Chapter 12

Please complete all quizzes, guided exercises, and labs for each chapter. Insert YES for each completed quiz and your screenshots in appropriate locations for each guided exercise/lab

Did you complete Quiz: Describe Networking Concepts

Guided Exercise: Validate Network Configuration

In this exercise, you inspect the network configuration of one of your servers.

Outcomes

- Identify the current network interfaces and basic network addresses.

As the `student` user on the `workstation` machine, use the `lab` command to prepare your system for this exercise.

This command prepares your environment and ensures that all required resources are available.

```
[student@workstation ~]$ lab start net-validate
```

Procedure 12.1. Instructions

1. Use the `ssh` command to log in to `servera` as the `student` user. The systems are configured to use SSH keys for authentication and passwordless access to `servera`.

```
[student@workstation ~]$ ssh student@servera
...output omitted...
[student@servera ~]$
```

2. Locate the network interface name that is associated with the Ethernet address `52:54:00:00:fa:0a`. Record or remember this name and use it to replace the `enX` placeholder in subsequent commands.

Important

Network interface names are determined by their bus type and the detection order of devices during boot. Your network interface names will vary according to the course platform and hardware in use.

On your system, locate the interface name (such as `ens06` or `en1p2`) that is associated with the Ethernet address `52:54:00:00:fa:0a`. Use this interface name to replace the `enX` placeholder that is used throughout this exercise.

```
[student@servera ~]$ ip link
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default
qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
2: enX: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group
default qlen 1000
    link/ether 52:54:00:00:fa:0a brd ff:ff:ff:ff:ff:ff
```

3. Display the current IP address and netmask for all interfaces.

```
[student@servera ~]$ ip -br addr
lo               UP             127.0.0.1/8 ::1/128
enX:             UP             172.25.250.10/24 fe80::3059:5462:198:58b2/64
```

4. Display the statistics for the `enX` interface.

```
[student@servera ~]$ ip -s link show enX
2: enX: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP mode
DEFAULT group default qlen 1000
    link/ether 52:54:00:00:fa:0a brd ff:ff:ff:ff:ff:ff
    RX: bytes  packets  errors  dropped overrun mcast
    89014225   168251   0       154418  0       0
    TX: bytes  packets  errors  dropped carrier collsns
    608808     6090     0       0       0       0
```

5. Display the route information.

```
[student@servera ~]$ ip route
default via 172.25.250.254 dev enX proto static metric 100
172.25.250.0/24 dev enX proto kernel scope link src 172.25.250.10 metric 100
```

6. Verify that the router is accessible.

```
[student@servera ~]$ ping -c3 172.25.250.254
PING 172.25.250.254 (172.25.250.254) 56(84) bytes of data.
64 bytes from 172.25.250.254: icmp_seq=1 ttl=64 time=0.196 ms
64 bytes from 172.25.250.254: icmp_seq=2 ttl=64 time=0.436 ms
64 bytes from 172.25.250.254: icmp_seq=3 ttl=64 time=0.361 ms

--- 172.25.250.254 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 49ms
rtt min/avg/max/mdev = 0.196/0.331/0.436/0.100 ms
```

7. Show all the hops between the local system and `classroom.example.com`.

```
[student@servera ~]$ tracepath classroom.example.com
 1?: [LOCALHOST]                      pmtu 1500
 1:  bastion.lab.example.com                                0.337ms
 1:  bastion.lab.example.com                                0.122ms
 2:  172.25.254.254                                         0.602ms reached
     Resume: pmtu 1500 hops 2 back 2
```

8. Display the listening TCP sockets on the local system.

```
[student@servera ~]$ ss -lt
State      Recv-Q Send-Q      Local Address:Port         Peer Address:Port
LISTEN     0      128               0.0.0.0:sunrpc            0.0.0.0:*
LISTEN     0      128               0.0.0.0:ssh               0.0.0.0:*
LISTEN     0      128                  [::]:sunrpc               [::]:*
LISTEN     0      128                  [::]:ssh                  [::]:*
```

9. Return to the `workstation` system as the `student` user.

```
[student@servera ~]$ exit
logout
Connection to servera closed.
[student@workstation ~]$
```

Finish

On the `workstation` machine, change to the `student` user home directory and use the `lab` command to complete this exercise. This step is important to ensure that resources from previous exercises do not impact upcoming exercises.

```
[student@workstation ~]$ lab finish net-validate
```

This concludes the section.

Chapter 12

Guided Exercise: Configure Networking from the Command Line

In this exercise, you use the `nmcli` command to configure network settings.

Outcomes

- Update a network connection setting from DHCP to static.

As the `student` user on the `workstation` machine, use the `lab` command to prepare your system for this exercise.

This command prepares your environment and ensures that all required resources are available.

```
[student@workstation ~]$ lab start net-configure
```

Procedure 12.2. Instructions

1. Use the `ssh` command to log in to the `servera` machine as the `student` user.

   ```
   [student@workstation ~]$ ssh student@servera
   ```

```
...output omitted...
[student@servera ~]$ sudo -i
[sudo] password for student: student
[root@servera ~]#
```

2. Display the network interface information.

Important

Network interface names are determined by their bus type and the detection order of devices during boot. Your network interface names might vary according to the course platform and hardware in use.

On your system, locate the interface name (such as `eth1`, `ens06`, or `enp0p2`) that is associated with the Ethernet address `52:54:00:00:fa:0a`. Use this interface name to replace the `eth0` placeholder throughout this exercise if different.

Locate the network interface name that is associated with the Ethernet address `52:54:00:00:fa:0a`. Record or remember this name and use it to replace the `eth0` placeholder in subsequent commands.

```
[root@servera ~]# ip link
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN mode DEFAULT
group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP mode
DEFAULT group default qlen 1000
    link/ether 52:54:00:00:fa:0a brd ff:ff:ff:ff:ff:ff
    altname enp0s3
    altname ens3
```

3. Use the `nmcli` command to view network settings.
    1. Use the `nmcli con show` to display all connections.

```
[root@servera ~]# nmcli con show
NAME         UUID                                  TYPE      DEVICE
System eth0  5fb06bd0-0bb0-7ffb-45f1-d6edd65f3e03  ethernet  eth0
System eth1  9c92fad9-6ecb-3e6c-eb4d-8a47c6f50c04  ethernet  --
```

    2. Use the `nmcli con show --active` command to display only the active connections.

       Your network interface name should appear under the `DEVICE` column of the output, and the name of the active connection for that device is listed under the `NAME` column. This exercise

assumes that the active connection is called `System eth0`. If the name of the active connection is different, then use that name instead of `System eth0` for the rest of this exercise.

```
[root@servera ~]# nmcli con show --active
NAME             UUID                                  TYPE       DEVICE
System eth0  03da038a-3257-4722-a478-53055cc90128  ethernet  eth0
```

3. Display all configuration settings for the active connection.

```
[root@servera ~]# nmcli con show "System eth0"
connection.id:                          System eth0
connection.uuid:                        5fb06bd0-0bb0-7ffb-45f1-d6edd65f3e03
connection.stable-id:                   --
connection.type:                        802-3-ethernet
connection.interface-name:              eth0
connection.autoconnect:                 yes
...output omitted...
ipv4.method:                            manual
ipv4.dns:                               172.25.250.254,2.2.2.2
ipv4.dns-search:                        lab.example.com,example.com
ipv4.dns-options:                       --
ipv4.dns-priority:                      0
ipv4.addresses:                         172.25.250.10/24
ipv4.gateway:                           172.25.250.254
...output omitted...
ipv6.method:                            ignore
ipv6.dns:                               --
ipv6.dns-search:                        --
ipv6.dns-options:                       --
ipv6.dns-priority:                      0
ipv6.addresses:                         --
ipv6.gateway:                           --
ipv6.routes:                            --
...output omitted...
GENERAL.NAME:                           System eth0
GENERAL.UUID:                           5fb06bd0-0bb0-7ffb-45f1-d6edd65f3e03
GENERAL.DEVICES:                        eth0
GENERAL.IP-IFACE:                       eth0
GENERAL.STATE:                          activated
GENERAL.DEFAULT:                        yes
```

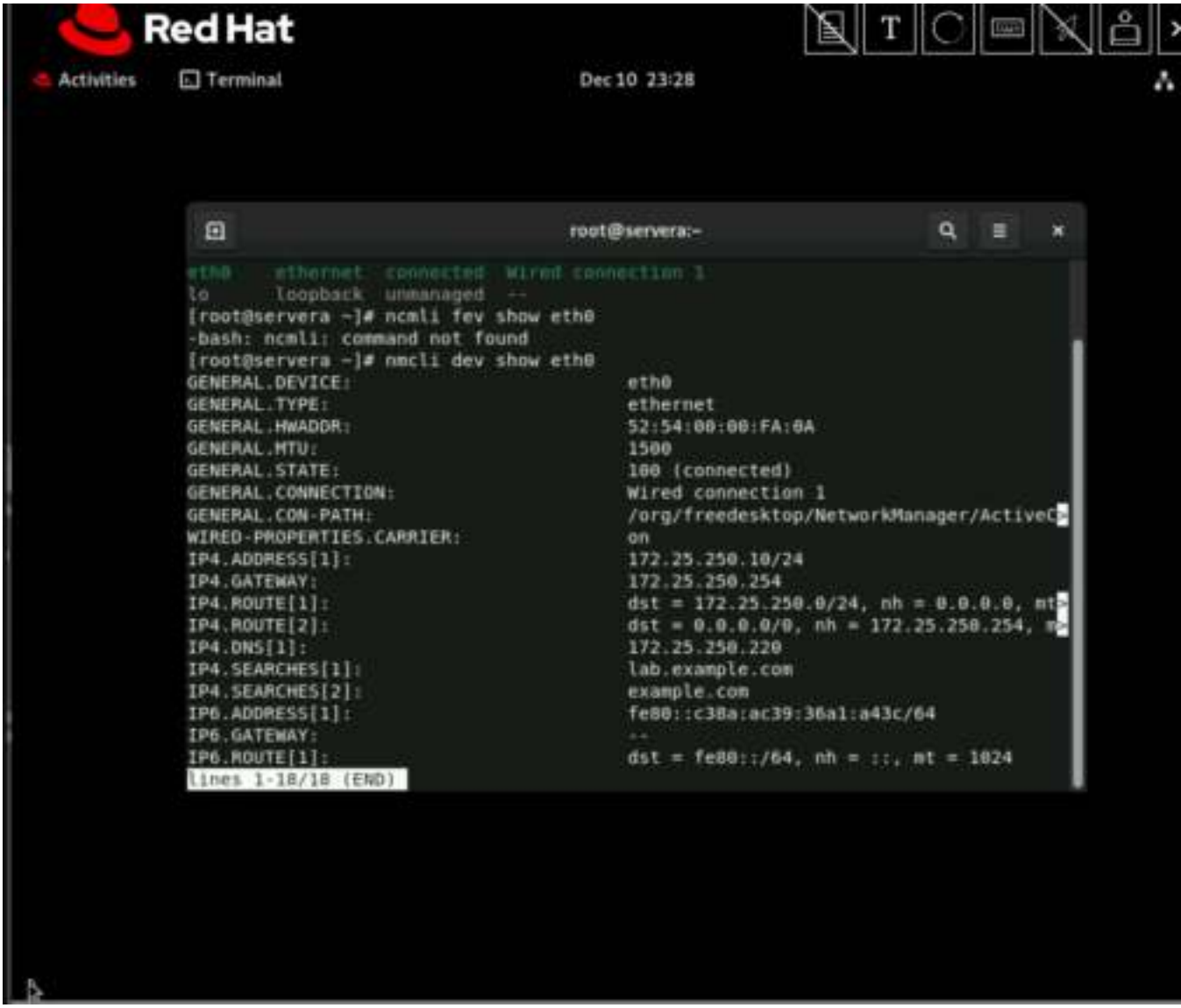
4. Show the device status.

```
[root@servera ~]# nmcli dev status
DEVICE  TYPE      STATE      CONNECTION
eth0    ethernet  connected  System eth0
lo      loopback  unmanaged  --
```

