



information technology institute  
Cloud Architecture

# Windows Server Project

## Team Members

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## Supervised BY

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## Project Description

This project focuses on building and managing a Windows Server-based network infrastructure with multiple domain controllers, child domains, group policies, DNS zones, web servers, and automated application deployments. The setup involves virtualization, networking, and role-specific configurations across several devices, simulating a real-world enterprise environment.

### Key Components and Setup:

#### 1. Network Infrastructure:

- Created a custom network with six physical devices and virtual machines connected via bridge networking.
- Implemented switches and a hotspot for seamless connectivity.
- Configured a **DHCP server** to dynamically assign IP addresses and manage network settings efficiently.

#### 2. Domain Controllers (DCs):

- **DC1:** Primary Domain Controller (iti.local) hosting DNS, Active Directory, and DHCP services.
- **DC2:** Child Domain Controller (alex.iti.local) linked to the parent domain, facilitating domain hierarchy.
- **DC3:** Read-Only Domain Controller (RODC) for iti.local with restricted user access, ensuring enhanced security in specific scenarios.
- **Additional Domain Controller** configured for iti.local to bolster security and redundancy.

### 3. Users and Permissions:

- Defined domain-specific users (e.g., user1, user2, user3) with permissions tailored to tasks like logging into specific machines or remotely accessing the domain controllers.
- Enforced access policies without granting administrative privileges, ensuring a principle of least privilege.

### 4. Group Policies:

- Configured policies for user management, including:
  - Automatic application deployment (e.g., installing 7zip.msi on login for specific users).
  - Custom wallpapers and password policies.
  - Remote access permissions for designated users.

### 5. Web Servers:

- Set up two web servers:
  - **Web1:** Hosted using HTTP with real templates, accessible as <http://web1.com>.
  - **Web2:** Secured with HTTPS and real templates, accessible as <https://web2.com>.

### 6. DNS Zones:

- Configured a secondary DNS zone for redundancy, ensuring smooth domain resolution.

## 7. Automation and User-Specific Configurations:

- Developed scripts and policies to automate software installations, remote desktop access, and user-specific configurations.
- Enabled **user7** to access DC1 remotely using group policies without administrative rights.

### Practical Applications:

- Designed a fully functional infrastructure simulating real-world enterprise scenarios.
- Leveraged bridge networking, virtualization, and DHCP for a flexible, scalable environment.
- Demonstrated proficiency in managing Windows Server roles, domain hierarchies, and group policies while emphasizing automation, security, and user-specific configurations tailored to organizational needs.

This project showcases the team's expertise in planning, implementing, and managing a robust Windows Server environment, focusing on automation, security, and efficient resource management.

DC2 - VMware Workstation

File Edit View VM Tabs Help

Library

My Computer

- DC2
- DC1
- pc1

Server Manager

Server Manager Local Server

Dashboard

- Local Server
- All Servers
- AD DS
- DNS
- File and Storage Services

PROPERTIES

For chaid

Computer name	chaid	Last installed updates	Never
Domain	tanta.it.local	Windows Update	Download updates only, using Windows Update
		Last checked for updates	Never
Microsoft Defender Firewall	Public: Off	Microsoft Defender Antivirus	Real-Time Protection: On
Remote management	Enabled	Feedback & Diagnostics	Settings
Remote Desktop	Disabled	IE Enhanced Security Configuration	On
NIC Teaming	Disabled	Time zone	(UTC+02:00) Cairo
Ethernet0	10.10.10.2	Product ID	00455-50000-00001-AA366 (activated)
Operating system version	Microsoft Windows Server 2022 Datacenter Evaluation	Processors	Intel(R) Core(TM) i7-8750H CPU @ 2.20GHz, Intel(R) Xeon(R) CPU E-2278M @ 2.70GHz
Hardware information	VMware, Inc. VMware20,1	Installed memory (RAM)	2 GB
		Total disk space	59.37 GB

