Premium 01:30:00

Fix a slow system with Python

1 hour 30 minutes · Free ★★★★

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Introduction

Jacob is an IT administrator for a media production company that uses Network Attached Storage (NAS) to store all data generated daily (e.g., videos, photos). One of your daily tasks is to back up the data in the production NAS (mounted at `/mnt/production`) to a backup NAS (mounted at `/mnt/backup`). `/mnt/production` and `/mnt/backup` are the servers. A former member of the team developed a Python script that copies `/mnt/production` to `/mnt/backup` every day. Jacob's task is to run the script every day and make sure it completes successfully. Jacob's boss is unhappy because the backup process now takes more than 24 hours to finish, which isn't efficient at all for a daily backup.

What you'll do

- Identify what slows the system performance: I/O, Network, CPU, or Memory
- Use `iotop`, `iostat`, `nmap`, `top`, `htop` to monitor stats
- Use `multiprocessing` to speed up the backup process
- Find differences between `rsync`, `rclone`, `cp`, and `scp`/`sftp`

You'll have 90 minutes to complete this lab.

Start the lab

You'll need to start the lab before you can access the materials in the virtual machine VS. To do this, click the green "Start Lab" button at the top of the screen.

Note: The first lab you are going to access the `Linux VM` through your **Neal EDU Client**, and not via the **Google Cloudshe (Open SSH Tunnel** button is not available for this lab.

Start Lab

After you click the "Start Lab" button, you will see all the SSH connection details on the left-hand side of your screen. You should have a screen that looks like this:

```
Internal IP Address:
10.240.148.141

Username:
student_01_ffb0ed0ed0ed

Password:
[redacted]
```

Download PPK
Download PEM

Accessing the virtual machine

Please find one of the three relevant options below based on your device's operating system.

Note: Working with Dockerlabs may be similar to the work you'll perform as an **IT Support Specialist**: you'll be interfacing with a cutting-edge technology platform, troubleshooting issues, and ensuring smooth, reliable operations (access of platform and provisioning). You'll also be using **SSH** to enter the lab — a critical skill in IT Support that you'll be able to practice through this lab.

Option 1: Windows Users: Connecting to your VM

In this section, you will use the PuTTY Secure Shell (SSH) client and your VM's External IP address to connect.

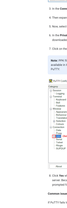
Download your PPK key file

You can download the PPK private key file in the PuTTY-compatible **PPK** format from the Dockerlabs Start Lab page. Click on **Download PPK**.

Connect to your VM using SSH and PuTTY

1. You can download Putty from here
2. In the **Host Name (or IP address)** box, enter username@internal_ip_address

Note: Replace **username** and **internal_ip_address** with values provided in the lab.



3. Click on the **Open** button.

Note: PPK file is for the Putty client. Putty is a free software. Putty is an important tool for system admins. It is important that you understand how to use the Putty client.

PuTTY Configuration
Category:
Session
Logging
Terminal
Keyboard
Bell
Features
Window
Appearance
Behaviour
Translation
Selection
Colours
Connection
Data
Proxy
Telnet
Rlogin
SSH
Serial
Options controlling SSH connections
Protocol:
Raw
Telnet
Rlogin
SSH
Preferred SSH protocol version:
1
2
Enable compression
Advanced options for interactive use
Enable TCP keepalives (SO_KEEPALIVE)
Sending of NTP packets disabled for PuTTY tests
Protocol:
Unspecified
Unicast
Broadcast
Multicast
Enable Nagle's algorithm
Enable Nagle's algorithm
Enable Nagle's algorithm

> See either top-down or bottom-up. This is used to traverse the file system in Python.

Once you're done writing the Python script, save the file by clicking Ctrl+s, the Enter key, and Ctrl+x.

Now, grant the executable permission to the `dailyjunk.py` Python script for running the file.

```
sudo chmod +x /var/opt/scripts/dailyjunk.py
```

Run the `dailyjunk.py` Python script:

```
/var/opt/scripts/dailyjunk.py
```

Click Check my progress to verify the objective.

> Backup from production to production backup server
>
> Check my progress

Congratulations!

You've successfully synced or copied data from different multimedia projects. From the source bucket or file destination using `rsync` command said in the lab instructions. Also, you've learned how to use `rsync` command with the option `-W` (the CPU cores for parallel processing using multiprocessing). Backing up a large amount of data from one place to another place will definitely help you in the field of IT.

End your lab

When you have completed your lab, click **End Lab**. Qwiklabs removes the resources you've used and cleans the account for you.

You will be given an opportunity to rate the lab experience. Select the applicable number of stars, type a comment, and then click **Submit**.

The number of stars indicates the following:

- 1 star = Very dissatisfied
- 2 stars = Dissatisfied
- 3 stars = Neutral
- 4 stars = Satisfied
- 5 stars = Very satisfied

You can close the dialog box if you don't want to provide feedback.

For feedback, suggestions, or corrections, please use the **Support** tab.