5. Display the settings for the `eth0` device.

```
[root@servera ~]# nmcli dev show eth0
GENERAL.DEVICE:                         eth0
GENERAL.TYPE:                           ethernet
GENERAL.HWADDR:                         52:54:00:00:FA:0A
GENERAL.MTU:                            1500
GENERAL.STATE:                          100 (connected)
GENERAL.CONNECTION:                     System eth0
GENERAL.CON-PATH:
/org/freedesktop/NetworkManager/ActiveConnection/3
```

```
WIRED-PROPERTIES.CARRIER:    on
IP4.ADDRESS[1]:              172.25.250.10/24
IP4.GATEWAY:                 172.25.250.254
IP4.ROUTE[1]:                dst = 172.25.250.0/24, nh = 0.0.0.0, mt = 100
IP4.ROUTE[2]:                dst = 0.0.0.0/0, nh = 172.25.250.254, mt = 100
IP4.DNS[1]:                  172.25.250.254
IP4.SEARCHES[1]:             lab.example.com
IP4.SEARCHES[2]:             example.com
IP6.ADDRESS[1]:              fe80::5054:ff:fe00:fa0a/64
IP6.GATEWAY:                 --
IP6.ROUTE[1]:                dst = fe80::/64, nh = ::, mt = 256
```



4. Create a static connection with the same IPv4 address, network prefix, and default gateway as the active connection. Name the new connection `static-addr`.

Warning

Because access to your machine is provided over the primary network connection, setting incorrect values during network configuration might make your machine unreachable. If you machine is unreachable, then use the Reset button above what used to be your machine's graphical display and try again.

```
[root@servera ~]# nmcli con add con-name static-addr \
ifname eth0 type ethernet ipv4.method manual \
ipv4.addresses 172.25.250.10/24 ipv4.gateway 172.25.250.254
Connection 'static-addr' (c242697d-498e-481c-b974-5ae11d2a0291) successfully added.
```

5. Modify the new connection to add the DNS setting.

```
[root@servera ~]# nmcli con mod static-addr ipv4.dns 172.25.250.254
```

6. Display and activate the new connection.
    1. View all connections.

```
[root@servera ~]# nmcli con show
NAME         UUID                                  TYPE      DEVICE
System eth0  5fb06bd0-0bb0-7ffb-45f1-d6edd65f3e03  ethernet  eth0
static-addr  e4cf52d3-40fc-41b3-b5e8-cf280157f3bb  ethernet  --
System eth1  9c92fad9-6ecb-3e6c-eb4d-8a47c6f50c04  ethernet  --
```

    2. View the active connections.

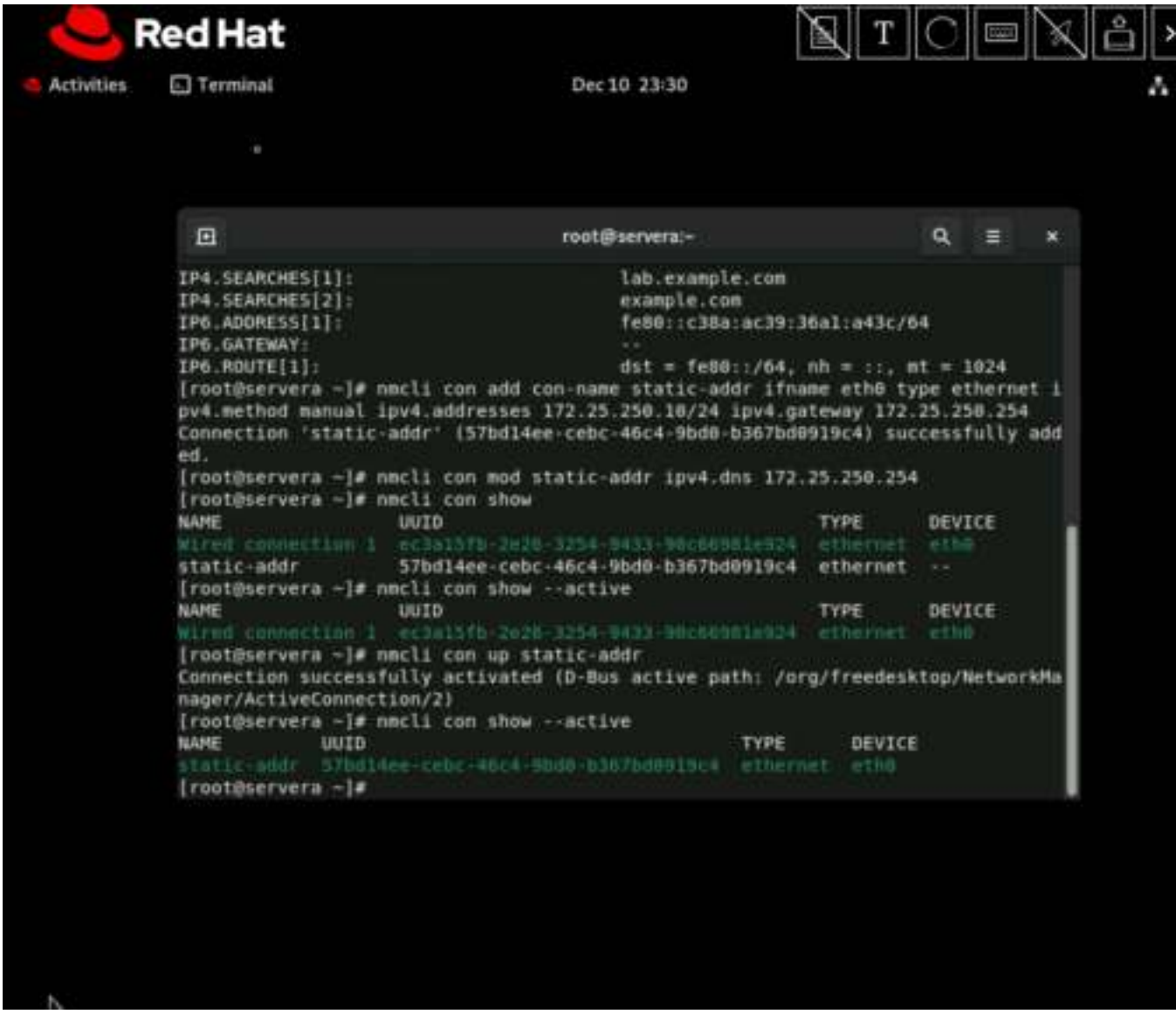
```
[root@servera ~]# nmcli con show --active
NAME         UUID                                  TYPE      DEVICE
System eth0  5fb06bd0-0bb0-7ffb-45f1-d6edd65f3e03  ethernet  eth0
```

    3. Activate the new `static-addr` connection.

```
[root@servera ~]# nmcli con up static-addr
Connection successfully activated (D-Bus active path:
/org/freedesktop/NetworkManager/ActiveConnection/4)
```

4. Verify the new active connection.

```
[root@servera ~]# nmcli con show --active
NAME         UUID                                  TYPE      DEVICE
static-addr  e4cf52d3-40fc-41b3-b5e8-cf280157f3bb  ethernet  eth0
```



7. Update the previous connection so that it does not start at boot. Verify that the `static-addr` connection is used when the system reboots.
    1. Disable the original connection so that it does not start automatically at boot.

```
[root@servera ~]# nmcli con mod "System eth0" \
connection.autoconnect no
```

    2. Reboot the system.

```
[root@servera ~]# systemctl reboot
Connection to servera closed by remote host.
Connection to servera closed.
[student@workstation ~]$
```

3. Log in to the `servera` machine and verify that the `static-addr` connection is the active connection.

```
[student@workstation ~]$ ssh student@servera
[student@servera ~]$ nmcli con show --active
NAME         UUID                                  TYPE      DEVICE
static-addr  e4cf52d3-40fc-41b3-b5e8-cf280157f3bb  ethernet  eth0
```

8. Test connectivity by using the new network addresses.
    1. Verify the IP address.

```
[student@servera ~]$ ip -br addr show eth0
eth0             UP             172.25.250.10/24 fe80::47cd:2076:4a6b:e730/64
```

    2. Verify the default gateway.

```
[student@servera ~]$ ip route
default via 172.25.250.254 dev eth0 proto static metric 100
172.25.250.0/24 dev eth0 proto kernel scope link src 172.25.250.10 metric 100
```

    3. Ping the DNS address.

```
[student@servera ~]$ ping -c3 172.25.250.254
PING 172.25.250.254 (172.25.250.254) 56(84) bytes of data.
64 bytes from 172.25.250.254: icmp_seq=1 ttl=64 time=0.669 ms
64 bytes from 172.25.250.254: icmp_seq=2 ttl=64 time=0.294 ms
64 bytes from 172.25.250.254: icmp_seq=3 ttl=64 time=0.283 ms

--- 172.25.250.254 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2035ms
rtt min/avg/max/mdev = 0.283/0.415/0.669/0.179 ms
```

4. Return to the `workstation` system as the `student` user.

```
[student@servera ~]$ exit
logout
Connection to servera closed.
[student@workstation ~]$
```

Finish

On the `workstation` machine, change to the `student` user home directory and use the `lab` command to complete this exercise. This step is important to ensure that resources from previous exercises do not impact upcoming exercises.

```
[student@workstation ~]$ lab finish net-configure
```

This concludes the section.

Chapter 12

Guided Exercise: Edit Network Configuration Files

In this exercise, you manually modify network configuration files and ensure that the new settings take effect.