EVENTS

All events | 33 total

Filter

Server Name	ID	Severity	Source	Log	Date and Time
CHAILD	5781	Warning	NETLOGON	System	12/5/2024 5:17:44 PM

Type here to search

16°C مشمس 5:59 PM 12/5/2024

DC1 - VMware Workstation

File Edit View VM Tabs Help

Library

My Computer

- DC2
- DC1
- pc1

DHCP

File Action View Help

DHCP

- dc-5.it.local
  - IPv4
    - Scope [10.0.0.0] team
      - Address Pool
      - Address Leases
      - Reservations
      - Scope Options
      - Policies
      - Server Options
      - Policies
      - Filters
    - IPv6

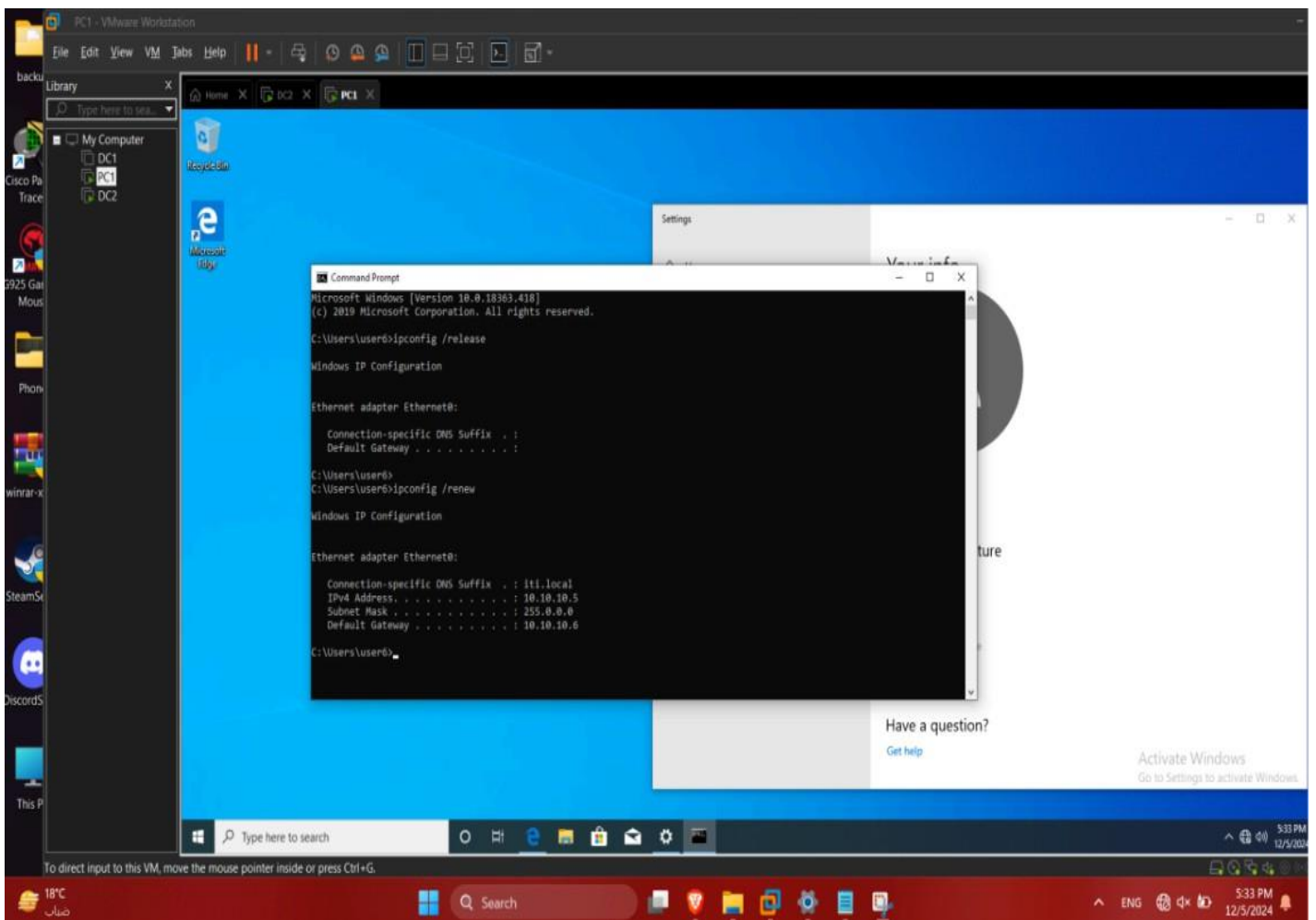
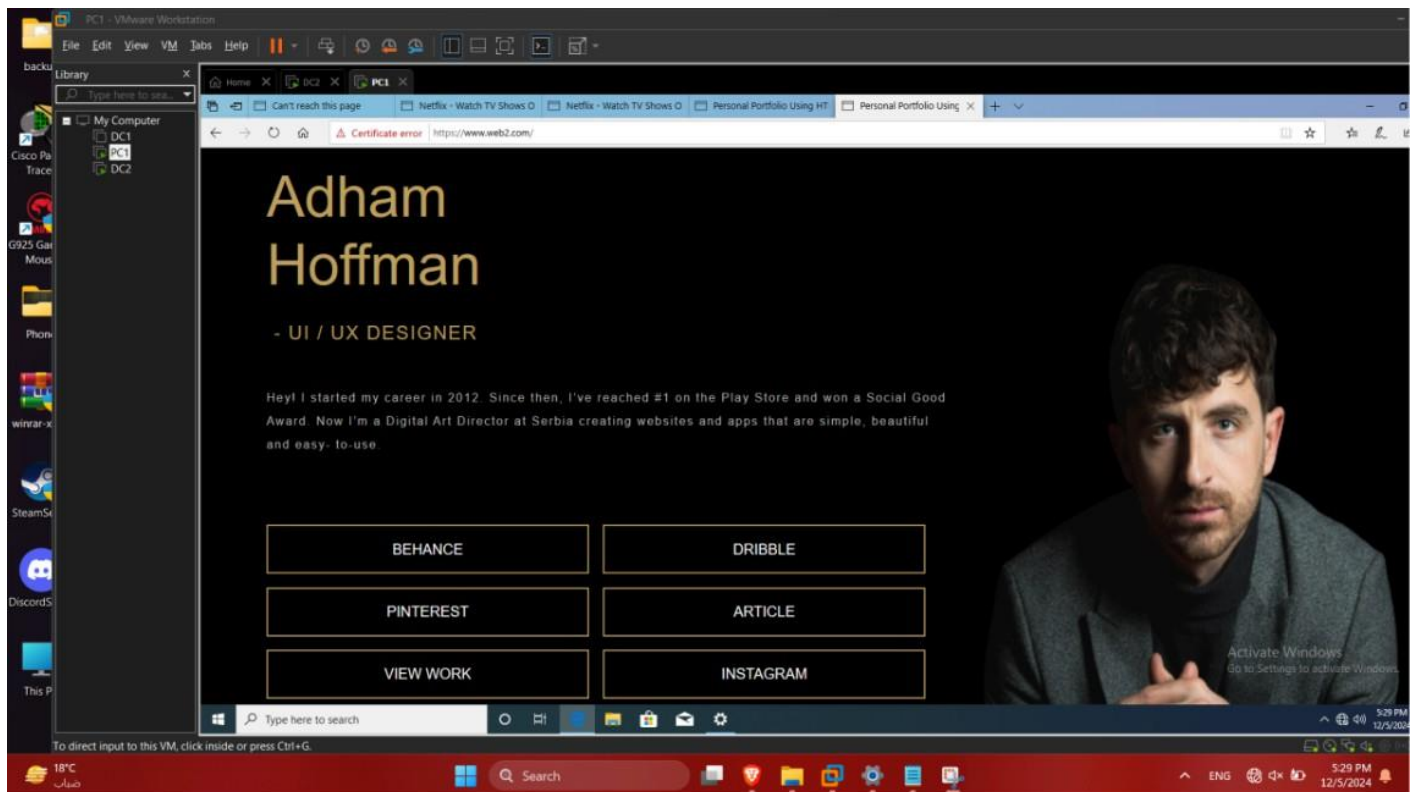
Start IP Address	End IP Address	Description
10.10.10.1	10.10.10.254	Address range for distribution

