

Assignment 3: Exploring Virtual Networking in VirtualBox

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Objective

This assignment introduces students to different virtual networking modes in Oracle VirtualBox and allows them to observe the connectivity behavior between virtual machines, the host system, and external networks.

Instructions

You will work with two virtual machines running **Xubuntu 22.04 LTS**. You may create the second VM by cloning the one you built in Assignment 1.

Part 1: Network Modes Testing

1. Configure and test each of the following VirtualBox network modes:

- NAT
- Bridged Adapter
- Host-only Adapter
- (Optional) Internal Network

2. For each mode, boot both VMs and perform the following tests:

- Ping from VM1 to VM2
- Ping from VM to the host
- Ping from VM to an external IP (e.g., 8.8.8.8)
- Open an external website from the browser

3. Record the results in a table, for example:

Mode	VM1 ↔ VM2	VM ↔ Host	VM ↔ Internet
NAT	✗	✗	✓
Bridged	✓	✓	✓
Host-only	✓	✓	✗
Internal (optional)	✓	✗	✗

Part 2: Screenshots and Explanation

1. Take screenshots showing:
 - VirtualBox Network Adapter settings for each mode
 - Ping results
2. Write a short explanation for each mode:
 - What worked and what did not
 - Typical use cases for the mode

Part 3: Static IP Configuration (Bonus)

1. Use the internal network mode.
2. Assign static IPs to both VMs (e.g., 192.168.56.101 and 192.168.56.102).
3. Verify connectivity using `ping` between the VMs.
4. Take a screenshot showing the configuration and successful communication.

Submission

- Combine all results, explanations, and screenshots into a single PDF file.
- Name your file: `INT693_A3_YourStudentID.pdf`
- **Submit via MS Teams Assignment of this subject.**