Lab:
Social Engineering Attacks

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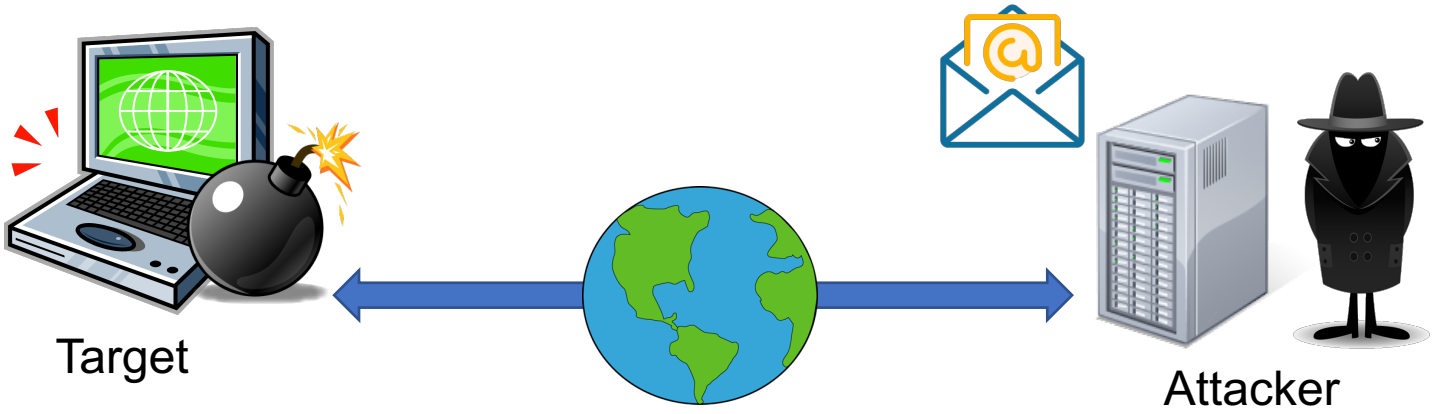
Kali Linux – offensive security

- Linux distribution maintained and funded by Offensive Security
- Designed for digital forensics and penetration testing
- Many security auditing tools are pre-installed and configured
  - exploiting a victim network or application
  - performing network discovery/scanning
  - scanning a target IP address
  - penetration testing
  - password crack

- https://www.offensive-security.com/kali-linux-vm-vmware-virtualbox-image-download/

Lab 1:
Social Engineering attack to gain remote target control

Remote target control via Social Engineering attack



SET: Social Engineering Toolkit

- Open-source penetration testing framework developed by David Kennedy (TrustedSec)
  - Teaching security
  - Corporate security assessment
  - Includes custom attack vectors to make a believable attack very fast
- Only for testing purposes
- Can only be used where strict consent has been given

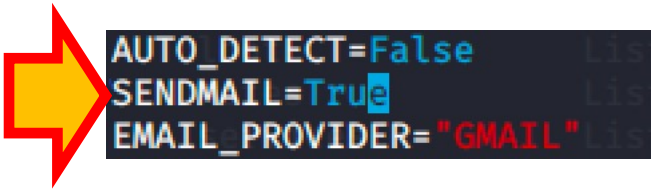
Manual installation

- Directly from sources
- Requirements:
  - Git
  - Python 3
  - Pip

```
git clone https://github.com/trustedsec/social-engineer-toolkit/
cd social-engineer-toolkit
pip3 install -r requirements.txt
python3 setup.py
```

