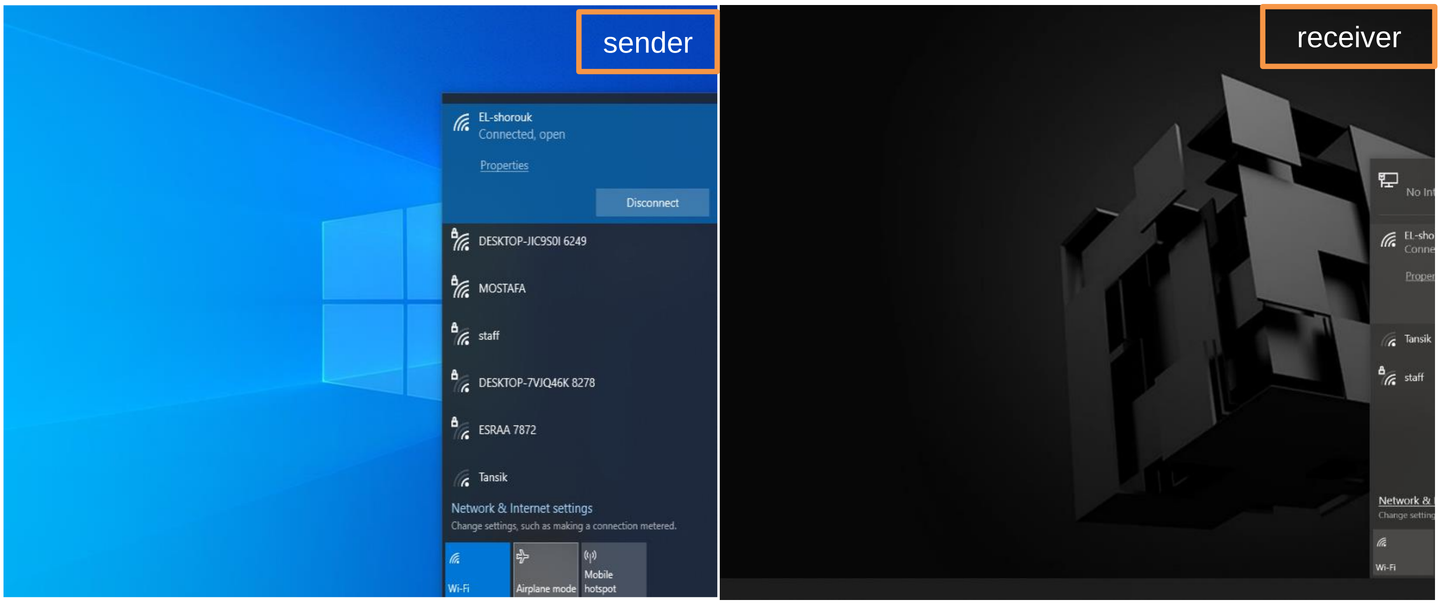
Network Programming
Section one

How to share files between two computers using a wireless connection.

- **Wireless file sharing medium examples:**
  - Wi-Fi:
    - Longer range.
    - Faster data transfer.
    - Used for internet access and local networks.
    - Supports multiple devices.
  - Bluetooth:
    - Shorter range.
    - Slower data transfer.
    - Used for connecting devices (e.g., headphones, keyboards).
    - Typically connects to one device at a time.

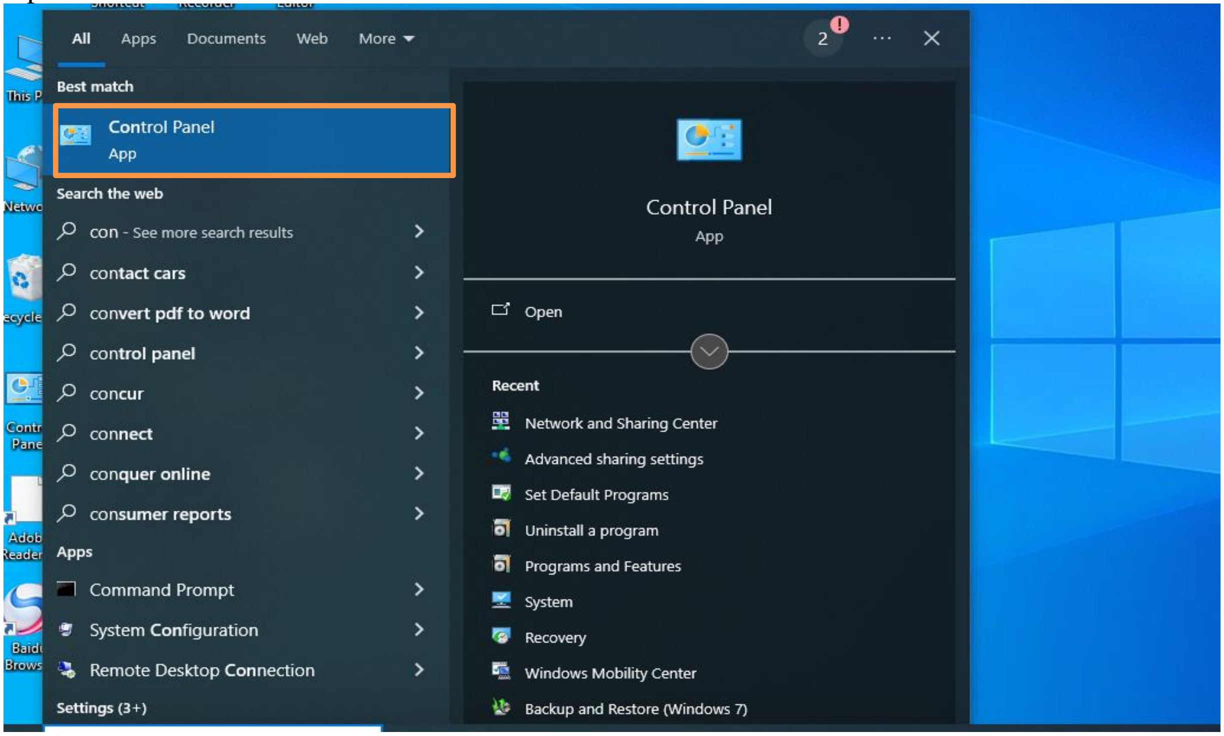
- **share files between two laptops on the same network using Wi-Fi.**

