School of Cybersecurity

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Topic: VPN

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TOPIC: VPNs

VPN stands for "Virtual Private Network". A VPN is essentially a private network that carries controlled information. This information is protected by many security tools. VPNs are private virtually, and because the data actually can travel over shared public networks instead of private connections exclusively. The benefit of VPNs is the potential for saving a significant amount of money compared to leasing lines or dial-up networking. These savings can lend a risk to the user when using the public internet as a tool for VPN data. The performance of a VPN line is more unpredictable and slower than a dedicated line due to the traffic of the internet. VPNs may save money in different ways. Companies that lease lines typically pay a very high monthly expense. A problem to solve this is to use a VPN connection to a local ISP. VPNs also support removing access for people who travel. Instead of setting up remote access servers and paying more fees to reach someone. The company can rely on an ISP that is locally based to help access both ends of the connected VPN.

HOW CAN A VPN BE USED

Your real IP is concealed; to bypass the blocks set by the network administrator, or restrictions of the internet provider.

To encrypt the transmitted data;

To access blocked websites from your country

To enable downloading files from a p2p network (such as torrents)

Very importantly to protect your computer when connecting to free wifi

CREATING VPN SERVER ON YOUR COMPUTER

Creating a VPN server on your computer

1. Goto network and sharing center then change adapter setting



2. In the folder Network, Connections press Alt and select File / New incoming connection



3. Check the box next to the user name to allow this user to access this computer

Who may connect to this com	nputer?		
,			
Select the check box next to a name to network	allow that person access to this computer and		
HELWOIK.			
User accounts on this computer:			
GefaultAccount	^		
Gefaultuser0			
🗆 🛃 John (Irina)			
🗹 🛃 Test 📐			
WDAGUtilityAccount			
	~		
Add someone	Account Properties		

4. Click through the internet then allow access

kinds of comp	oftware allows this com outers	puter to accept c	onnections from oth
Select the check b incoming connec	ox next to each type of networ tions.	king software that sho	uld be enabled for
Networking softw	are:		
🗹 🌮 Internet Pr	otocol Version 4 (TCP/IPv4)		
Internet Pr ☐ ♣ File and Pr ☐ ♣ QoS Packe	otocol Version 6 (TCP/IPv6) inter Sharing for Microsoft Net t Scheduler	works	
	Install	Uninstall	Properties
Description:			
	trol Protocol/Internet Protocol	The default wide area	a network protocol

5. Now the VPN server is created

CREATING A SHARED FOLDER ON VPN

- 1. Sharing a folder to which other computers will have access through VPN
- 2. Create a folder with contents,
- 3. Right-click, go to properties, then sharing
- 4. Advanced Sharing and check to Share this folder
- 5. Click permissions and allow full control

New fable	New folder Properties	a.	×	
	Permissions for Boe Full Control Change Read	Add Allow	Remove Deny C	
	ок	Cancel	Apply	

ACQUIRING FULL ACCESS TO FOLDER

Now if the user wants to connect to the VPN server and have access to the folder this is what they must do.

Connecting to VPN server

1. Open settings/Network and Internet/ VPN

 Home Find a setting Find a setting VPN Network & Internet Status Status Ethernet Dial-up Olal-up Olal-up Olal-up On Allow VPN while roaming On Allow VPN while roaming On Change adapter options Change adapter options 	- 0	×
Find a setting VPN Network & Internet Add a VPN connection Add a VPN connection Advanced Options Advanced Options Allow VPN over metered networks On On Olate usage On Otata usage Related settings Change adapter options Change adapter options 		
Network & Internet Add a VPN connection Status Advanced Options Allow VPN over metered networks On On		
Image: Proxy Advanced Options Image: Proxy Advanced Options Image: Proxy Advanced Options Image: Proxy Advanced options Image: Proxy Change adapter options Image: Change advanced sharing options		
Image: Provide the set of t		
 Pial-up On VPN Allow VPN while roaming On Ø Data usage Proxy Related settings Change advanced sharing options 		
Image Proxy Allow VPN while reaming Image On Image Related settings Image Change adapter options Change advanced sharing options		
Proxy Related settings Change adapter options Change advanced sharing options		
Proxy Change adapter options Change advanced sharing options		
Change advanced sharing options		
Network and Sharing Center		

