

Lab A5 Overview: Network Connectivity, Services, and Firewall Configuration

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Lab Objective

This lab focuses on validating network connectivity, managing essential system services, and enforcing firewall rules on a Red Hat Enterprise Linux system. The goal is to ensure controlled and secure access to services using standard enterprise tools.

Lab Environment

Operating System: Red Hat Enterprise Linux

Node Type: Administration node

Network Interface: `enp0s3`

Service: `sshd`

Firewall Manager: `firewalld`

Execution Summary

Network Verification

```
ip addr show enp0s3  
ip route  
ping -c 3 8.8.8.8
```

These commands were used to confirm interface status, routing configuration, and external network reachability.

Service Management

```
systemctl status sshd  
sudo systemctl enable --now sshd
```

The SSH service was verified, enabled, and configured to start automatically at boot.

Firewall Inspection and Configuration

```
sudo firewall cmd state
sudo firewall cmd get active zones
sudo firewall cmd list all
sudo firewall cmd permanent add service=ssh
sudo firewall cmd reload
```

Firewall rules were inspected and updated to permanently allow SSH traffic while maintaining default restrictions.

Access Validation

```
ssh ayoub.admin@<IP_ADDRESS>
```

Successful remote access confirmed correct firewall and service configuration.

Outcome

At the end of this lab, the system demonstrated verified network connectivity, an active and persistent SSH service, and an enforced firewall policy allowing secure remote administration.