SRI RAMACHANDRA
INSTITUTE OF HIGHER EDUCATION AND RESEARCH
(Category - I Deemed to be University) Porur, Chennai
SRI RAMACHANDRA FACULTY OF ENGINEERING AND TECHNOLOGY

Gathering information of a user by making a reverse connection to exploit using backdoor and detecting it using honeypot from user end (VEIL, FATRAT, SHERLOCK, PENTA BOX).

Project Report

Quarter III (Year 3)

Submitted to

SRI RAMACHANDRA INSTITUTE OF HIGHER EDUCATION AND RESEARCH

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For the Award of the Degree of

BACHELOR OF TECHNOLOGY

in

COMPUTER SCIENCE AND ENGINEERING

(Cyber security and Internet of Things)

by

SHRIRAM KP (E0219007)

February 2022

BONAFIDE CERTIFICATE

This is to certify that the Project report submitted by Umesh Kumar M(E0219019) is a record of original work done by him and submitted to SRI RAMACHANDRA FACULTY OF ENGINEERING AND TECHNOLOGY during the academic year 2022 in partial fulfillment of the requirements for the award of the degree of BACHELOR OF TECHNOLOGY in COMPUTER SCIENCE AND ENGINEERING (Cyber Security and Internet of Things).

Abstract

In our walk in linux, there comes a point where we need to hack (pentest) in a safe environment. The first thing we usually do is install Virtualization Softwares and install all the distros our system can take. In stages of hacking, to compromise the victim machine, we need some sort of program to infect the system. The down-side is, AntiVirus products have signatures of favourite Metasploit files and to successfully compromise the victim, we need to disable this products which isn't what we will be doing in real life. This calls for the development of our own program. Today, we touch on one of the many programs (payloads actually), that is, a reverse tcp program.

Reverse TCP: In a normal forward connection, a client connects to a server through the server's open port, but in the case of a reverse connection, the client opens the port that the server connects to. The most common way a reverse connection is used is to bypass firewall and router security restrictions.

For example, a backdoor running on a computer behind a firewall that blocks incoming connections can easily open an outbound connection to a remote host on the Internet. Once the connection is established, the remote host can send commands to the backdoor.This method of communication is helpful because starting a local shell on a victim machine can be easily and even without user control be detected by the system itself.

In this series, we will be developing a reverse tcp program in python. Why should this be in parts ? This is because, with every part we introduce a new function or command or code into our shell making it more flexible. We are going to build our shell from ground up into a devastaing awesome fantastic fabulous catastrophic delicious … (I think thats enough) shell.

Acknowledgment

It is with my immense gratitude that I acknowledge the support and help of my professor Prabhu Kavin who has always encouraged us in this Research. I am grateful to the Sri Ramachandra Faculty of Engineering and Technology, Chennai for providing the necessary facilities to undertake this project work. I also thank my family and friends, for their endless support throughout this work

IMPLEMENTATION

This is a real-time project about gathering information about the user and making reverse connecting and sending backdoors for exploiting the user, taking over, and setting a honeypot for identifying the reverse connection.

Gathering user info : (Sherlock)

Information gathering is a crucial process to analyze the usanalyzemake sure of the tastes and activity of the user so that we can approach and attack.

How to use Sherlock?

Installation of Sherlock :

```
$ git clone https://github.com/sherlock-project/sherlock.git

# change the working directory to sherlock
$ cd sherlock

# install the requirements
$ python3 -m pip install -r requirements.txt
```

Gathering info about particular user :

```
┌──(kali㉿kali)-[~/Desktop/sherlock]
└─$ cd sherlock

┌──(kali㉿kali)-[~/Desktop/sherlock/sherlock]
└─$ ls
CODE_OF_CONDUCT.md  docker-compose.yml  elonmusk.txt  LICENSE    removed_sites.json  requirements.txt  shriram_kp.txt  sites.md
CONTRIBUTING.md     Dockerfile          images        README.md  removed_sites.md    sherlock          site_list.py

┌──(kali㉿kali)-[~/Desktop/sherlock/sherlock]
└─$ cd sherlock

┌──(kali㉿kali)-[~/Desktop/sherlock/sherlock/sherlock]
└─$ ls
__init__.py  __main__.py  notify.py  __pycache__  resources  result.py  sherlock.py  sites.py  tests

┌──(kali㉿kali)-[~/Desktop/sherlock/sherlock/sherlock]
└─$ python sherlock.py prabhukavin
[*] Checking username prabhukavin on:

[+] Academia.edu: https://independent.academia.edu/prabhukavin
[+] Blogger: https://prabhukavin.blogspot.com
[+] CapFriendly: https://www.capfriendly.com/users/prabhukavin
[+] Disqus: https://disqus.com/prabhukavin
[+] Facebook: https://www.facebook.com/prabhukavin
[+] Freelancer: https://www.freelancer.com/u/prabhukavin
[+] Gab: https://gab.com/prabhukavin
[+] HackerRank: https://hackerrank.com/prabhukavin
[+] Instagram: https://www.instagram.com/prabhukavin
^[[B^[[B^[[B^[[B^[[B^[[B^[[A^[[A^[[A^[[A^[[A^[[A^[[A^[[A^[[A^[[B^[[B^[[B^[[B^[[B^[[B^[[B^[[B^[[B^[[B^[[B^[[B^[[B^[[B^[[B^[[B^[[B^[[B
```

Sherlock stores all the information in the .txt file we can see it by nano shriram.txt

```
  GNU nano 6.0
https://www.capfriendly.com/users/shriram_kp
https://shriram_kp.deviantart.com
https://gab.com/shriram_kp
https://www.instagram.com/shriram_kp
https://www.smule.com/shriram_kp
https://www.snapchat.com/add/shriram_kp
https://tiktok.com/@shriram_kp
https://venmo.com/u/shriram_kp
http://forum.igromania.ru/member.php?username=shriram_kp
http://www.jeuxvideo.com/profil/shriram_kp?mode=infos
https://shriram_kp.skyrock.com/
Total Websites Username Detected On : 11
```

Enabling reverse connection :

Most of the firewalls don’t allow strangers and outside signals to get access to the routes they are protecting, so what if the router sends a connection to us, will it be awesome and easy to exploit the machine.

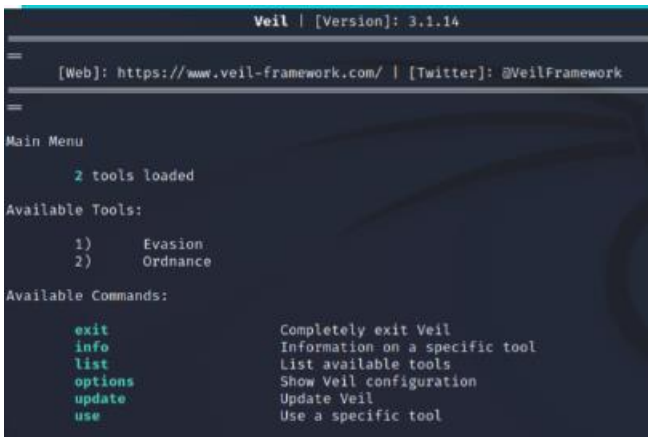
We can do a reverse connection using the Veil framework :

Veil offers a variety of reverse connections based on different programming languages like go, windows, ruby, etc.

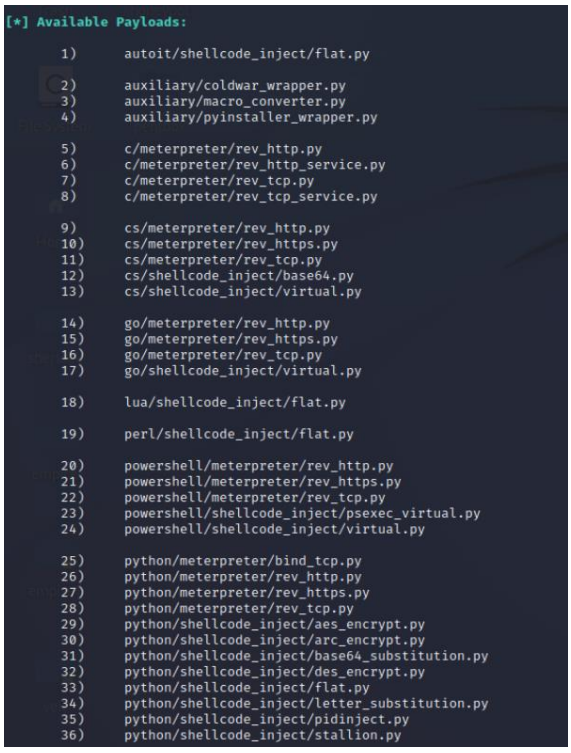
Installation of Veil framework:

```
apt -y install veil
/usr/share/veil/config/setup.sh --force --silent
```

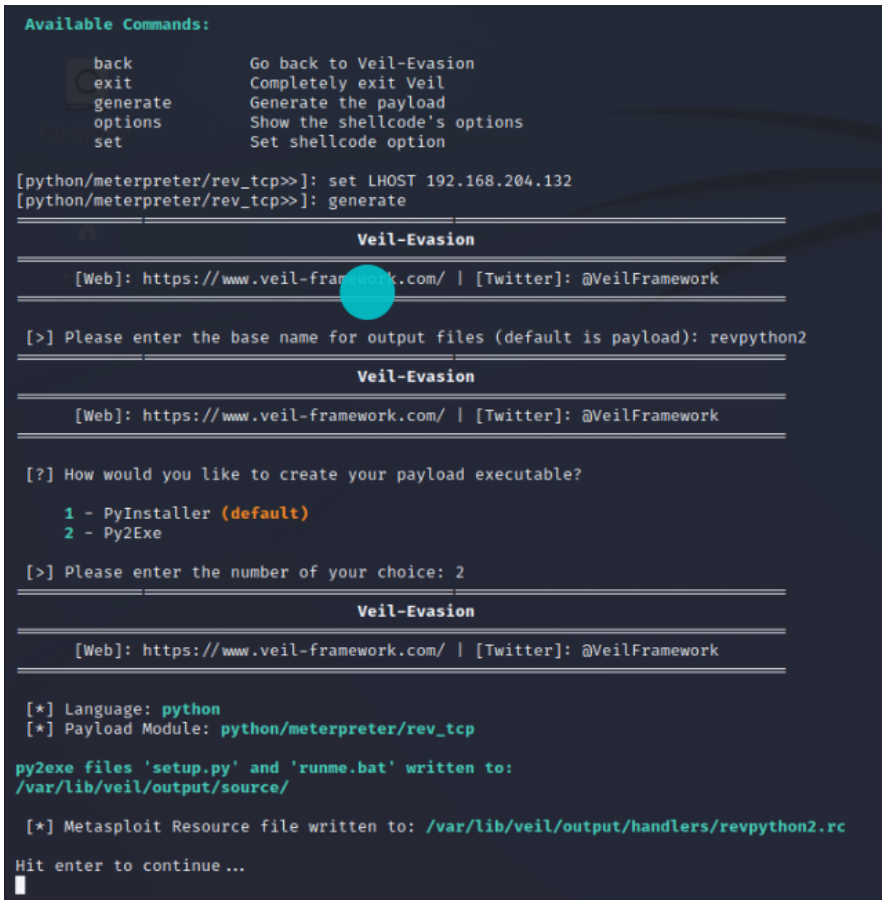
Select evasion for exploring exploitation options :



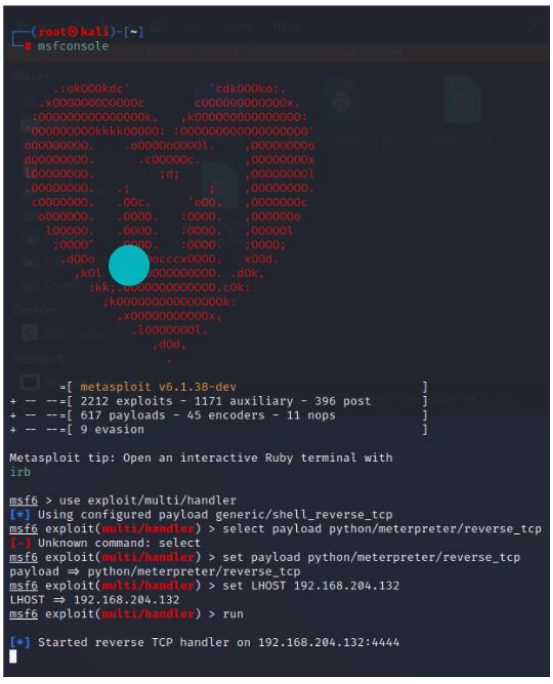
Different types of reverse connections :



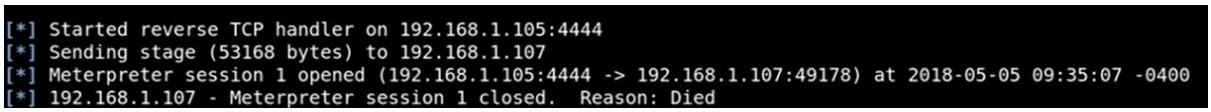
Select option 28 for using reverse_tcp connection on python programming language and setting LHOST and generate the exe file which is delivered to host machine for reverse connection.



Starting listener on msfconsole and using multi handler for getting reverse connection:



Starting apache server to deliver the content to the user end :



So now we established the reverse connection, now it is time to exploit the user by sending a backdoor.

For backdoor and exploitation, we can use Fatrat which is a highly scalable and powerful framework.

