CompTIA Linux+

Managing Disk Quotas

Introduction

Welcome to the **Managing Disk Quotas** Practice Lab. In this module you will be provided with the instructions and devices needed to develop your hands-on skills.

Disk Quotas
Quota Reports
Linux System

Learning Outcomes

In this module, you will complete the following exercise:

- Exercise 1 - Manage Disk Quotas

After completing this lab, you will be able to:

- Set up a disk quota for a filesystem
- View user quota reports

Exam Objectives

The following exam objectives are covered in this lab:

- **LPI:** 2.2 Given a scenario, manage users and groups.
- **CompTIA:** 4.3 Given a scenario, analyze and troubleshoot user issues.

> ***Note:*** *Our main focus is to cover the practical, hands-on aspects of the exam objectives. We recommend referring to course material or a search engine to*

research theoretical topics in more detail.

Lab Duration

It will take approximately **1 hour** to complete this lab.

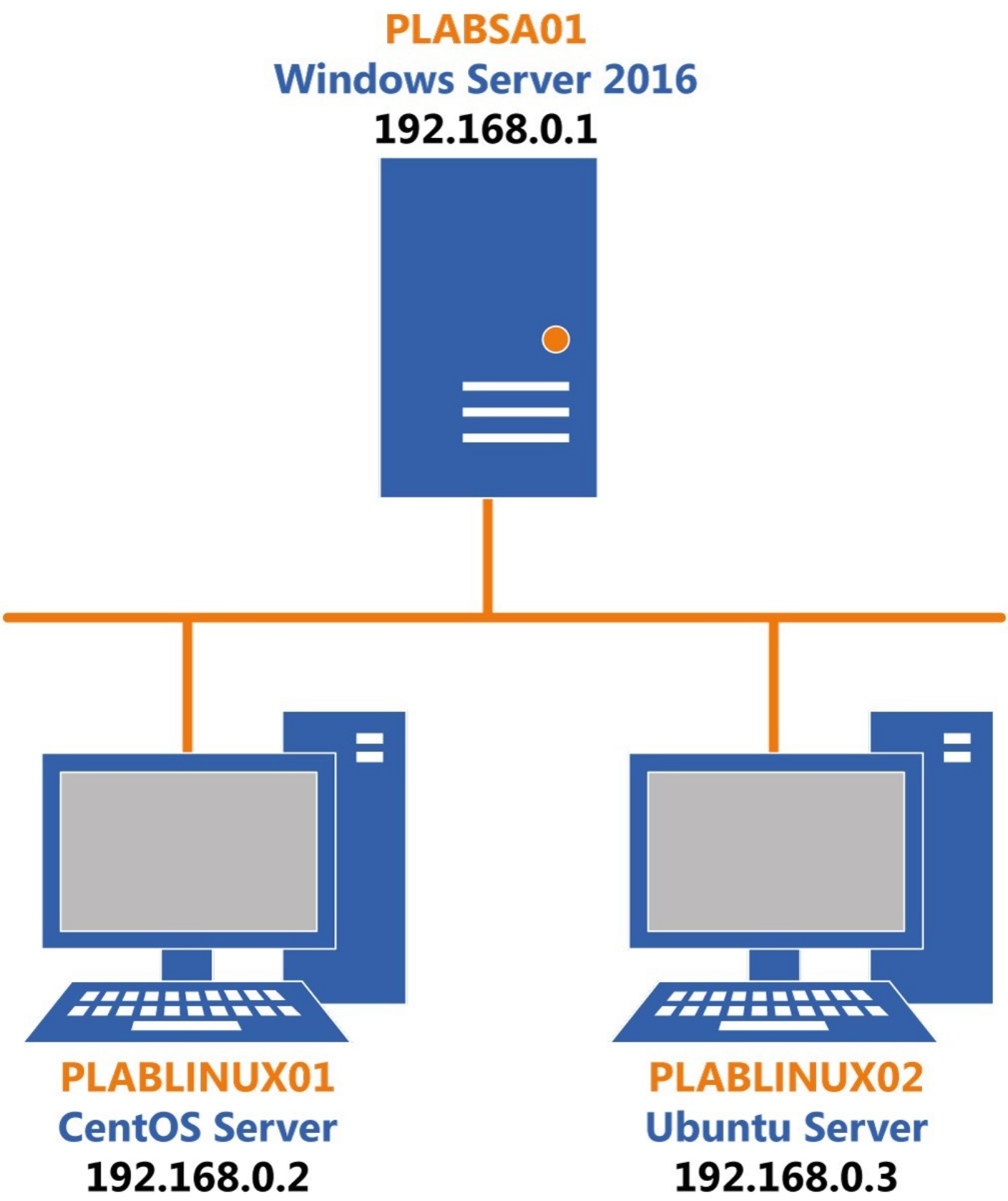
Help and Support

For more information on using Practice Labs, please see our **Help and Support** page. You can also raise a technical support ticket from this page.

Click Next to view the Lab topology used in this module.

Lab Topology

During your session, you will have access to the following lab configuration.



Depending on the exercises you may or may not use all of the devices, but they are shown here in the layout to get an overall understanding of the topology of the lab.

- **PLABSA01** (Windows Server 2016)
- **PLABLINUX01** (CentOS Server)
- **PLABLINUX02** (Ubuntu Server)

Click Next to proceed to the first exercise.

Exercise 1 - Manage Disk Quotas

Assigning disk quota enables the system administrator to manage the disk-space based parameters such as a project, a user group, or individual users. In addition to restricting the usage of disk-space, quotas can be used to limit the number of inodes created. This, effectively, limits the number of files each entity can create.

In this exercise, you will understand how to configure and manage the disk quotas.

Learning Outcomes

After completing this exercise, you will be able to:

- Log into a Linux System
- Set up a disk quota for a filesystem
- View user quota reports

Your Devices

You will be using the following device in this lab. Please power these on now.

- **PLABLINUX01** (CentOS Server)

Task 1 - Setup a Disk Quota for a Filesystem

To configure the disk quota, you first add the filesystems that require the quotas implemented to the **/etc/fstab** file. Next, you can enable the quota on the filesystem. In this task, you will configure the quota for a user on the Linux system.

To setup a disk quota for a filesystem, perform the following steps:

Step 1

On the desktop, right-click and select **Open Terminal**.

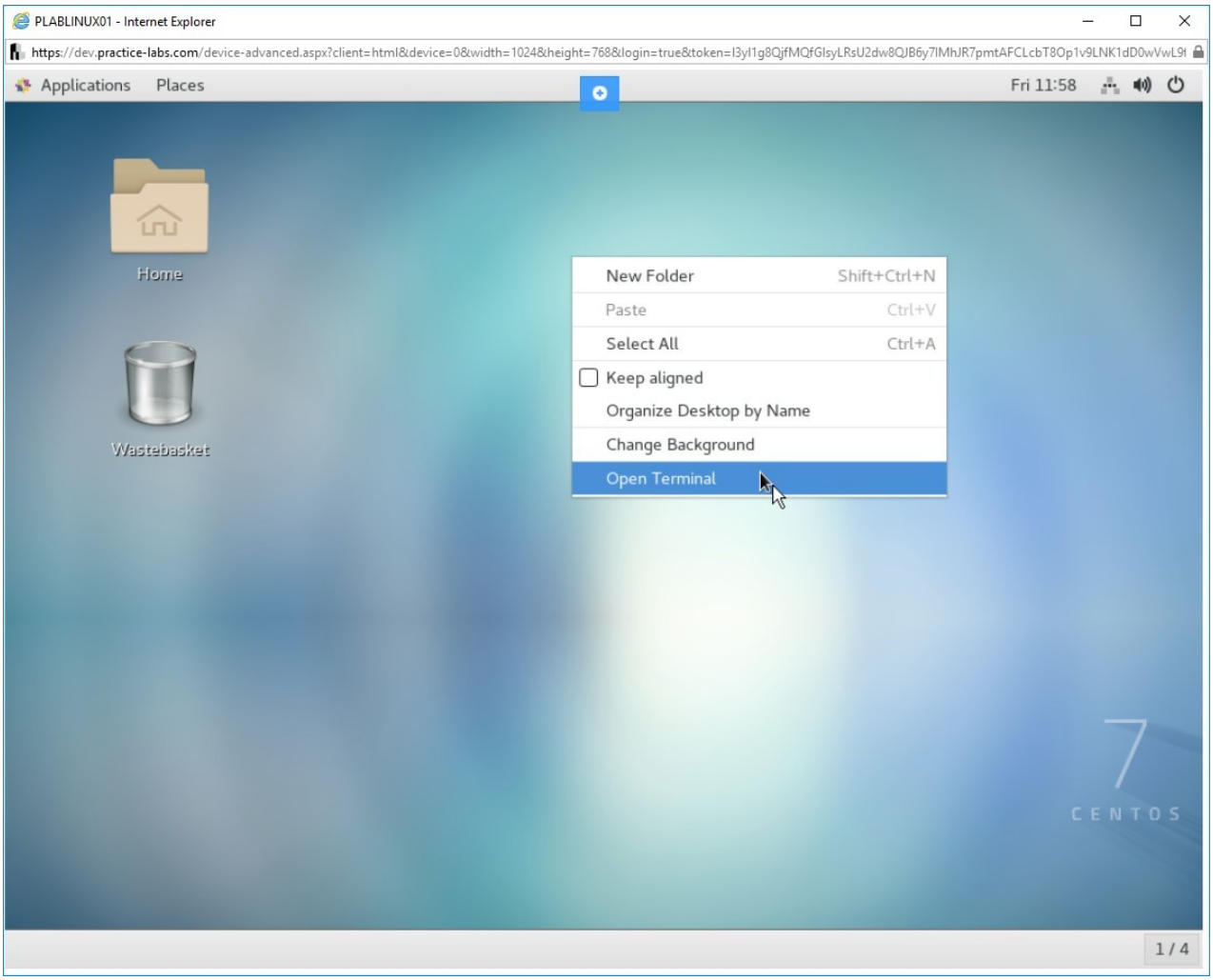


Figure 1.1 Screenshot of PLABLINUX01: Selecting the Open Terminal option from the context menu.