First, ensure that both devices are on the same network.

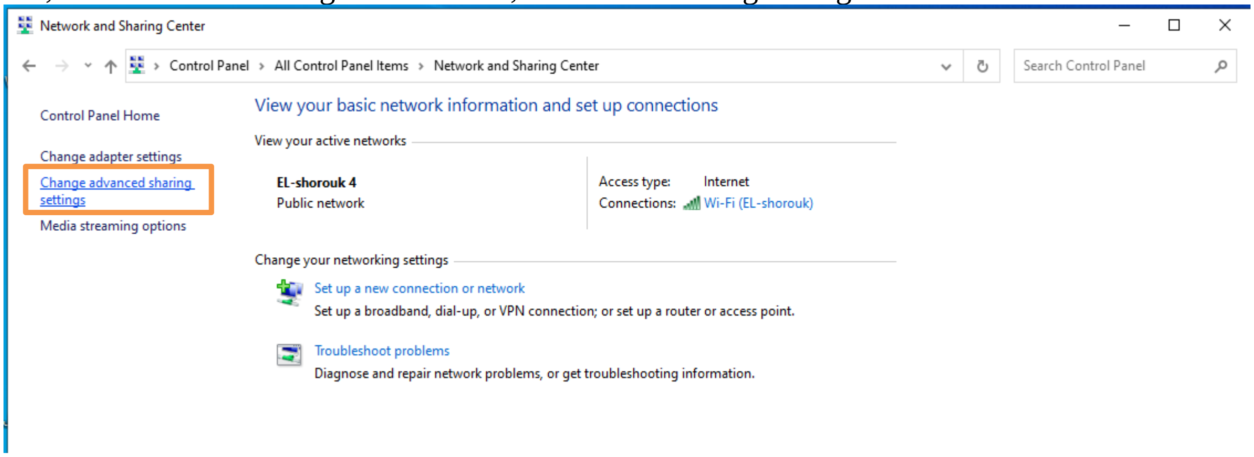


Sender related settings

1. Turn on network discovery. (Allow receiver to see you on the network)
   Open Control Panel.



2. Then, Network and Sharing Center. Then, Advanced sharing settings.



Network and Sharing Center
Control Panel › All Control Panel Items › Network and Sharing Center
Search Control Panel
Control Panel Home
Change adapter settings
Change advanced sharing settings
Media streaming options

View your basic network information and set up connections

View your active networks

EL-shorouk 4
Public network

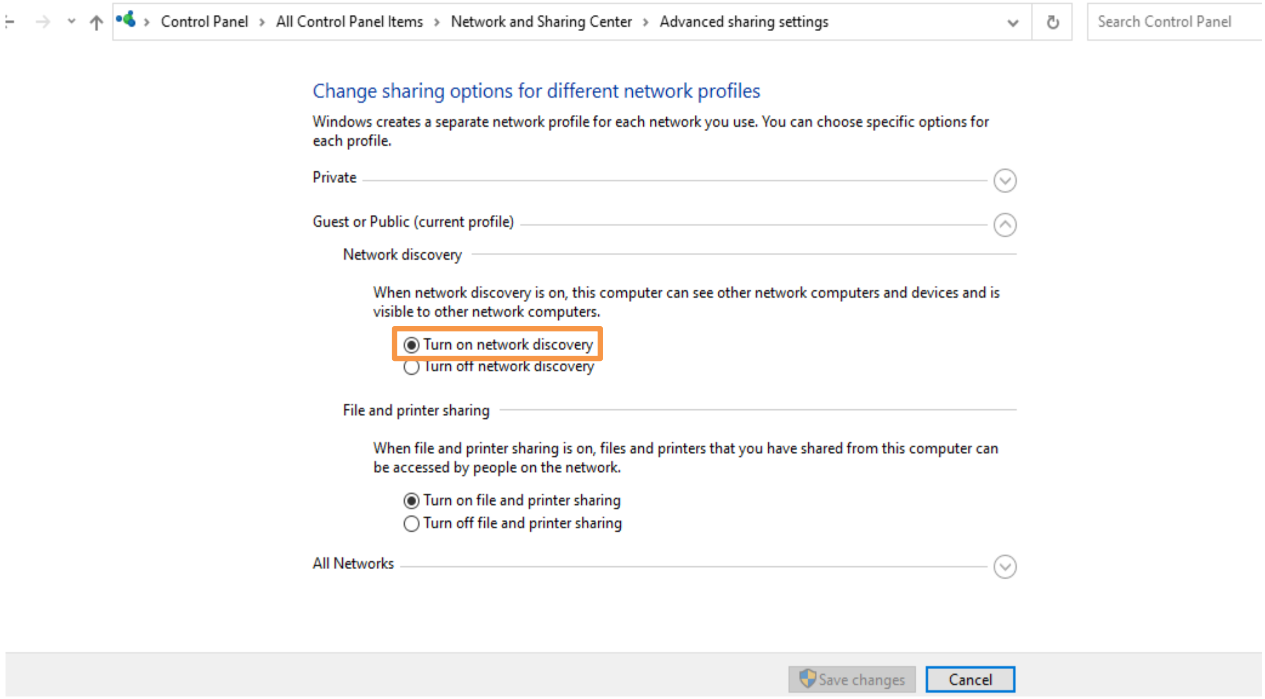
Access type: Internet
Connections: Wi-Fi (EL-shorouk)