FatRat Tool in Kali Linux

The FatRat is a free and open-source tool used as an exploiting tool. The FatRat tool adds malware with a payload and after that, the malware that you have developed can be executed on different types of operating systems such as android, windows, mac, and Linux. The FatRat is a powerful tool that can bypass most the Antivirus easily and can maintain the connection between attacker and victim. Fat Tool can help in generating backdoors, system exploitation, post-exploitation attacks, browser attacks, DLL files, and FUD payloads against Linux, Mac OS X, Windows, and Android. We can create malware in different formats using FatRat so that it can be executed easily on the target operating system.

Uses of FatRat Tool In Kali Linux:

- FatRat is used for exploitation.
- FatRat is used to create malware
- Fatrat is used to combine payload with malware.
- Fatrat is used for creating Backdoors for Post Exploitation.
- FatRat is used for browser attacks.
- FatRat is used to get DDL files from Linux.
- **FatRat can create malware in different extensions.**

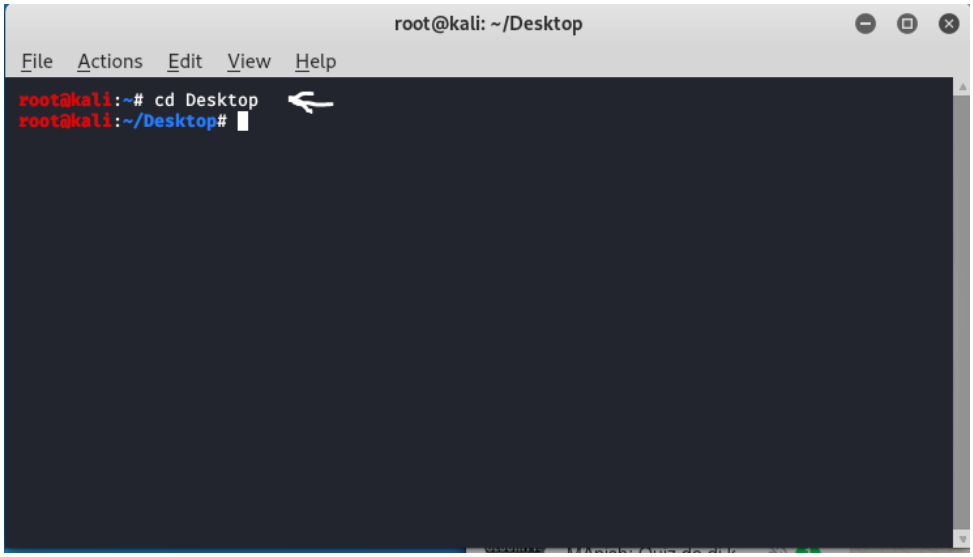
Features of FatRat Tool:

- FatRat is Free and Open Source
- FatRat creates payloads
- FatRat can bypass most antivirus.
- FatRat can work with MSFvenom and Metasploit
- FatRat can Generate payloads in Various formats.
- FatRat generates Local or remote listener Generation.
- FatRat can easily make Backdoor by category Operating System such as Linux, Android, etc.
-

Installation of FatRat Tool:

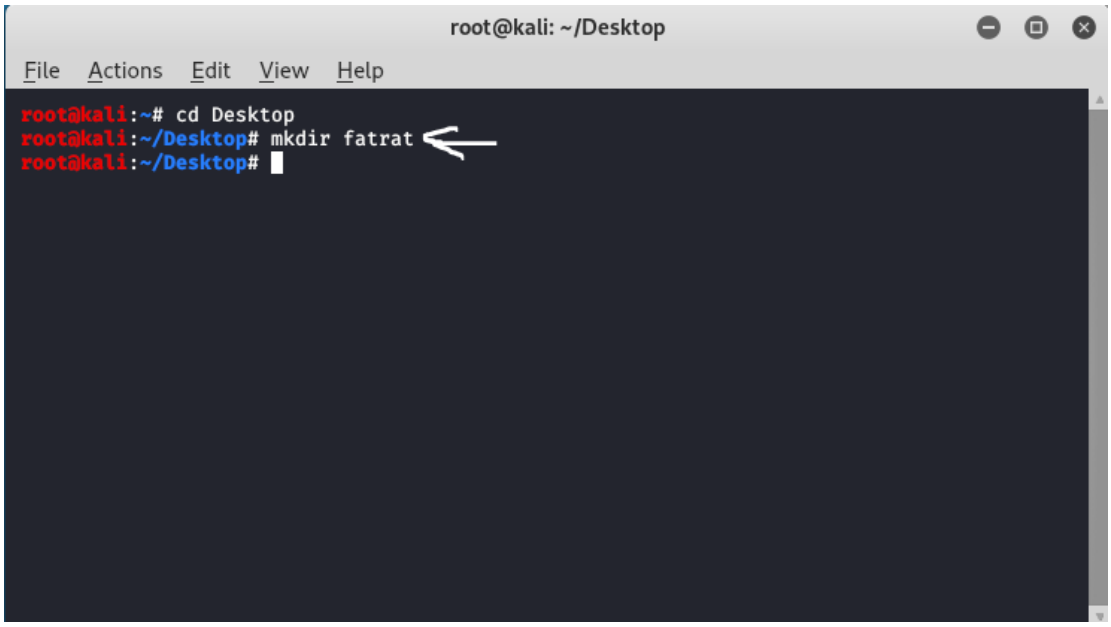
Step 1: Open Your Kali Linux and move to the Desktop directory.

cd Desktop



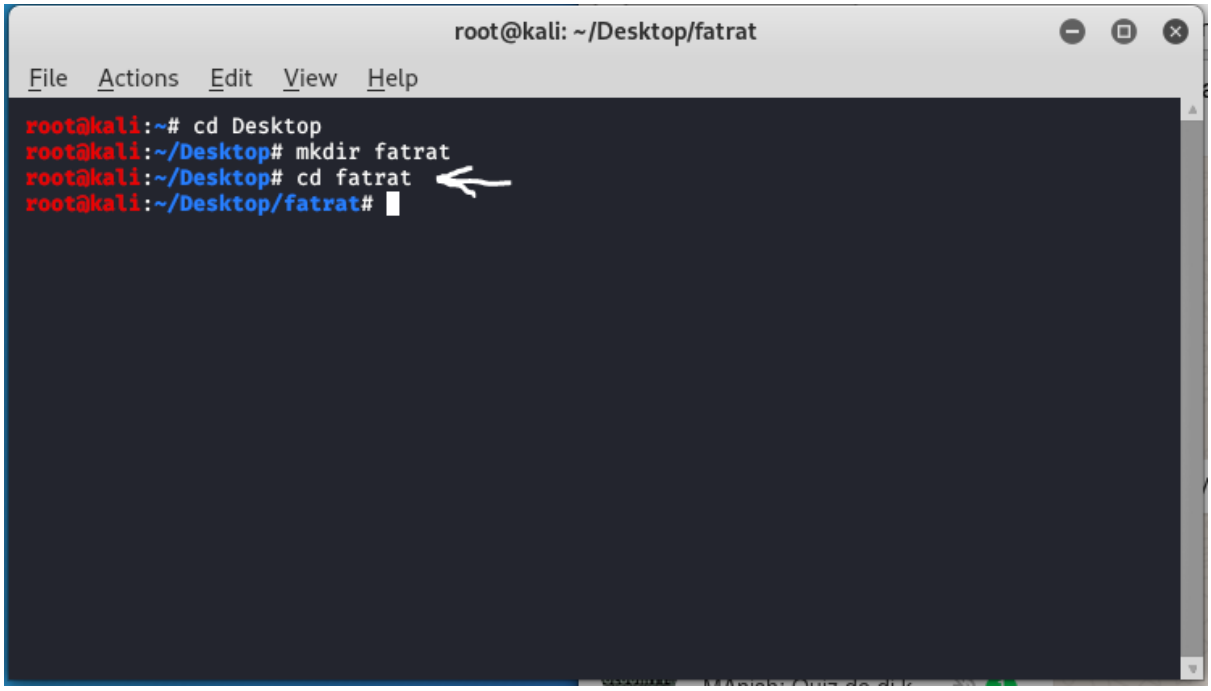
Step 2: Now on the desktop create a new Directory named fatrat.

mkdir fat



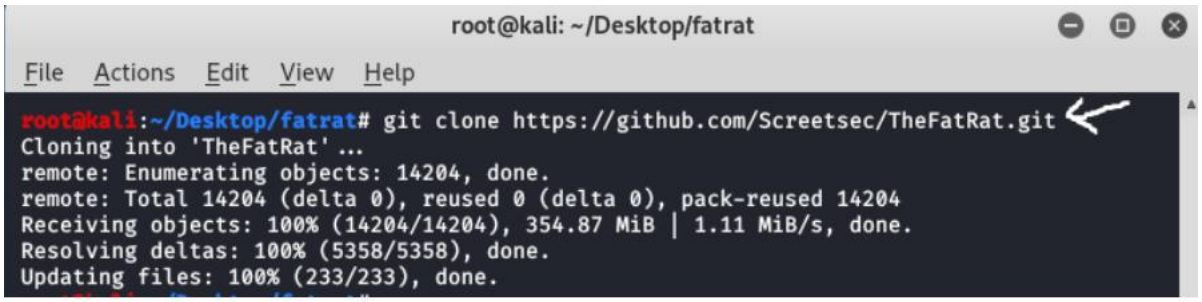
Step 3: Now move to the fat rat directory.

cd fatrat



Step 4: Now you have to download the fatrat tool from GitHub to do that you have to clone it from GitHub. Just clone the tool using the following command.

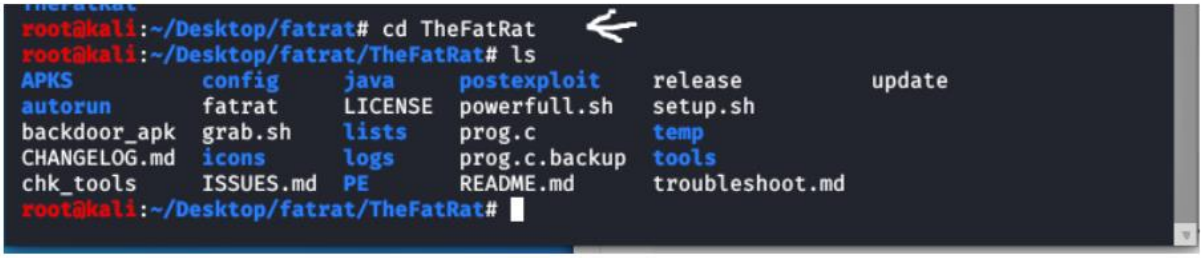
git clone https://github.com/Screetsec/TheFatRat.git



Step 5: The TheFatRat tool has been downloaded into your Kali Linux now move to the directory where you have downloaded the tool and list out the content.

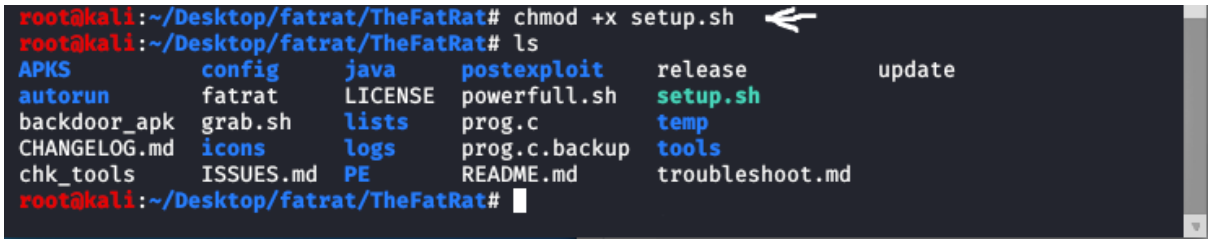
cd TheFatRat

ls



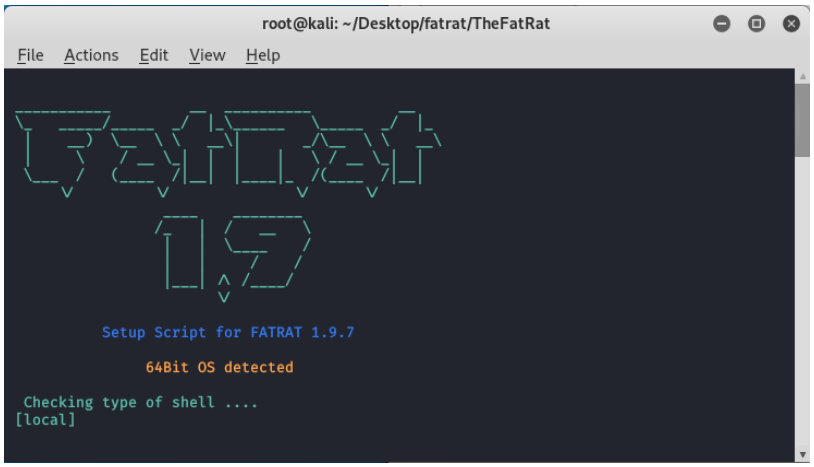
Step 6: Now you have to permit the execution of the setup. sh using the following command.

chmod +x setup.sh



Step 7: Now run the tool using the following command.

