Demystifying Networking
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Lecture – 30
Addressing a local network and DHCP

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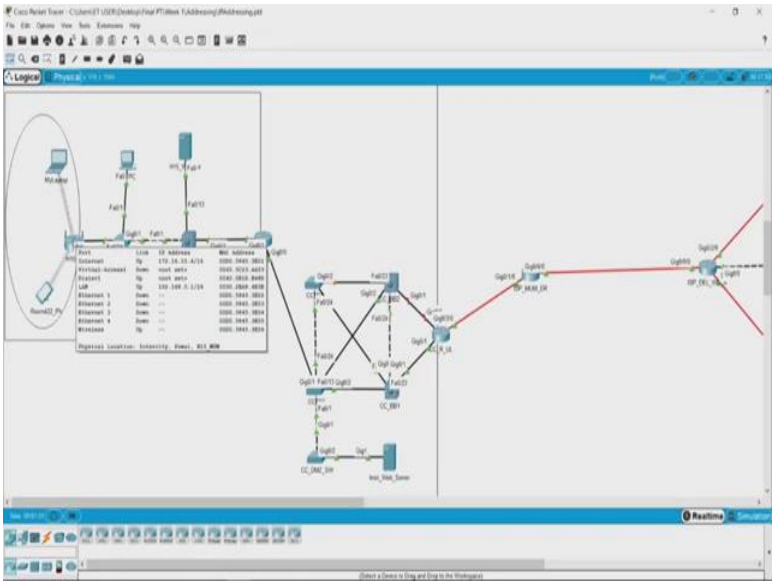

So, if you ever have looked at a configuration interface of a home Wi-Fi router, it looks something like this.

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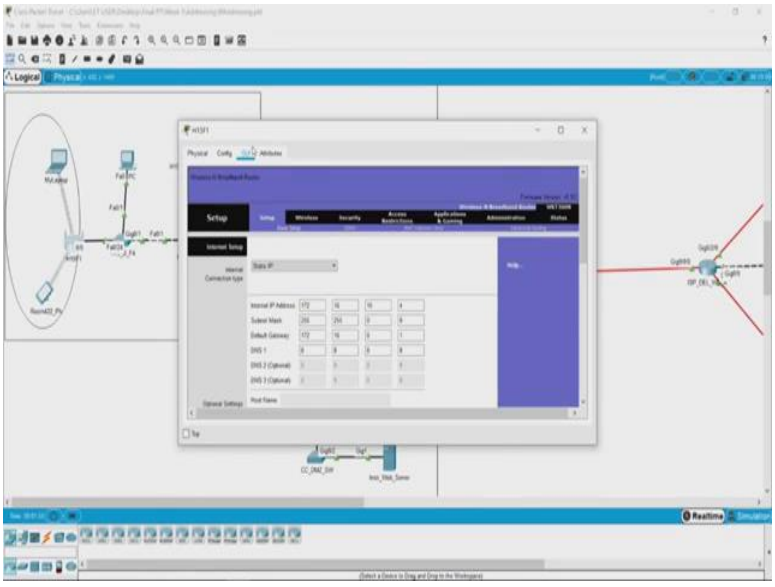

So, you have something called the internet setup and the network setup. So, internet is basically the outward side of your router which is in the case of home router, your internet service provider and the inward side which is where your Wi-Fi device is connect, is your local area network.

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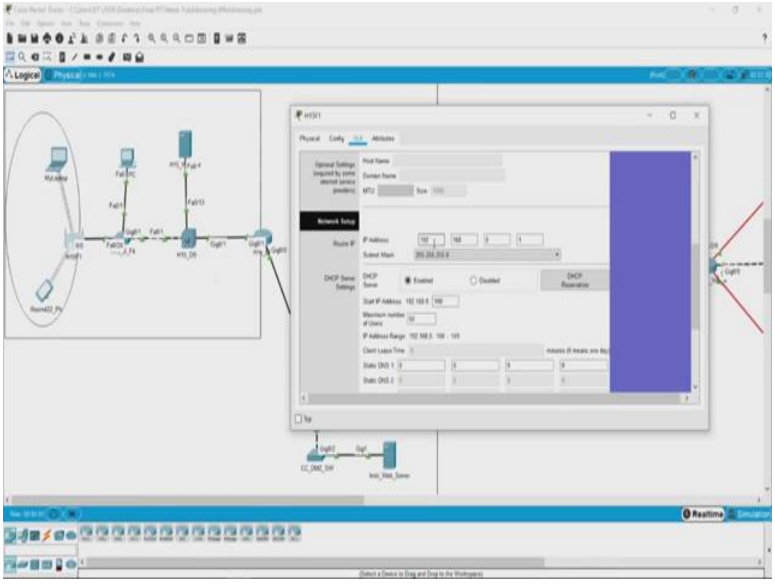

So, your network setup basically gives IP addresses to the devices connected to the router in the Local Area Network or LAN. And the internet setup basically gives the IP address from the service provider. Now, here what we see is, this particular router is connected to the hostel network. And, it has been given an address of 172.16.15.4. So, when we see the subnet mask here, we see that any address which has 172 16 0 to 255 here or 0 to 255 here,belongs to the same network.

So, you have a lot of IP addresses available here, which is good enough for, say a network for a hostel. Now, this IP address is the outward IP address of a router. Now when we look at the network setup, so here what we have is, all the devices that connect to the wireless router and which in turn, connects them to the internet. So, all these network devices have been given a separate set of IP addresses.

