Cloning Mac Address Results Review

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Abstract

Every network interface has a media access control (MAC) address. Network interface cards come from the factory with a unique MAC address associated with the hardware. Most network cards and routers allow one to set a custom MAC address [1], overriding the MAC address present in the hardware. Cloning a MAC address, or changing the MAC address on one device to the MAC address associated with a different device, can be useful when an Internet connection is associated with a particular MAC address and that MAC address is no longer existed in the network. On the other hand if the ISP blocked the Mac address of the original device, changing Mac address is efficient way to communicate to the internet. Another function of cloning MAC address is used to jam the network with the IP address conflict associated with two devices.

Keywords: Mac; Ip; Router; Clone; Address.

1. What mac addresses are used for?

At the lowest networking level, network interfaces card attached to a network use MAC addresses to communicate with one another. When a browser on computer needs to grab a web page from a server on the Internet, then that request passes down through several layers of the TCP/IP protocol and the web address that is typed gets translated to the IP address of the server. Then the computer sends the request to the router, which then sends it out onto the Internet. At the hardware level of the network card, though, the network card is only looking at other MAC addresses for interfaces on the same network [2].

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It knows to send the request to the MAC address of the router's network interface. In addition to their core networking use, MAC addresses are often used for other purposes:

- **Static IP Assignment**: Routers allow one to assign static IP addresses to computers. When a device connects, it always receives a specific IP address if it has a matching MAC address [3].
- **MAC Address Filtering**: Networks can use MAC address filtering, only allowing devices with specific MAC addresses to connect to a network. This isn't a great security tool because people can spoof their MAC addresses [4].
- **MAC Authentication**: Some Internet service providers may require authentication with a MAC address and only allow a device with that MAC address to connect to the Internet.One may need to change one's router or computer's MAC address to connect [5].
- **Device Identification**: Many airport Wi-Fi networks and other public Wi-Fi networks use a device's MAC address to identify it. An airport Wi-Fi network might offer a free 30 minutes and then banned MAC address from receiving more Wi-Fi. Changing MAC address and could get more Wi-Fi [6]. (Free, limited Wi-Fi may also be tracked using browser cookies or an account system.)
- **Device Tracking**: Because they're unique, MAC addresses can be used to track a person. When one walks around, smart phone scans for nearby Wi-Fi networks and broadcasts its MAC address. A company named Renew London used trash bins in the city of London to track people's movements around the city based on their MAC addresses. Apple's iOS 8 will use a random MAC address each time it scans for nearby Wi-Fi networks to prevent this sort of tracking [7].

2. How to find mac address?

MAC stands for Media Access Control or Physical Address in general [8]. MAC address can be access through operating system by using commands. IP addresses, MAC addresses are all unique. They all follow the same set of rules when it comes to format.

For Windows-in CMD: type

- getmac

Figure 1: Mac Address

- arp –a ip (ip of a particular device)

Figure 2: Mac Address

- ipconfig /all

Figure 3: Mac Address

- net view

Shows IP of all computers running under a router in proxy server.

- Later type: nbtstat –a –ip

Shows MAC address of intended IP.

Figure 4: Mac Address

For linux: in terminal type

- ifconfig -a

3. How to find ip address?

An Internet Protocol address (IP address) is a numerical view of assigned to each device connected to a computer network that uses the Internet Protocol for communication in a particular network. An IP address used for two principal functions: host or network interface identification and location addressing.

Internet Protocol version 4 (IPv4) defines a 32-bit number as an IP address. Because of the growth of the Internet communication and the depletion of available IPv4 addresses, a new version of IP (IPv6), using 128 bits for the IP address. IP addresses are usually written and displayed as *172.16.254.1* in IPv4, and *2001:db8:0:1234:0:567:8:1* in IPv6.

