

# **ITAS 181 Lab 13**

## **Comprehensive Guide to Setting Up Key Linux Network Services: Web (Apache), SMB, NFS, and FTP**

Raj Singh

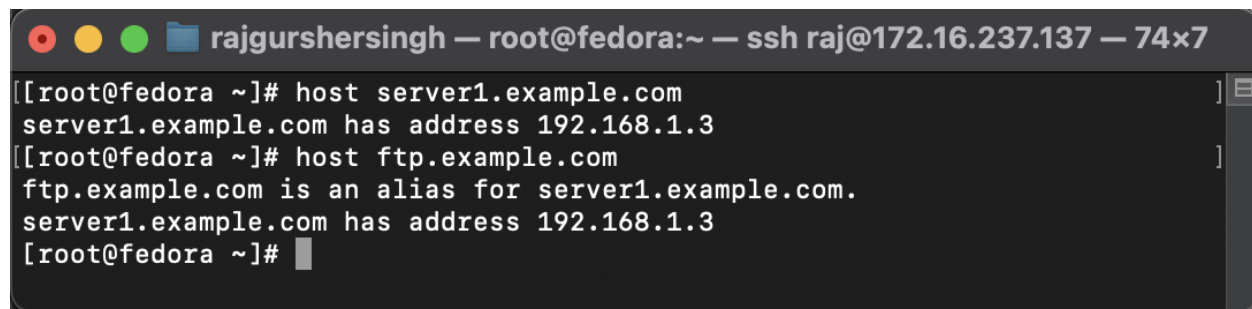
06 November 2023

## **Project Overview**

The objective of this guide is to provide a clear and concise instructional framework for setting up essential network services on a Linux system, including web hosting with Apache, file sharing through Samba (SMB) and Network File System (NFS), and file transfer capabilities via FTP. This will empower users with the ability to configure robust, scalable, and secure network operations suitable for a variety of environments, from home-based networks to enterprise-level operations.