Outcomes

- Configure additional network addresses on each system.

As the `student` user on the `workstation` machine, use the `lab` command to prepare your system for this exercise.

This command prepares your environment and ensures that all required resources are available.

```
[student@workstation ~]$ lab start net-edit
```

Procedure 12.3. Instructions

1. On the `workstation` machine, use the `ssh` command to log in to the `servera` machine as the `student` user.

   ```
   [student@workstation ~]$ ssh student@servera
   ...output omitted...
   [student@servera ~]$
   ```

2. Locate network interface names with the `ip link` command.

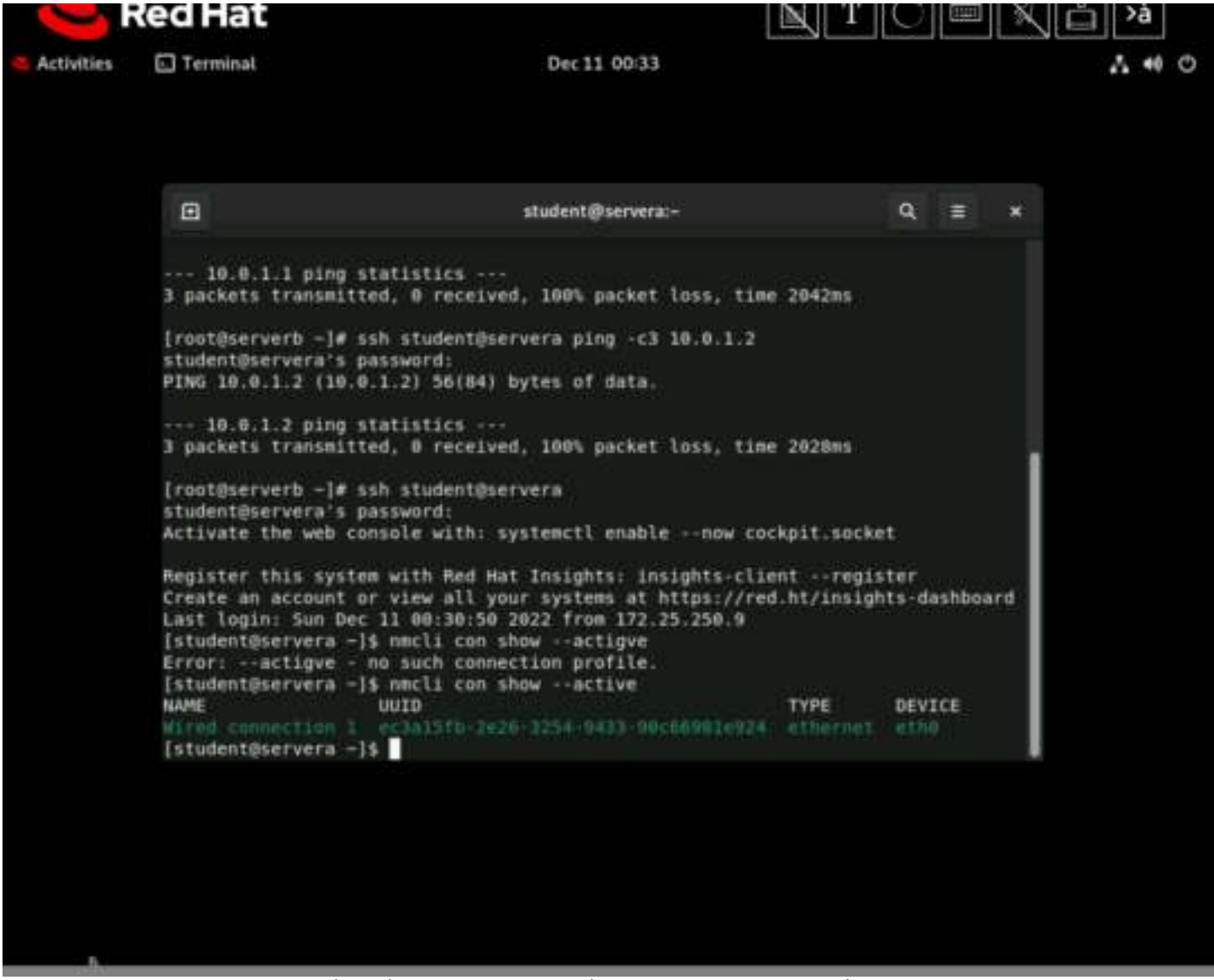
Important

Network interface names are determined by their bus type and the detection order of devices during boot. Your network interface names might vary according to the course platform and hardware in use.

Locate the network interface name that is associated with the Ethernet address on your system. Record or remember this name and use it to replace the `enX` placeholder in subsequent commands. The active connection is called `Wired connection 1` and the configuration is in the `/etc/NetworkManager/system-connections/"Wired connection 1.nmconnection"` file.

```
[student@servera ~]$ ip link
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN mode DEFAULT
group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP mode
DEFAULT group default qlen 1000
    link/ether 52:54:00:00:fa:0a brd ff:ff:ff:ff:ff:ff
```

```
    altname enp0s3
    altname ens3
[student@servera ~]$ nmcli con show --active
NAME                UUID                                  TYPE      DEVICE
Wired connection 1  a98933fa-25c0-36a2-b3cd-c056f41758fe  ethernet  eth0
```




```
[student@servera ~]$ ls /etc/NetworkManager/system-connections/
'Wired connection 1.nmconnection'
```

3. On the `servera` machine, switch to the `root` user, and then edit the `/etc/NetworkManager/system-connections/"Wired connection 1.nmconnection"` file to add the `10.0.1.1/24` address.
    1. Use the `sudo -i` command to switch to the `root` user.

    ```
    [student@servera ~]$ sudo -i
    [sudo] password for student: student
    [root@servera ~]#
    ```

    2. Edit the configuration file. Add the `10.0.1.1/24` address as the second address below the first address in the file.

    ```
    [root@servera ~]# vim /etc/NetworkManager/system-connections/"Wired
    connection 1.nmconnection"
    ..output omitted...
    [ipv4]
    address1=172.25.250.10/24,172.25.250.254
    address2=10.0.1.1/24
    ...output omitted...
    ```

4. Activate the new network address with the `nmcli` command.
    1. Reload the configuration changes for NetworkManager to read the changes.

```
[root@servera ~]# nmcli con reload
```

    2. Activate the connection with the changes.

```
[root@servera ~]# nmcli con up "Wired connection 1"
Connection successfully activated (D-Bus active path:
/org/freedesktop/NetworkManager/ActiveConnection/2)
```

5. Verify that the new IP address is assigned successfully.

```
[root@servera ~]# ip -br addr show enX
eth0:       UP       172.25.250.10/24 10.0.1.1/24 fe80::6fed:5a11:4ad4:1bcf/64
```

6. Return to the `workstation` machine as the `student` user.

```
[root@servera ~]# exit
logout
[student@servera ~]$ exit
logout
Connection to servera closed.
[student@workstation ~]$
```

7. On the `serverb` machine, edit the `/etc/NetworkManager/system-connections/"Wired connection 1.nmconnection"` file to add an address of `10.0.1.2/24` and load the new configuration.
    1. Log in to the `servera` machine as the `student` user and switch to the `root` user.

```
[student@workstation ~]$ ssh student@serverb
...output omitted...
[student@serverb ~]$ sudo -i
[sudo] password for student: student
[root@serverb ~]#
```

2. Edit the configuration file. Add the `10.0.1.2/24` address as the second address below the first address in the file.

```
[root@serverb ~]# vim /etc/NetworkManager/system-connections/"Wired
connection 1.nmconnection"
address1=172.25.250.11/24,172.25.250.254
address2=10.0.1.2/24
```

3. Reload the configuration changes for NetworkManager to read the changes.

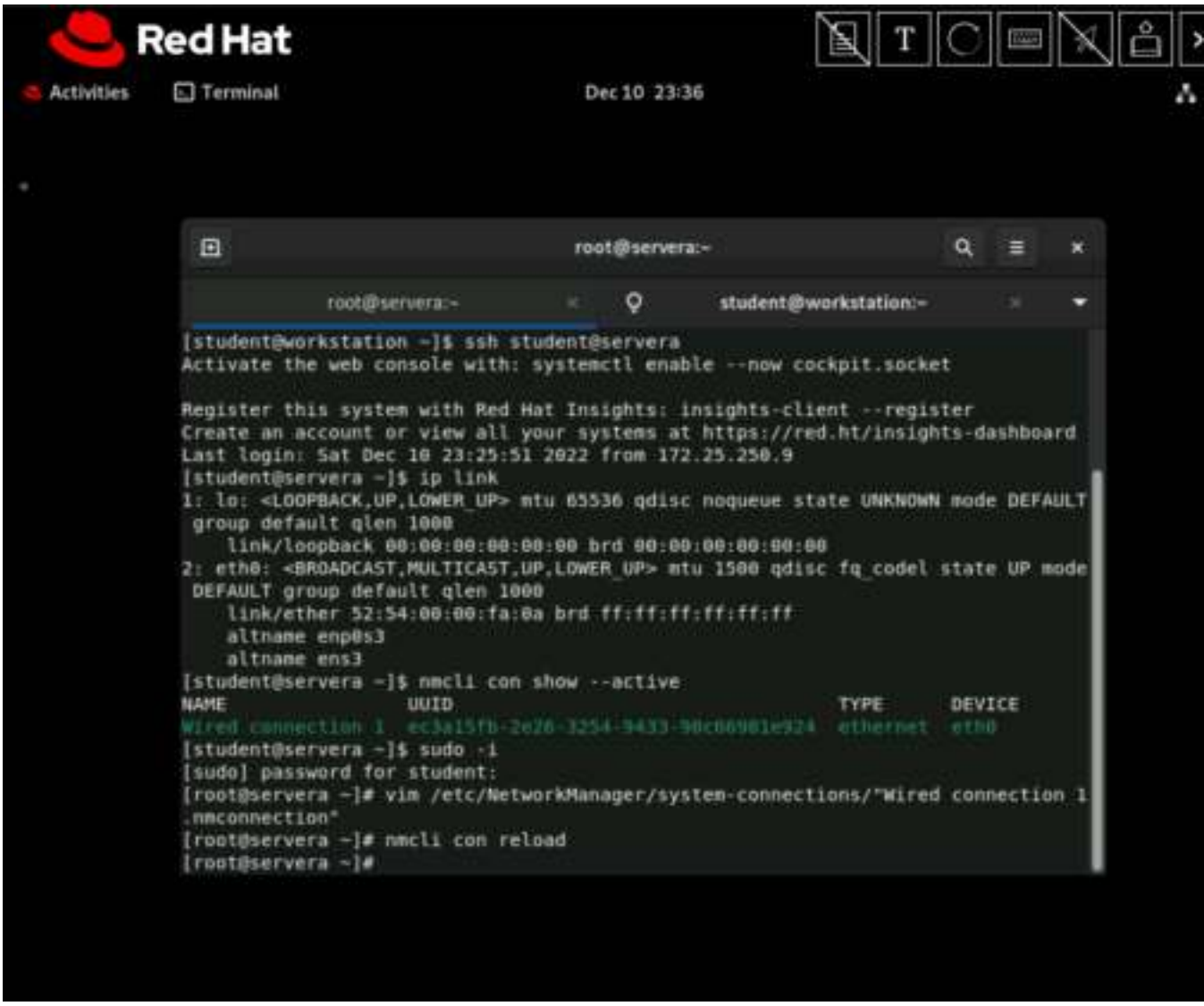
```
[root@serverb ~]# nmcli con reload
```

