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AIM: Implementation of small network using HUB or SWITCH by which more than 2 PC's can communicate.

- A. Design Peer to peer Network.
- B. Design Star Topology.



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Appliances:

1. Two laptops
2. 1 LAN cable

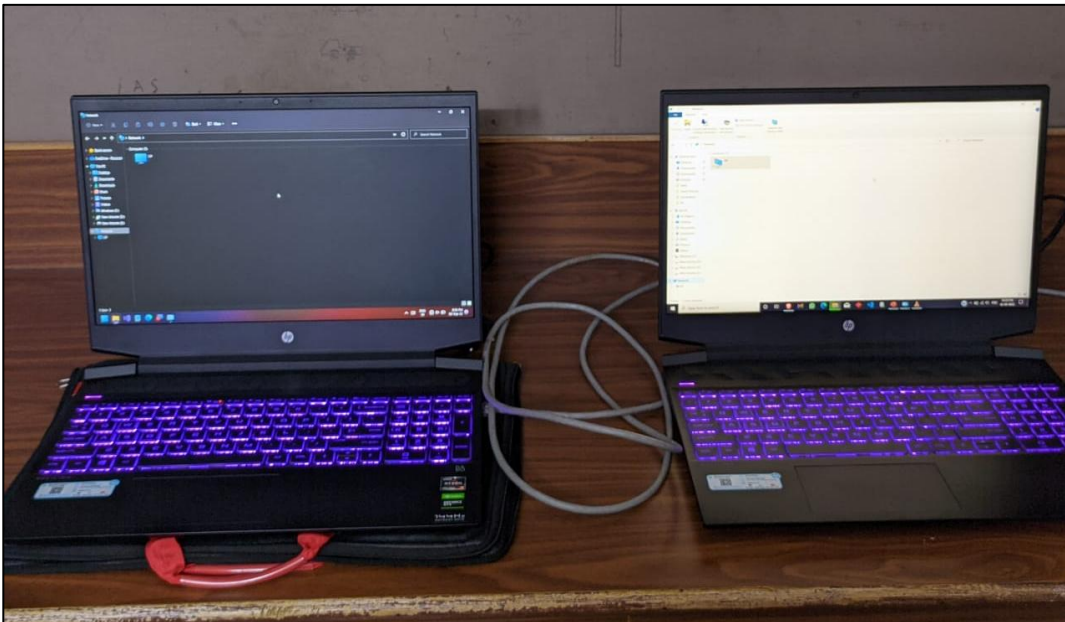
Simplification:

1. 8GB RAM
2. RYZEN 5 CPU (6 Core, 12 Thread) 3.30GHz
3. NVIDIA GTX 4GB GPU
4. PC1: Windows 11 and PC2: Windows 10
5. 512GB SSD

Connecting 2 PC's with LAN Cable:

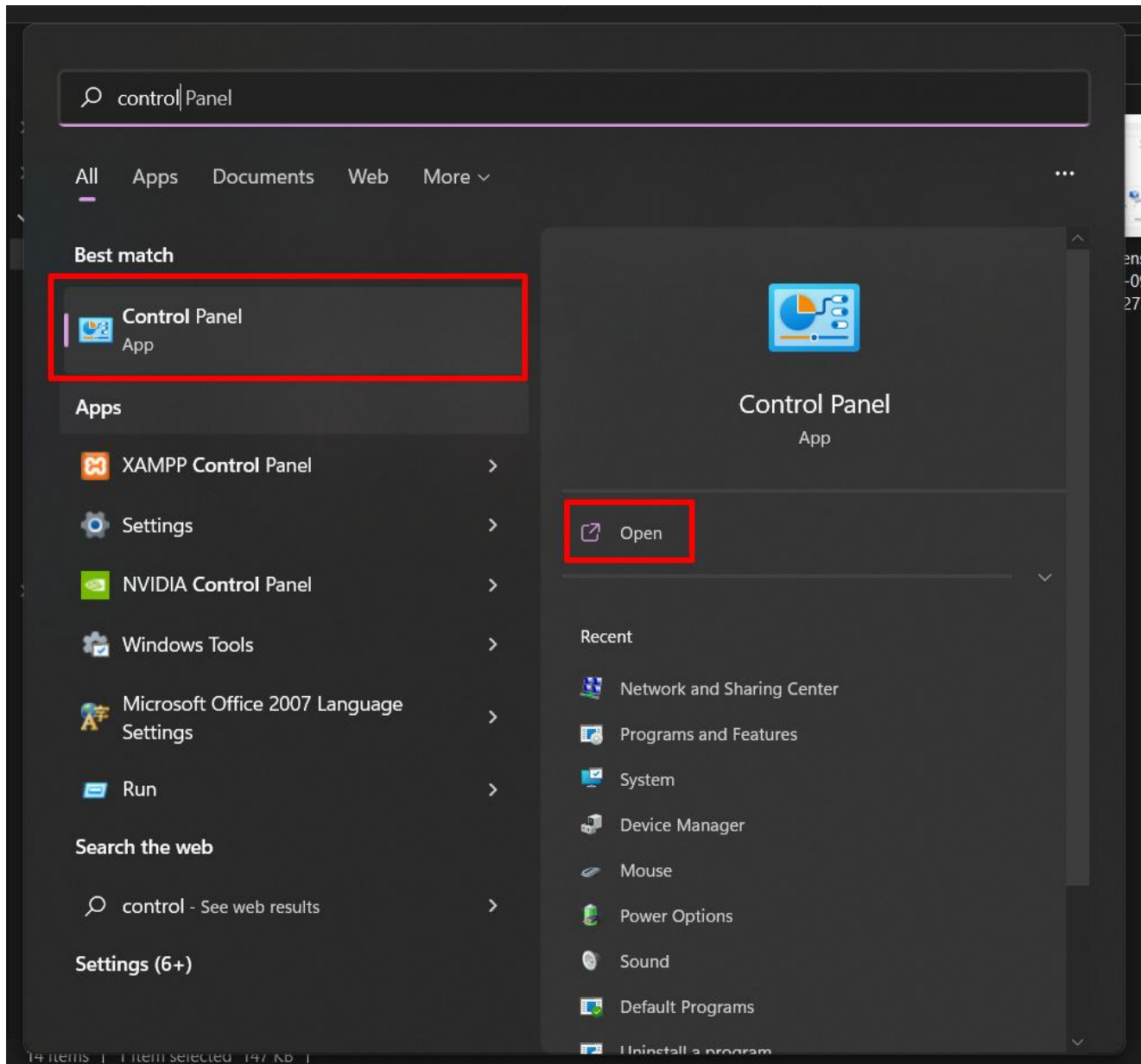
- Plug one end of the Ethernet cable in the first system and the remaining end in the second system.

