





وَقُلْ رَبِّ زِدْنِي عِلْمًا

# MCSA Course Review

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# Topics I Have Learned



## Active Directory & Group Policy:



Setting up and managing the Domain Controller(DC).



Configuring Group Policies, like:



Changing the user's desktop background.



Disabling USB flash drive for the user.



Restricting access to the control Panel.



## DNS Server:



Creating and managing different zones and records.



## DHCP Server:



Configuration DHCP pools and setting up failover with another server for high availability



## IIS & FTP Server:




Setting up IIS for web hosting and configure an FTP server to allow specified users to access and download files to their devices.

# Storage:

## Types of Storage:

 **Basic Storage:** Uses primary and extended partitions, suitable for simple disk management.

 **Dynamic Storage:** More flexible, using volumes instead of partitions. Supports **Simple, Spanned, Striped (RAID 0), Mirrored (RAID 1), and RAID 5 volumes.**

## File System Formats:

 **FAT32** – Compatible but has a 4GB file limit.

 **NTFS** – Supports security, encryption, and large files.

 **exFAT** – Optimized for flash storage, no size limit.

## MBR vs GPT:

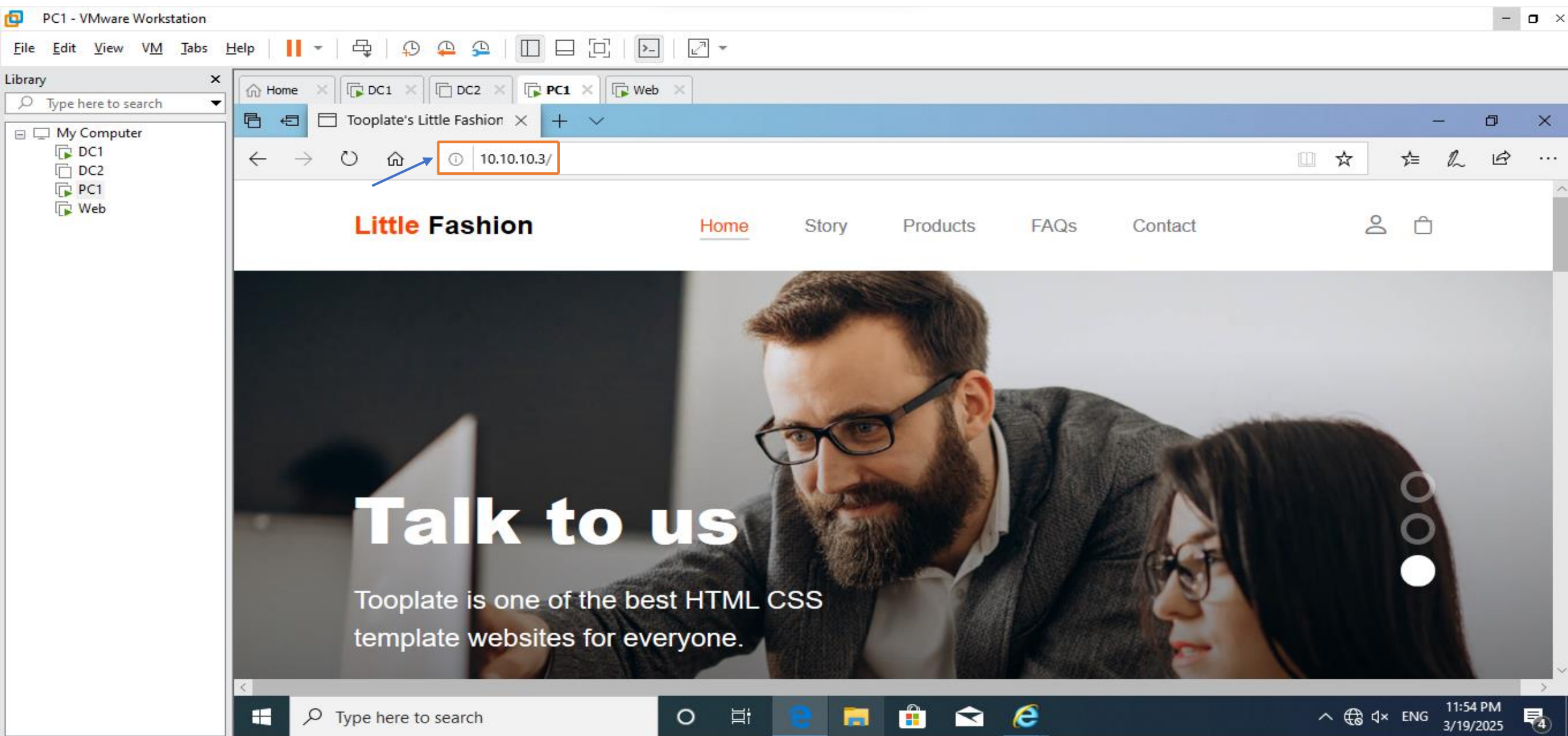
Feature	MBR	GPT
Max Partition Size	2TB	10ZB
Max Partitions	4 Primary	Up to 128 partitions
Boot Mode	Legacy Bios	UEFI

