CompTIA Linux+

Setup Host Security

Introduction

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

Security
Shadow password
TCP
Wrappers

Learning Outcomes

In this module, you will complete the following exercise:

- Exercise 1 - Setup Host Security

After completing this lab, you will be able to:

- Shadow passwords
- Turn off network services not in use
- Role of TCP wrappers

Exam Objectives

The following exam objectives are covered in this lab:

- **LPI:** 107.1 Manage user and group accounts and related system files
- **LPI:** 110.2 Setup host security
- **CompTIA:** 2.2 Given a scenario, manage users and groups

- **CompTIA:** 2.4 Given a scenario, manage services

> ***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.

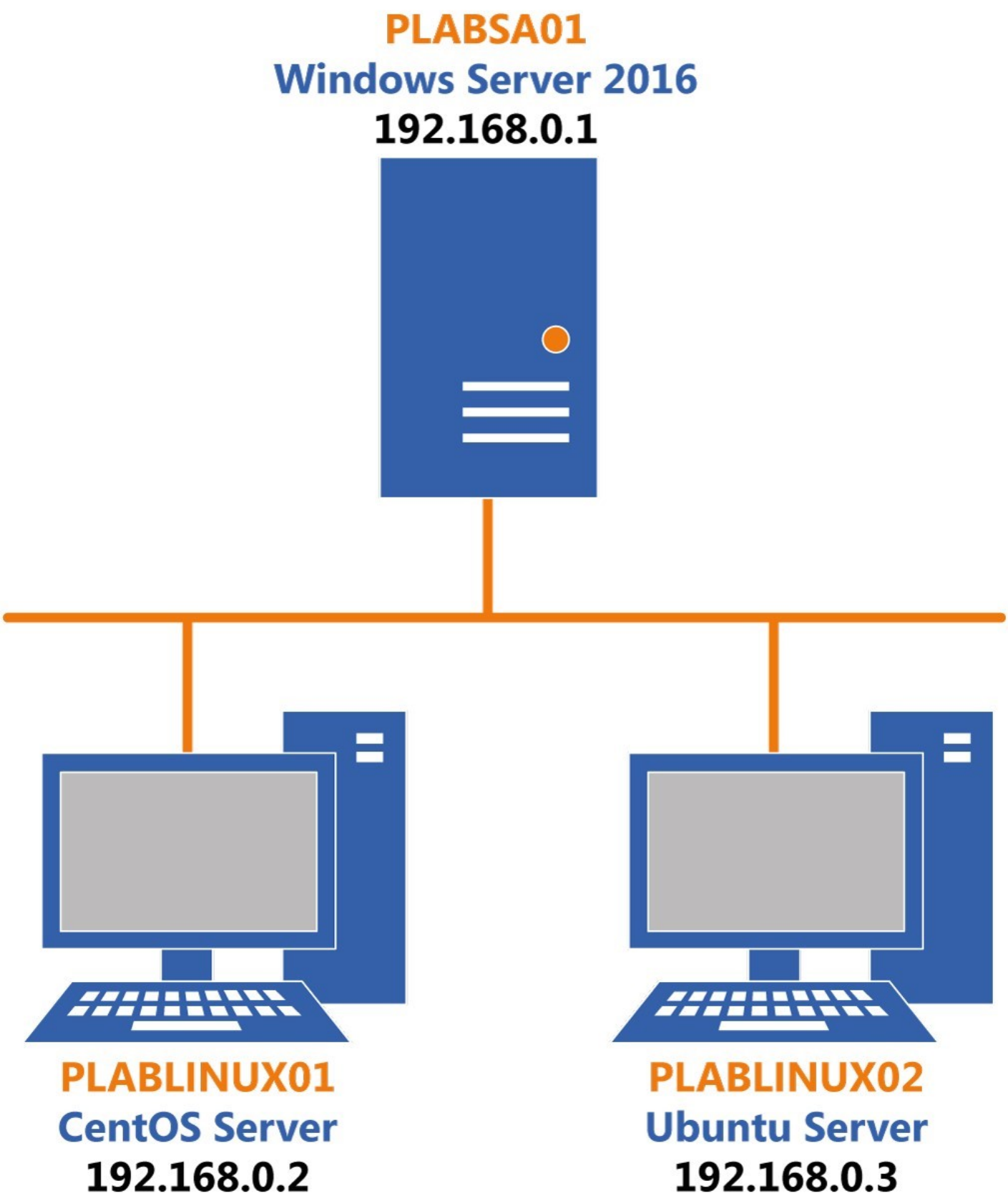
Help and Support

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 - Setup Host Security

Setting up host security is all the more relevant and required in the current networked multi-user environment. In this exercise, you will understand how to setup host security.

Learning Outcomes

After completing this exercise, you will be able to:

- Log into a Linux System
- Shadow passwords
- Turn off network services not in use
- Role of TCP wrappers

Your Devices

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

- **PLABLINUX01** (CentOS Server)

Task 1 - Shadow Passwords

In a multi-user environment, it is important to encrypt passwords to protect them against unauthorized access. The passwords are moved from the **/etc/passwd** file to the **/etc/shadow** file. This file is readable only by the **root** user. Shadow password is enabled by default by the shadow-utils package. In this task, you will list the contents of both - **password** file and the **shadow** file. You will also create a **nologin** file.

To view the shadow passwords, perform the following steps:

Step 1

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

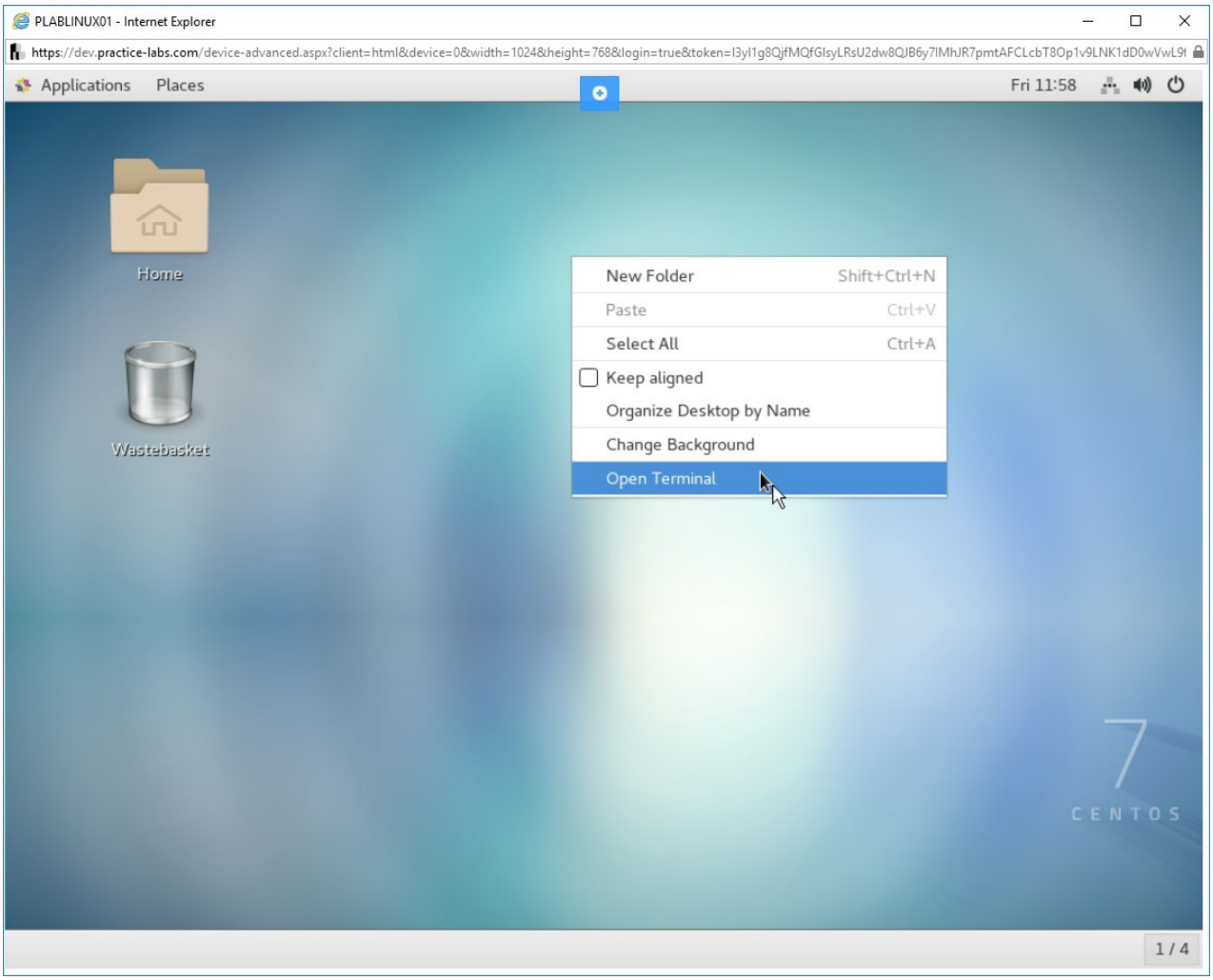


Figure 1.1 Screenshot of PLABLINUX01: Selecting the Open Terminal option from the context menu.

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**.

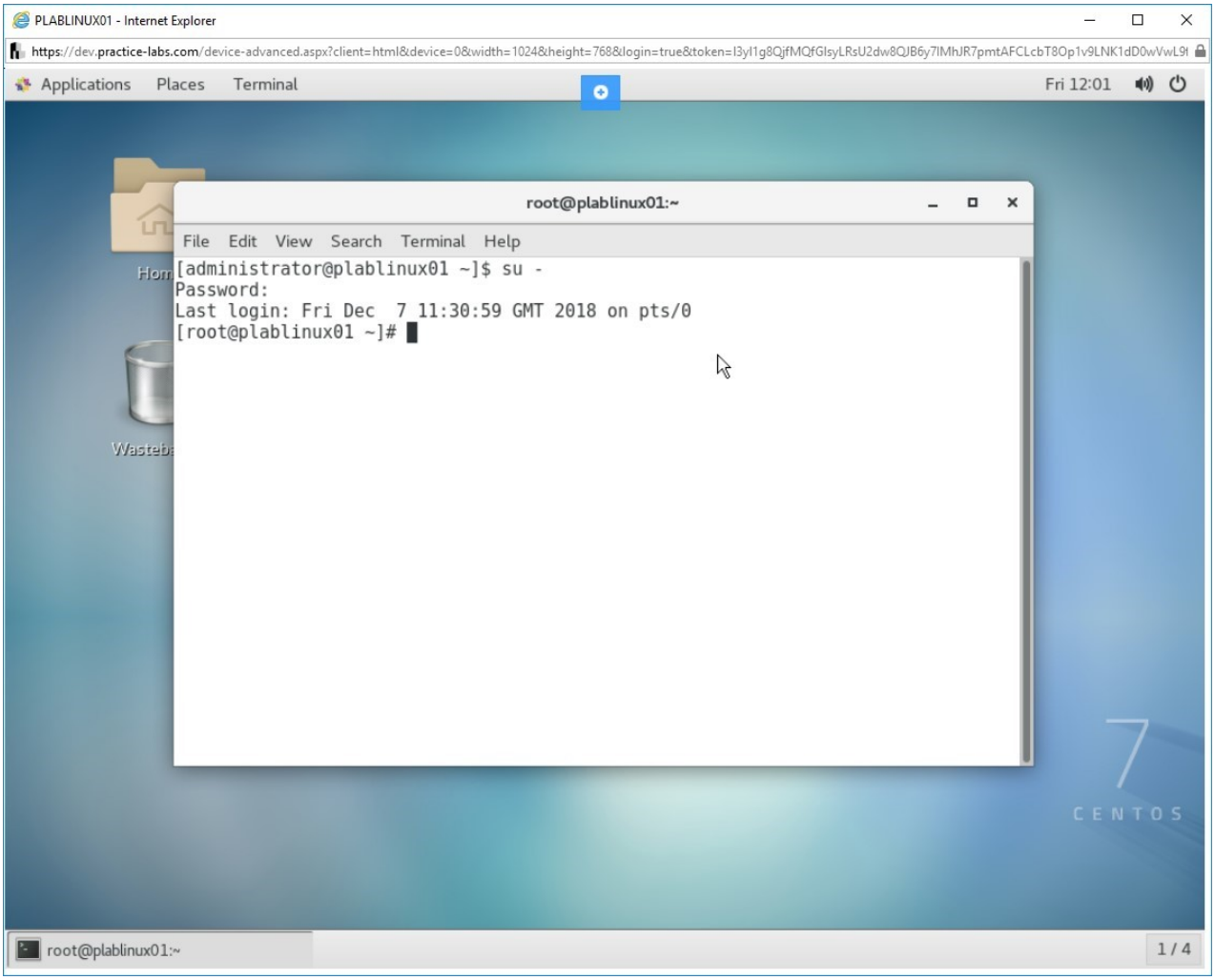


Figure 1.2 Screenshot of PLABLINUX01: Changing the account to the root account with the su command.

Step 3

Clear the screen by entering the following command:

```
clear
```

***Note**: The clear command is used before every step to enable the learners to get a clear view of the output of each command. Otherwise, it is not mandatory to use the clear command before every command.*

To view the **/etc/passwd** file, type the following command

```
cat /etc/passwd
```

Press **Enter**.