4. Activate the connection with the changes.

```
[root@serverb ~]# nmcli con up "Wired connection 1"
Connection successfully activated (D-Bus active path:
/org/freedesktop/NetworkManager/ActiveConnection/2)
```

5. Verify that the new IP address is assigned successfully.

```
[root@serverb ~]# ip -br addr show enX
eth0             UP             172.25.250.11/24 10.0.1.2/24 fe80::6be8:6651:4280:892c/64
```



8. Test connectivity between the `servera` and `serverb` machines by using the new network addresses.
    1. From the `serverb` machine, ping the new address of the `servera` machine.

```
[root@serverb ~]# ping -c3 10.0.1.1
PING 10.0.1.1 (10.0.1.1) 56(84) bytes of data.
64 bytes from 10.0.1.1: icmp_seq=1 ttl=64 time=1.30 ms
64 bytes from 10.0.1.1: icmp_seq=2 ttl=64 time=0.983 ms
64 bytes from 10.0.1.1: icmp_seq=3 ttl=64 time=0.312 ms

--- 10.0.1.1 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2003ms
rtt min/avg/max/mdev = 0.312/0.864/1.297/0.410 ms
```

    2. Return to the `workstation` machine as the `student` user.

```
[root@serverb ~]# exit
logout
[student@serverb ~]$ exit
logout
Connection to serverb closed.
```

```
[student@workstation ~]$
```

3. Access the `servera` machine as the `student` user to ping the new address of the `serverb` machine.

```
[student@workstation ~]$ ssh student@servera ping -c3 10.0.1.2
PING 10.0.1.2 (10.0.1.2) 56(84) bytes of data.
64 bytes from 10.0.1.2: icmp_seq=1 ttl=64 time=0.876 ms
64 bytes from 10.0.1.2: icmp_seq=2 ttl=64 time=0.310 ms
64 bytes from 10.0.1.2: icmp_seq=3 ttl=64 time=0.289 ms

--- 10.0.1.2 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2047ms
rtt min/avg/max/mdev = 0.289/0.491/0.876/0.271 ms
```

Finish

On the `workstation` machine, change to the `student` user home directory and use the `lab` command to complete this exercise. This step is important to ensure that resources from previous exercises do not impact upcoming exercises.

```
[student@workstation ~]$ lab finish net-edit
```

This concludes the section.

Chapter 12


Red Hat
Activities
Terminal
Dec 11 00:38
student@workstation:~
nmconnection"
[root@serverb ~]# sudo vim /etc/NetworkManger/system-connections/"Wired connecti
on 1.nmconnection"
[root@serverb ~]# lab finish net-edit
-bash: lab: command not found
[root@serverb ~]# exit
logout
[student@serverb ~]$ exit
logout
Connection to serverb closed.
[student@servera ~]$ exit
logout
Connection to servera closed.
[root@serverb ~]# exit
logout
Connection to serverb closed.
[student@servera ~]$ exit
logout
Connection to servera closed.
[student@workstation ~]$ lab finish net-edit
Finishing lab.
· Checking lab systems ..... SUCCESS

Guided Exercise: Configure Hostnames and Name Resolution

In this exercise, you manually configure the system's static hostname, `/etc/hosts` file, and DNS name resolver.

Outcomes

- Set a customized hostname.
- Configure name resolution settings.

As the `student` user on the `workstation` machine, use the `lab` command to prepare your system for this exercise.

This command ensures that all required resources are available.

```
[student@workstation ~]$ lab start net-hostnames
```

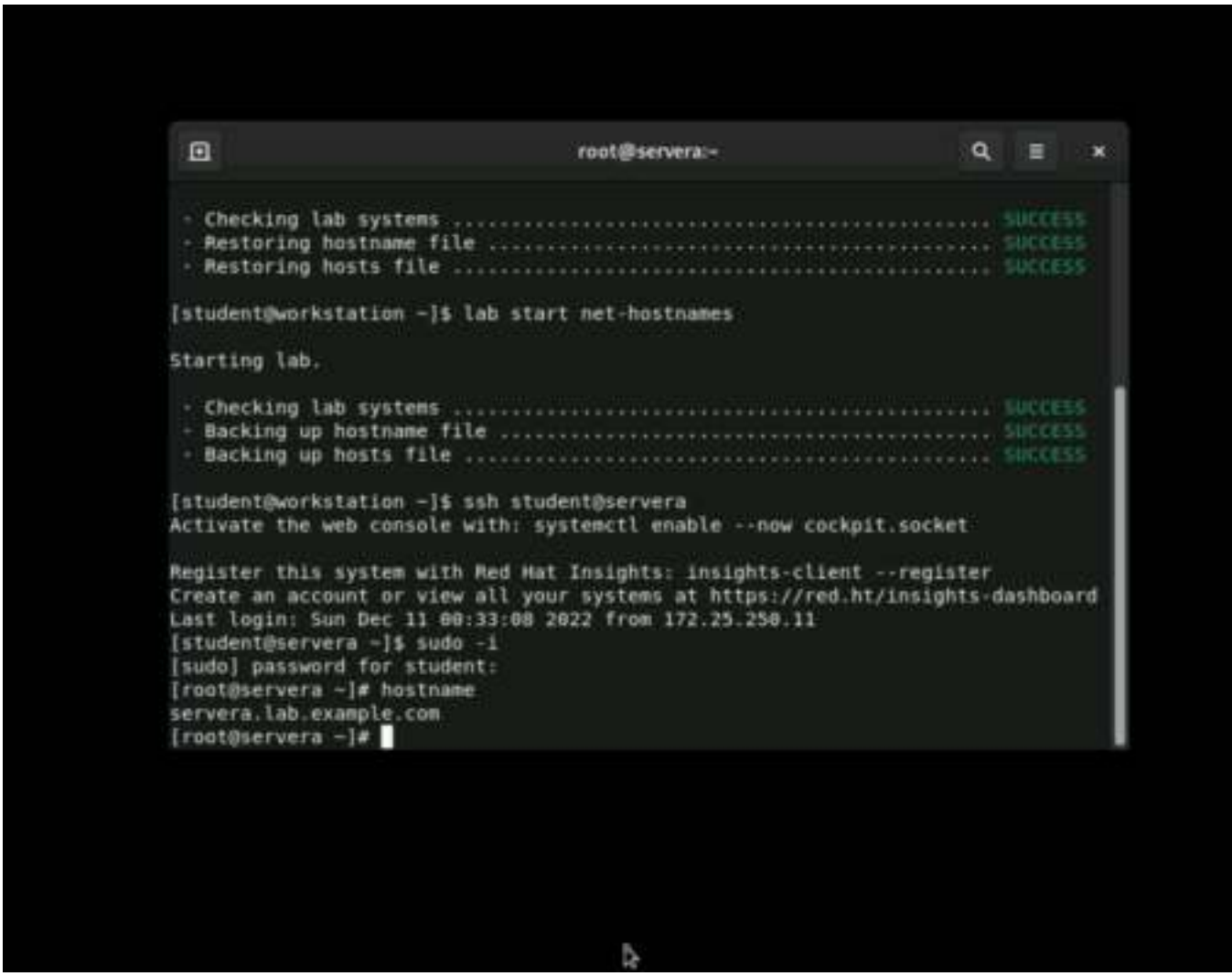
Procedure 12.4. Instructions

1. Log in to `servera` as the `student` user and switch to `root` user.

```
[student@workstation ~]$ ssh student@servera
...output omitted...
[student@servera ~]$ sudo -i
[sudo] password for student: student
[root@servera ~]#
```

2. View the current hostname settings.
    1. Display the current hostname.

```
[root@servera ~]# hostname
servera.lab.example.com
```



2. Display the hostname status. Note the transient hostname that is obtained from DHCP or mDNS.

```
[root@servera ~]# hostnamectl status
   Static hostname: n/a
Transient hostname: servera.lab.example.com
         Icon name: computer-vm
           Chassis: vm
        Machine ID: 63b272eae8d5443ca7aaa5593479b25f
           Boot ID: ef299e0e957041ee81d0617fc98ce5ef
    Virtualization: kvm
  Operating System: Red Hat Enterprise Linux 9.0 (Plow)
       CPE OS Name: cpe:/o:redhat:enterprise_linux:9::baseos
            Kernel: Linux 5.14.0-70.el9.x86_64
      Architecture: x86-64
   Hardware Vendor: Red Hat
    Hardware Model: OpenStack Compute
```

3. Set a static hostname to match the current transient hostname.
    1. Change the hostname and the hostname configuration file.

```
[root@servera ~]# hostnamectl set-hostname \
servera.lab.example.com
```

