Demystifying Networking
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Lecture – 28
Network addresses and Private networks

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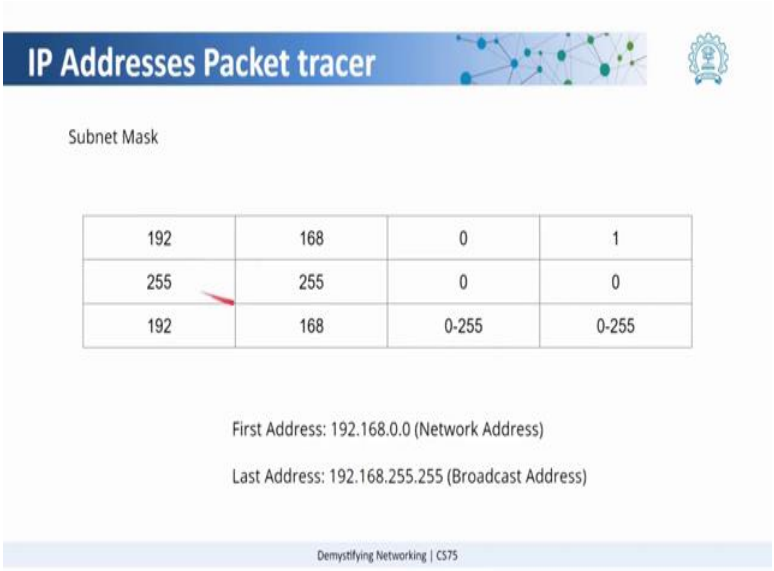

So again, as we saw here, if it is 255 here 255 here 0 and 0 here, that means, the IP addresses which could take values from 0 to 255 in this octet as well as 0 to 255 in this octet would fall under the same network. Like, 192.168.0.0 with the network address and here the broadcast address becomes 168.255.255. So, any IP address between these two IP addresses would fall in the same network, if they are carrying the subnet mask.

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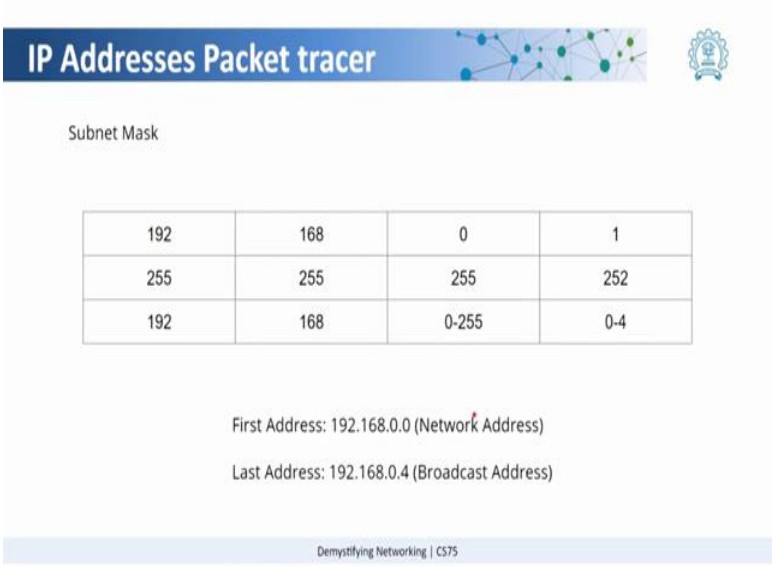

Now similarly, let us look at a different kind type of a subnet mask. Here if we have 252, so, here we can only have four options 0 to 4 where, 0 and 4 will be taken up as network and broadcast addresses. So basically, you have only two usable IP addresses. So, could you guess, which would be a ideal situation to use such kind of a network?

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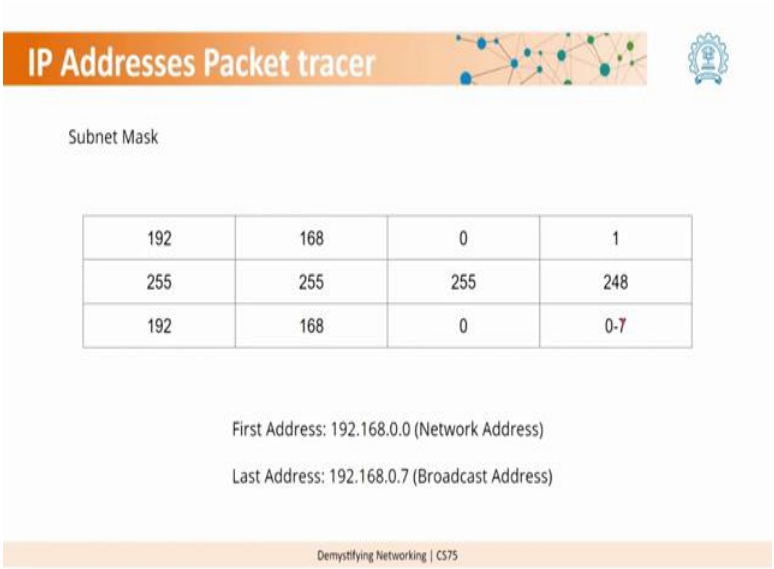