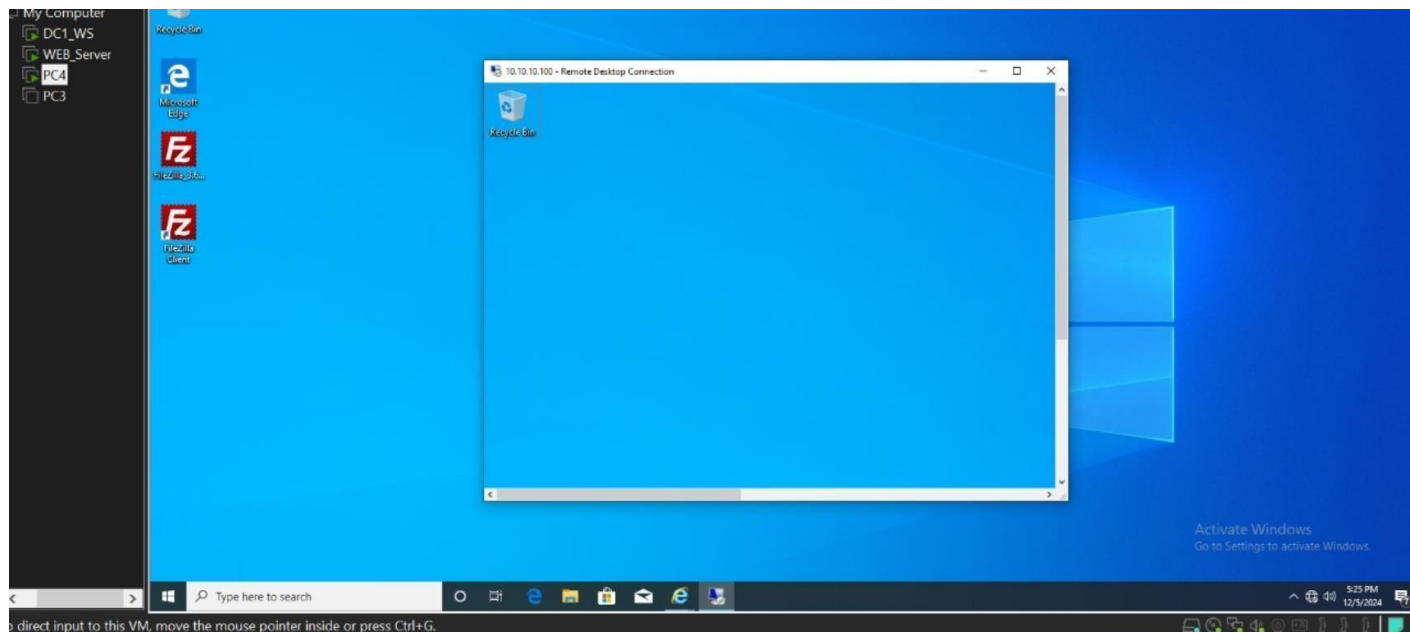
Actions

