

Empty Subnets For Fast Net

Who Doesn't Like Speed?

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1 A Way To Bypass DHCP Server Loads

The trick depends on your router and how near is the network tower and where you placed your router . Every isp (iam,inwi,orange) place there towers in every major region in the city but in some cities there's only few towers (1-3) from one ISP that are covering the entire city. Each tower accepts a certain amount of clients which then transfer them to the nearest switching office, that will assign each client a specific IP Address. Those Switching Offices which mostly located in **Big Cities Like Casablanca/Rabat/Tanga/Marrakech ..** have pools dedicated to their client, each pool holds a **DHCP Server** with specific sub-nets.

An Example Of A Sub-net:

```
{ "interface": "inwi_wir1"
  "description": "Wireless CLients"
  "ip address": "109.1.100.1" "255.255.255.0"
  "ip helper-address": "10.1.5.20"
}
```

In this example sub-net gateway address 109.1.100.1 hold up-to 254 clients, long story short the more clients connected to that sub-net the slower the speeds.

Yet that's not the only cause, the distance between you and the cell tower plays a big roll, the far it is the more suffering you'll get.

1.1 What to do ?

The first thing is to check where is the nearest cell tower and which direction is it placed , there's an app called [Cell Tower Locator](#) which gives you the exact location and which isp owns it. If you're placing your router in-doors there's a high chance even if you followed the steps below nothing will change but don't let your hopes down its better to try things rather than do nothing. My Personal setup is quite complicated little bit, since i have set up my router in the balcony at a high altitude and in the open (keep in mind i live in 3rd floor, so i have a higher coverage). Router Antennas do not work well if you don't line them up directly against cell tower direction, so make sure they're lined up, like you see below i don't use them because i tend to live near a cell tower.



1.2 How to identify which sub-net your in?.

Quick look up in to <https://ipinfo.io/> will show your ip,isp,asn and what switching office you're connected from, and if you scrolled down you'll find the route but it does not contain alot of info we want.

```
ip: "192.168.1.85"
city: "Casablanca"
region: "Casablanca-Settat"
country: "MA"
loc: "33.5732, -7.6001"
org: "AS36884 Wana Corporate"
timezone: "Africa/Casablanca"
asn: Object
  asn: "AS36884"
  name: "Wana Corporate"
  domain: "inwi.ma"
  route: "192.168.1.0/23"
  type: "isp"
company: Object
  name: "Wana Corporate"
  domain: "inwi.ma"
```

We'll use our asn and list all the sub-nets .

```
asn: "A"
name: "Wana Corporate"
country: "MA"
allocated: "20071228"
registry: "afrinic"
domain: "inwi.ma"
num_ips: 1392640
type: "isp"
prefixes: Array
  0: Object
    netblock: "110.110.0.0/12"
    id: "WANA-INWI-IPV4-2014"
    name: "Wana Corporate"
    country: "MA"
    size: "1048576"
    status: "ALLOCATED PA"
```

We'll take our ip and do a quick search and will see now which DHCP Sub-nets and how much clients can connect .

```
$ whois 110.110.0.0
This is the AFRINIC Whois server.
The AFRINIC whois database is subject to the following terms of Use. See https://afrinic.net/whois/terms
Note: this output has been filtered.
To receive output for a database update, use the "-b" flag.
Information related to '110.110.0.0 - 110.110.255.255'
No abuse contact registered for 110.110.0.0 - 110.110.255.255
inetnum: 110.110.0.0 - 110.110.255.255
netname: INWI-Internet
descr: This subnet is dedicated to 26/36/46 customers
country: MA
admin-c: ANZ-AFRINIC
tech-c: ANZ-AFRINIC
status: ASSIGNED PA
mnt-by: MCMNET-MNT
source: AFRINIC # Filtered
parent: 0.0.0.0 - 255.255.255.255
person: Ahmed NASSIRI
address: Angle Rue oumayma sayeh et mansour saadi
quartier racine residence courteline casablanca
phone: tel:+212-959230
fax-no: tel:+212-390552
nic-hdl: ANZ-AFRINIC
mnt-by: GENERATED-GITF2Q5VE3HJQ08RJEYP2ZAVNCAKASAS-MNT
source: AFRINIC # Filtered
Information related to '110.110.0.0/12'
route: 110.110.0.0/12
descr: Provider Wana Corporate
origin: MCMNET-MNT
source: AFRINIC # Filtered
```