Step 1): Here in the below given figure, we have physically connected two PC's using LAN cable.



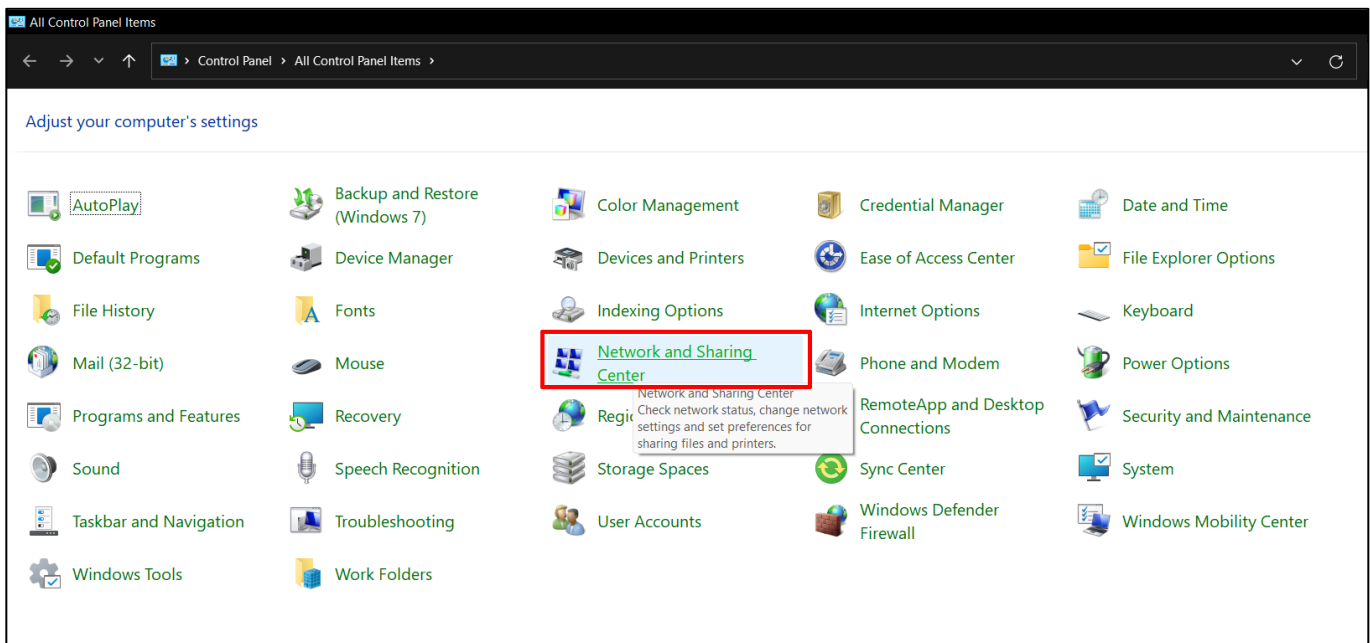
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Step 2): Once the Ethernet cables are plugged in both the systems, open Control Panel. Press the start button and type control panel or press “WIN + R” and type “control panel” and press enter.

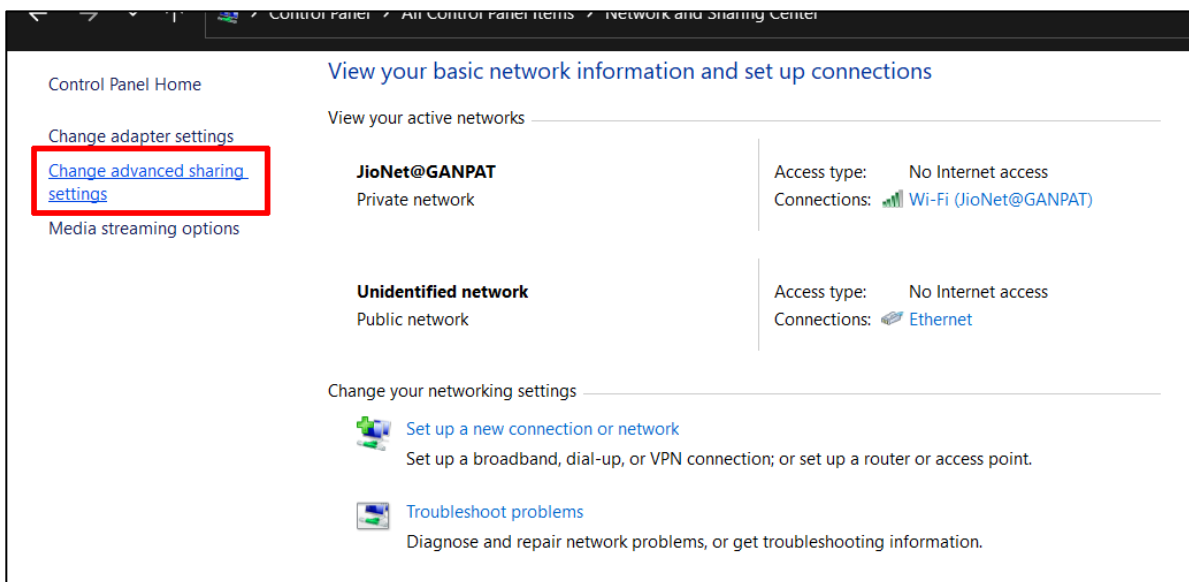


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Step 3): In the control panel select the “**Network and Internet**” option.