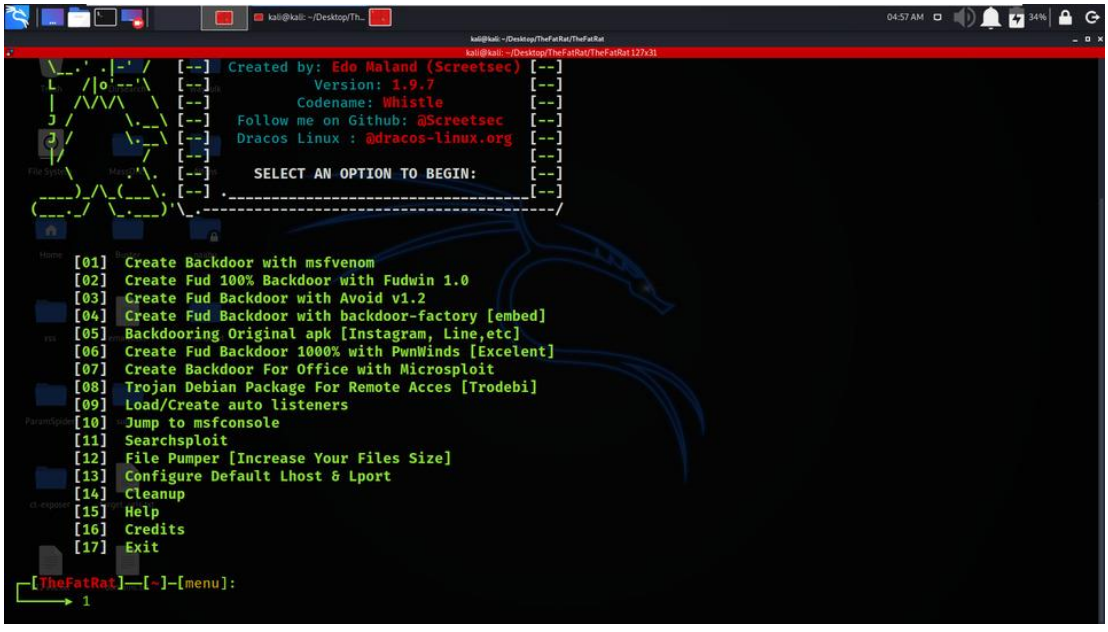
./setup.sh



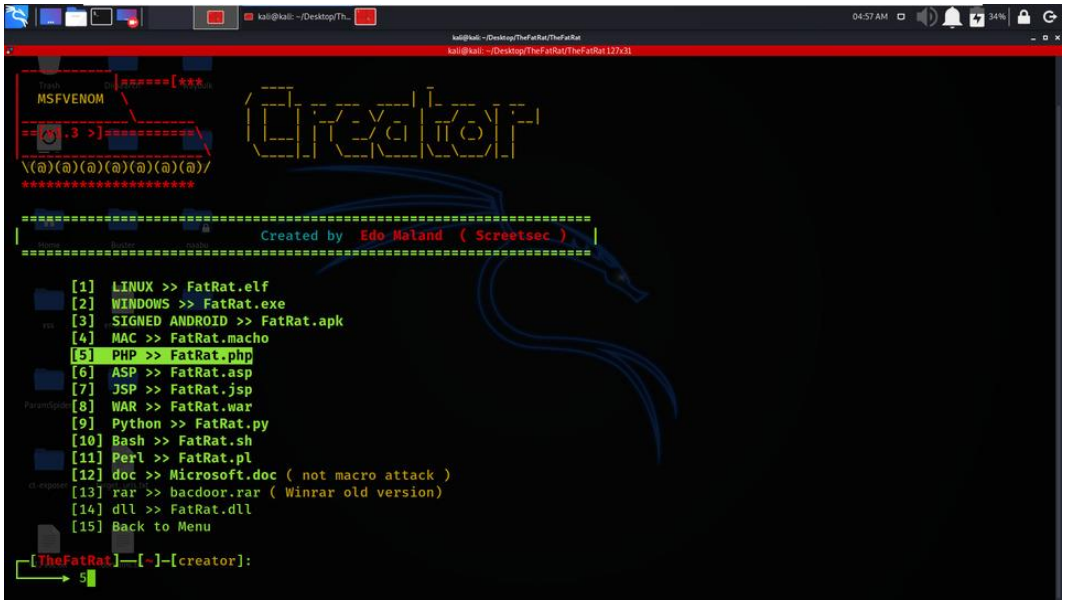
Working with TheFatRat Tool :

Example1:Create Backdoor with msfvenom.

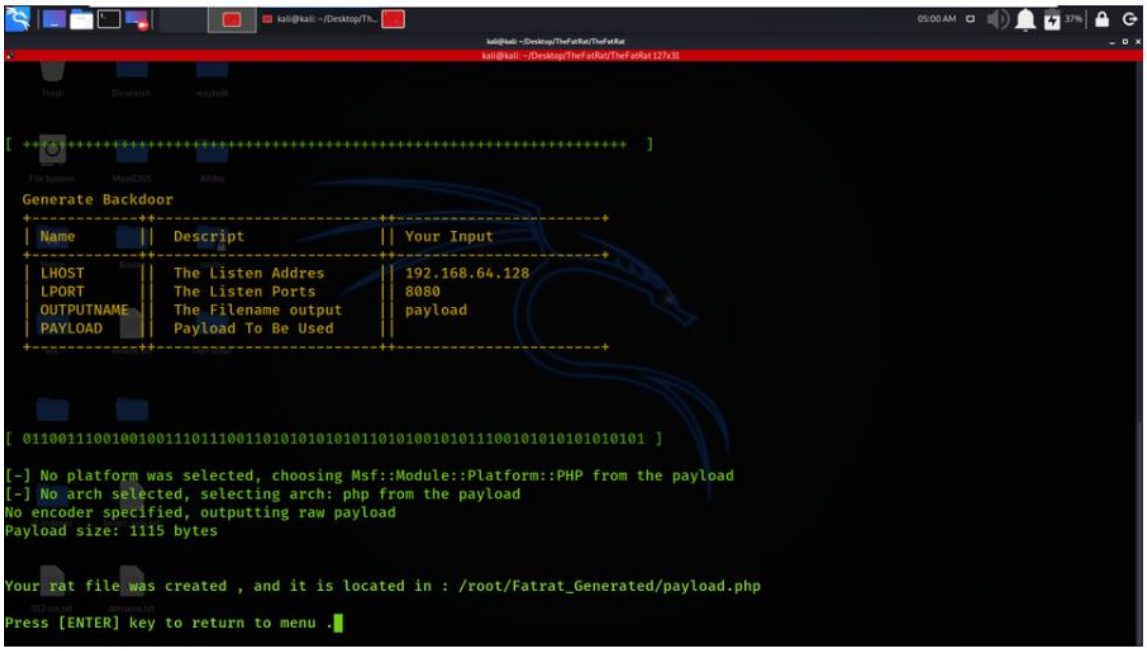
We are Creating a Backdoor using the msfvenom utility. So we have chosen Option 1.



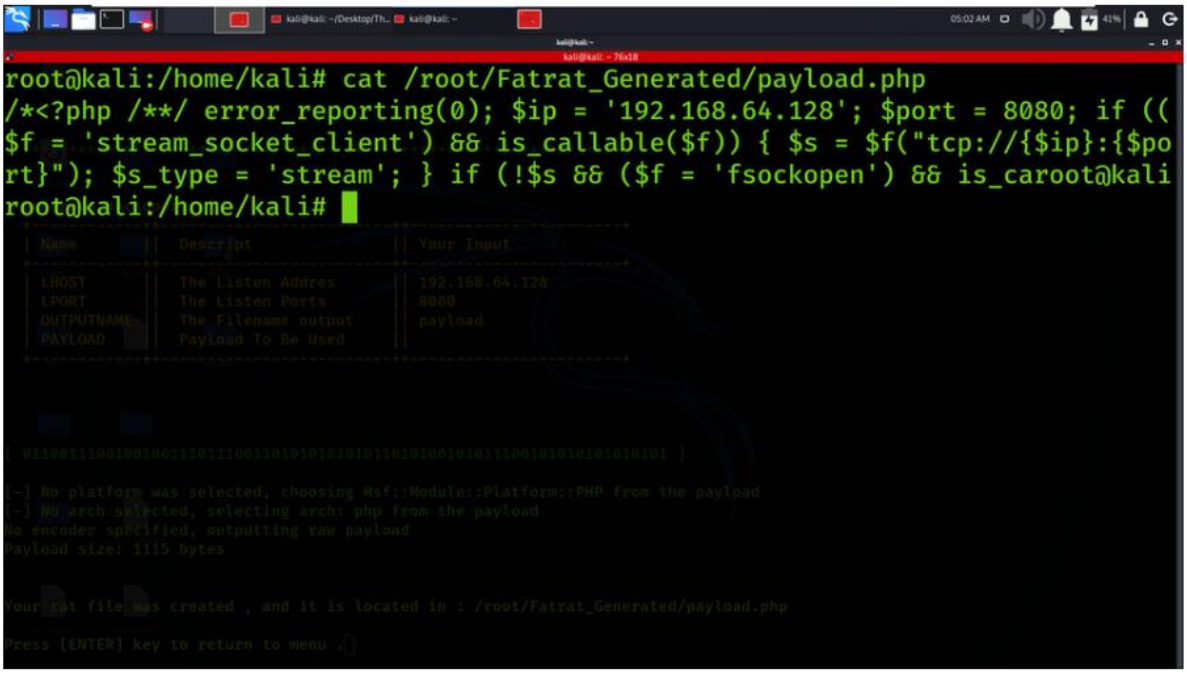
2. Backdoors can be of various extensions like .elf,.bat,.php,.asp, etc. So in this example, we are selecting option 5 which is .php Backdoor.



In the below screenshot, you can see that our payload.php is ready and saved in a specific path. Now to perform an attack you can send this payload to the victim and ask him to execute it.

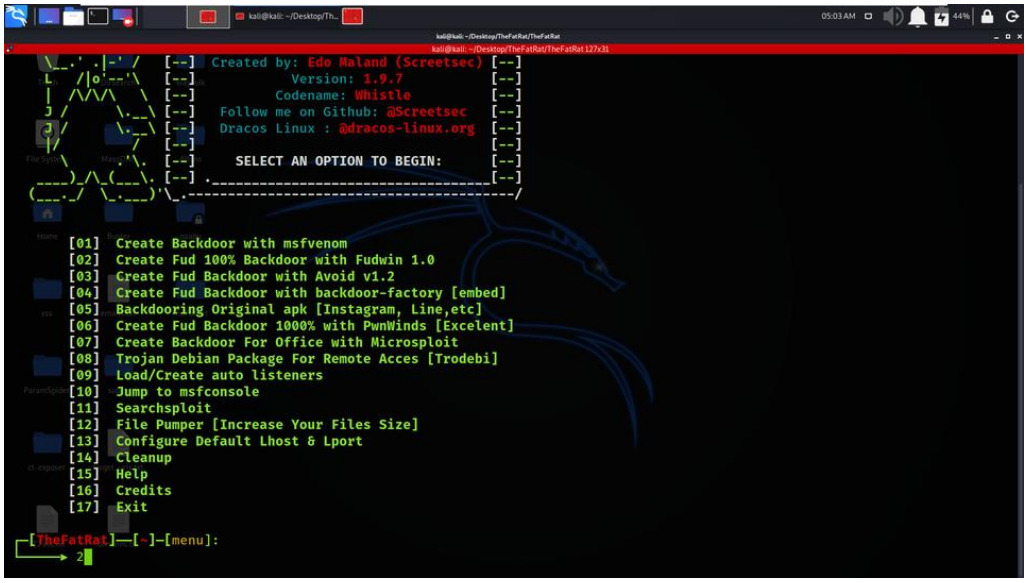


In the below screenshot, you can see that we have displayed the contents or the coding of payload.php, in which LHOST and Port Number are specified.



Example 2: Create Fud 100% Backdoor with Fudwin 1.0.

We will Create Fud Backdoor using Fudwin 1.0. So we have selected Option 2 from the menu.

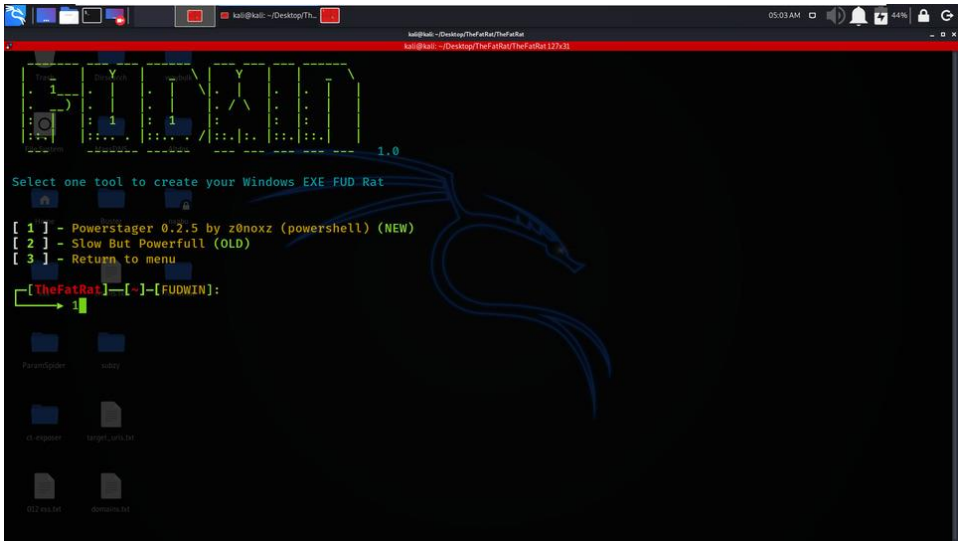


In the below screenshot, you can see that there are 2 primary options.