Sendmail

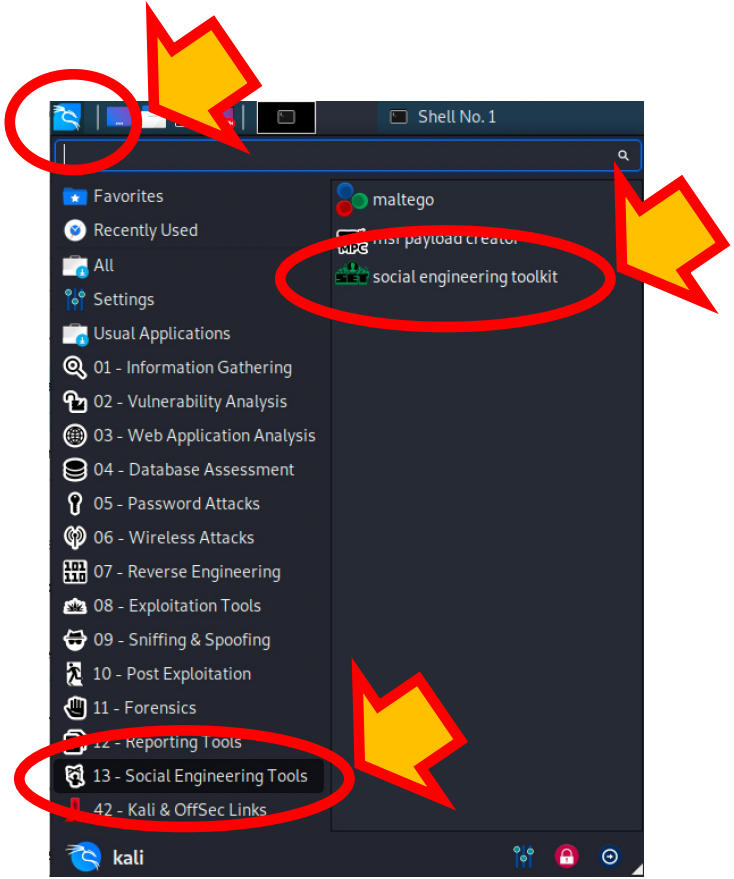
```
sudo apt-get update
sudo apt-get install sendmail
sudo vim /etc/setoolkit/set_config.py
```



