Module 05: Network Penetration Testing Methodology-External

Objective

The objective of this lab is to help students in conducting network scanning, network vulnerability analysis, and network security maintenance.

You need to perform network scans to:

- Check live systems and open ports
- Perform banner grabbing and OS fingerprinting
- Identify network vulnerabilities
- Draw network diagrams of vulnerable hosts
- Pentest vulnerabilities to gain unauthorized access

Scenario

External Penetration Testing determines the possibility of network security attacks from outside of the network perimeter. It evaluates the organization's systems and network for vulnerabilities such as missing patches, unnecessary services, weak authentication, and weak encryption.

An attacker uses vulnerabilities to disrupt the confidentiality, availability or integrity of the network, thereby allowing the organization to address each weakness. Vulnerability scanning is a critical component of any penetration testing assignment. As an expert Penetration Tester or a Security Administrator, you need to conduct penetration testing and list the threats and vulnerabilities found in an organization's network, perform port scanning, network scanning, and vulnerability scanning to identify IP/hostname, live hosts, and vulnerabilities. Then, you need to take specific preventive countermeasures to overcome them.

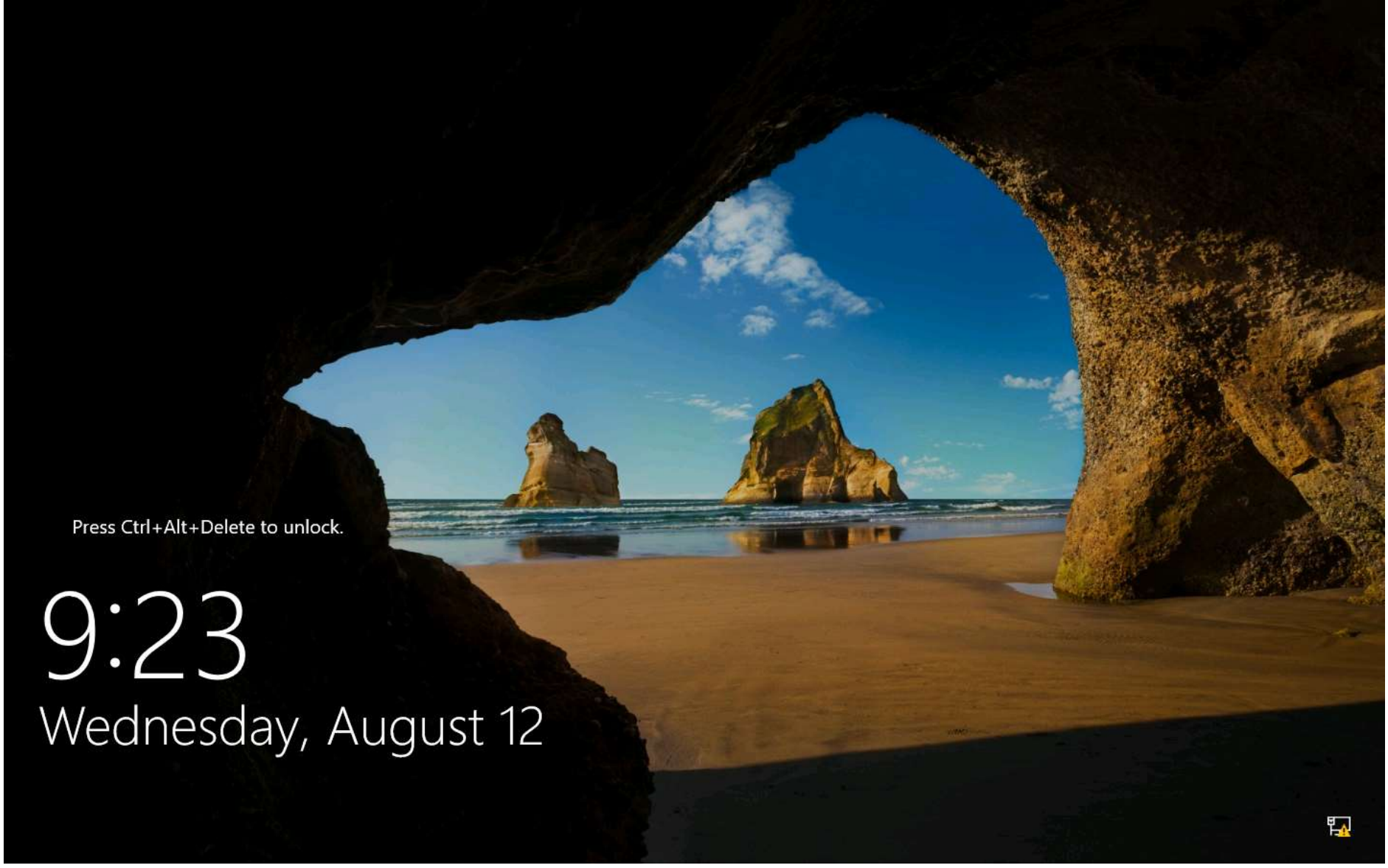
Exercise 1: Exploring and Auditing a Machine Using Nmap

Scenario

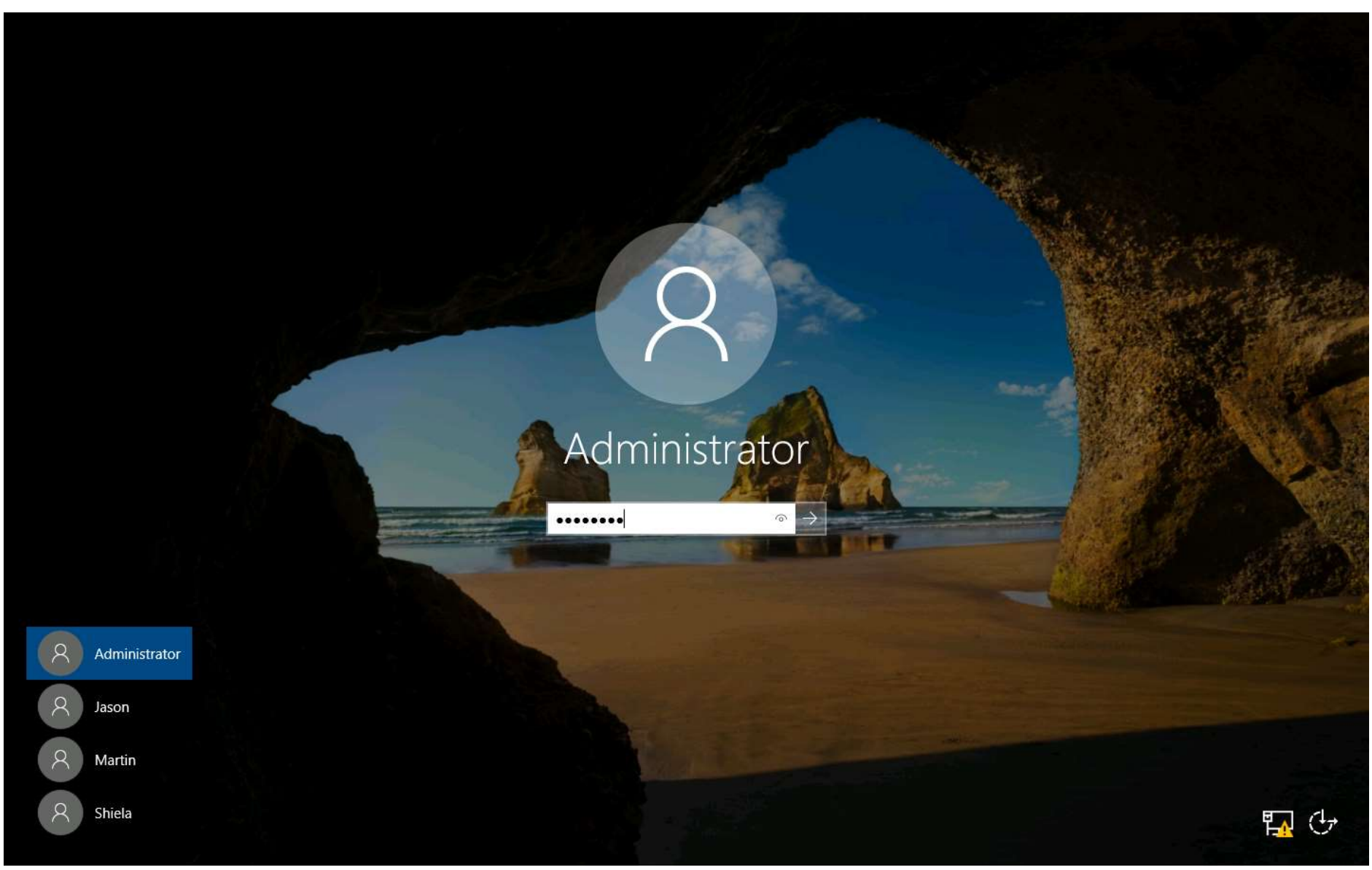
Network scan plays a crucial role in identifying the hosts that are up and running in a network. Additionally, it helps a pentester in pulling out additional information associated with a machine such as the services running on the machine, the ports used by the service and the operating system details.
As a penetration tester, you need to have extensive knowledge of network mapping tools, top ports running different services, etc.

Lab Duration: **30** Minutes

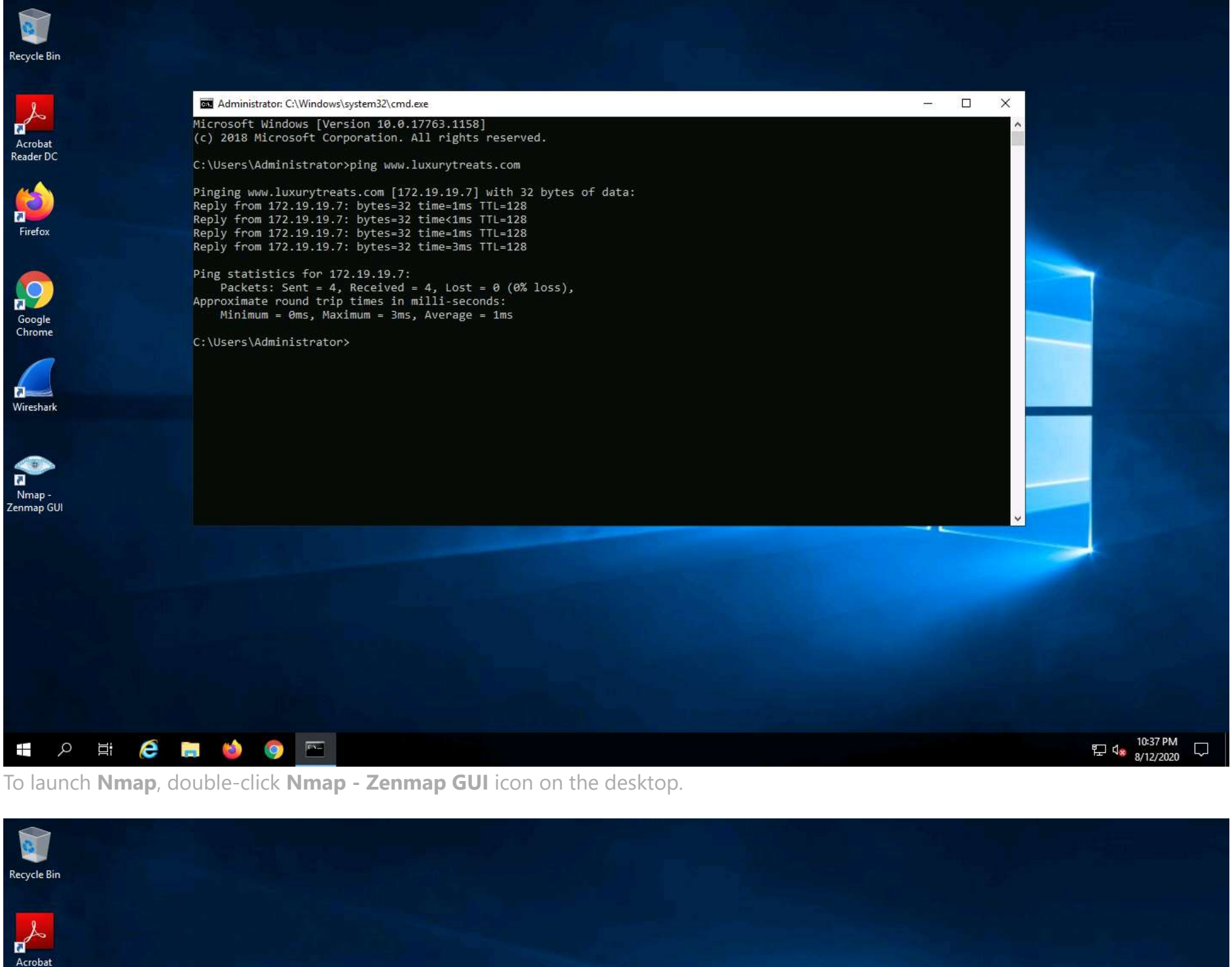
1. By default, **CPENT-M5 Windows Server 2019** is selected. Click Ctrl+Alt+Del.



2. In the password field type **Pa$$w0rd** and press **Enter**



3. In this lab, you are given the assignment to audit the server hosting the website **http://www.luxurytreats.com**. So, before beginning this lab, we shall identify the IP Address of the website using the **ping** utility. Launch a command prompt, type **ping www.luxurytreats.com** and press **Enter**. This returns the IP Address of the server as **172.19.19.7** in the response. We will be scanning this IP address using Nmap in the forthcoming tasks.

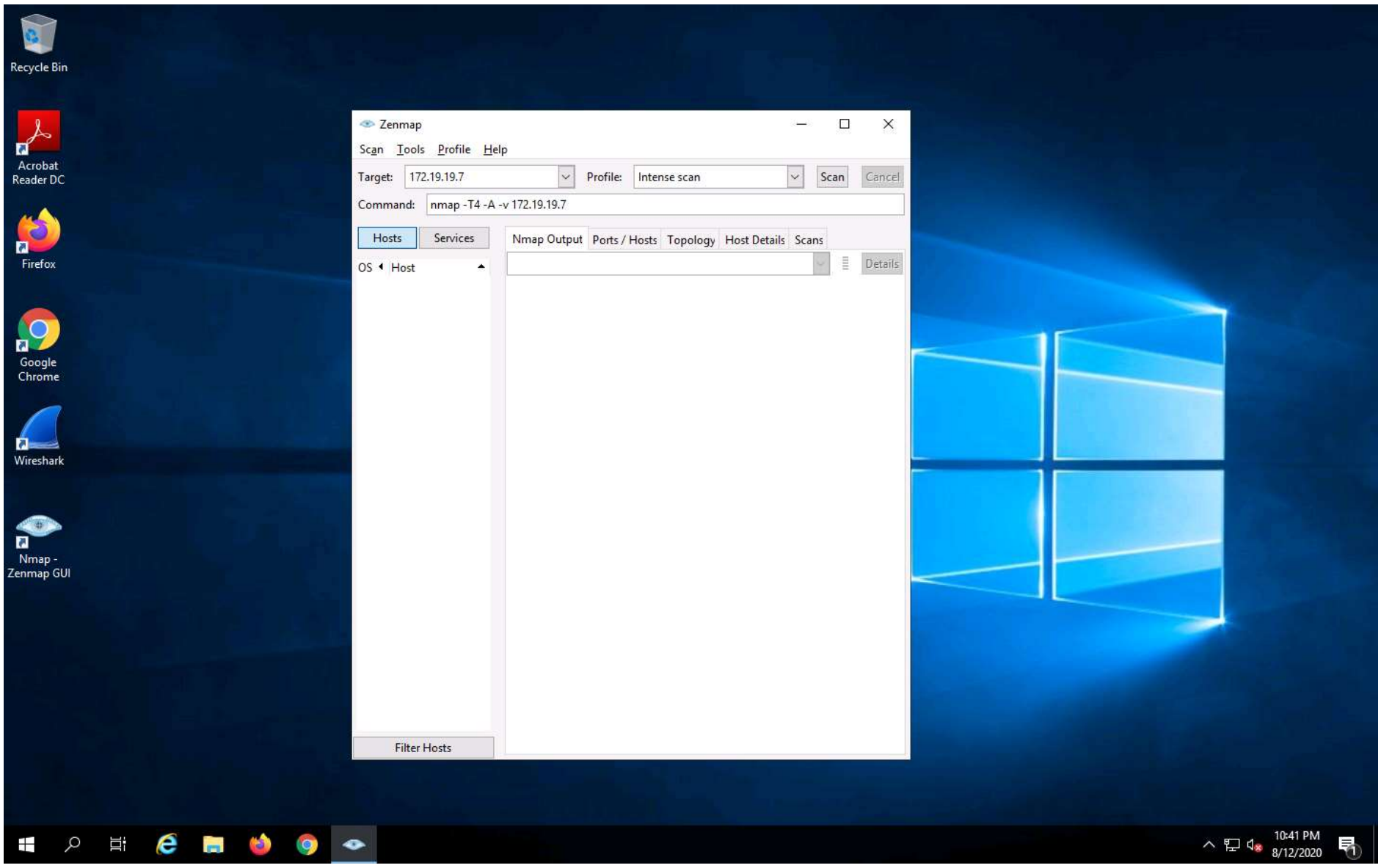


4. To launch **Nmap**, double-click **Nmap - Zenmap GUI** icon on the desktop.

5. **Zenmap** (**Nmap**) main window appears as shown in the screenshot.

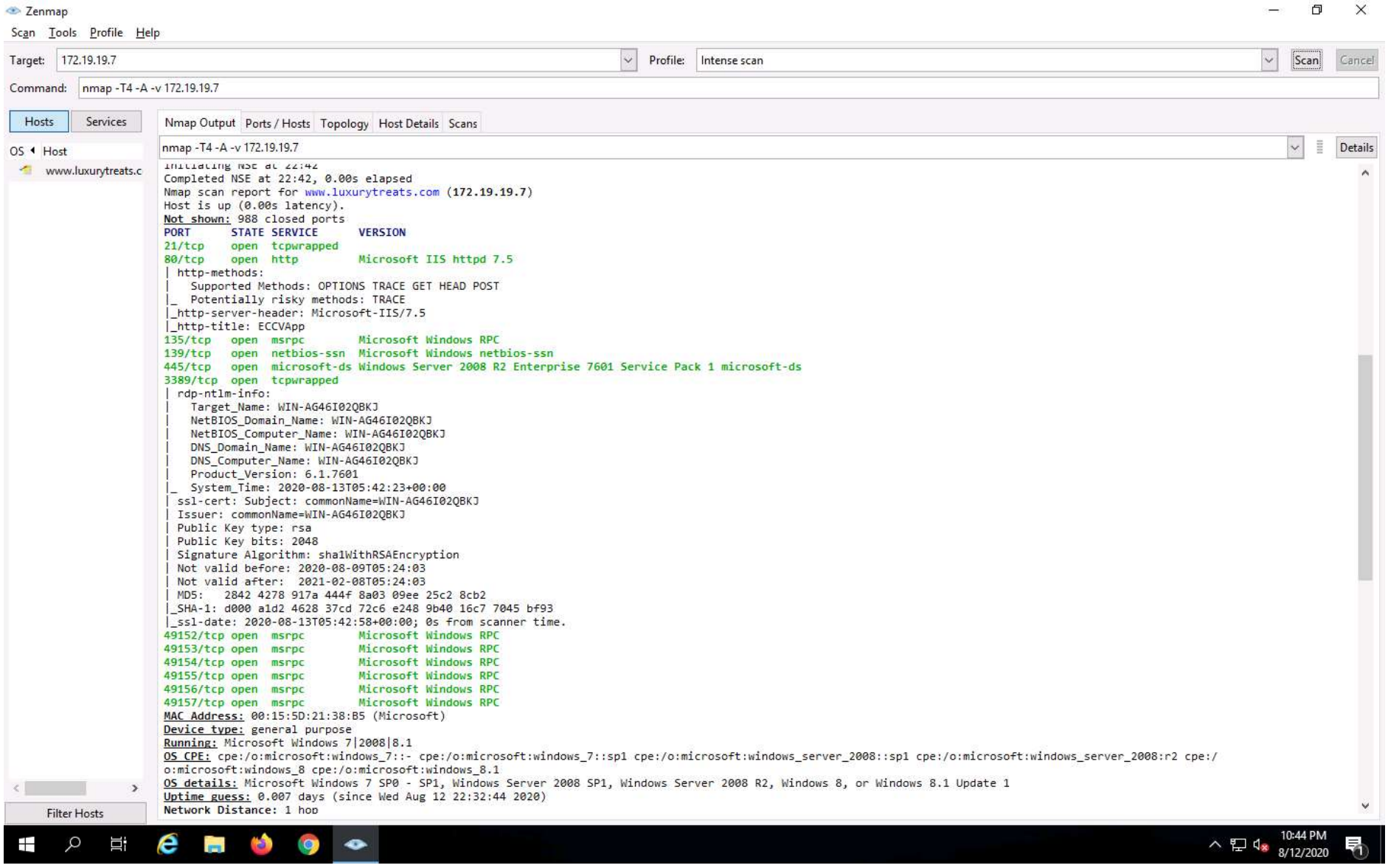
6. To perform **Intense Scan**, enter IP address in the **Target** field and choose **Intense Scan** from **Profile** drop-down list and click **Scan**. In this lab, we are performing Intense Scan on **Target_CPENT Web Server** machine (which is hosting www.luxurytreats.com) whose IP address, **172.19.19.7** was identified in the earlier steps.

Note: The scan will take a few minutes to complete.



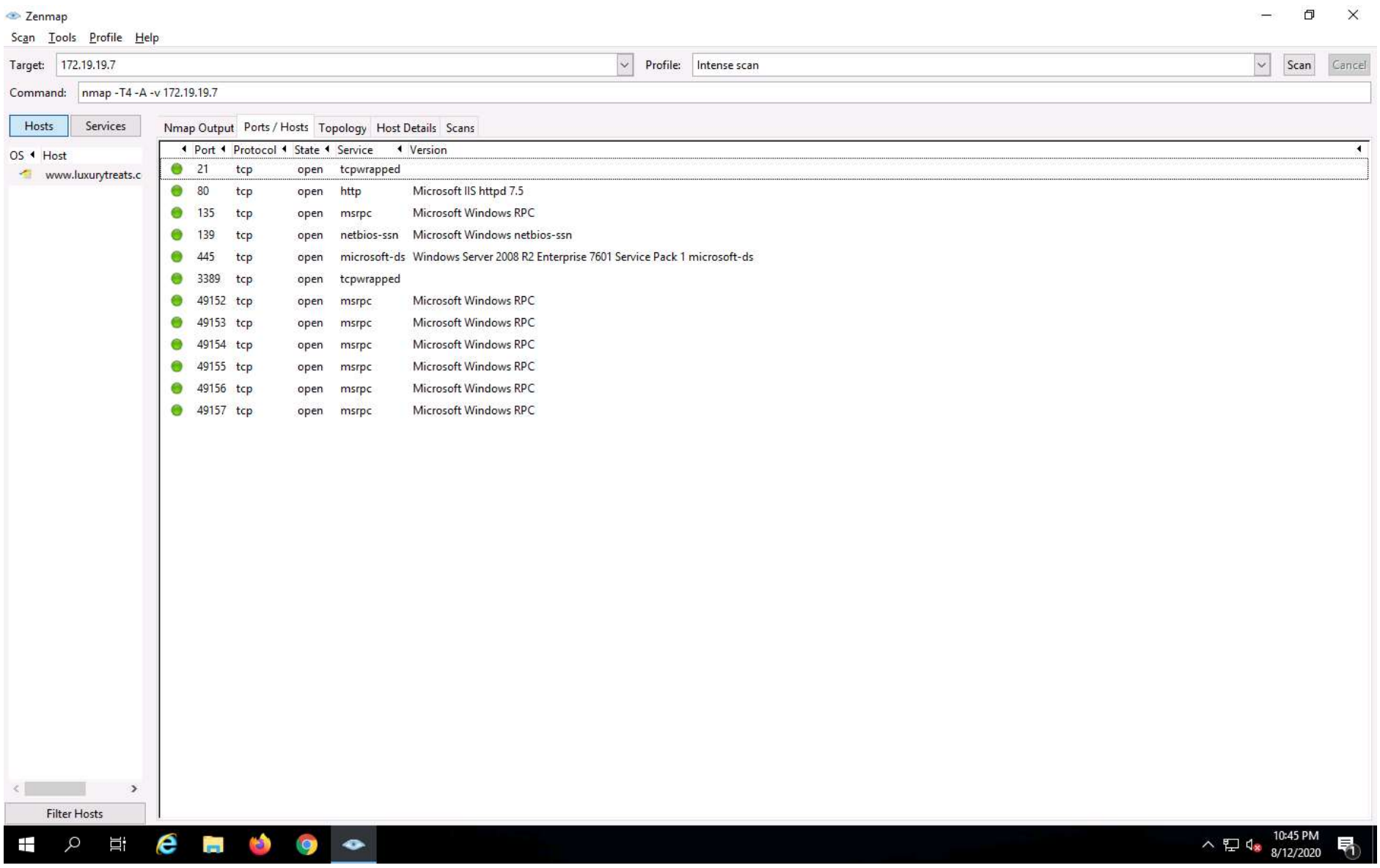
7. Nmap scans the provided IP address with Intense scan and scan results are shown in the **Nmap Output** tab.