## Mounting Volumes (When Drive Letters Run Out):

 **Advantages:**  Saves Drive Letters |  Seamless Integration |  Efficient Storage Manage



# IIS Server Access via IP Address



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



# DNS (Zones & Records) for Accessing the Website by Name

DC1 - VMware Workstation

File Edit View VM Tabs Help

Library

Type here to search

- My Computer
  - DC1
  - DC2
  - PC1
  - Web

DNS Manager

File Action View Help

DNS

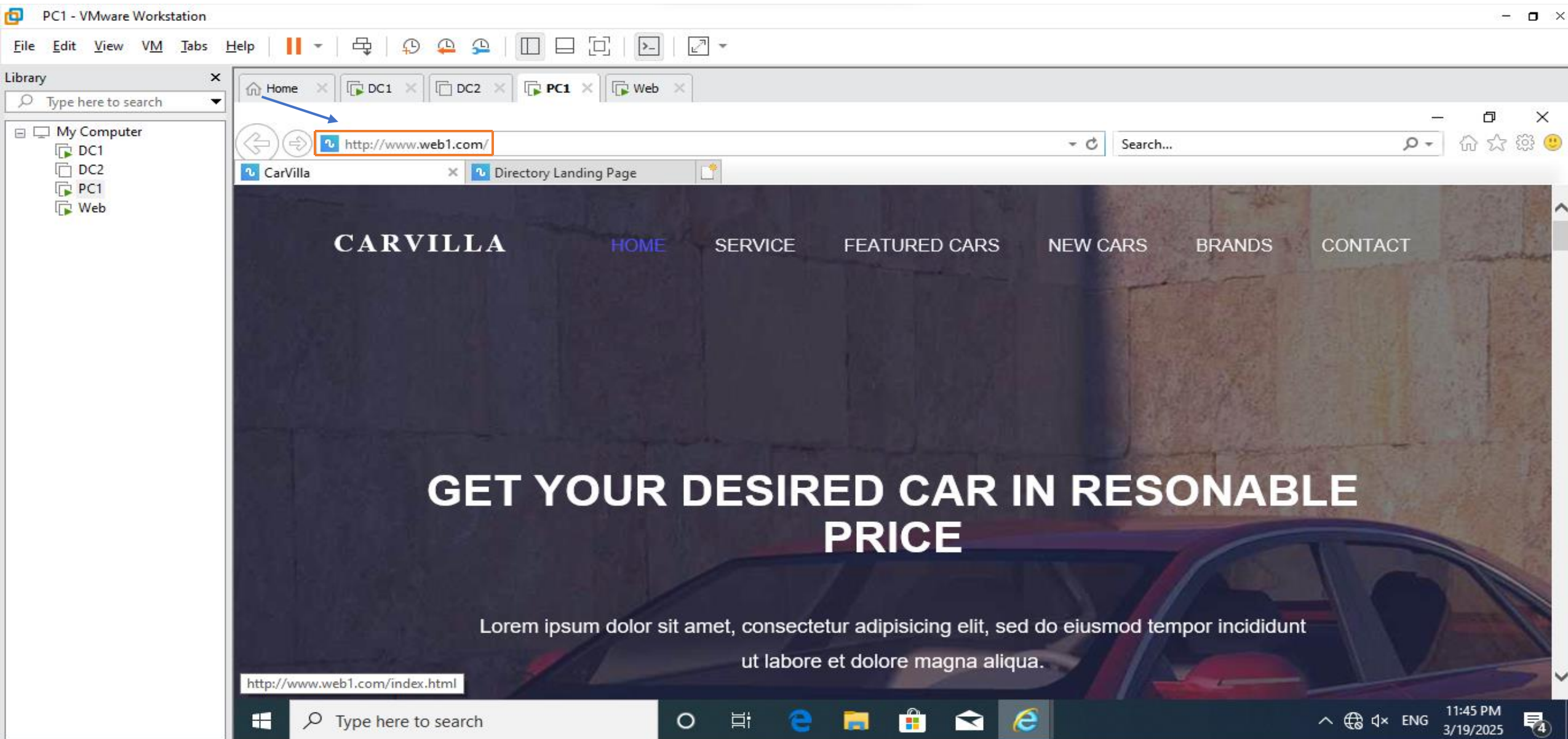
- DC1
  - Forward Lookup Zones
    - \_msdcs.itl.local
    - iti.local
    - web1.com
    - web10.com
  - Reverse Lookup Zones
  - Trust Points
  - Conditional Forwarders