You can see the range of our sub-net which is something like **110.110.0.0-110.110.40.255** this means there's 40 sub-nets each sub-net has maximum clients of 254, the first few sub-nets are actually the fastest according to my own **tests** i did over a week of switching between different sub-nets each day, however even if you're not on the first few but you're one of the first 10 clients on that sub-net that means the sub-net is still empty and not over-loaded (Thats

right, it is not random ip assign I've scanned multiple sub-nets, ip assignment are in order) and that's exactly what we want.

1.3 How to change our sub-net ?

Unfortunately we cannot pick which sub-net we want, its DHCP Server's Job he controls which client goes to where. However tho it doesn't matter as we know which sub-net's are faster and not over-loaded and all we need to drop our current sub-net. As Inwi ,Orange ,IAM made a partnership with Huawei they deploy **Huawei Routers** to their customers and for this reason we'll take use of an app called **AI Life** that is made by *Huawei* to manage devices such as our Router. If you don't wanna install the AI Life just browse to your router's admin page and follow the steps below.

1. Open AI Life (Or Browse to admin...), It will detect your router, click it and type your admin's password.
2. Click On **Show More And To Advanced Settings**
3. Enable **Data Roaming**, **Why** This will make use of the nearest cell tower even if it is not your isp's (Don't worry it's **FREE** and won't get charged for it)
4. Click On **Carrier** And Change **Preferred Network** To 4g Only. In **Carrier** You'll find an option called **Network Search** Click it and wait, it will always shows inwi or orange or iam because that's the isp's you're subscribed to. **Why** this will change which sub-net we are in to another one.
5. Check **How?** Check if your sub-net is one of the first few we saw earlier in ipinfo and do a speed-test to measure the speed and notice how your ping speed is (mine is around 20-24ms) if you got something larger than 80ms that's pretty bad. And Check the signal if its high or low (use AI Life which has *Test Signal* Function really good)
6. Still slow? **RETRY** (if my net is still slow i try the procedures multiple times till i get the finest speeds)

ISP's use dynamic IPS so they change your ip address constantly mostly every-day at night when nobody is using the internet **WHY** there's alot of reasons for that (google it to understand why). But the most important thing is when your ip is changed your sub-net as well thus back to the original state it was. However even if its changed you can always test your connection speed first before doing anything cuz sometimes there's no effect . Mine Personally doesn't change unless i had to shutdown my workstation (with runs 24/7d) at night or something happened.

1.4 I've tried everything but no change!

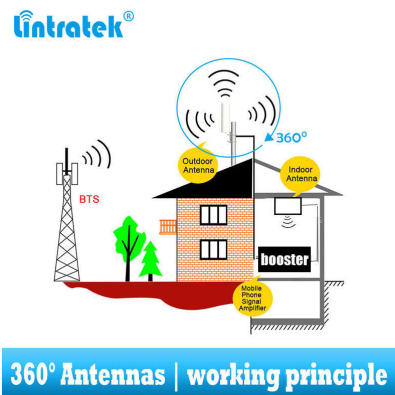
There's few causes for this .

- My routers is in-doors behind concrete (there's coverage but low signal)

- Cell Towers are very far from where i live
- I live in a neighborhood surrounded by buildings
- you have orange subscription (there's data limit to 80gb, bad choice!)

1.4.1 Fixes To Previous Issues.

Range Extenders, I'm not talking about those stick antennas that place in your router No! There's Omnidirectional outdoor antenna which cost about 300dh that you setup in your house's roof or in the balcony or somewhere with high altitude (waterproof) while keeping your router inside.



2 Conclusion

If you live in a big city where **fibre** is available, why not switch to it rather than using 4g, I've been in pain even having good internet speeds i don't like it because it is not an ideal solution, I'm only sticking to it because where i live there's no fibre nor ADSL so that's my only solution. If you are worried about the price of fiber, its ridiculous the amount you pay for 4g service is the same as fibre, well for *orange* and *inwi* but don't let this be a cause to stop you from getting fibre its cheap, reliable, fast.

If you got any ideas or there's something wrong here, please fell free to mail me at [My Mailbox](#) .