

# 233-[LX]-Lab - Working with the File System

## Working with the File System

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### Note

In the previous two labs, you received basic information about Linux and your current sessions. From here on, you will be on a minor adventure that will combine all your previous knowledge to solidify and reinforce your capabilities. You can reference your previous labs to help yourself complete each of the remaining labs.

## Objectives

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In this lab, you will:

- Create a folder structure that this lab provides
- Create files
- Copy and move files and directories
- Delete files and directories

## Duration

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This lab requires approximately **30 minutes** to complete.

## AWS service restrictions

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In this lab environment, access to AWS services and service actions might be restricted to the ones that you need to complete the lab instructions. You might encounter errors if you attempt to access other services or perform actions beyond the ones that this lab describes.

## Accessing the AWS Management Console

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1. At the top of these instructions, choose **Start Lab** to launch your lab.

A **Start Lab** panel opens, and it displays the lab status.

**Tip:** If you need more time to complete the lab, choose the Start Lab button again to restart the timer for the environment.

2. Wait until you see the message *Lab status: ready*, then close the **Start Lab** panel by choosing the **X**.

3. At the top of these instructions, choose **AWS**.

This opens the AWS Management Console in a new browser tab. The system will automatically log you in.

**Tip:** If a new browser tab does not open, a banner or icon is usually at the top of your browser with a message that your browser is preventing the site from opening pop-up windows. Choose the banner or icon and then choose **Allow pop ups**.

4. Arrange the AWS Management Console tab so that it displays along side these instructions. Ideally, you will be able to see both browser tabs at the same time so that you can follow the lab steps more easily.

## Task 1: Use SSH to connect to an Amazon Linux EC2 instance

In this task, you will connect to a Amazon Linux EC2 instance. You will use an SSH utility to perform all of these operations. The following instructions vary slightly depending on whether you are using Windows or Mac/Linux.

### Windows Users: Using SSH to Connect

● These instructions are specifically for Windows users. If you are using macOS or Linux, [skip to the next section](#).

5. Select the **Details** drop-down menu above these instructions you are currently reading, and then select **Show**. A Credentials window will be presented.
6. Select the **Download PPK** button and save the **labsuser.ppk** file.  
*Typically your browser will save it to the Downloads directory.*
7. Make a note of the **PublicIP** address.
8. Then exit the Details panel by selecting the **X**.
9. Download **PuTTY** to SSH into the Amazon EC2 instance. If you do not have PuTTY installed on your computer, [download it here](#).
10. Open **putty.exe**
11. Configure your PuTTY session by following the directions in the following link: [Connect to your Linux instance using PuTTY](#)
12. Windows Users: [Select here to skip ahead to the next task](#).

## Task 2: Create a Folder Structure

In this task, you create a specific folder structure. A picture of the files and folders is provided, and your task is to recreate the structure in the new machine.

Using the terminal, you recreate the following structure on the Linux machine.

```
/home/ec2-user/CompanyA/  
/home/ec2-user/CompanyA/Finance/  
/home/ec2-user/CompanyA/Finance/ProfitAndLossStatements.csv  
/home/ec2-user/CompanyA/Finance/Salary.csv  
/home/ec2-user/CompanyA/HR/  
/home/ec2-user/CompanyA/HR/Assessments.csvv  
/home/ec2-user/CompanyA/HR/TrialPeriod.csv  
/home/ec2-user/CompanyA/Management/  
/home/ec2-user/CompanyA/Management/Managers.csv  
/home/ec2-user/CompanyA/Management/Schedule.csv
```

21. To validate that you are in the home folder of your current user, enter `pwd` and press Enter. If you're not in the home folder, enter `cd /home/ec2-user`
22. In the terminal, enter `mkdir CompanyA` and press Enter to create the top-level folder.
23. To change directories, enter `cd CompanyA` and press Enter.
24. To create all the sub folders, enter `mkdir Finance HR Management` and press Enter.
25. To validate that the folders were created, enter `ls` and press Enter.

```
[ec2-user@ CompanyA]$ ls
Finance HR Management
[ec2-user@ CompanyA]$
```

26. To change your current directory to the **HR** directory, enter `cd HR` and press Enter.
27. To create the empty files inside the **HR** folder, enter `touch Assessments.csv TrialPeriod.csv` and press Enter.
28. To validate that the files were created, enter `ls` and press Enter.

```
[ec2-user@ HR]$ ls
Assessments.csv TrialPeriod.csv
[ec2-user@ HR]$
```

29. To change your current directory to **Finance**, enter `cd ../Finance` and press Enter.
30. To create the empty files inside the **Finance** folder, enter `touch Salary.csv ProfitAndLossStatements.csv` and press Enter.

31. To validate that the files were created, enter `ls` and press Enter.

```
[ec2-user@ Finance]$ ls
Salary.csv ProfitAndLossStatements.csv
[ec2-user@ Finance]$
```

32. To change directories back one level to the **CompanyA** folder, enter `cd ..` and press Enter.
33. To create the new empty files in the **Management** folder, enter `touch Management/Managers.csv Management/Schedule.csv` and press Enter.
34. To validate that the files were created, enter `ls Management` and press Enter.

```
[ec2-user@ CompanyA]$ ls Management
Managers.csv Schedule.csv
[ec2-user@ Finance]$
```

#### Note:

In the previous steps, you used the `touch` and `ls` command two ways:

- Directly in the working folder: The `ls` command lists the current directory, and `touch myFile.csv` creates **myFiles.csv** in the current directory.
- By using a path relative to the current folder: `ls Management` or `touch Management/myFile.csv` work in the **Management** folder inside the current folder.