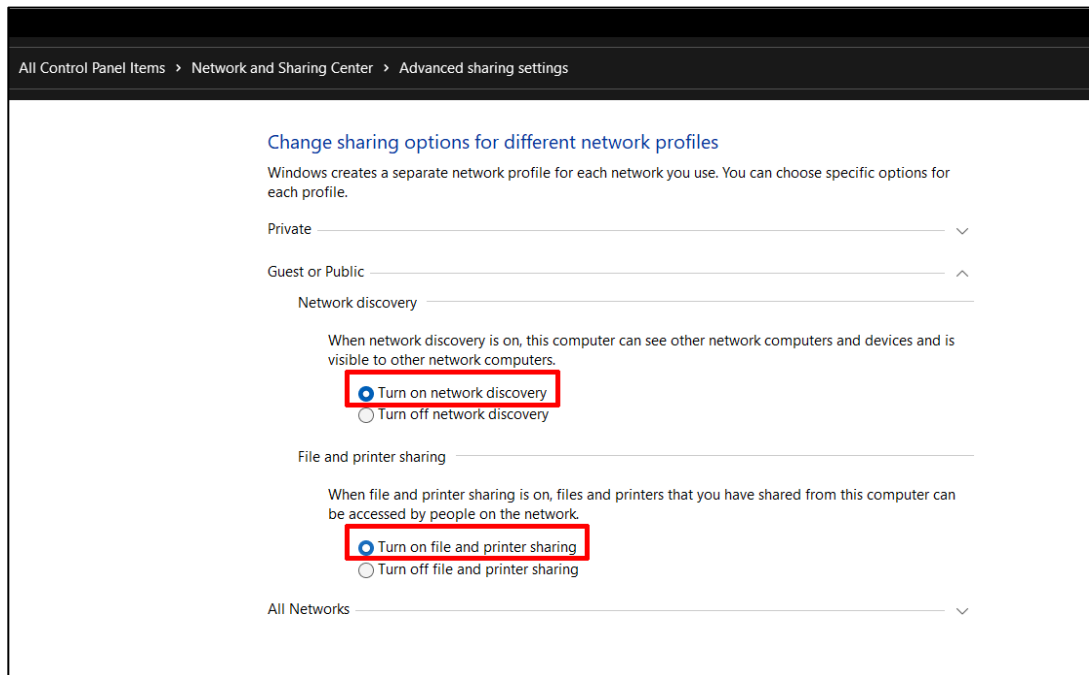


Step 4): From upper left portion of screen select “**change advanced sharing settings**”.



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Step 5): Under “Network discovery” select “Turn on network discovery” and Under “File and printer sharing” select “Turn on printer sharing” option.



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Step 6): After that under All Networks select “Turn on sharing to anyone with network access can read and write files in the public folders”.

Step 7): Under Password protected sharing select “Turn off password protected sharing”.

Step 8): Then click on “Save Changes”.

Similarly settings apply on PC2.

> Network and Sharing Center > Advanced sharing settings

Change sharing options for different network profiles

Windows creates a separate network profile for each network you use. You can choose specific options for each profile.

Private _____ ▾

Guest or Public _____ ▾

All Networks _____ ▴

Public folder sharing _____

When Public folder sharing is on, people on the network, including homegroup members, can access files in the Public folders.

☒ Turn on sharing so anyone with network access can read and write files in the Public folders

☐ Turn off Public folder sharing (people logged on to this computer can still access these folders)

Media streaming _____

When media streaming is on, people and devices on the network can access pictures, music, and videos on this computer. This computer can also find media on the network.

[Choose media streaming options...](#)

File sharing connections _____

Windows uses 128-bit encryption to help protect file sharing connections. Some devices don't support 128-bit encryption and must use 40- or 56-bit encryption.

☒ Use 128-bit encryption to help protect file sharing connections (recommended)

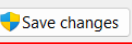
☐ Enable file sharing for devices that use 40- or 56-bit encryption

Password protected sharing _____

When password protected sharing is on, only people who have a user account and password on this computer can access shared files, printers attached to this computer, and the Public folders. To give other people access, you must turn off password protected sharing.