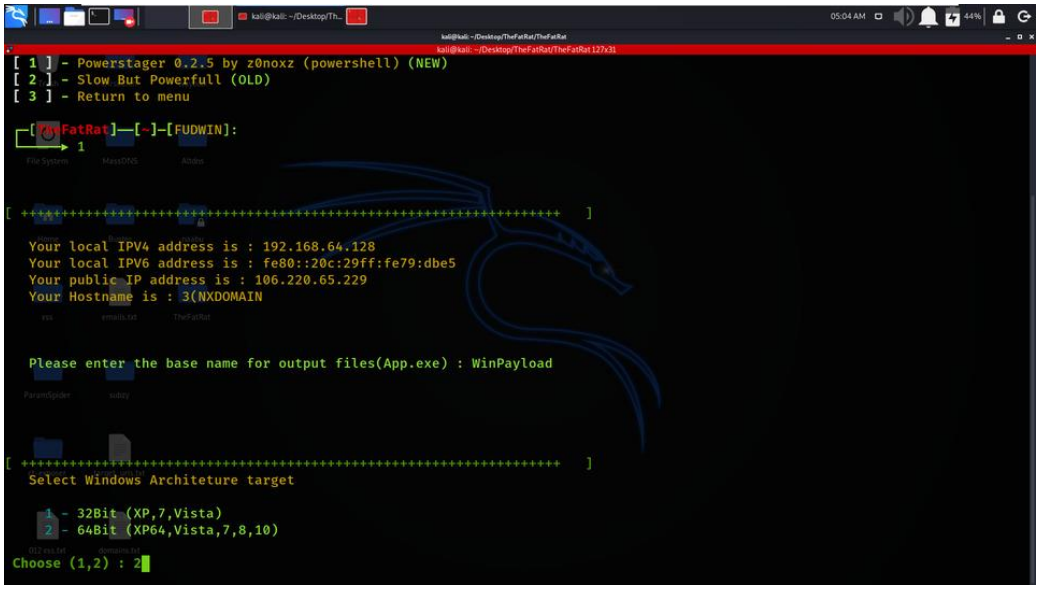
Power stage 0.2.5

Slow but Powerful

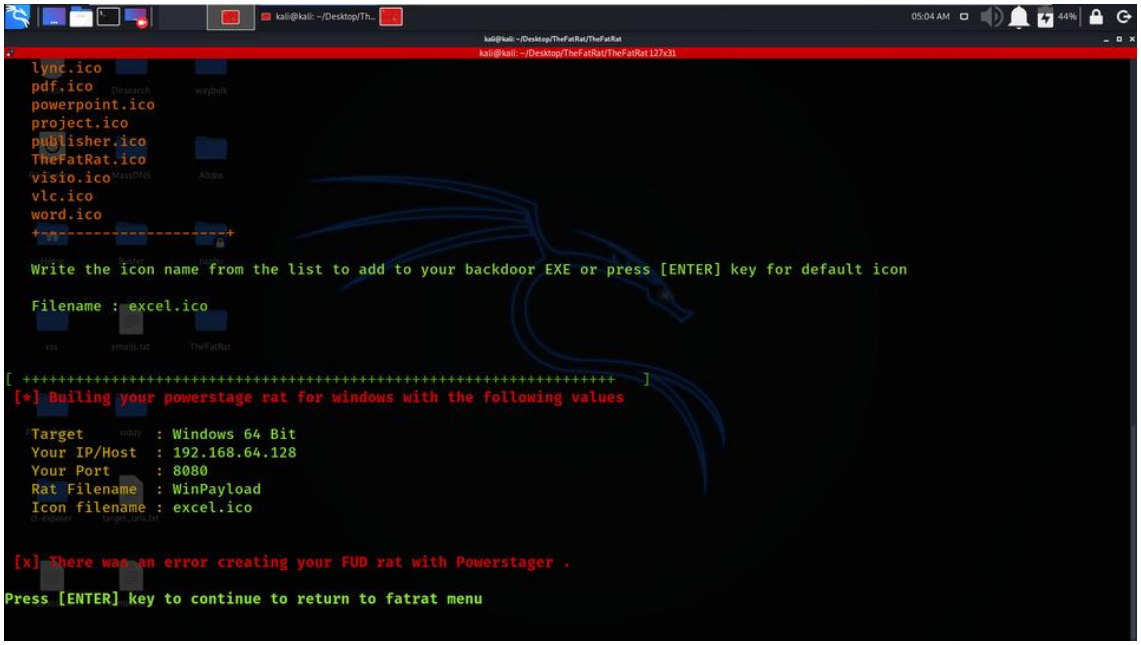
So we have selected option 1 which seems to be NEW.



In the below Screenshot, we have to specify the name of our payload and the Architecture of our Target System, so in this example, we have selected 64Bit (XP64, Vista,7,8,10).

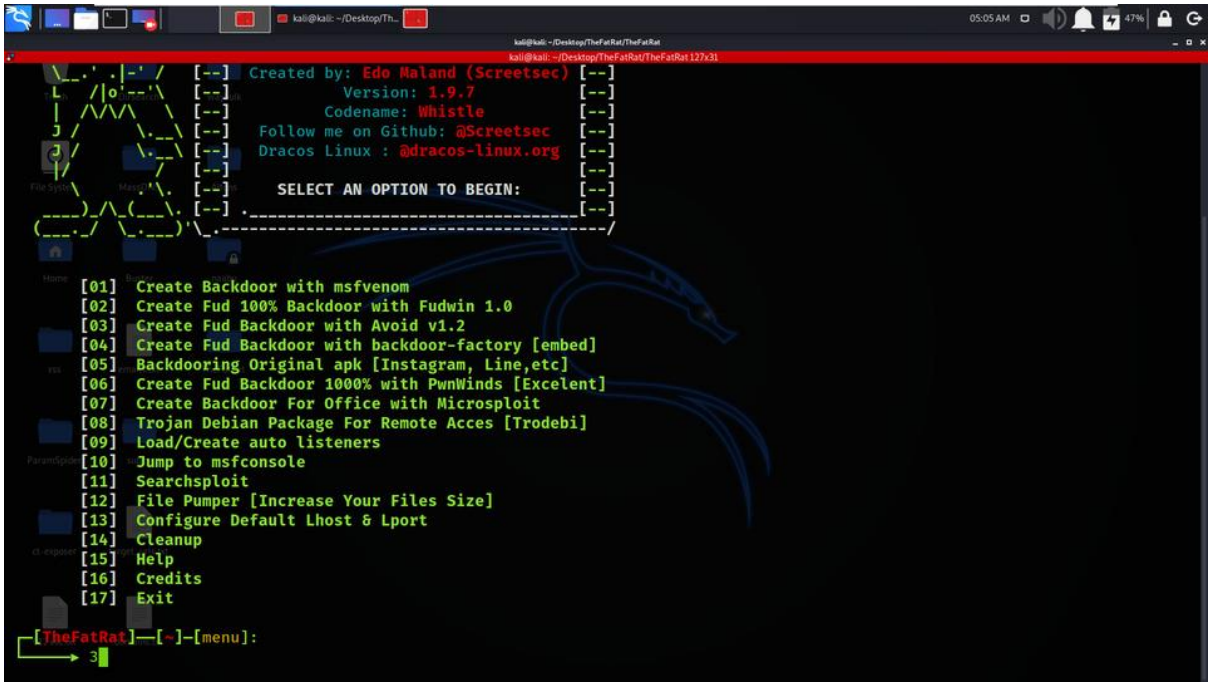


Now, we have to select the icon name in which the payload will hide. So we have selected excel.ico.

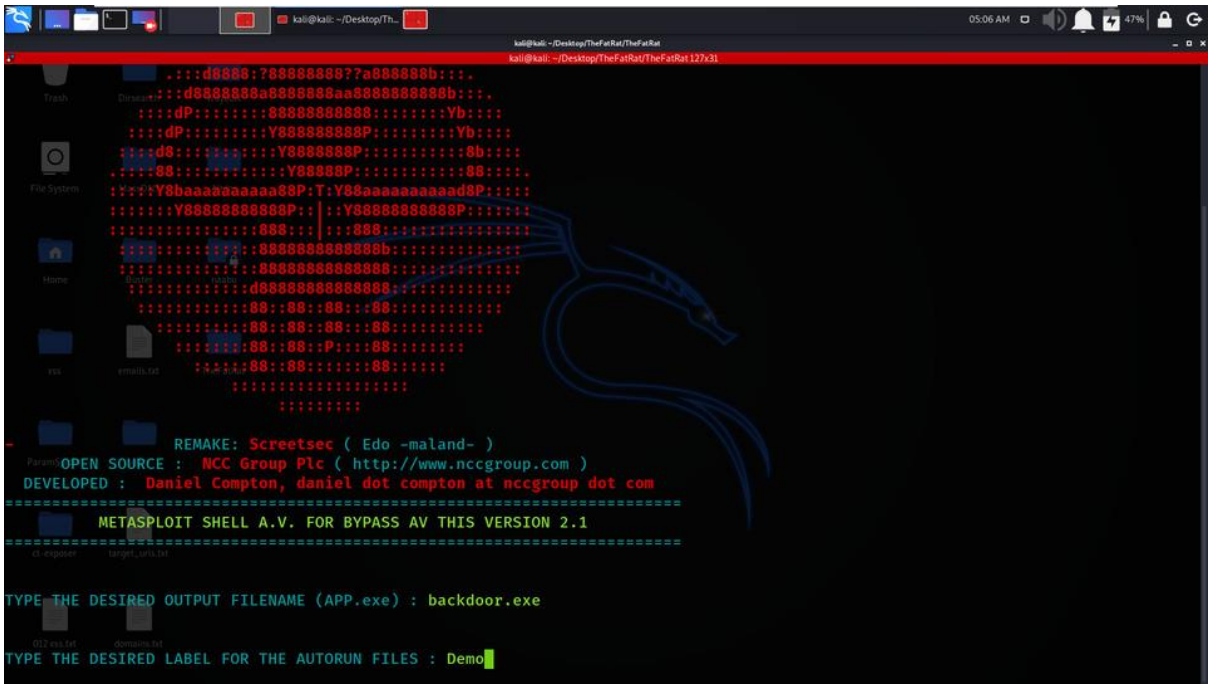


Example 3: Create Fud Backdoor with Avoid v1.2

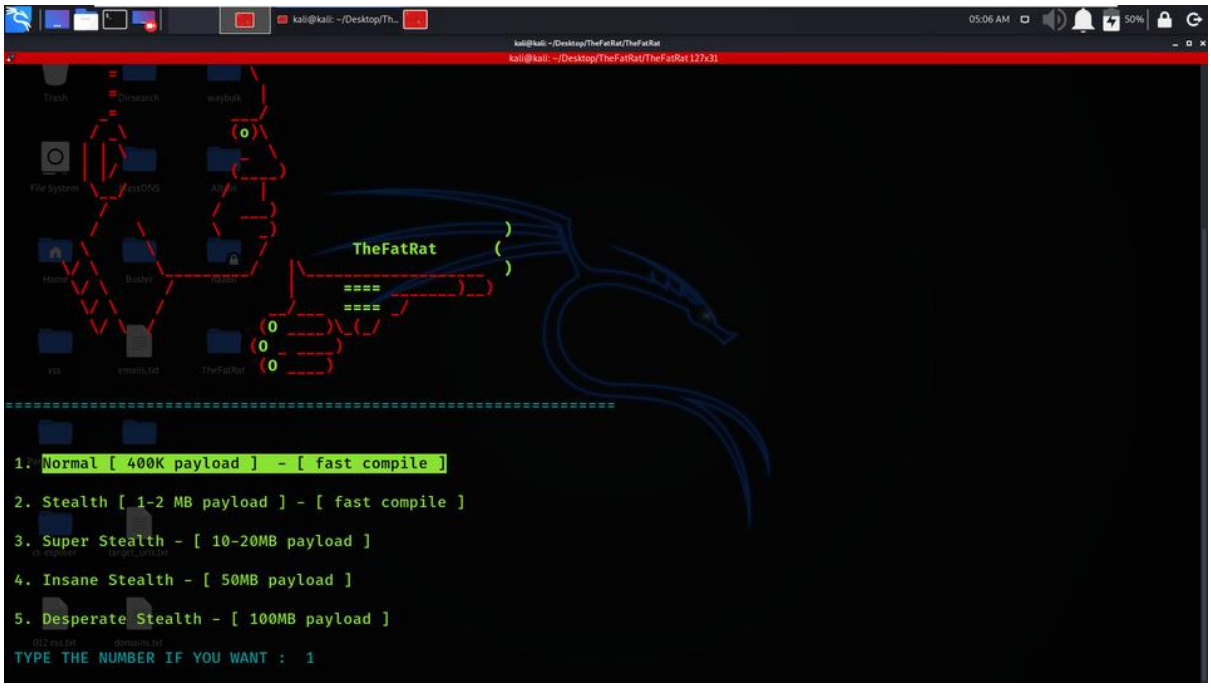
We will be Creating a backdoor with Avoid Utility.