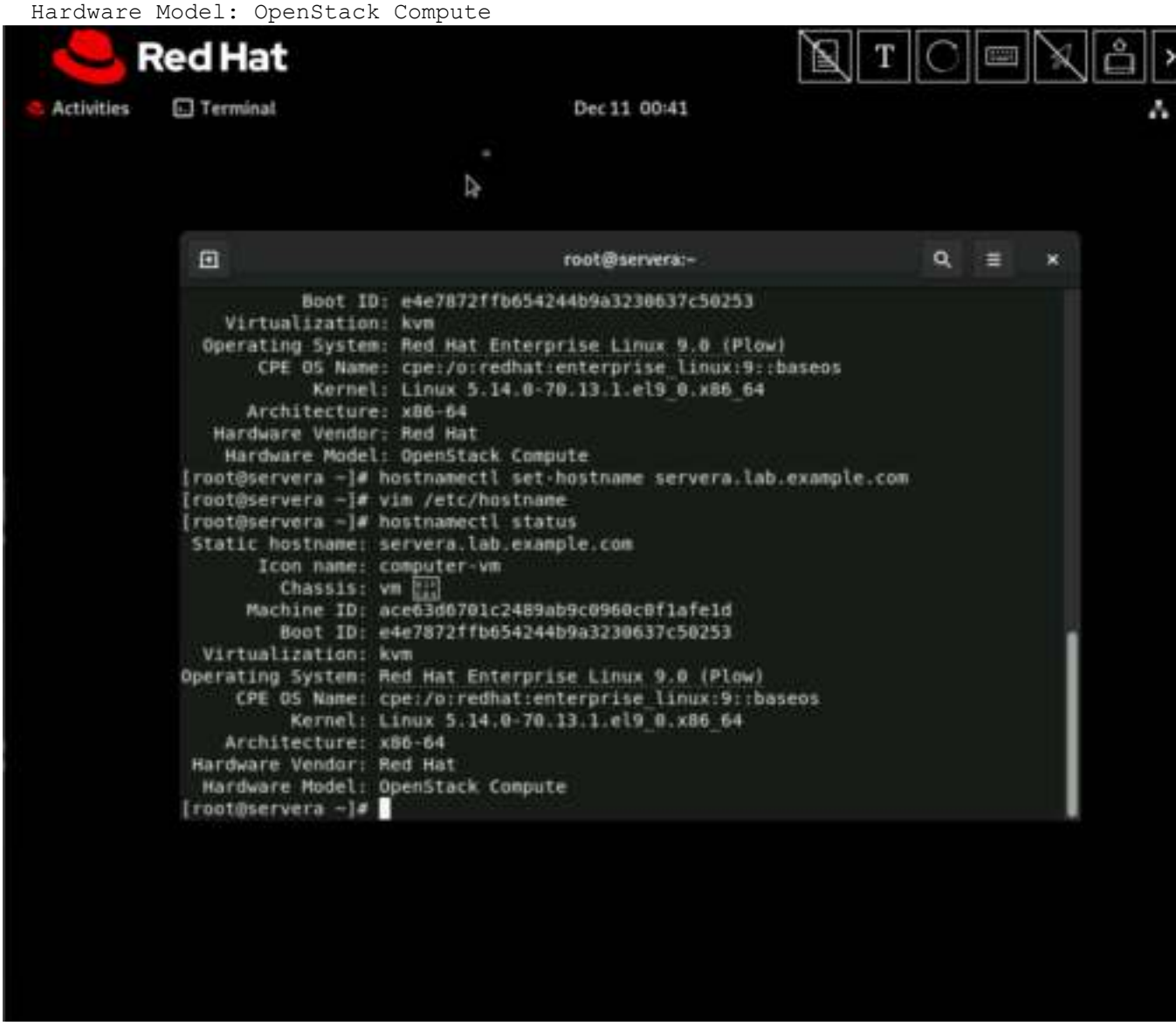
    2. View the content of the `/etc/hostname` file, which provides the hostname at network start.

```
servera.lab.example.com
```

    3. Display the hostname status. The transient hostname is not shown, now that a static hostname is configured.

```
[root@servera ~]# hostnamectl status
 Static hostname: servera.lab.example.com
       Icon name: computer-vm
         Chassis: vm
      Machine ID: 63b272eae8d5443ca7aaa5593479b25f
         Boot ID: ef299e0e957041ee81d0617fc98ce5ef
  Virtualization: kvm
```

```
Operating System: Red Hat Enterprise Linux 9.0 (Plow)
     CPE OS Name: cpe:/o:redhat:enterprise_linux:9::baseos
          Kernel: Linux 5.14.0-70.el9.x86_64
    Architecture: x86-64
 Hardware Vendor: Red Hat
  Hardware Model: OpenStack Compute
```



4. Temporarily change the hostname to `testname`.
    1. Change the hostname.

    ```
    [root@servera ~]# hostname testname
    ```

    2. Display the current hostname.

    ```
    [root@servera ~]# hostname
    testname
    ```

    3. View the content of the `/etc/hostname` file, which provides the hostname at network start.

    ```
    servera.lab.example.com
    ```

4. Reboot the system.

```
[root@servera ~]# systemctl reboot
Connection to servera closed by remote host.
Connection to servera closed.
[student@workstation ~]$
```

5. Log in to `servera` as the `student` user and switch to `root` user.

```
[student@workstation ~]$ ssh student@servera
...output omitted...
[student@servera ~]$ sudo -i
[sudo] password for student: student
[root@servera ~]#
```

6. Display the current hostname.

```
[root@servera ~]# hostname
servera.lab.example.com
```

5. Add `class` as a local nickname for the classroom server, and ensure that you can ping the server with that nickname.
    1. Look up the IP address of `classroom.example.com`.

```
[root@servera ~]# host classroom.example.com
classroom.example.com has address 172.25.254.254
```

    2. Update the `/etc/hosts` file to add `class` to access the IP address `172.25.254.254`. The following example shows the expected content of the `/etc/hosts` file.

```
[root@servera ~]# vim /etc/hosts
127.0.0.1   localhost localhost.localdomain localhost4
localhost4.localdomain4
::1         localhost localhost.localdomain localhost6
localhost6.localdomain6
172.25.254.254 classroom.example.com classroom class
```

    3. Look up the IP address of `class`.

```
[root@servera ~]# host class
Host class not found: 3(NXDOMAIN)
[root@servera ~]# getent hosts class
172.25.254.254  classroom.example.com classroom class
```

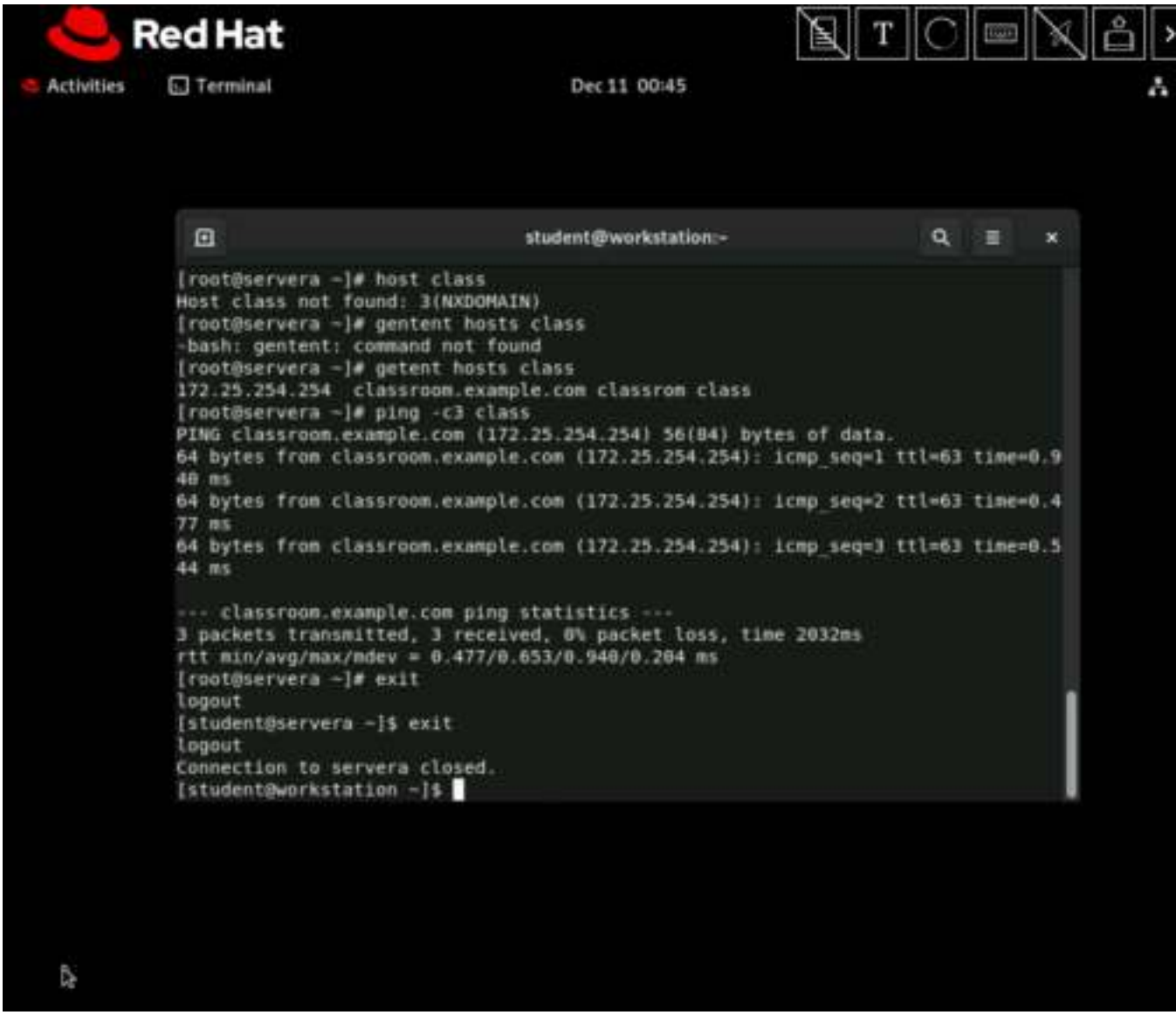
    4. Use the `ping` command to send packets to the `class` server.

```
[root@servera ~]# ping -c3 class
PING classroom.example.com (172.25.254.254) 56(84) bytes of data.
64 bytes from classroom.example.com (172.25.254.254): icmp_seq=1 ttl=63
time=1.21 ms
64 bytes from classroom.example.com (172.25.254.254): icmp_seq=2 ttl=63
time=0.688 ms
64 bytes from classroom.example.com (172.25.254.254): icmp_seq=3 ttl=63
time=0.559 ms

--- classroom.example.com ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2046ms
rtt min/avg/max/mdev = 0.559/0.820/1.214/0.283 ms
```

    5. Return to the `workstation` system as the `student` user.

```
[root@servera ~]# exit
logout
[student@servera ~]$ exit
logout
Connection to servera closed.
[student@workstation ~]$
```