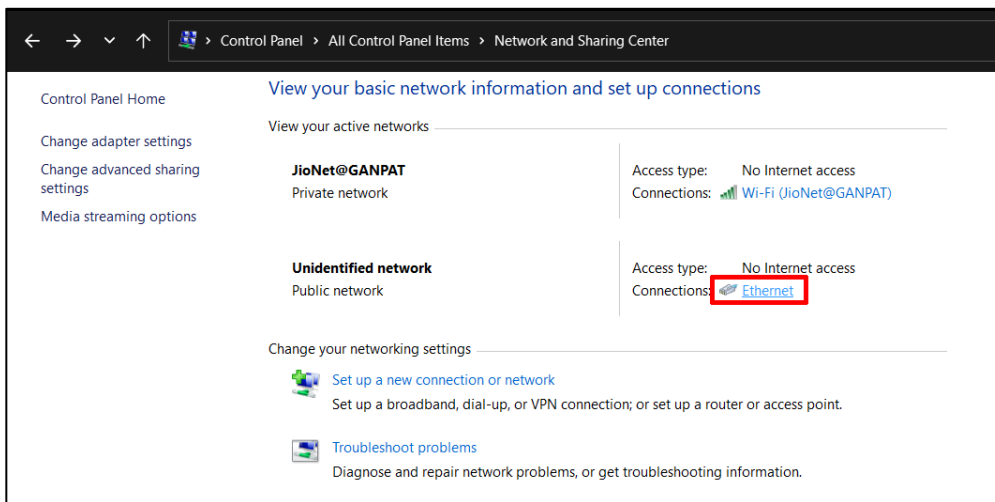
☐ Turn on password protected sharing

☒ Turn off password protected sharing

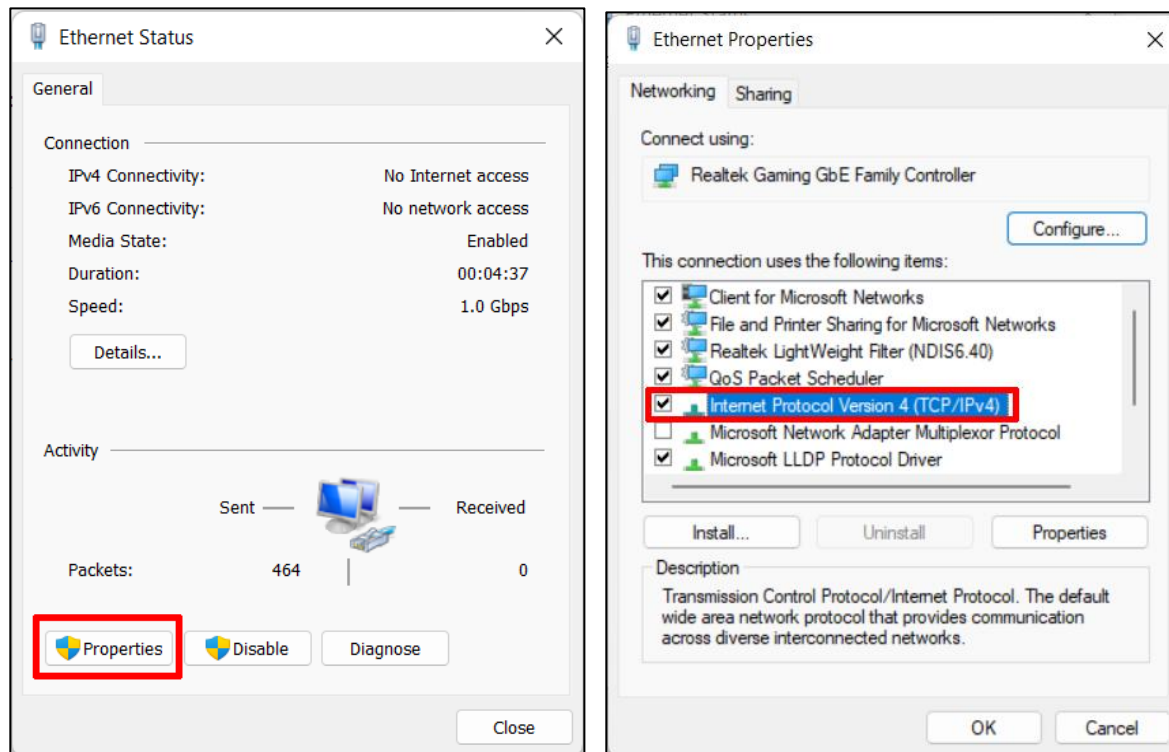
 Save changes Cancel

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Step 9): After that, check connections it will show “Ethernet” click on it.



Step 10): Tap on “Properties” and Double click on “Internet Protocol Version 4 (TCP/IPv4)”



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Step 11): After double clicking on that select “**Use the following IP address**” and give the value to the IP address, Subnet Mask and Default Gateway of PC1.

- Put “**IP Address**” of PC2 in Default gateway of PC1.

Internet Protocol Version 4 (TCP/IPv4) Properties

General

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

☐ Obtain an IP address automatically

☒ Use the following IP address:

IP address: 192 . 168 . 1 . 1

Subnet mask: 255 . 255 . 255 . 0

Default gateway: 192 . 168 . 1 . 2

☐ Obtain DNS server address automatically

☒ Use the following DNS server addresses:

Preferred DNS server: . . .

Alternate DNS server: . . .

☐ Validate settings upon exit

Advanced...

OK Cancel

Step 12): Similarly give the value to the **IP address**, Subnet Mask and Default Gateway of PC2.

- Put “**IP Address**” of PC1 in Default gateway of PC2.

Internet Protocol Version 4 (TCP/IPv4) Properties

General

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

☐ Obtain an IP address automatically

☒ Use the following IP address:

IP address: 192 . 168 . 1 . 2

Subnet mask: 255 . 255 . 255 . 0

Default gateway: 192 . 168 . 1 . 1

☐ Obtain DNS server address automatically

☒ Use the following DNS server addresses:

Preferred DNS server: . . .

Alternate DNS server: . . .

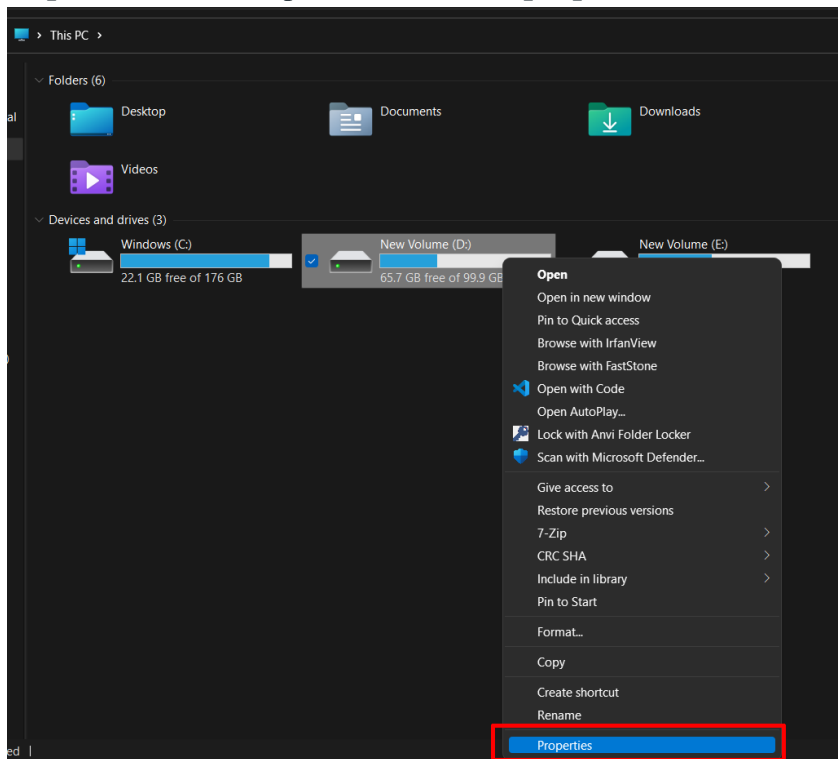
☐ Validate settings upon exit

Advanced...