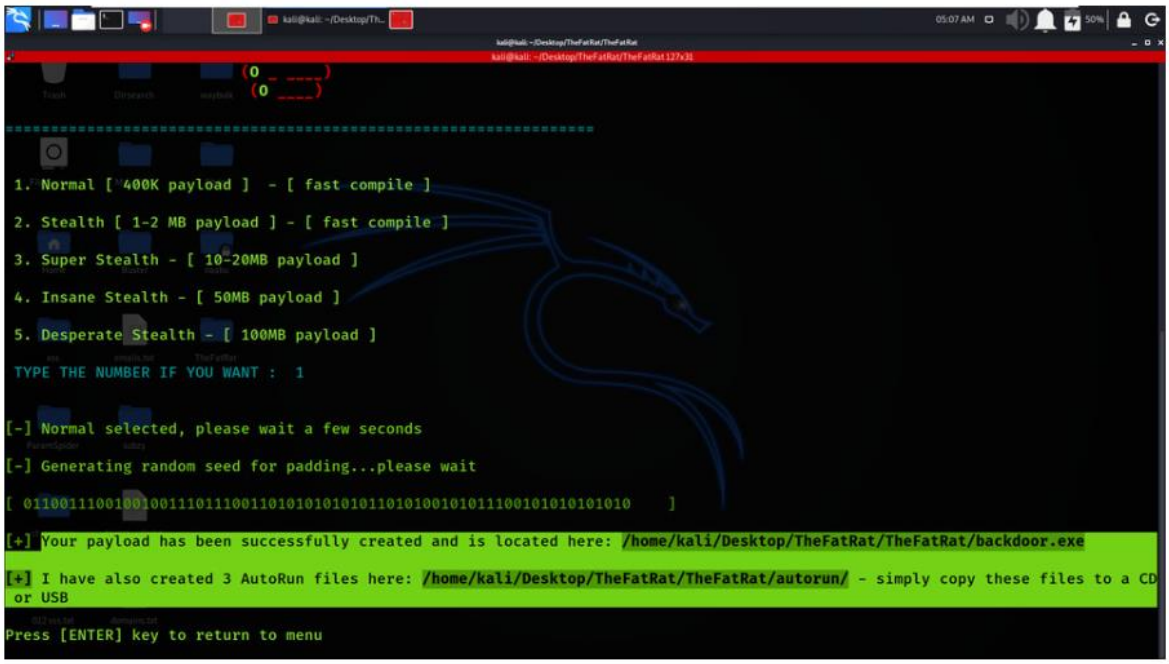
We are specifying the backdoor name which is backdoor.exe



We have to select the strength or the size of the payload so in this example, we have selected Normal payload stealth.

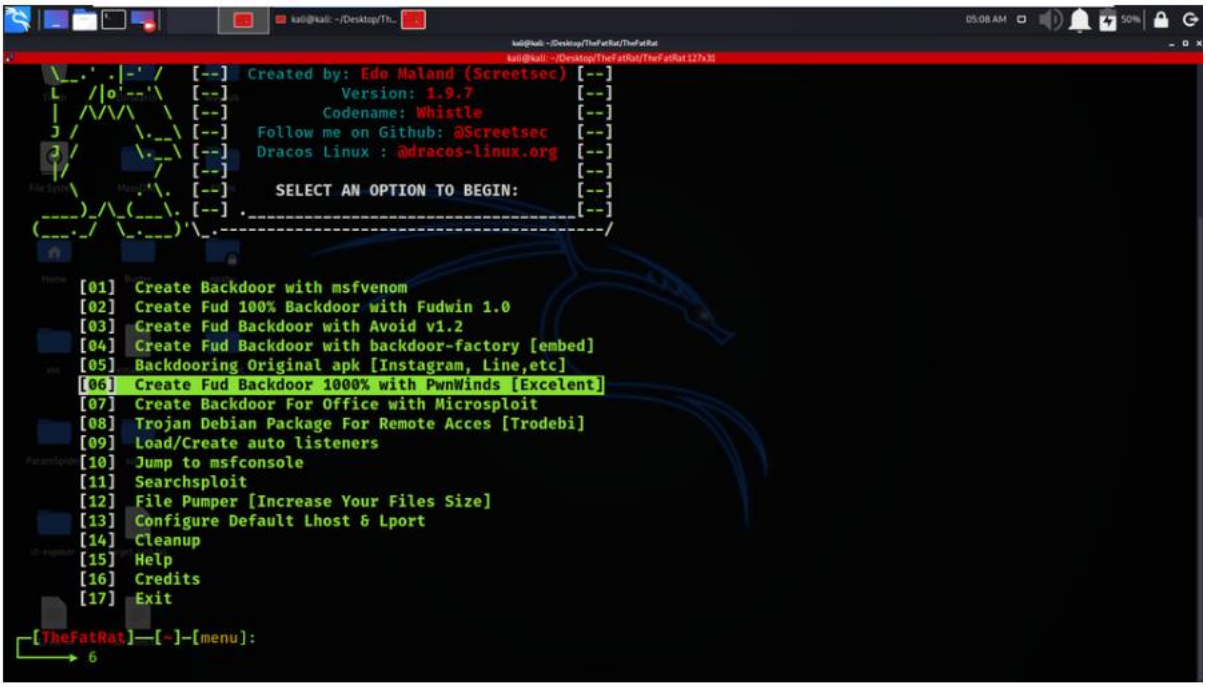


In the below screenshot, you can see that our Payload is successfully created with the name backdoor.exe in the specified path.

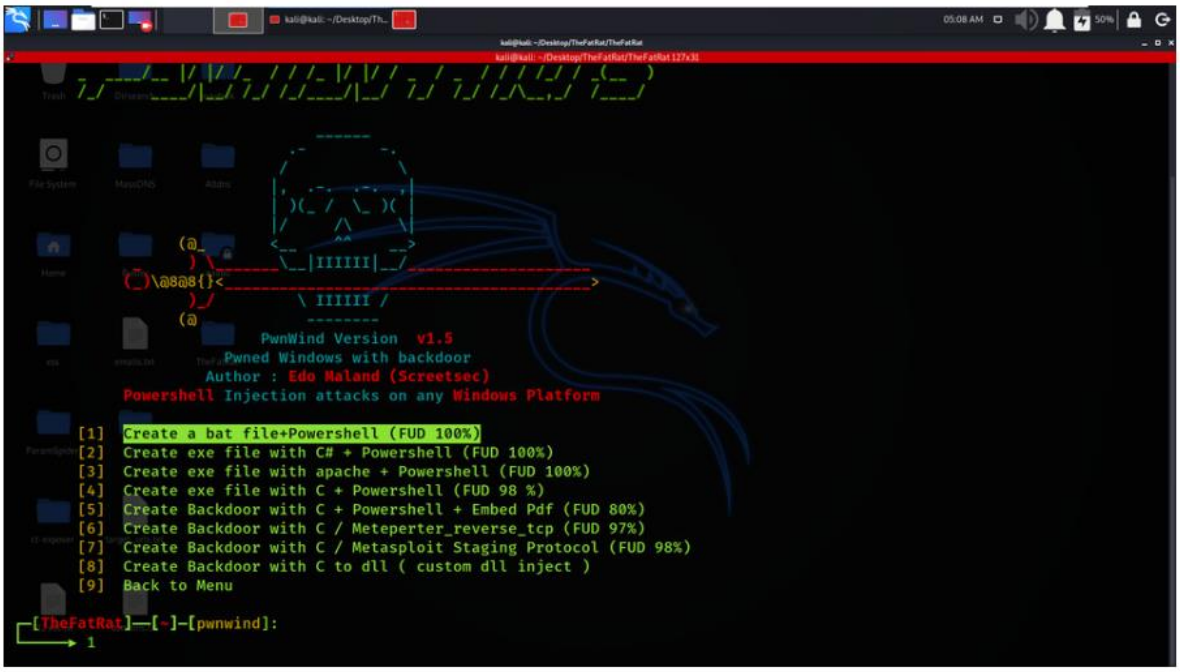


Example 4: Create Fud Backdoor 1000% with PwnWinds [Excelent]

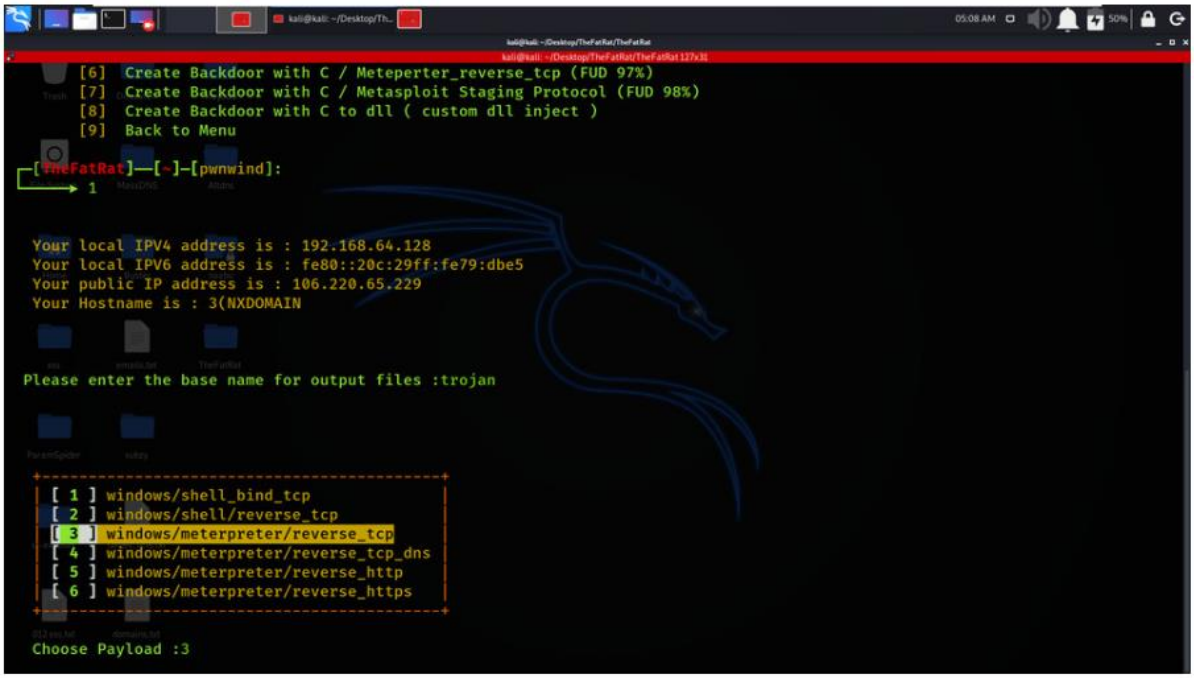
We will create a backdoor using PwnWinds Utility which is more powerful than others.



You can see that there is the various option for backdoor types, so in this example, we are creating a .bat extension payload which is a batch script in Windows T



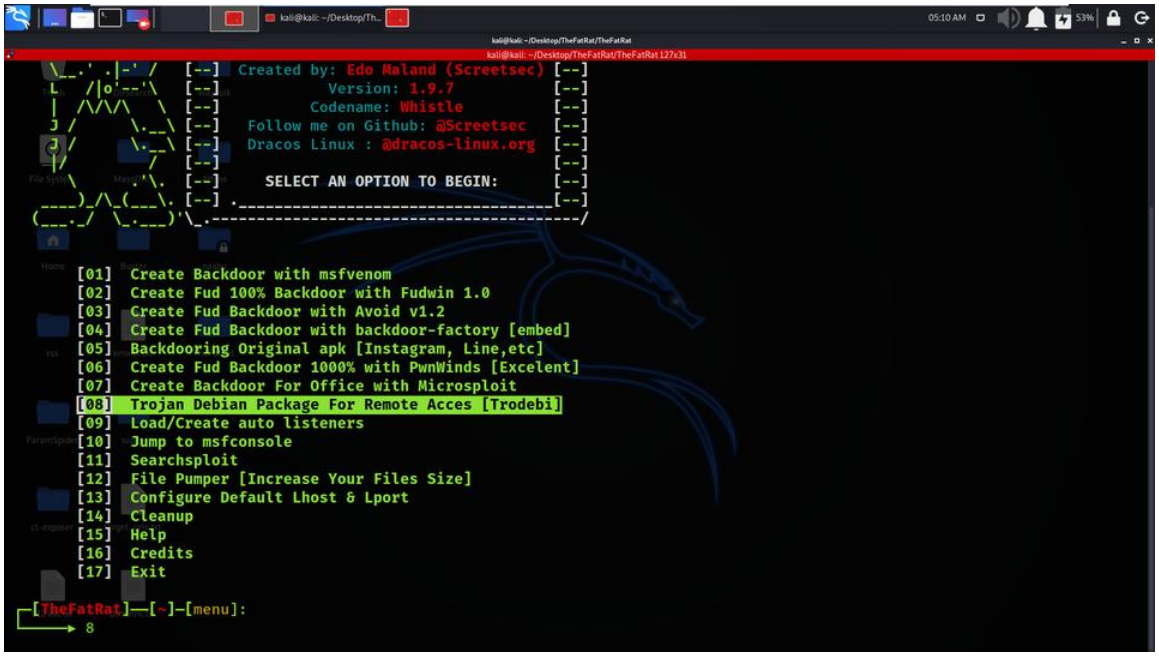
Now, we are specifying the name for the payload and selecting the purpose of the payload. So in this case the payload is designed to give a reverse TCP connection to the attacker.



You can see that our payload is created and saved in the specified path.