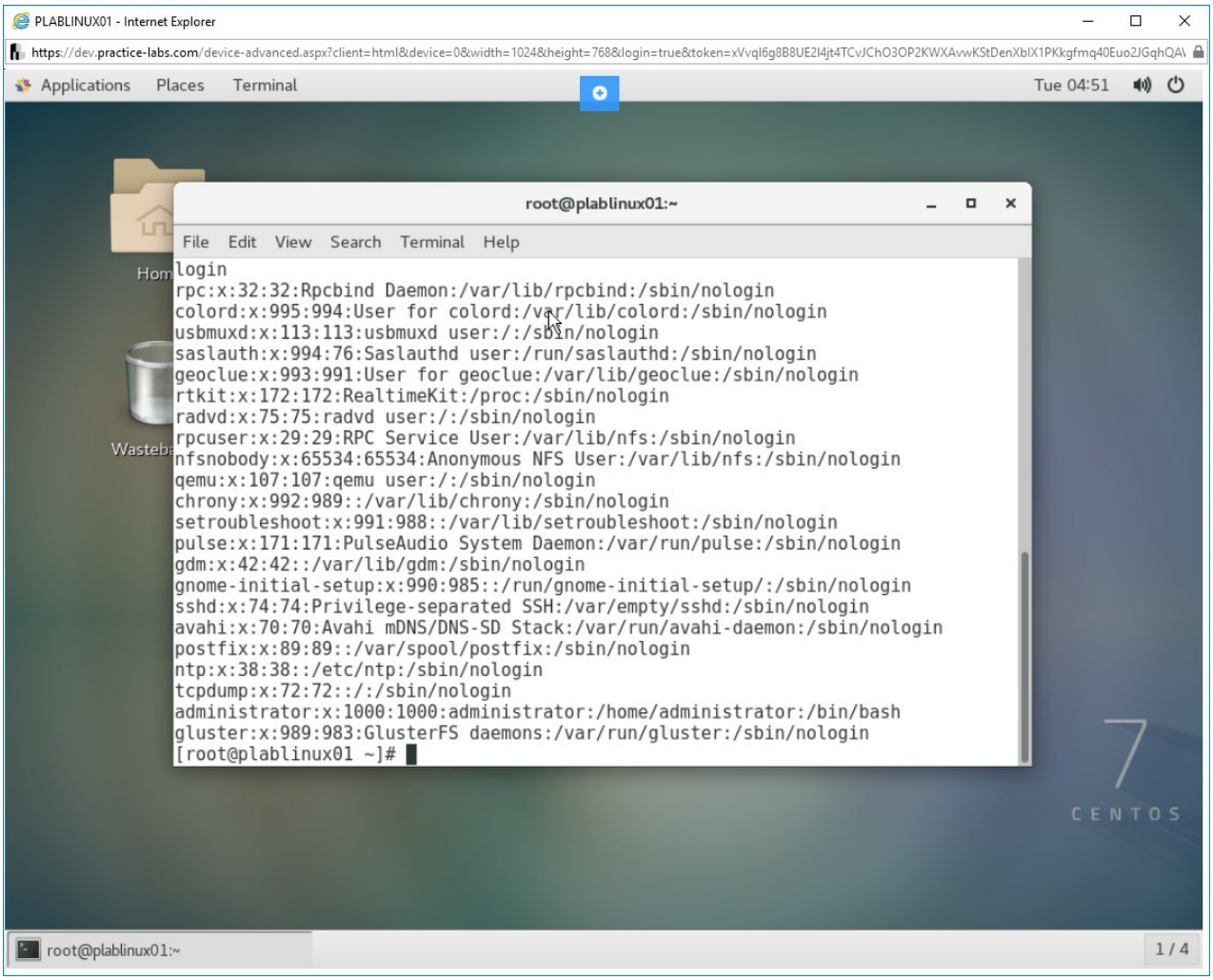


Figure 1.3 Screenshot of PLABLINUX01: Viewing the /etc/passwd file.

Step 4

Clear the screen by entering the following command:

```
clear
```

To view the **/etc/shadow** file, type the following command

```
cat /etc/shadow
```

Press **Enter**.

Note that all passwords are encrypted.

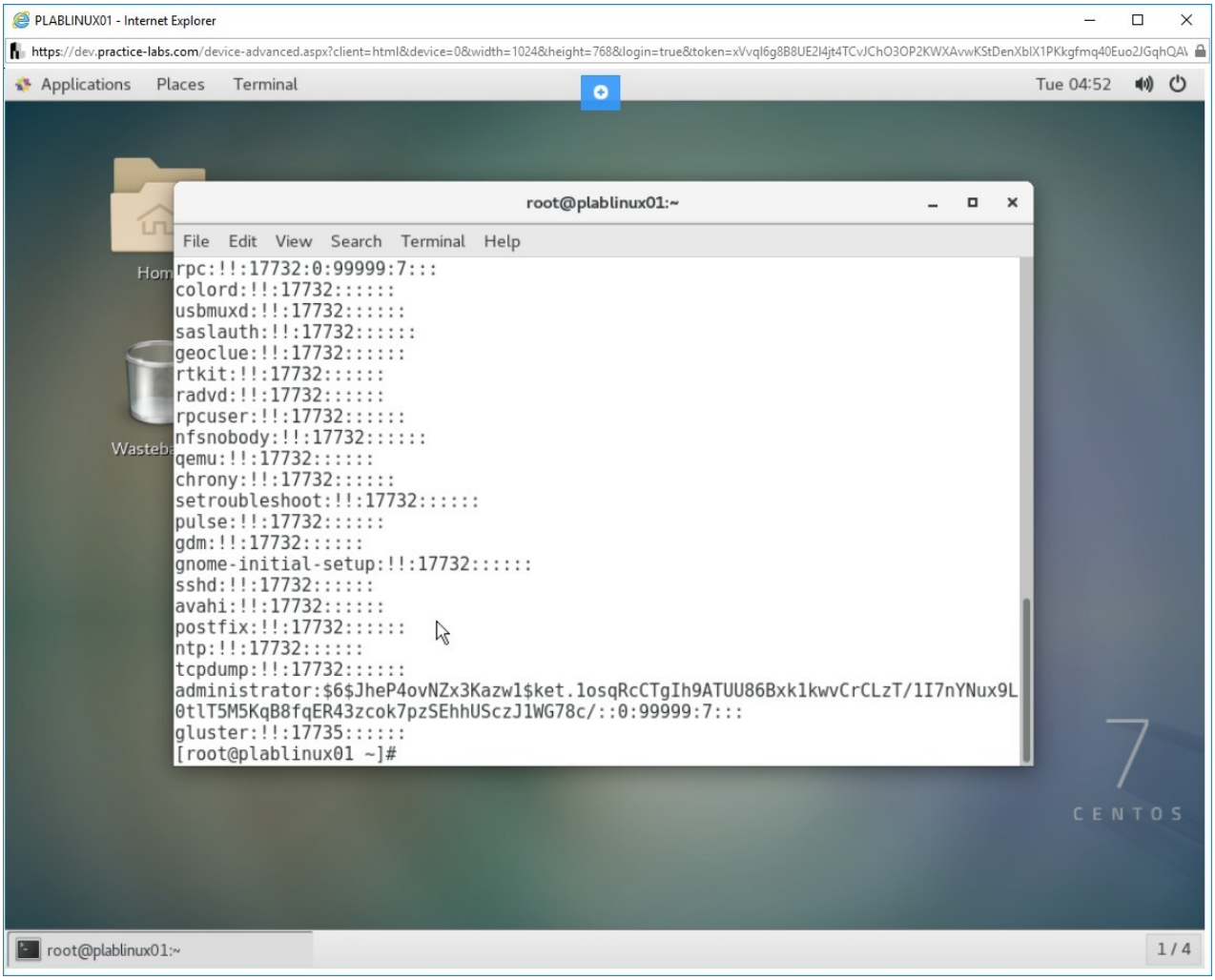


Figure 1.4 Screenshot of PLABLINUX01: Viewing the /etc/shadow file.