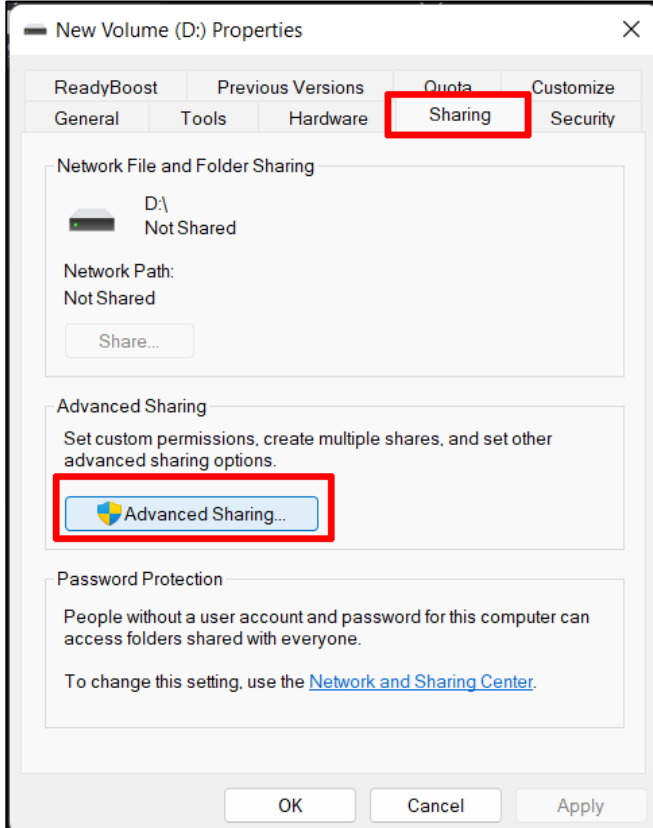
OK Cancel

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Step 13): Go to This pc and select the “properties” of “New volume (D)”.

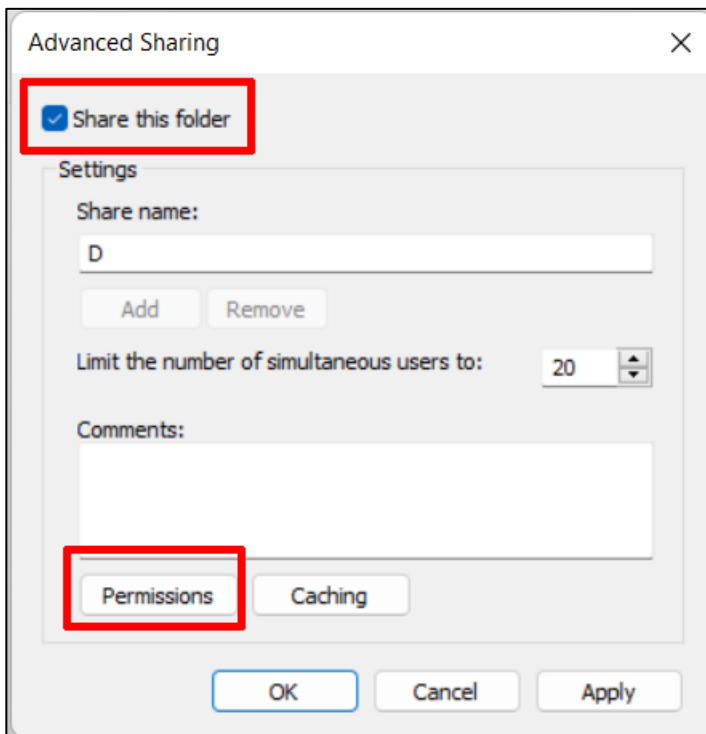


Step 14): Then after select “Sharing” tab and tap on “Advanced Sharing”.

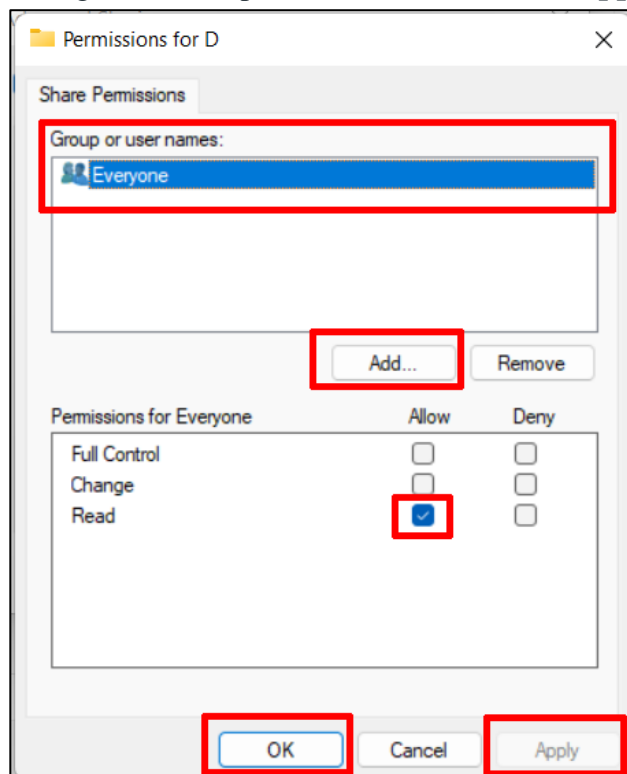


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Step 15): In Advanced Sharing select “Share this folder” and Click on “Permissions”.