Change your networking settings

Set up a new connection or network
Set up a broadband, dial-up, or VPN connection; or set up a router or access point.

Troubleshoot problems
Diagnose and repair network problems, or get troubleshooting information.

3. Turn on network discovery


Control Panel › All Control Panel Items › Network and Sharing Center › Advanced sharing settings
Search Control Panel

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 (current profile)

Network discovery

When network discovery is on, this computer can see other network computers and devices and is visible to other network computers.

● Turn on network discovery
○ Turn off network discovery

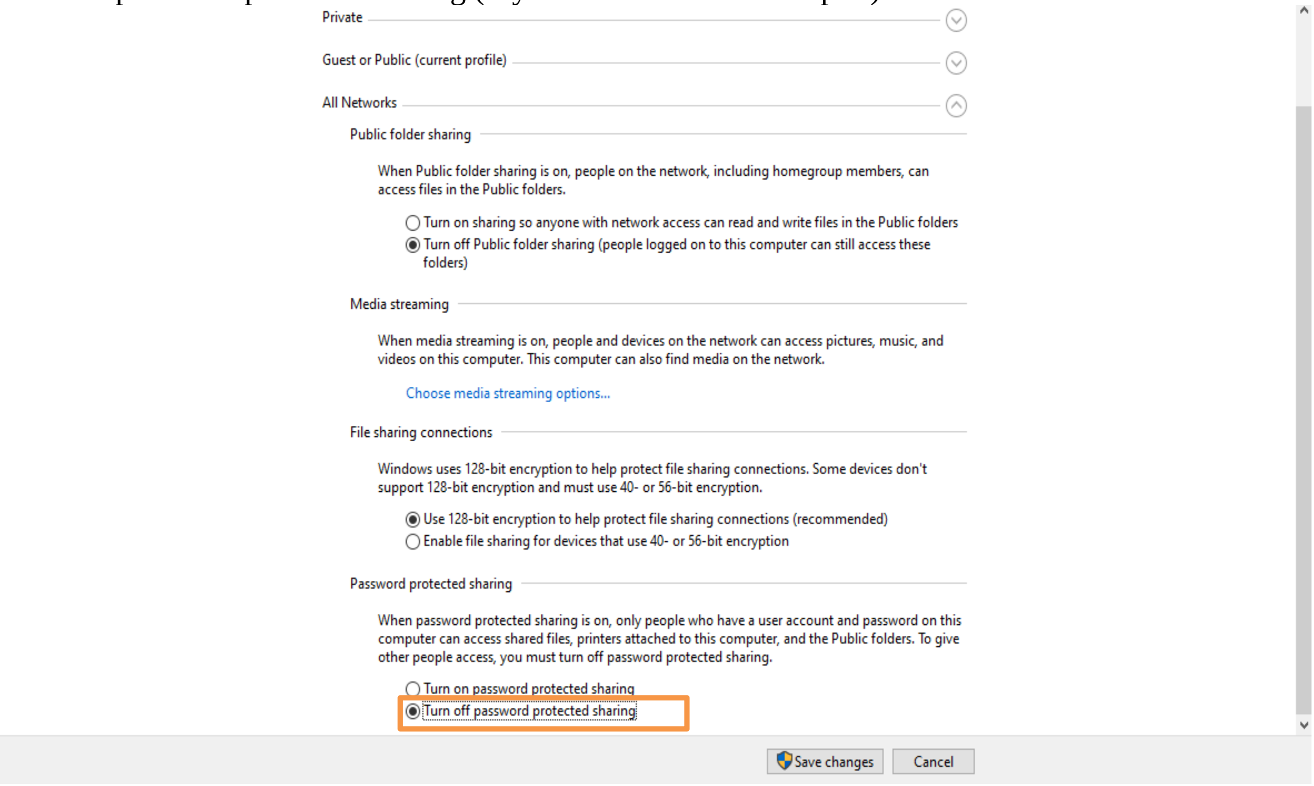
File and printer sharing

When file and printer sharing is on, files and printers that you have shared from this computer can be accessed by people on the network.