Name	Type	Data	Timestamp
(same as parent folder)	Start of Authority (SOA)	[2], dc1.itl.local, hostmast...	static
(same as parent folder)	Name Server (NS)	dc1.itl.local.	static
www	Host (A)	10.10.10.3	static

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

Windows Taskbar: Search, Taskbar icons, System tray: 11:46 PM 3/19/2025

# IIS Server Access via Hostname





# Accessing Another Website Using Its Name

PC1 - VMware Workstation

File Edit View VM Tabs Help

Library

Type here to search

My Computer

- DC1
- DC2
- PC1
- Web

Home DC1 DC2 PC1 Web

http://www.web10.com/

CarVilla Directory Landing Page

EN USD

+1 222 777 6565 Sign In Register

ListRace

HOME HOW IT WORKS EXPLORE REVIEW BLOG CONTACT

BEST PLACE TO FIND AND EXPLORE THAT

Find Best Place, Restaurant,

Directory Landing Page - Internet Explorer

CarVilla - Internet Explorer

Directory Landing Page - Intern...

GET YOUR DESIRED CAR IN RESONABLE PRICE

BEST PLACE TO FIND AND EXPLORE THAT ALL YOU NEED

Type here to search

11:45 PM 3/19/2025

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

Search

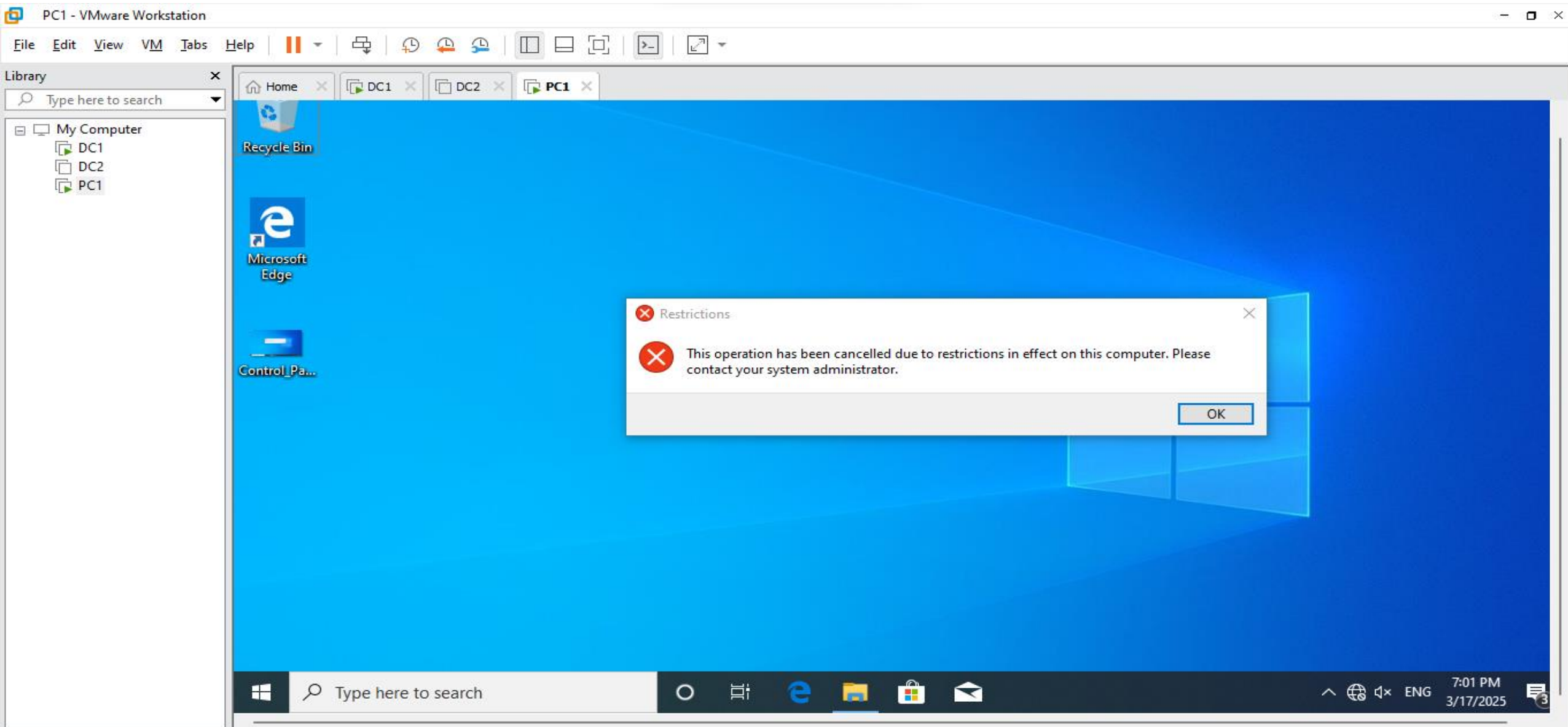
11:45 PM 3/19/2025



# Enforcing User Desktop Background via Group Policy



# Restricting Access to Control Panel via Group Policy



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