Step 2

The command prompt window is displayed. Type the following command:

```
su -
```

Press **Enter**.

At the **Password** prompt, type the following password:

`Passw0rd`

Press **Enter**.

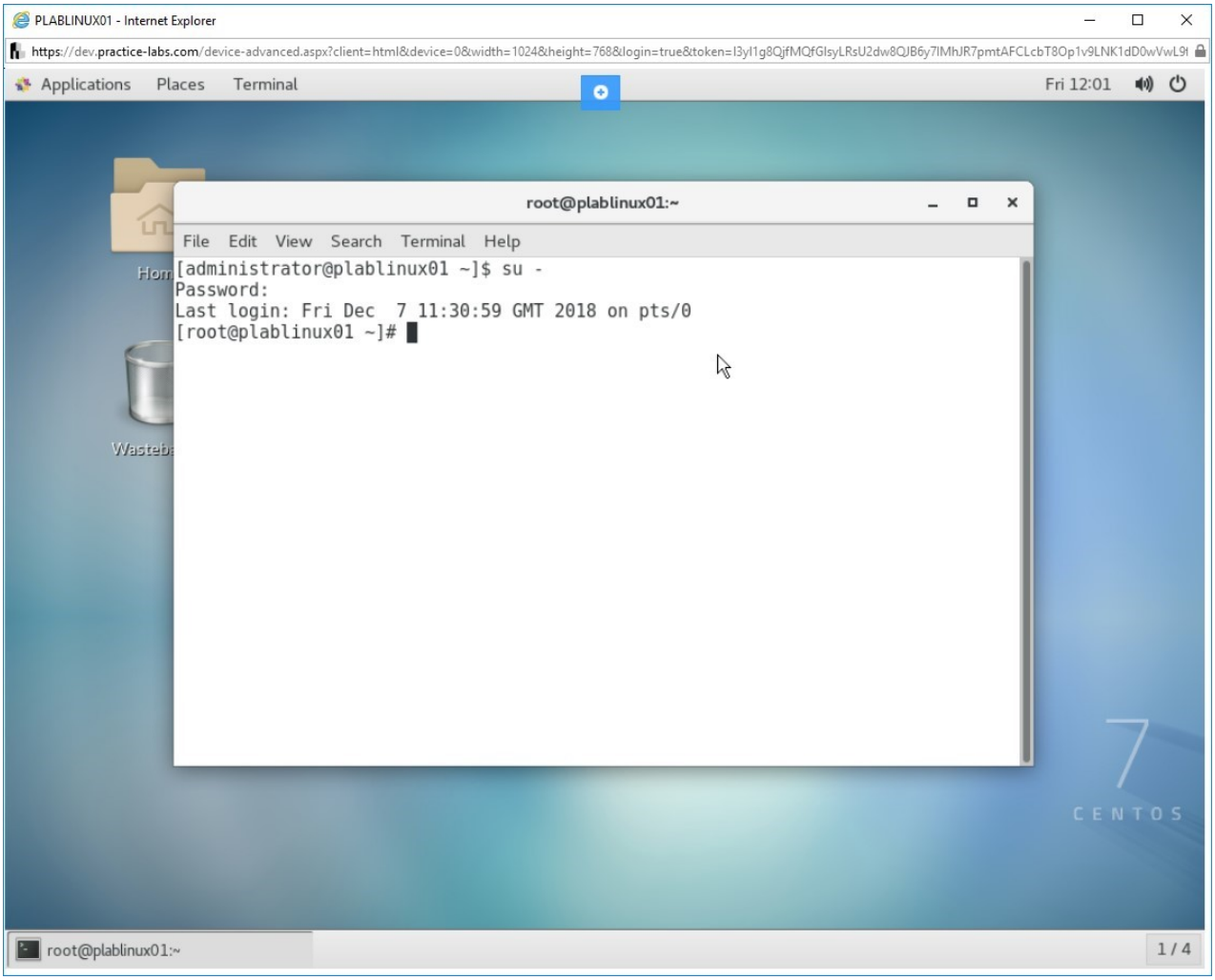


Figure 1.2 Screenshot of PLABLINUX01: Changing the account to the root account with the su command.

Step 3

Clear the screen by entering the following command:

```
clear
```

To add the filesystem to the **/etc/fstab** file, type the following command:

```
vi /etc/fstab
```

Press **Enter**.

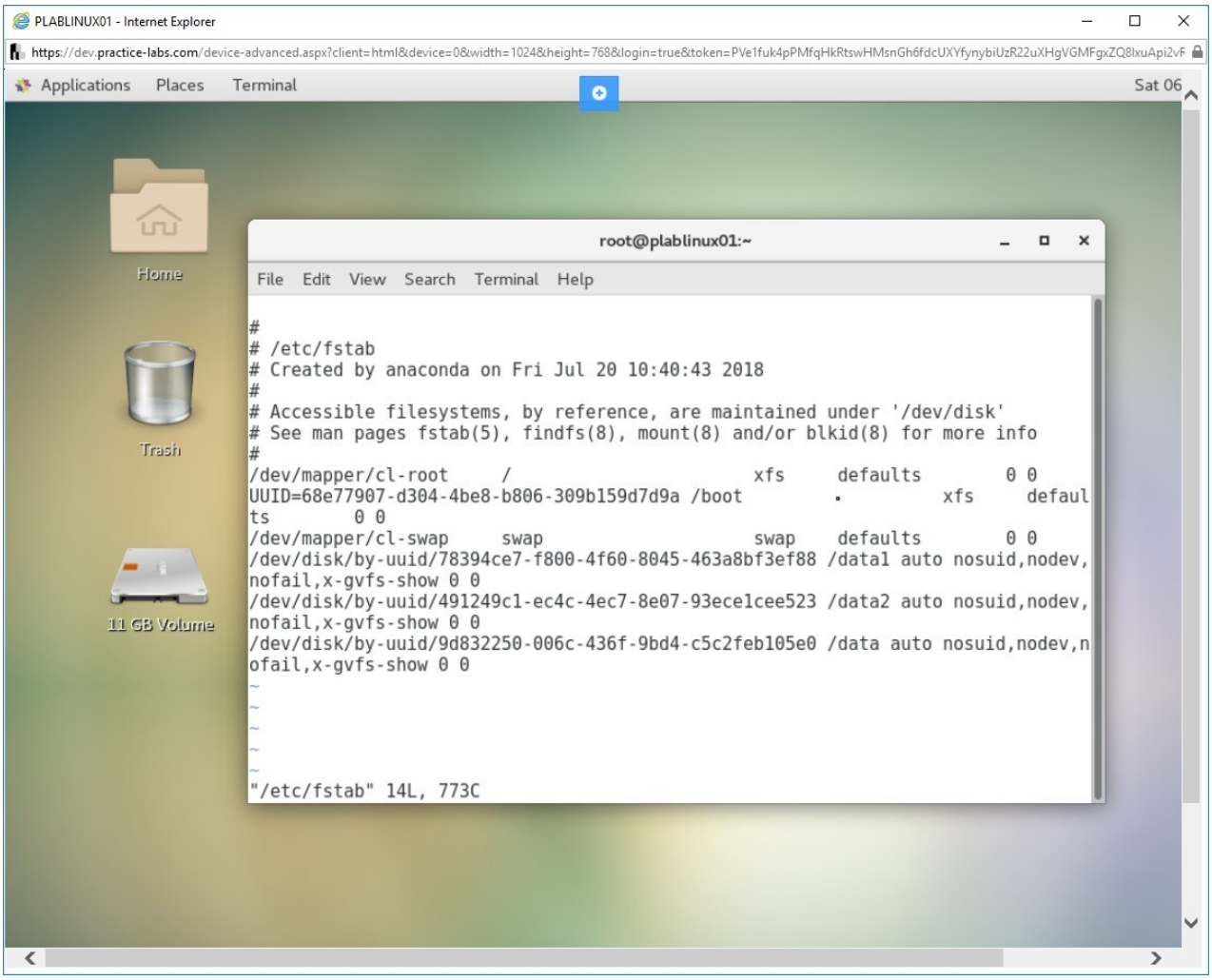


Figure 1.3 Screenshot of PLABLINUX01: The output of the vi /etc/fstab command is displayed.

Step 4

Scroll down to the last line and press **o**. Insert mode will be activated and a new blank line will be inserted after the last line.