Note: Scan results might vary when you perform this task.

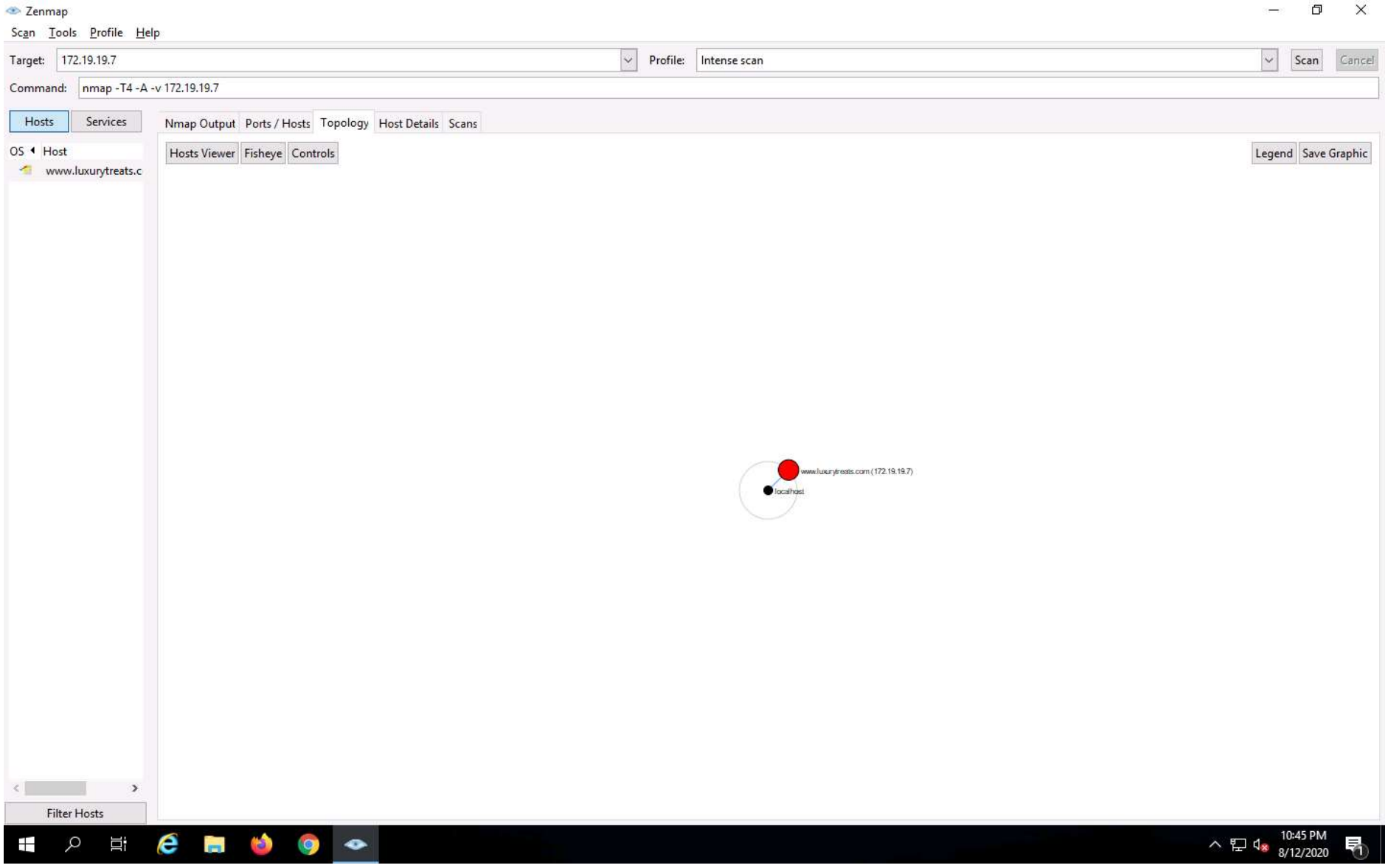


8. Click the **Ports/Hosts** tab to check the Port, Protocol, State, Service, and Version of services discovered during the scan.

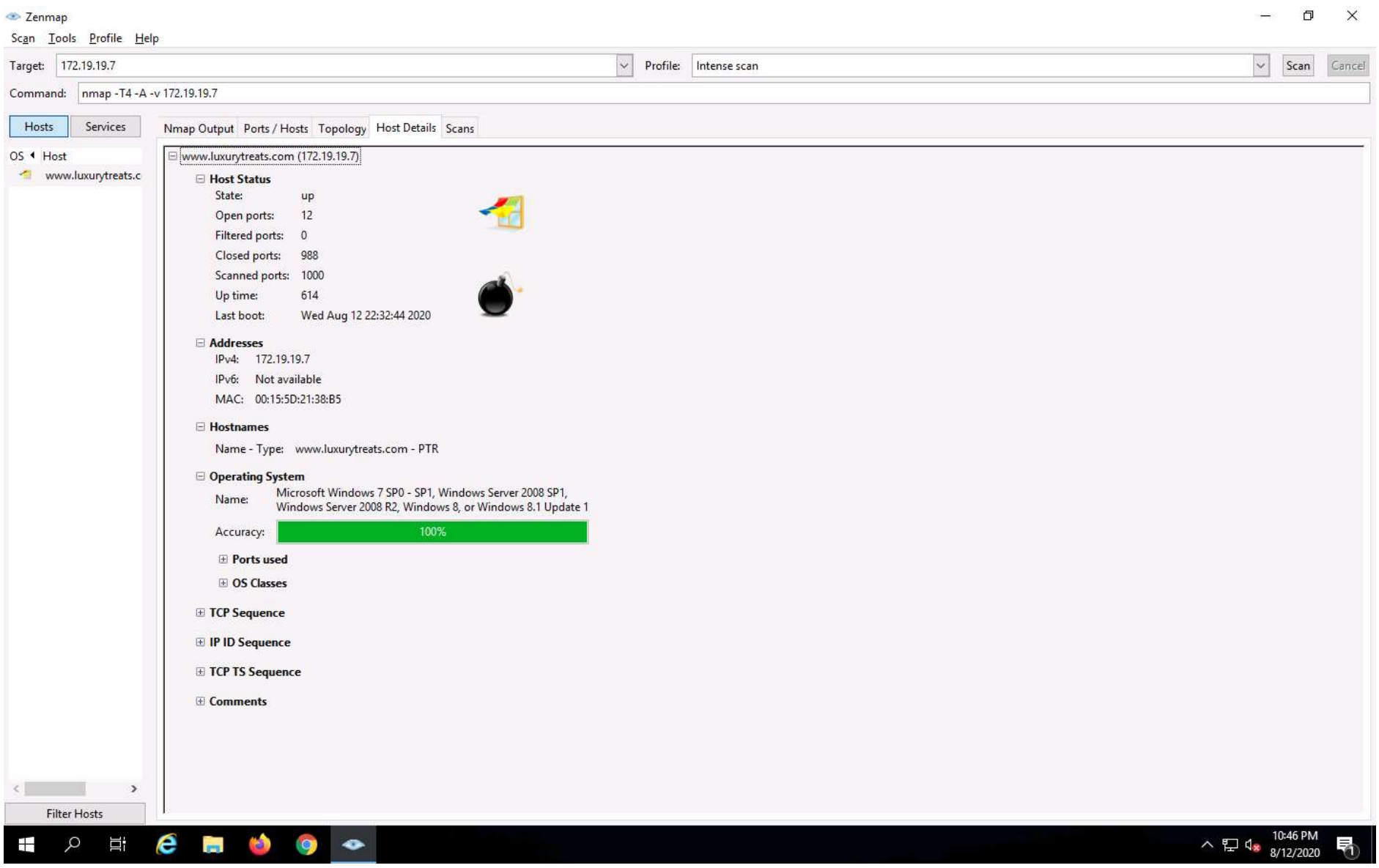
Note: The list of open ports might vary when you perform this task.



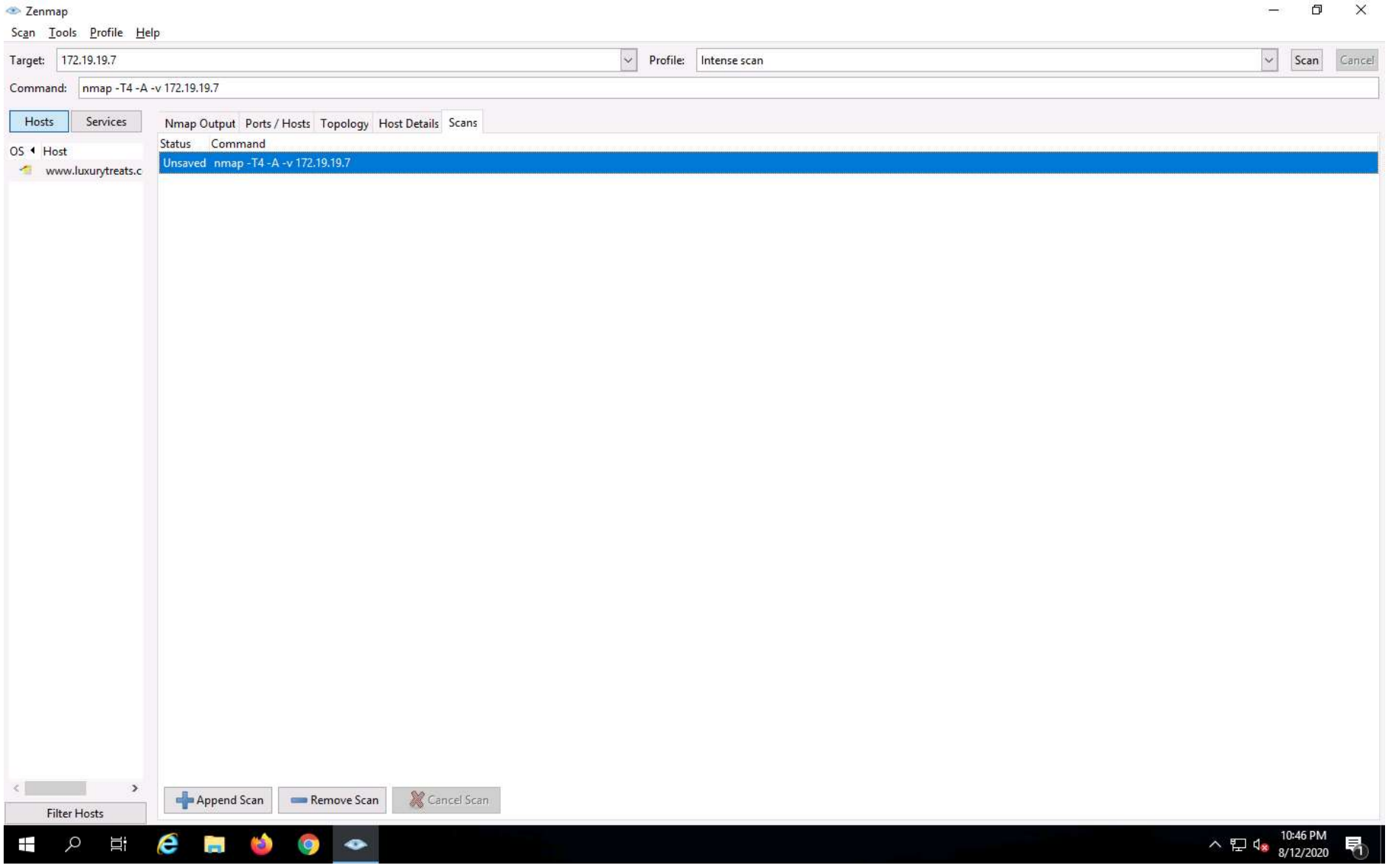
9. Click the **Topology** tab to view network topology of the target system.



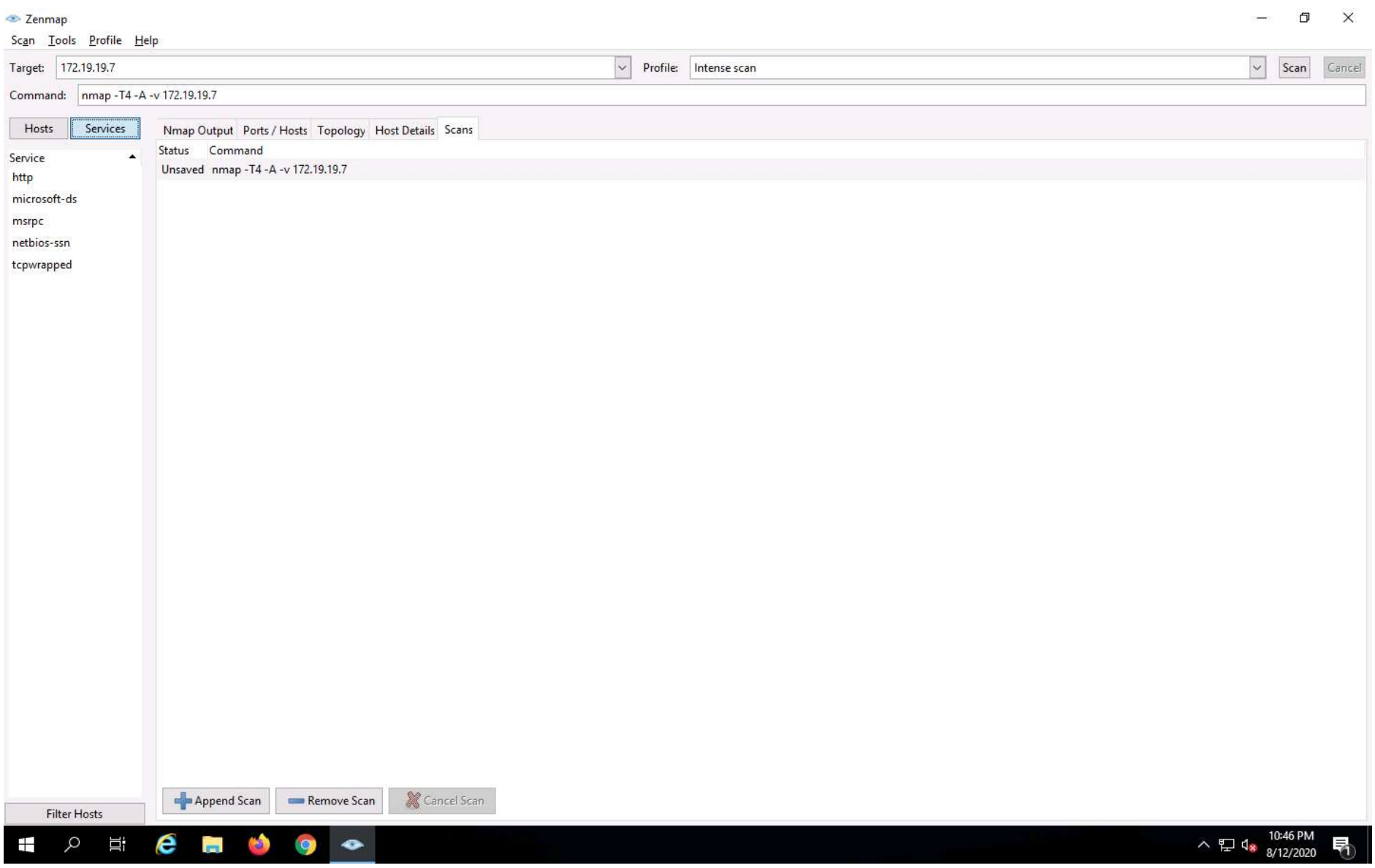
10. Click the **Host Details** tab to see the details of the hosts discovered during the intense scan.



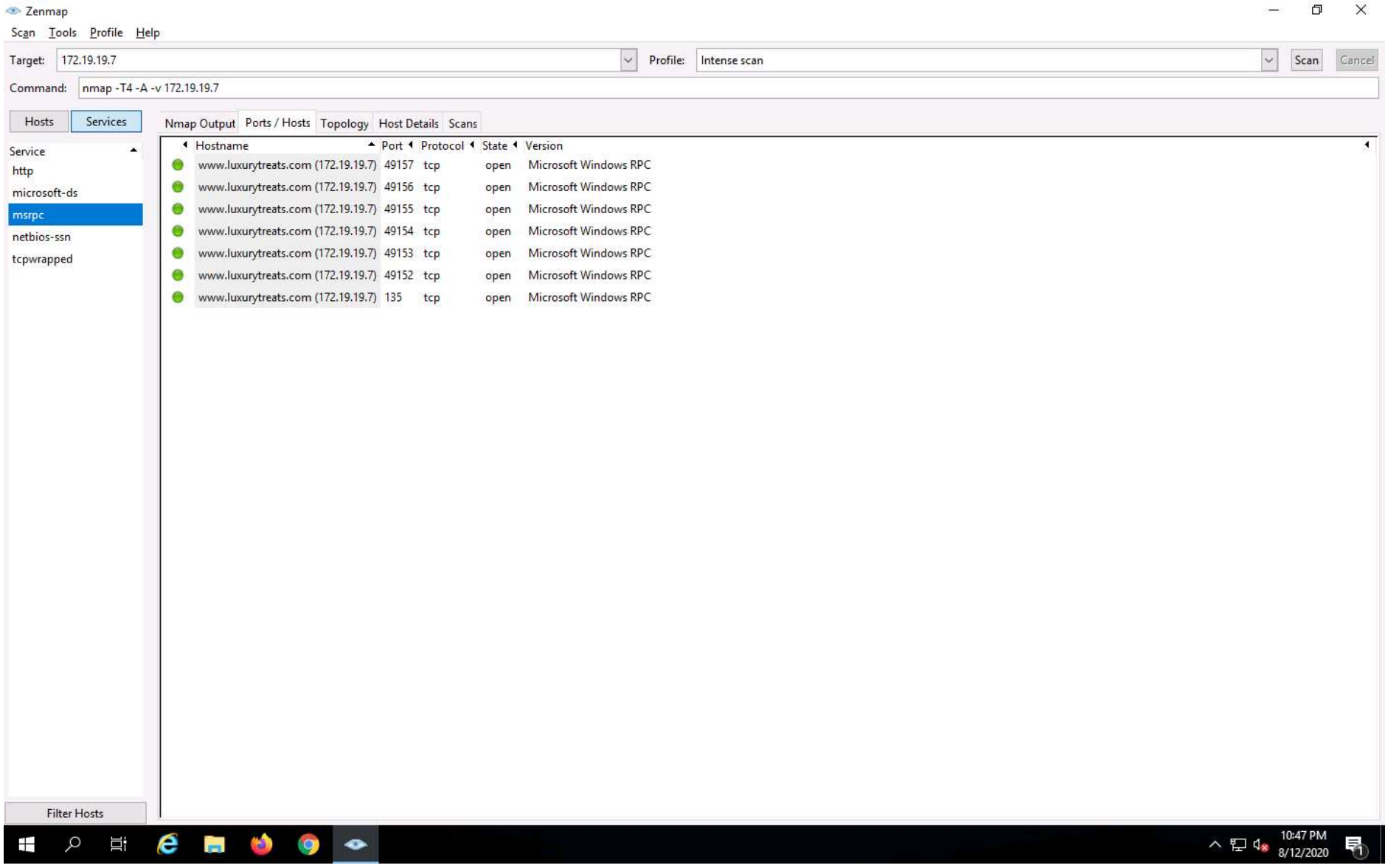
11. Click the **Scans** tab to view the status of the scan, and command used.



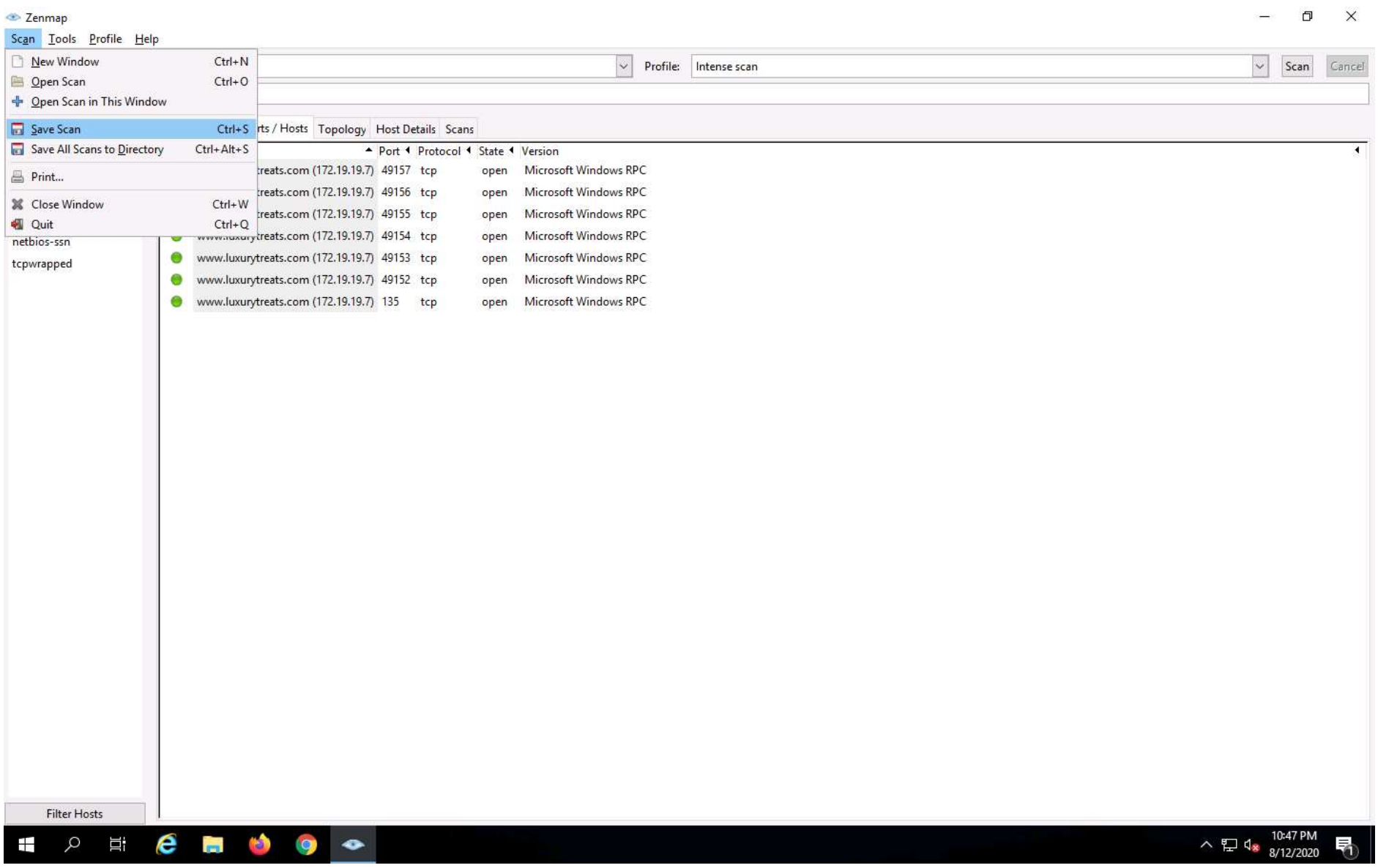
12. Now, click the **Services** tab in the left pane. This tab displays the list of services running on the machine.



13. Now, click **msrpc** service under **Services** section to view the ports on which the services are running. This way, you can access information about each service.