Step 5

Clear the screen by entering the following command:

```
clear
```

You can also disable logins into the system by creating the **/etc/nologin** file. By default, this file does not exist. If you create this file, only the root user will able to log

on to the system. Login access to the remaining users will be disabled. To do this, type the following command:

```
touch /etc/nologin
```

Press **Enter**.

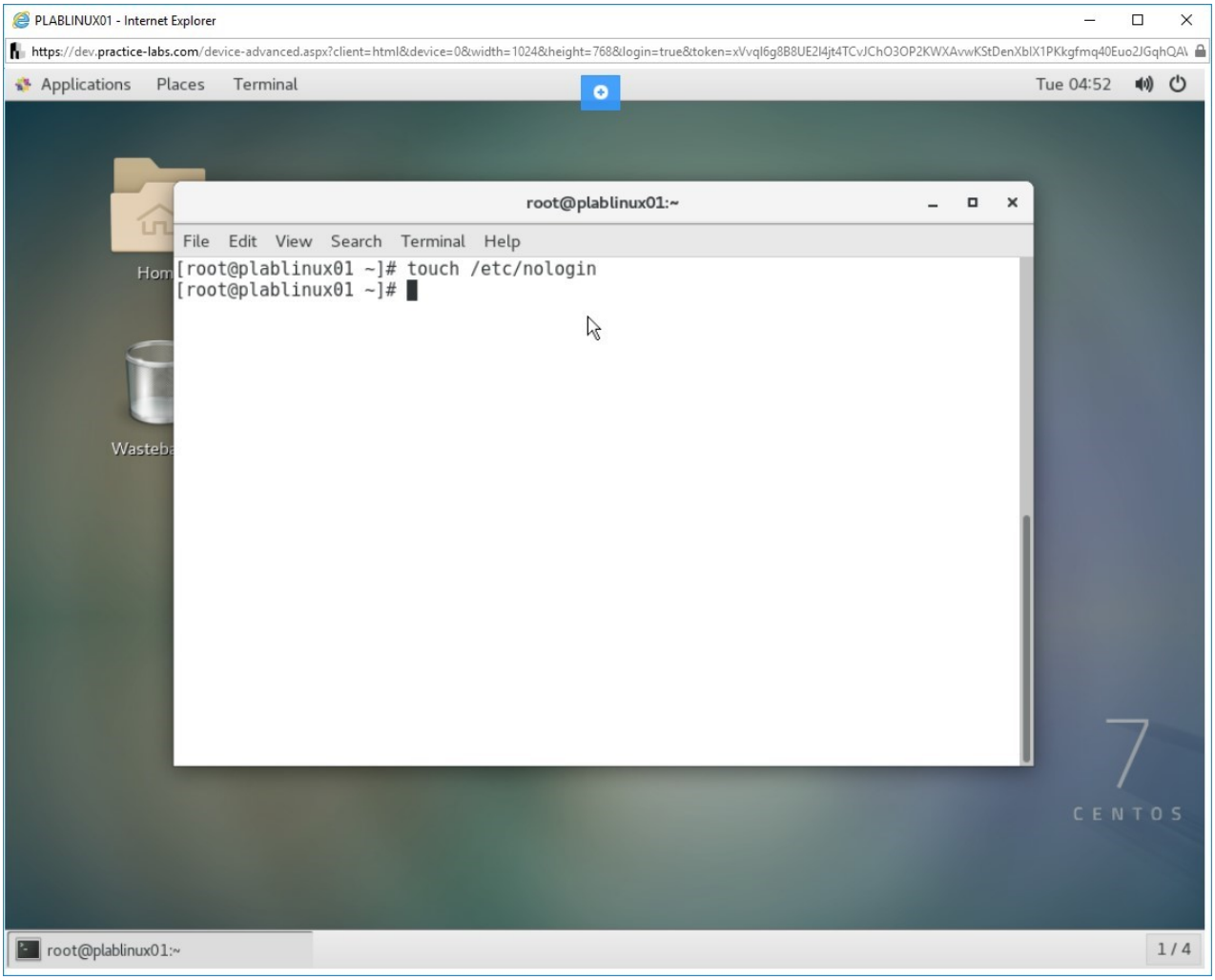


Figure 1.5 Screenshot of PLABLINUX01: Creating a new file named /etc/nologin with the touch command.

Step 6

The **/etc/nologin** file just needs to be there without anything inside it. To view the file, type the following command:

```
cat /etc/nologin
```

Press **Enter**.

Note that there are no contents in the file. It is blank.