● Turn on file and printer sharing
○ Turn off file and printer sharing

All Networks

4. Turn off password protected sharing (if you want to make it simpler).


Private

Guest or Public (current profile)

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

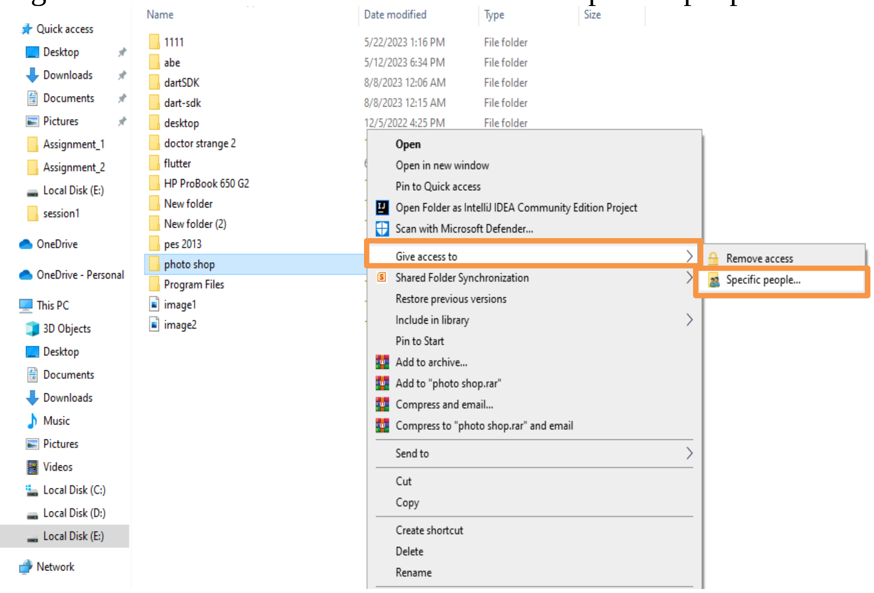
Password protected sharing

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.

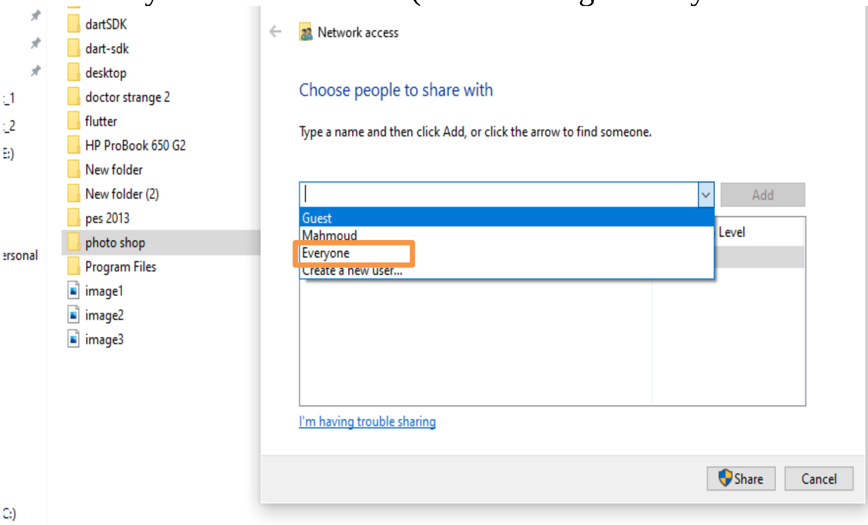
○ Turn on password protected sharing
● Turn off password protected sharing

5. select the folder\file you want to share to others.

Right-click on the file => Give access to => Specific people



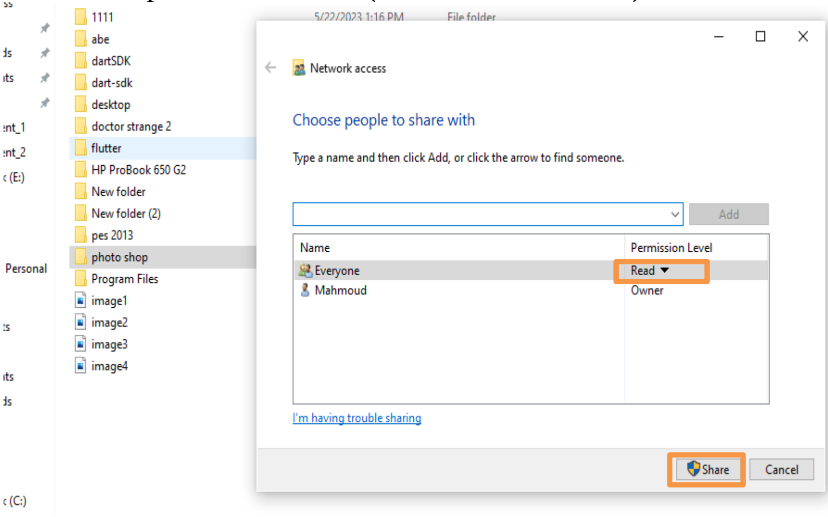
6. Select everyone then click add. (allow sharing to everyone on the network)


Network access

Choose people to share with

Type a name and then click Add, or click the arrow to find someone.

