

# MAIL SERVER

MAIL SERVER TEST ON TWO  
VIRTUAL MACHINES

# Overview:

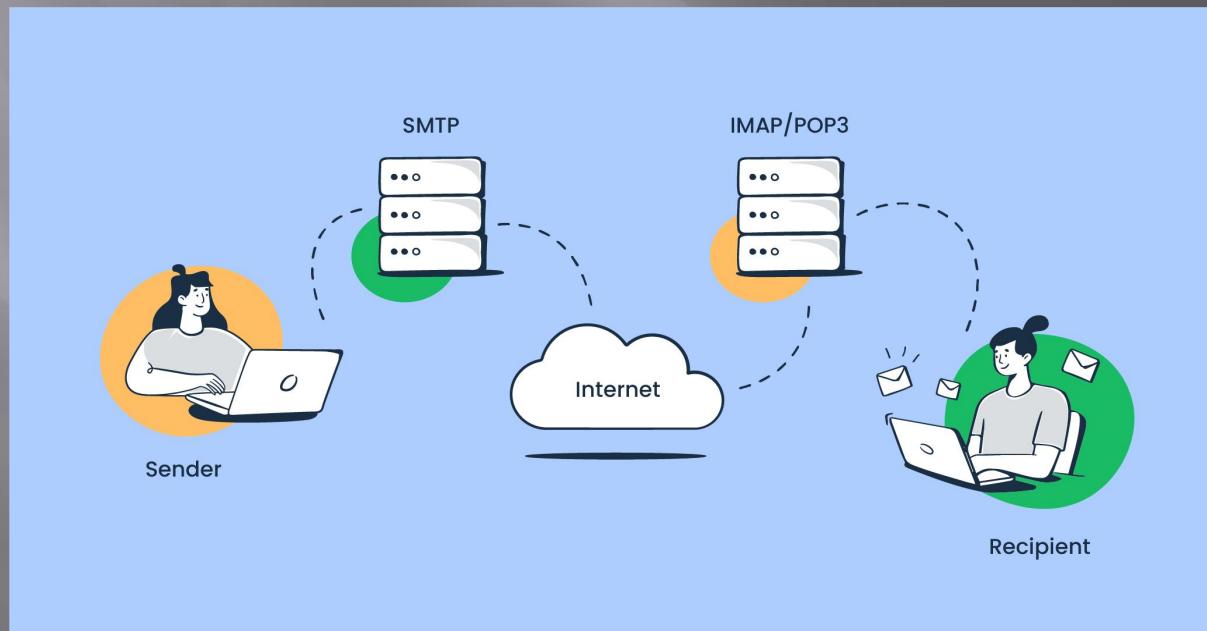
This project demonstrates the setup of a fully functional mail server-client system using two Windows 10 virtual machines. The project showcases sending and receiving email between client and server using hMailServer and Thunderbird.

# 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.