# Restricting USB Access via Group Policy

PC1 - VMware Workstation

File Edit View VM Tabs Help

Library

Type here to search

My Computer

- DC1
- DC2
- PC1

Home DC1 DC2 PC1

File Computer View Manage This PC

Drive Tools

← → ↑ This PC

Search This PC

Quick access

- Desktop
- Downloads
- Documents
- Pictures
- Music
- Videos

This PC

- Ventoy (E:)
- VTOYEFI (F:)
- Network

Folders (7)

- 3D Objects
- Downloads
- Videos

Devices and drives (4)

- Local Disk (C:)  
41.1 GB free of 59.3 GB
- CD Drive (D:)  
CPBA\_X64FRE\_EN-US\_DV9  
0 bytes free of 4.92 GB
- VTOYEFI (F:)  
4.59 MB free of 31.7 MB
- Ventoy (E:)  
12.8 GB free of 28.8 GB

Location is not available

✖ E:\ is not accessible.  
Access is denied.

OK

11 items | 1 item selected

Type here to search

7:56 PM 3/17/2025

Show hidden icons

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

Search

10:49 AM 3/17/2025

# DHCP Server

DC2 - VMware Workstation

File Edit View VM Tabs Help

Library

Type here to search

My Computer

- DC1
- DC2
- PC1
- Web

DHCP

File Action View Help

DHCP

- dc2.itl.local
  - IPv4
    - Server Options
    - Scope [10.0.0.0] Lan...
    - Scope [192.168.1.0] I...
    - Filters
    - IPv6