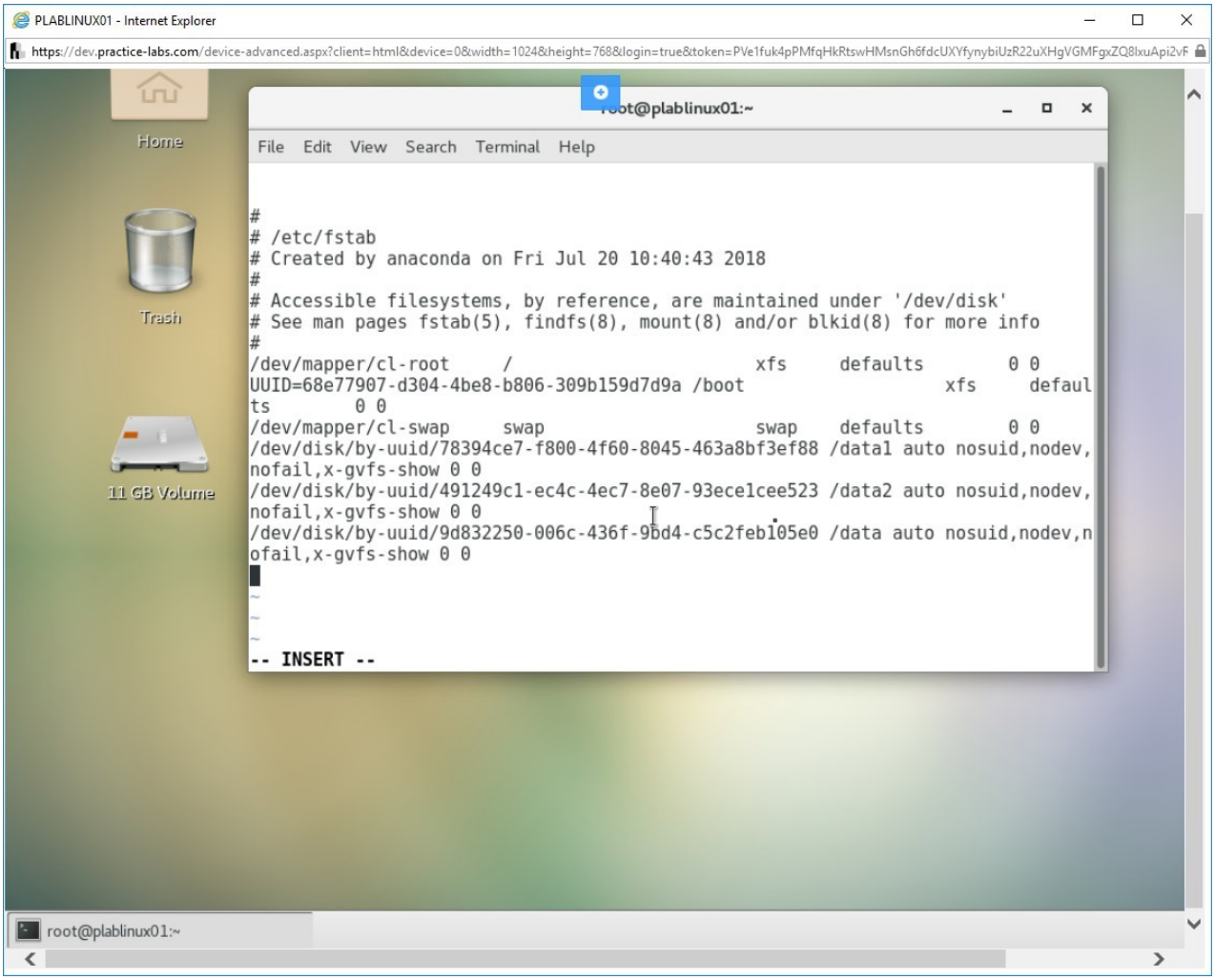


Figure 1.4 Screenshot of PLABLINUX01: Pressing the o button on the last line of the terminal to enter Insert mode to be able to enter text.

Step 5

Type the following entry:

```
/dev/sdb1   /home   ext4   defaults,usrquota   1   1
```

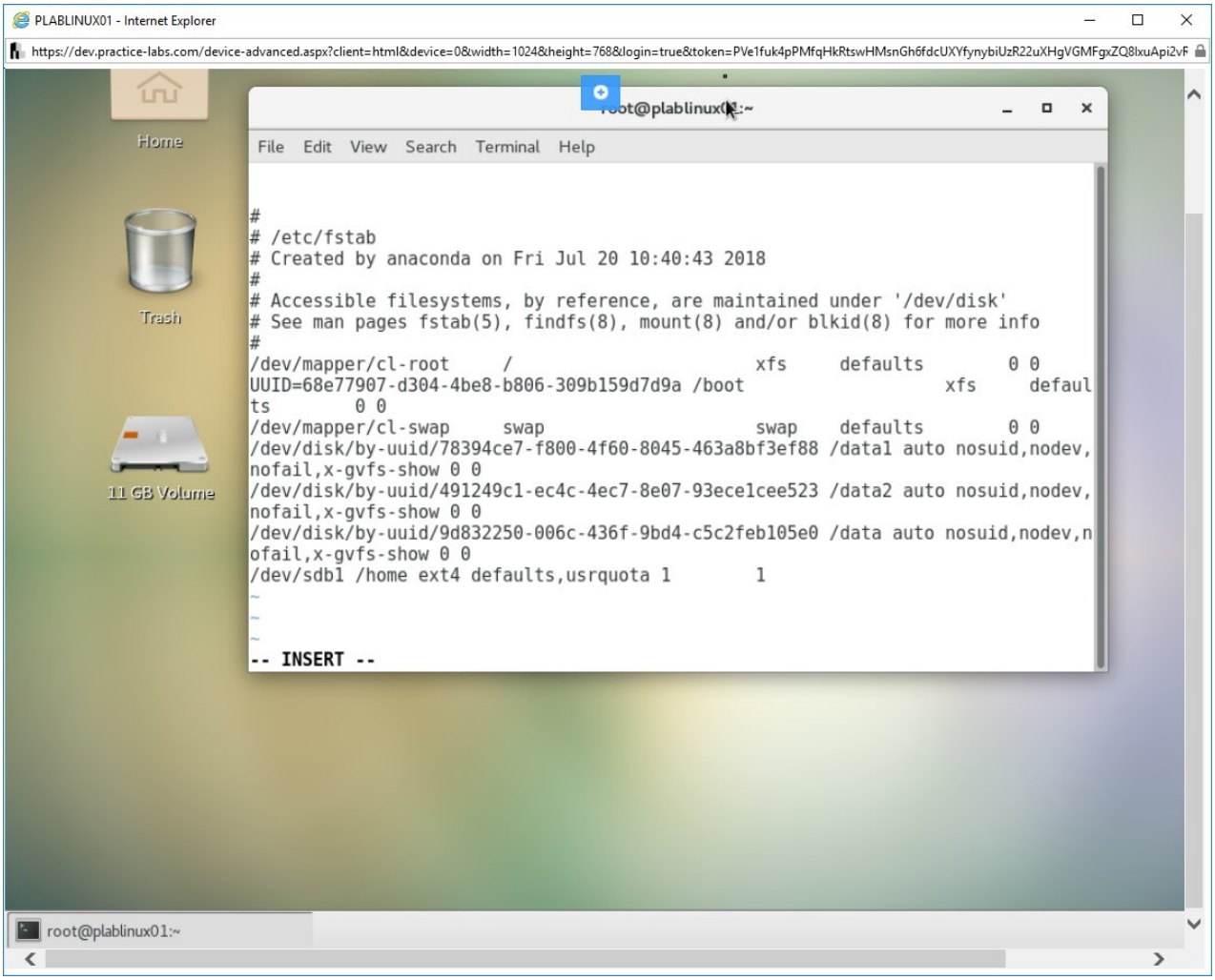


Figure 1.5 Screenshot of PLABLINUX01: /dev/sdb1 /home ext4 defaults,usrquota 1 1 has been entered with Insert mode.

Step 6

Save the file by getting into the command mode. Press **Esc** and then type the following command:

```
:wq
```

Press **Enter**.