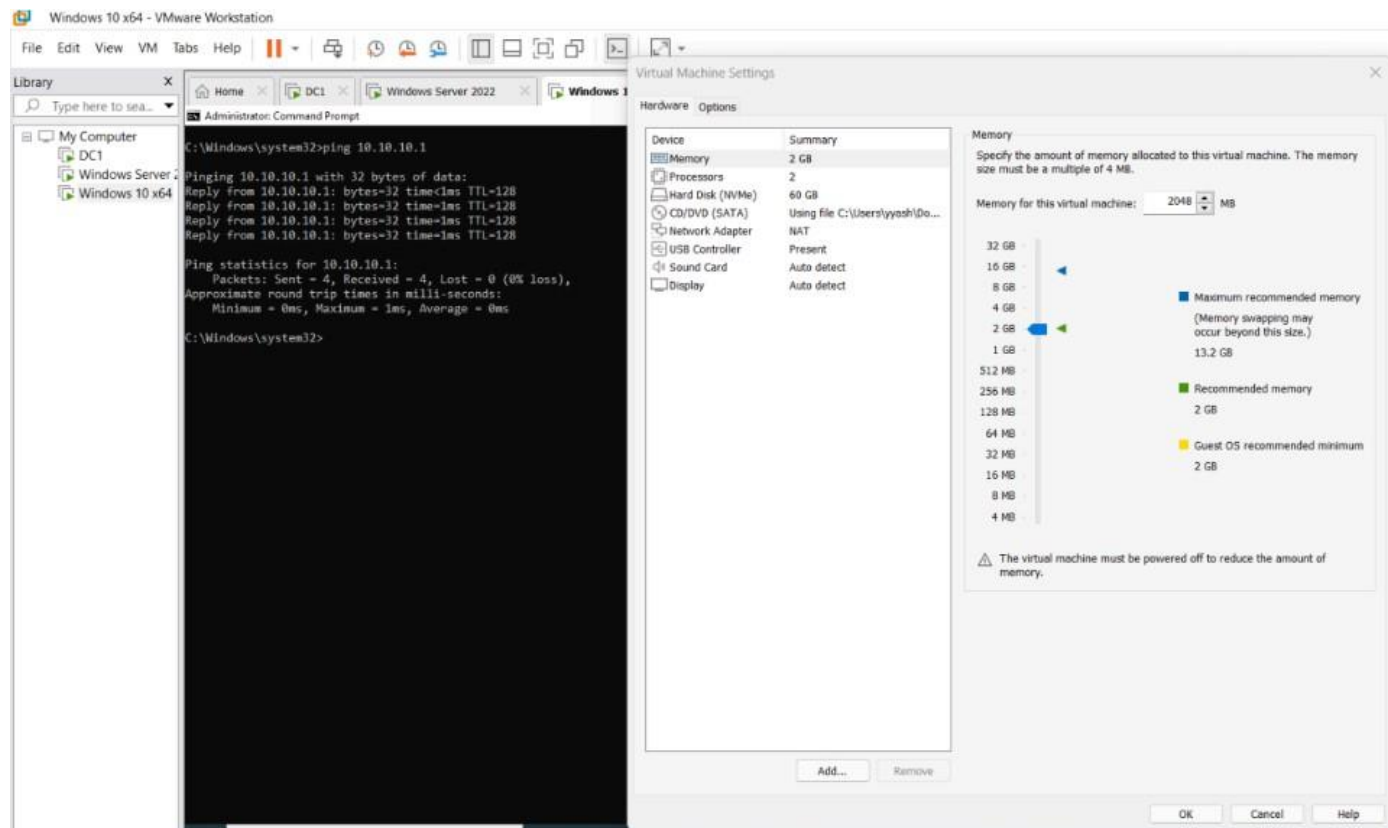