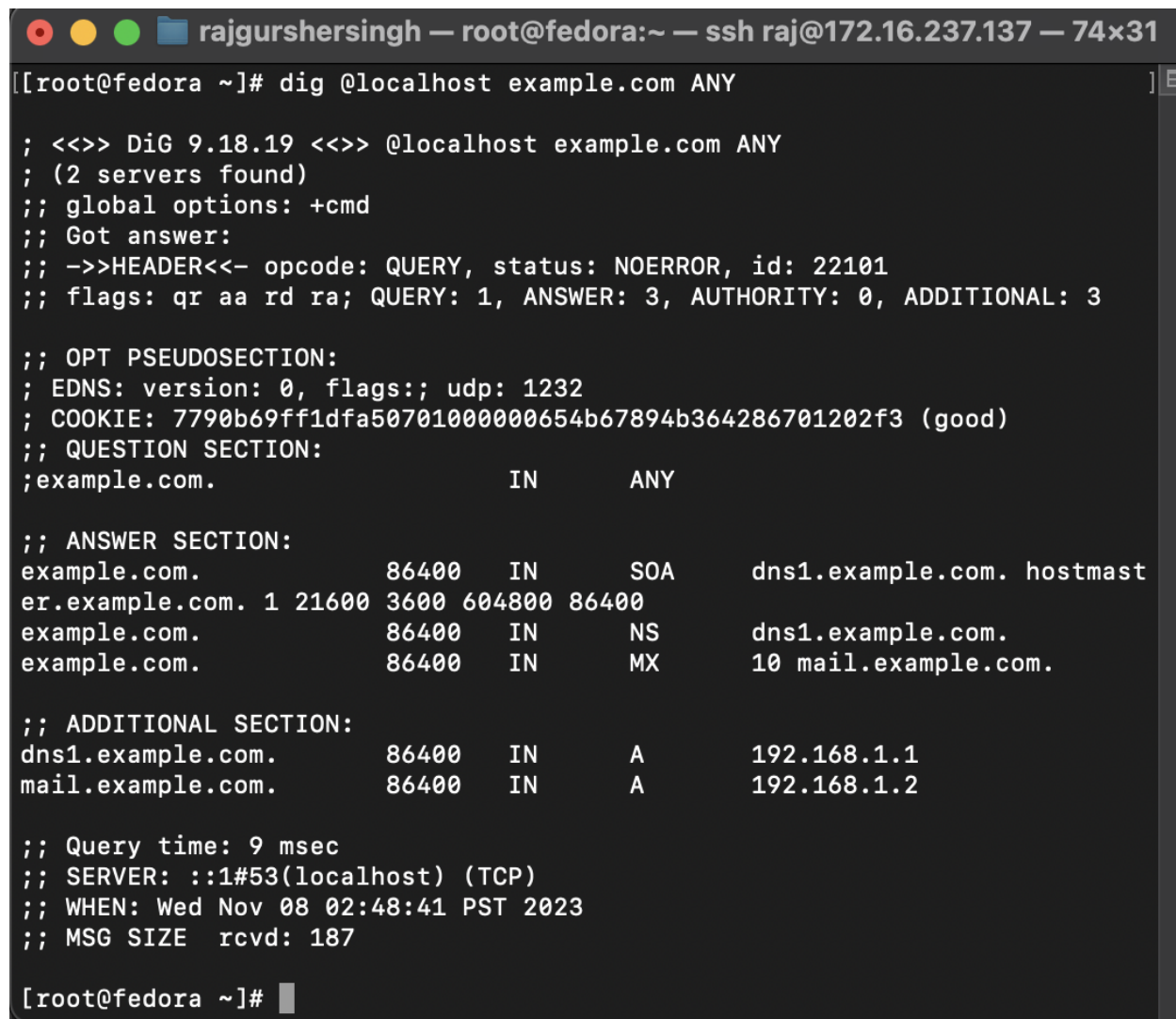
## **13.2**

**The objective of Project 13-2 is to configure and validate DNS service on a Fedora Linux virtual machine. The activity involves installing the BIND package, setting up DNS zone files, adjusting file permissions, and configuring the system to resolve both local and external domain names using the newly established DNS server. The hands-on project ensures that students can apply the concepts of DNS configuration and management in a practical Linux environment.**

A terminal window titled 'rajgurshersingh — root@fedora:~ — ssh raj@172.16.237.137 — 74x7'. The terminal shows the following commands and output:

```
[[root@fedora ~]# host server1.example.com
server1.example.com has address 192.168.1.3
[[root@fedora ~]# host ftp.example.com
ftp.example.com is an alias for server1.example.com.
server1.example.com has address 192.168.1.3
[[root@fedora ~]#
```

Figure 1 - A terminal window showing the output of host command



```
rajgurshersingh — root@fedora:~ — ssh raj@172.16.237.137 — 74x31