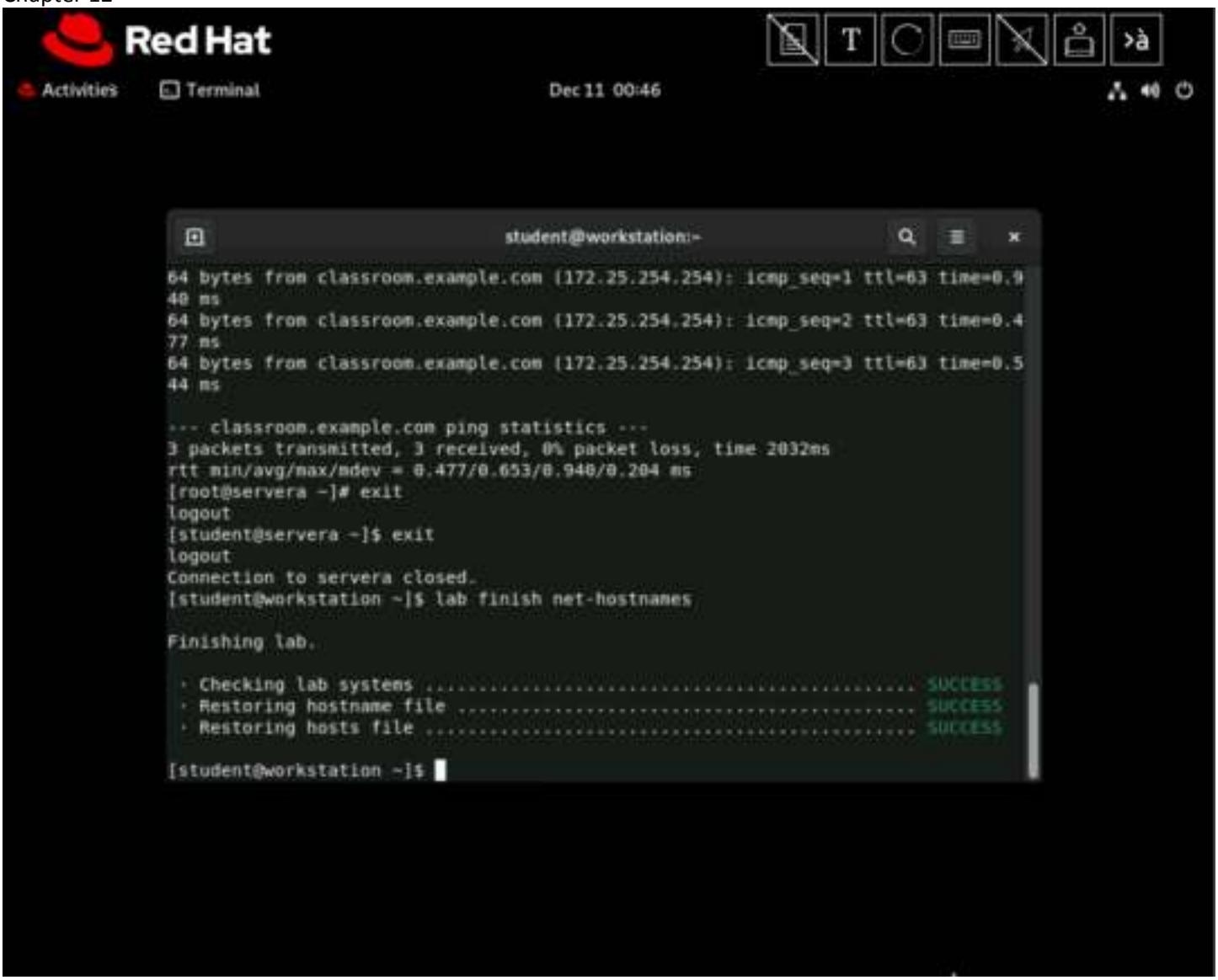
Finish

On the `workstation` machine, change to the `student` user home directory and use the `lab` command to complete this exercise. This step is important to ensure that resources from previous exercises do not impact upcoming exercises.

```
[student@workstation ~]$ lab finish net-hostnames
```

This concludes the section.

Chapter 12


Red Hat
Activities
Terminal
Dec 11 00:46
student@workstation:~
64 bytes from classroom.example.com (172.25.254.254): icmp_seq=1 ttl=63 time=0.9
40 ms
64 bytes from classroom.example.com (172.25.254.254): icmp_seq=2 ttl=63 time=0.4
77 ms
64 bytes from classroom.example.com (172.25.254.254): icmp_seq=3 ttl=63 time=0.5
44 ms
--- classroom.example.com ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2032ms
rtt min/avg/max/mdev = 0.477/0.653/0.940/0.204 ms
[root@servera ~]# exit
logout
[student@servera ~]$ exit
logout
Connection to servera closed.
[student@workstation ~]$ lab finish net-hostnames
Finishing lab.
· Checking lab systems ..... SUCCESS
· Restoring hostname file ..... SUCCESS
· Restoring hosts file ..... SUCCESS
[student@workstation ~]$

Chapter 12

Lab: Manage Networking

In this lab, you configure networking settings on a Red Hat Enterprise Linux server.

Outcomes

- Configure two static IPv4 addresses for the primary network interface.

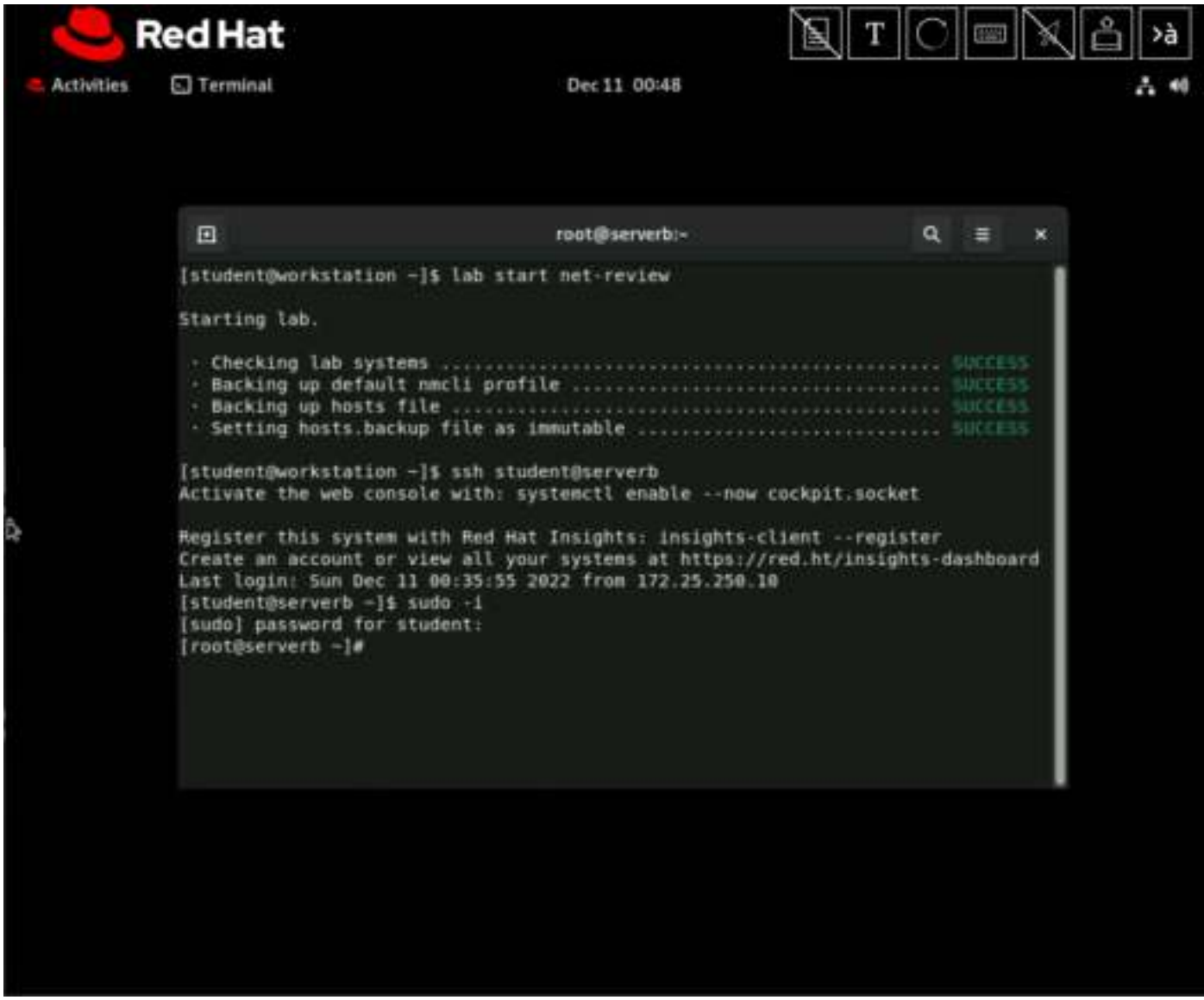
As the `student` user on the `workstation` machine, use the `lab` command to prepare your system for this exercise.

This command prepares your environment and ensures that all required resources are available.

```
[student@workstation ~]$ lab start net-review
```