To find IP address:

For Windows-in CMD: type

- ipconfig or ipconfig -a

```
C:\Users\fuad>ipconfig

Windows IP Configuration


Ethernet adapter Local Area Connection:

    Connection-specific DNS Suffix  . :
    Link-local IPv6 Address . . . . . : fe80::8874:668:5496:8a0b%11
    IPv4 Address. . . . . . . . . . . : 192.168.1.105
    Subnet Mask . . . . . . . . . . . : 255.255.255.0
    Default Gateway . . . . . . . . . : 192.168.1.1
```

Figure 5: IP Address

- tracert web address

```
C:\Users\fuad>tracert www.google.com

Tracing route to www.google.com [172.217.194.99]
over a maximum of 30 hops:

  1    <1 ms    <1 ms    <1 ms  192.168.1.1
  2     2 ms     1 ms    <1 ms  ^C
C:\Users\fuad>
```

Figure 6: IP Address

Ping web address:-

```
C:\Users\fuad>ping www.google.com

Pinging www.google.com [172.217.194.99] with 32 bytes of data:
Reply from 172.217.194.99: bytes=32 time=52ms TTL=42
Reply from 172.217.194.99: bytes=32 time=52ms TTL=42
Reply from 172.217.194.99: bytes=32 time=52ms TTL=42
```

Figure 7: IP Address

For linux: in terminal type

- ifconfig or ifconfig –a
- ip addr (in latest version)

4. CASE STUDY

We are able to find MAC address and IP address of one PC or Router. Now we see how it is used for network jam. In [Figure-8] IP address & MAC address of one Router's are shows (by default Routers IP ADDRESS is 192.168.1.1).Now if we make a separate Router Or Pc have the same IP & MAC address, the Lan Network Will Be Down Instantly. No internet service will be available then.

For Windows-in CMD: type

- arp –a

```
C:\Users\fuad>arp -a

Interface: 192.168.1.105 --- 0xb
  Internet Address      Physical Address      Type
  192.168.1.1           c8-e7-d8-98-d8-2a     dynamic
  192.168.1.255         ff-ff-ff-ff-ff-ff     static
  224.0.0.2             01-00-5e-00-00-02     static
  224.0.0.22            01-00-5e-00-00-16     static
  224.0.0.252           01-00-5e-00-00-fc     static
  239.255.255.250       01-00-5e-7f-ff-fa     static
  255.255.255.255       ff-ff-ff-ff-ff-ff     static

Interface: 169.254.157.158 --- 0xd
  Internet Address      Physical Address      Type
  169.254.255.255       ff-ff-ff-ff-ff-ff     static
  224.0.0.2             01-00-5e-00-00-02     static
  224.0.0.22            01-00-5e-00-00-16     static
  224.0.0.252           01-00-5e-00-00-fc     static
  255.255.255.255       ff-ff-ff-ff-ff-ff     static
```
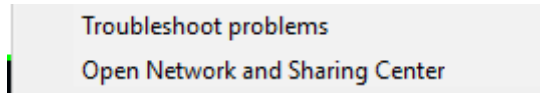
Figure 8: Ip Address

We can set IP address manually but the things is how we can Clone MAC address to make a separate PC or Router have the same MAC address.

➢ Now in order to change the MAC address in WINDOWS 10, we need to right click on network icon in the taskbar