Option Name	Vendor	Value	Policy Name
006 DNS Servers	Standard	8.8.4.4	None

Actions

- Server Options
- More Actions

Windows taskbar: 12:51 PM 3/19/2025

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

Windows taskbar: Search 12:51 PM 3/19/2025



# LAN 192 uses it due to the lack of DNS in its configuration

DC2 - VMware Workstation

File Edit View VM Tabs Help

Library

Type here to search

My Computer

- DC1
- DC2
- PC1
- Web

Home DC1 DC2 PC1

DHCP

File Action View Help

DHCP

- dc2.itl.local
  - IPv4
    - Server Options
    - Scope [10.0.0.0] Lan\_10
      - Address Pool
      - Address Leases
      - Reservations
      - Scope Options
      - Policies
    - Scope [192.168.1.0] Lan\_192
      - Address Pool
      - Address Leases
      - Reservations
      - Scope Options
      - Policies
    - Filters
  - IPv6

Option Name	Vendor	Value	Policy Name
003 Router	Standard	192.168.1.1	None
015 DNS Domain Name	Standard	iti.local	None
006 DNS Servers	Standard	8.8.4.4	None

Actions

Scope Options

More Actions

DHCP

Type here to search

12:52 PM 3/19/2025

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

Search

ENG 12:52 PM 3/19/2025

# The PC obtains its configurations from the DHCP

PC1 - VMware Workstation

File Edit View VM Tabs Help

Library

Type here to search

My Computer

- DC1
- DC2
- PC1
- Web

Recycle Bin

Microsoft Edge

Administrator: C:\Windows\system32\cmd.exe

```
Ethernet adapter Ethernet0:

Connection-specific DNS Suffix  . : iti.local
IPv4 Address. . . . . : 10.0.0.50
Subnet Mask . . . . . : 255.0.0.0
Default Gateway . . . . . : 10.0.0.100

C:\Users\Administrator>ipconfig/all

Windows IP Configuration

Host Name . . . . . : PC1
Primary Dns Suffix . . . . . : iti.local
Node Type . . . . . : Hybrid
IP Routing Enabled. . . . . : No
WINS Proxy Enabled. . . . . : No
DNS Suffix Search List. . . . . : iti.local

Ethernet adapter Ethernet0:

Connection-specific DNS Suffix  . : iti.local
Description . . . . . : Intel(R) 82574L Gigabit Network Connection
Physical Address. . . . . : 00-0C-29-01-11-94
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . : Yes
IPv4 Address. . . . . : 10.0.0.50(Preferred)
Subnet Mask . . . . . : 255.0.0.0
Lease Obtained. . . . . : Wednesday, March 19, 2025 12:55:10 PM
Lease Expires . . . . . : Wednesday, March 19, 2025 2:58:57 PM
Default Gateway . . . . . : 10.0.0.100
DHCP Server . . . . . : 10.10.10.1
DNS Servers . . . . . : 10.10.10.1
                        8.8.8.8
NetBIOS over Tcpip. . . . . : Enabled

C:\Users\Administrator>
```

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

Search

1:59 PM 3/19/2025

# Reserving the PC's IP for consistent use

DC2 - VMware Workstation

File Edit View VM Tabs Help

Library

Type here to search

My Computer

- DC1
- DC2
- PC1
- Web

Home DC1 DC2 PC1

DHCP

File Action View Help

DHCP

- dc2.itl.local
  - IPv4
    - Server Options
    - Scope [10.0.0.0] Lan\_10
      - Address Pool
      - Address Leases
      - Reservations
        - [10.0.0.50] PC1.itl.local
      - Scope Options
      - Policies
    - Scope [192.168.1.0] Lan\_192
      - Address Pool
      - Address Leases
      - Reservations
      - Scope Options
      - Policies
    - Policies
    - Filters
    - IPv6

Option Name	Vendor	Value	Class / Policy Name
003 Router	Standard	10.0.0.100	None
006 DNS Servers	Standard	10.10.10.1, 8.8.8.8	None
015 DNS Domain Name	Standard	iti.local	None

Actions

- [10.0.0.50] PC1.itl.local
- More Actions

Windows taskbar: Type here to search, 12:57 PM 3/19/2025

Taskbar: Search, 12:57 PM 3/19/2025

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

# Setting up failover with a server that has DHCP service

DC2 - VMware Workstation

File Edit View VM Tabs Help

Library

Type here to search

My Computer

- DC1
- DC2
- PC1
- Web

DHCP

- dc2.itl.local
  - IPv4
    - Server Options
    - Scope [10.0.0.0] Lan\_10
    - Scope [192.168.1.0] Lan\_192
    - Policies
    - Filters
    - IPv6