- 2. Add VPN connection
- 3. Choose a provider as Windows (built-in)
- 4. Make a connection name what you want the other connection see
- 5. Enter the IP address of the computer

- (To find the IP address of the other computer Open CMD, type ipconfig, and Next to the IPv4 is your IP address)
- 7. Once you found the IP address enter it into the box.
- 8. VPN type should be automatic

Add a VPN connection				
VPN provider				
Windows (built-in) \checkmark				
Connection name				
VIN				
Server name or address				
176.122.115.66 ×				
VPN type				
Autom Stic V				
Type of sign-in info				
	Save	Cancel]	

- 9. Type of sign-in info should be set to Username and password
- 10. Enter the name and password which is active on the server
- 11. Click Save and the VPN connection will be displayed
- 12. Click on the connection and connect to it

← Settings		_	
Ome	VPN		
Find a setting	VPN		
Network & Internet	+ Add a VPN connection		
⊕ Status	VPN		
문 Ethernet	Connecting to 176.122.115.66		
ଙ୍ଗି Dial-up	Cancel		
000 V/DNI			

TROUBLESHOOTING

If you encounter an error follow these steps

	•	
3	Home	VPN
Fi	nd a setting \wp	VPN
Vet	work & Internet	+ Add a VPN connection
₽	Status	VPN
₽	Ethernet	Can't connect to VPN
R	Dial-up	A connection to the remote computer could not be established. You might need to change the network settings for this connection.
80	VPN	
3	Data usage	Close

- 1. Go on the server computer
- 2. Go to Network and Sharing Center/ Change adapter settings
- 3. Right-click on incoming connection/ Properties/ Networking/IPv4/Properties
- 4. Check the box "Specify IP addresses" enter the pool of addresses
- 5. Connect and try again on another computer



GAINING ACCESS TO FOLDER

To access the shared folder in the computer which is the VPN server

- 1. Go to CMD on the VPN server and enter ipconfig
- 2. Go to the PC connected to VPN and enter the IP address into the address field with 2

backslashes before the address (\\)

PPP adapter RAS Connection-s Link-local I IPv4 Address Subnet Mask Default Gate	(Dial In) Interface: Decific DNS Suffix . : Pv6 Address : fe80::3461:af29:60ac:b46c%26 : 155.55.0 : 255.255.255 Way
Image: Image of the sector	- □ × √ ? 5.0 → Search This PC ♪
Quick access Cuick access This PC Desktop Documents Downloads Music Pictures Desktop	 Folders (6) Devices and drives (2) Local Disk (C:) New Volume (D:) 34.0 GB free of 57.2 GB 1.92 GB free of 1.95 GB