[[root@fedora ~]# dig @localhost example.com ANY

; <<>> DiG 9.18.19 <<>> @localhost example.com ANY
; (2 servers found)
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 22101
;; flags: qr aa rd ra; QUERY: 1, ANSWER: 3, AUTHORITY: 0, ADDITIONAL: 3

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 1232
; COOKIE: 7790b69ff1dfa50701000000654b67894b364286701202f3 (good)
;; QUESTION SECTION:
;example.com.                IN      ANY

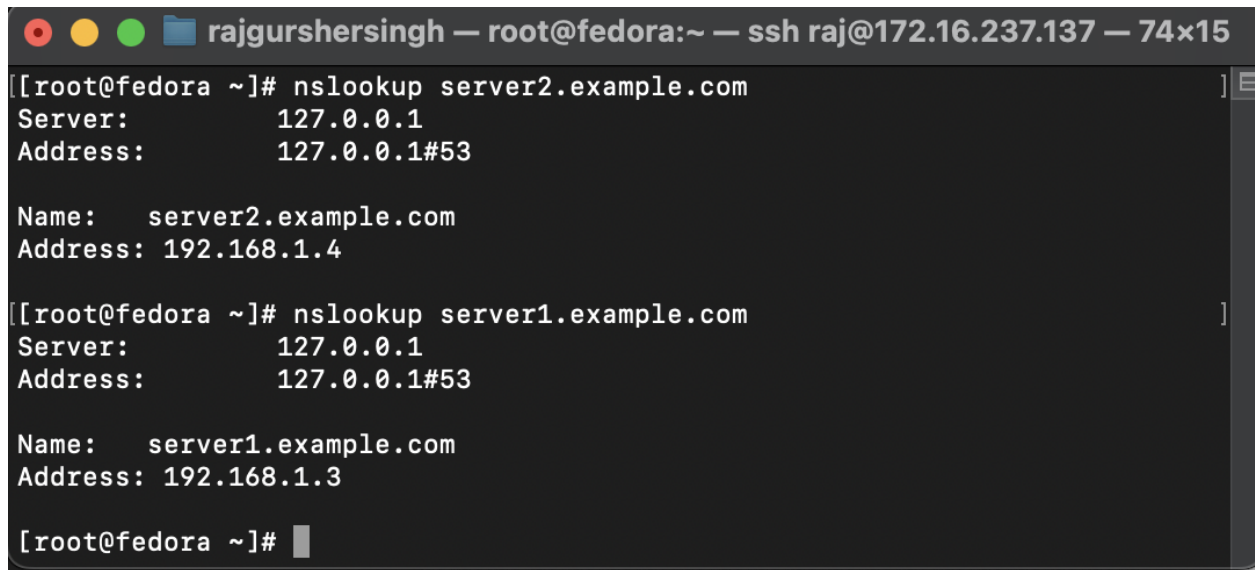
;; ANSWER SECTION:
example.com.                 86400   IN      SOA     dns1.example.com. hostmast
er.example.com. 1 21600 3600 604800 86400
example.com.                 86400   IN      NS      dns1.example.com.
example.com.                 86400   IN      MX      10 mail.example.com.

;; ADDITIONAL SECTION:
dns1.example.com.           86400   IN      A       192.168.1.1
mail.example.com.           86400   IN      A       192.168.1.2

;; Query time: 9 msec
;; SERVER: ::1#53(localhost) (TCP)
;; WHEN: Wed Nov 08 02:48:41 PST 2023
;; MSG SIZE rcvd: 187

[root@fedora ~]#
```