Configure Failover

Create a new failover relationship

Create a new failover relationship with partner dc1

Relationship Name: dc2.itl.local-dc1

Maximum Client Lead Time: 1 hours 0 minutes

Mode: Hot standby

Hot Standby Configuration

Role of Partner Server: Standby

Addresses reserved for standby server: 5 %

☒ State Switchover Interval: 60 minutes

☐ Enable Message Authentication

Shared Secret:

< Back Next > Cancel

Failover R

Actions

IPv4

More Actions

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



# Replicating the LAN 10 scope on the standby server

DC1 - VMware Workstation

File Edit View VM Tabs Help

Library

Type here to search

My Computer

- DC1
- DC2
- PC1
- Web

Home DC1 DC2 PC1

DHCP

File Action View Help

DHCP

- dc1.itl.local
  - IPv4
    - Scope [10.0.0.0] Lan\_10
      - Address Pool
      - Address Leases
      - Reservations
        - [10.0.0.50] PC1.itl.local
      - Scope Options
      - Policies
      - Server Options
      - Policies
    - Filters
  - IPv6

Reservations

- [10.0.0.50] PC1.itl.local

Actions

Reservations

More Actions

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

Windows taskbar and system tray area showing various application icons, search bar, and system clock (1:05 PM 3/19/2025).

# Backing up the active server and restoring it on the standby

DC1 - VMware Workstation

File Edit View VM Tabs Help

Library

Type here to search

My Computer

- DC1
- DC2
- PC1
- Web

Home DC1 DC2 PC1

DHCP

File Action View Help

DHCP

- dc1.itl.local
  - IPv4
    - Scope [10.0.0.0] Lan\_10
      - Address Pool
      - Address Leases
      - Reservations
        - [10.0.0.50] PC1.itl.local
      - Scope Options
      - Policies
    - Scope [192.168.1.0] Lan\_192
      - Address Pool
      - Address Leases
      - Reservations
      - Scope Options
      - Policies
    - Server Options
    - Policies
  - Filters
  - IPv6

Reservations

- [10.0.0.50] PC1.itl.local

Actions

Reservations

More Actions

Windows taskbar: Type here to search, 1:09 PM 3/19/2025

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

Windows taskbar: Search, 1:09 PM 3/19/2025

# RAID & Dynamic Disk Configuration in Windows

DC1 - VMware Workstation

File Edit View VM Tabs Help

Library

My Computer

- DC1
- DC2
- PC1
- Web

Computer Management

File Action View Help

Volume	Layout	Type	File System	Status	Capacity	Free Space	% Free
(C:)	Simple	Basic	NTFS	Healthy (Boot, Page File, Crash Dump, Basic Data Partition)	59.37 GB	48.09 GB	81 %
(Disk 0 partition 1)	Simple	Basic		Healthy (EFI System Partition)	100 MB	100 MB	100 %
(Disk 0 partition 4)	Simple	Basic		Healthy (Recovery Partition)	524 MB	524 MB	100 %
New Volume (E:)	Simple	Dy...	NTFS	Healthy	19.53 GB	19.48 GB	100 %

Storage

Disk 1  
Dynamic  
60.00 GB  
Online

New Volume (E:)  
19.53 GB NTFS  
Healthy

New Volume (F:)  
9.77 GB NTFS  
Healthy

New Volume (I:)  
9.76 GB NTFS  
Healthy

New Volume (G:)  
20.93 GB NTFS  
Healthy

Disk 2  
Dynamic  
60.00 GB  
Online

New Volume (G:)  
14.65 GB NTFS  
Healthy

New Volume (F:)  
9.77 GB NTFS  
Healthy

New Volume (H:)  
4.88 GB NTFS  
Healthy

New Volume (I:)  
9.76 GB NTFS  
Healthy

New Volume (J:)  
20.94 GB NTFS  
Healthy

Disk 3  
Dynamic  
60.00 GB  
Online

New Volume (H:)  
4.88 GB NTFS  
Healthy

New Volume (I:)  
9.76 GB NTFS  
Healthy

New Volume (K:)  
45.35 GB NTFS  
Healthy

CD-ROM 0

Unallocated Primary partition Simple volume Spanned volume Striped volume Mirrored volume RAID-5 volume