TROUBLESHOOTING

If nothing happens when you press enter follow these steps

1. Go to the VPN server computer and go to Control Panel/ Windows/ Firewall/ Advanced settings





2. Go to Inbound rules and find the rule named "Net logon Service (NP-in) and enable it

Windows Defender Firewall with	Inbound Rules								Actio	ons
Inbound Rules	Name	Group	Profile	Enabled	Action	Override	Program	Local Address ^	Inbo	und Rules
Connection Security Rules	Microsoft Sticky Notes	Microsoft Sticky Notes	Domai_	Yes	Allow	No	Any	Any	13	New Rule
Monitoring	Microsoft Sticky Notes	Microsoft Sticky Notes	Domai_	Yes	Allow	No	Any	Any		Eilter by Drofile
	Microsoft Store	Microsoft Store	All	Yes	Allow	No	Any	Any		Filter by Fronie
	🔮 Microsoft Store	Microsoft Store	All	Yes	Allow	No	Any	Any	N V	Filter by State
	Minecraft for Windows 10	Minecraft for Windows 10	All	Yes	Allow	No	Any	Any	V	Filter by Group
	🔮 Mobile Plans	Mobile Plans	Domai_	Yes	Allow	No	Any	Any		View
	🔮 Movies & TV	Movies & TV	Domai_	Yes	Allow	No	Any	Any	100	
	🔮 Movies & TV	Movies & TV	Domai_	Yes	Allow	No	Any	Any	G	Refresh
	🔮 My Office	My Office	Domai_	Yes	Allow	No	Any	Any		Export List
	🔮 My Office	My Office	Domai_	Yes	Allow	No	Any	Any	?	Help
	🔮 My Office	My Office	Domai	Yes	Allow	No	Any	Any		
	🐼 Netlogon Service (NP-In)	Netlogon Service	All	Yes	Allow	No	System	Any	Net	ogon Service (NP-In)
	Netlogon Service Authz (RPC)	Netlogon Service	All	No	Allow	No	%System	Any	۲	Disab Rule
	Setwork Discovery (LLMNR-UDP-In)	Network Discovery	Private	Yes	Allow	No	%System_	Any	1	Cut
	Network Discovery (LLMNR-UDP-In)	Network Discovery	Domai_	No	Allow	No	%System	Any	DS.	C
	Setwork Discovery (NB-Datagram-In)	Network Discovery	Private	Yes	Allow	No	System	Any	95	Сору
	Network Discovery (NB-Datagram-In)	Network Discovery	Public	No	Allow	No	System	Any	×	Delete
	Network Discovery (NB-Datagram-In)	Network Discovery	Domain	No	Allow	No	System	Any	1	Properties
	Network Discovery (NB-Name-In)	Network Discovery	Domain	No	Allow	No	System	Any	2	Hele
	Setwork Discovery (NB-Name-In)	Network Discovery	Private	Yes	Allow	No	System	Any		nep
	Network Discovery (NB-Name-In)	Network Discovery	Public	No	Allow	No	System	Any		
	🔇 Network Discovery (Pub-WSD-In)	Network Discovery	Private	Yes	Allow	No	%System_	Any		
	Network Discovery (Pub-WSD-In)	Network Discovery	Domai	No	Allow	No	%System_	Any		
	Network Discovery (SSDP-In)	Network Discovery	Domai_	No	Allow	No	%System	Any		
	Network Discovery (SSDP-In)	Network Discovery	Private	Yes	Allow	No	%System	Any		

3. Now go back and try to connect to the VPN shared folder



SETTING UP PORT FORWARDING

If you have your server set up on a router you must set up forwarding for port 1723.

- 1. Log into Router settings
- 2. Forwarding/Virtual server
- 3. Add new/ enter service port 1723
- 4. Enter the IP address of the computer where the VPN server will be created
- 5. Protocol All
- 6. Status Enabled

Service Port:	1723 (XX-XX or XX)
Internal Port:	(XX, Enter a specific port number or leave it blank)
IP Address:	192.168.0.105
Protocol:	All
Status:	Enabled
Common Service Port:	Select One

TP-LINK°

Status						
Quick Setup	Virtual Serv	vers				
WPS						
Network						
Wireless	ID Service Port	Internal Port	IP Address	Protocol	Status	Modify
рнср	1 1723	1723	192.168.0.105	All	Enabled	Modify Delete
Forwarding						
Virtual Servers	Add New	Enable All	Disable All	Delete All		
Port Triggering	W24					
DMZ			Previous	Next		
UPnP			TTOYIOGO	HOAL		
Security						
Parental Control						
Access Control						
Advanced Routing						
Bandwidth Control						
IP & MAC Binding						
Dynamic DNS						
System Tools						
Loqout						

INTERNET ACCESS ON VPN

Once that is set up you want to ensure that the VPN connection still has internet access

1. When VPN is disconnected go to network and Sharing Center/ Change adapter settings



- 2. Right-click on the created VPN connection and select properties/Networking/IPv4
- 3. Click advanced/ In IP settings uncheck the box next to default gateway in the remote.

Now when you connect the internet connection will not drop



+	Add a VPN connection		
જ	VPN Connected		
		Advanced options	Disconnect

CONCLUSION

In conclusion, VPNs are used to have anonymous browsing where your actual IP is concealed. VPN makes your location unknown which can be beneficial. An example would be someone who plays video games. If someone is mad with them online they could find the area you live in and DDOS attack you. Many people use the VPN for travel as there are restrictions in some countries to what website and applications you are using.

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