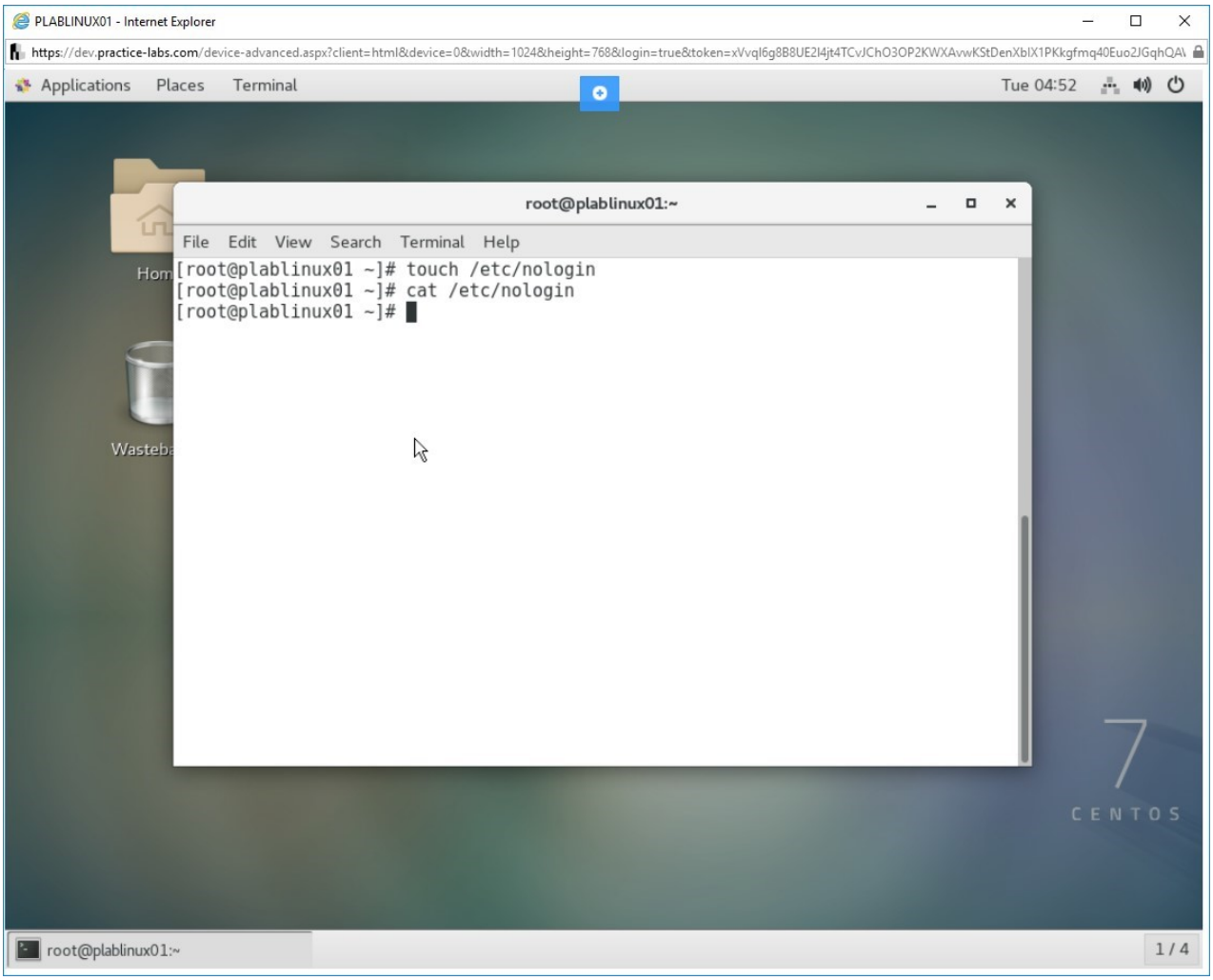


Figure 1.6 Screenshot of PLABLINUX01: Viewing the contents of the /etc/nologin file.

Task 2 - Turn off Network Services Not in Use

For system security sake, you should turn off the network services that are not in use. Turning off unnecessary services helps in two ways: reduces the system overhead and also prevents the system from hackers who may use these services to get into the system. To turn off the network services that are not in use, perform the following steps:

Step 1

Clear the screen by entering the following command:

```
clear
```

Let's first list the **SysV** services on **Centos**. Type the following command:

```
chkconfig --list
```

Press **Enter**.

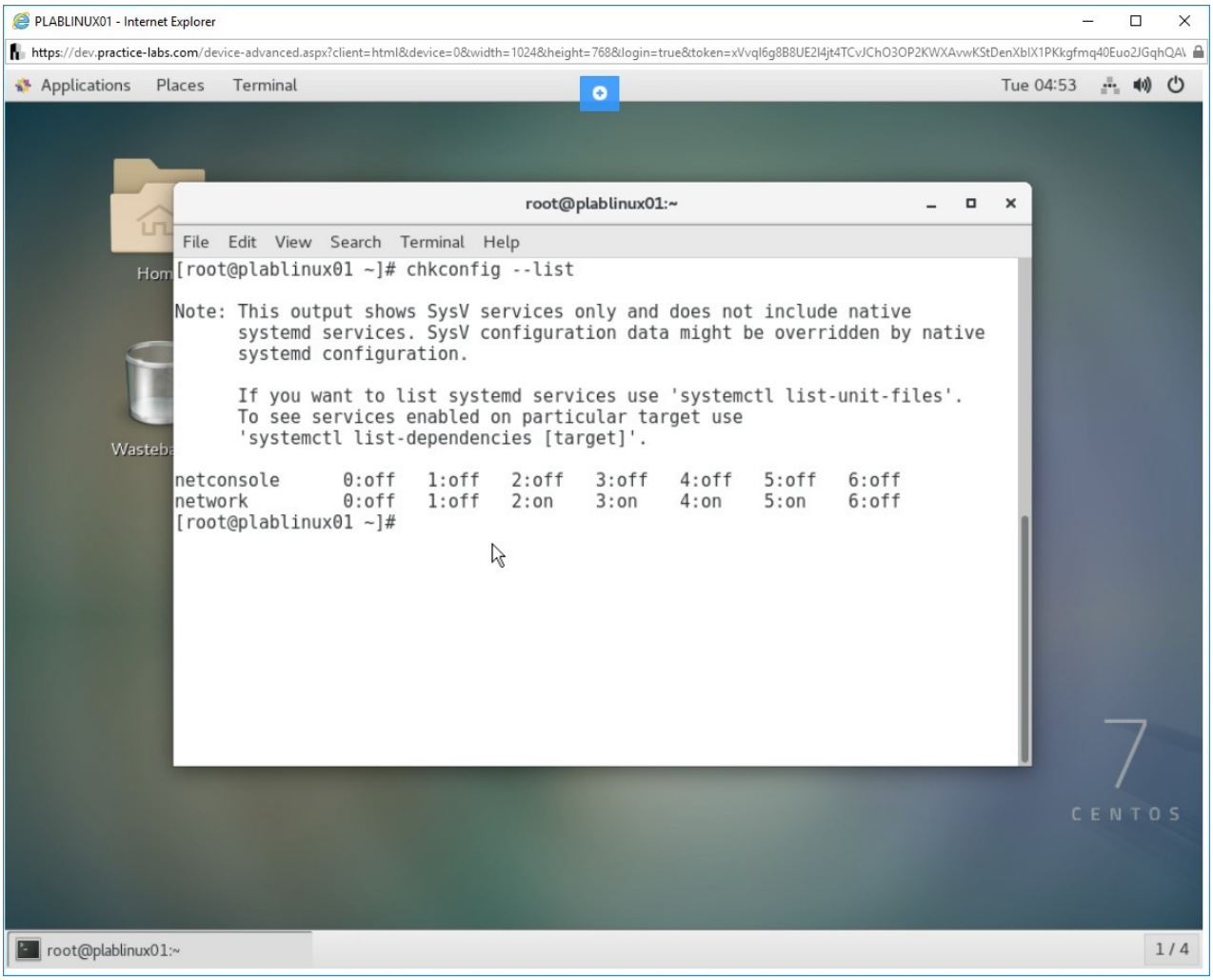


Figure 1.7 Screenshot of PLABLINUX01: Listing the SysV services on Centos.

Step 2

The **/etc/init.d** directory in a Linux system contains a number of scripts. These scripts essentially to help you start or stop various services and perform some other

actions on the services. Using this directory, you can perform the following tasks on a service:

- start
- stop
- reload
- restart
- force-reload

For example, you can stop the **netconsole** service that you may not require. Type the following command:

```
/etc/init.d/netconsole stop
```

Press **Enter**.