Now, this is a nice time to look at a question. So, the question here is, if the network mask was 248 how many addresses would we have here and what would be the network address and what would be the broadcast address? So, pause a video for a while, think about it and once you have

your answer, take a note of it and then proceed. So what we saw here is, net mask of 248 would allow us 8 numbers that could be used. Now among that 0 and 7 would become the network and broadcast addresses, so, you would have a total of 8, sorry, 6 usable IP addresses.

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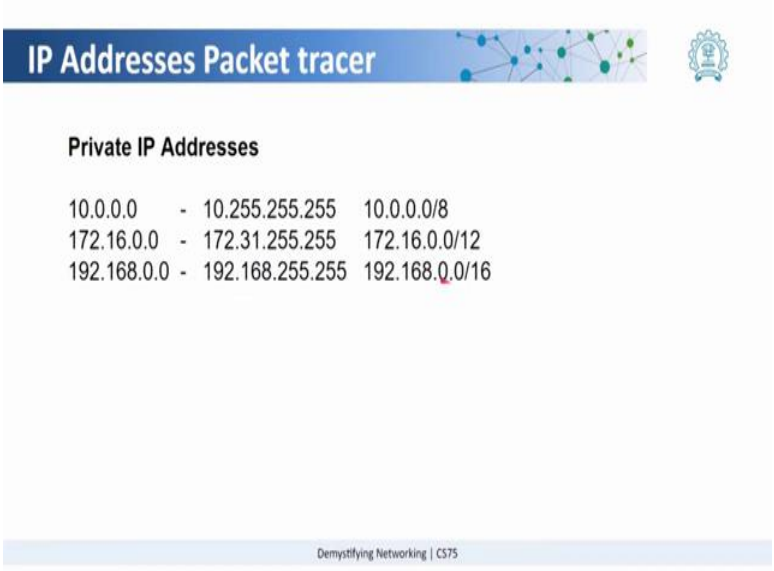

Now, this is another form of representing a network mask. For example, for a network which starts from 10.0.0.0 to 10.255.255.255, you could represent it as 10.10.10.10/8 where, 8 represents the total number of trailing 0s. So, here a subnet mask would be 255.0.0.0. So, that has been represented by '/8'.

Similarly we have '/12' and '/16'. Now what is so special about this IP addresses? So, as I told you there are two type of IP addresses, the first one is a private IP address, the other a public IP address. A private IP address is an address which can be allocated by anyone. Anyone as in, so, if you have your home network you could use any of these IP addresses to create your home network.

But the catch here is, these IP addresses are not routable on the internet. So, any IP addresses apart from these, are routable in the on the internet and those have to be taken from authorities which issue unique IP addresses. So here, we use private IP addresses, in say institutes, some organizations, even your router normally uses 192.168.0.0 as the set of IP addresses at home. So, how does it communicate over the internet?

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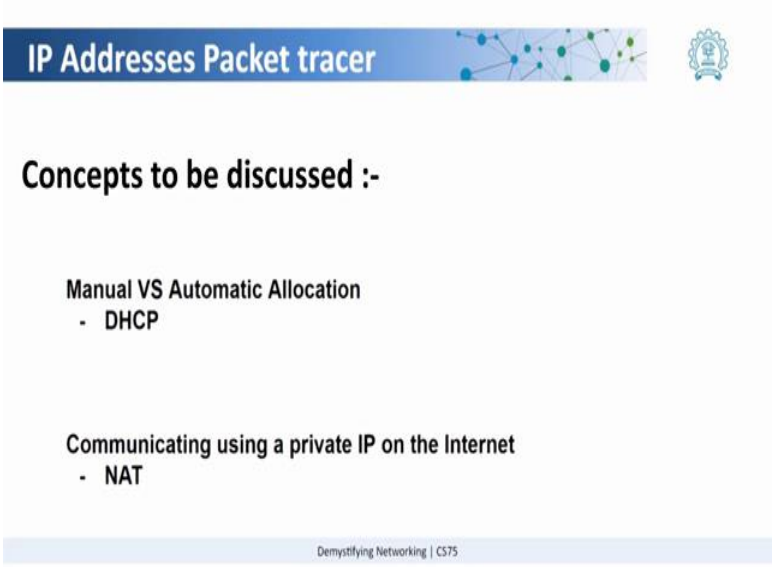

This brings us, two concepts that will be discussing over packet tracer. How do we actually assign IP addresses to different systems, manually or automatically? and something called ‘network address translation’.