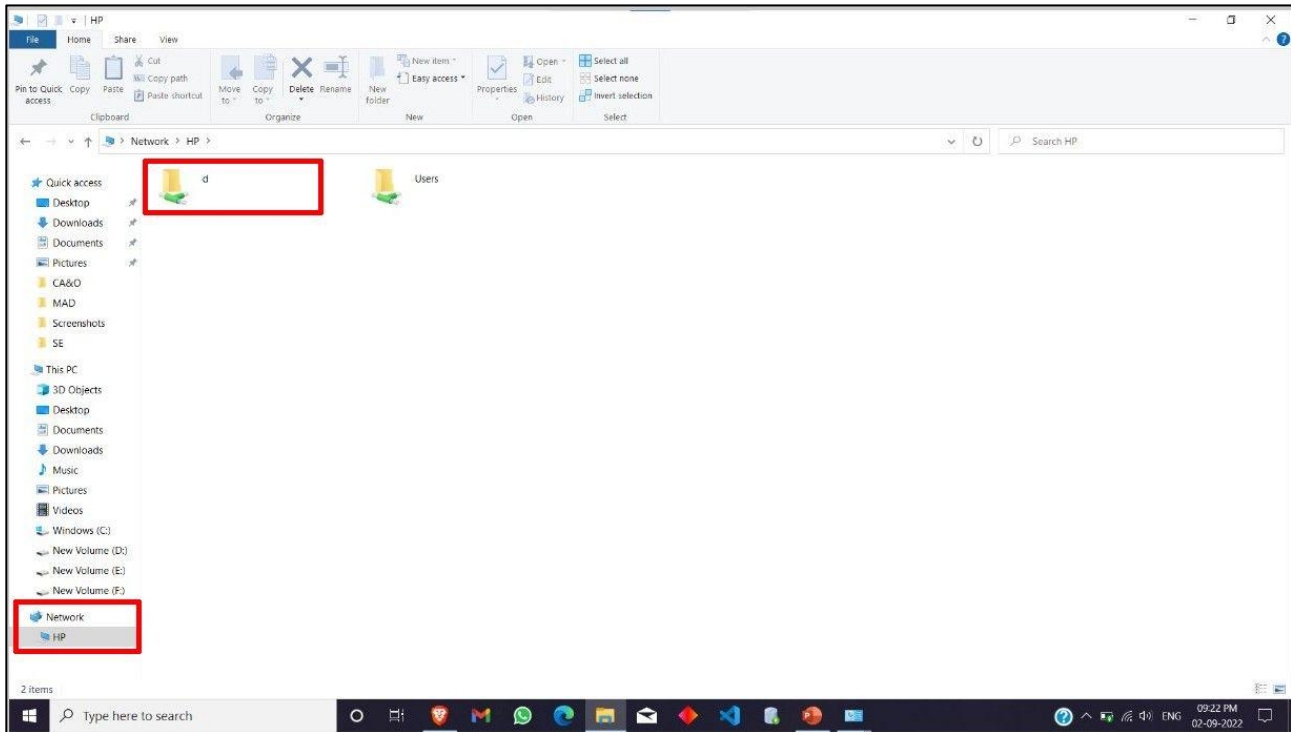


Step 16): In Share permission “Add” “Everyone” in Group or username. Give permission as you want. I can give “read” permission and click on “Apply” and “OK”.



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Step 17): After giving permissions to PC1, the “**D drive**” will be available in PC2, so we can access data of PC1’s D drive easily in PC2.



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Design Star Topology.

Step 1): We need two or more computer devices or laptops with LAN/Ethernet ports and one switch (Network Device) to design the Start Topology.

First, as shown below, we connect all devices to the switch using LAN/Ethernet Cable (Twisted Pair Cable).



Step 2): After connecting, we'll need the configuration shown on pages 3 through 6.

Step 3): After that, we need to assign an IP address to all devices that are connected to the switch that is shown on pages 7 and 8, but not assign a DefaultGateway. Right now, we keep it as empty. We only assign an IP address.