7. Determine permission level (Read or Read/Write) => click on Share

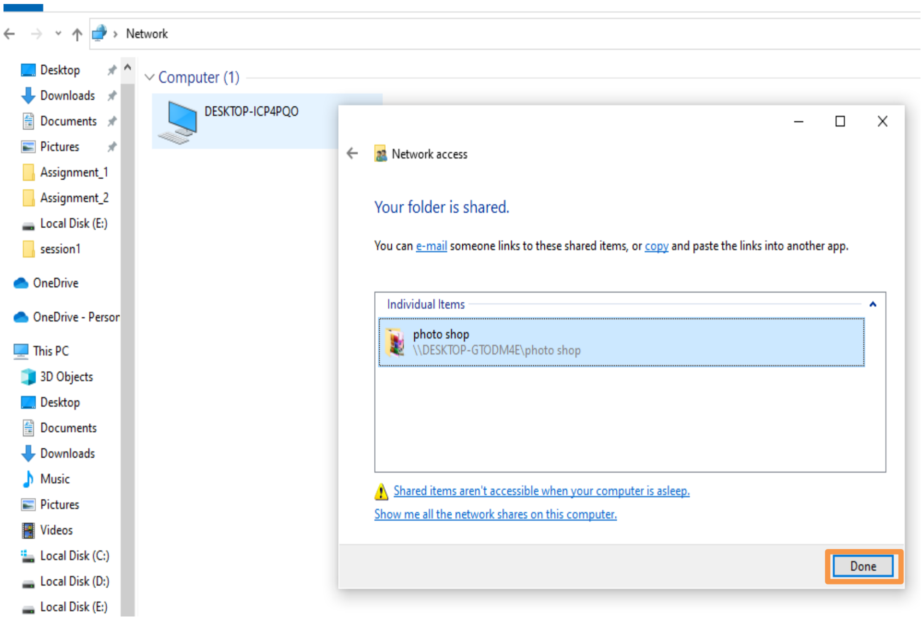

Network access

Choose people to share with

Type a name and then click Add, or click the arrow to find someone.

Name	Permission Level
Everyone	Read ▾
Mahmoud	Owner

8. Now the folder is being shared with all devices in the same network.



Your folder is shared.

You can e-mail someone links to these shared items, or copy and paste the links into another app.

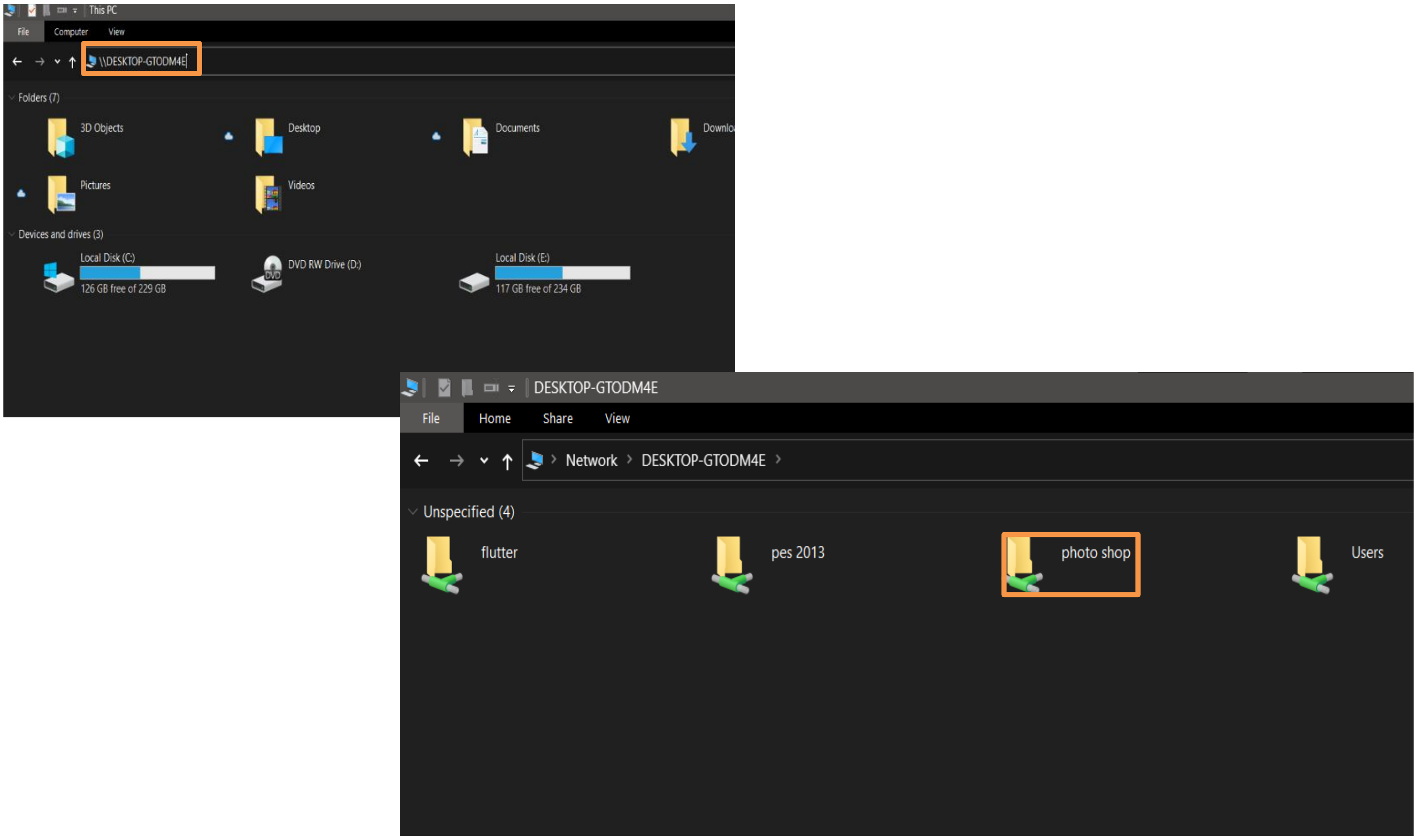
photo shop
\\DESKTOP-GTODM4E\photo shop

Shared items aren't accessible when your computer is asleep.

Show me all the network shares on this computer.