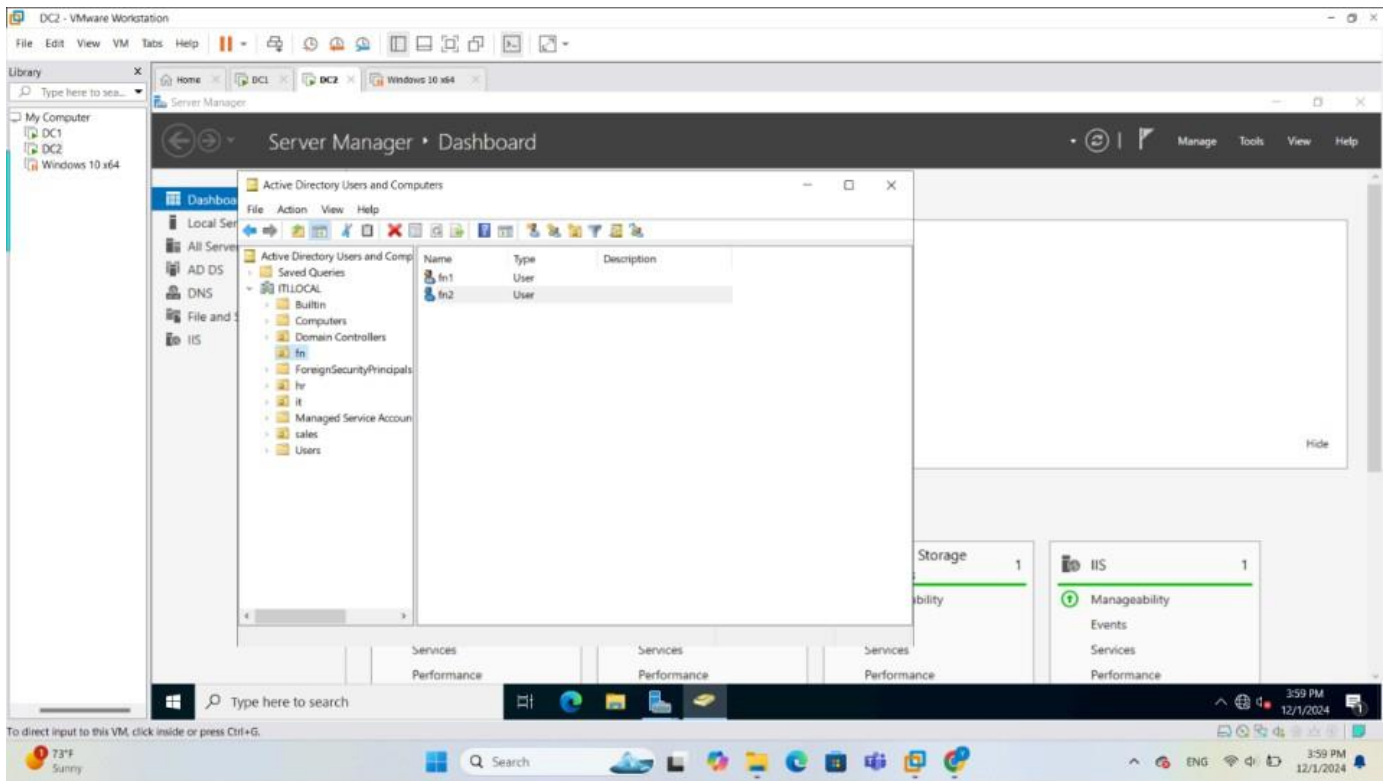
- Address Pool
- More Actions