Starting SET

- From the command line

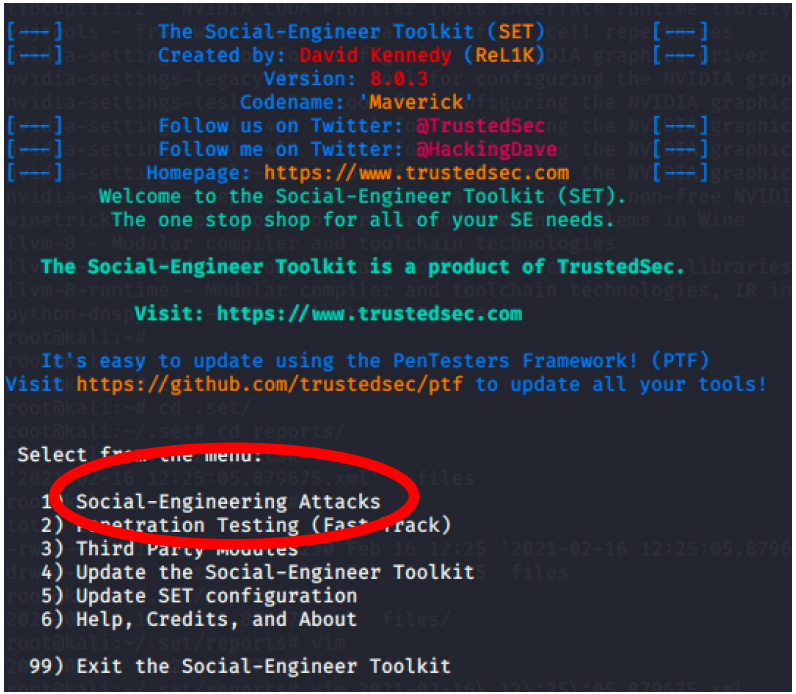
```
sudo setoolkit
```



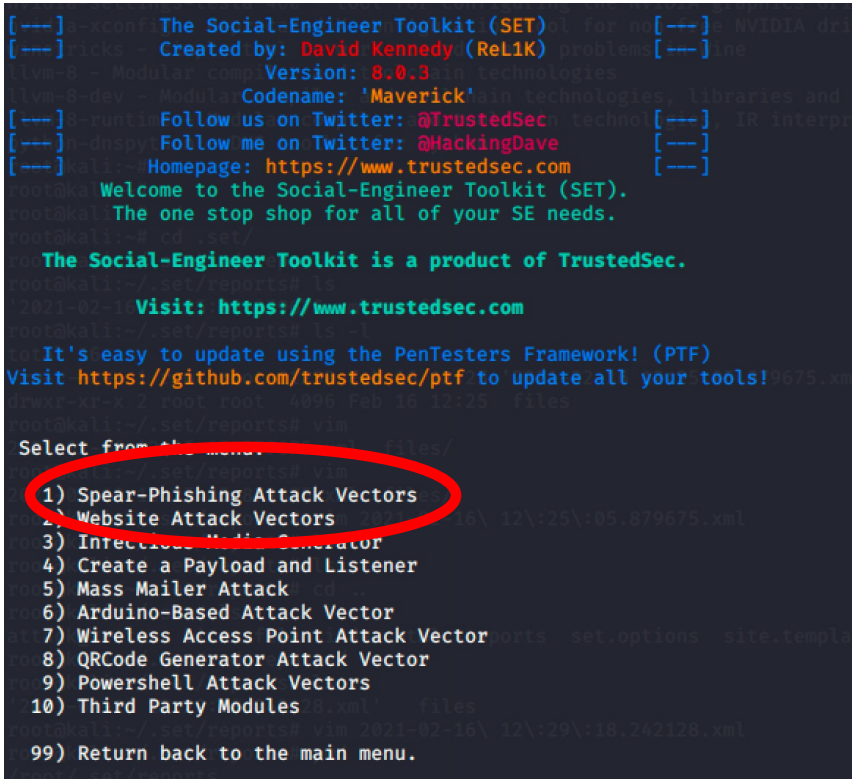
Confirming license & adoption

The Social-Engineer Toolkit is designed purely **for good** and not evil. If you are planning on using this tool for malicious purposes that are not **authorized by the company** you are performing assessments for, you are violating the terms of service and license of this toolset.
By hitting yes (only one time), you agree to the terms of service and that you will only use this tool for **lawful purposes only**.

Initial dashboard



Spear-Phishing Attack Vectors



Spear-Phishing Attack Vectors

- Creation of email messages (and sending them) with attached file-format malicious payloads.
- Sender email address can be spoofed
- E.g., sending malicious PDF document which, if the victim opens, it will compromise the system.
- Options:
  1. **Perform a Mass Email Attack**
  2. Create a FileFormat Payload
  3. Create a Social-Engineering Template

Perform a Mass Email Attack

1. SET Custom Written DLL Hijacking Attack Vector (RAR, ZIP)
2. SET Custom Written Document UNC LM SMB Capture Attack
3. MS15-100 Microsoft Windows Media Center MCL Vulnerability
4. MS14-017 Microsoft Word RTF Object Confusion (2014-04-01)
5. Microsoft Windows CreateSizedDIBSECTION Stack Buffer Overflow
6. Microsoft Word RTF pFragments Stack Buffer Overflow (MS10-087)
7. Adobe Flash Player "Button" Remote Code Execution
8. Adobe CoolType SING Table "uniqueName" Overflow
9. Adobe Flash Player "newfunction" Invalid Pointer Use
10. Adobe Collab.collectEmailInfo Buffer Overflow
11. Adobe Collab.getIcon Buffer Overflow
12. Adobe JBIG2Decode Memory Corruption Exploit
13. Adobe PDF Embedded EXE Social Engineering
14. Adobe util.printf() Buffer Overflow
15. Custom EXE to VBA (sent via RAR) (RAR required)
16. Adobe U3D CLODProgressiveMeshDeclaration Array Overrun
17. **Adobe PDF Embedded EXE Social Engineering** (NOJS)
18. Foxit PDF Reader v4.1.1 Title Stack Buffer Overflow
19. Apple QuickTime PICT PnSize Buffer Overflow
20. Nuance PDF Reader v6.0 Launch Stack Buffer Overflow
21. Adobe Reader u3D Memory Corruption Vulnerability
22. MSCOMCTL ActiveX Buffer Overflow (ms12-027)

PDF Embedded EXE - Available attacks

Attack	Description
Windows Reverse TCP Shell	Spawn a command shell on victim and send back to attacker
Windows Meterpreter Reverse_TCP	Spawn a meterpreter shell on victim and send back to attacker
Windows Reverse VNC DLL	Spawn a VNC server on victim and send back to attacker
Windows Reverse TCP Shell (x64)	Windows X64 Command Shell, Reverse TCP Inline
Windows Meterpreter Reverse_TCP (X64)	Connect back to the attacker (Windows x64), Meterpreter
Windows Shell Bind_TCP (X64)	Execute payload and create an accepting port on remote system
Windows Meterpreter Reverse HTTPS	Tunnel communication over HTTP using SSL and use Meterpreter