So, what we see here is, and a point also to notice that, no two interfaces of a router can fall in the same network. So, what the router does? It connects two different networks. So, two interfaces of a router cannot fall in the same network. Now here we see is, in the local area

network we have the network, 192.138.0.1 with this subnet mask, that means, we can have 255 addresses in this address, in this network address.

Something interesting that we see here is, something called DHCP, a Dynamic Host Configuration Protocol. Now, this is what enables us to dynamically assign IP addresses to devices as they connect. So, here the setting says that, the starting IP addresses for DHCP would be 192.168.0.100 and maximum number of users that it could assign IP addresses dynamically, would be 50. Now, typical home Wi-Fi router can sustain up to somewhere around 15 to 20 devices. So, 50 would be a good enough number for a typical Wi-Fi router.

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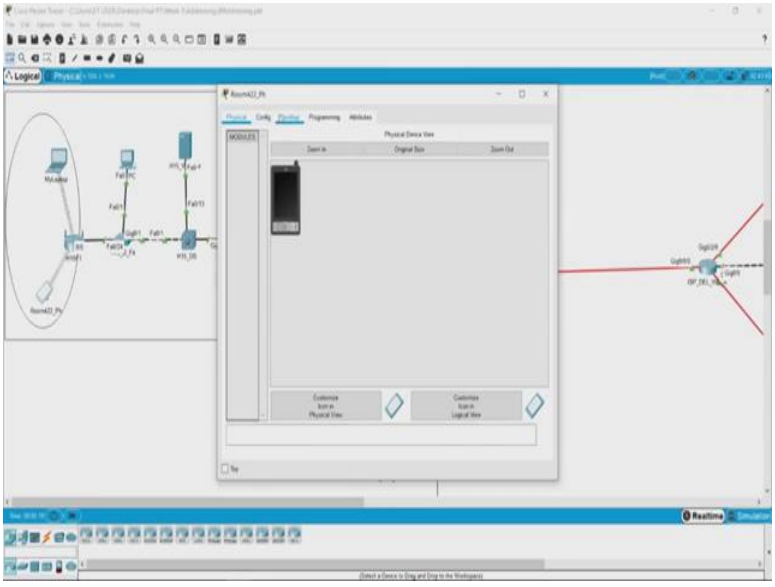

So, as soon as the devices connect to this Wi-Fi router, they are automatically assigned a IP address by the router.

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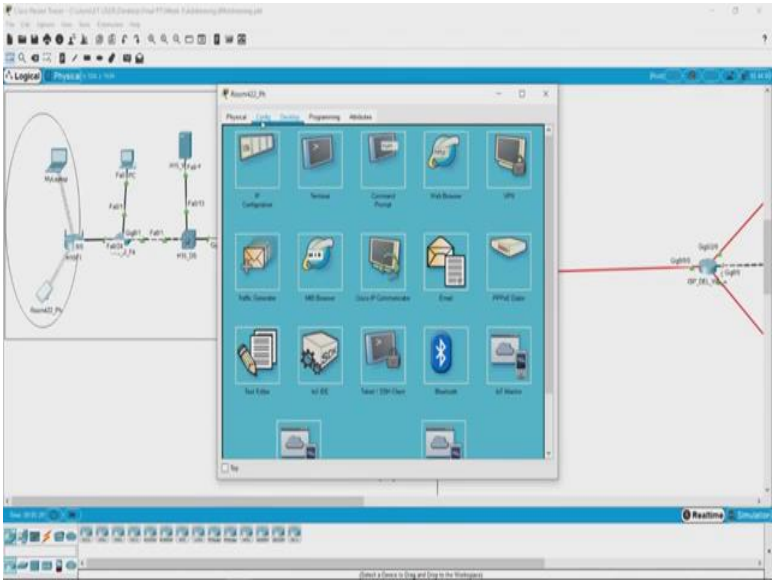

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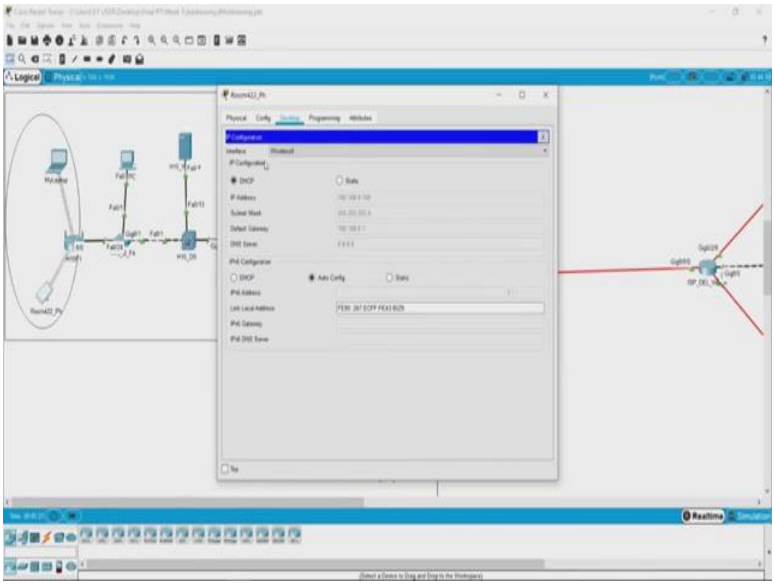

Now, let us look at this device and the IP address which has been assigned. So we see here, DHCP has been activated. So, what we see here is that DHCP has assigned the IP address 192.168.0.100 with the same subnet mask and default gateway is the IP address of the router itself, which we saw when we were looking at the routers configuration page. Now, that we have seen DHCP is able to assign addresses dynamically. Now, let us see what happens when we have to assign IP addresses manually.