***Note**: The service is temporarily stopped for this session. When you log off and log in again, the service will be in the original state that has been defined for it. To define its permanent state, you have to define its runlevel in the **/etc/inittab** file.*

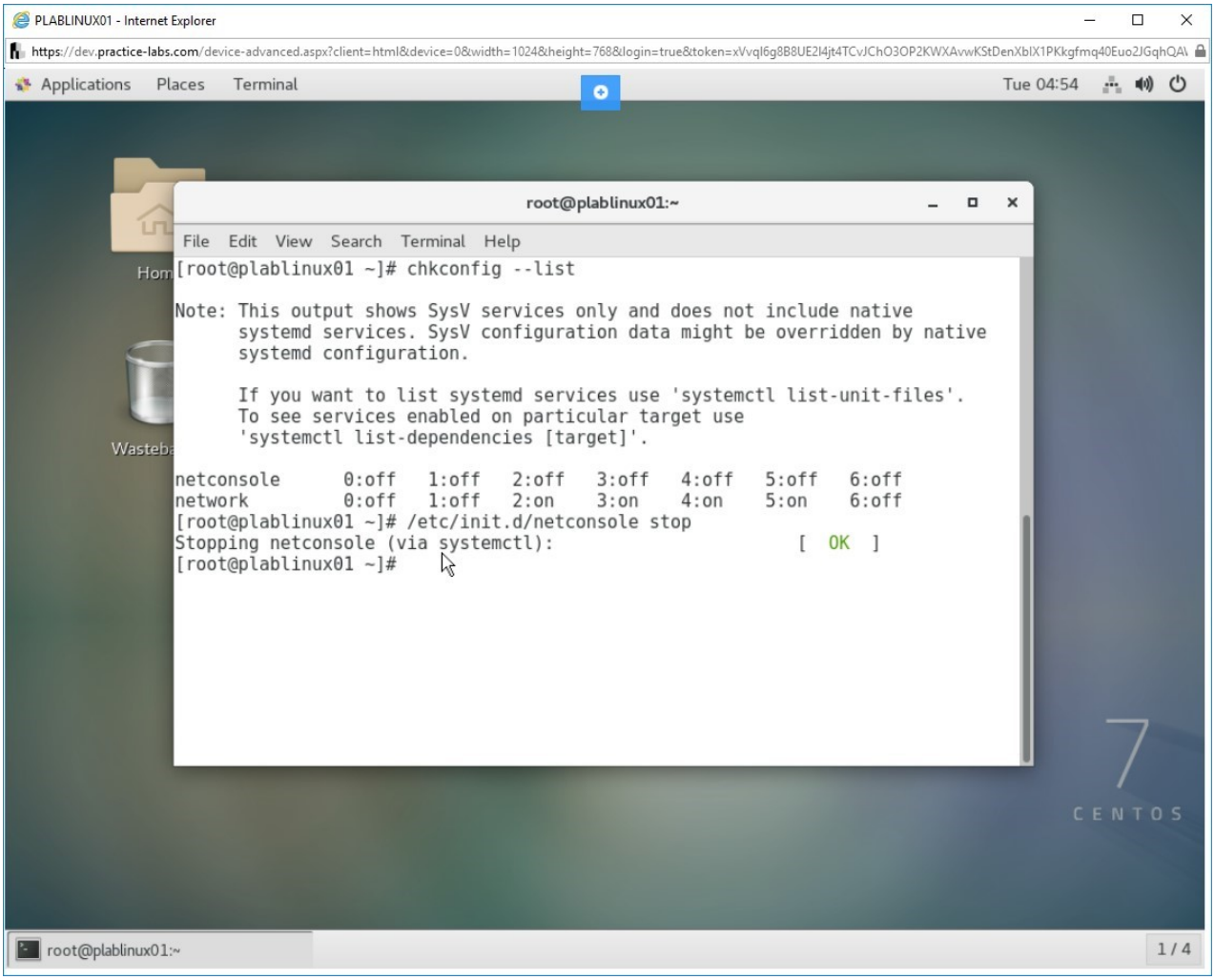


Figure 1.8 Screenshot of PLABLINUX01: Stopping the netconsole service.

Step 3

Clear the screen by entering the following command:

```
clear
```

You can check whether the **inetd** daemon is running on your system.

To do this, type the following command:

```
ps aux | grep inetd
```

Press **Enter**.

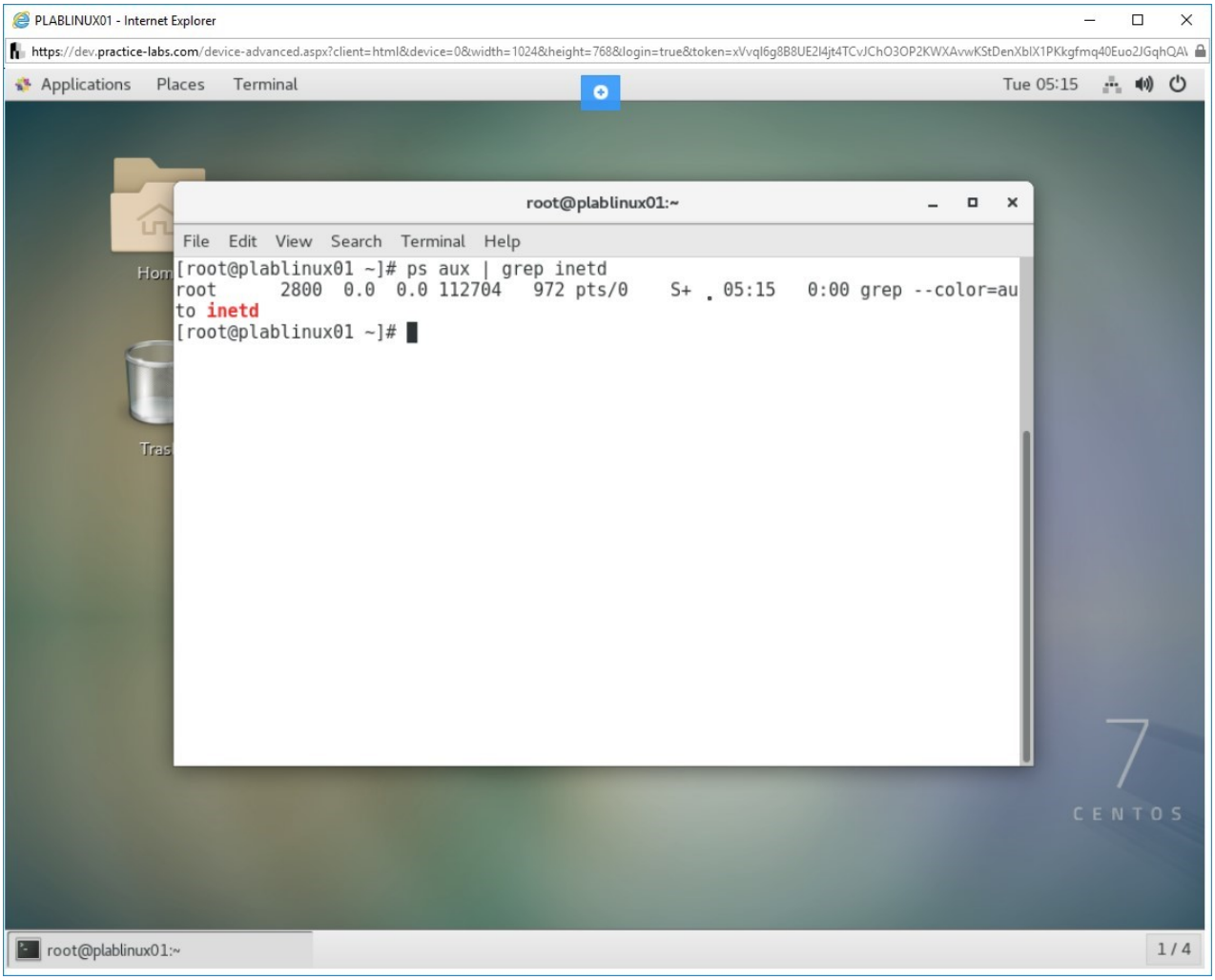


Figure 1.9 Screenshot of PLABLINUX01: Checking the status of the inetd daemon.