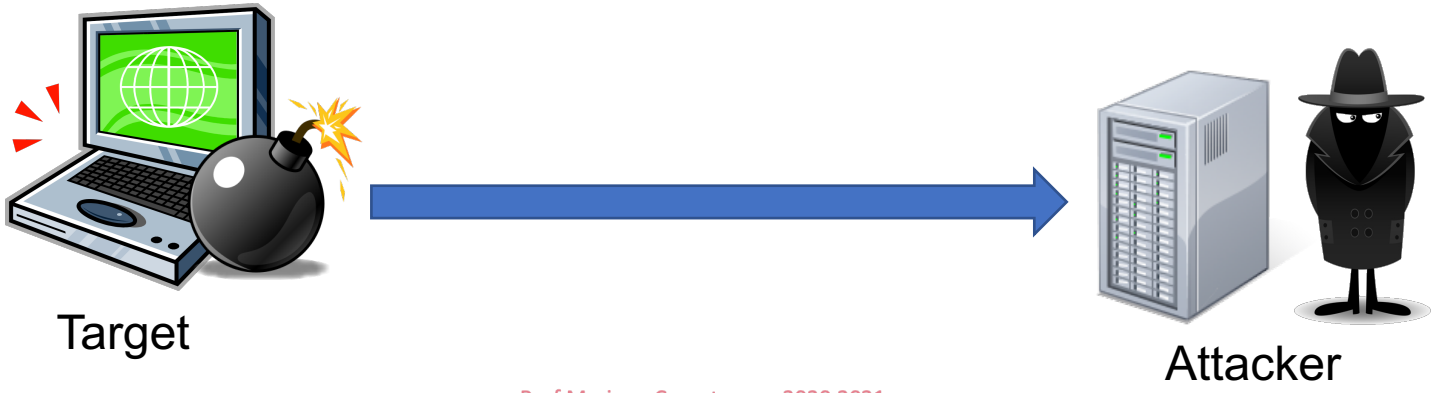
Meterpreter (Metasploit)

- Extensible console for controlling compromised remote hosts
- It communicates over socket and provides a comprehensive client-side Ruby API.
  - Command history, tab completion, channels, and more.
- In-memory DLL injection stagers and is extended over the network at runtime.

Target

How Meterpreter works

- The target executes the initial stager (possibly from a Social Engineering attack) and a DLL is load/injected
- The Metepreter core initializes on the target, establishes a TLS/1.0 link over the socket and sends a GET.
- Metasploit receives this GET and configures the attacker client.



Meterpreter features

STEALTHY

- Resides entirely in memory and writes nothing to disk
- No new process created
  - Meterpreter injects itself into the compromised process and can migrate to other running processes easily
- Meterpreter uses encrypted communications
- So, limited forensic evidence and impact on the victim machine

POWERFUL

- Meterpreter utilizes a channelized communication system

EXTENSIBLE

- Features can be augmented at runtime and are loaded over the network
- New features can be added to Meterpreter without having to rebuild it.

Meterpreter commands

Command	Description
help	display commands and description
background	Suspend Meterpreter shell process
cat	Display file content
cd pwd ls / lcd lpwd	Move in the target/attacker file system
clearev	Clear the *Application*, *System*, and *Security* logs on a Windows system
download/upload	Download/upload a file from/to the target to/from the attacker
edit	Open a file in the target
ipconfig	Network interfaces and addresses on the target
migrate	Migrate to another process on the victim.