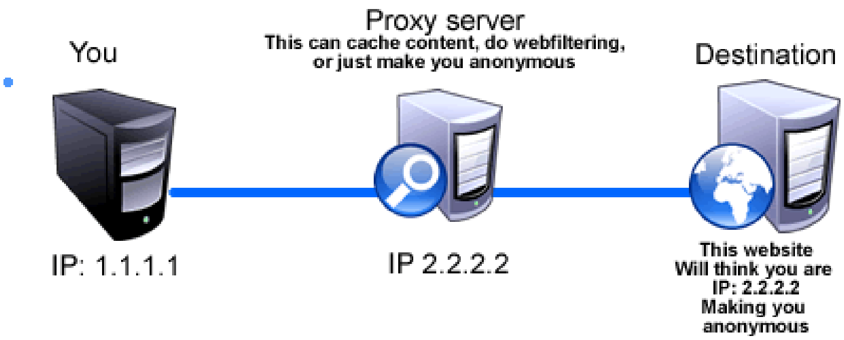
receiver related steps

1. Open “file explorer” and in the address bar type “ \\SenderName “ => press Enter.
2. If it asks for credentials
   a. username: SSID.
   b. password: WIFI password.
3. Press Enter then you can access the sender folder.



Introduction to Proxy Server.

A Proxy Server is like a middleman between your device (computer or smartphone) and the internet. It takes your requests to access websites and passes them on for you. When the websites respond, the proxy server receives the data and hands it back to you. It can help with security, privacy, and sometimes speed up web access.



How Proxy Servers Work:

1. **Client Request:** A user or client device sends a request for a web resource (e.g., a webpage or file) to the proxy server.
2. **Proxy Server Processing:** The proxy server receives the request and evaluates it. It can perform various functions, including caching, filtering, and anonymizing the request.
3. **Forwarding the Request:** If the resource is not in its cache, the proxy server forwards the request to the target web server.
4. **Web Server Response:** The target web server processes the request and sends a response back to the proxy server.
5. **Response to Client:** The proxy server then forwards the web server's response to the client device.

How to set up a proxy server on Windows 10

When your computer is connected to a company server or network, it requires a more manual setup process. You can typically go about doing this by getting a ‘script address’ from the person regulating your local network [usually the network administrator at your company’s Information Technology (IT) department]. A configuration address will look something like this:

my_proxy_server.com:9367

Here is a complete step-by-step guide for your convenience:

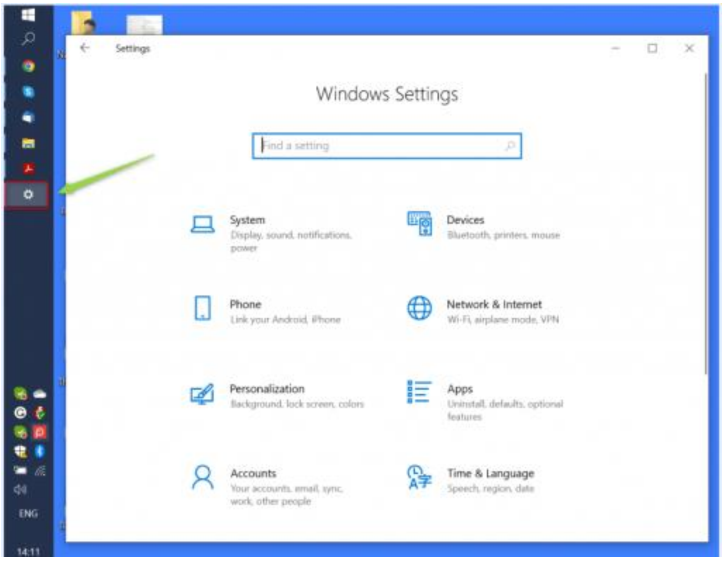
Step One: Click on ‘Settings’

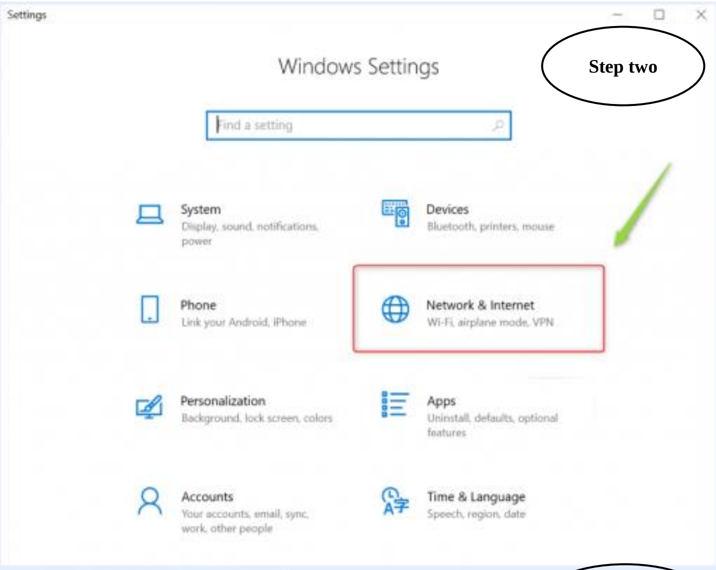
Step Two: Hit ‘Network & Internet’

Step Three: Click on ‘Proxy’

Step Four: Toggle the ‘Use Setup Script’ to ‘on’

Step Five: Copy, and paste the script address, then hit ‘Save’


Settings
Windows Settings
Find a setting
System
Display, sound, notifications, power
Devices
Bluetooth, printers, mouse
Phone
Link your Android, iPhone
Network & Internet
Wi-Fi, airplane mode, VPN
Personalization
Background, lock screen, colors
Apps
Uninstall, defaults, optional features
Accounts
Your accounts, email, sync, work, other people
Time & Language
Speech, region, date
ENG
14:11


