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# VMWare ESXi and VCenter Server Setup

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## 1 Introduction

Virtualization is a foundational technology that allows multiple operating systems and applications to run on a single physical machine. This report covers the implementation of a virtualization environment using VMware ESXi and vCenter Server.

## 2 Objectives

- Understanding VMware virtualization and hypervisor concepts.
- Setting up and managing a virtualized infrastructure.
- Implementing networking and storage in a virtual environment.
- Ensuring security and performance monitoring in VMware.

## 3 Step-by-Step Implementation

### 3.1 Creating a Virtual Machine using VMware Workstation (Type-2 Hypervisor)

1. Launch VMware Workstation and click **Create a New Virtual Machine**.
2. Select **Typical (recommended)** and click **Next**.
3. Choose **Installer disc image file (ISO)** and select the OS ISO file.
4. Configure VM settings such as CPU, memory, and disk size.
5. Click **Finish** to create the VM.



Figure 1: VM Creation in VMware Workstation

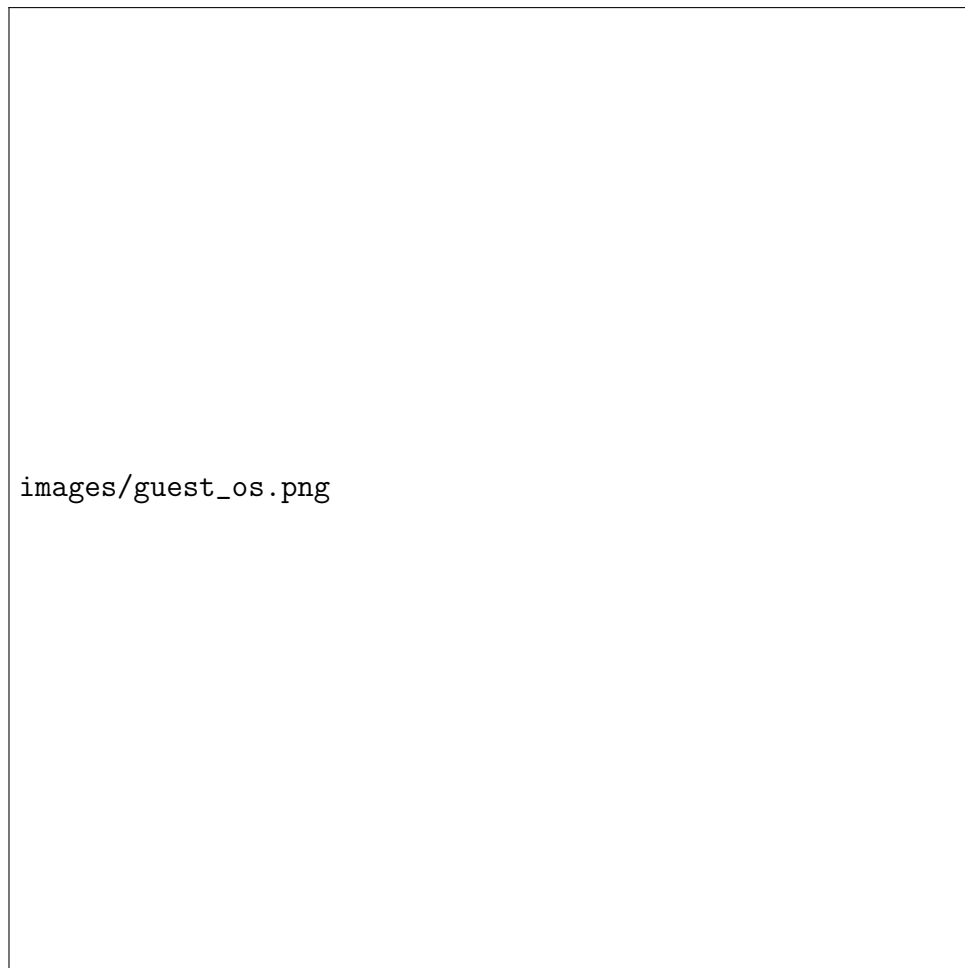


Figure 2: Selecting Operating System

Figure 3: Final Setup Config

## 3.2 Practical No. 3: Network Configuration in VMware

### 3.2.1 Adding a Network Adapter

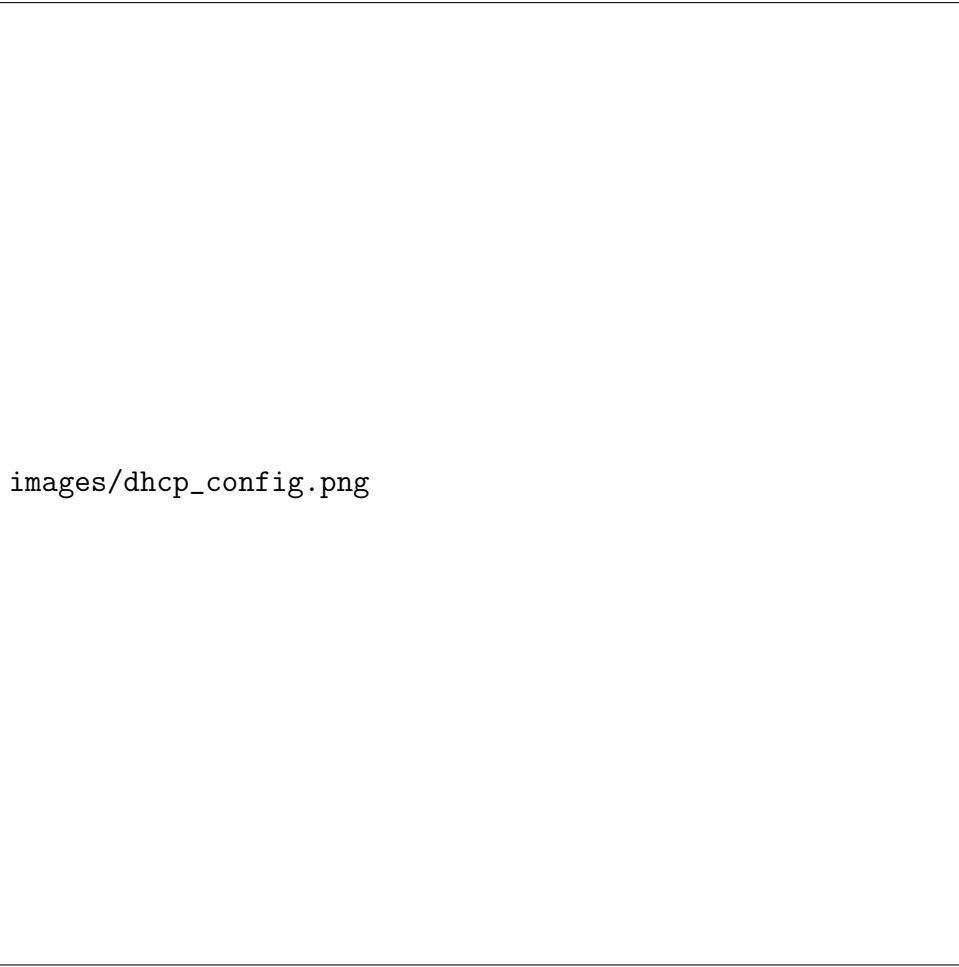
1. Click **Add ↯ Network Adapter** to add a second network adapter.
2. Select different networks for ESXi host connections:
  - **NAT Network:** Allows VMs to communicate with the host and access external networks.
  - **Host-Only Network:** Allows VMs to communicate only with each other and the host, but not external networks.



Figure 4: Adding a Network Adapter

### 3.2.2 Editing the Virtual Network Configuration

1. Open the **Virtual Network Editor (Edit ↗ Virtual Network Editor)**.
2. Configure the following networks:
  - **VMnet8 (NAT network)**
    - Network Address: 192.168.101.0/24
    - Gateway IP: 192.168.101.2
    - DHCP Range: 192.168.101.201 – 192.168.101.254
  - **VMnet1 (Host-Only network)**
    - Network Address: 192.168.105.0/24
    - DHCP Range: 192.168.105.201 – 192.168.105.254
3. Adjust NAT settings, gateway IP, and DHCP configurations as needed.