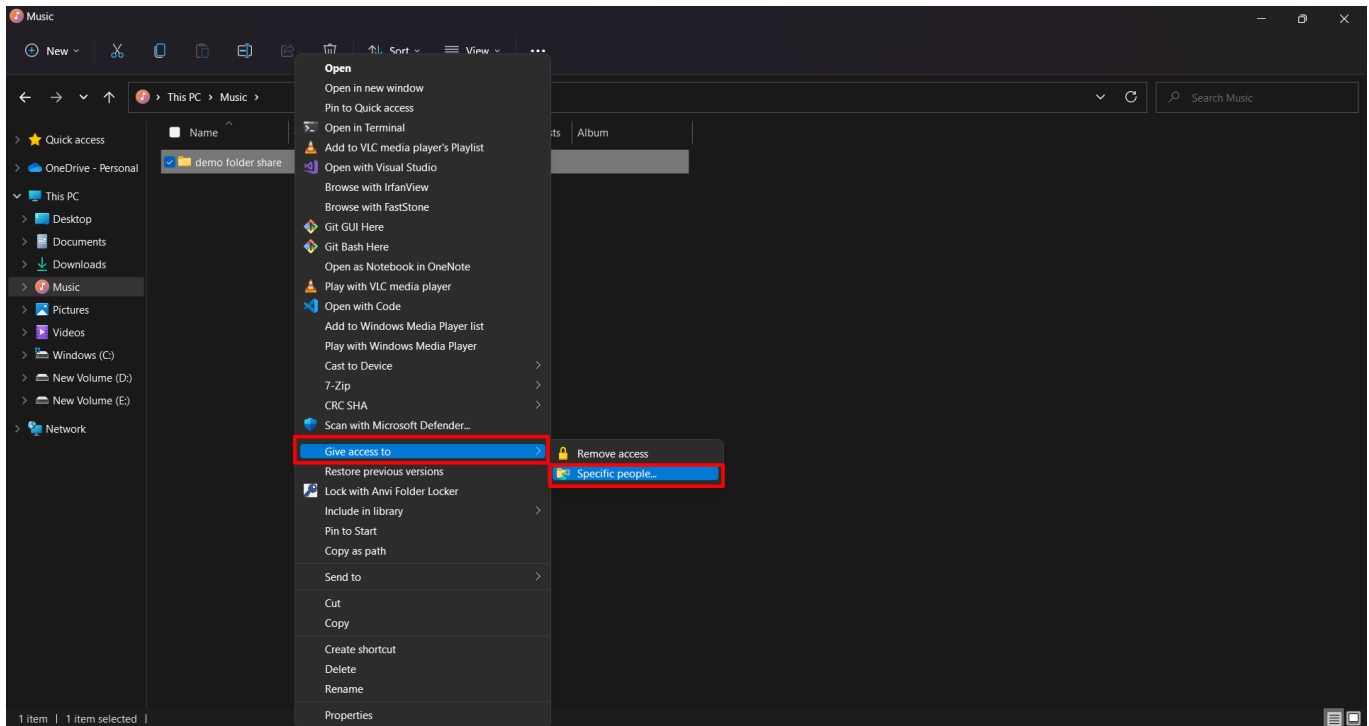
Step 4): Share your data with another device by sharing a folder or drive.

- Page 9 and 10 discuss about the sharing drive.
- Page 13, 14 and 15 discuss about the sharing folder and removing the sharing access folder.

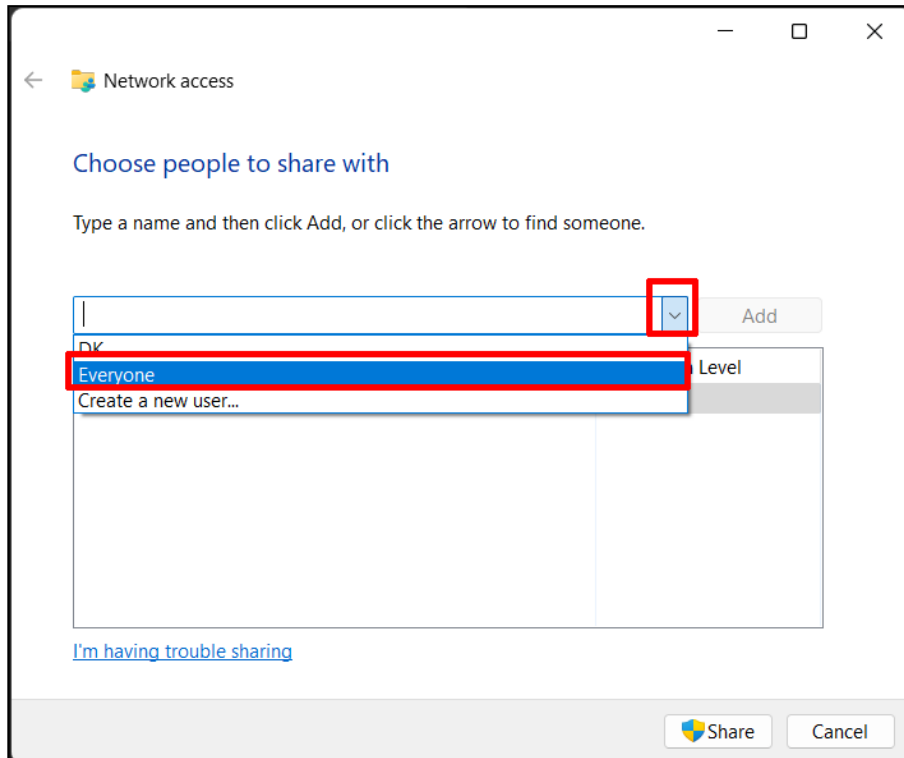
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If you need to share only particular folder follow steps.

1). “**Right Click**” on the Folder you want to share. After that, go to “**Give access to**” and from the two options that appear, go to “**Specific people**”.

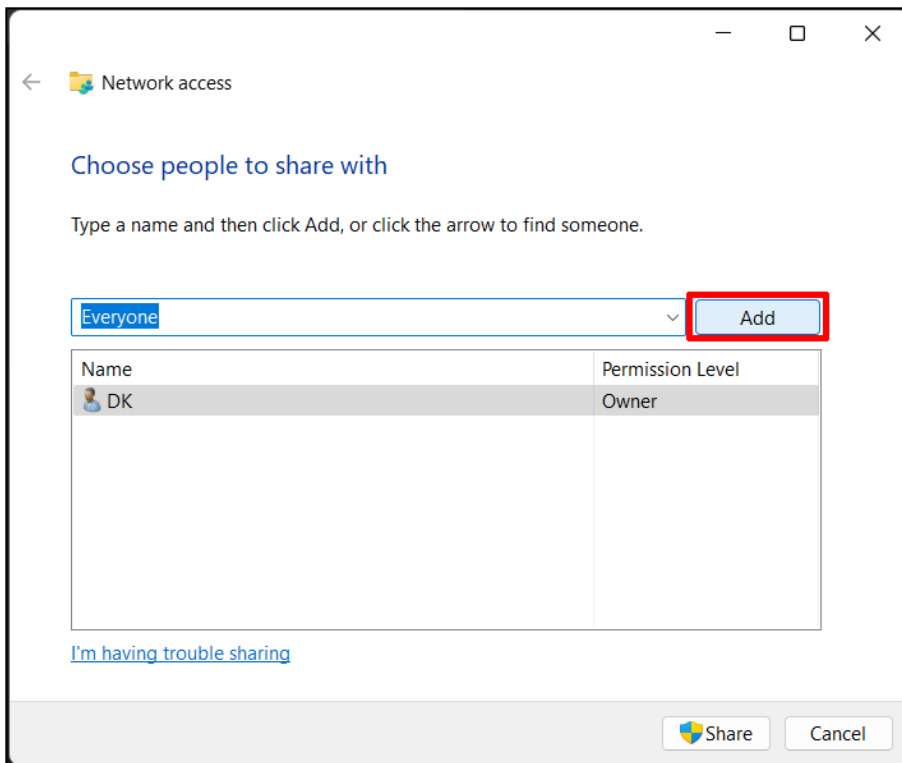


2). After that click on the drop down given in it select “**Everyone**” from it.