Step two

Settings

Windows Settings

Find a setting

System
Display, sound, notifications, power

Devices
Bluetooth, printers, mouse

Phone
Link your Android, iPhone

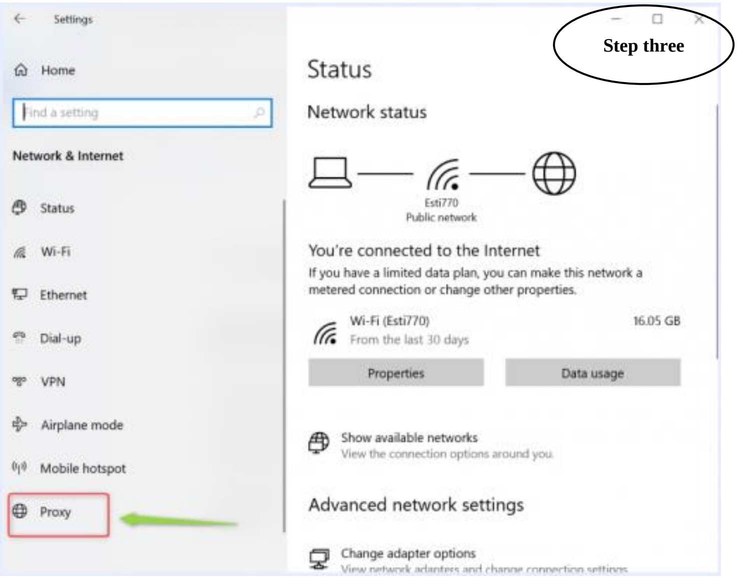
Network & Internet
Wi-Fi, airplane mode, VPN

Personalization
Background, lock screen, colors

Apps
Uninstall, defaults, optional features

Accounts
Your accounts, email, sync, work, other people

Time & Language
Speech, region, date


Step three

Settings

Home

Find a setting

Network & Internet

Status
Wi-Fi
Ethernet
Dial-up
VPN
Airplane mode
Mobile hotspot
Proxy

Status

Network status

Esti770
Public network

You're connected to the Internet

If you have a limited data plan, you can make this network a metered connection or change other properties.

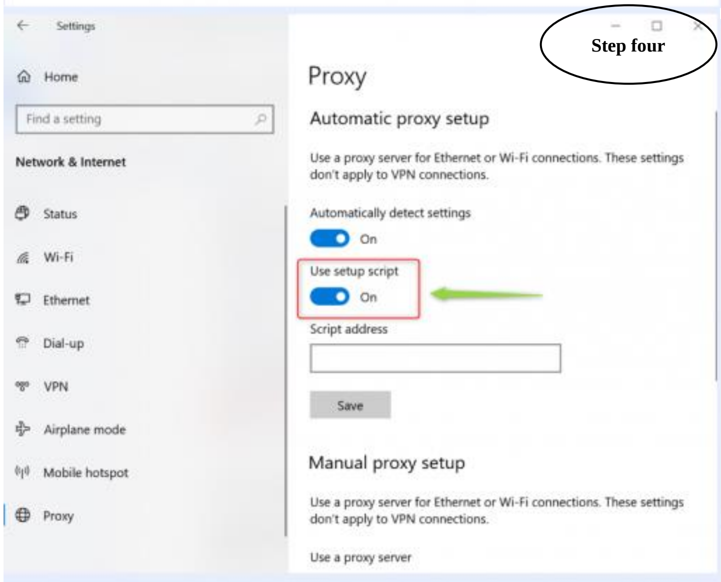
Wi-Fi (Esti770) 16.05 GB
From the last 30 days

Properties | Data usage

Show available networks
View the connection options around you

Advanced network settings

Change adapter options
View network adapters and change connection settings


Step four

Settings

Home

Find a setting

Network & Internet

Status
Wi-Fi
Ethernet
Dial-up
VPN
Airplane mode
Mobile hotspot
Proxy

Proxy

Automatic proxy setup

Use a proxy server for Ethernet or Wi-Fi connections. These settings don't apply to VPN connections.

Automatically detect settings
On

Use setup script
On

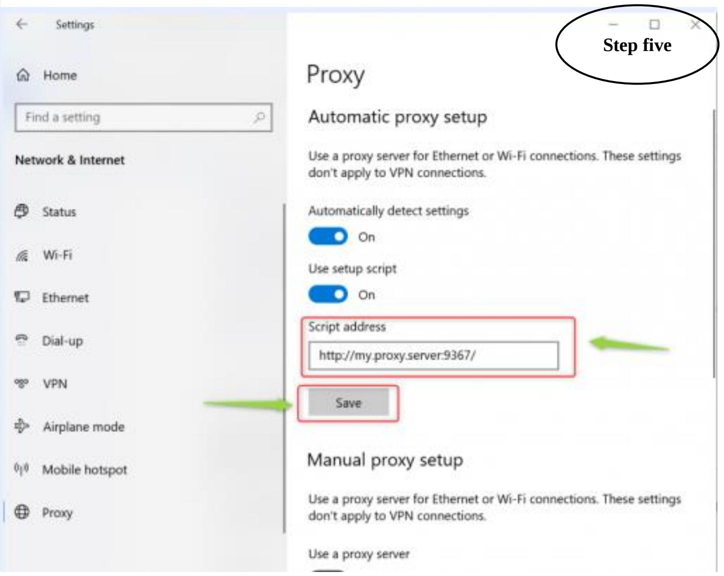
Script address

Save

Manual proxy setup

Use a proxy server for Ethernet or Wi-Fi connections. These settings don't apply to VPN connections.