images/dhcp\_config.png

Figure 5: Configuring DHCP

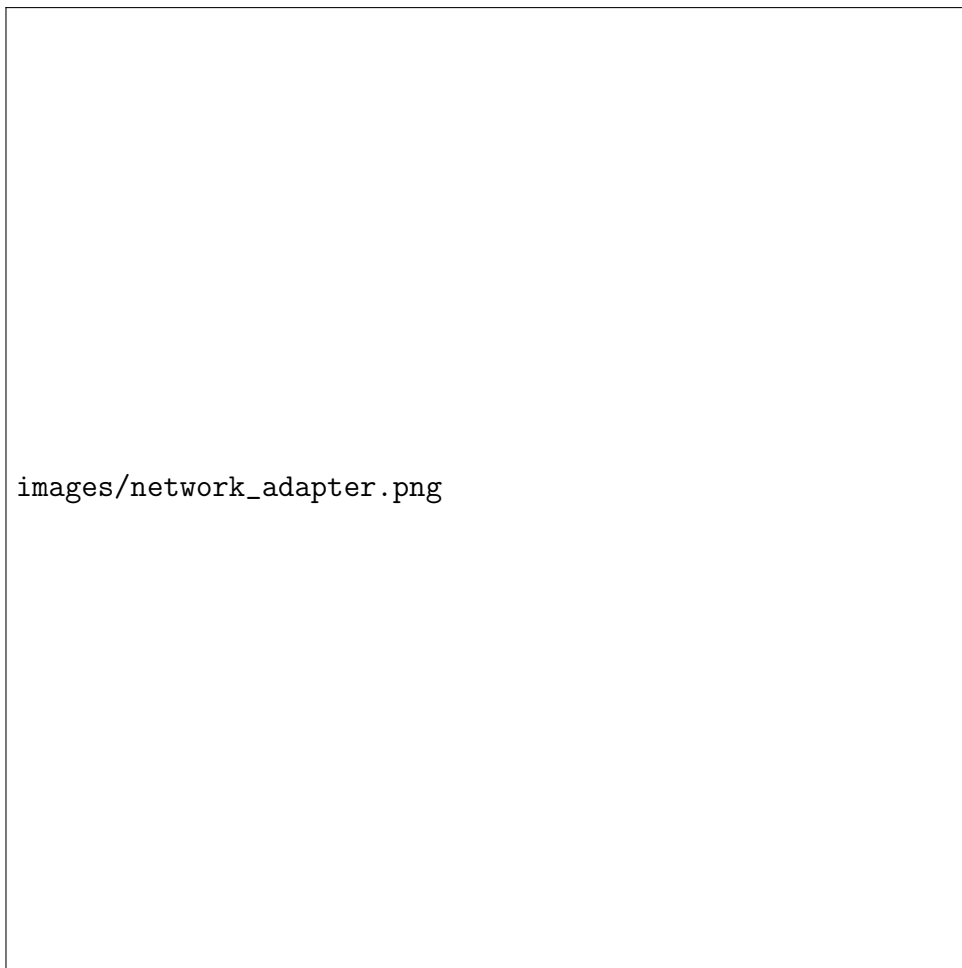


Figure 6: Editing the Virtual Network Configuration

### 3.2.3 Basic ESXi Configuration

1. Power on the ESXi VM and press **F2** to customize the system.
2. Navigate to **Configure Management Network**.
3. Select **Network Adapters** to view available adapters.
4. Enable the second adapter later through the web interface.
5. Set a static IPv4 address:
  - IPv4 Address: 192.168.101.101
  - Subnet Mask: 255.255.255.0
  - Default Gateway: 192.168.101.2

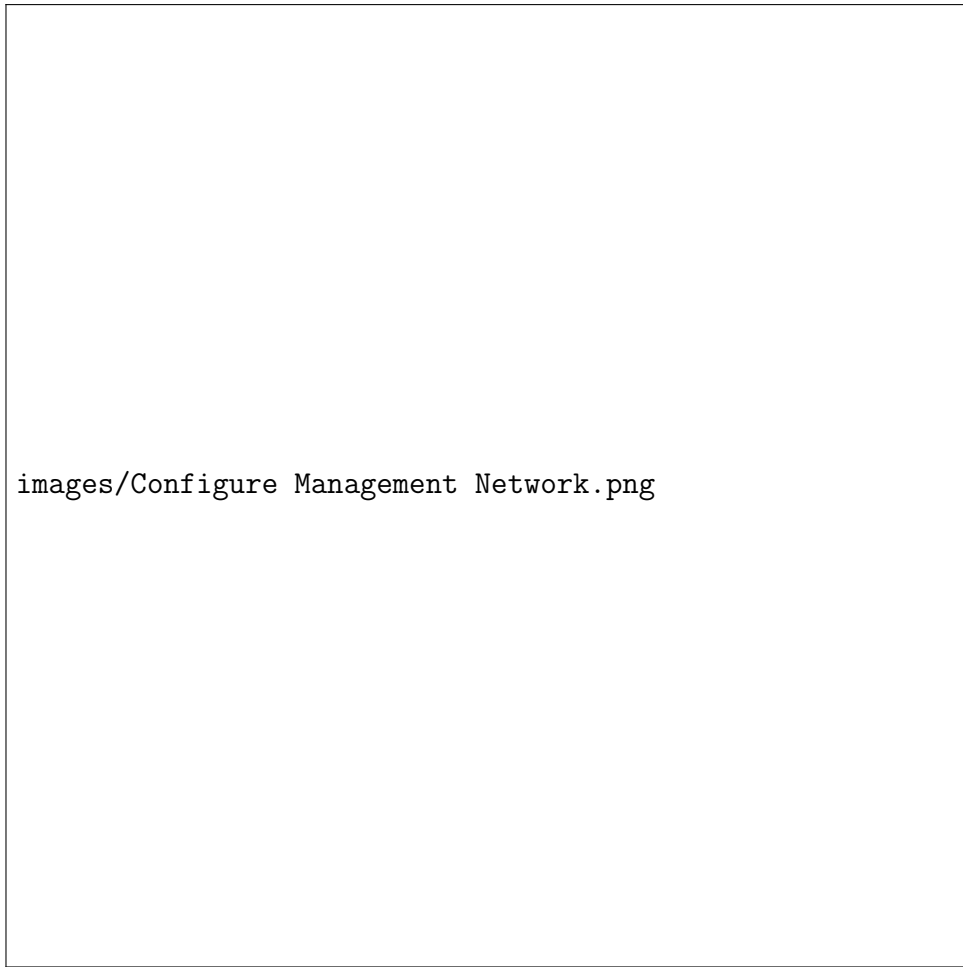


Figure 7: Configuring ESXi Network Settings

## 4 Conclusion

This project successfully implemented a virtualization environment using VMware ESXi and vCenter Server. Future improvements could include integrating VMware NSX for advanced networking and automating deployments using vSphere PowerCLI.