Meterpreter commands

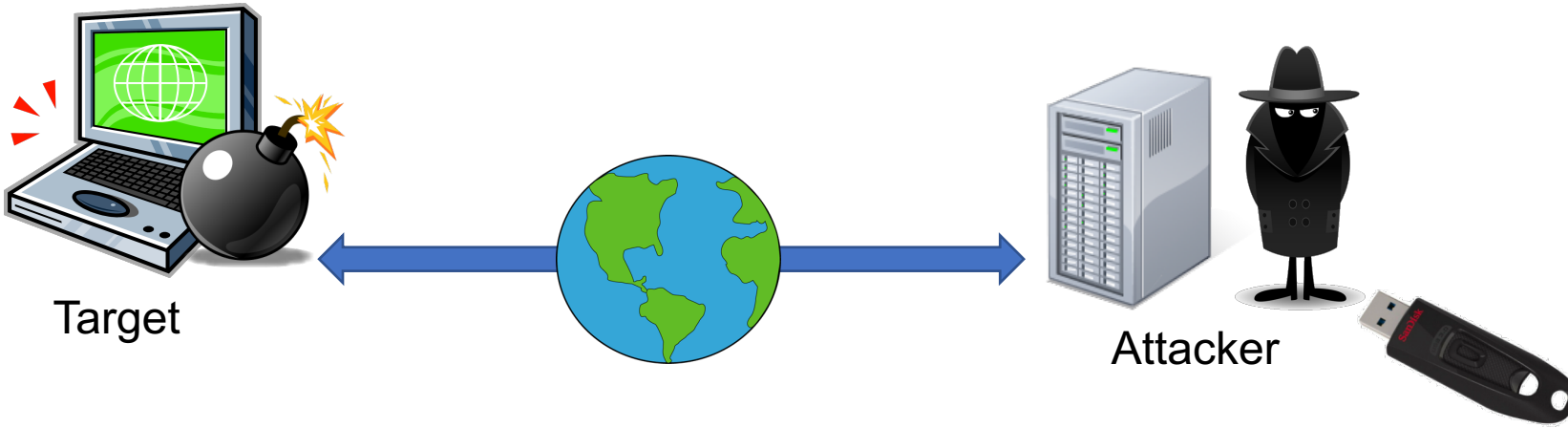
Command	Description
execute	Run a command on the target
ps	displays a list of running processes on the target
resource	Run the local Meterpreter script on the target host
search	locating specific files on the target host
shell	Opens standard shell on the target system.
webcam_list	display currently available web cams on the target
webcam_snap	grabs a picture from a connected web cam on the target

Exercise: Spear-Phishing Attack

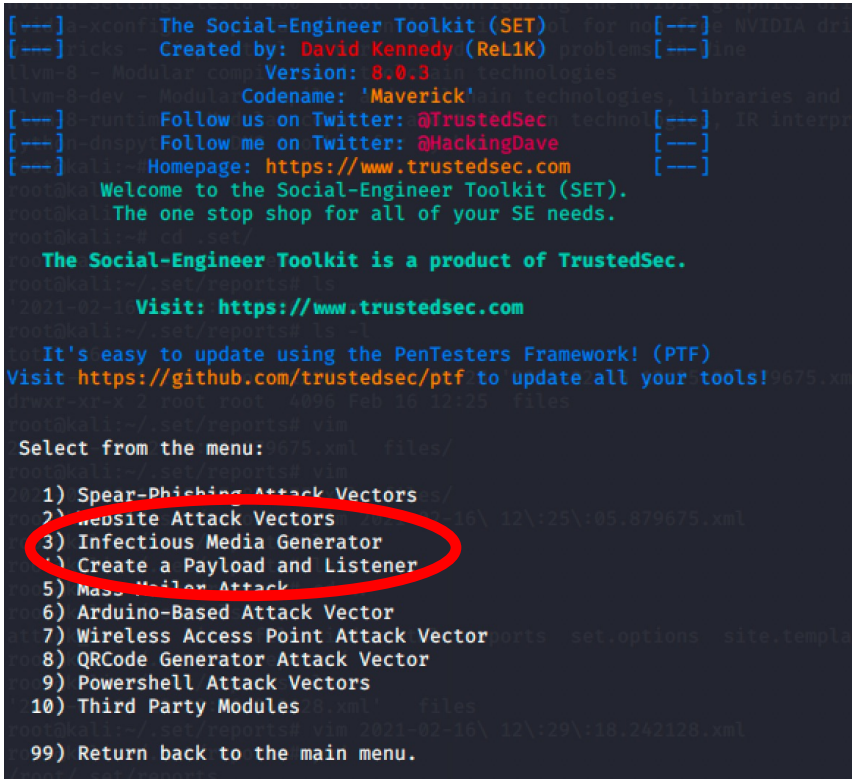
- Use a PDF document that looks realistic to the target (including file name)
- Use a custom email message content, that looks legitimate
- Send the email to an address own by you

