Bash Shell Scripts

> **Note**
>
> All labs rely on previous courseware and lab information.

Objectives

In this lab, you will:

- Create a bash script that will automate the backup of a folder

Duration

This lab requires approximately **25 minutes** to complete.

AWS service restrictions

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

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`.

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.

macOS and Linux Users

Task 2: Write a shell script

In this task, you create a Bash shell script that automates the creation of a backup of the **CompanyA** folder as a compressed archive. The name of the archive will be in the format **date of the day-backup-companyA.tar.gz**.

> **Helpful Hint**
>
> You may have to use **sudo** to complete this task if you are not root.

21. To validate that you are in the home folder, enter the following command, and press Enter.

```
pwd
```

Expected Output:

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

22. To create a generic shell script called **backup.sh**, enter the following command, and press Enter.

```
touch backup.sh
```

23. To change the file privileges to make **backup.sh** be executable, enter the following command, and press Enter.

```
sudo chmod 755 backup.sh
```

24. Use your preferred text editor to open the **backup.sh** file for editing. To do so, enter the following command, and press Enter.

```
vi backup.sh
```

25. To activate insert mode, enter `i`
26. On line 1 of the script, enter `#!/bin/bash` to add the shebang line, and press Enter to go to the next line.
27. To create a variable for the current date, enter `DAY="$(date +%Y_%m_%d_%T_%H_%M)"` and press Enter to go to the next line.

> **Note**:
>
> You can use the **date +%Y%m%d** command to retrieve the current date and time. This command formats this information as follows:

27. To create a variable for the current date, enter `DAY="$(date +%Y_%m_%d_%T_%H_%M)"` and press Enter to go to the next line.

> **Note**:
>
> You can use the **date +%Y%m%d** command to retrieve the current date and time. This command formats this information as follows: 2021_08_31

28. To create a variable for the backup file for the day, enter `BACKUP="/home/$USER/backups/$DAY-backup-CompanyA.tar.gz"` and press Enter to go to the next line.

> **Note**:
>
> **$USER** returns the current user, which is **ec2-user** in this lab. This is the equivalent of entering the **whoami** command in the shell. The created archive will be located in **/home/ec2-user/backups**.

29. On the next line, enter `tar -csvpzf $BACKUP /home/$USER/CompanyA` and press Enter.

    Contents of backup.sh script written so far:

```
#!/bin/bash
DAY="$(date +%Y_%m_%d)"
BACKUP="/home/$USER/backups/$DAY-backup-CompanyA.tar.gz"
tar -csvpzf $BACKUP /home/$USER/CompanyA
```

30. With your current text editor, save your script and exit from the editor. To do so, press the Esc key, enter `:wq` and press Enter.
31. To run **backup.sh**, enter the following command, and press Enter.

```
./backup.sh
```

Expected Output:

```
[ec2-user@ ~]$ ./backup.sh
tar: Removing leading `/' from member names
/home/ec2-user/CompanyA/
/home/ec2-user/CompanyA/Management/
/home/ec2-user/CompanyA/Management/Sections.csv
/home/ec2-user/CompanyA/Management/Promotions.csv
/home/ec2-user/CompanyA/Employees/
```

31. To run **backup.sh**, enter the following command, and press Enter.

```
./backup.sh
```

Expected Output:

```
[ec2-user@ ~]$ ./backup.sh
tar: Removing leading `/' from member names
/home/ec2-user/CompanyA/
/home/ec2-user/CompanyA/Management/
/home/ec2-user/CompanyA/Management/Sections.csv
/home/ec2-user/CompanyA/Management/Promotions.csv
/home/ec2-user/CompanyA/Employees/
/home/ec2-user/CompanyA/Employees/Schedules.csv
/home/ec2-user/CompanyA/Finance/
/home/ec2-user/CompanyA/Finance/Salary.csv
/home/ec2-user/CompanyA/HR/
/home/ec2-user/CompanyA/HR/Managers.csv
/home/ec2-user/CompanyA/HR/Assessments.csv
/home/ec2-user/CompanyA/IA/
/home/ec2-user/CompanyA/SharedFolders/
```

32. To verify that the archive is created in the **backups** folder, enter the following command, and press Enter.

```
ls backups/
```

Expected Output:

```
[ec2-user@ ~]$ ls backups/
2022_05_18_05:55:28_05_55-backup-CompanyA.tar.gz
```

You can schedule this type of script via cron to create a daily backup of the folder. You can also use other commands to copy this archive to other servers, but this option is beyond the scope of this lab.

Lab Complete 🎓

Lab Complete

🏁 Congratulations! You have completed the lab.

33. 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."
34. Select the **X** in the top right corner to close the panel.

About the AWS component

Amazon EC2 provides a wide selection of *instance types* optimized to fit different use cases. Instance types comprise varying combinations of CPU, memory, storage, and networking capacity and give you the flexibility to choose the appropriate mix of resources for your applications. Each instance type includes one or more *instance sizes* so that you can scale your resources to the requirements of your target workload.

This lab uses a **t3.micro** instance, which should be selected by default. This instance type has 1 virtual CPU and 1 GiB of memory.

Additional resources

- Amazon EC2 Instance Types
- Amazon Machine Images (AMI)
- Status Checks for Your Instances
- Amazon EC2 Service Quotas
- Terminate Your Instance

For more information about AWS Training and Certification, see https://aws.amazon.com/training/.

Your feedback is welcome and appreciated.
If you would like to share any suggestions or corrections, please provide the details in our AWS Training and Certification Contact Form.