

# 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.