Type here to search

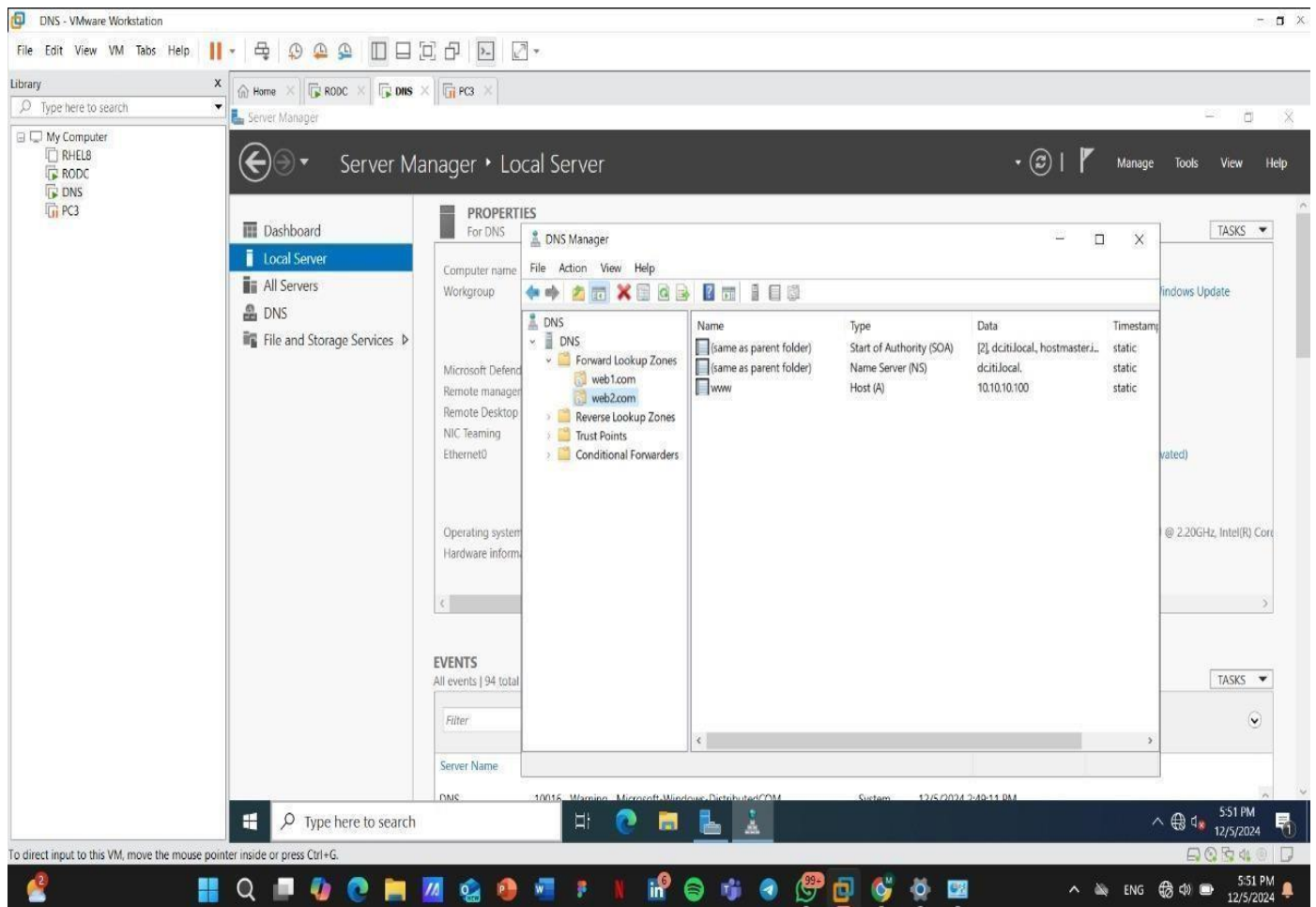
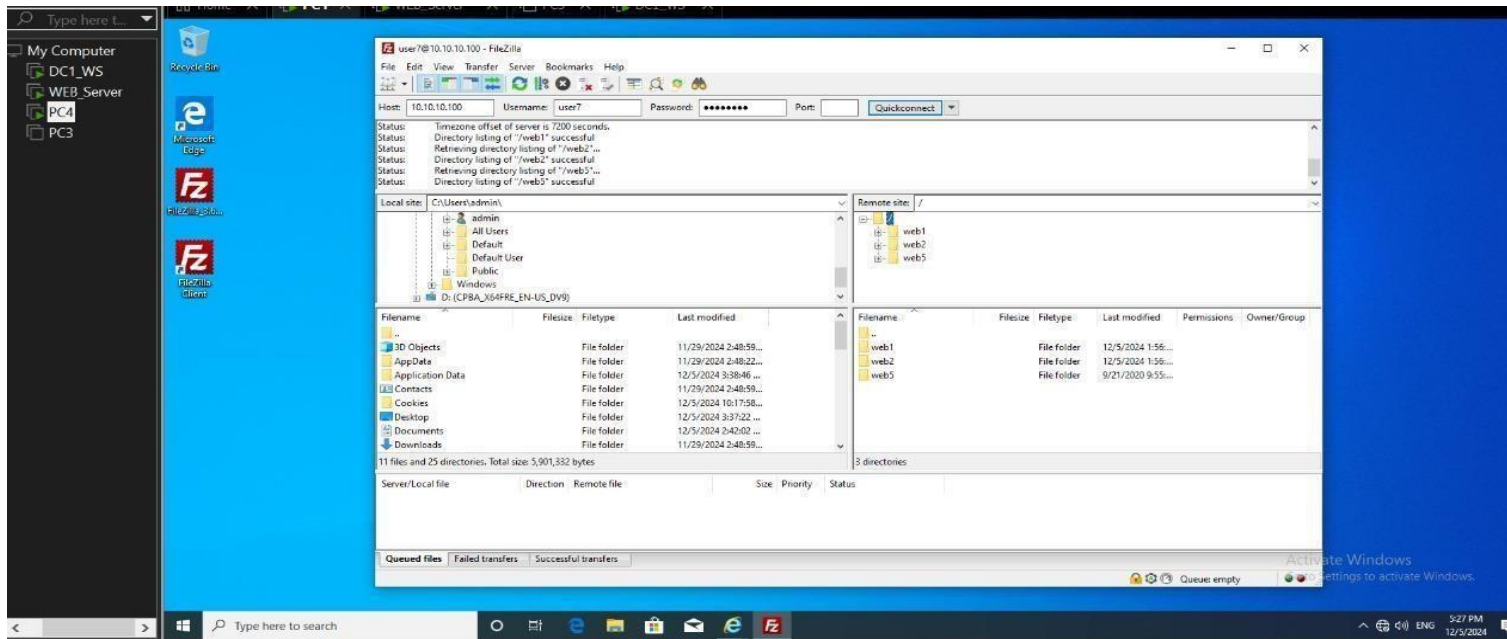
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File Edit View VM Tabs Help

Library

My Computer

- Redhat8.9
- Additional\_Domain
- DHCP
- PC1

DHCP

- dhcp.iti.local
  - IPv4
    - Server Options
    - Scope [10.10.10.0] lan
      - Address Pool
      - Address Leases
      - Reservations
      - Scope Options
      - Policies
    - Policies
    - Filters
    - IPv6

Client IP Address	Name	Lease Expiration	Type	Unique ID	Description	Actions
10.10.10.50	DESKTOP-OIV0QRD...	12/13/2024 1:31:30 PM	DHCP	000c29566...		F
10.10.10.51	DESKTOP-OMOH1...	12/13/2024 1:07:58 PM	DHCP	000c29a01...		F
10.10.10.52	BAD_ADDRESS	12/13/2024 1:07:39 PM	DHCP	340a0a0a	This address...	F
10.10.10.53	DESKTOP-0F5QKTL...	12/13/2024 1:16:16 PM	DHCP	000c297b8...		F
10.10.10.54	PC1.alex.iti.local	12/13/2024 1:37:40 PM	DHCP	000c2972d...		F

Network Connections

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18°C 4:52 PM 12/5/2024

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18°C 4:52 PM 12/5/2024

To direct input to this VM, move the mouse pointer inside or press Ctrl+G.