Lab 2: malicious USB stick

Malicious USB stick



Infectious Media Generator



Available attacks

- File-Format Exploits
  - The USB stick contains a document that executes Meterpreter
- Standard Metasploit Executable
  - Meterpreter is run when the USB stick is connected

Payloads

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2. SET Custom Written Document UNC LM SMB Capture Attack
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4. MS14-017 Microsoft Word RTF Object Confusion (2014-04-01)
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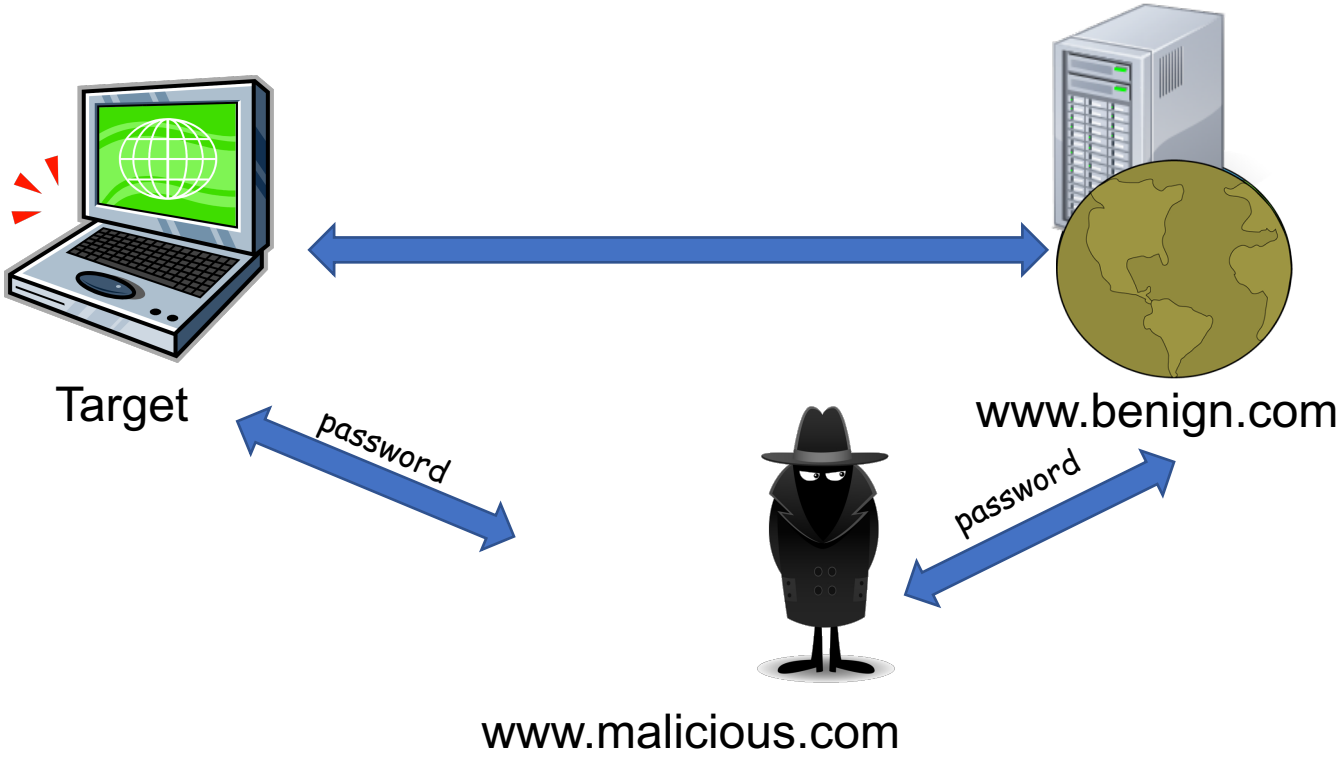
Exercise: Malicious USB stick