`cd ../` navigates back to the parent folder and `touch ../Management/myFile.csv` creates the **myFile.csv** file in the **Management** folder located in the parent folder of the current folder.

35. To validate that all the files and folders from the **CompanyA** folder down have been created, enter `ls -laR` and press Enter.

```
[ec2-user@ CompanyA]$ ls -laR
.:
total 0
drwxr-xr-x 5 ec2-user root    49 Aug 10 13:36 .
drwx----- 4 ec2-user ec2-user 90 Aug 10 13:25 ..
drwxrwxr-x 2 ec2-user ec2-user 59 Aug 10 13:39 Finance
drwxrwxr-x 2 ec2-user ec2-user 52 Aug 10 13:37 HR
drwxrwxr-x 2 ec2-user ec2-user 46 Aug 10 13:39 Management

./Finance:
total 0
drwxrwxr-x 2 ec2-user ec2-user 59 Aug 10 13:39 .
drwxr-xr-x 5 ec2-user root    49 Aug 10 13:36 ..
-rw-rw-r-- 1 ec2-user ec2-user  0 Aug 10 13:39 ProfitAndLossStatements.csv
-rw-rw-r-- 1 ec2-user ec2-user  0 Aug 10 13:39 Salary.csv

./HR:
total 0
drwxrwxr-x 2 ec2-user ec2-user 52 Aug 10 13:37 .
drwxr-xr-x 5 ec2-user root    49 Aug 10 13:36 ..
-rw-rw-r-- 1 ec2-user ec2-user  0 Aug 10 13:37 Assessments.cvs
-rw-rw-r-- 1 ec2-user ec2-user  0 Aug 10 13:37 TrialPeriod.csv

./Management:
total 0
drwxrwxr-x 2 ec2-user ec2-user 46 Aug 10 13:39 .
drwxr-xr-x 5 ec2-user root    49 Aug 10 13:36 ..
-rw-rw-r-- 1 ec2-user ec2-user  0 Aug 10 13:39 Managers.csv
-rw-rw-r-- 1 ec2-user ec2-user  0 Aug 10 13:39 Schedule.csv

[ec2-user@ CompanyA]$
```

## Task 3: Delete and reorganize folders

A few weeks later, you are tasked with reorganizing the content as follows:

For this task, you:

- Copy the **Finance** folder and its content to the **HR** folder, and remove the previous **Finance** folder
- Move the **Management** folder inside the **HR** folder
- Create an **Employees** folder inside the **HR** folder, and move the **Assessments.csv** and **TrialPeriod.csv** file inside the **Employees** folder

36. To ensure that you are in the appropriate **CompanyA** folder, enter `pwd` into the terminal and press Enter.

```
[ec2-user@ CompanyA]$ pwd
/home/ec2-user/CompanyA
```

37. To copy the **Finance** folder and its content, enter `cp -r Finance HR` and press Enter.

38. To verify that the folder and the content was copied, enter `ls HR/Finance` and press Enter.

```
[ec2-user@ CompanyA]$ ls HR/Finance
ProfitAndLossStatements.csv Salary.csv
```

39. To remove the **Finance** folder from the **CompanyA** folder structure, enter `rmdir Finance` and press Enter.

```
[ec2-user@ companyA]$ rmdir Finance
rmdir: failed to remove 'Finance/': Directory not empty
```

**Note:**

**rmdir** works only on an empty directory.

To remove the folder, you have two options:

- Remove the files inside the folder and then remove the **Finance** folder.
- Use the **rm** command with the **-r** option to recursively delete the folder and its content.

40. To remove the files inside the **Finance** folder, enter `rm Finance/ProfitAndLossStatements.csv Finance/Salary.csv` and press Enter.

41. To verify that the folder is empty, enter `ls Finance` and press Enter.

```
[ec2-user@ CompanyA]$ ls Finance
[ec2-user@ CompanyA]$
```

42. To remove the folder, enter `rmdir Finance` and press Enter.

43. To verify that the folder was removed, enter `ls` and press Enter.

```
[ec2-user@ companyA]$ ls
HR Management
[ec2-user@ companyA]$
```

44. To move the **Management** folder inside the **HR** folder, enter `mv Management HR` and press Enter.

45. To verify that the folder and files were moved, enter `ls . HR/Management` and press Enter.

```
[ec2-user@ CompanyA]$ ls . HR/Management
.:
HR

HR/Management:
Managers.csv  Schedule.csv
[ec2-user@ CompanyA]$
```

46. To navigate inside the **HR** folder, enter `cd HR` and press Enter.

47. To create the **Employees** folder, enter `mkdir Employees` and press Enter.

48. To move the files to this folder, enter `mv Assessments.csv TrialPeriod.csv Employees` and press Enter.

49. To verify that the files were moved, enter `ls . Employees` and press Enter.

```
[ec2-user@ HR]$ ls . Employees
.:
Employees  Finance  Management

Employees/:
Assessments.csv  TrialPeriod.csv
[ec2-user@ HR]$
```

## Lab Complete

🎉 Congratulations! You have completed the lab.

50. Select `End Lab` at the top of this page and then select `Yes` to confirm that you want to end the lab.

A panel will appear, indicating that "DELETE has been initiated... You may close this message box now."

51. Select the **X** in the top right corner to close the panel.