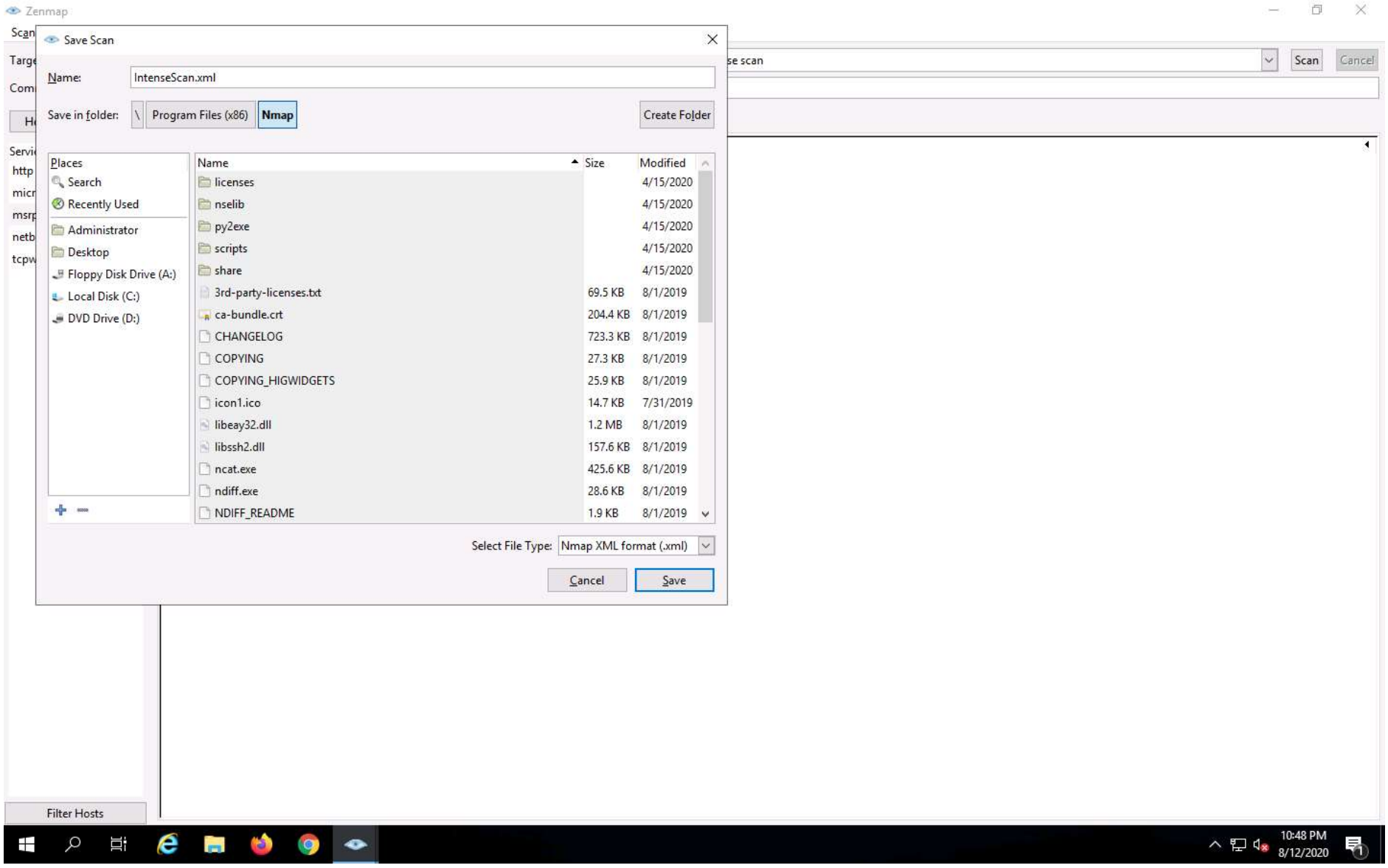
14. To save the scanned result, navigate to **Scan** and click **Save Scan** from the menu bar.



15. **Save Scan** window appears, specify the scan name in the **Name:** text field as **Intense Scan.xml**, specify the destination location in **Save in folder:** field, file type in **Select File Type:** field and click **Save**.

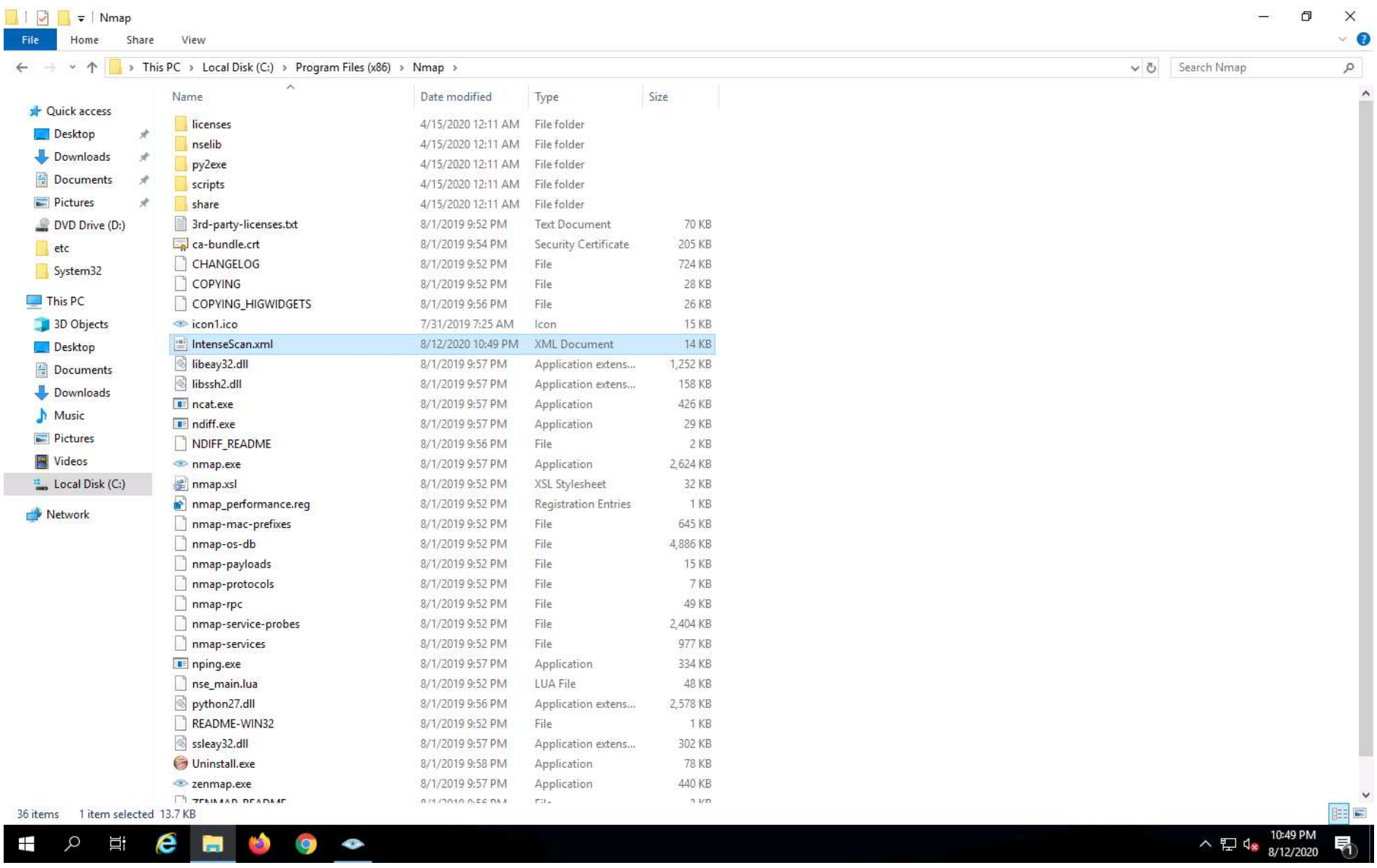
Note: In this lab, the default file location and default file type have been chosen.

Note: You can even choose your desired location to save the result.

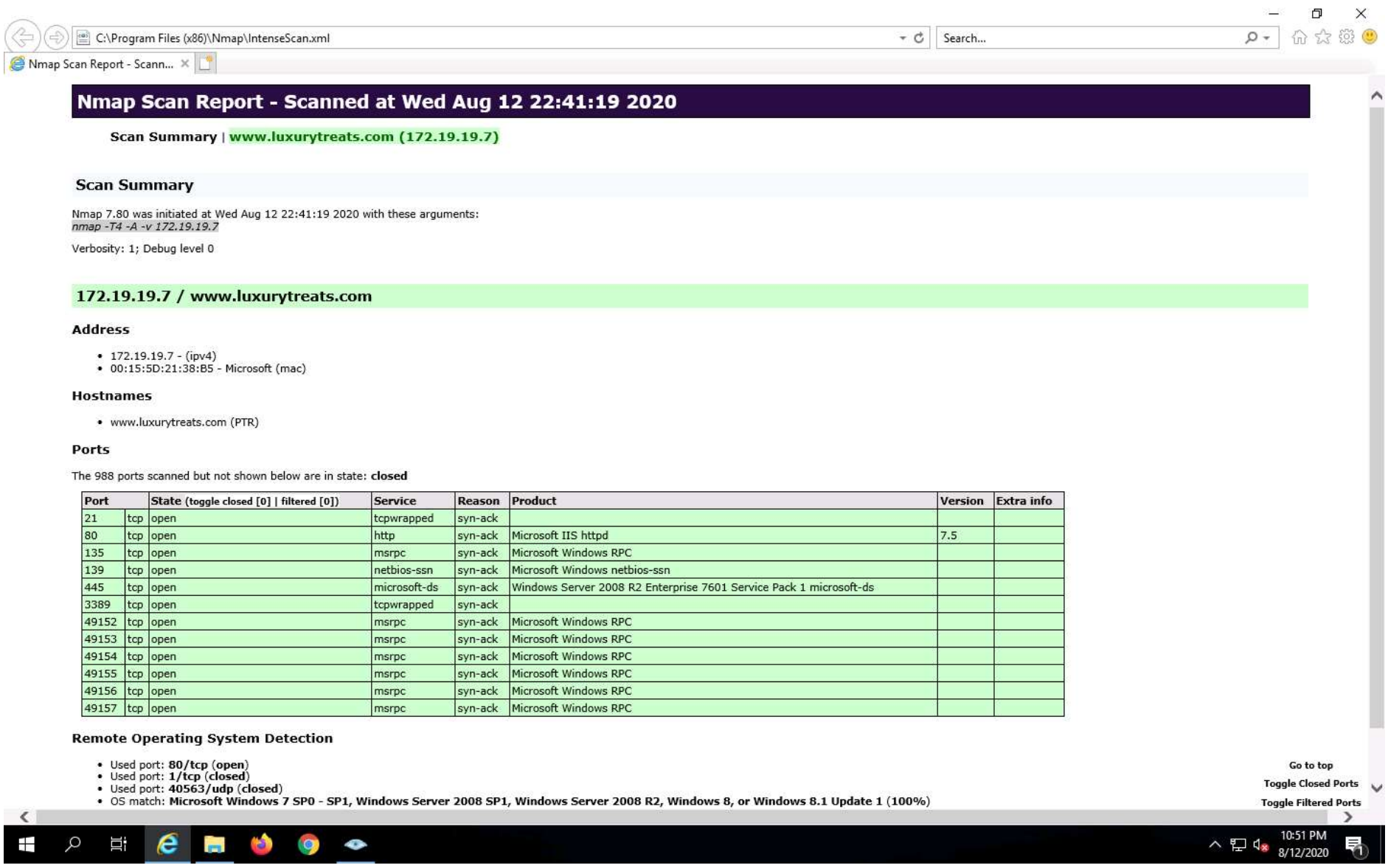


16. To view the result, navigate to **C:\Program Files (x86)\Nmap** and double-click **Intense Scan.xml**.

Note: Here, the saved file location is **C:\Program Files (x86)\Nmap**.



17. Now, you can view the **Intense Scan** report in the browser as shown in the screenshot.



18. Now, close all the windows.

> Note: If **Errors Occurred** pop-up appears, click **OK**.

19. After analyzing the results in the report, close all the windows and the Nmap GUI.

In this lab you have analyzed all the IP addresses, open and closed ports, services, and protocols you discovered during the scan.

Exercise 2: Accessing Misconfigured FTP Connection on a Remote Machine

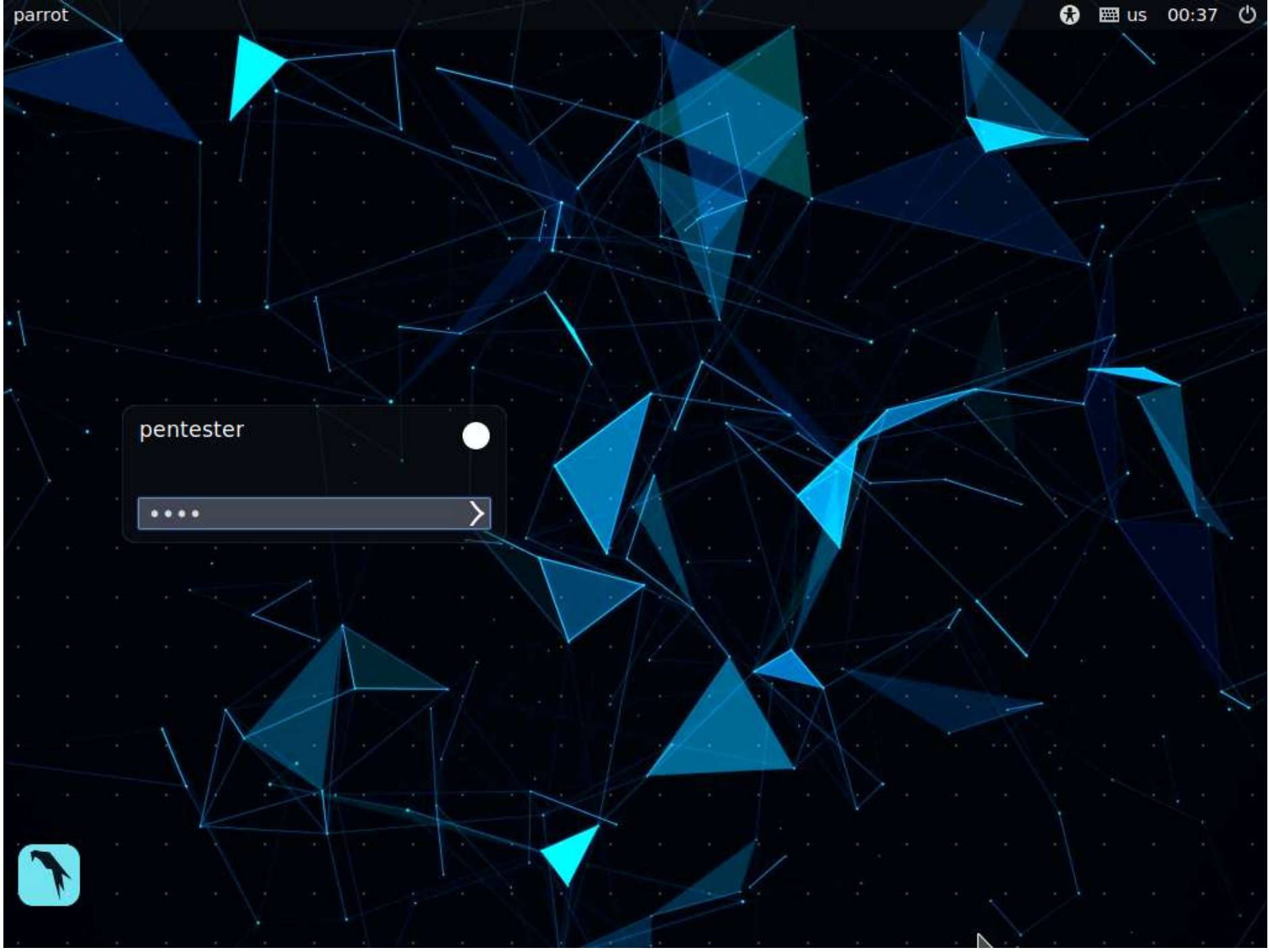
Scenario

File transfer protocol allows authenticated users to upload/access and download files and folders between a client and a server. When anonymous access is enabled on the server, it allows everyone access files on it, leaving the security of sensitive information at risk.

As a pentester, you should be able to find the FTP servers inside a network which have anonymous access enabled. In this lab, you will be learning how to identify the FTP servers which have anonymous access enabled.

Lab Duration: **20** Minutes

1. Click **CPENT-M5 Parrot Security**. Parrot logon screen appears, type **toor** in the Password field and press **Enter**.



2. In this lab, we will be performing penetration testing on a machine to find any loopholes and gain access to its resources. For this, we are going to scan **CPENT-M5 Ubuntu Server** for open ports and services running on the machine. To scan, launch a command line terminal, type **nmap 172.19.19.10** and press **Enter**. This performs a Nmap regular scan on the machine and displays the results as shown in the screenshot.

Note: In this lab, we are scanning IP address of the target machine located in the external network, whereas, in real-time, you will be scanning domains for eg. **ftp.[targetwebsite].com**.

```
Applications  Places  System                                  Thu Oct 1, 03:16
                                  Parrot Terminal
File  Edit  View  Search  Terminal  Help
┌─[pentester@parrot]─[~]
└──╼ $nmap 172.19.19.10
Starting Nmap 7.80 ( https://nmap.org ) at 2020-10-01 03:16 EDT
Nmap scan report for 172.19.19.10
Host is up (0.00051s latency).
Not shown: 997 closed ports
PORT   STATE SERVICE
21/tcp open  ftp
22/tcp open  ssh
80/tcp open  http

Nmap done: 1 IP address (1 host up) scanned in 0.09 seconds
┌─[pentester@parrot]─[~]
└──╼ $
Menu  Parrot Terminal
```

3. In the previous task, it was observed that ports **21**, **22**, **80** are open. Let us begin with port **21**. We shall first check if we can access FTP on the machine anonymously. For that, we will run Nmap scan with the **ftp-anon** script to find out whether anonymous login is enabled on the machine. Type **nmap -p 21 --script ftp-anon 172.19.19.10** and press **Enter** to begin the Nmap scan.

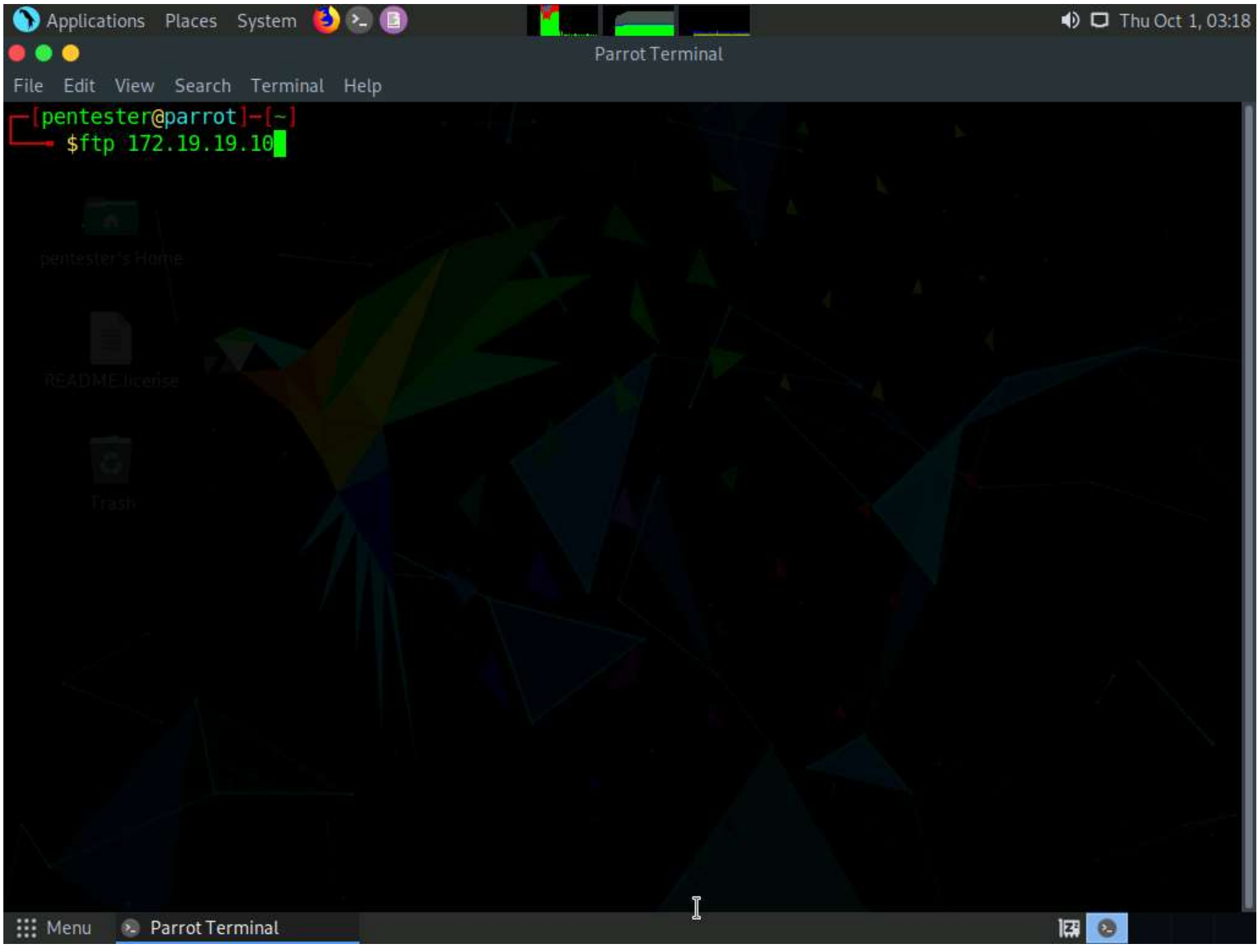
4. It is observed that Anonymous FTP Login is enabled on the FTP Server.

```
Applications  Places  System                                  Thu Oct 1, 03:18
                                  Parrot Terminal
File  Edit  View  Search  Terminal  Help
┌─[pentester@parrot]─[~]
└──╼ $nmap -p 21 --script ftp-anon 172.19.19.10
Starting Nmap 7.80 ( https://nmap.org ) at 2020-10-01 03:18 EDT
Nmap scan report for 172.19.19.10
Host is up (0.00056s latency).

PORT   STATE SERVICE
21/tcp open  ftp
| ftp-anon: Anonymous FTP login allowed (FTP code 230)
|_drwxrwxrwx    2 ftp      ftp          4096 Aug 28  2018 public [NSE: writeable]

Nmap done: 1 IP address (1 host up) scanned in 0.29 seconds
┌─[pentester@parrot]─[~]
└──╼ $
Menu  Parrot Terminal
```

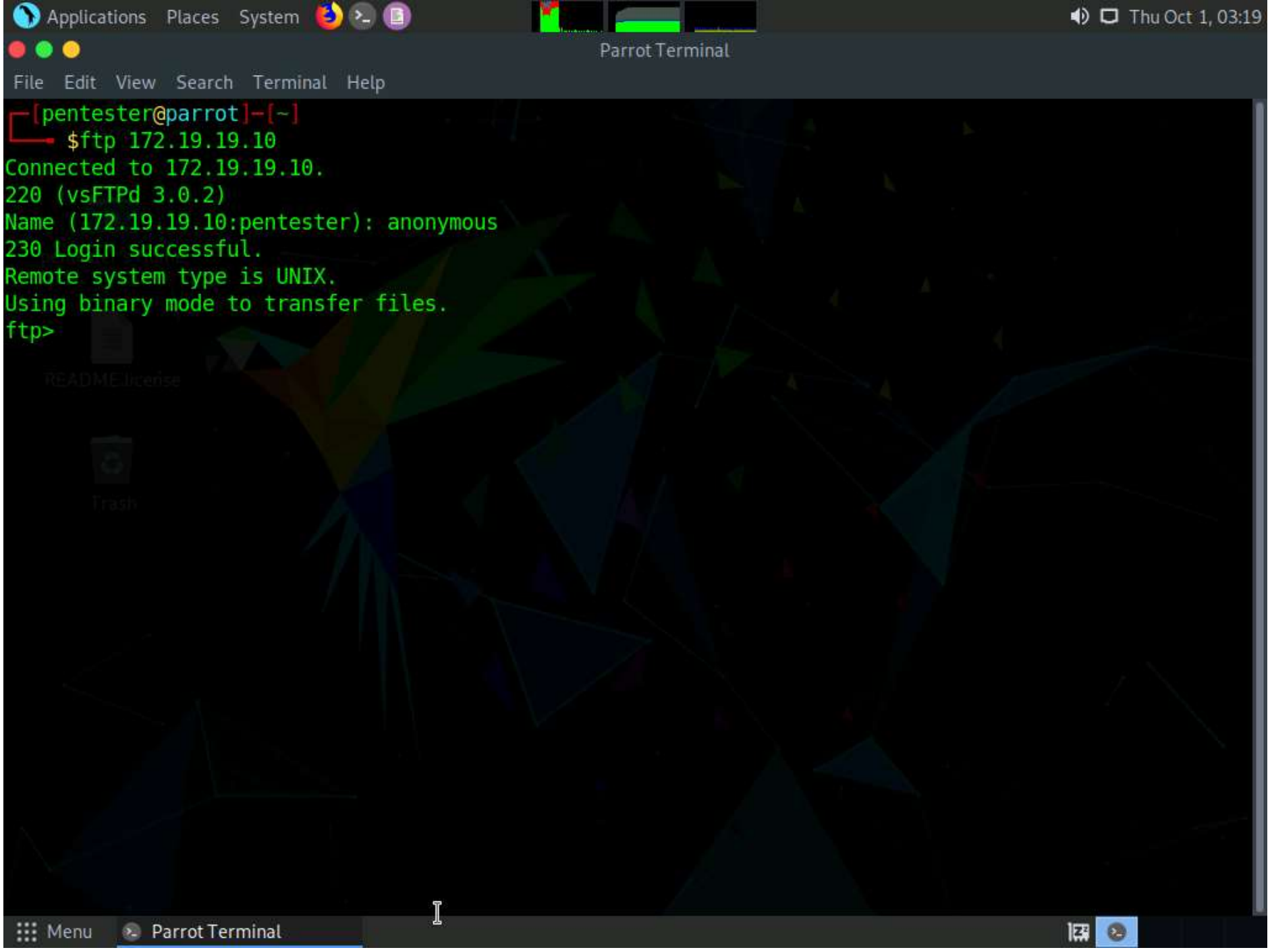
5. Now, we shall log in to the FTP server and access contents in the FTP directory. Type **ftp 172.19.19.10** and press **Enter.**