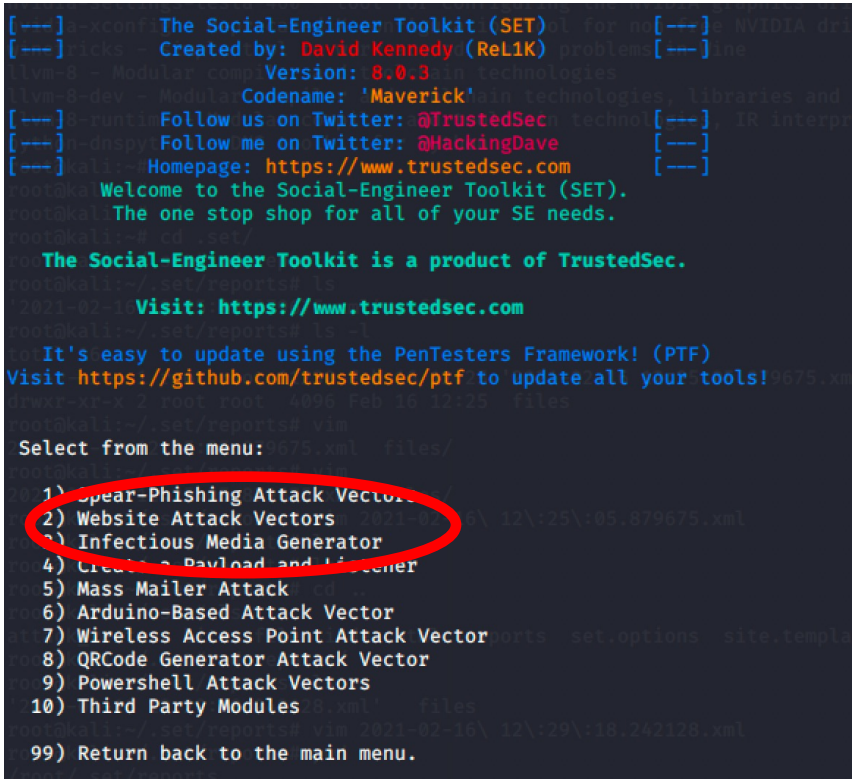
- Write a SUB stick hat run Meterpreter when connected

Lab 3: steal credentials

Phishing attack to steal credentials



Website Attack Vectors



Website Attack Vectors: Available attacks

Attack	Description
Java Applet Attack	Spoof a Java Certificate and deliver a metasploit based payload. Uses a customized java applet
Metasploit Browser Exploit	Metasploit browser exploits through an iframe and deliver a Metasploit payload.
Credential Harvester	**clone a website that has a username and password field and harvest all the information posted to the website**
Tab Nabbing	wait for a user to move to a different tab, then refresh the page to something different.
Web-Jacking Attack	iframe replacements to make the highlighted URL link to appear legitimate however when clicked a window pops up then is replaced with the malicious link.
Multi-Attack	combination of attacks through the web attack menu. For example Java Applet, Metasploit Browser, Credential Harvester/Tabnabbing all at once to see which one succeds
HTA Attack	clone a site and perform powershell injection through HTA files which can be used for Windows-based powershell exploitation through the browser

