include all subfolders, even if they're empty.***

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\ITEUser\ITEfolder1> xcopy /E ..\ITEfolder3
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\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\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 destination folders, and mirror a directory by keeping the destination directory in sync with the source directory.

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

```
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.

### 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\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 couldn't delete the directory at first because the rd command only removes empty folders. If a folder contains files or other folders, the deletion fails. To remove it successfully, I used the /S switch, which deletes all contents recursively.***

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

```
c:\Users\ITEUser\ITEfolder3> rd /S ITEfolder1
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?

***The Command Line Interface (CLI) allows faster and more precise control over files and folders compared to the Graphical User Interface (GUI). It is more efficient for performing repetitive or complex operations and can be automated using scripts. CLI also consumes fewer system resources and works well for remote administration or when a graphical interface is unavailable. In contrast, a GUI is easier for beginners because it is visual and intuitive, but it can be slower for large or repetitive tasks.***