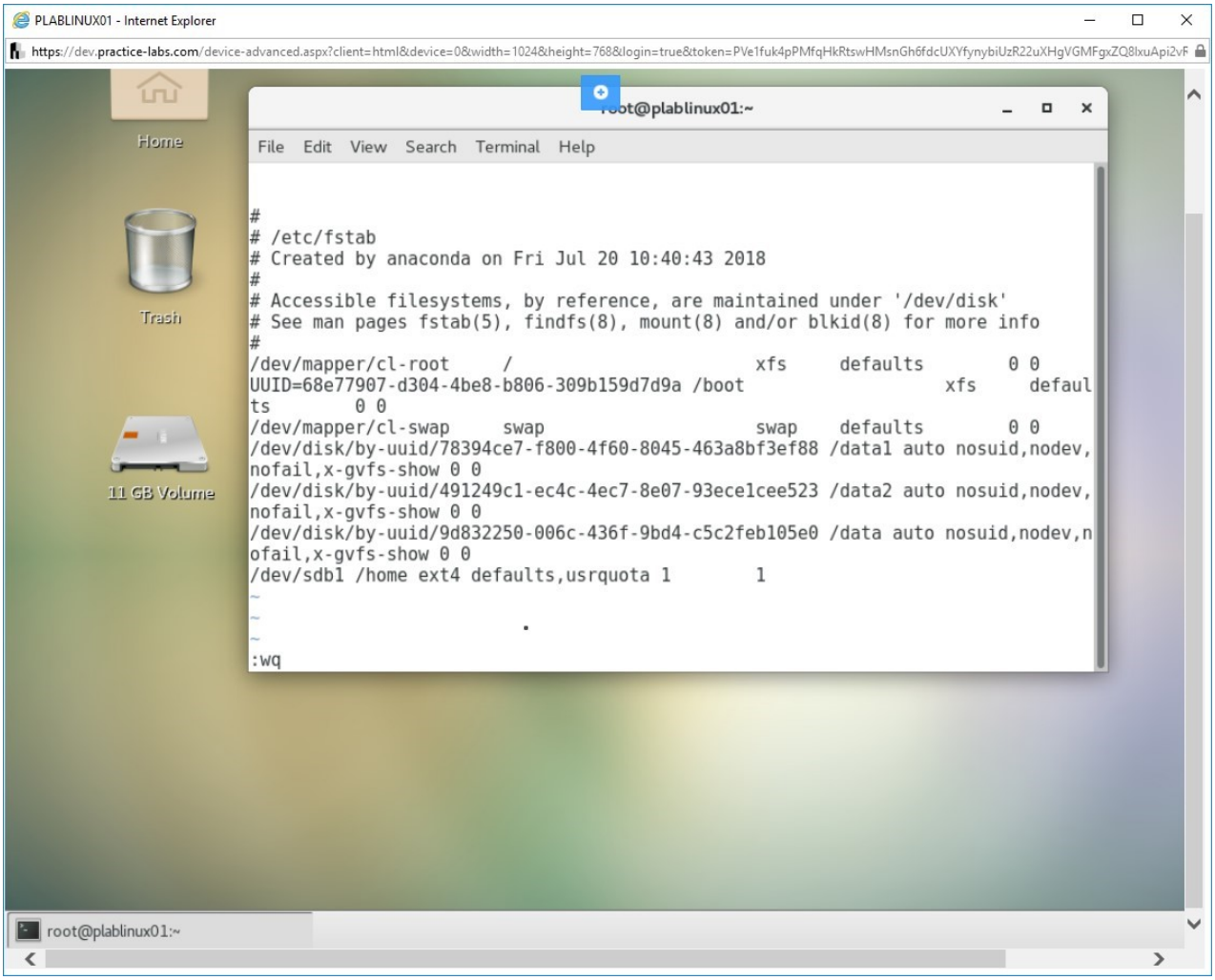


Figure 1.6 Screenshot of PLABLINUX01: Esc has been pressed and the required command :wq has been inputted to save and close the file.

Step 7

After you have made the changes to **/etc/fastab**, ensure to unmount the **/dev/sdb1** filesystem. Type the following command:

```
umount /dev/sdb1
```

Press **Enter**.

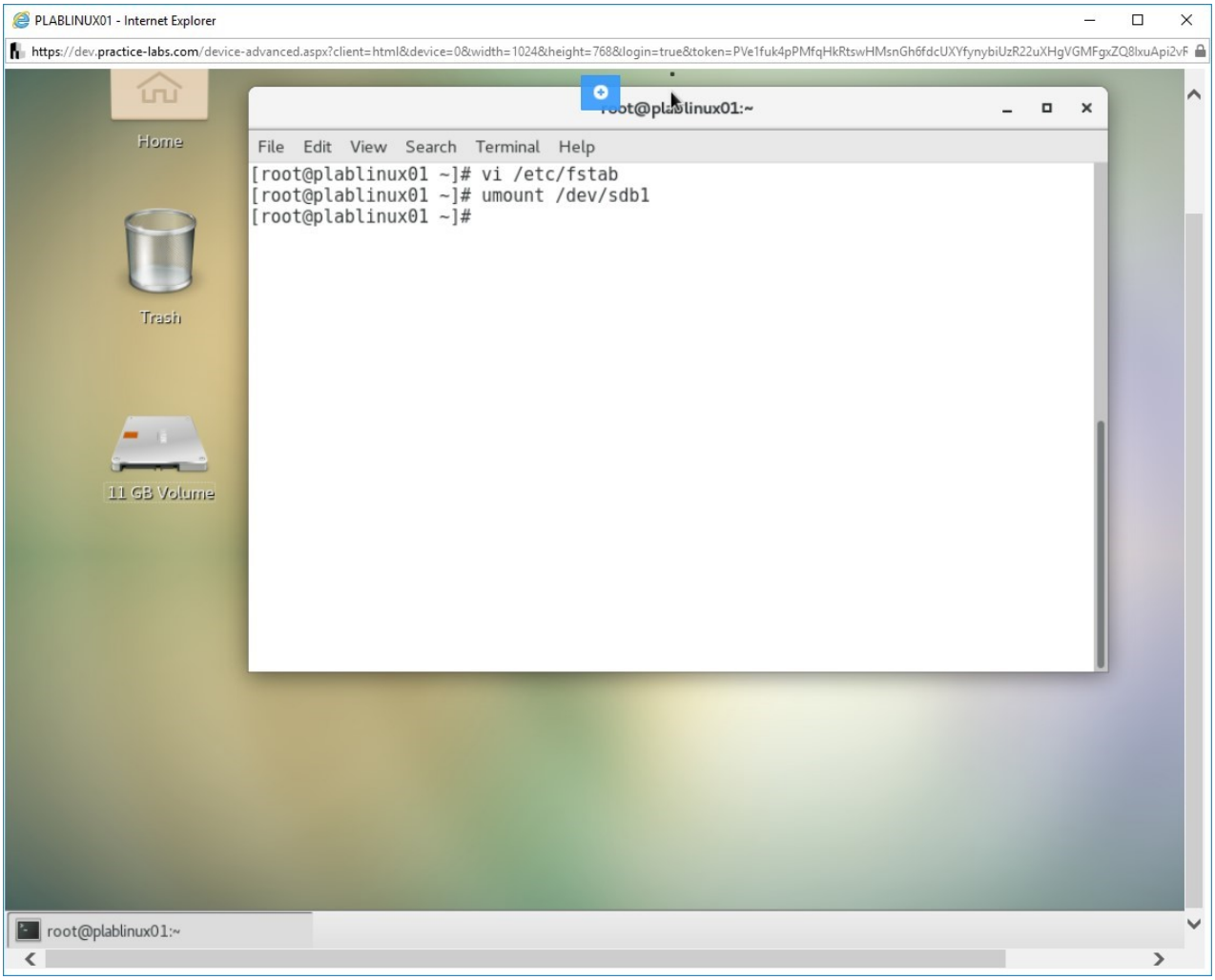


Figure 1.7 Screenshot of PLABLINUX01: The command unmount /dev/sdb1 has been inputted and executed.

Step 8

Now, mount the filesystem. Type the following command:

```
mount /dev/sdb1
```

Press **Enter**.

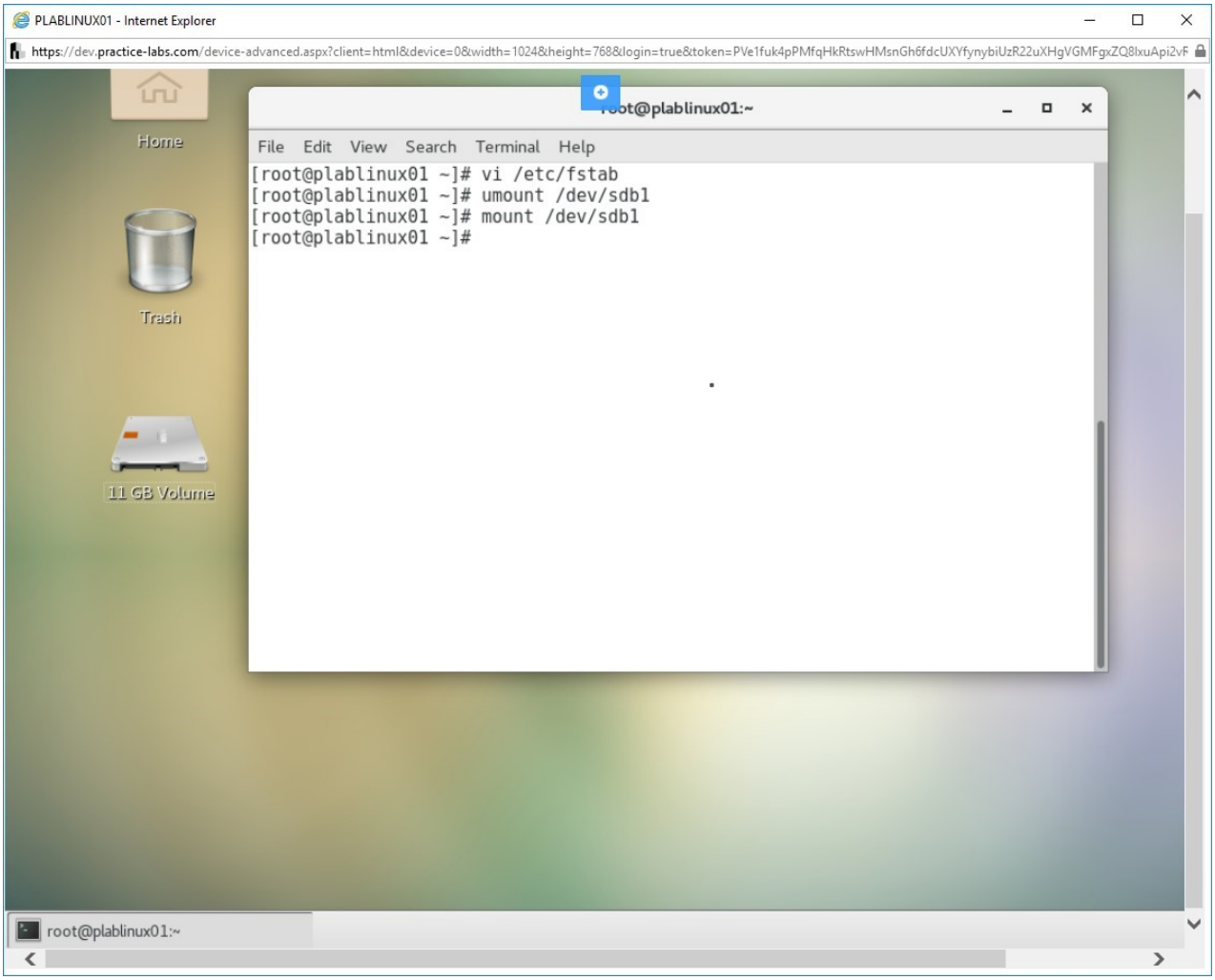


Figure 1.8 Screenshot of PLABLINUX01: The command mount /dev/sdb1 has been inputted and executed.