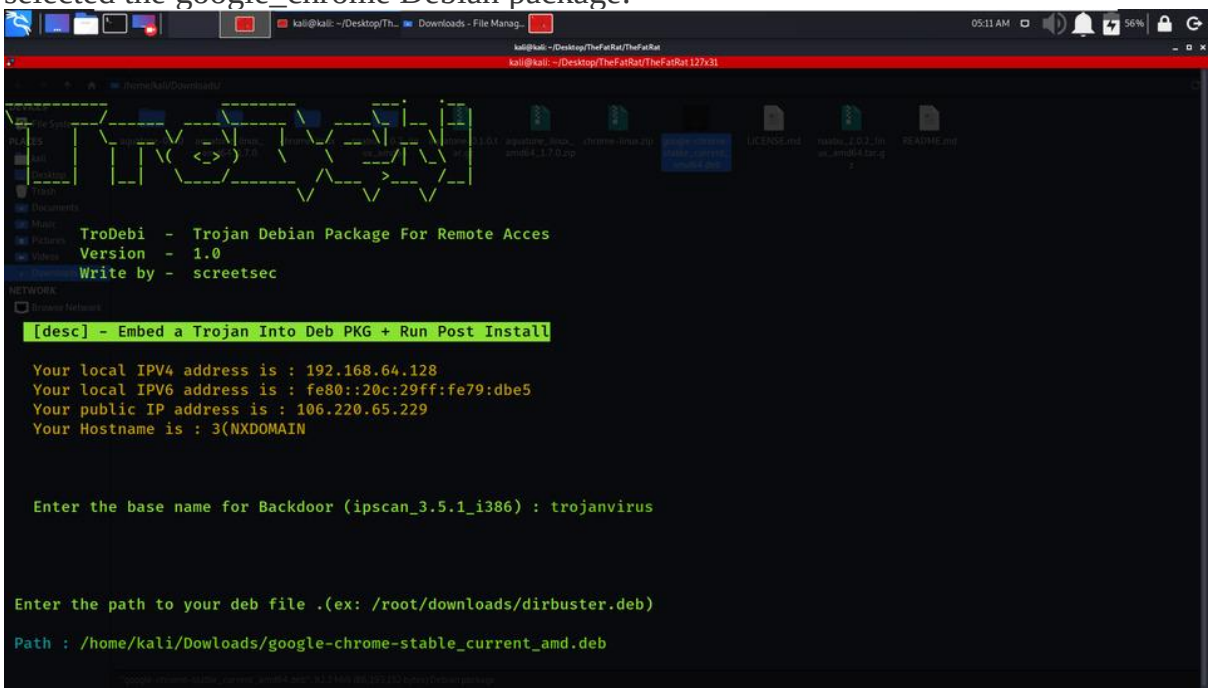
Example 5: Trojan Debian Package For Remote Acces [Trodebi]

We are Creating Trojan Package for Remote Access.

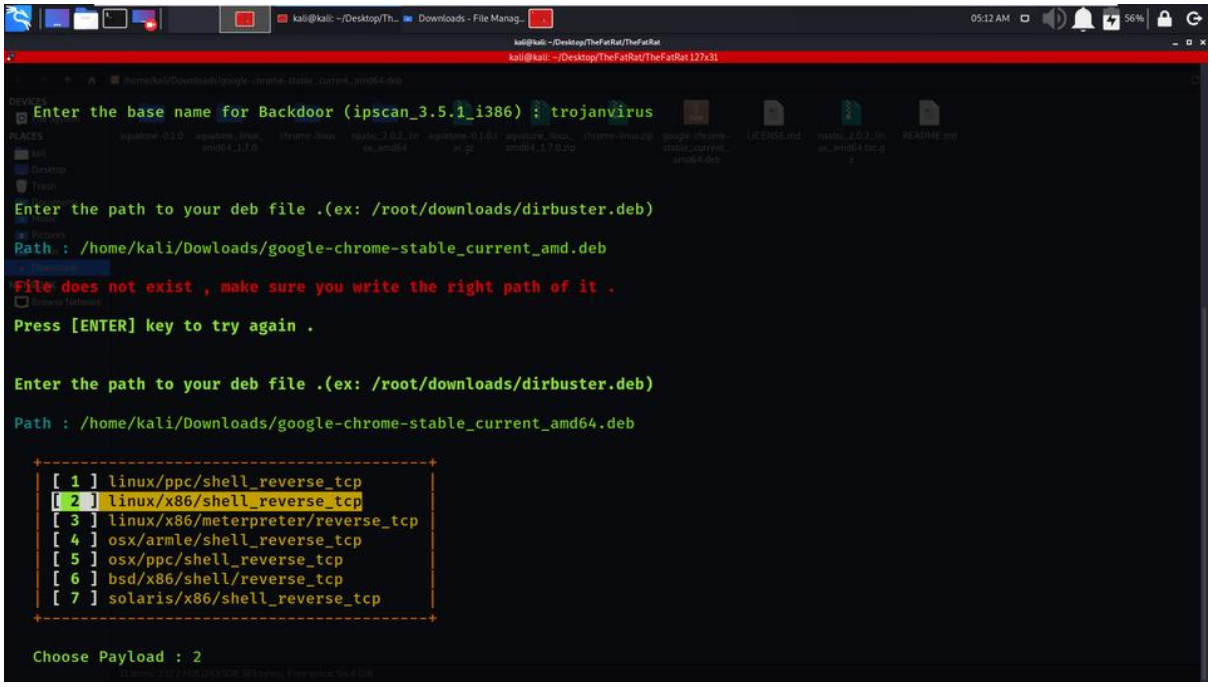


In the below Screenshot, we have specified the name of the Trojan and the path of the Debian package in which the Trojan will be merged or hidden. So in this case we have

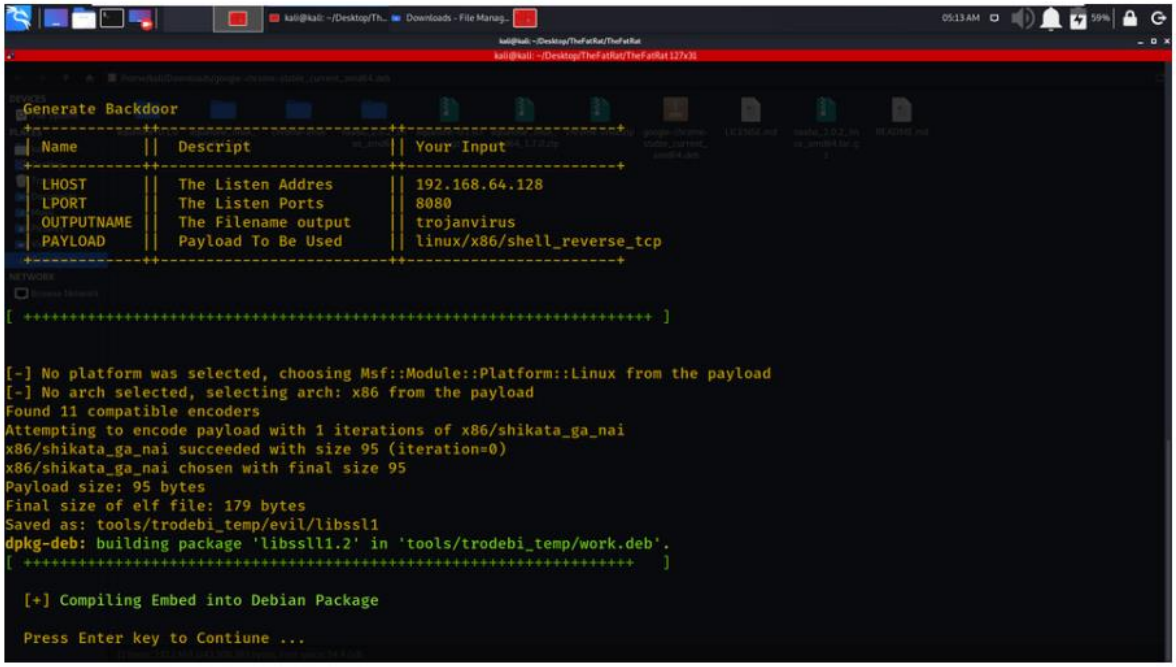
selected the google_chrome Debian package.



In the below Screenshot, we are specifying the purpose of the Trojan, so in this example, we have selected shell_reverse_tcp connection.

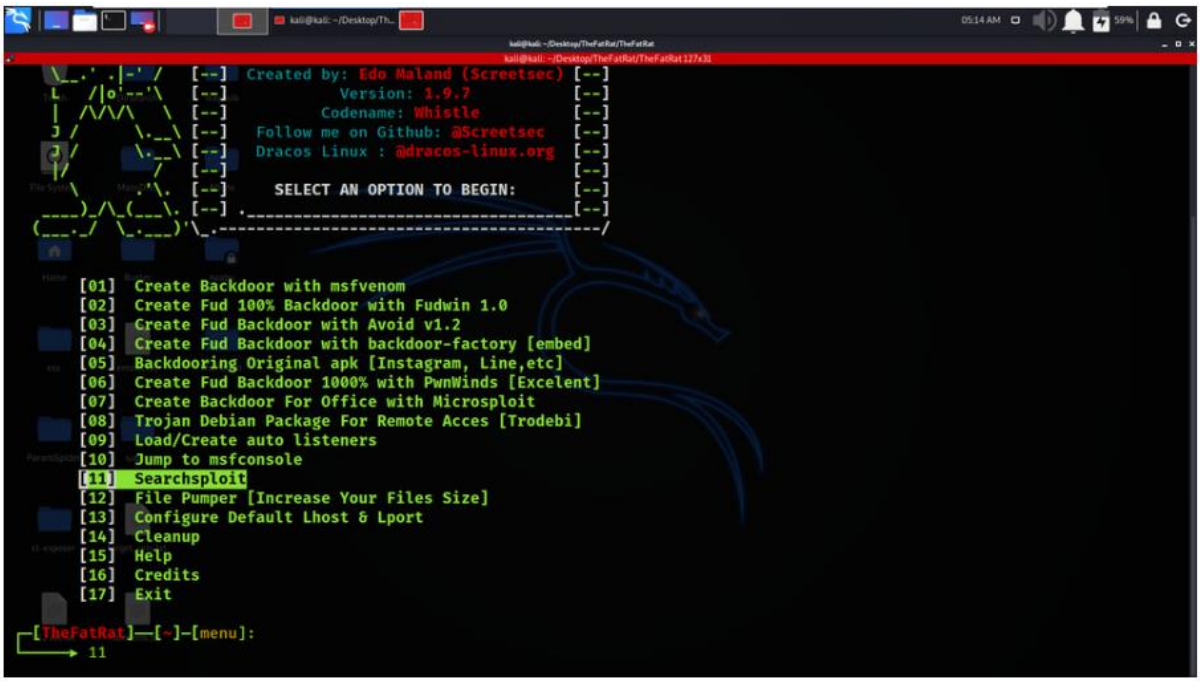


In the below screenshot, you can see that our Trojan has integrated with the .deb package and stored in the specified path.

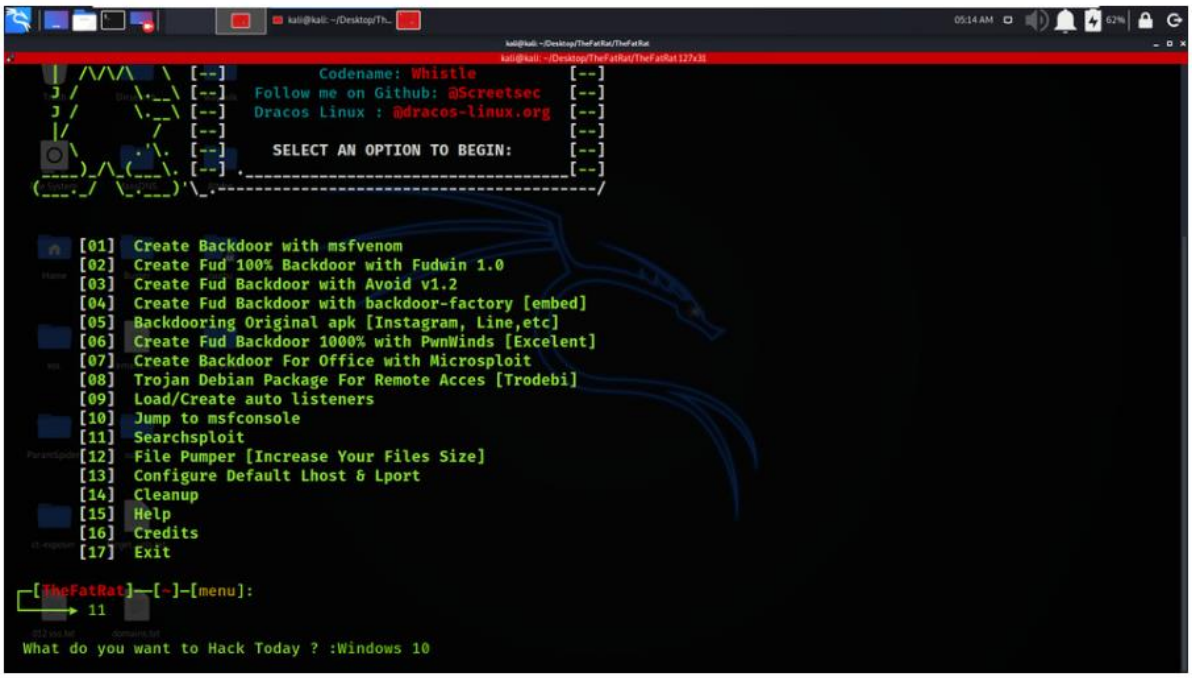


Example 6: Searchsploit

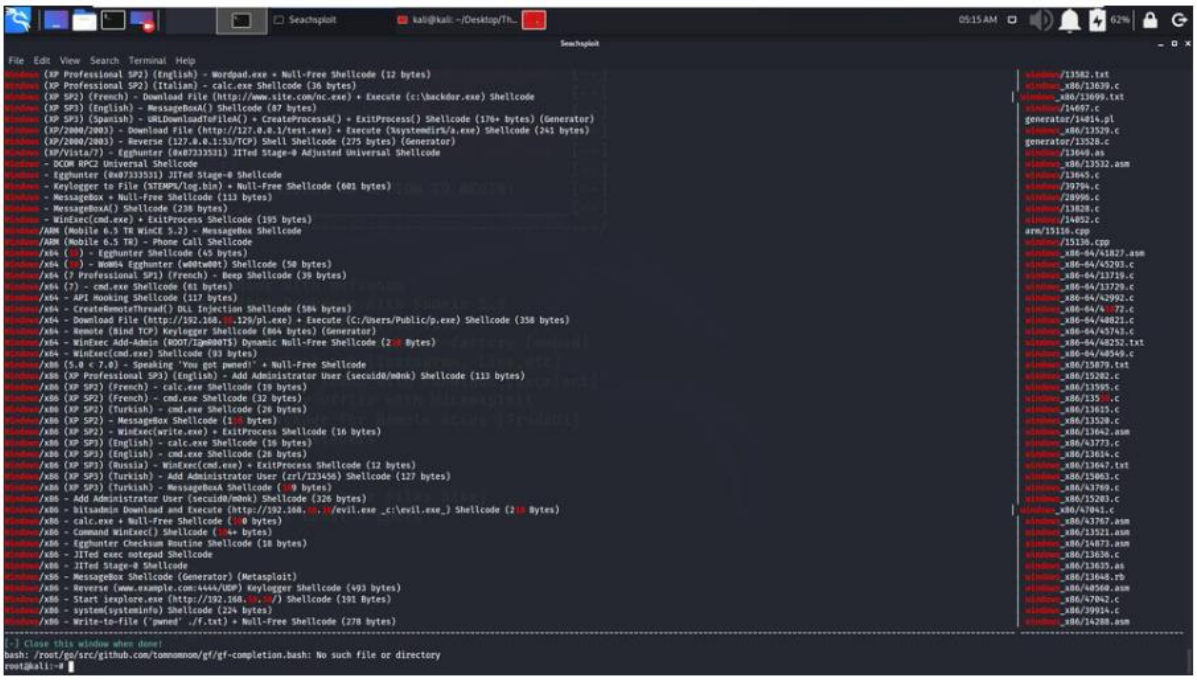
We will be using the SearchSploit option which consists of a list of databases of various payloads and backdoors for every type of target.