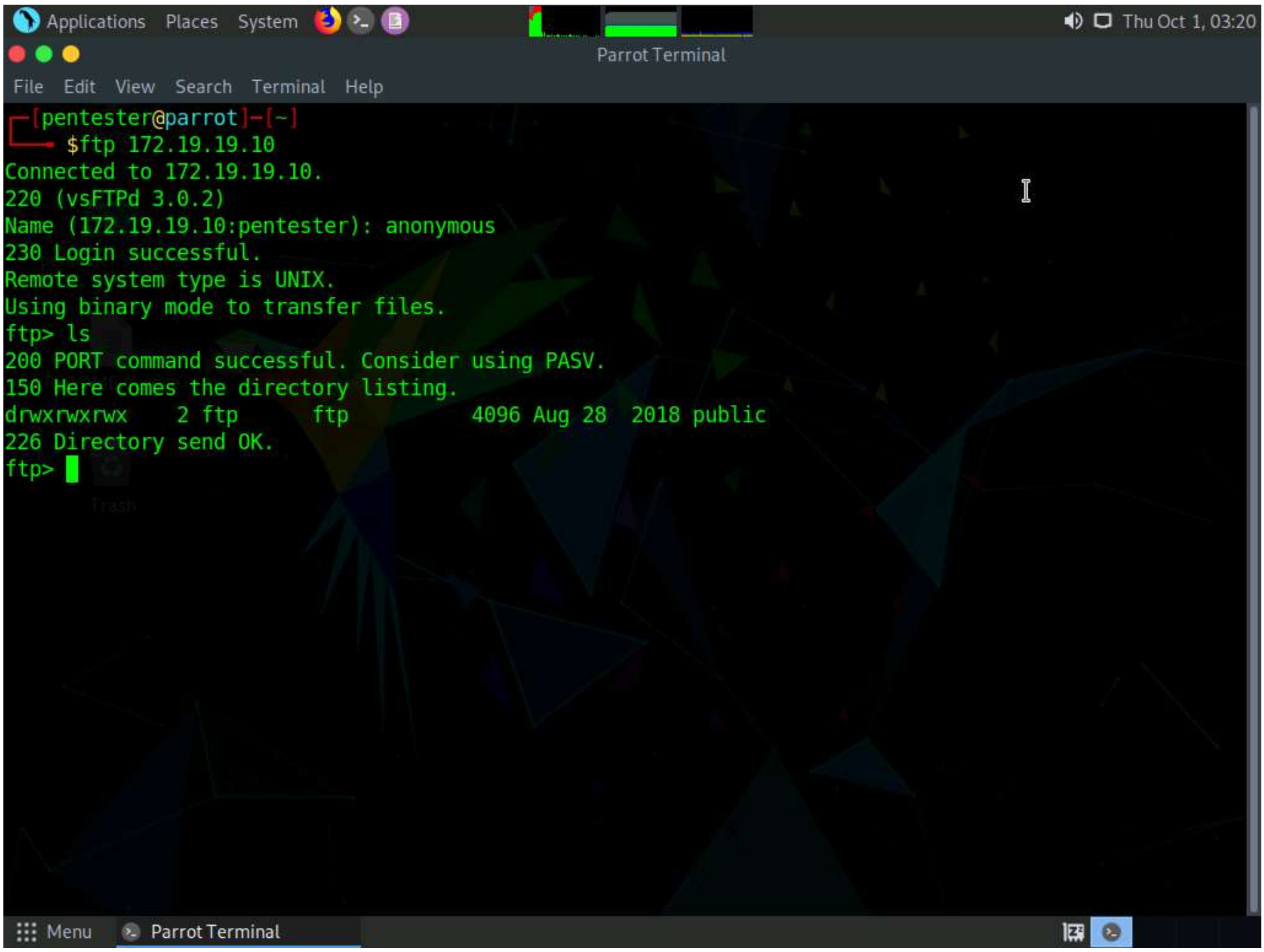
6. You will be asked to enter a login name. Type **anonymous** and press **Enter**.

Note: If a **Password** field appears, leave it empty and press **Enter** to proceed.

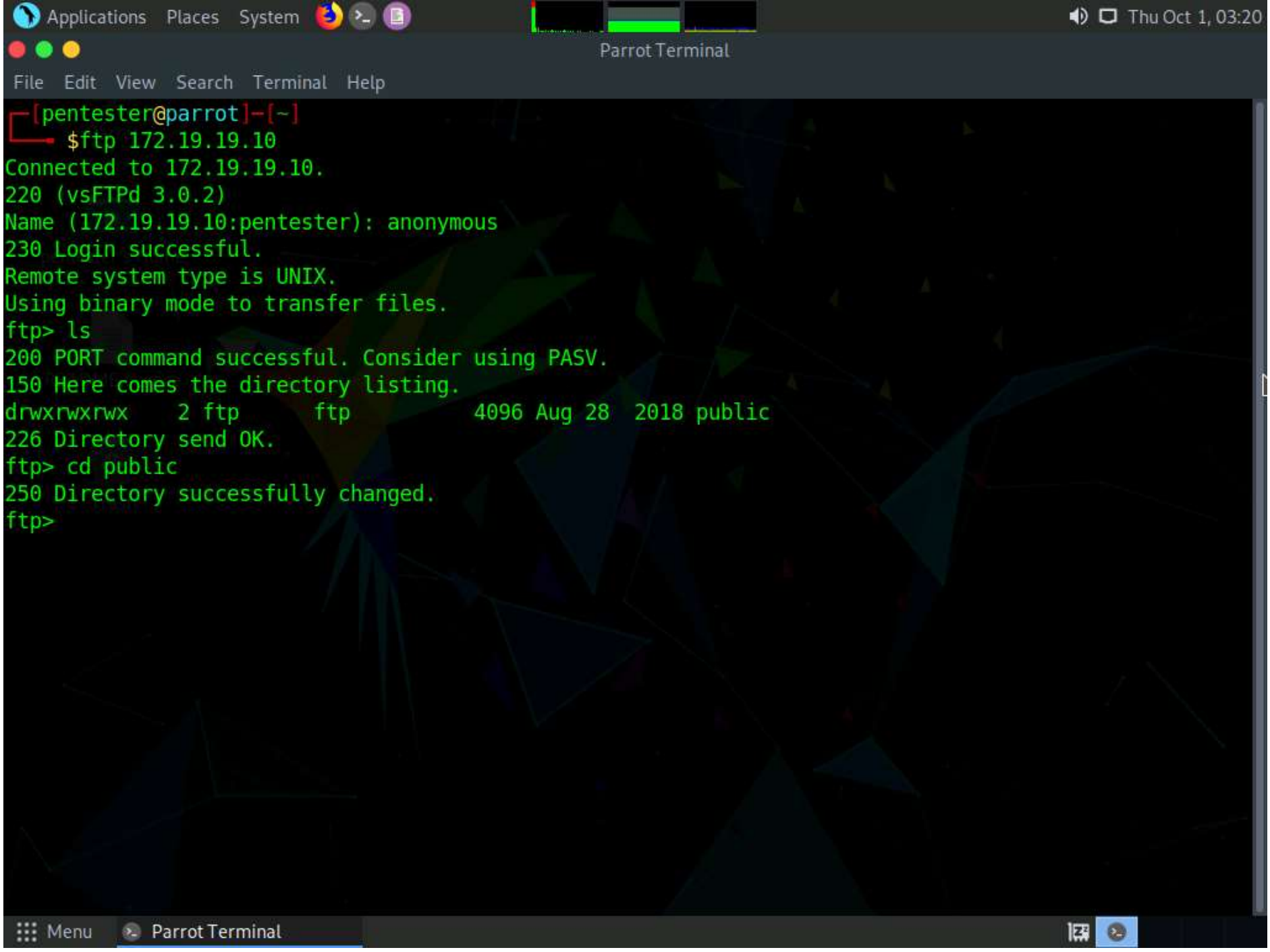
7. Upon entering the login name, an ftp shell appears, stating that the FTP login has been successful. This shows we have successfully logged in to the remote machine using FTP.



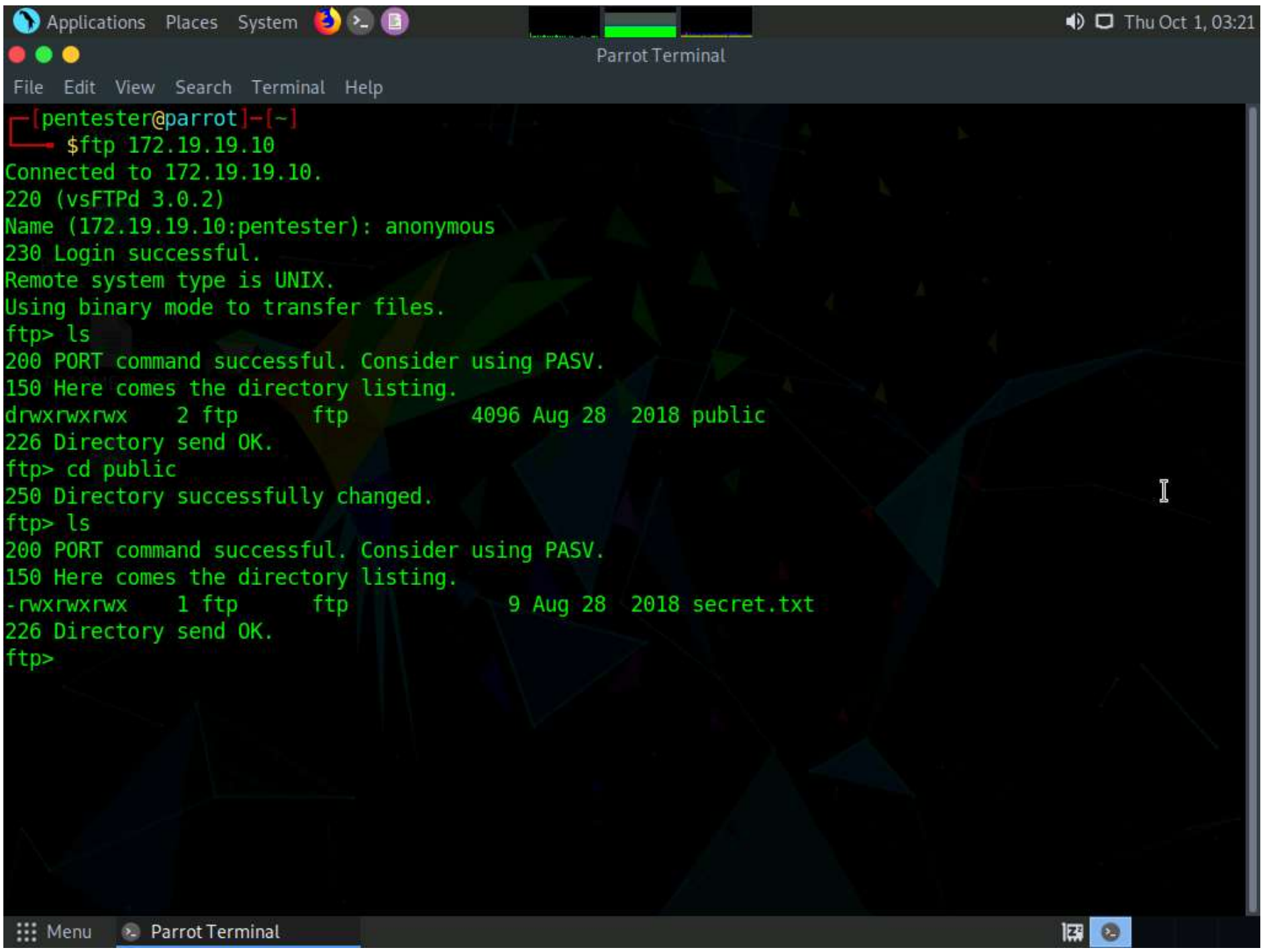
8. Now, we shall view the files and directories inside the FTP root directory. To view them, type **ls** and press **Enter**. This displays all the directories and files in the FTP root directory, along with their file/directory permissions as shown in the screenshot below. It is observed that the directory permissions for "public" folder have read-write-execute access enabled to all the user groups. We shall attempt to upload a file to this directory in the forthcoming tasks.



9. Now, we shall navigate to the **public** folder to view its contents. To navigate, type **cd public** and press **Enter**.



10. Type **ls** and press Enter to view the files and folders inside the "**public**" folder.

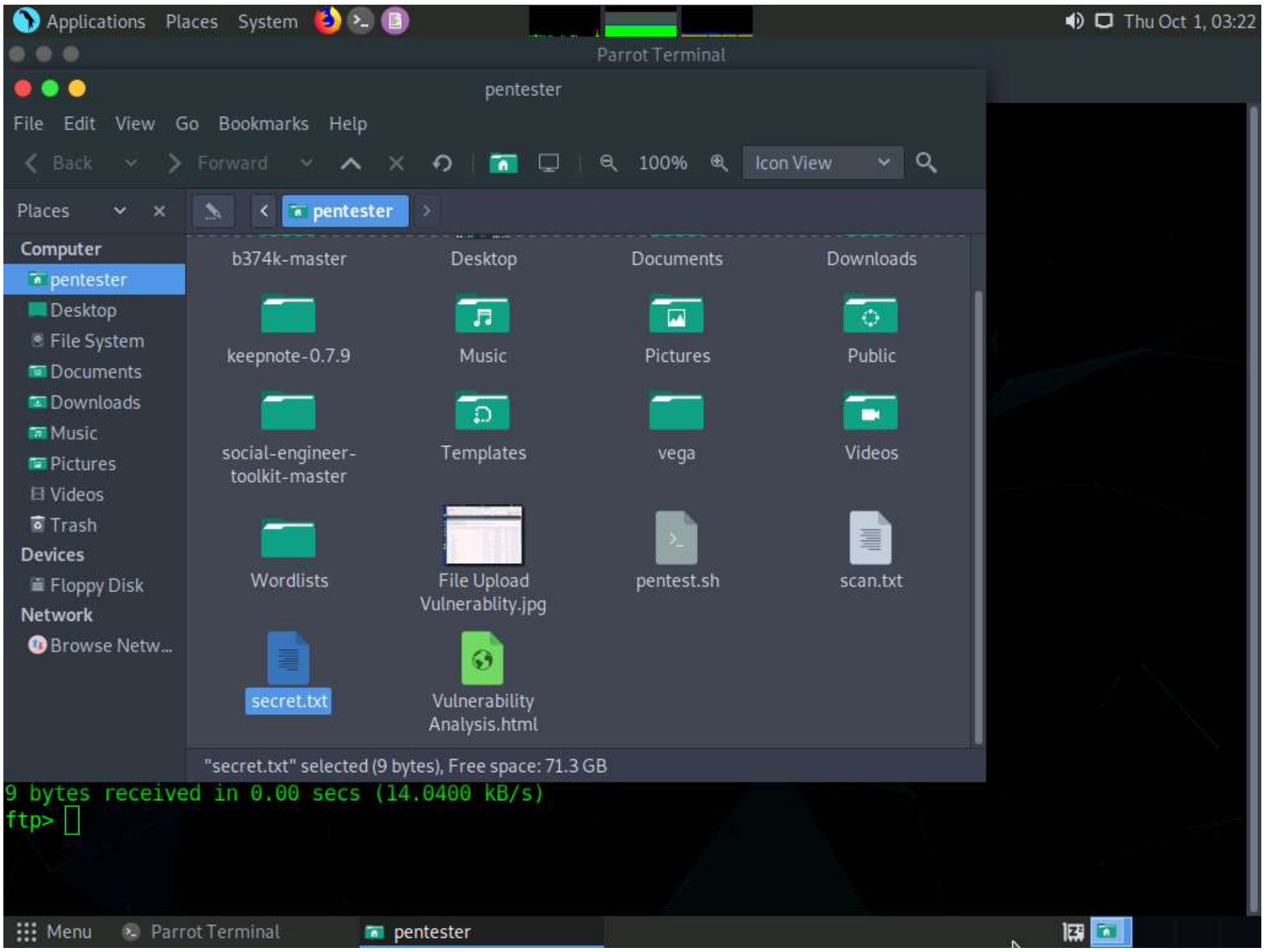


11. You will observe the file named **secret.txt** in the folder.

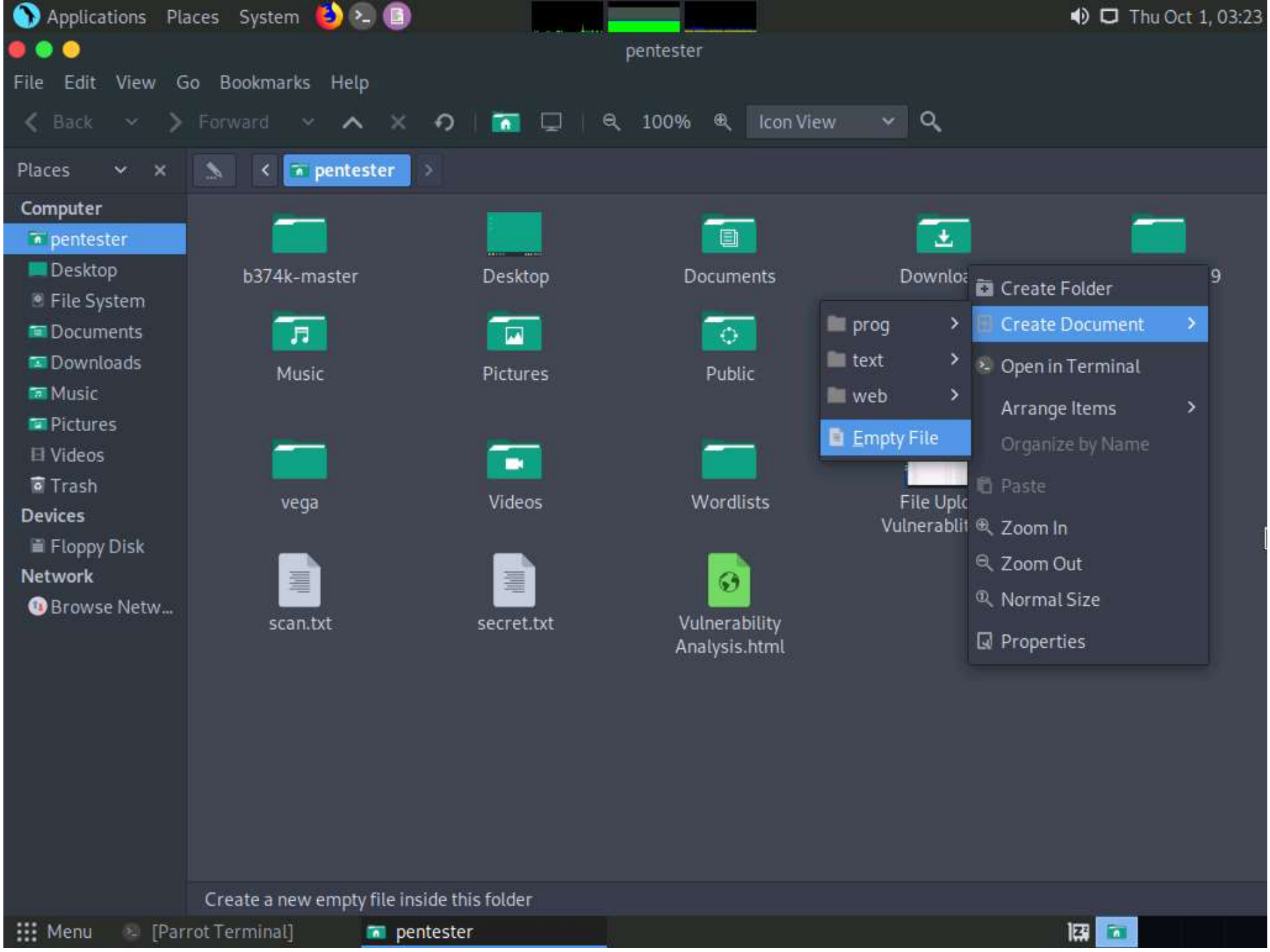
12. Now, we shall see if we can download the files from the server. To download **secret.txt** file, type **get secret.txt** and press **Enter**.

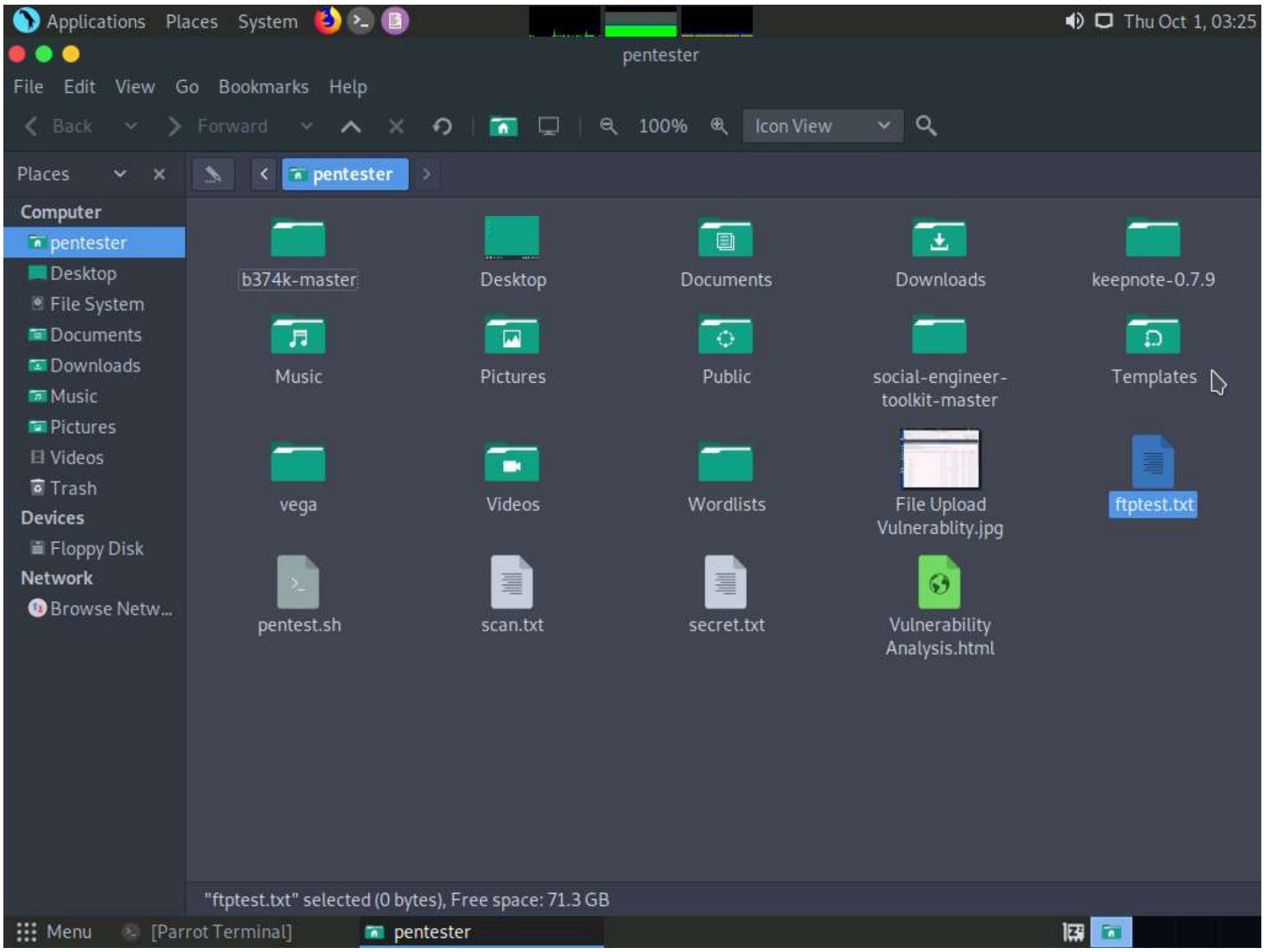
```
Applications  Places  System                                  Thu Oct 1, 03:21
                                  Parrot Terminal
File  Edit  View  Search  Terminal  Help
┌─[pentester@parrot]─[~]
└──╼ $ftp 172.19.19.10
Connected to 172.19.19.10.
220 (vsFTPd 3.0.2)
Name (172.19.19.10:pentester): anonymous
230 Login successful.
Remote system type is UNIX.
Using binary mode to transfer files.
ftp> ls
200 PORT command successful. Consider using PASV.
150 Here comes the directory listing.
drwxrwxrwx    2 ftp      ftp          4096 Aug 28  2018 public
226 Directory send OK.
ftp> cd public
250 Directory successfully changed.
ftp> ls
200 PORT command successful. Consider using PASV.
150 Here comes the directory listing.
-rwxrwxrwx    1 ftp      ftp             9 Aug 28  2018 secret.txt
226 Directory send OK.
ftp> get secret.txt
local: secret.txt remote: secret.txt
200 PORT command successful. Consider using PASV.
150 Opening BINARY mode data connection for secret.txt (9 bytes).
226 Transfer complete.
9 bytes received in 0.00 secs (14.0400 kB/s)
ftp>
Menu  Parrot Terminal
```

13. The downloaded file is saved to the **Home** folder as shown in the screenshot below.



14. Now, we shall see if we can upload a file to the FTP server. Create a file **ftptest.txt** (as an example) in the **Home** folder of Parrot machine to send it to the FTP Server. Open your **Home** Folder and **Right Click** and navigate to **Create Document** and click **Empty File** and name the file as **ftptest.txt**. Go back to **Terminal**, to upload type **put ftptest.txt** and press **Enter**.