Step 9

You also need to mount the filesystem that contains **/home**. Type the following command:

```
mount -o remount /home
```

Press **Enter**.

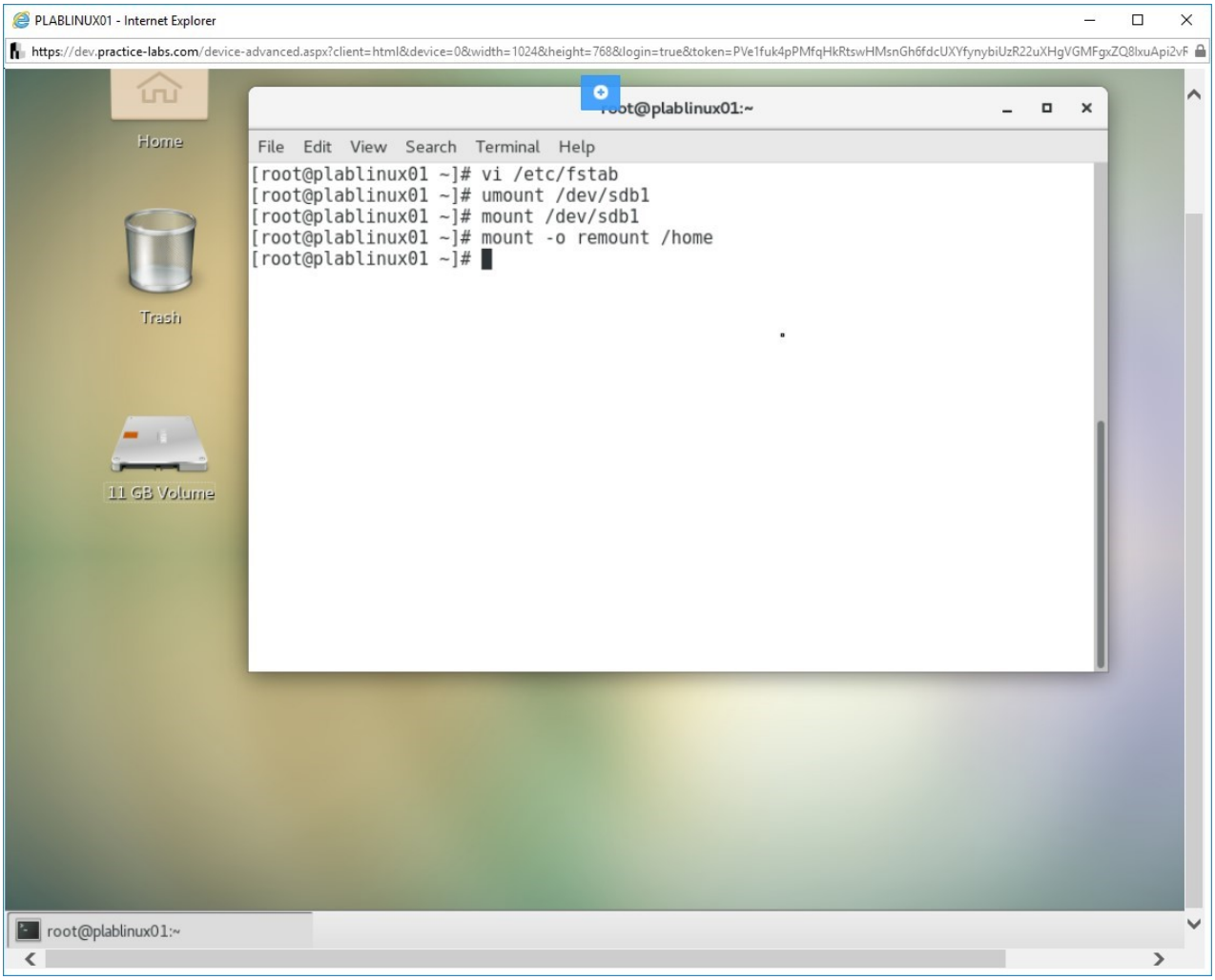


Figure 1.9 Screenshot of PLABLINUX01: The command mount -o remount /home has been inputted and executed to mount the filesystem that contains /home..

Step 10

Clear the screen by entering the following command:

```
clear
```

Even though quota has been enabled in the **/etc/fstab** file, the **/dev/sdb1** filesystem is not ready to support quotas. You will need to run the quotacheck command. The quotacheck verifies each filesystem, builds a table of current disk usage, and then finally compares the built table against the disk quota file for that filesystem. Using this command, you will also create the quota files. Type the following command:

```
quotacheck -cug /home
```

Press **Enter**.

In this command, the **-c** parameter creates the quota files for each filesystem that has quota enabled. The **-u** option creates these files for a user quota, and the **-g** option creates the files for group quota.

Note: *In this task, you have enabled quota only for users. So, you can choose to run -cu instead of -cug.*

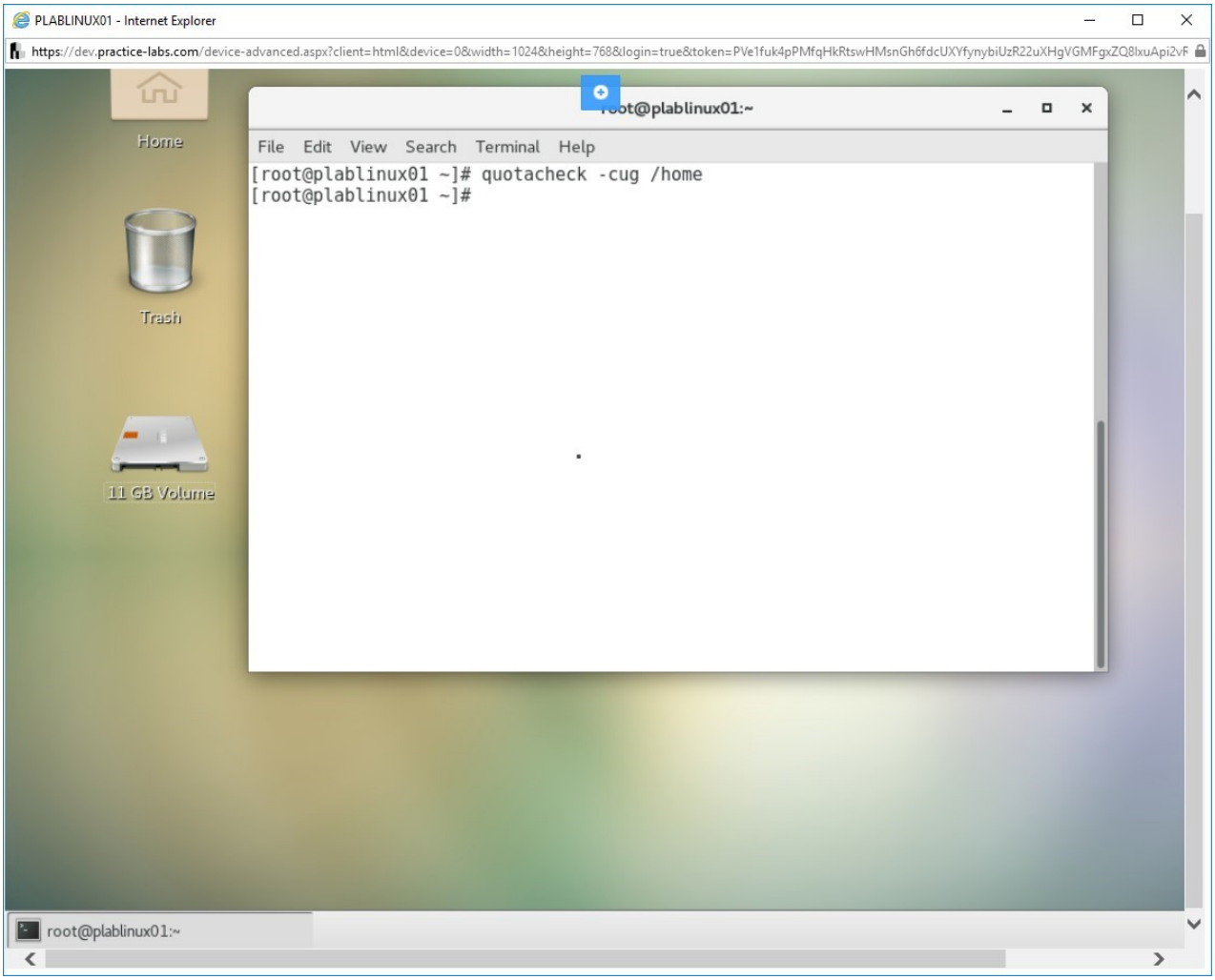


Figure 1.10 Screenshot of PLABLINUX01: The command quotacheck -cug /home has been inputted and executed to create the required quota files.

Step 11

The quota files generated as a result of running the command above are listed in the file-table. To list the table, type the following command:

```
quotacheck -avug
```

Press **Enter**.