Step 4

To view the runlevel, you can browse through the **/etc/inittab** file. Type the following command:

```
cat /etc/inittab
```

Press **Enter**.

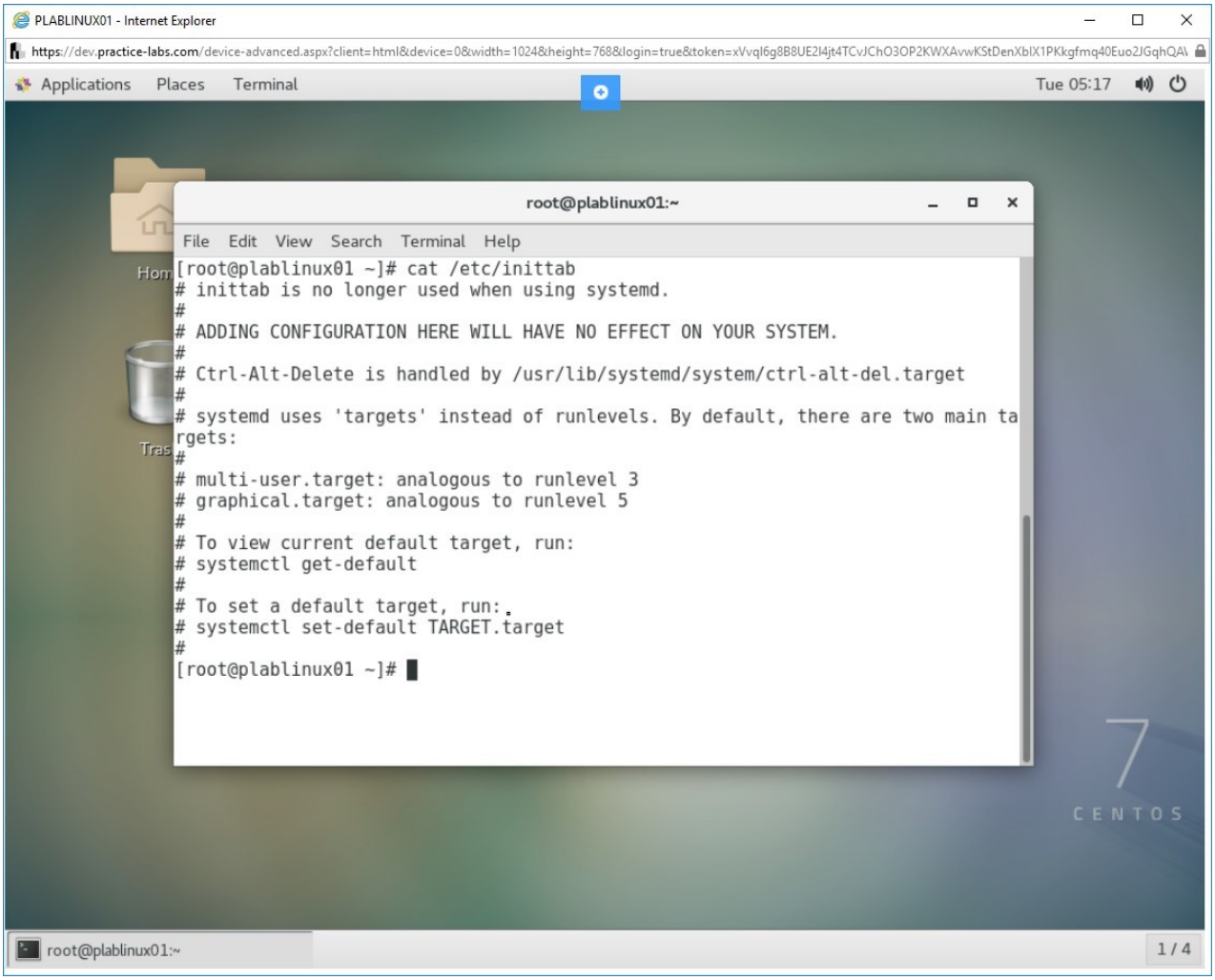


Figure 1.10 Screenshot of PLABLINUX01: Viewing the runlevel configuration in the /etc/inittab file.

Task 3 - Role of TCP Wrappers

For access control, **inetd** and **xinetd** files use the **TCP_WRAPPER service.** The **xinetd** binary file has built-in support for the **TCP_WRAPPERS**. **TCP_WRAPPERS** is configured in two different files. These files are:

- */etc/hosts.allow*
- */etc/hosts.deny*

By default, the **/etc/hosts.allow** file does not have any services added. If you add any service, such as **sshd** in this file, all the users will be able to access the service. However, all the other services will be blocked.

Similarly, no services are added to the **/etc/hosts.allow** file by default. Any service added to the **/etc/hosts.deny** file is denied access to all the users. However, the remaining services are available.

In this task, you will view the **/etc/hosts.allow** file and the **/etc/hosts.deny** file.

To understand the role of TCP wrappers, perform the following steps:

Step 1

Clear the screen by entering the following command:

```
clear
```

To view this file, type the following command:

```
more /etc/hosts.allow
```

Press **Enter**.