> Troubleshoot problems
>
> Open Network and Sharing Center

➢ Open **Change Adaptor settings** and right click on the network adapter we wish to change the MAC
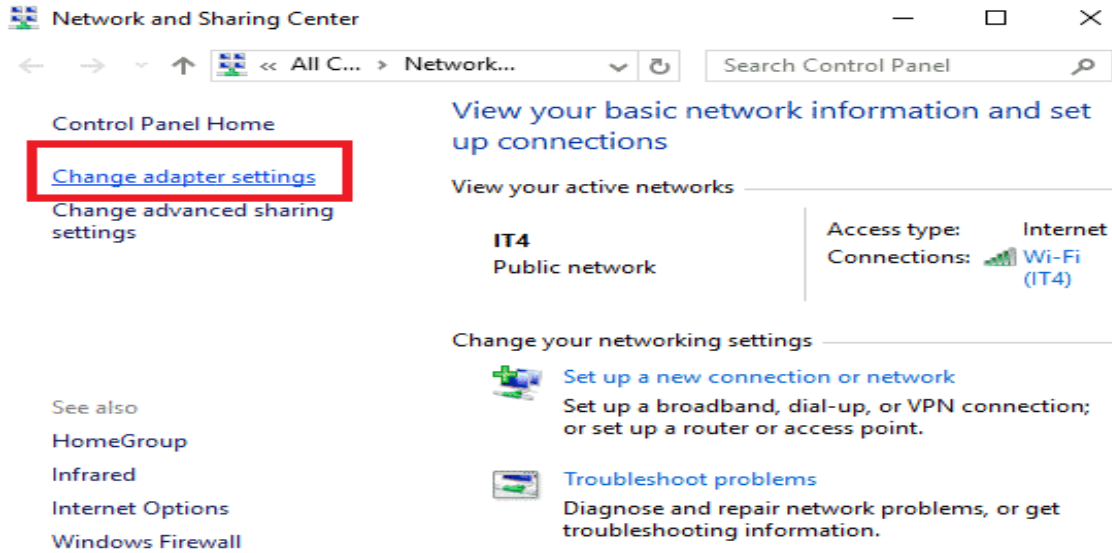
Figure 9: Cloning Mac Address

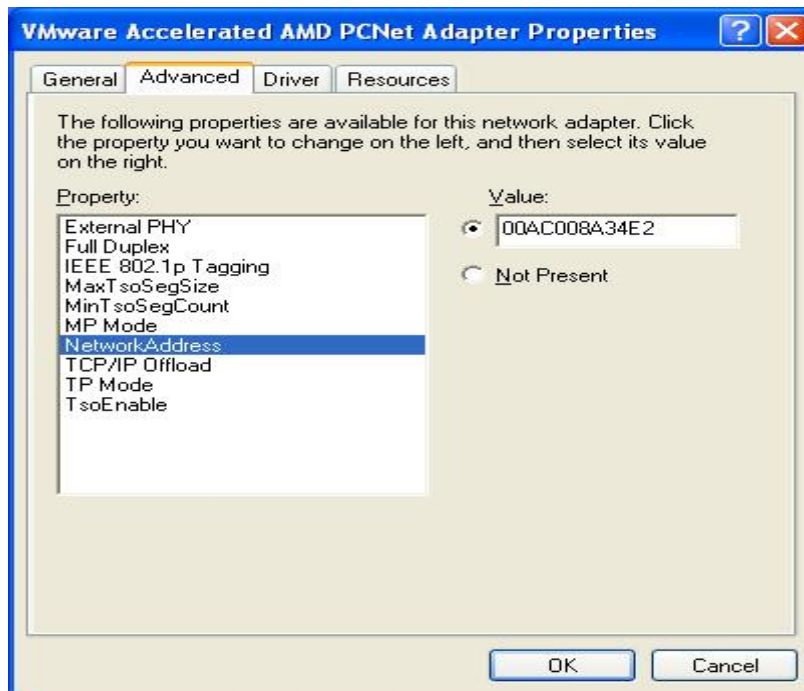➢ Click on configure and under the Advanced tab search for Network Address and change the value without "-".

Figure 10: Cloning Mac Address

5. Limitations

After jamming network we can recover it easily by making change in IP settings & Mac address. If the LAN is monitored by a third party software, the cloning MAC address & IP address both are visible as a duplicate with the original, but the jamming Router or PC cannot be traceable within the Lan network.

6. Conclusion

MAC is unique, but now we know the way of making MAC address clone of any PC or Router. we also know how to make duplicate of the same IP. By making MAC address cloning & IP address conflict, any one can jam the Router & make internet service unavailable to all computers in local LAN easily.

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