> ***Note*** *that the -a option checks for locally mounted filesystems that have quota enabled. The -v option is for displaying verbose status. The -u option is for user quota, and the -g option is for group quota.*

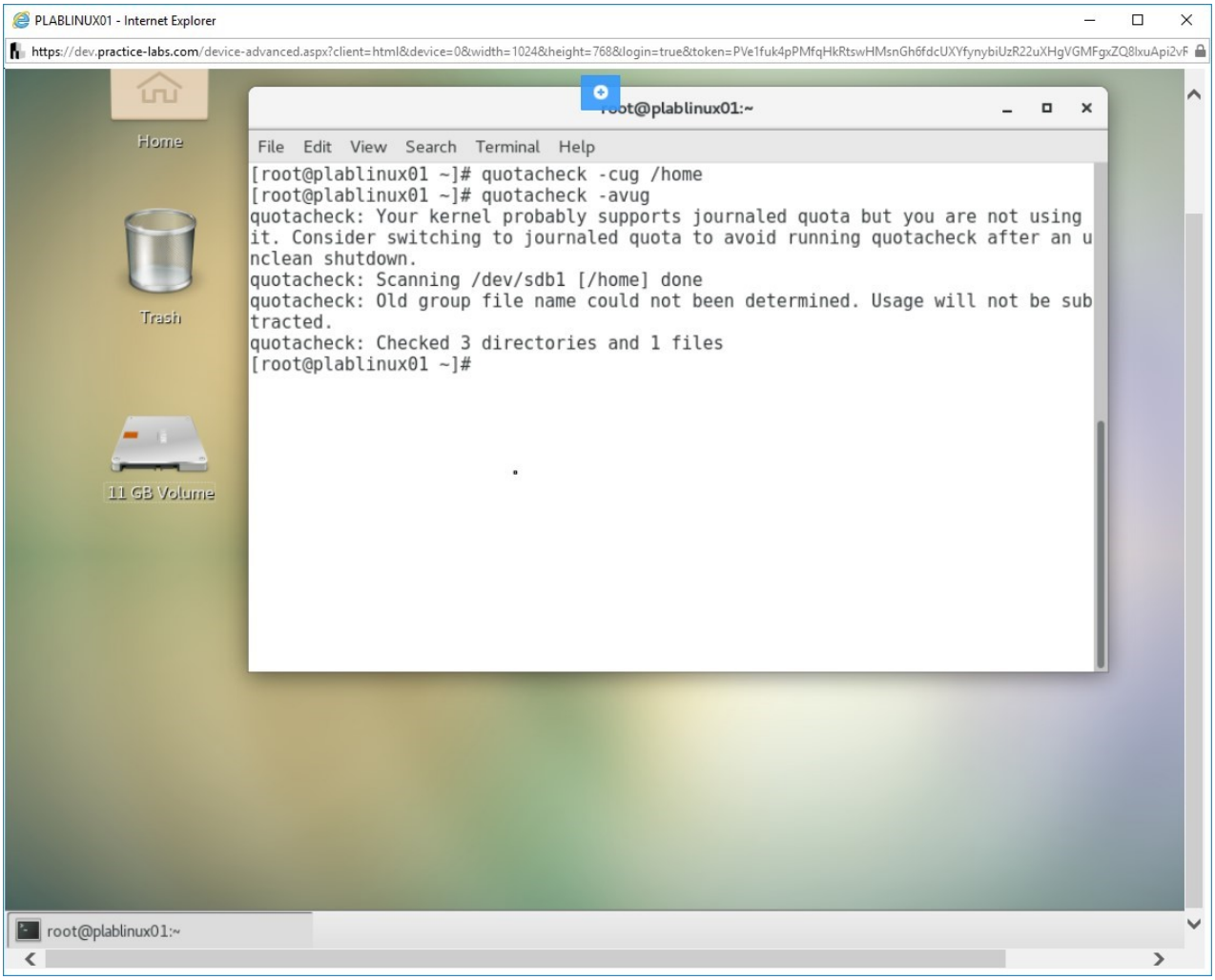


Figure 1.11 Screenshot of PLABLINUX01: The command quotacheck -avug has been inputted and executed to list the table.

Step 12

Clear the screen by entering the following command:

```
clear
```

Before enabling quota for a user, let's first create a user named **mary**. Type the following commands:

```
useradd mary
```

Press **Enter**. Type the following command to define the password:

```
passwd mary
```

Press **Enter**. When prompted for the password, enter the following password twice:

`Passw0rd`

Press **Enter** after entering the password each time.

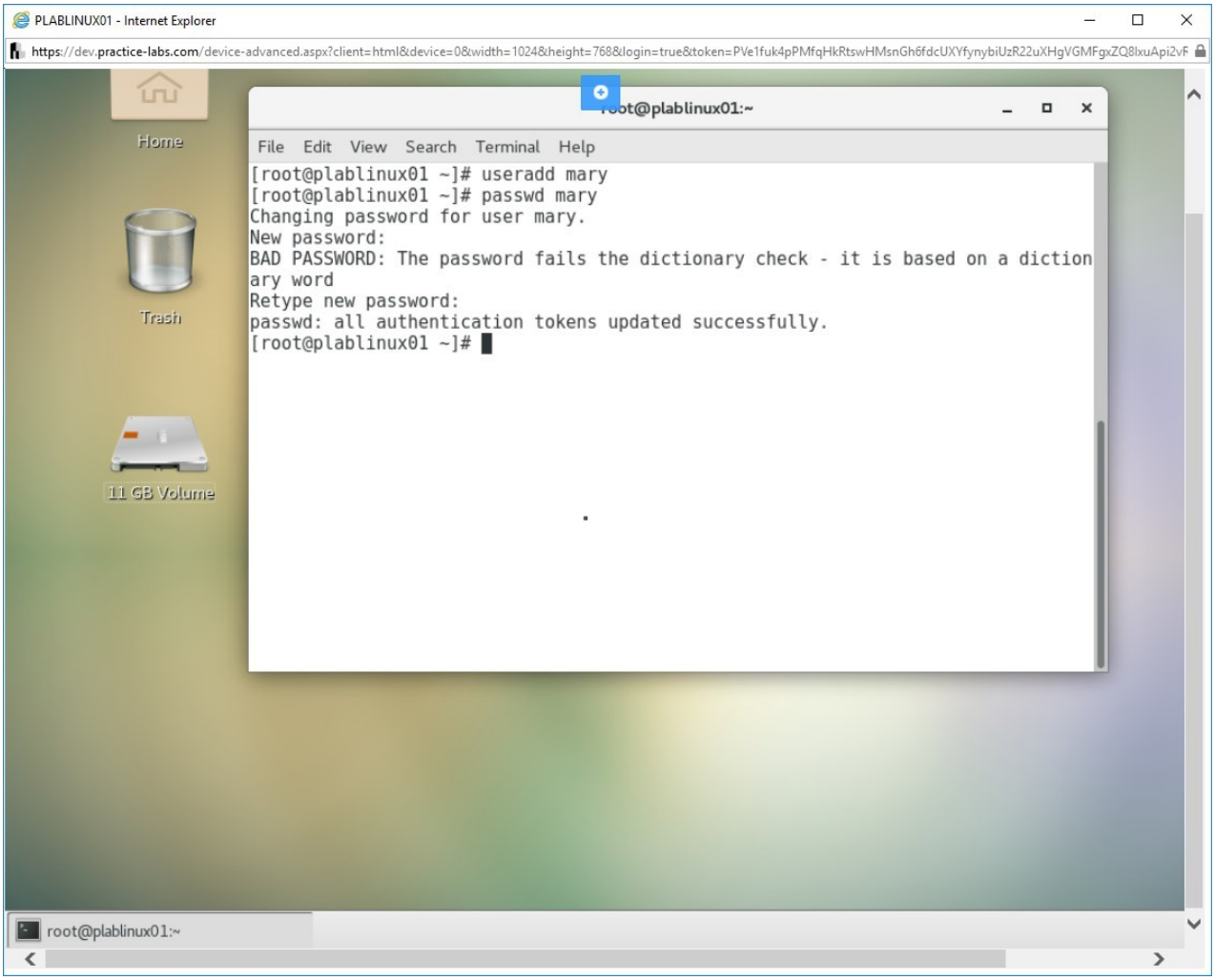


Figure 1.12 Screenshot of PLABLINUX01: useradd mary and passwd mary inputted and executed in the terminal to create a user.

Step 13

Clear the screen by entering the following command:

```
clear
```

To configure a quota for a user, enter the following command:

```
edquota mary
```

The user-specific quota file is displayed.

To assign a **5 GB** quota to the user, press **I** to change to insert mode. Then, type the following information under the respective column headings:

```
soft: 5242880
hard: 5242880
```