Figure 2 - A terminal window showing the output of dig command

A terminal window titled 'rajgurshersingh — root@fedora:~ — ssh raj@172.16.237.137 — 74x15'. The terminal shows two nslookup commands and their outputs. The first command is 'nslookup server2.example.com', which returns 'Server: 127.0.0.1', 'Address: 127.0.0.1#53', 'Name: server2.example.com', and 'Address: 192.168.1.4'. The second command is 'nslookup server1.example.com', which returns 'Server: 127.0.0.1', 'Address: 127.0.0.1#53', 'Name: server1.example.com', and 'Address: 192.168.1.3'. The prompt '[root@fedora ~]#' is visible at the bottom.

```
[root@fedora ~]# nslookup server2.example.com
Server:      127.0.0.1
Address:     127.0.0.1#53

Name:   server2.example.com
Address: 192.168.1.4

[root@fedora ~]# nslookup server1.example.com
Server:      127.0.0.1
Address:     127.0.0.1#53

Name:   server1.example.com
Address: 192.168.1.3

[root@fedora ~]#
```

Figure 3 - A terminal window showing the output of nslookup command

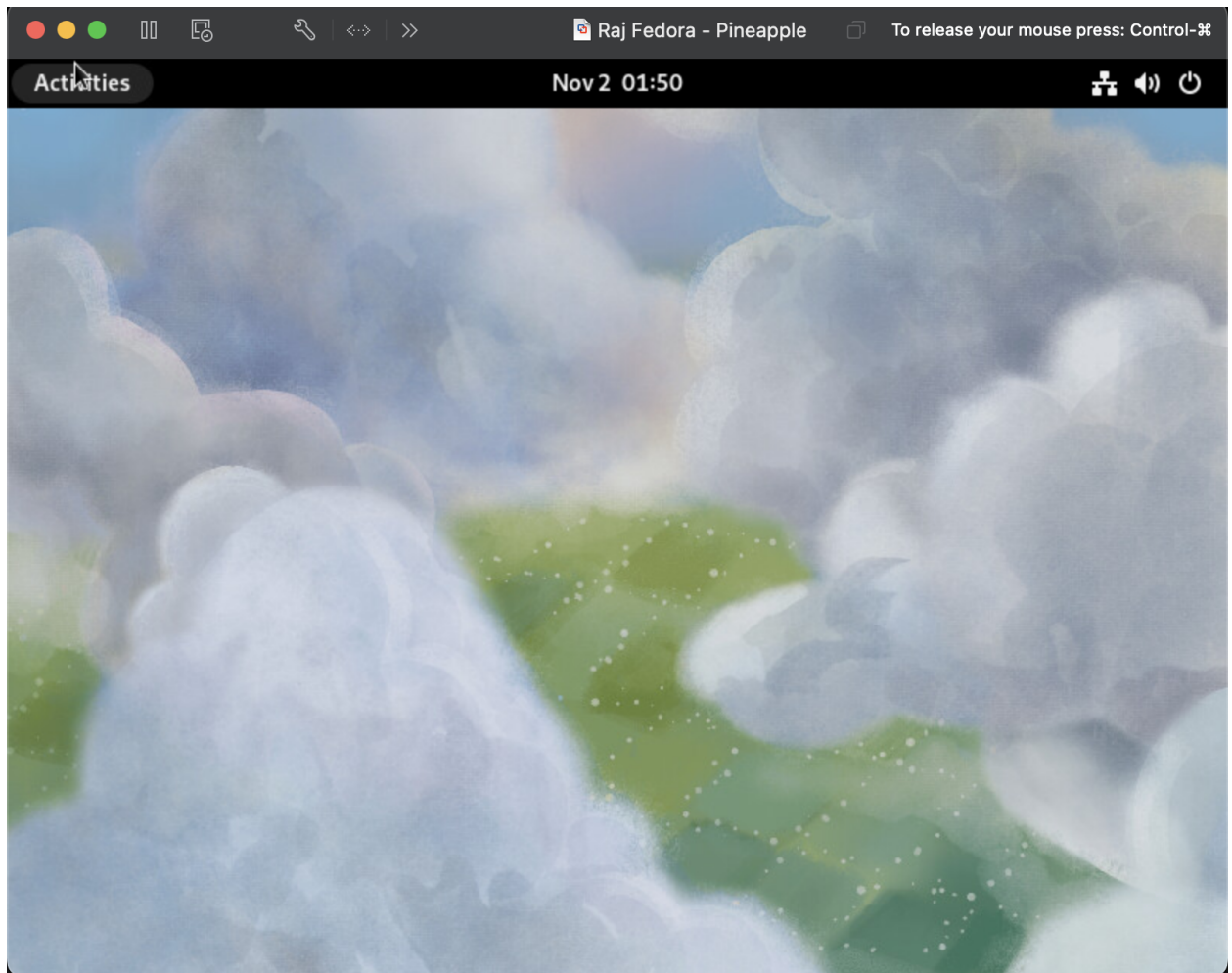
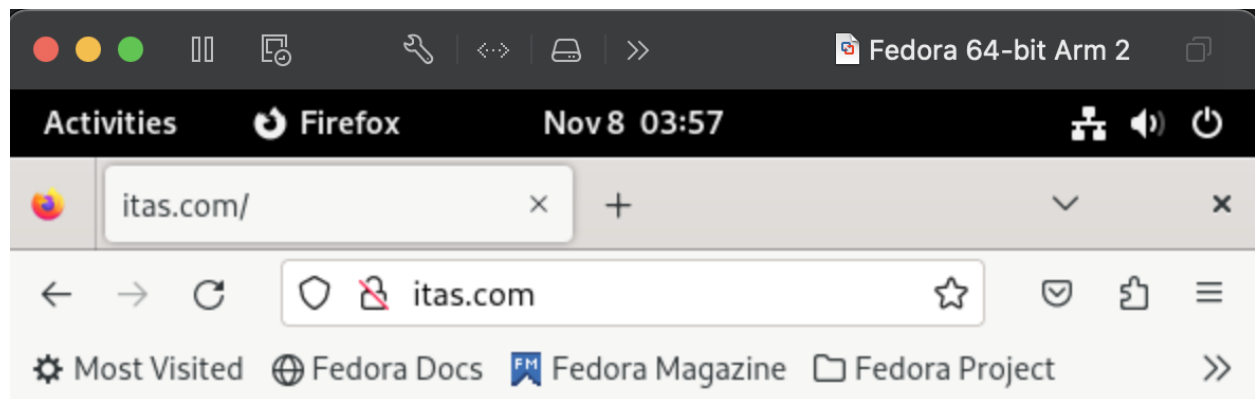