Windows Taskbar

Type here to search

1:57 PM 3/20/2025

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

Search

1:57 PM 3/20/2025

# Mounting Volumes: Using Folders Instead of Drive Letters

The image shows a VMware Workstation interface with two windows open. The main window, titled 'DC1 - VMware Workstation', displays the 'New Simple Volume Wizard' with the 'Assign Drive Letter or Path' step selected. A red box labeled '1' highlights the 'Mount in the following empty NTFS folder:' option, which has 'E:\Mount' entered in the text box. A blue arrow points from the red box to the text box. The 'Browse...' button is also visible. The 'Volume' table in the background shows the following data:

Volume	Layout	Type	File System	Status	Capacity	Free Space	% Free
mp, Basic Data Partition)					59.37 GB	48.09 GB	81 %
					100 MB	100 MB	100 %
					524 MB	524 MB	100 %
					19.53 GB	19.48 GB	100 %

The second window, also titled 'DC1 - VMware Workstation', shows a File Explorer window with the address bar set to 'This PC > New Volume (E:)'. A blue arrow points from the 'Drive Tools' menu in the top right of the File Explorer to the address bar. A red box labeled '2' highlights the 'Mount' icon in the 'Quick access' section of the File Explorer. The taskbar at the bottom shows the Windows Start button, a search bar, and several application icons.



# Virtual Hard Disk (VHD): Mounted Storage for Flexible Use

DC1 - VMware Workstation

File Edit View VM Tabs Help

Library

Type here to search

Services

Refresh

Rescan Disks

Create VHD

Attach VHD

DC1 DC2 PC1 Web

Computer Management

Action View Help

Computer Management (Local)

System Tools

Task Scheduler

Event Viewer

DC1 DC2 PC1 Web

Manage

New Volume (F:)

Share View Drive Tools

This PC > New Volume (F:)

Virtual\_HD.vhd

Virtual\_HD.vhd

Create and Attach Virtual Hard Disk

Specify the virtual hard disk location on the machine.

Location:

F:\Virtual\_HD.vhd

Browse...

Virtual hard disk size:

5000 MB

Virtual hard disk format

☒ VHD

Supports virtual disks up to 2040 GB in size.

☐ VHDX

Supports virtual disks larger than 2040 GB in size (Supported maximum of 64 TB) and is resilient to power failure events. This format is not supported in operating systems earlier than Windows 8 or Windows Server 2012.

Virtual hard disk type

☒ Fixed size (Recommended)

The virtual hard disk file is allocated to its maximum size when the virtual hard disk is created.

☐ Dynamically expanding

The virtual hard disk file grows to its maximum size as data is written to the virtual hard disk.

OK Cancel

Disk 0

Basic

59.98 GB

Online

100 MB

Healthy (EFI System Partition)

Disk 1

Dynamic

60.00 GB

Online

New Volume (F:)

19.53 GB NTFS

Healthy

Unallocated Primary partition Simple volume Spanned volume Striped volume Mirrored volume RAID-5 volume

Disk 4

Basic

4.88 GB

Online

New Volume (K:)

4.88 GB NTFS

Healthy (Primary Partition)

Basic Data Partition)

Capacity

Free

Frequency

59.37 GB 48.0

100 MB 100

524 MB 524

45.35 GB 45.2

19.53 GB 19.4

19.53 GB 19.4

35.58 GB 35.5

4.88 GB 4.88

19.53 GB 19.4

20.94 GB 20.8

4.70 GB 0 M

Actions

Disk Management

More Actions

524 MB

Healthy (Recovery Partition)

New Volume (G:)

20.93 GB NTFS

Healthy

Windows

Type here to search

Search



**Finally, I want to say :**

**"Your Effort Made a Difference!"**

I truly appreciate your dedication, patience and support. Your guidance has helped me a lot, and I have learned so much thanks to you.

**ENG : Mohamed Abosehly 🙏**