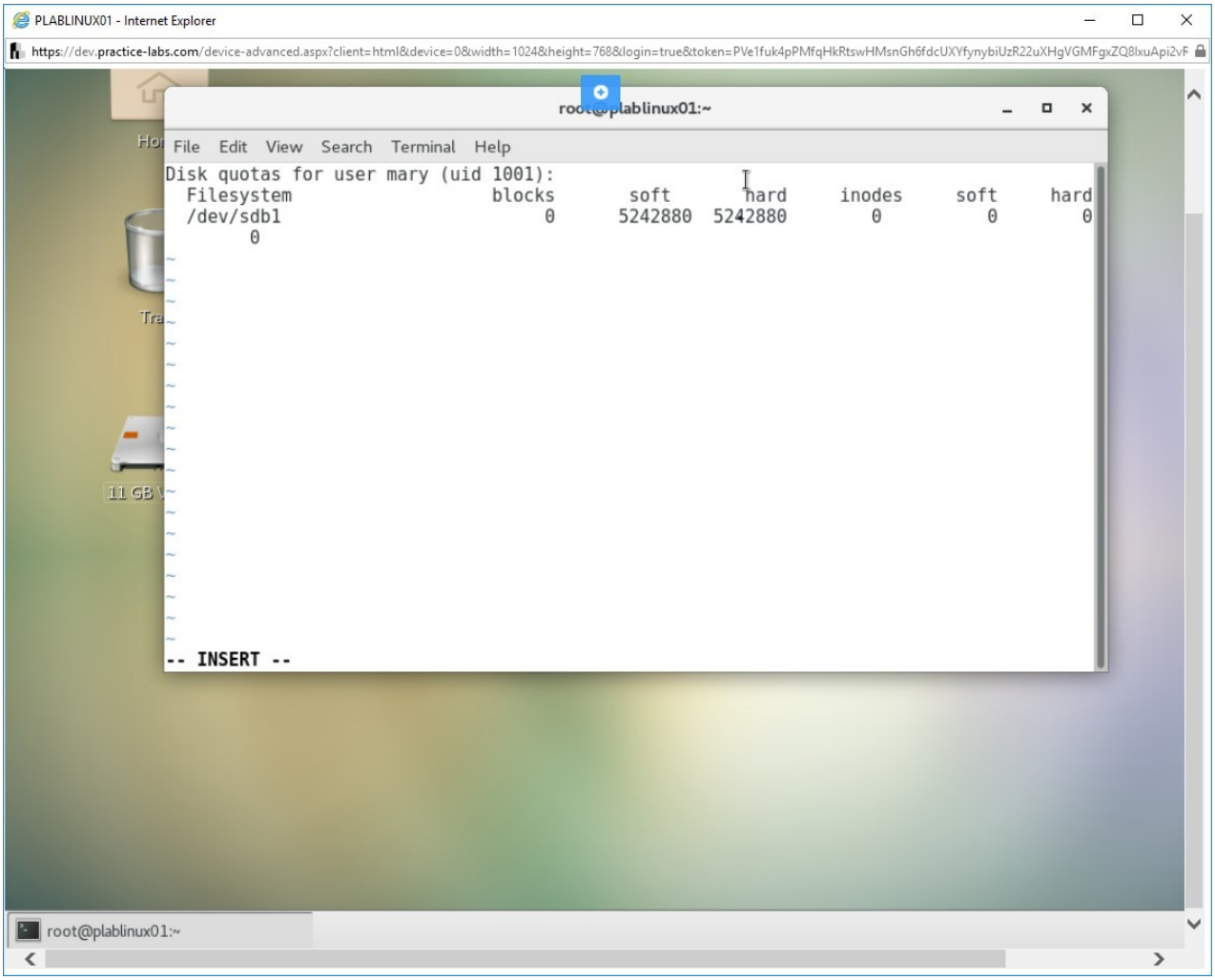


Figure 1.13 Screenshot of PLABLINUX01: The user quota file is displayed and insert mode has been started.

Save and exit the file by pressing **Esc** and then typing the following command:

```
:wq
```

Press **Enter**.

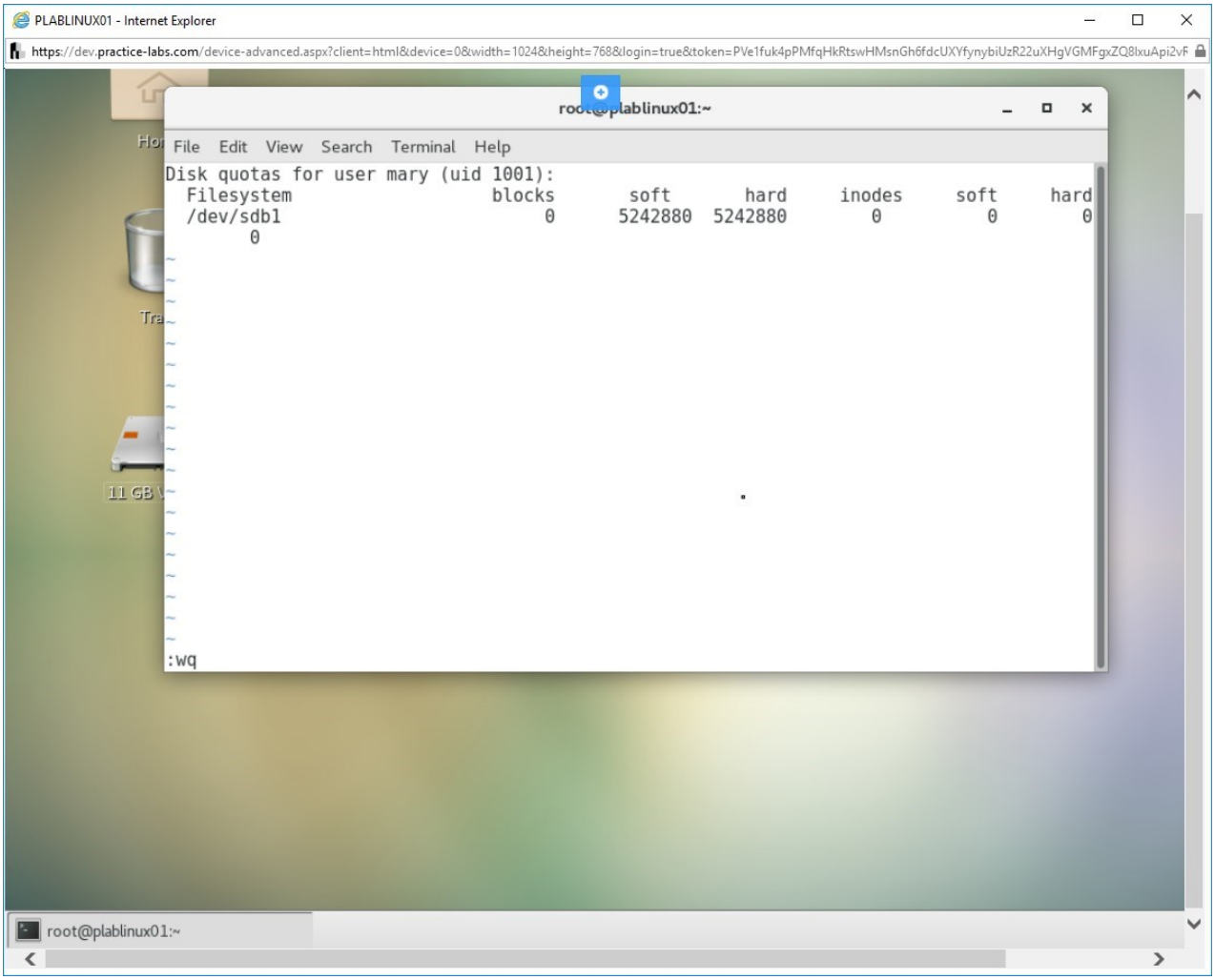


Figure 1.14 Screenshot of PLABLINUX01: :wq has been inputted to save and exit the file.

Step 14

You are navigated back to the command prompt.

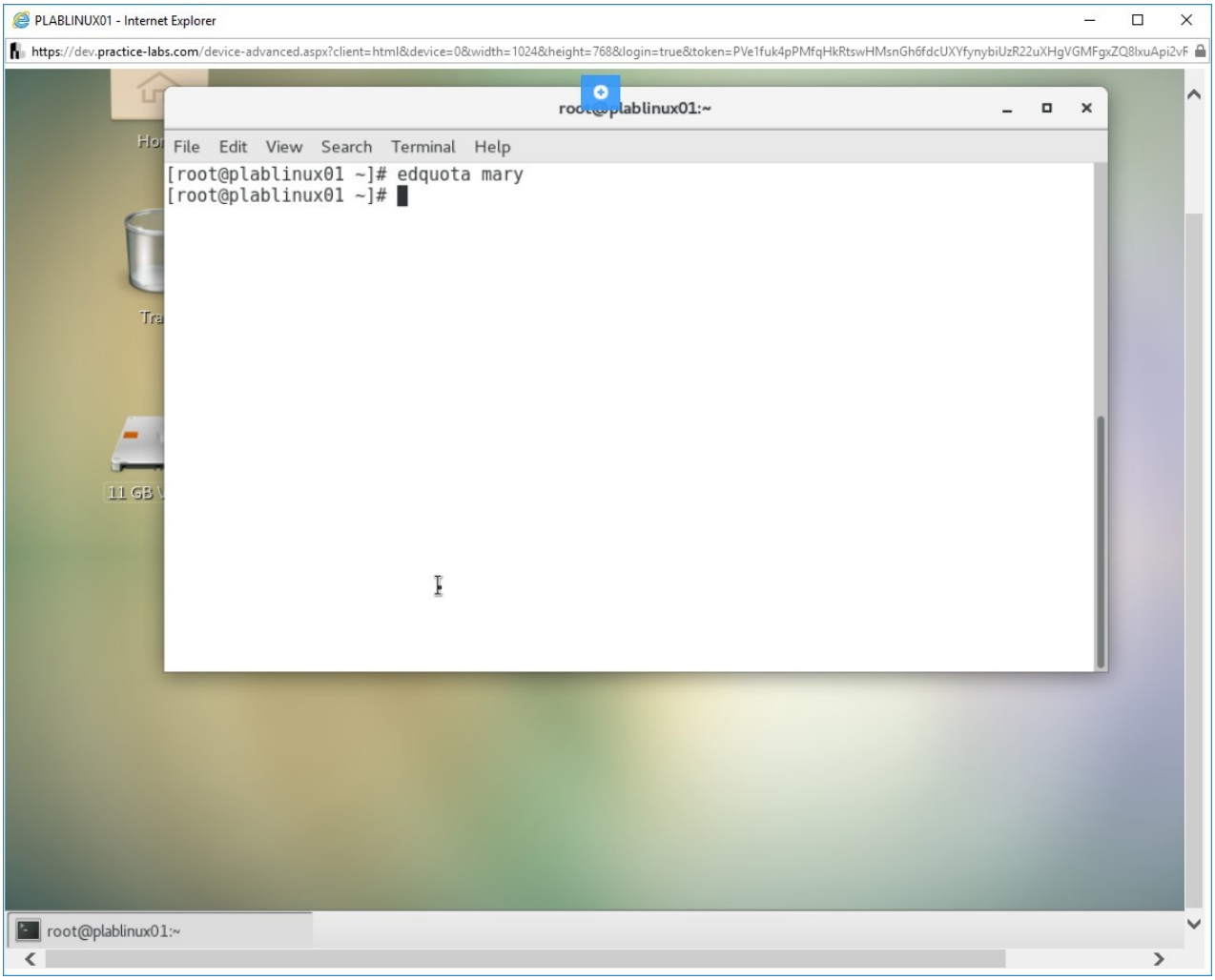


Figure 1.15 Screenshot of PLABLINUX01: Showing that the user is navigated to the command prompt after saving and exiting the previous file.