In the below Screenshot, Tool is asking us about our Target. So we have given Windows 10 as our target.

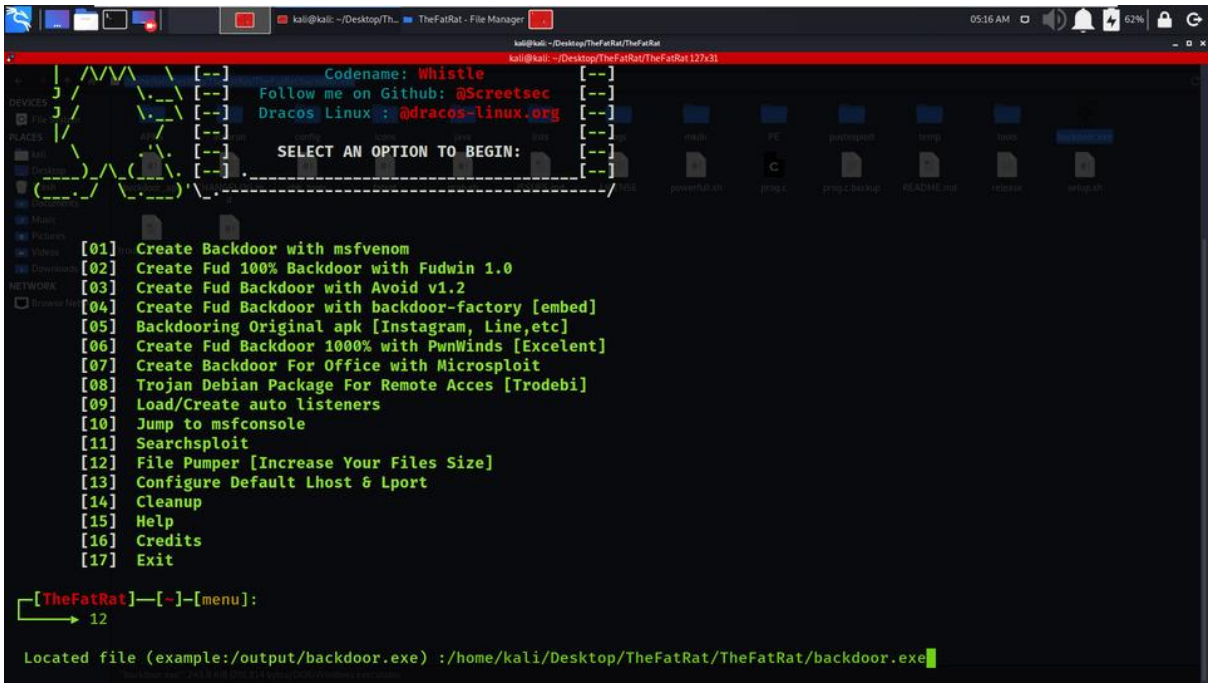


You can see that the TheFatRat tool has returned us several payloads and backdoors for our Windows 10 Target.

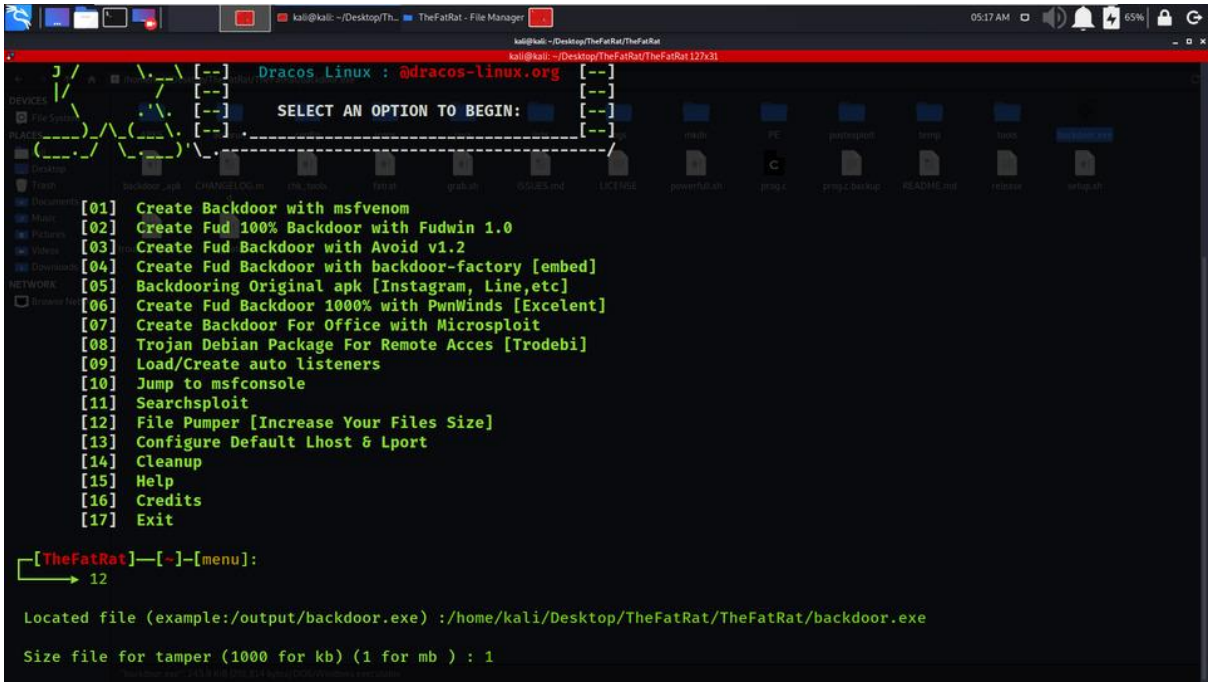


Example 7: File Pumper [Increase Your Files Size]

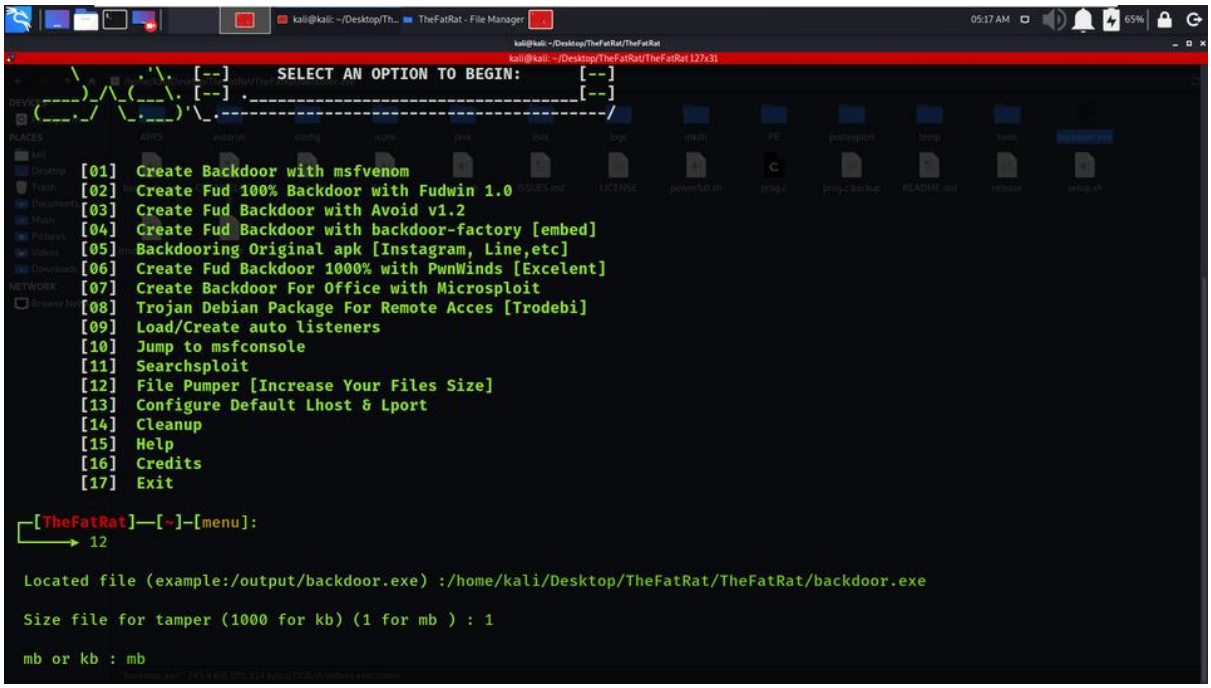
We will be increasing the size of our payload to make it more stealthy.



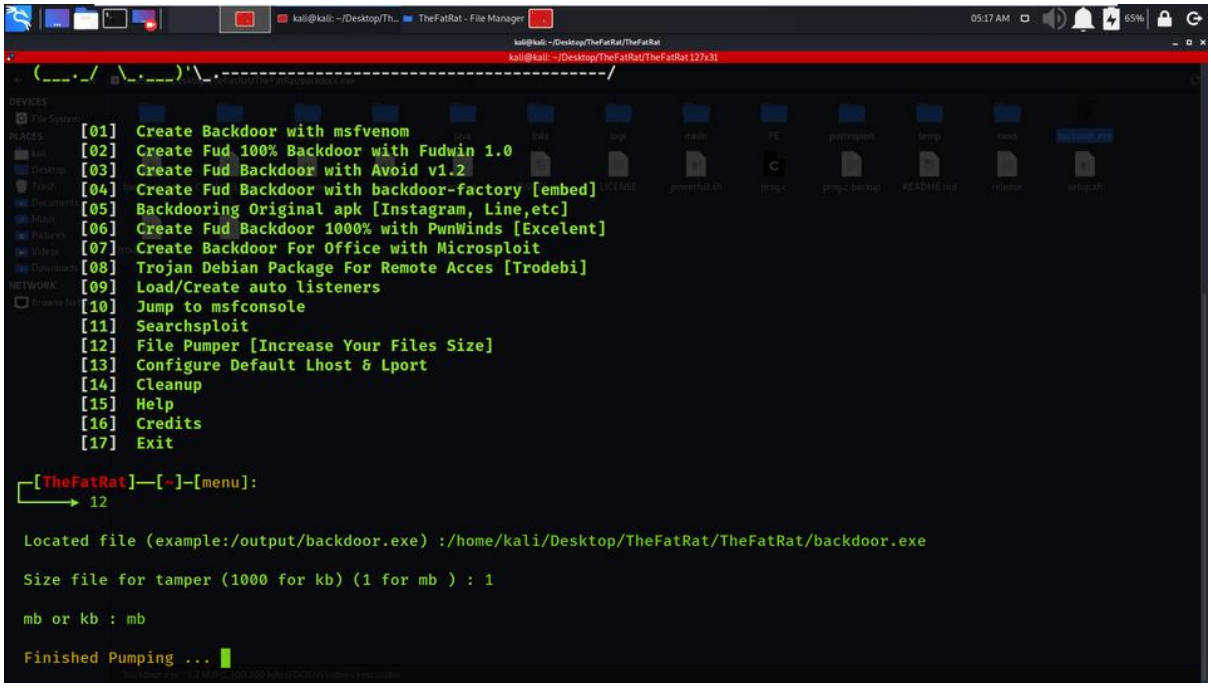
In the below screenshot, we have selected the backdoor for which we need to increase the size. Also, we need to select the size in MB or kb. So we have selected size in MB.