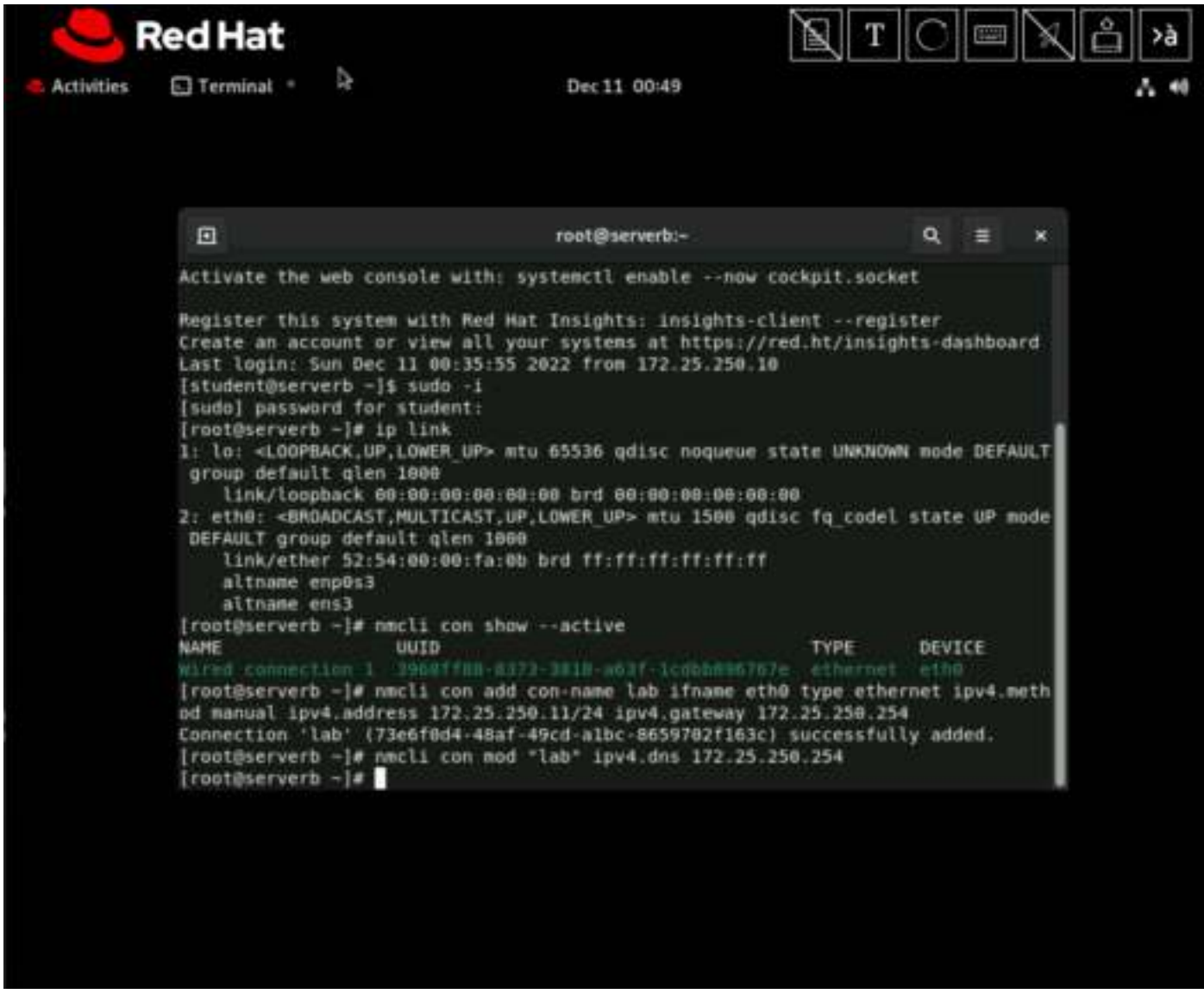
Procedure 12.5. Instructions

1. Log in to the `serverb` machine as the `student` user. Switch to the `root` user.

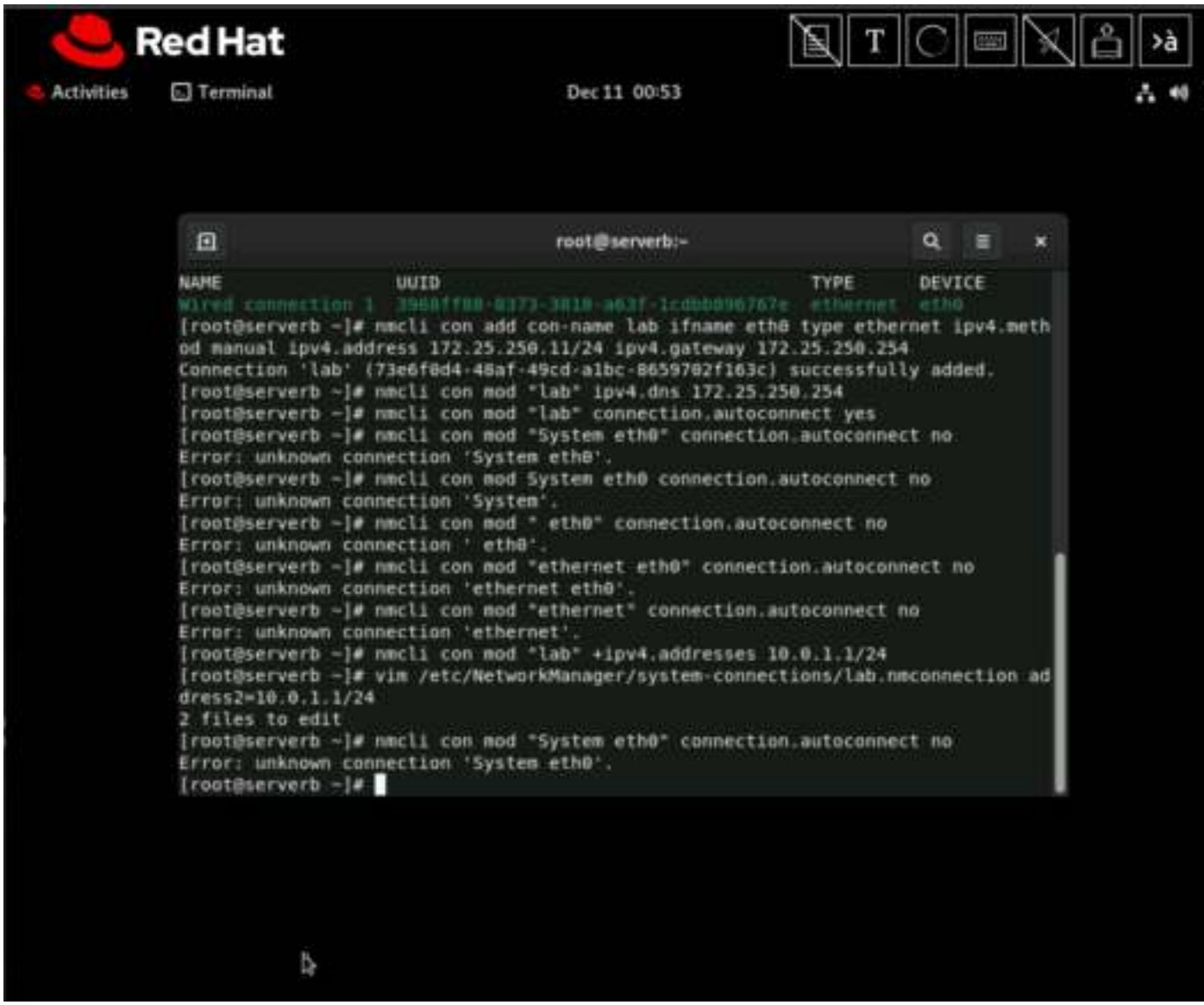


2. Create a connection with a static network configuration by using the settings in the table.

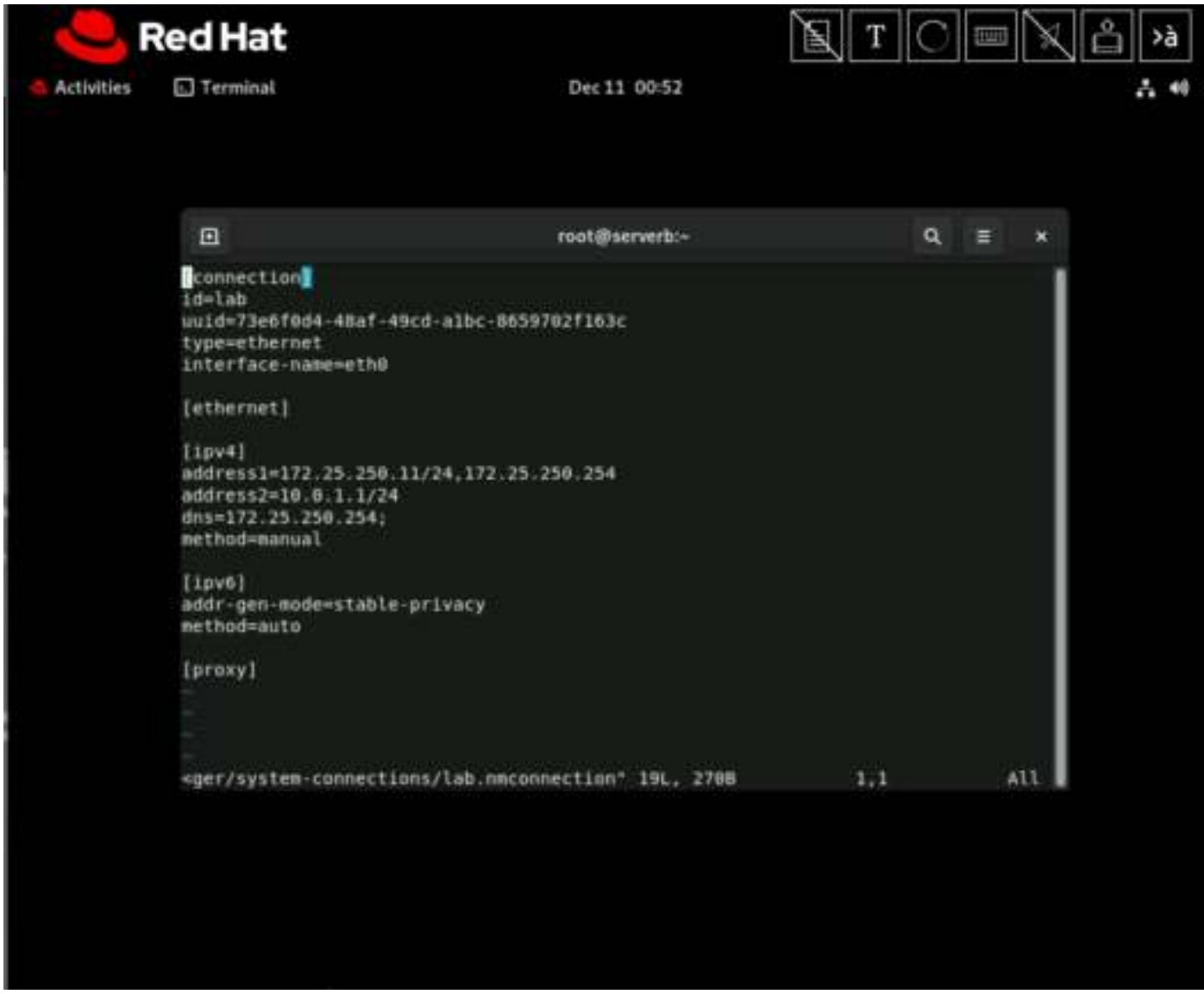
Parameter	**Setting**
Connection name	lab
Interface name	enX (might vary; use the interface with `52:54:00:00:fa:0b` as its MAC address)
IP address	172.25.250.11/24
Gateway address	172.25.250.254
DNS address	172.25.250.254