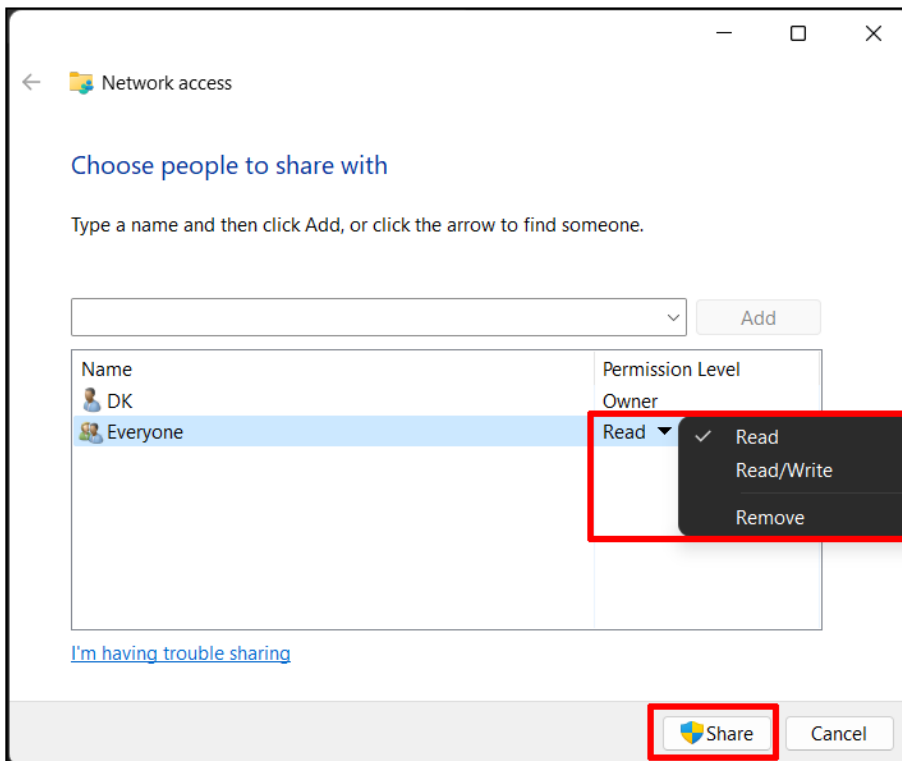


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3). The click on “Add” button. Clicking on “Add” “Everyone” adds it to the user list.

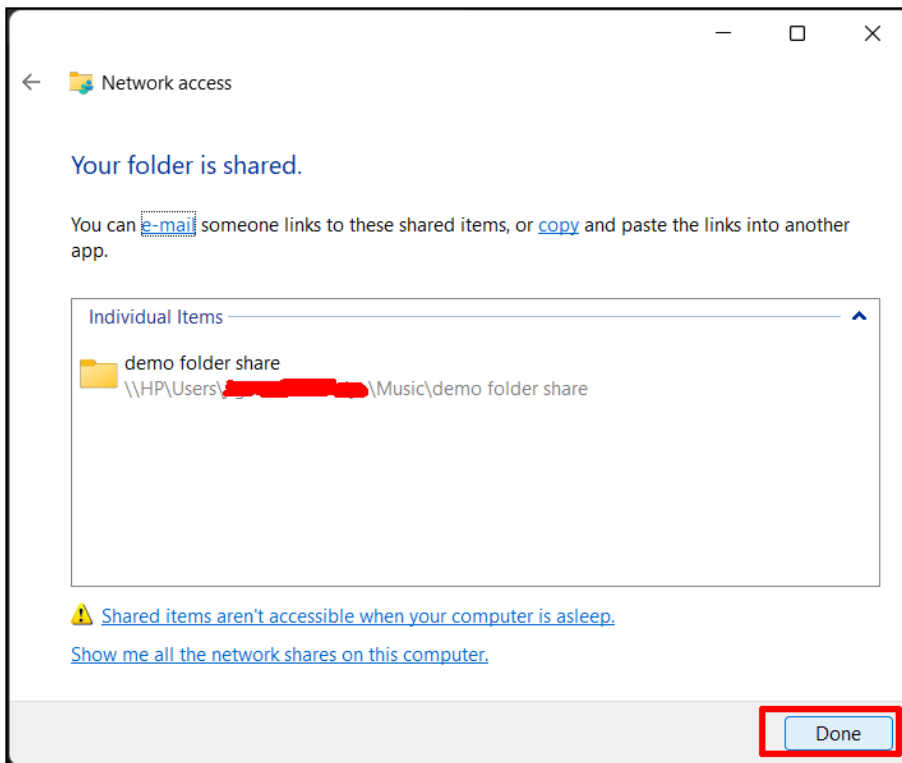


4). Give the permission as you want. I can give only “read” permission. After that, click on “Share”.



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5). After that click on “**Share**” we see you folder is shared. After that click “**Done**”.



If you need to stop sharing folder follow steps.

1). “**Right Click**” on the Folder you want to stop sharing. After that, go to “**Give access to**” and from the two options that appear, click on “**Remove access**”.