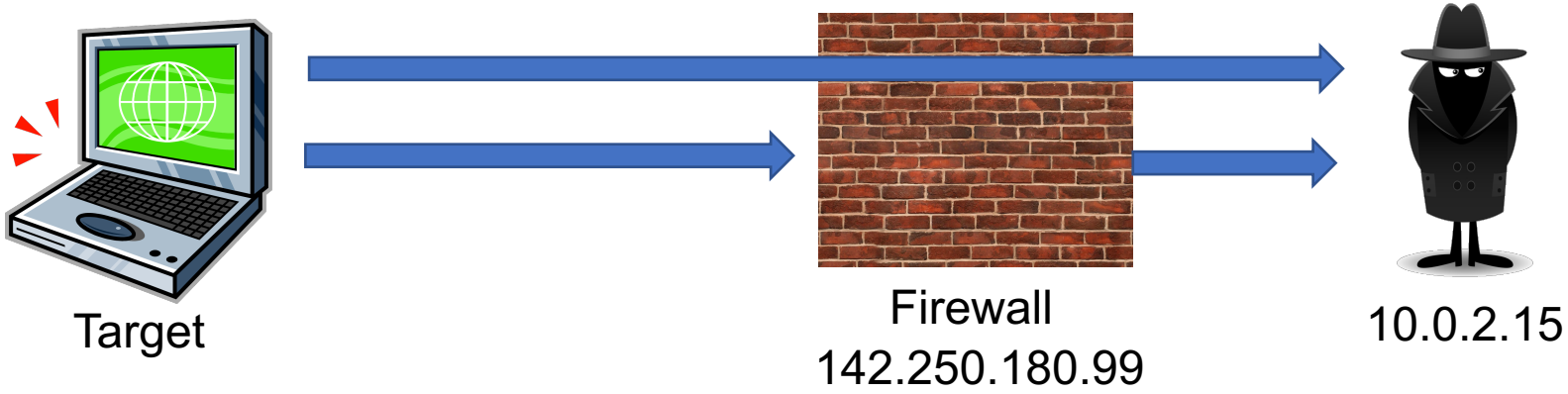
Credential Harvester

- Several options
  - Web Templates
  - Site cloner
  - Custom Import

- IP address for the POST back in Harvester/Tabnabbing
  - Your (attacker) address
  - In case of NAT (e.g., in virtualbox) or firewall, you should set port forwarding
- The url to clone

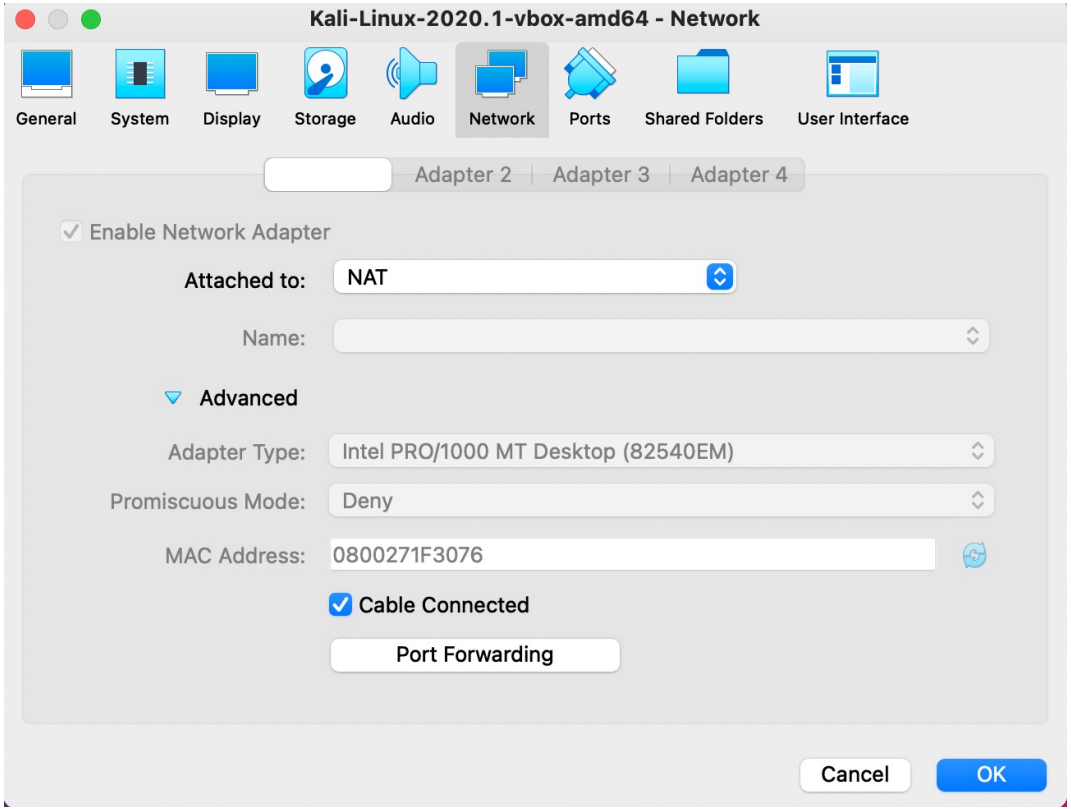
- Share a link containing your (attacker address) and make the victim use it
- Collect credentials
  - In the screen log
  - In the attack report /root/.set/reports

Port forwarding




```
Port forward rule:
142.250.180.99:80 → 10.0.2.15:80
```

Port forwarding in VirtualBox



- Name: a label for the rule
- Protocol: TCP
- Host IP: address of your computer
- Host port: 80
- Guest IP: address of kali VM
- Guest port: 80

Exercise

- Clone the UNIVR authentication service
  - https://giasso.univr.it/opensso/UI/Login
- Try and steal (your own) password