Applications Places System
Thu Oct 1, 03:23
pentester
File Edit View Go Bookmarks Help
Back Forward 100% Icon View
Places
pentester
Computer
pentester
Desktop
File System
Documents
Downloads
Music
Pictures
Videos
Trash
Devices
Floppy Disk
Network
Browse Netw...
b374k-master
Desktop
Documents
Downloads
Music
Pictures
Public
vega
Videos
Wordlists
scan.txt
secret.txt
Vulnerability Analysis.html
prog
text
web
Empty File
Create Folder
Create Document
Open in Terminal
Arrange Items
Organize by Name
Paste
Zoom In
Zoom Out
Normal Size
Properties
Create a new empty file inside this folder
Menu
[Parrot Terminal]
pentester


Applications Places System
Thu Oct 1, 03:25
pentester
File Edit View Go Bookmarks Help
Back Forward 100% Icon View
Places
pentester
Computer
pentester
Desktop
File System
Documents
Downloads
Music
Pictures
Videos
Trash
Devices
Floppy Disk
Network
Browse Netw...
b374k-master
Desktop
Documents
Downloads
keepnote-0.7.9
Music
Pictures
Public
social-engineer-toolkit-master
Templates
vega
Videos
Wordlists
File Upload Vulnerablity.jpg
ftptest.txt
pentest.sh
scan.txt
secret.txt
Vulnerability Analysis.html
"ftptest.txt" selected (0 bytes), Free space: 71.3 GB
Menu
[Parrot Terminal]
pentester

```
Applications  Places  System                                   Thu Oct 1, 03:25
                                  Parrot Terminal
File  Edit  View  Search  Terminal  Help
┌─[pentester@parrot]─[~]
└──╼ $ftp 172.19.19.10
Connected to 172.19.19.10.
220 (vsFTPd 3.0.2)
Name (172.19.19.10:pentester): anonymous
230 Login successful.
Remote system type is UNIX.
Using binary mode to transfer files.
ftp> ls
200 PORT command successful. Consider using PASV.
150 Here comes the directory listing.
drwxrwxrwx    2 ftp      ftp          4096 Aug 28  2018 public
226 Directory send OK.
ftp> cd public
250 Directory successfully changed.
ftp> ls
200 PORT command successful. Consider using PASV.
150 Here comes the directory listing.
-rwxrwxrwx    1 ftp      ftp             9 Aug 28  2018 secret.txt
226 Directory send OK.
ftp> get secret.txt
local: secret.txt remote: secret.txt
200 PORT command successful. Consider using PASV.
150 Opening BINARY mode data connection for secret.txt (9 bytes).
226 Transfer complete.
9 bytes received in 0.00 secs (14.0400 kB/s)
ftp> put ftptest.txt
Menu  Parrot Terminal  [pentester]
```

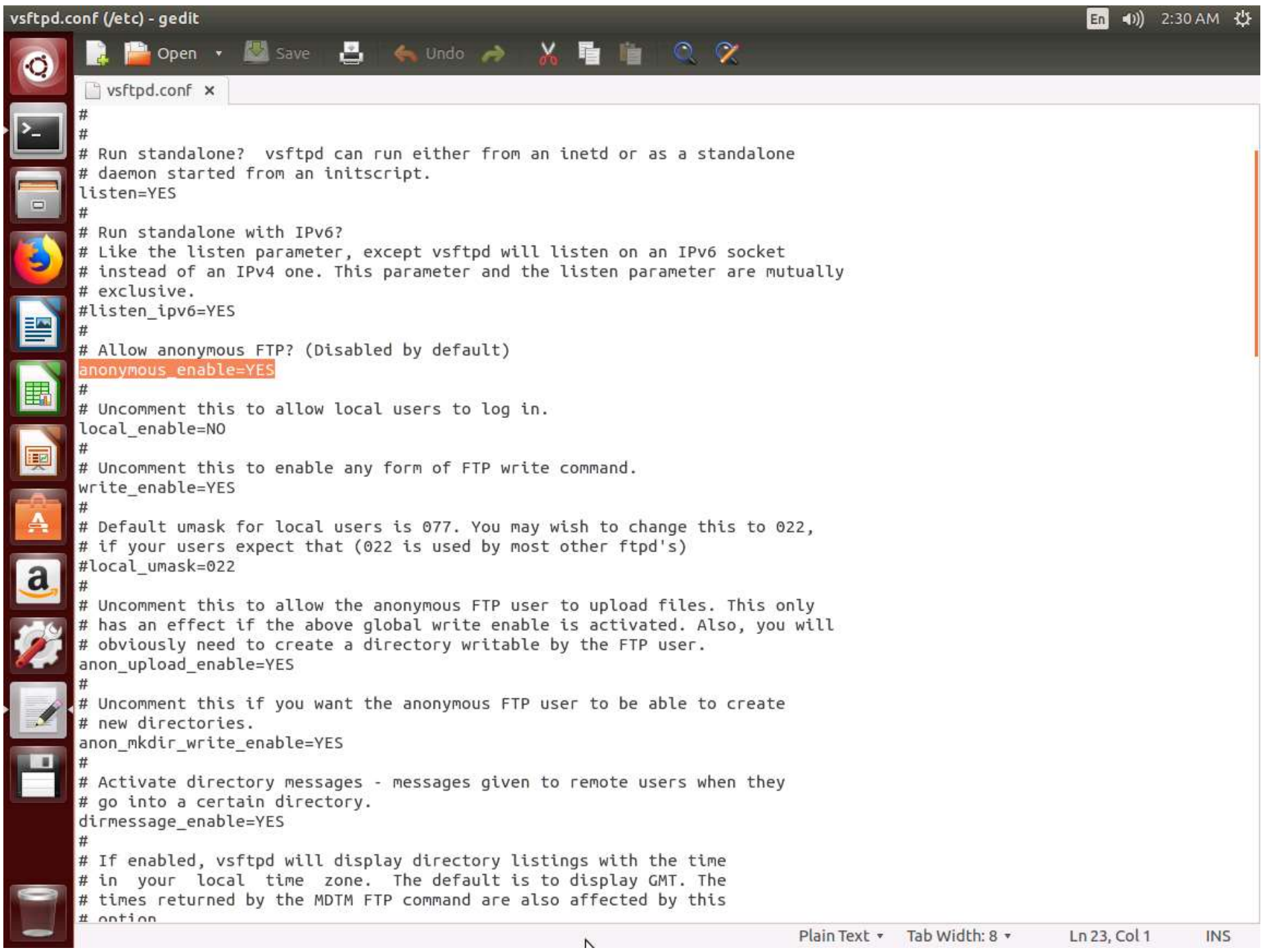
15. The file was successfully uploaded to the server as shown in the screenshot below. This means that file upload access has been enabled on the Ubuntu Server which can allow an attacker to upload malicious files to it.

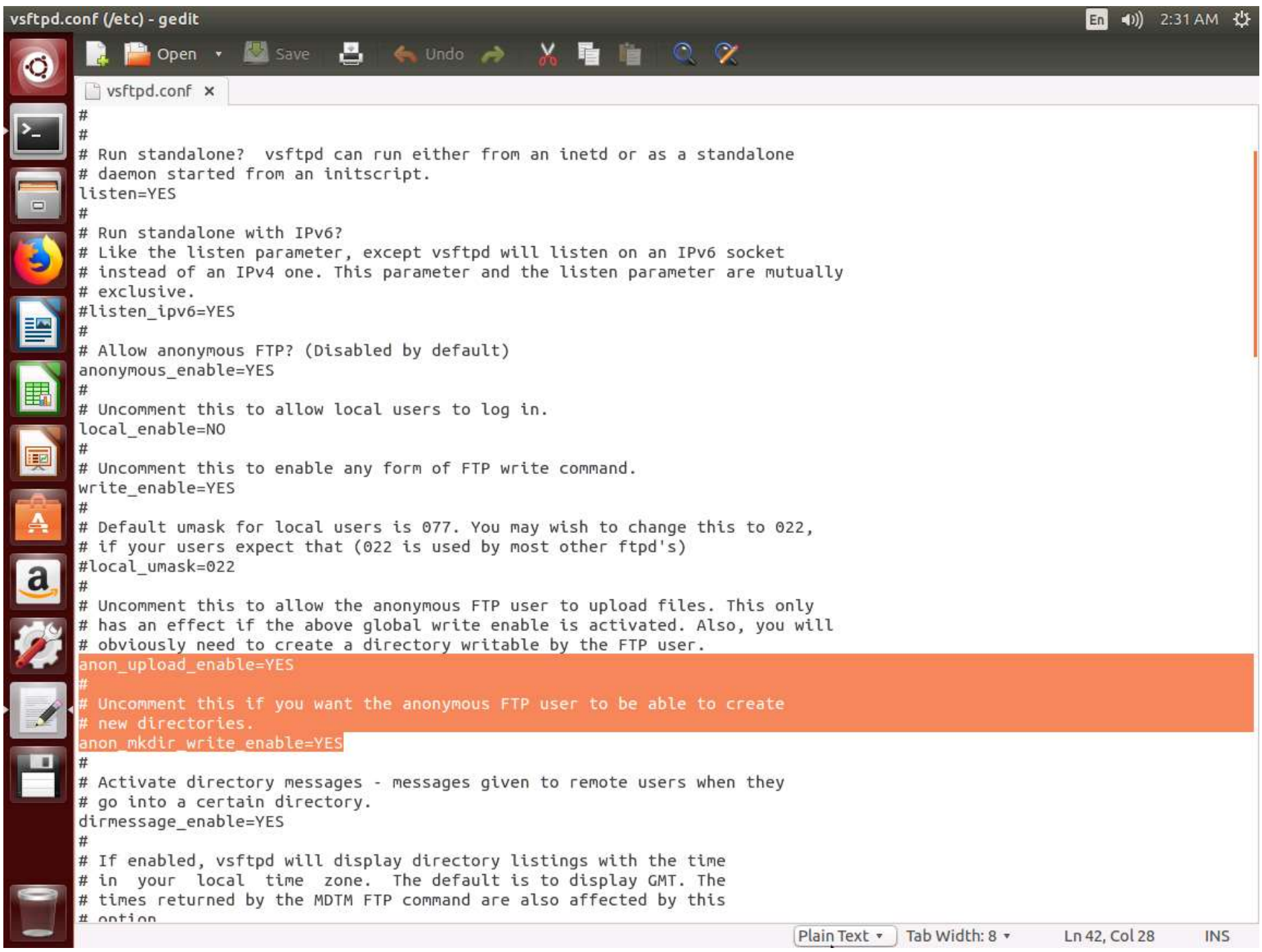
```
Applications  Places  System                                   Thu Oct 1, 03:26
                                  Parrot Terminal
File  Edit  View  Search  Terminal  Help
Connected to 172.19.19.10.
220 (vsFTPd 3.0.2)
Name (172.19.19.10:pentester): anonymous
230 Login successful.
Remote system type is UNIX.
Using binary mode to transfer files.
ftp> ls
200 PORT command successful. Consider using PASV.
150 Here comes the directory listing.
drwxrwxrwx    2 ftp      ftp          4096 Aug 28  2018 public
226 Directory send OK.
ftp> cd public
250 Directory successfully changed.
ftp> ls
200 PORT command successful. Consider using PASV.
150 Here comes the directory listing.
-rwxrwxrwx    1 ftp      ftp             9 Aug 28  2018 secret.txt
226 Directory send OK.
ftp> get secret.txt
local: secret.txt remote: secret.txt
200 PORT command successful. Consider using PASV.
150 Opening BINARY mode data connection for secret.txt (9 bytes).
226 Transfer complete.
9 bytes received in 0.00 secs (14.0400 kB/s)
ftp> put ftptest.txt
local: ftptest.txt remote: ftptest.txt
200 PORT command successful. Consider using PASV.
150 Ok to send data.
226 Transfer complete.
ftp>
Menu  Parrot Terminal  [pentester]
```

16. Now, we will switch to **CPENT-M5 Ubuntu Server** machine (credentials: **Student**/**password**) and check the vsftpd.conf file.

Note: To access vsftpd.conf file, open **Files** and navigate to **Other Locations** --> **Computer** --> **etc**. In the **/etc** folder, scroll-down to the end of the page and double-click **vsftpd.conf** file.

17. As highlighted in the screenshot, the options **anonymous_enable**, **anon_upload_enable** and **anon_mkdir_write_enable** have been enabled which allowed us to login to FTP server anonymously and upload files to it.





In this lab, you have learned how to identify and connect to FTP servers that have anonymous access enabled.

Exercise 3: Enumerate a Wordpress Site

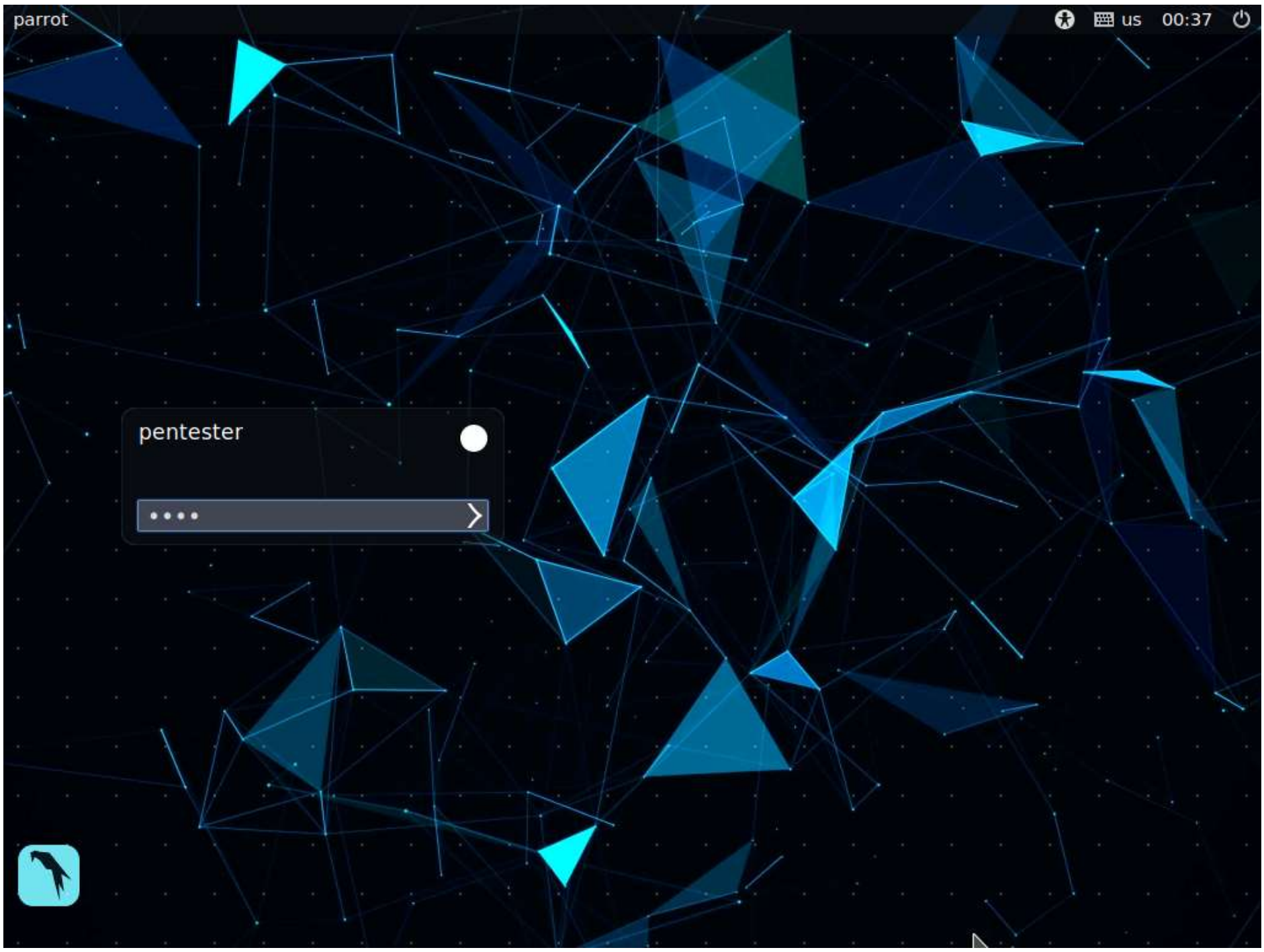
Scenario

In this lab, you will:

- Use the wpscan tool
- Enumerate a Wordpress site

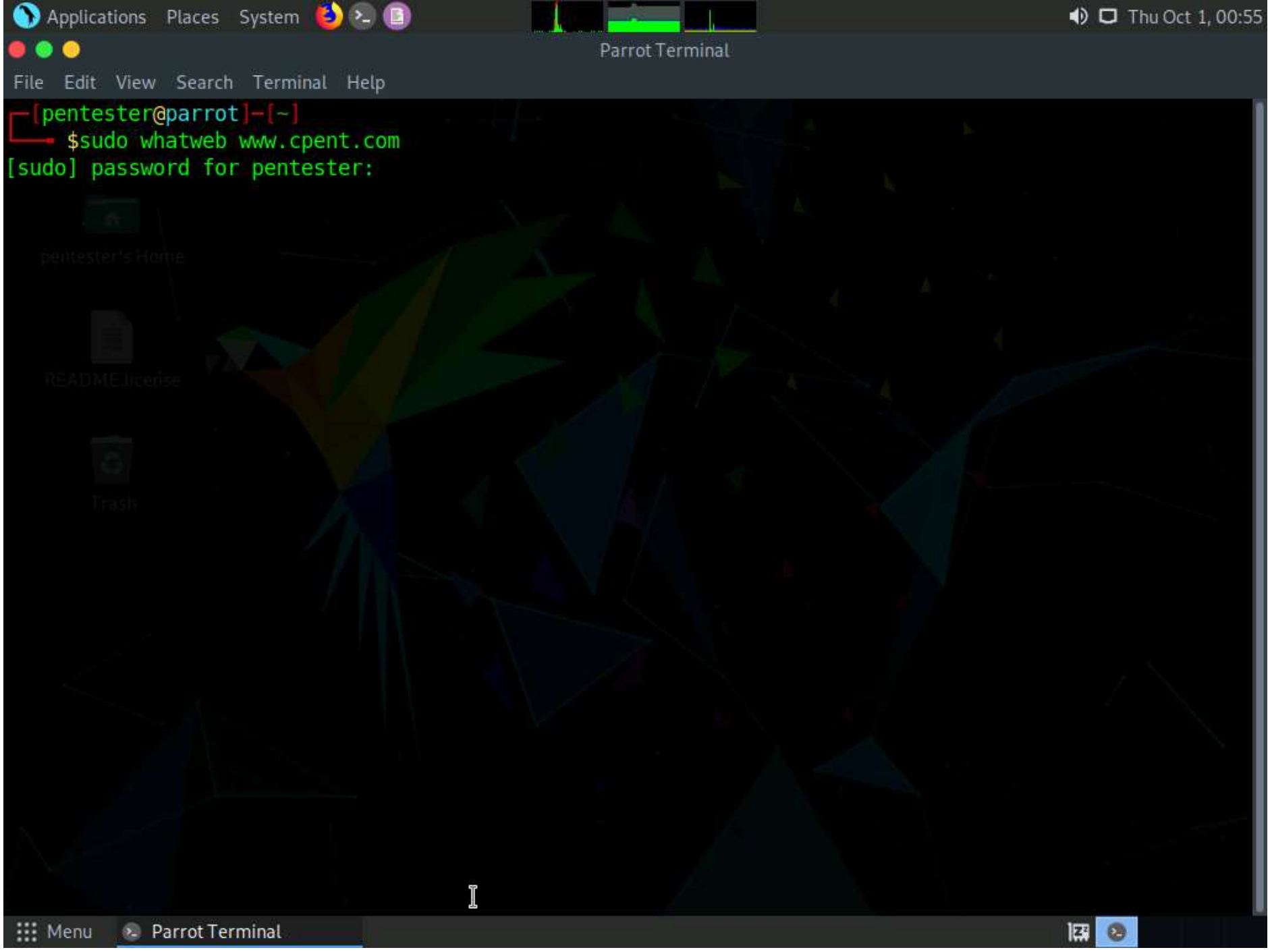
Lab Duration: **25** Minutes

1. Click **CPENT-M5 Parrot Security**. Parrot logon screen appears, type **toor** in the Password field and press **Enter**.

