

MAIL SERVER

MAIL SERVER TEST ON TWO
VIRTUAL MACHINES

Overview:

This project demonstrates the setup of a fully functional mail server-client system using two Windows 10 virtual machines. The project showcases sending and receiving email between client and server using hMailServer and Thunderbird.

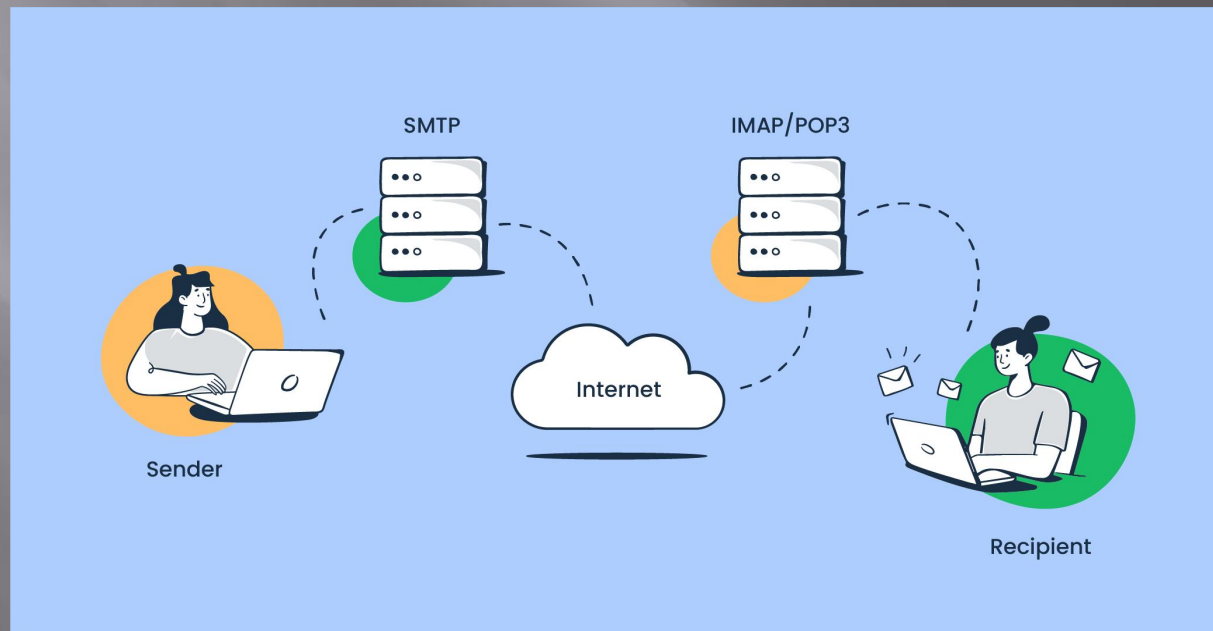
INTRODUCTION

First of all, we need to know how email works. Email is sent and received by using different protocols.

1.SMTP(simple mail transfer protocol) :- used for sending email.

2.IMAP/POP3 :- used for receiving email.

DNS(domain name system):- to locate recipient's mail server.



PROJECT OBJECTIVES

To set up a mail server.

To simulate client-to-server and server-to-client email communication using two virtual machines(VMs).

To understand the roles of network configuration, ports, authentication, and protocols (SMTP, POP3/IMAP) in data communication system (email systems).

To test and verify message delivery, reception, and mail server configuration using tools like powershell and thunder.

TOOLS AND SETUP

Software Used:

VirtualBox / VMware

Windows 10 (on both VMs)

hMailServer (Mail Server)

Thunderbird (Email Client)

Network Setup:

Internal Network configuration

Static IP addresses:

VM1 (Client): 192.168.100.1

VM2 (Server): 192.168.100.2

MAIL SERVER CONFIGURATION (SERVER SIDE)

1. Install hMailServer on VM2.
2. Add domain (e.g., smtp.local).
3. Create accounts:

user1@smtp.local
user2@smtp.local

4. Enable required protocols:

SMTP (Port 25)
IMAP (Port 143) or POP3 (Port 110)

5. Allow local IPs through Windows Firewall.

CLIENT CONFIGURATION (BOTH DIRECTIONS)

Client VM (VM1):

Install and configure Thunderbird.

Add account: user1@smtp.local

Incoming: IMAP/POP3 from 192.168.100.1

Outgoing: SMTP to 192.168.100.1

Server VM (VM2):

Thunderbird is also installed here to receive and respond from server pc.

Add account: user2@smtp.local

Send reply back to user1@smtp.local

EMAIL COMMUNICATION FLOW

1. Client to Server:

user1@smtp.local sends email to user2@smtp.local.
Mail is received by hMailServer on VM2.

2. Server to Client (Response):

user2@smtp.local replies using Thunderbird on VM2.
Mail is sent via hMailServer to user1@smtp.local on VM1.

Protocols Used:

SMTP for sending
IMAP for receiving

CONCLUSION & LEARNINGS

Successfully created a working mail system in a virtual network.

Understood server roles vs. client roles in email communication.

Demonstrated full bidirectional message flow using open-source tools.

Learned about network configuration, email protocols, and troubleshooting server-client communication.

Future Scope:

Add webmail support .

Implement spam filters and security (SSL/TLS).

Test with real DNS.