Use a proxy server


Step five

Settings

Home

Find a setting

Network & Internet

Status
Wi-Fi
Ethernet
Dial-up
VPN
Airplane mode
Mobile hotspot
Proxy

Proxy

Automatic proxy setup

Use a proxy server for Ethernet or Wi-Fi connections. These settings don't apply to VPN connections.

Automatically detect settings
On

Use setup script
On

Script address
http://my.proxy.server:9367/

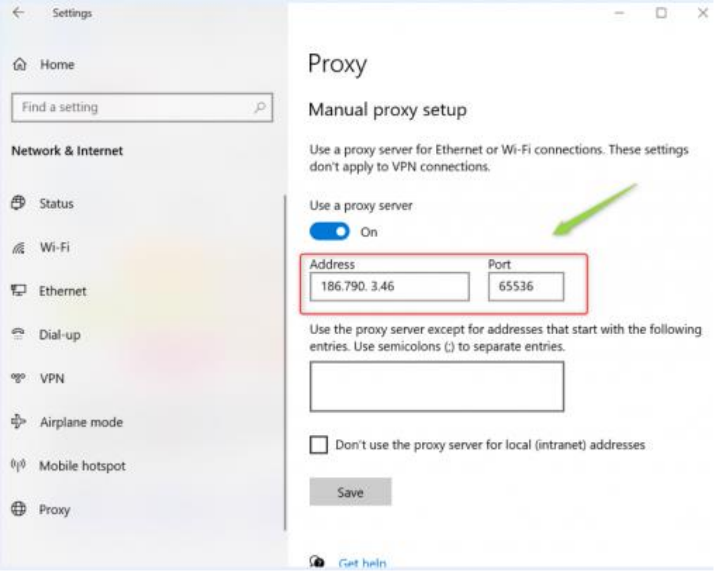
Save

Manual proxy setup

Use a proxy server for Ethernet or Wi-Fi connections. These settings don't apply to VPN connections.

Use a proxy server

Now close 'Settings', that's it – your proxy is all set up.
Alternatively, if you would like to manually add an IP address and port number then you could scroll down in the 'Proxy' section to where it reads 'Manual proxy setup'. Here you will want to add your desired target IP address, and port number as follows:


Settings

Home

Find a setting

Network & Internet

Status
Wi-Fi
Ethernet
Dial-up
VPN
Airplane mode
Mobile hotspot
Proxy

Proxy

Manual proxy setup

Use a proxy server for Ethernet or Wi-Fi connections. These settings don't apply to VPN connections.

Use a proxy server
On

Address: 186.790. 3.46
Port: 65536

Use the proxy server except for addresses that start with the following entries. Use semicolons (;) to separate entries.

☐ Don't use the proxy server for local (intranet) addresses

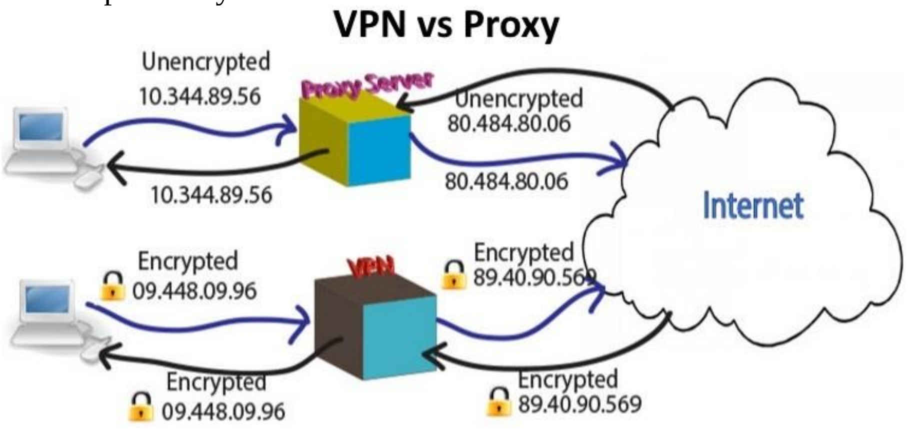
Save

Get help

Why Use Proxy Servers:

- **Privacy:** They hide your online identity.
- **Access Control:** They help organizations control internet access.
- **Content Storage:** They store web content to save time and data.
- **Security:** They act as guards against harmful content.
- **Traffic Balance:** They distribute internet traffic for better performance.

VPN (Virtual Private Network): is like a secure passage on the internet. It uses encryption to protect your data and creates a private online space for you.



Comparison between VPN and proxy.

Feature	VPN	Proxy Server
Privacy & Anonymity	Strong privacy protection, hides IP	Some privacy protection, hides IP
Security	Secure with encryption	Limited security, not always encrypted
Data Encryption	Encrypts all data	May or may not encrypt data
Location Spoofing	Can change your virtual location	Can change your virtual location
Access Control	Can bypass geo-restrictions	Can bypass geo-restrictions
Traffic Routing	Routes all device traffic through it	Routes specific app or site traffic
Use Cases	Enhanced privacy, security	Content filtering, some anonymity

NOTE: While both VPNs and proxy servers can help with privacy and bypassing geo-restrictions, VPNs generally offer stronger security and encryption, while proxies are often used for specific content filtering and anonymity to a lesser extent. The choice between them depends on your specific needs and priorities.