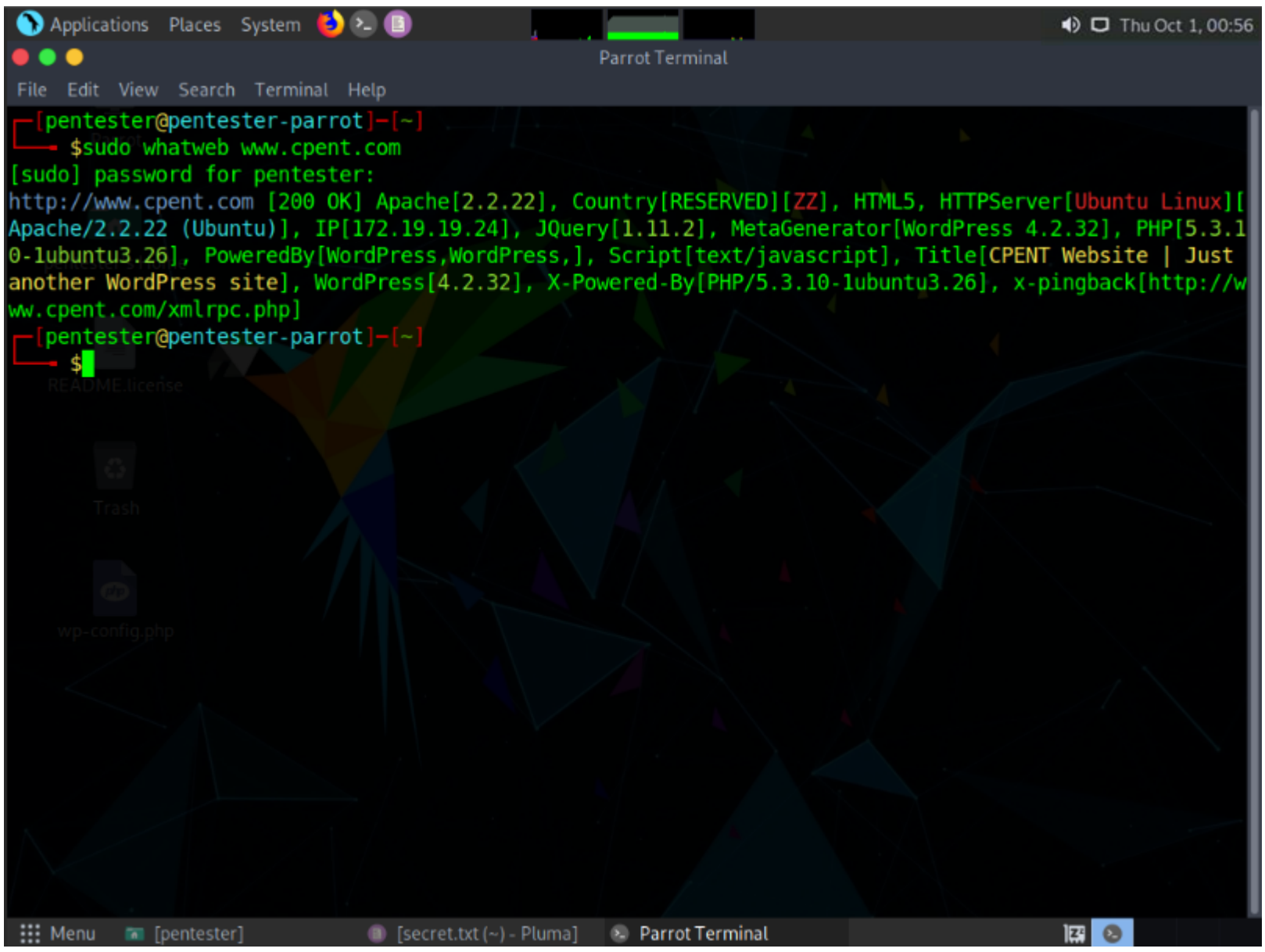


2. Use the **wpscan** tool to scan a website that is running **Wordpress**. First, scan the site to check what installed software and version number come up.

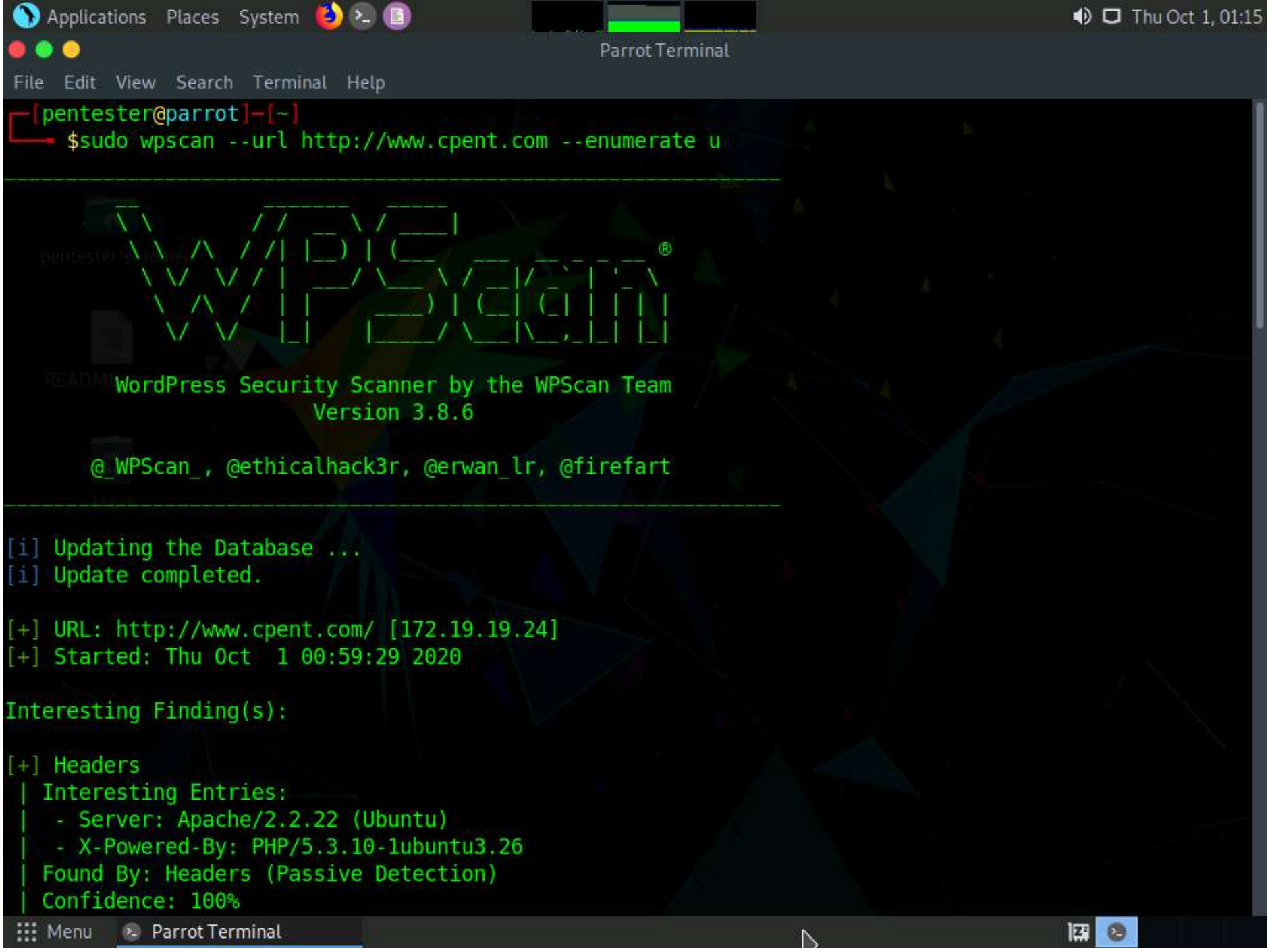
3. Launch a Terminal, and type **sudo whatweb www.cpent.com** and press **Enter**. Type **toor** when prompted for Password and press **Enter**.

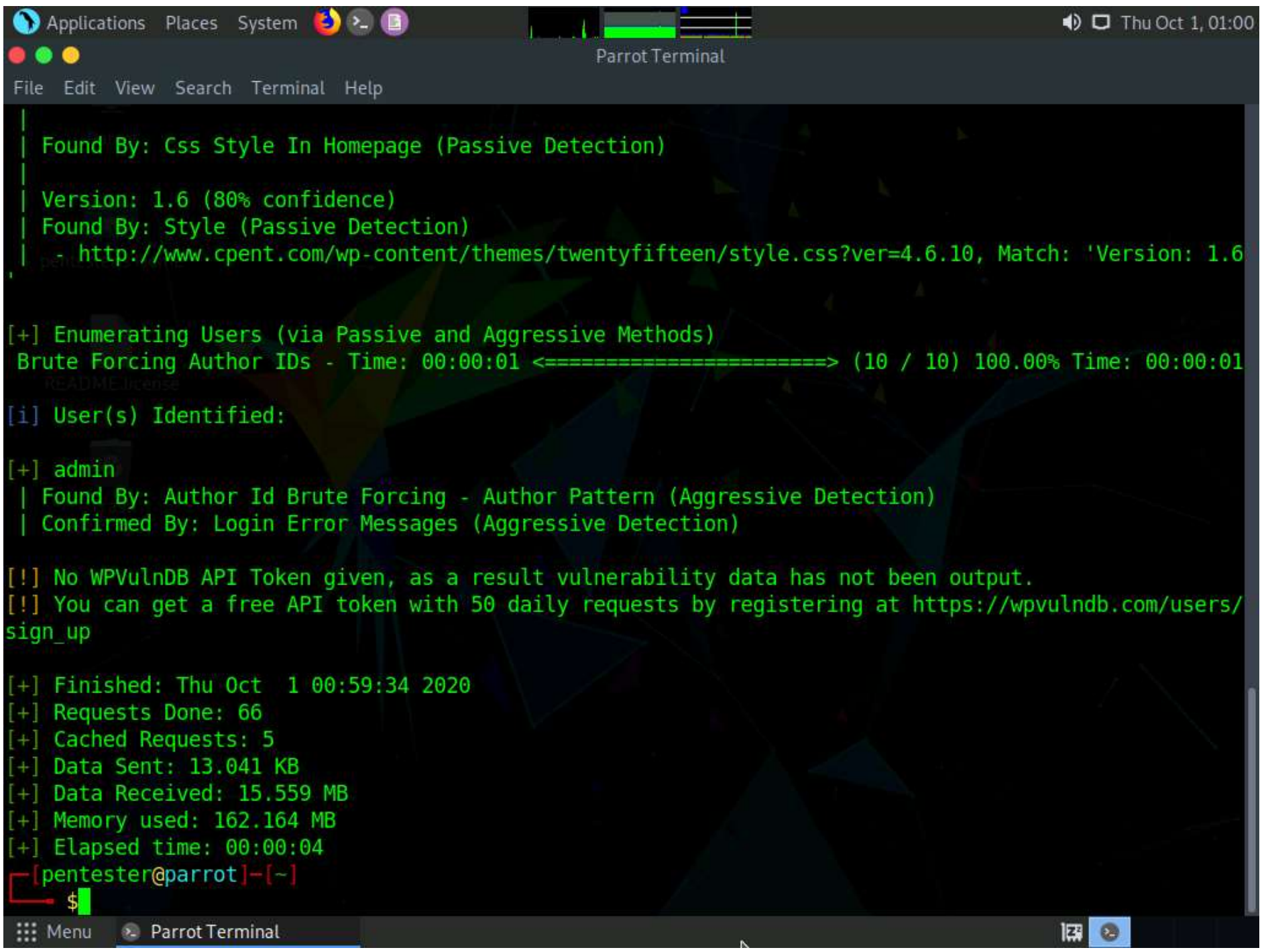


4. Record the information as required onto your target database. Once you are successful, search for vulnerabilities using the version of **Wordpress** available, which is **4.2.32**.

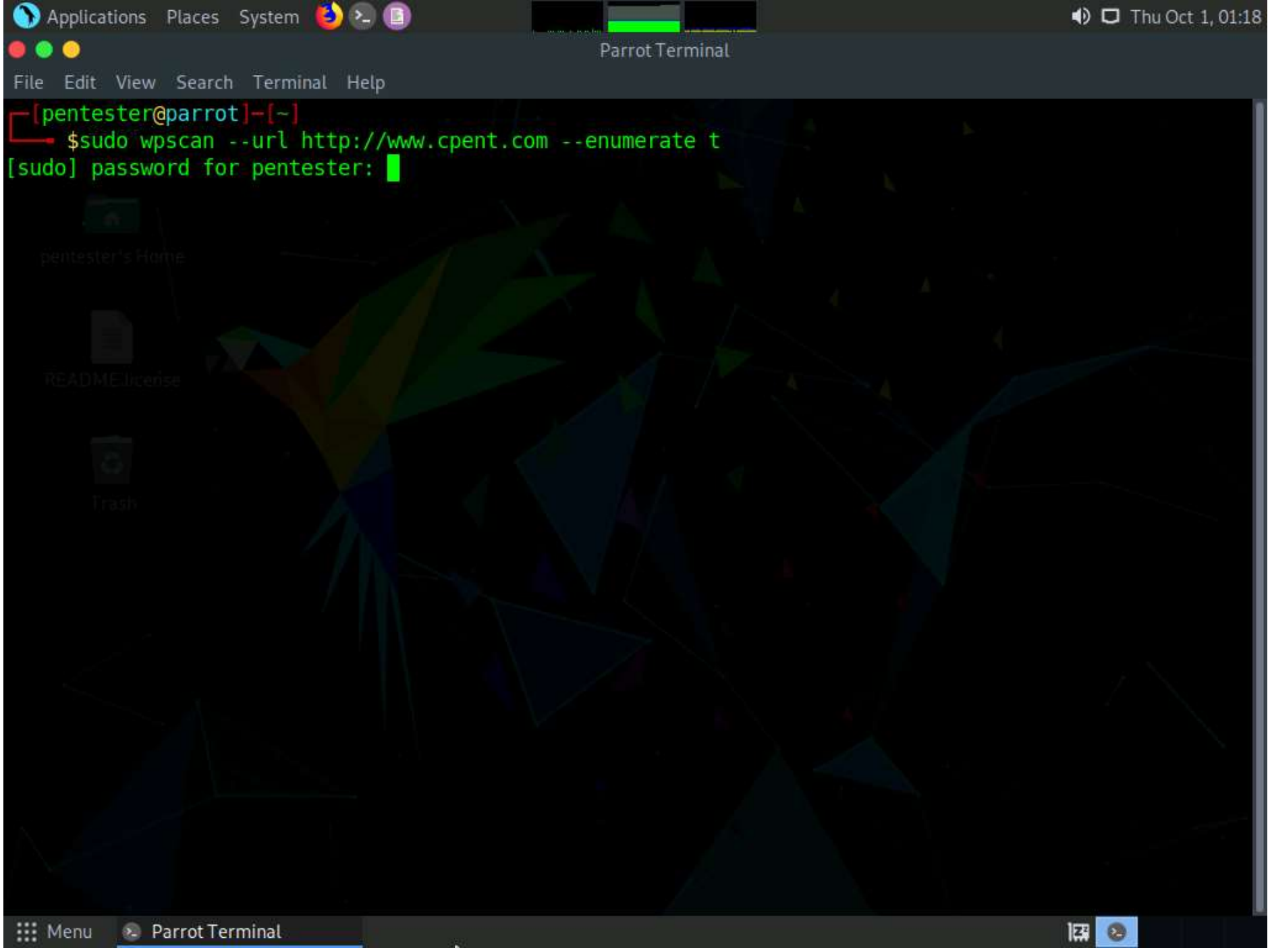


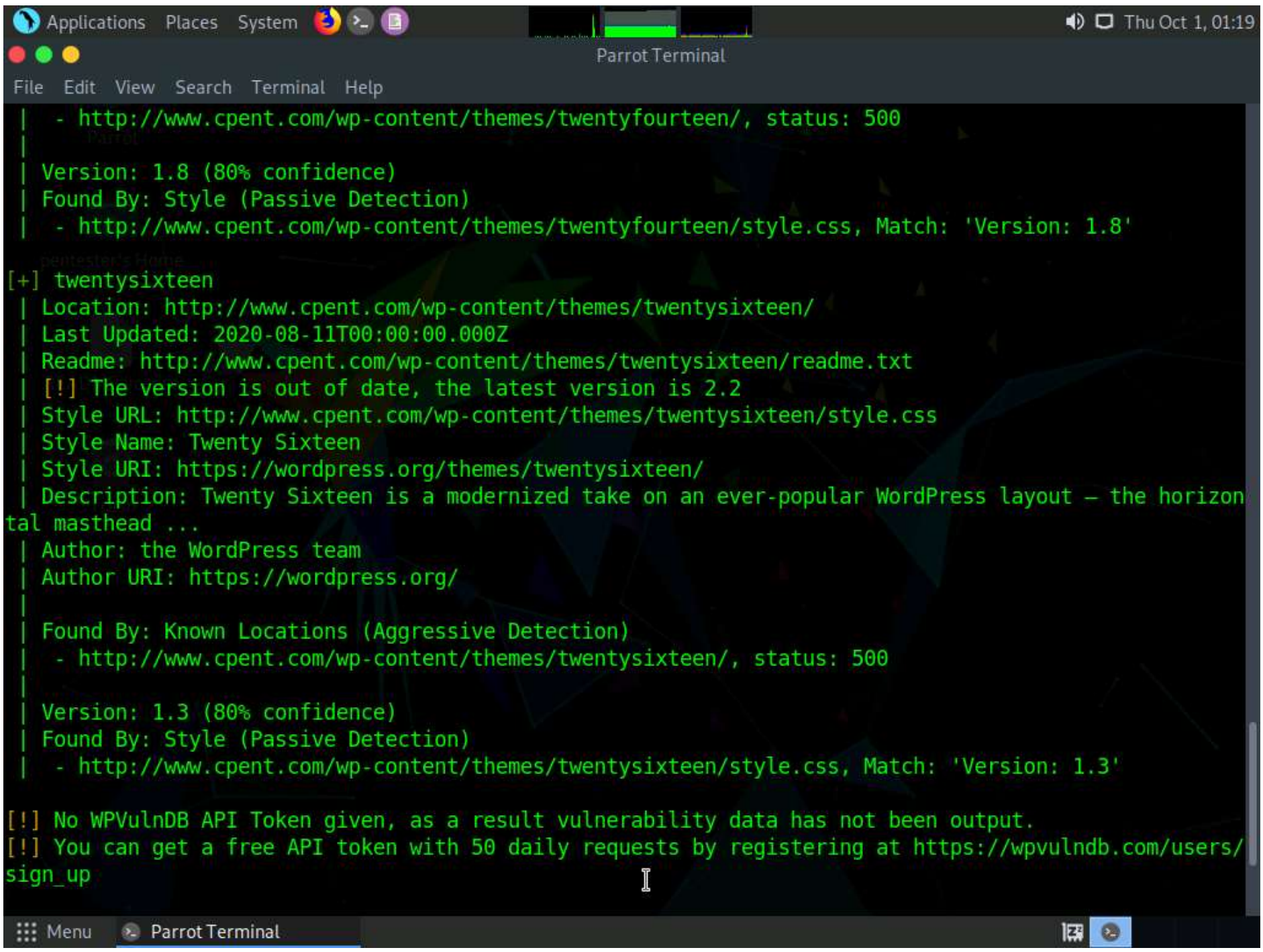
5. Next, scan the Wordpress website with **whatweb** tool. In the terminal type **sudo wpscan --url http://www.cpent.com --enumerate u** and press **Enter**. Type **toor** if prompted for Password and press **Enter**. This will enumerate the users, if there exists any.





6. Type **sudo wpscan --url http://www.cpent.com --enumerate t** and press **Enter**. Type **toor** if prompted for Password and press **Enter**. This will enumerate the installed themes, if there exists any. Explore all themes that appear.





7. Now, enumerate the plugins. Type **sudo wpscan --url http://www.cpent.com --enumerate p** and press Enter. Type **toor** if prompted for Password and press **Enter**. This will enumerate the installed plugins in the wordpress site, if there exists any.

```
Applications  Places  System                                   Thu Oct 1, 01:21
                                  Parrot Terminal
File  Edit  View  Search  Terminal  Help
┌─[pentester@parrot]─[~]
└──╼ $sudo wpscan --url http://www.cpent.com --enumerate p
```

```
Menu  Parrot Terminal
```

```
Applications  Places  System                                   Thu Oct 1, 01:25
                                  Parrot Terminal
File  Edit  View  Search  Terminal  Help
[+] Checking Plugin Versions (via Passive and Aggressive Methods)

[i] Plugin(s) Identified:

[+] ebook-download
 | Location: http://www.cpent.com/wp-content/plugins/ebook-download/
 | Last Updated: 2020-03-12T12:52:00.000Z
 | [!] The version is out of date, the latest version is 1.5
 |
 | Found By: Urls In Homepage (Passive Detection)
 |
 | Version: 1.1 (100% confidence)
 | Found By: Readme - Stable Tag (Aggressive Detection)
 |  - http://www.cpent.com/wp-content/plugins/ebook-download/readme.txt
 | Confirmed By: Readme - ChangeLog Section (Aggressive Detection)
 |  - http://www.cpent.com/wp-content/plugins/ebook-download/readme.txt

[!] No WPVulnDB API Token given, as a result vulnerability data has not been output.
[!] You can get a free API token with 50 daily requests by registering at https://wpvulndb.com/users/
sign_up

[+] Finished: Thu Oct  1 01:22:06 2020
[+] Requests Done: 4
[+] Cached Requests: 30
[+] Data Sent: 1.036 KB
[+] Data Received: 3.284 KB
[+] Memory used: 199.266 MB
[+] Elapsed time: 00:00:03
┌─[pentester@parrot]─[~]
└──╼ $
Menu  Parrot Terminal
```

8. As noted earlier, the process itself is key; once you follow the steps, the data can be enumerated irrespective of the target version.

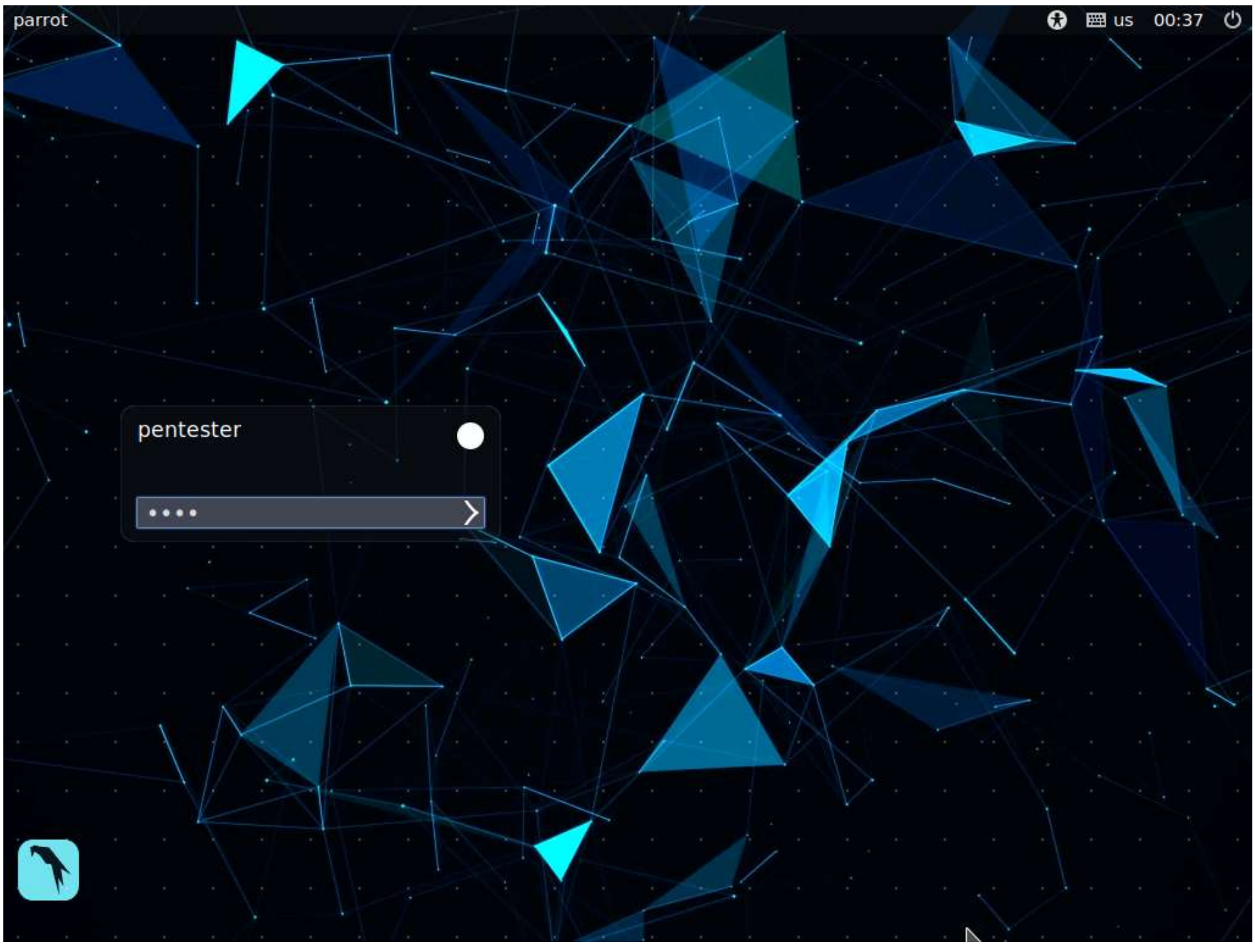
Exercise 4: Perform Web Application Scanning with WMAP