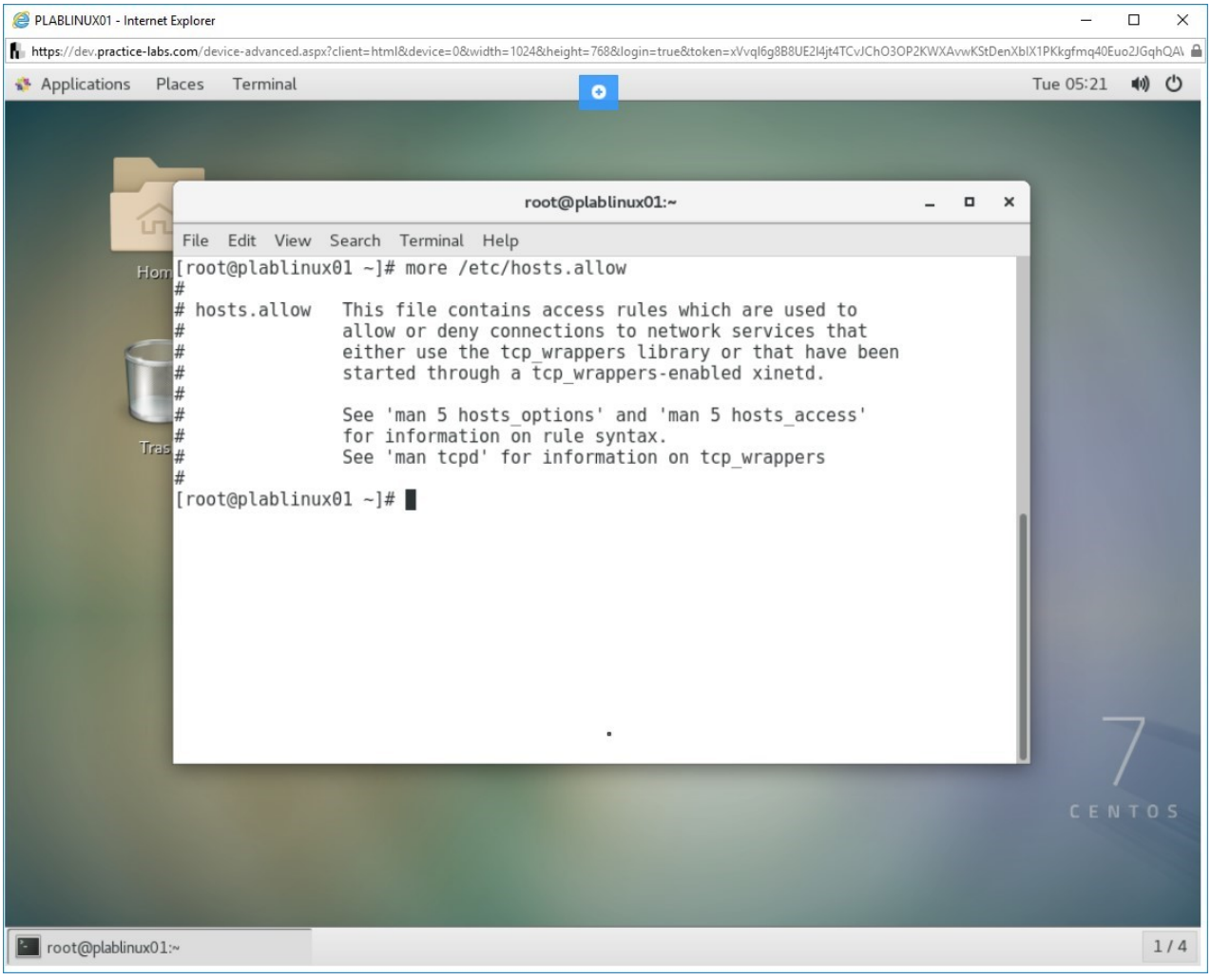


Figure 1.11 Screenshot of PLABLINUX01: Viewing the /etc/hosts.allow file.

Step 2

To view the **/etc/hosts.deny** file, type the following command:

```
more /etc/hosts.deny
```

Press **Enter**.

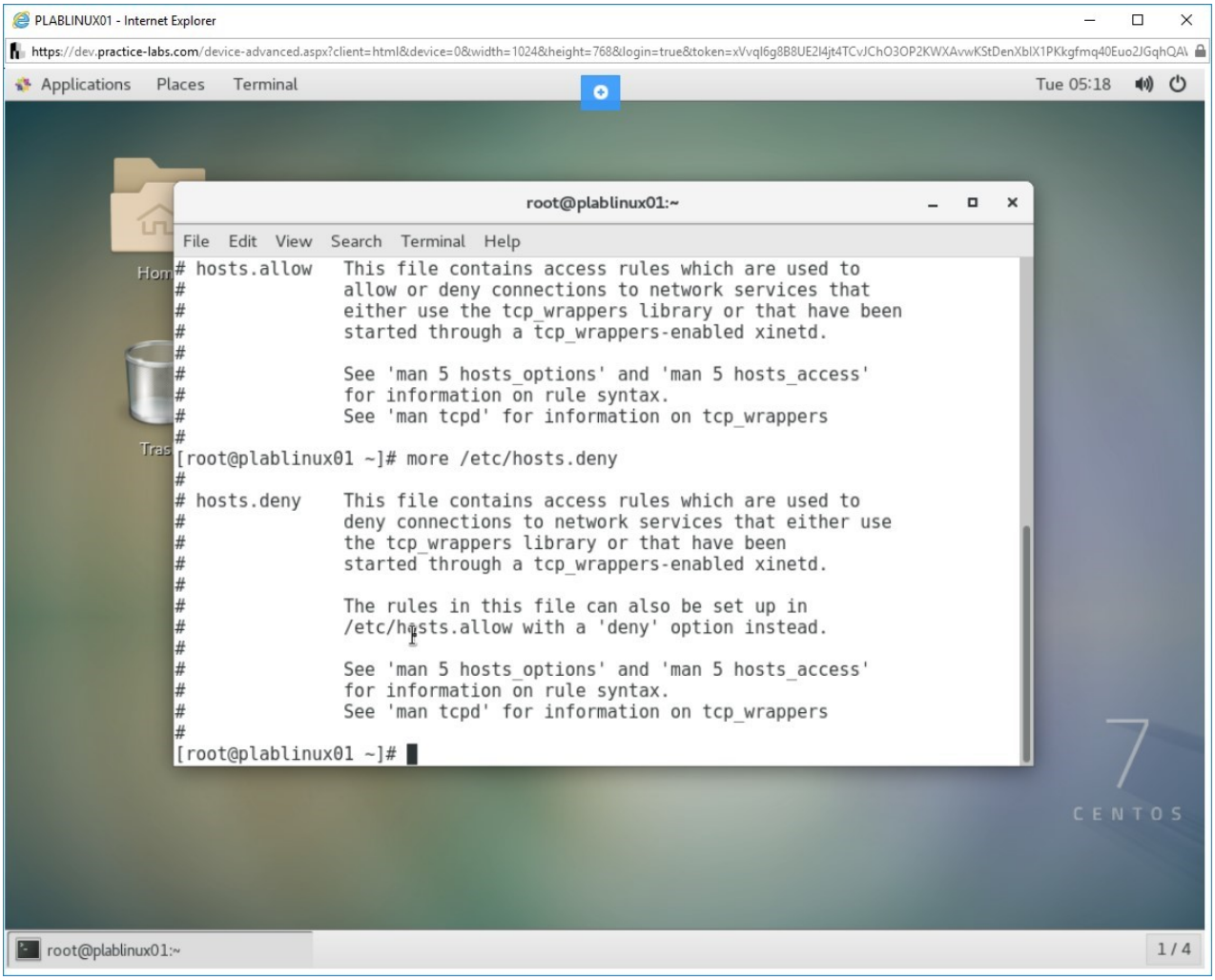


Figure 1.12 Screenshot of PLABLINUX01: Viewing the /etc/hosts.deny file.

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

Review

Well done, you have completed the **Setup Host Security** Practice Lab.

Summary

You completed the following exercise:

- Exercise 1 - Setup Host Security

You should now be able to:

- Shadow passwords
- Turn off network services not in use
- Role of TCP wrappers

Feedback

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