Figure 4 - Virtual machine named Pineapple running on Linux - Fedora Workstation

## 13.4

The objective of the described hands-on project is to configure the Apache web server on a Fedora Linux virtual machine. This includes installing the server, setting and verifying its configuration files, managing daemon permissions, and testing the server's response to web requests. The project aims to provide practical experience with web server setup, directory and file permissions, service management, and firewall configuration. The ultimate goal is to ensure a functional Apache server that can serve web pages correctly and handle incoming HTTP traffic both locally and from a ne



## My sample website

Figure 5 - Screenshot of your website (with a domain name not IP address in your browser bar) working in a browser

## 13.5

The objective of this hands-on project is to configure Samba file sharing services on an Ubuntu Linux virtual machine. The project guides you through the process of installing Samba, editing its configuration file to set up network visibility and share directories, restarting the service, and securing access with passwords. It also includes steps to test and verify the configuration by connecting to the shared directories both locally and from other operating systems like Windows and macOS. The goal is to gain practical experience with Samba server setup and management, network file sharing, and cross-platform file system access.

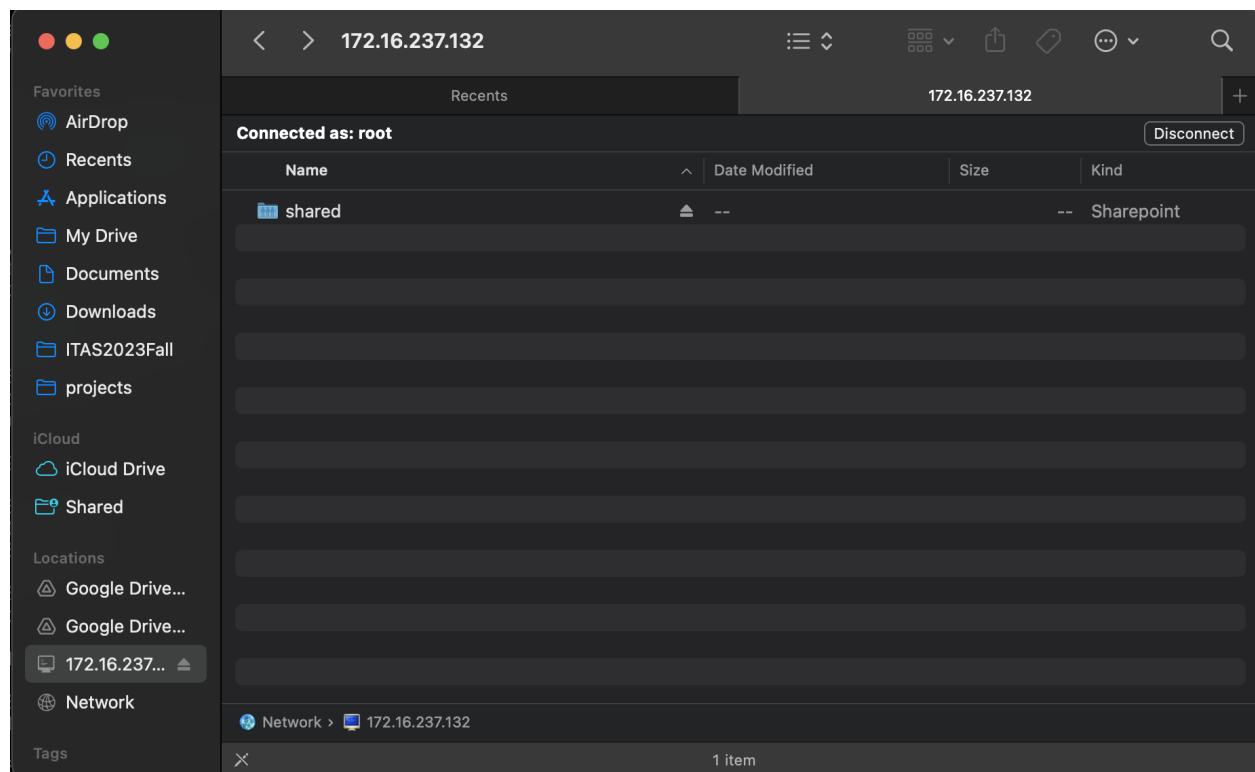


Figure 6- Screenshot of Samba file share working on Mac host