

Lab 1.1 Introduction to the Command Line

Objectives:

1. Type these commands into your terminal / command prompt.
2. Understand the commands you are typing into the terminal / command prompt.
3. Identify situations where you would use these commands.

Welcome to XYZ Corporation!

We are so glad to have you with us. We are just starting the process of getting all our information organized and realized we may need some assistance in managing and securing this system.

Right now we are a fairly small organization, but we intend to grow and expand. Let's get started with some basic commands so that you are able to navigate through our system.

Find your terminal / command prompt

If you are using an iOS or Linux distribution, it is called **Terminal**.

If you are using Windows Microsoft, you can use **PowerShell**. If you decide to use **command prompt**, be aware that some of the instructions might not work, and you will need to use a web engine or command prompt manual to figure out the equivalent commands.

Type in the following commands & see if you can guess what they do.

Command (PowerShell)	Command (Bash)	What does it do?
ls	ls	
echo hello world	echo hello world	
date	date	
clear	clear	

You can see that between PowerShell and Bash, there is some crossover in commands.

Try to make changes in our directory / folder structure.

For Linux/ iOS:

mkdir myNewDirectory

cd myNewDirectory

touch myNewFile

ls

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For Powershell:

```
mkdir myNewDirectory  
cd myNewDirectory  
New-Item myNewFile
```

At this point, you should see only *myNewFile* instead of all the files you saw before when you typed in **ls**. Look at the above commands and think for a minute about what they did to make this happen

Now that myNewFile is already created, try to add or amend it.

For Linux/iOS, there are a few different ways to add to a file and some like specific kinds of text editors and would like to install those. These instructions are using the default Vim.

If you prefer a different text editor, or want to try something other than Vim, here is [nano](#) (if you are on Ubuntu you will have it already) or any other that you feel like looking up and installing. You will need administrator privileges and use the command **sudo**.

For Linux/iOS:

```
Vim myNewFile  
i (this stands for insert & will allow you to begin typing)  
Type whatever you want!  
Press the escape key  
:wq - this will Write and Quit your file
```

For PowerShell:

```
notepad.exe myNewFile 'Type whatever you want'
```

If you're using PowerShell, make sure to save that file & close out notepad.exe. You could also use Vim or Nano in PowerShell as well. You will need to "Run as Administrator" for PowerShell.

View that information you typed in and make sure it is actually there

For Linux/iOS:

```
cat myNewFile
```

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In Linux, if you do not want to see the whole file (because sometimes these files are big), you can use **head filename** to see the first 5 lines of code. **Tail filename** will show you the last five lines of code.

For PowerShell:

get-Content myNewFile

Search for the answers to these questions!

How can you tell what directory/folder you are working in?

How would you get to your home directory?

Moving, copying and renaming files.

mv

cp

Of the above commands, one moves files, one copies files, and one renames files.

The syntax should look something like this: **cp myFile otherDirectory/myFile.**

Which of the two commands would you use to rename a file?

Piping: More than one command at a time

Piping allows for the output of one command to be used as input for another command. In this way you can do more than one command at a time! Piping flows from left to right.

Look at the commands below.

Try to think of the final output of these commands and then try them and see if you get the same result!

If you're unsure about a command, go ahead and google it OR use the **man** function to gain access to its manual.

cat myNewFile | head -4

ls -l | more

How would you show the end of a file using this method?

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Removing a file or a directory

rm

Did typing in rm work? No? Yes? Let's find some of the properties of **rm**

man rm

What is your output?

Do you see any arguments or parameters?

In Linux, what does "-r" do?

In Powershell, do parameters go before or after the file name?

Practice time - enabling a script and navigating the command line

Now that you've reviewed and answered some basic questions about the commands. Let's navigate the command line.

First, you'll want to download this [script](#). Then in your terminal, navigate to the directory/folder where your script was downloaded, and move it to **myNewDirectory**.

bash enterprise_script.sh - will run the script

You should see enterprise_script.sh in green and a directory/folder called enterprise

Use the Linux commands to help you answer the following questions:

- How many departments are in the enterprise directory?
- Which department directory has the most employees?
- There are two people with the last name Smith, what are their first names?
- Do you see any files in the c-level directory?
- Who works in the CIO's office?
- Are there any non-personnel files in the whole structure? What are they?
- There is one file that is not a .txt file. Which one is it and where is it?

Congratulations! You have successfully interacted with your command line!

In order to receive credit for this lab, please take the time to record your screen for a short 1 to 3 minute video showing the created file and creating another one so you can show your **lecturer.**

The rest of Lab 1s will be focused on basic instructions for setting up a VM and getting you familiar with working in a non-GUI (graphical user interface) environment.

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Appendix 1

cat / get-Content	returns the contents of a file to the terminal
cd	changes the directory you are currently in to the one you list as input
clear	removes output from your screen
cp	allows the user to copy a file or directory from one location to another
date	outputs the date and the time
echo	outputs the following input you give it
ls (small L)	outputs a list of the file structure based on where you are currently at in the directory / folder
man	allows you to see the manual of a command
mkdir	makes a new directory
mv	renames a file or move it to another directory
notepad.exe	executes notepad in Powershell
pwd	prints the working directory
rm	removes whatever directory or file you list as its argument. Be careful, there's a chance you won't get it back.
sudo	allows you to function with administrative privileges
touch / New-Item	creates a file

Resources:

<https://www.geeksforgeeks.org/piping-in-unix-or-linux/>