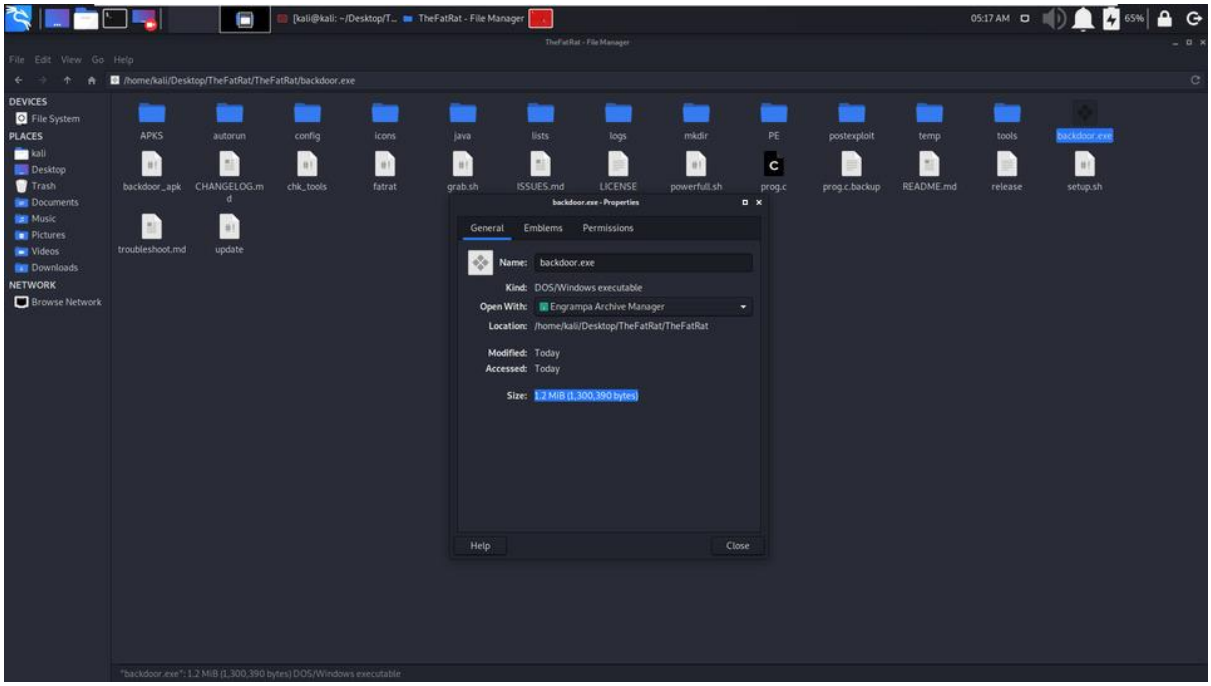
In the below screenshot, we have selected the size in MB.



You can see that our backdoor.exe file size has increased.



In the below Screenshot, we are checking the properties of the backdoor.exe file for which we have increased size to MB.

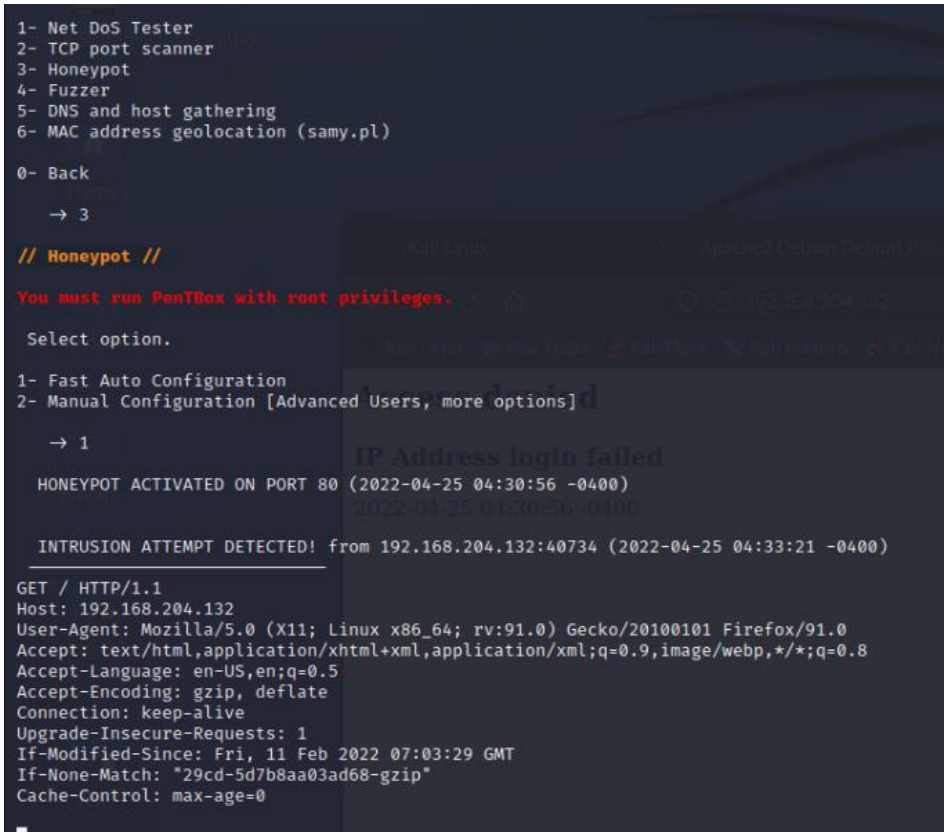


So, now we will get into prevention, How the user can prevent it or know the reverse connection has been made, for that, we can use pentabox, which offers a honeypot tool, that will work as an intrusion detection system and let the user know about the vulnerability and enhancing the security of the user.

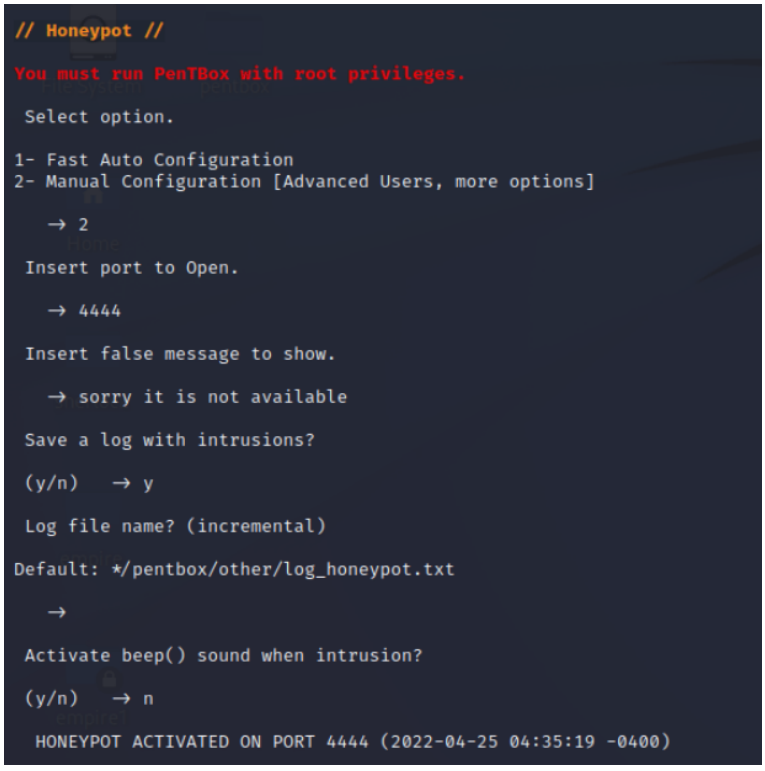
Installation of pentabox :

```
git clone https://github.com/technicaldada/pentbox

cd pentbox

tar -zxvf pentbox.tar.gz

cd pentbox

./pentbox.rb
```

Select Network Tools (2) and select (3) which is the honey pot

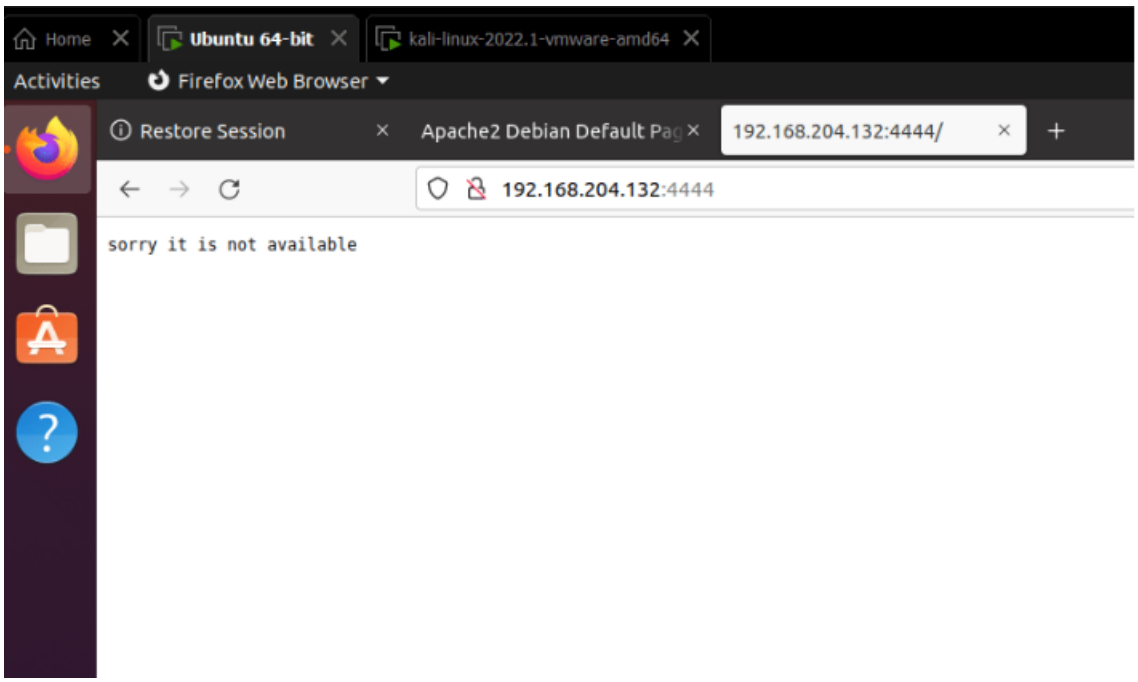


We can do auto-configuration, which will choose the IP and port automatically and get activated whereas in the manual we have to give the IP and port number along with alert buzzer functionalities etc, for better security.

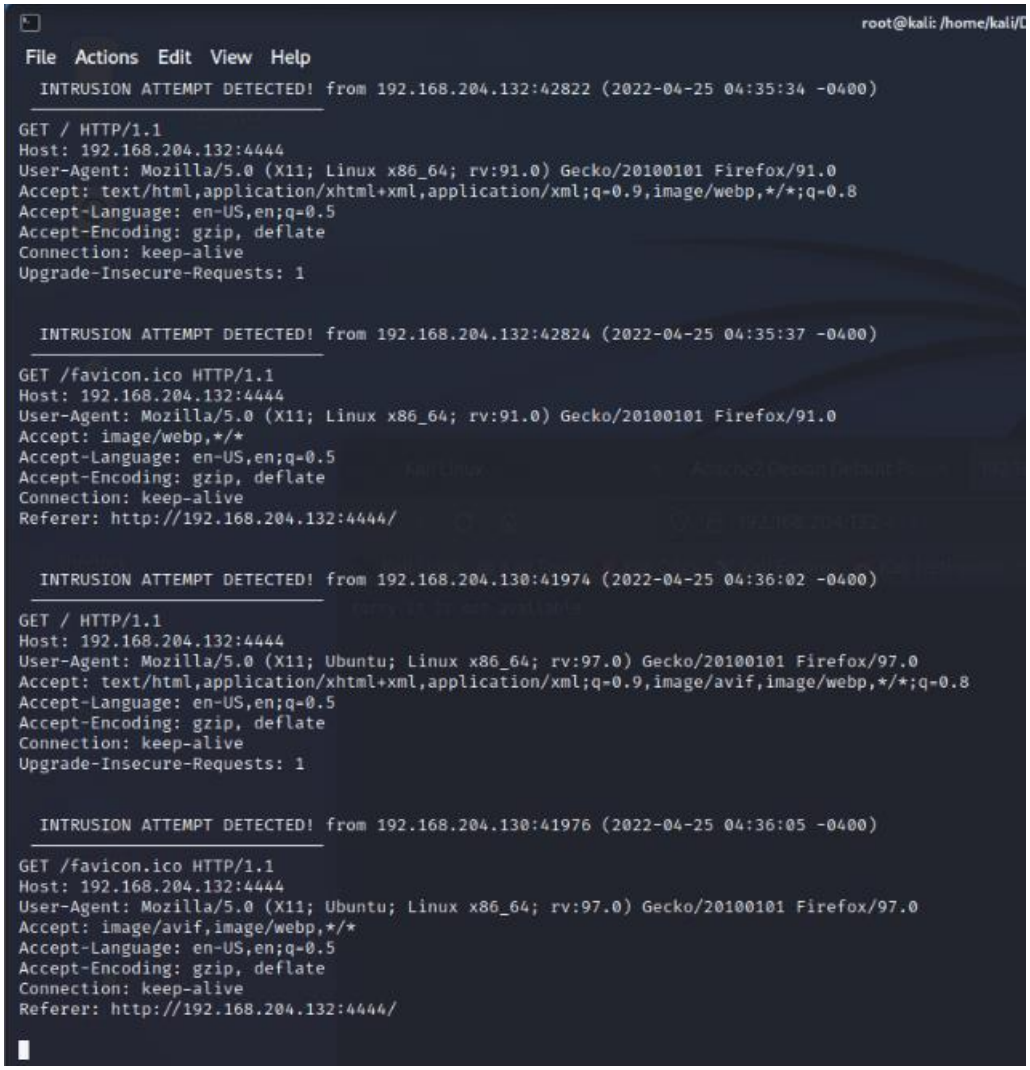


We can also give a custom message to be displayed at the attacker's end, making it cooler to use.

Attackers end :



User getting warning about the intrusion made by an attacker in user end :



By this, we can know the intrusion and take necessary steps to avoid the exploitation prompted by the attackers.

Conclusion

This project describes a real-world example of how attacks performed by attackers to explain users by social engineering and reverse connection, also users can safeguard themselves with honey pots which work along with a firewall in the network. The tools used in this project are a highly popular framework and have great community support for future references. Kali provides lots of tools and flexibility for an attacker and pentester to make the following test, like this project for covering up the water holes and other vulnerabilities.