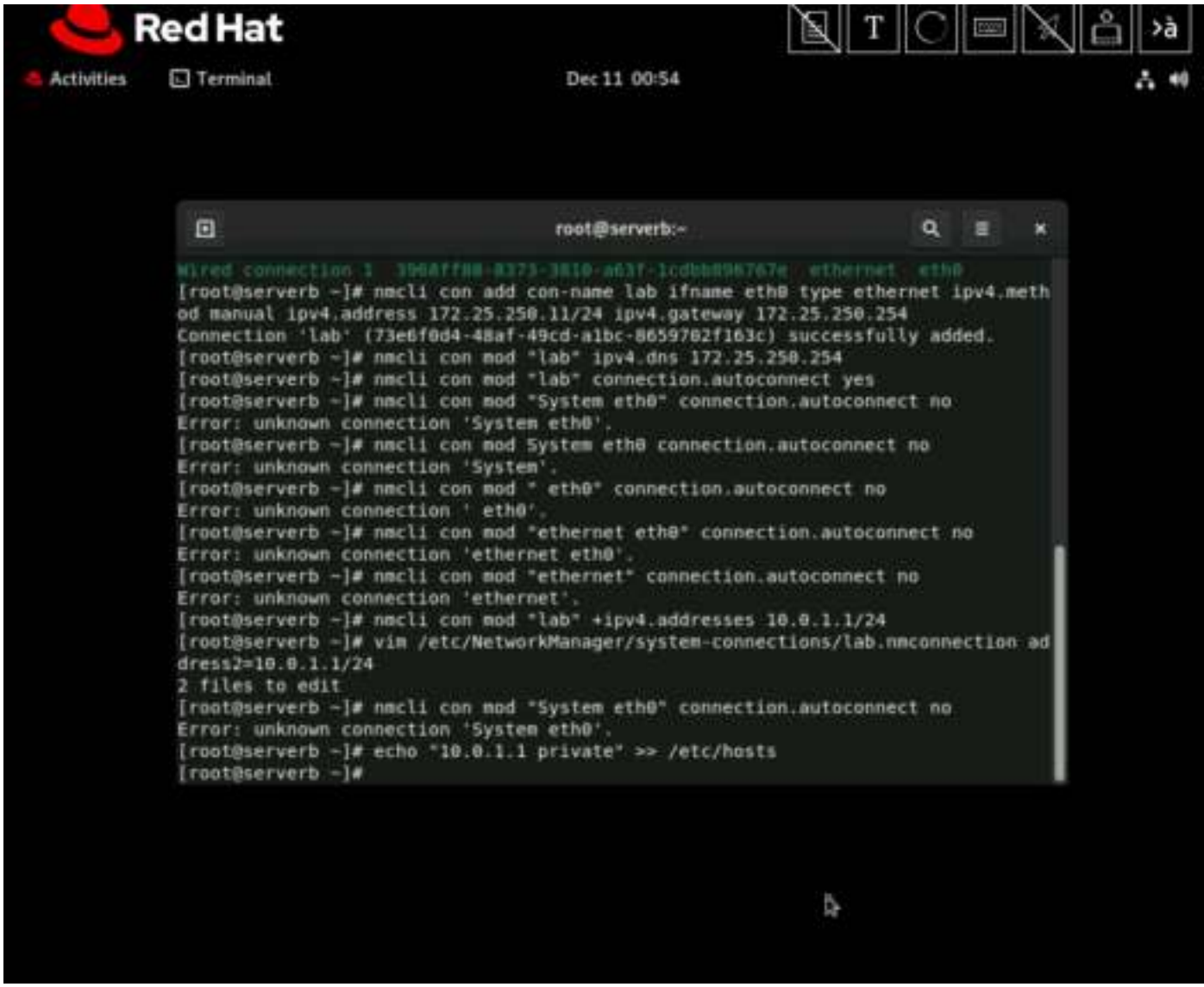
3. Configure the new connection to start automatically. Other connections should not start automatically.



4. Modify the new connection so that it also uses the IP address `10.0.1.1/24`.

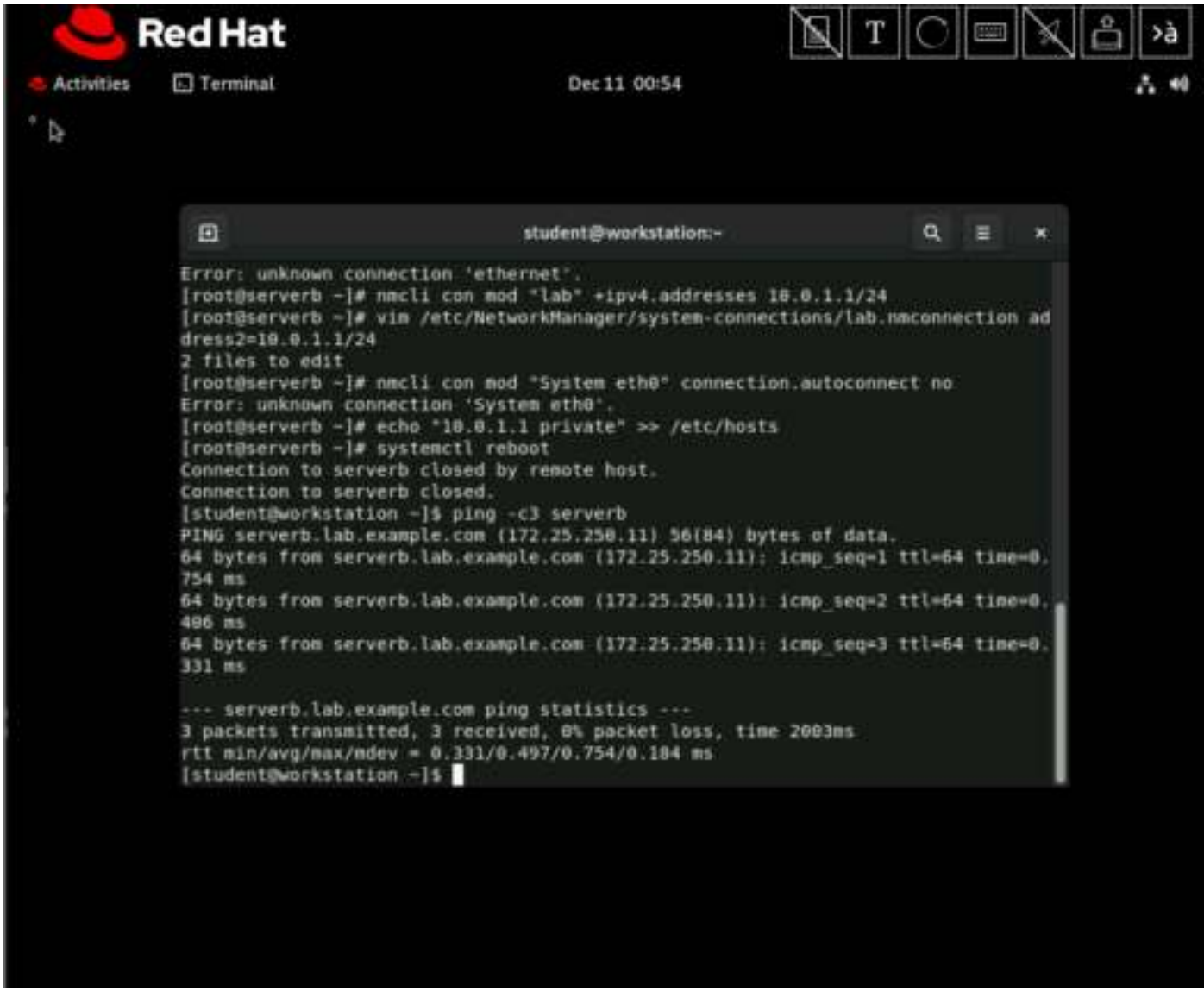


5. Configure the `hosts` file so that you can reference the `10.0.1.1` IP address with the `private` name.



6. Reboot the system.

7. Verify that the `serverb` machine is initialized.



Evaluation

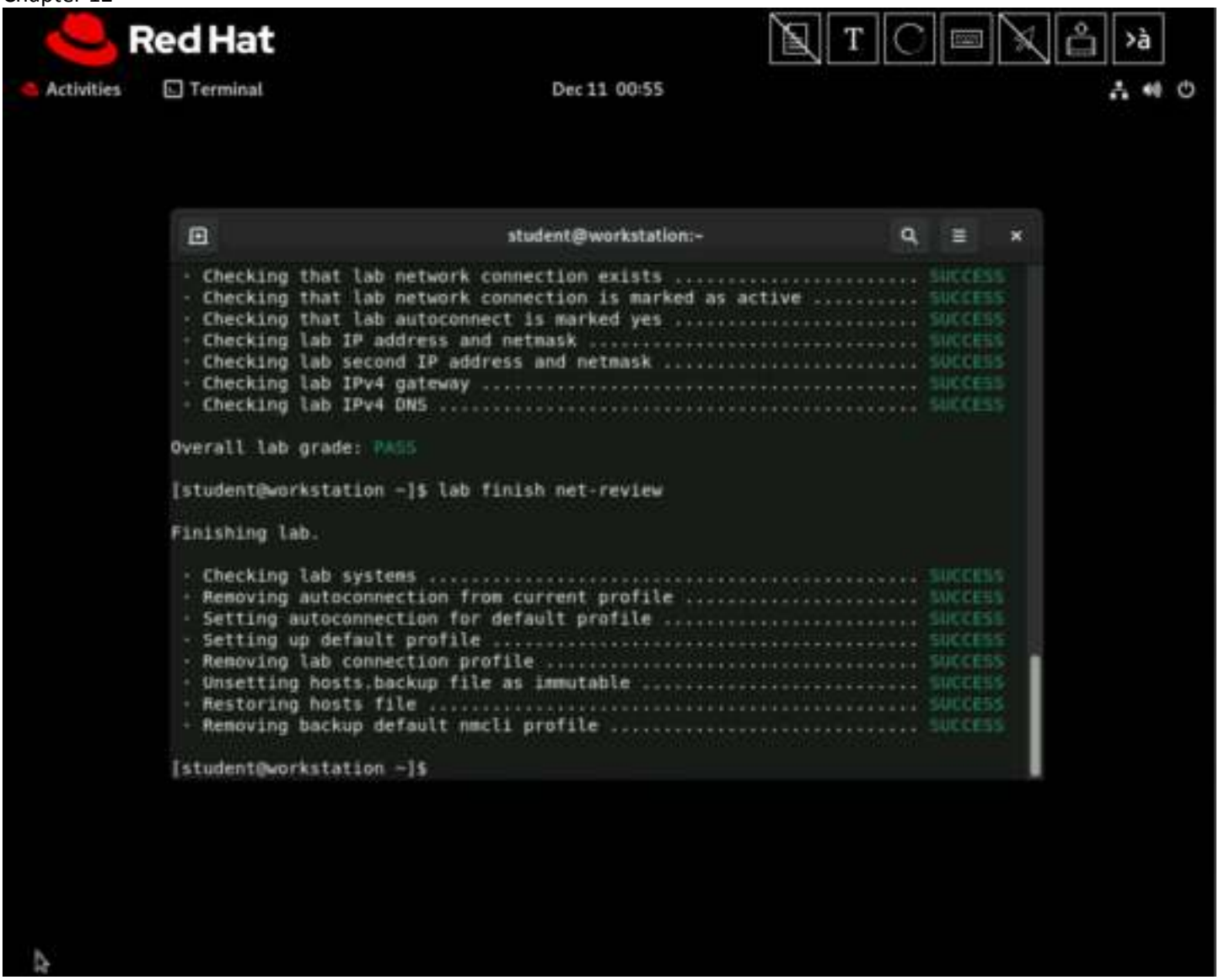
As the `student` user on the `workstation` machine, use the `lab` command to grade your work. Correct any reported failures and rerun the command until successful.

```
[student@workstation ~]$ lab grade net-review
```

Finish

On the `workstation` machine, change to the `student` user home directory and use the `lab` command to complete this exercise. This step is important to ensure that resources from previous exercises do not impact upcoming exercises.

```
[student@workstation ~]$ lab finish net-review
```



This concludes the section.