Scenario

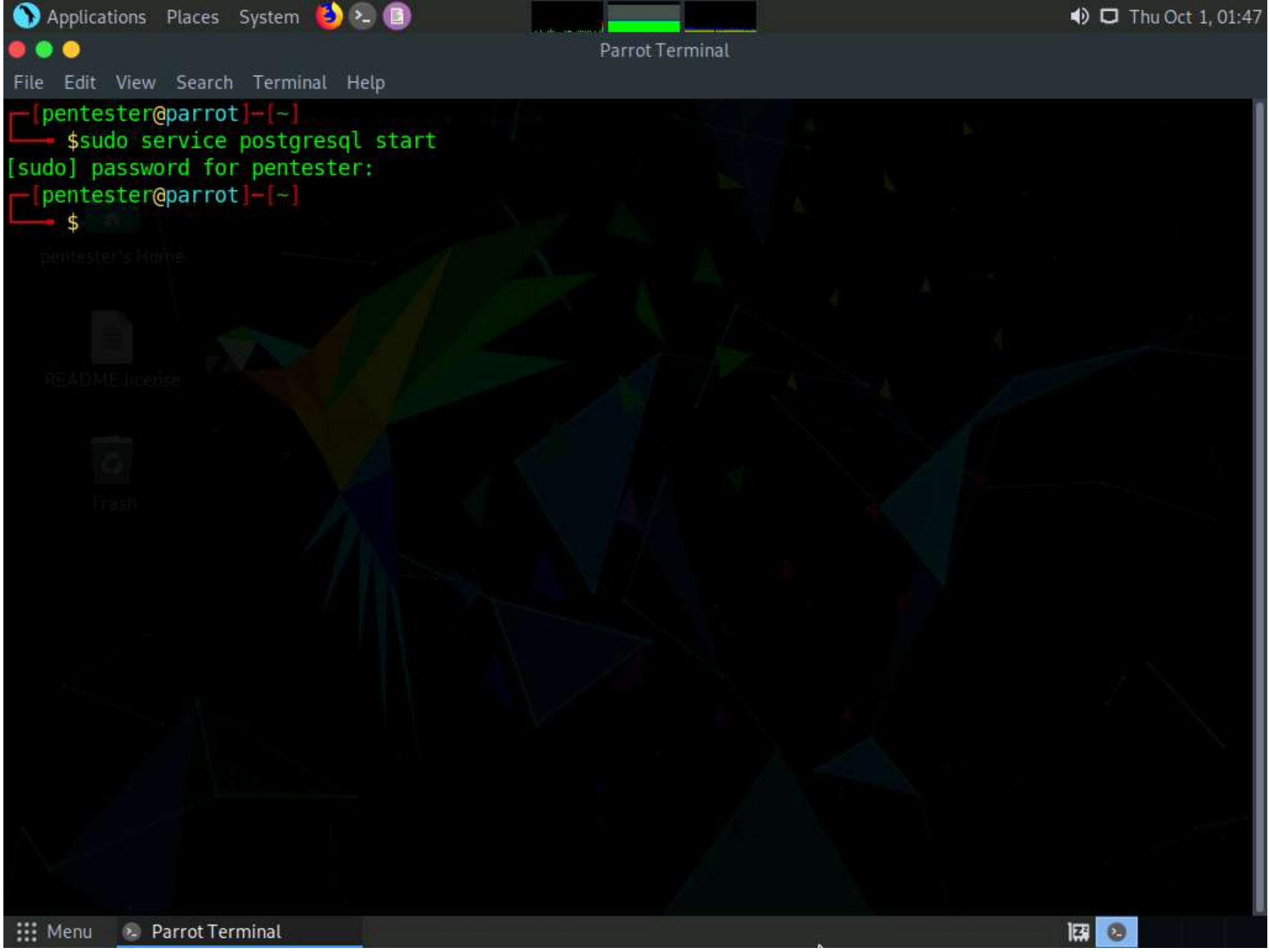
The WMAP tool is used for web application scanning from within the Metasploit console.In this lab you will

- Use the tool WMAP that is part of the Metasploit tools
- Scan a web servers with WMAP

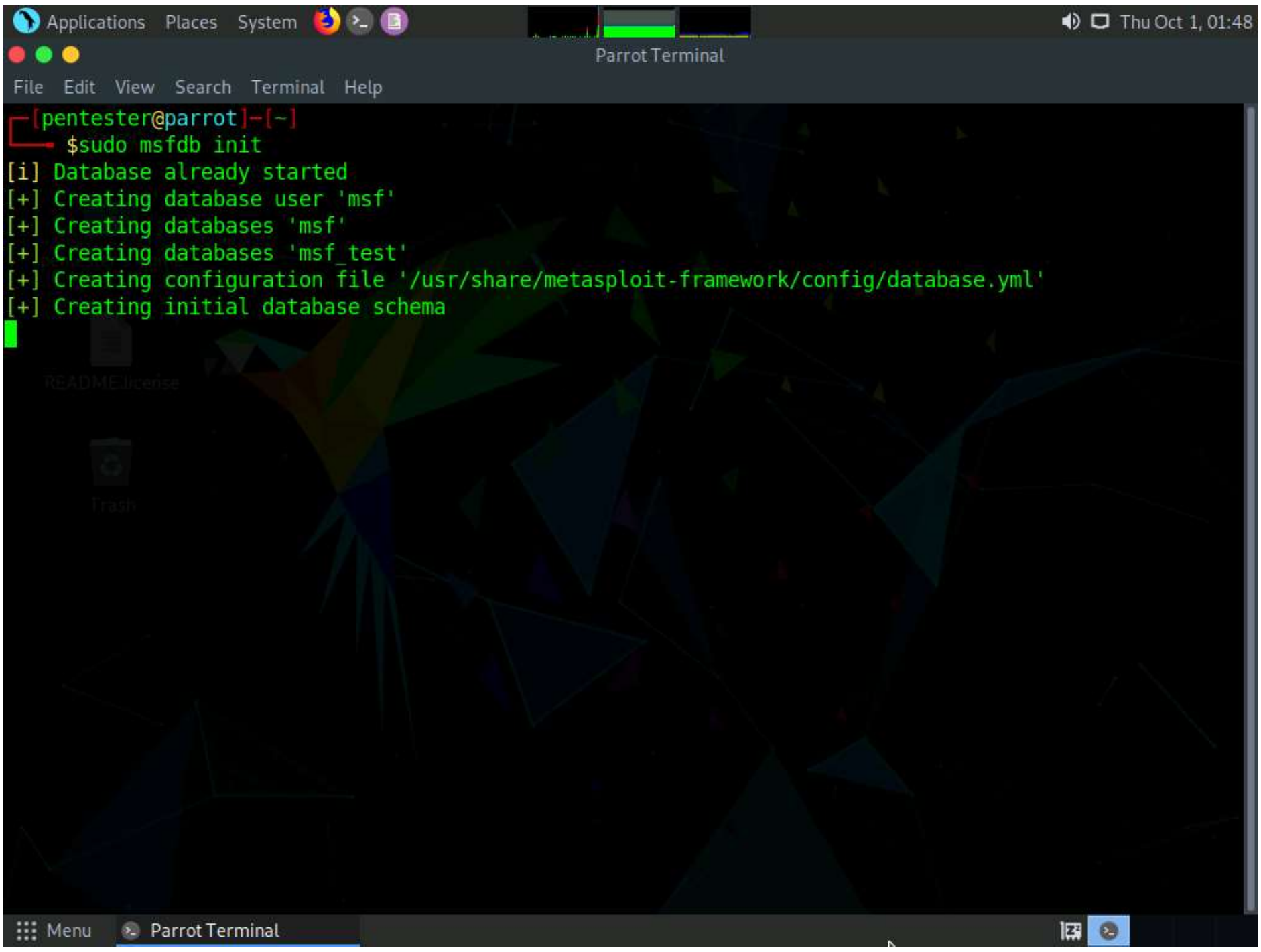
1. Click **CPENT-M5 Parrot Security**. Parrot logon screen appears, type **toor** in the Password field and press **Enter**.



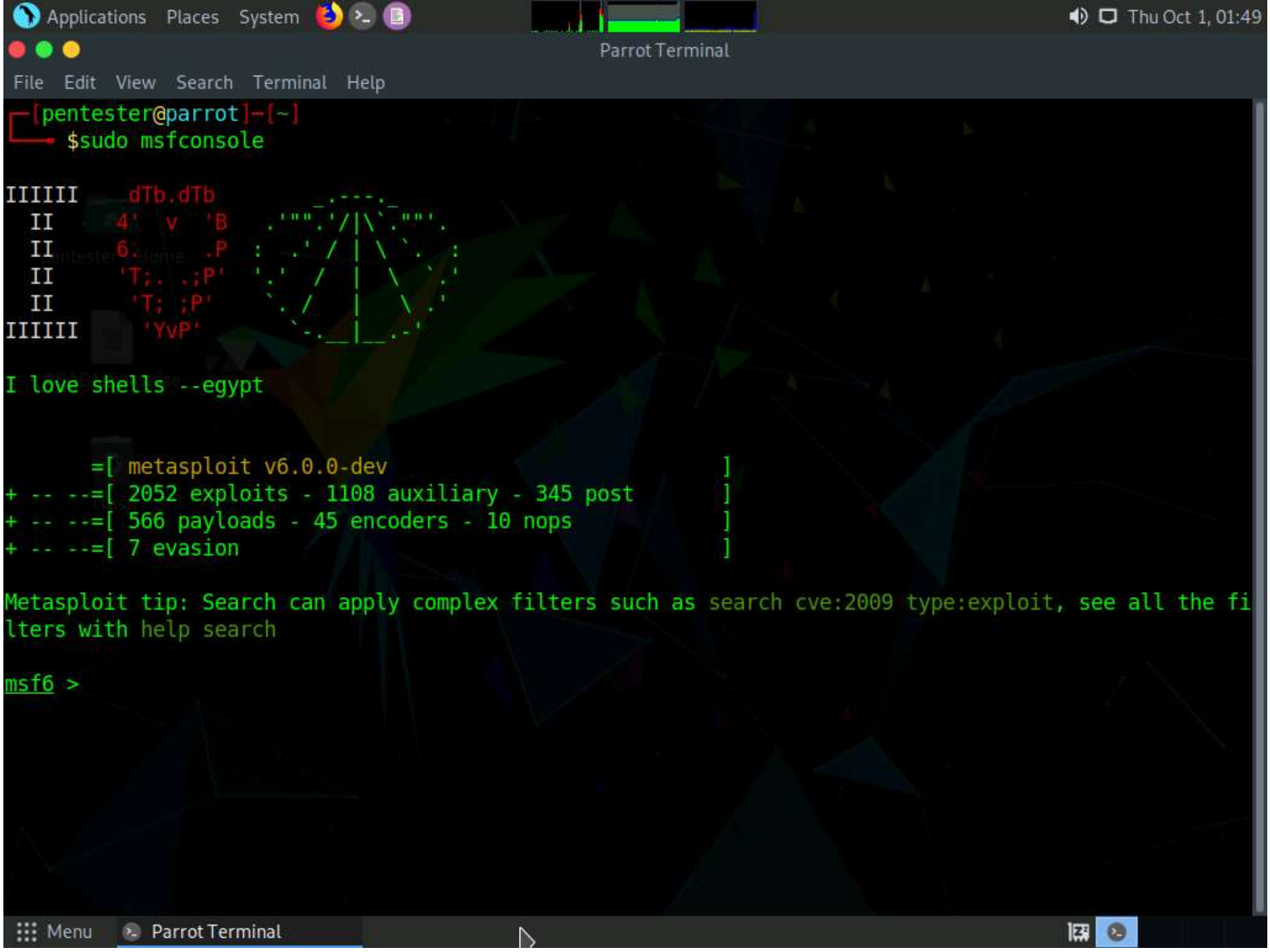
2. The WMAP tool is used for web application scanning from within the Metasploit console, as we did before, we have to setup the database before launching the console, so let us do that now. Open a terminal window and type **sudo service postgresql start** and press **Enter**. Type **toor** when prompted for Password and press **Enter**.



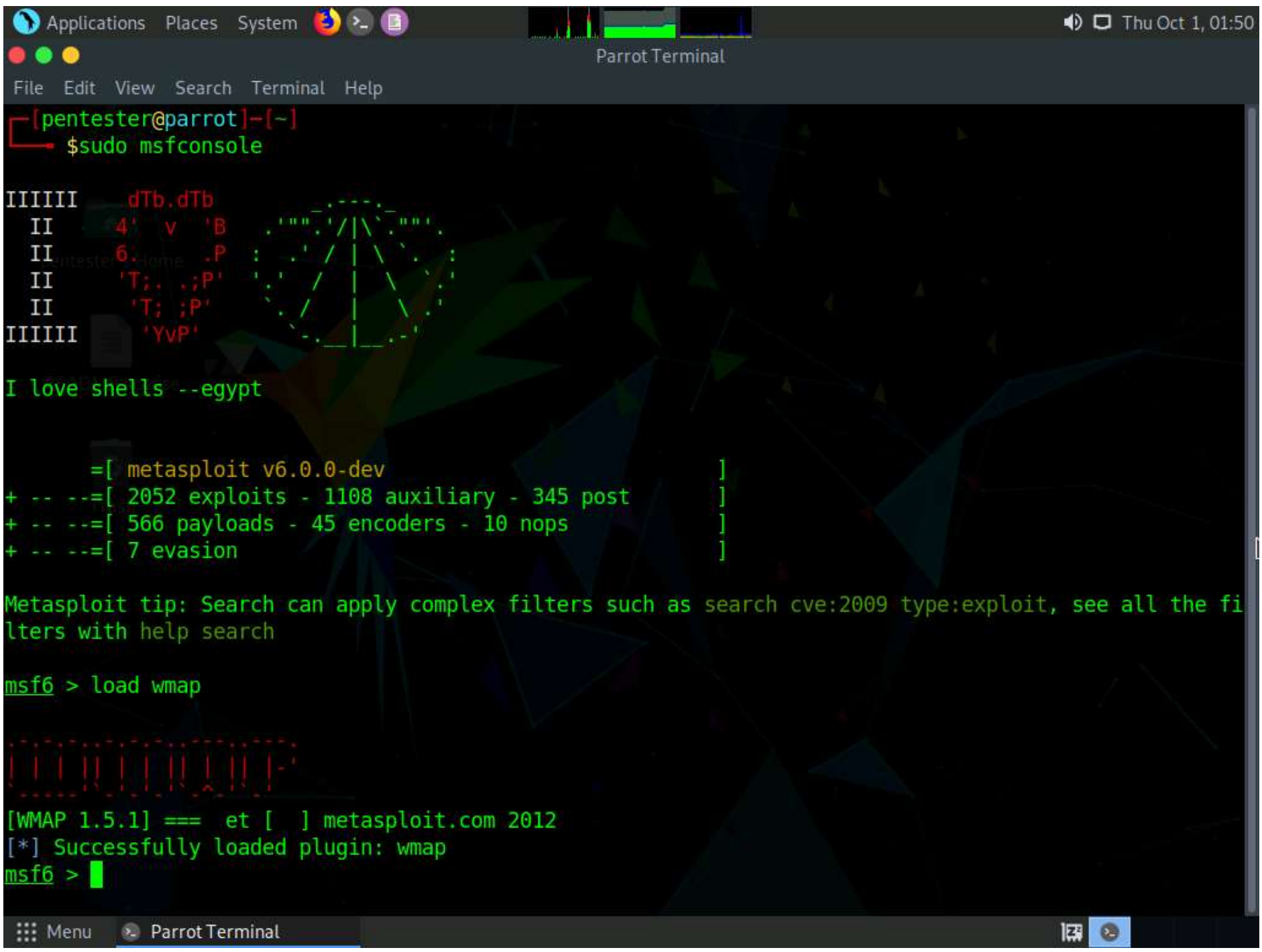
3. If this is the first time running Metasploit, then we need to run **msfdb init** but if it is not the first time, then we can launch the console. Type **sudo msfdb init** and press **Enter**.



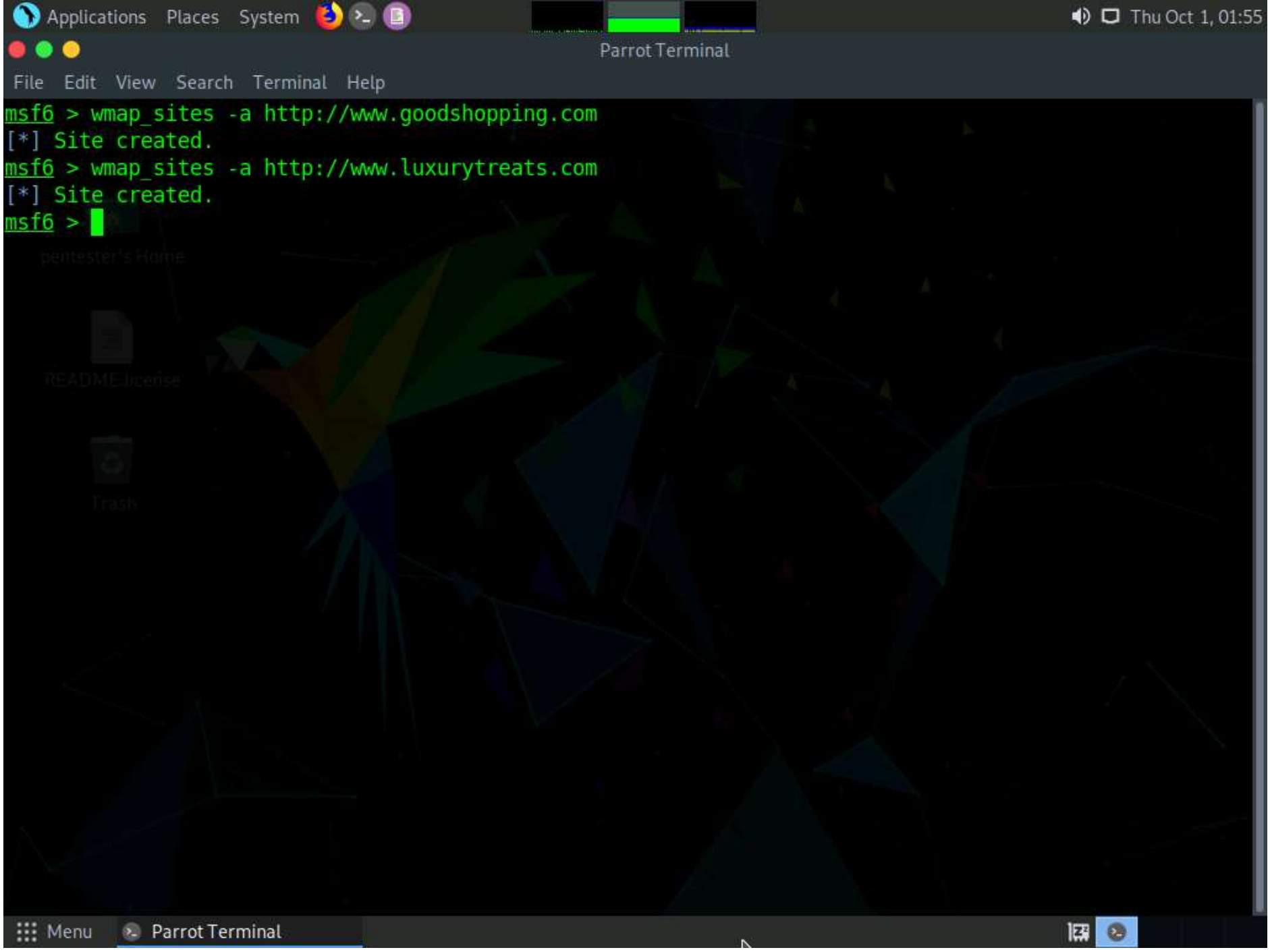
4. Type **sudo msfconsole** and press **Enter** to launch the metasploit framework.



5. Once msfconsole opens we now have to load the wmap too, type **load wmap** and press **Enter**. This will load the tool, once the tool is loaded we can now setup the scans with it.

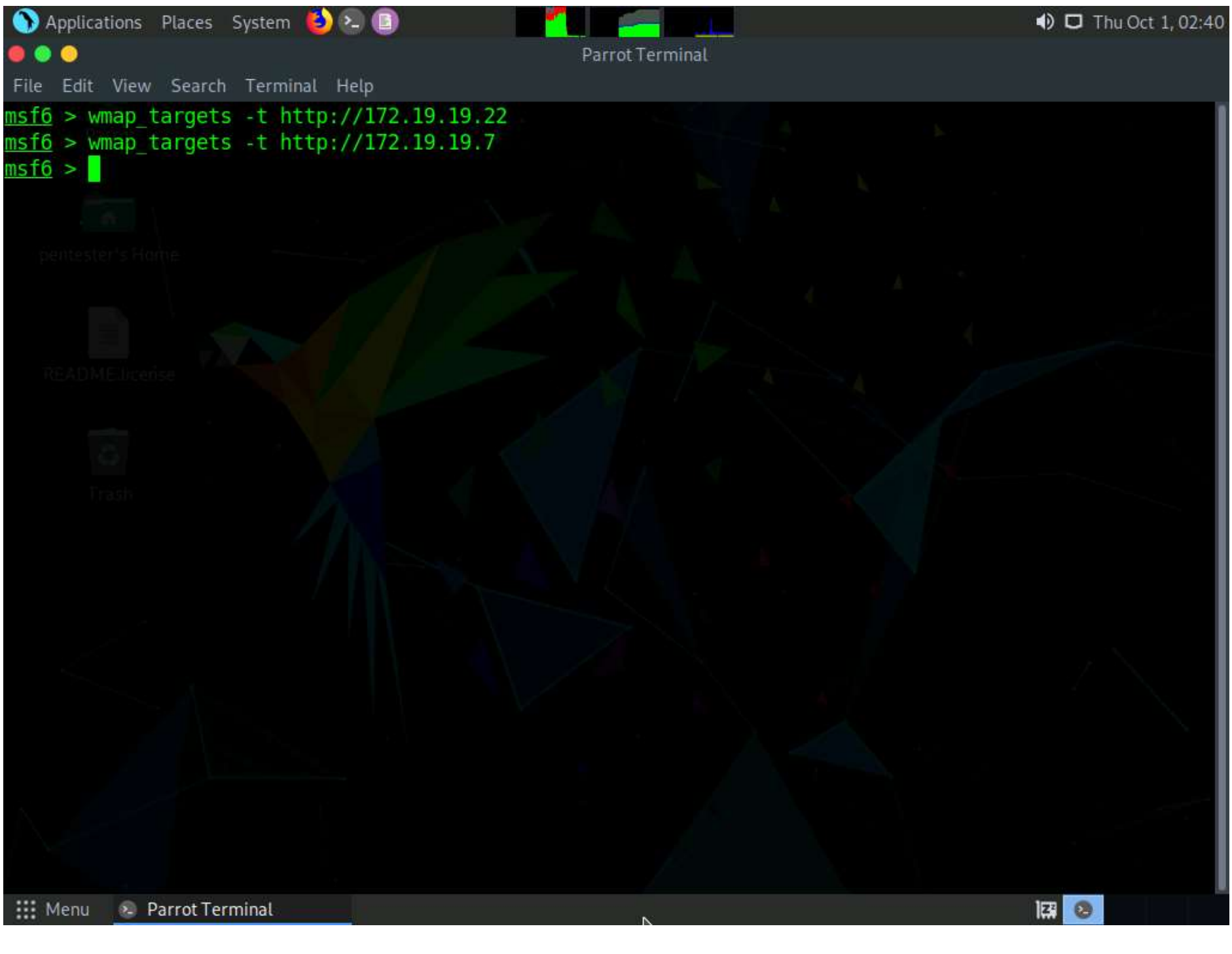


6. The next thing we have to do is add the sites, type **wmap_sites -a http://www.goodshopping.com** and press **Enter** to add the first site. Once the one site is added, add another site, type **wmap_sites -a http://www.luxurytreats.com** and press **Enter** to add the second site.