Task 2 - View User Quota Reports

To manage the quotas created, you edit, check and generate user quota reports. In this task, you will generate the quota report and view the quota statistics.

To view user quota reports, perform the following steps:

Step 1

Clear the screen by entering the following command:

```
clear
```

You can view the quota report. Type the following command:

```
repquota /dev/sdb1
```

Press **Enter**.

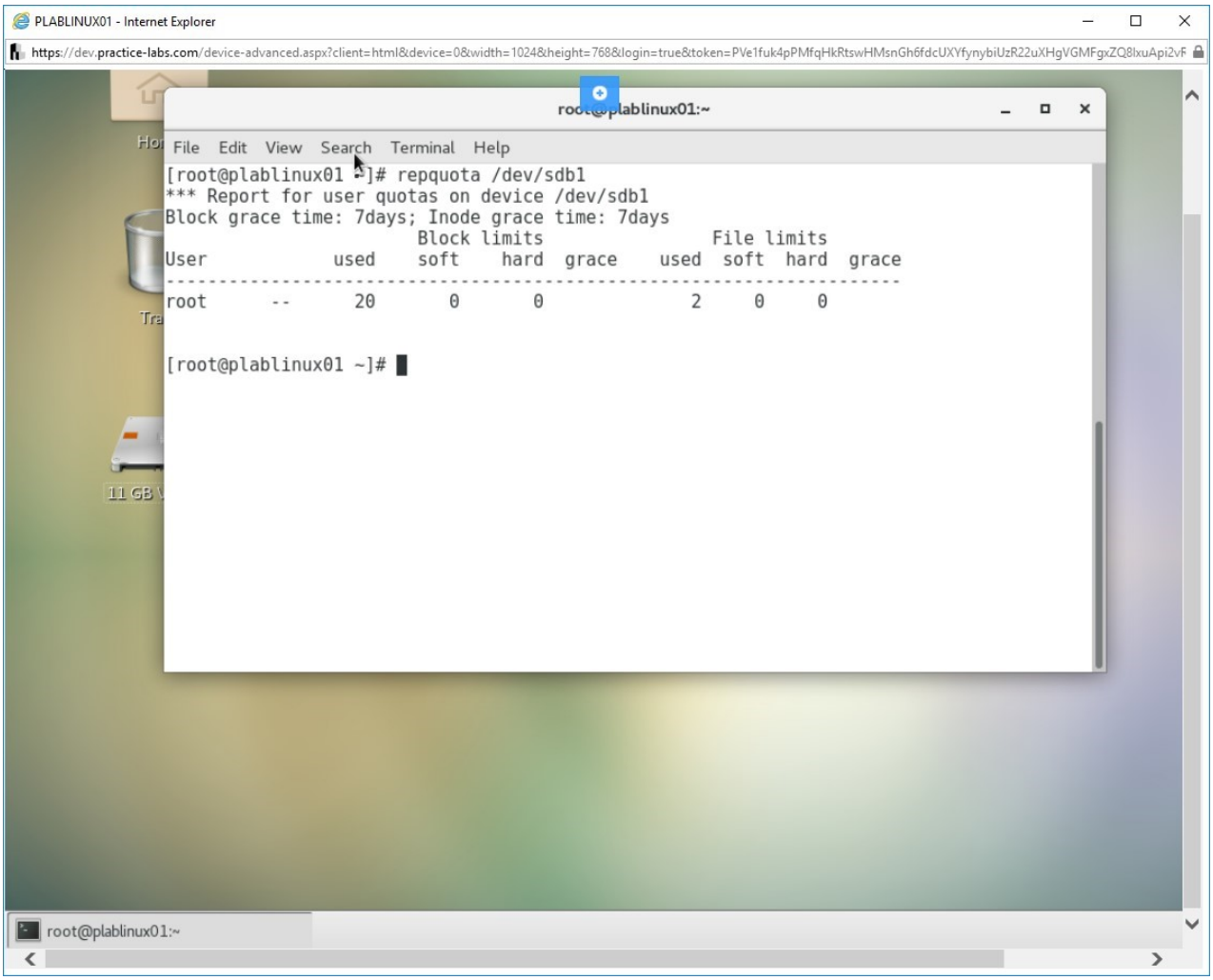


Figure 1.16 Screenshot of PLABLINUX01: repquota /dev/sdb1 has been inputted to view the quote report.

Step 2

To display the quota statistics, type the following command:

```
quota -u root
```

Press **Enter**.

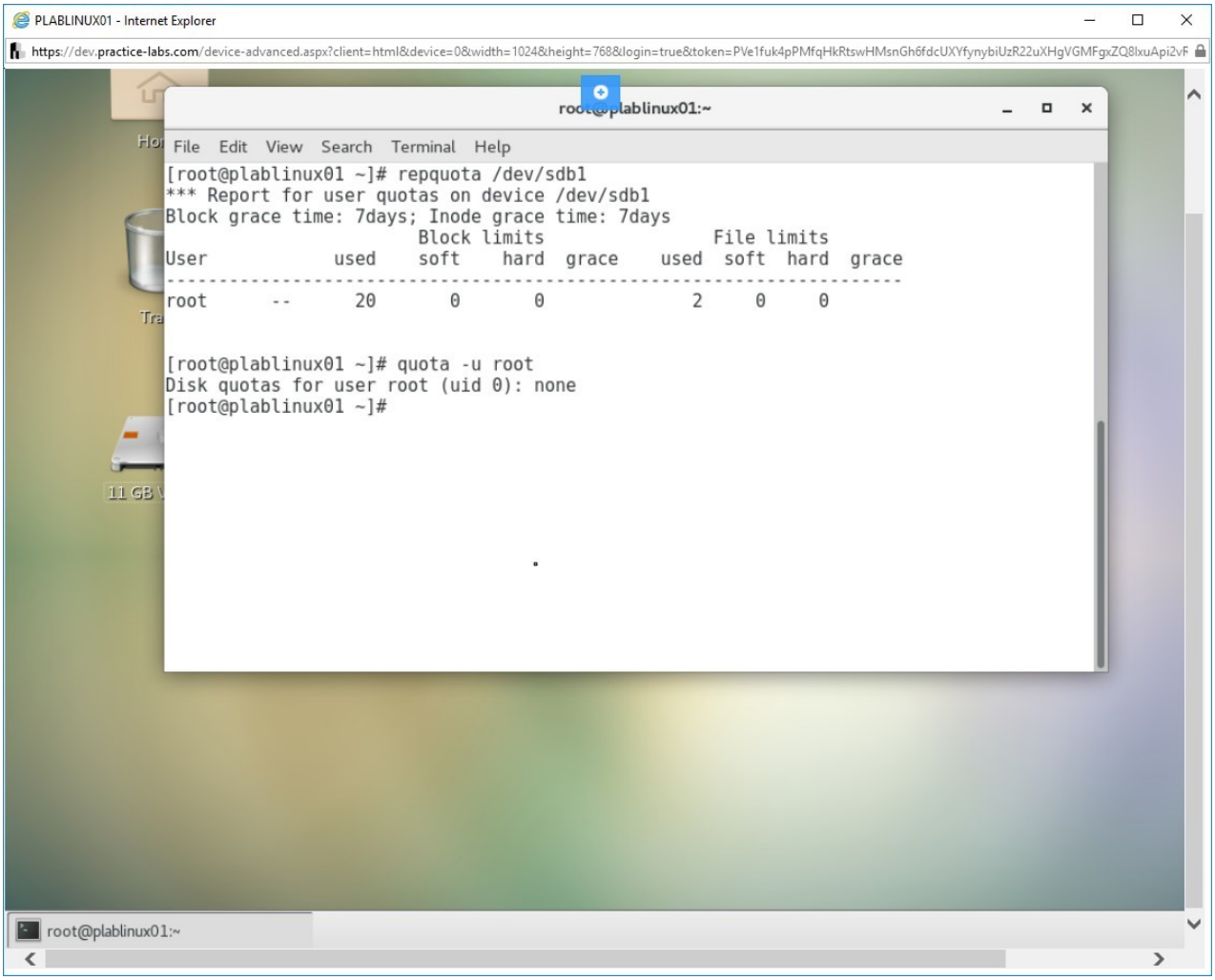


Figure 1.17 Screenshot of PLABLINUX01: quota -u root has been inputted to display the quote statistics.

Keep all devices in their current state and proceed to the next exercise.

Review

Well done, you have completed the **Managing Disk Quotas** Practice Lab.

Summary

You completed the following exercise:

- Exercise 1 - Manage Disk Quotas

You should now be able to:

- Set up a disk quota for a filesystem

- View user quota reports

Feedback

Shutdown all virtual machines used in this lab. Alternatively, you can log out of the lab platform.