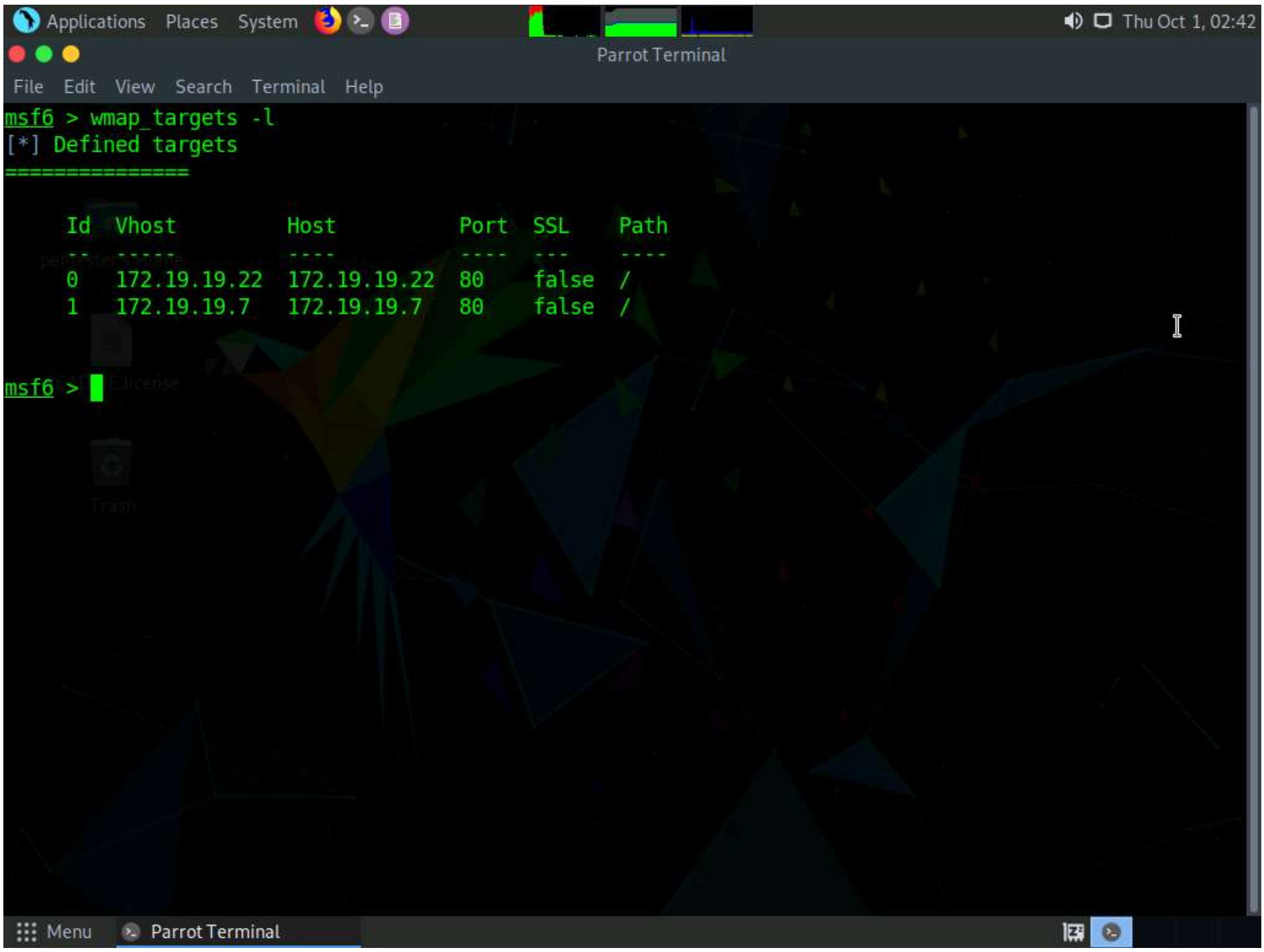


7. Now we want to add our two targets, type **wmap_targets -t http://172.19.19.22** and press **Enter**. Enter the 2nd target, type **wmap_targets -t http://172.19.19.7** and press **Enter**.

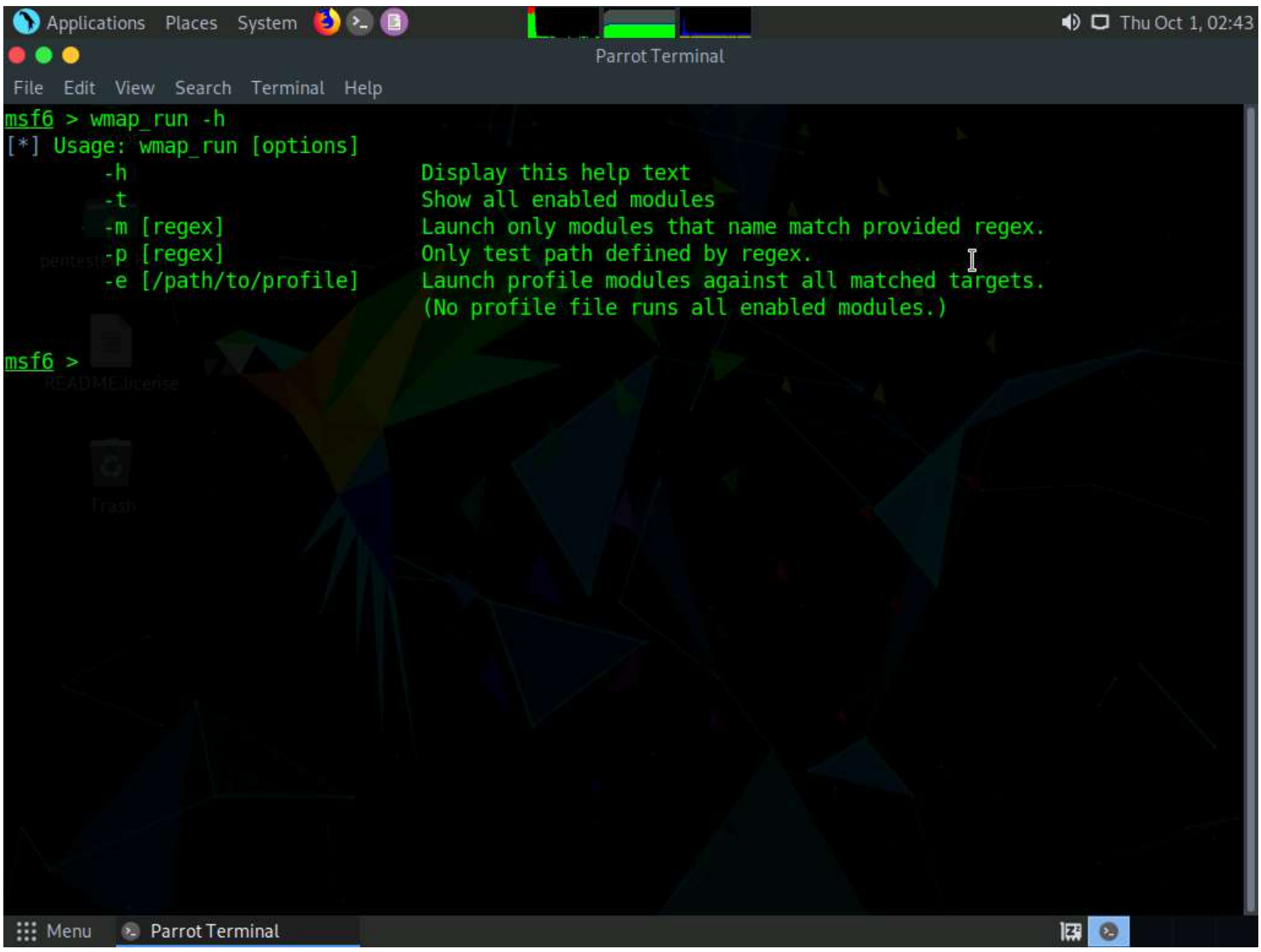
Note: **172.19.19.22** is the IP address of the machine where www.goodshopping.com is hosted and **172.19.19.7** is the IP address of the machine where www.luxurytreats.com is hosted.



8. To view the targets type **wmap_targets -l** and press **Enter**.



9. The next thing to do, is look at the options for the wmap_run command, type **wmap_run -h** and press **Enter**.



10. We now need to run the modules that we are going to use to test the target, type **wmap_run -t** and press **Enter**. Once the command has completed, take a few minutes and review the information from the lab, as you can see there are many modules that have been loaded based on the site.

Applications Places System Thu Oct 1, 02:43

Parrot Terminal

File Edit View Search Terminal Help

```
msf6 > wmap_run -t
```

Menu Parrot Terminal

Applications Places System Thu Oct 1, 02:44

Parrot Terminal

File Edit View Search Terminal Help

```
msf6 > wmap_run -t
[*] Testing target:
[*]     Site: 172.19.19.22 (172.19.19.22)
[*]     Port: 80 SSL: false
================================================================
[*] Testing started. 2020-10-01 02:43:47 -0400
[*] Loading wmap modules...
```

Menu Parrot Terminal

```
msf6 > wmap_run -t
[*] Testing target:
[*]     Site: 172.19.19.22 (172.19.19.22)
[*]     Port: 80 SSL: false
================================================================
[*] Testing started. 2020-10-01 02:43:47 -0400
[*] Loading wmap modules...
[*] 39 wmap enabled modules loaded.
[*]
=[ SSL testing ]=
================================================================
[*] Target is not SSL. SSL modules disabled.
[*]
=[ Web Server testing ]=
================================================================
[*] Module auxiliary/scanner/http/http_version
[*] Module auxiliary/scanner/http/open_proxy
[*] Module auxiliary/admin/http/tomcat_administration
[*] Module auxiliary/admin/http/tomcat_utf8_traversal
[*] Module auxiliary/scanner/http/drupal_views_user_enum
[*] Module auxiliary/scanner/http/frontpage_login
[*] Module auxiliary/scanner/http/host_header_injection
[*] Module auxiliary/scanner/http/options
[*] Module auxiliary/scanner/http/robots_txt
[*] Module auxiliary/scanner/http/scraper
[*] Module auxiliary/scanner/http/svn_scanner
[*] Module auxiliary/scanner/http/trace
[*] Module auxiliary/scanner/http/vhost_scanner
[*] Module auxiliary/scanner/http/webdav_internal_ip
[*] Module auxiliary/scanner/http/webdav_scanner
```

```
[*]
=[ General testing ]=
================================================================
[*] Done.
[*] Testing target:
[*]     Site: 172.19.19.7 (172.19.19.7)
[*]     Port: 80 SSL: false
================================================================
[*] Testing started. 2020-10-01 02:44:40 -0400
[*]
=[ SSL testing ]=
================================================================
[*] Target is not SSL. SSL modules disabled.
[*]
=[ Web Server testing ]=
================================================================
[*] Module auxiliary/scanner/http/http_version
[*] Module auxiliary/scanner/http/open_proxy
[*] Module auxiliary/admin/http/tomcat_administration
[*] Module auxiliary/admin/http/tomcat_utf8_traversal
[*] Module auxiliary/scanner/http/drupal_views_user_enum
[*] Module auxiliary/scanner/http/frontpage_login
[*] Module auxiliary/scanner/http/host_header_injection
[*] Module auxiliary/scanner/http/options
[*] Module auxiliary/scanner/http/robots_txt
[*] Module auxiliary/scanner/http/scraper
[*] Module auxiliary/scanner/http/svn_scanner
[*] Module auxiliary/scanner/http/trace
[*] Module auxiliary/scanner/http/vhost_scanner
[*] Module auxiliary/scanner/http/webdav_internal_ip
```

11. Once you have finished reading about the modules, it is now time to run the assessment, type **wmap_run -e** and press **Enter**. Once the scan has completed, you can review the results of the scan and take a few minutes to look for where the attack surface of the target it, and the vector you think you can use to attack these targets. You can press **Ctrl+C** to terminate the scan, as it will take lot off time to complete since there are a lot of modules.

12. As the scan results show, the **WMAP tool** is not perfect, but it is another tool we can use to compliment our normal web scanning tools like **Nikto** and **Vega**.

Applications Places System Thu Oct 1, 02:46

Parrot Terminal

File Edit View Search Terminal Help

```
msf6 > wmap_run -e
```

Menu Parrot Terminal

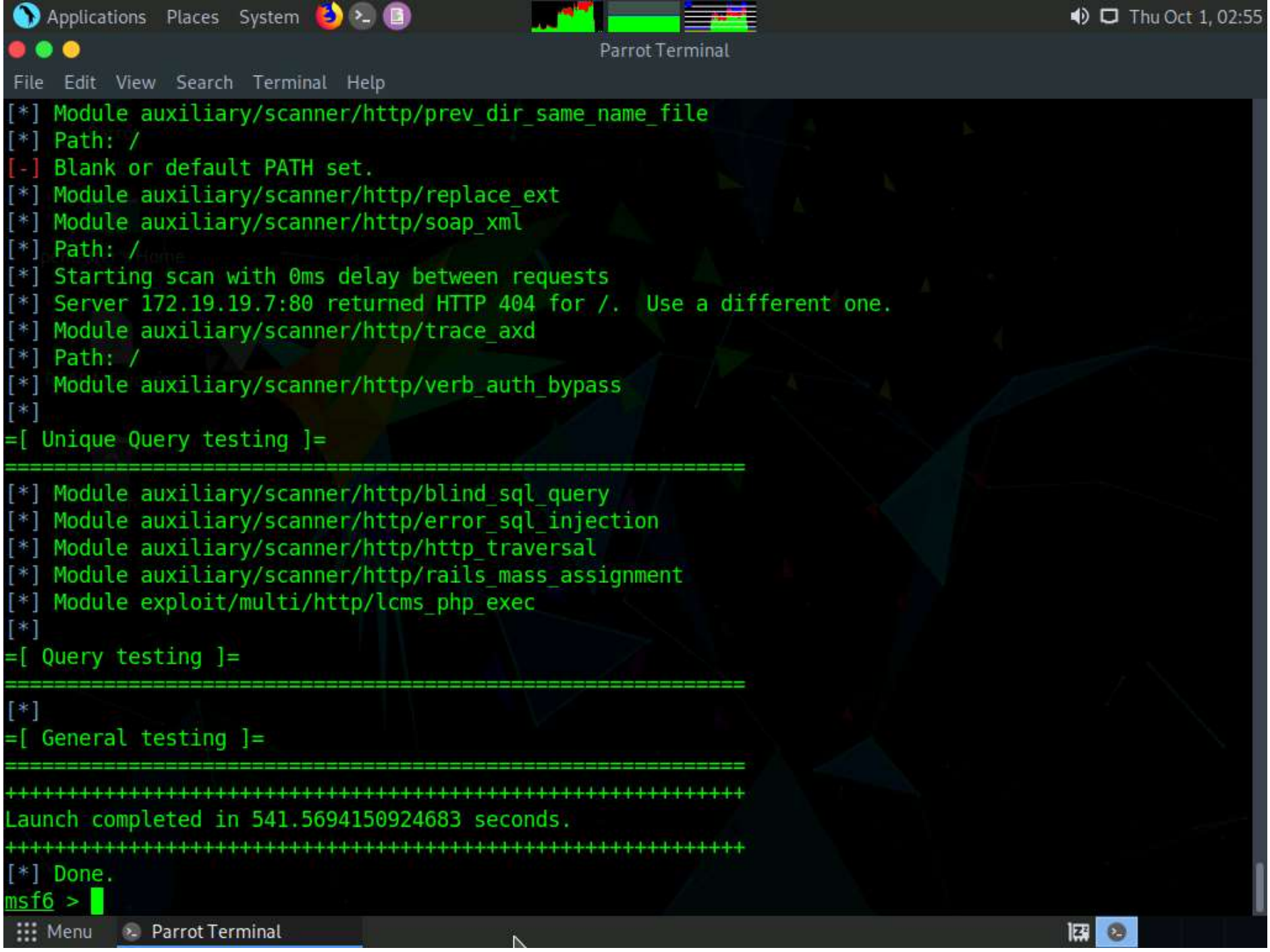
Applications Places System Thu Oct 1, 02:48

Parrot Terminal

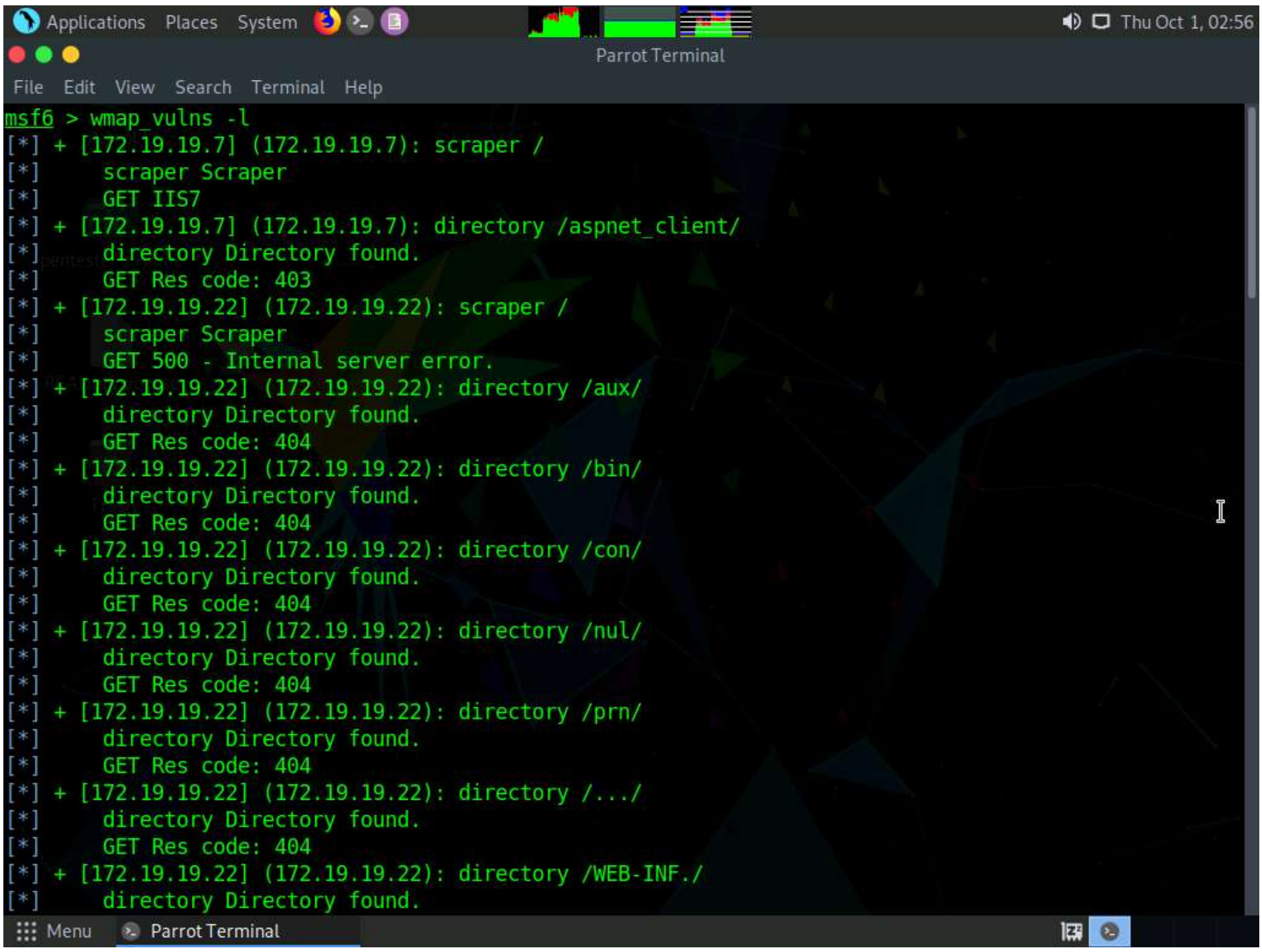
File Edit View Search Terminal Help

```
[*] Using code '500' as not found.
[*] Module auxiliary/scanner/http/file_same_name_dir
[*] Path: /
[-] Blank or default PATH set.
[*] Module auxiliary/scanner/http/files_dir
[*] Path: /
[*] Using code '500' as not found for files with extension .null
[+] Found http://172.19.19.22:80/lost%2Bfound.null 404
[*] Using code '500' as not found for files with extension .backup
[+] Found http://172.19.19.22:80/lost%2Bfound.backup 404
[*] Using code '500' as not found for files with extension .bak
[+] Found http://172.19.19.22:80/lost%2Bfound.bak 404
[*] Using code '500' as not found for files with extension .c
[+] Found http://172.19.19.22:80/lost%2Bfound.c 404
[*] Using code '500' as not found for files with extension .cfg
[+] Found http://172.19.19.22:80/lost%2Bfound.cfg 404
[*] Using code '500' as not found for files with extension .class
[+] Found http://172.19.19.22:80/lost%2Bfound.class 404
[*] Using code '500' as not found for files with extension .copy
[+] Found http://172.19.19.22:80/lost%2Bfound.copy 404
[*] Using code '500' as not found for files with extension .conf
[+] Found http://172.19.19.22:80/lost%2Bfound.conf 404
[*] Using code '500' as not found for files with extension .exe
[+] Found http://172.19.19.22:80/lost%2Bfound.exe 404
[*] Using code '500' as not found for files with extension .html
[+] Found http://172.19.19.22:80/lost%2Bfound.html 404
[*] Using code '500' as not found for files with extension .htm
[+] Found http://172.19.19.22:80/lost%2Bfound.htm 404
[*] Using code '500' as not found for files with extension .ini
```

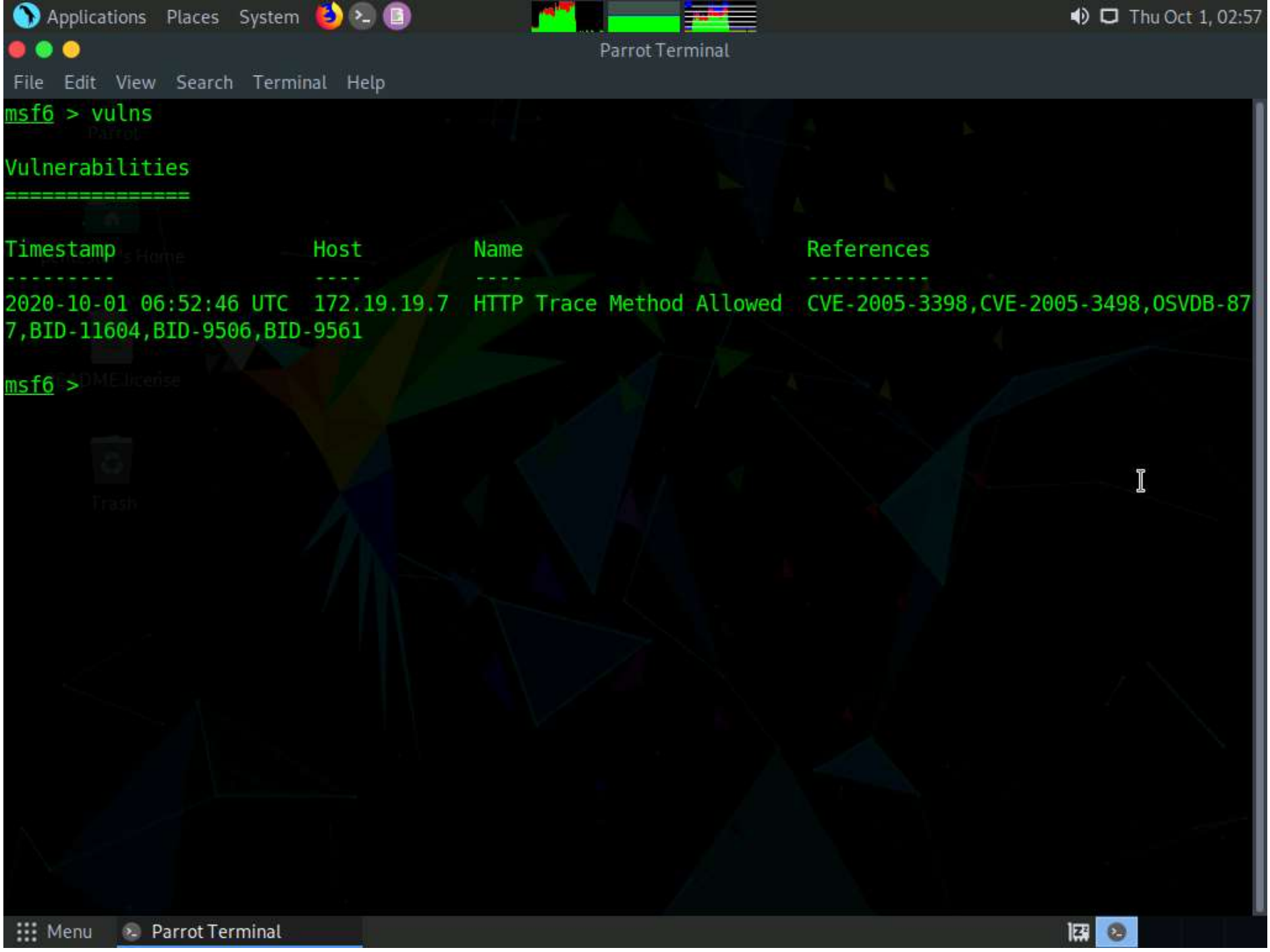
Menu Parrot Terminal



13. To look at the vulnerabilities that have been written to the database, type **wmap_vulns -l** and press **Enter**.



14. You can also display the vulnerabilities by typing **vulns** and press **Enter**.



15. We have accomplished what we wanted to in this lab, so we can clean up from the exercise and close all programs.

In this lab you have learnt how to:

- Use the tool WMAP that is part of the Metasploit tools
- Scan a web servers with WMAP