A white grid with black numbers

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The 7 attributes to solve are:

* Network ID
* Broadcast IP
* First Host IP
* Last Host IP
* Next Network
* Number of IP addresses
* CIDR/Subnet

The first speed tip will be demonstrated with this target IP address: 10.3.3.85 /29

We check the CIDR and see the subnet mask is 248, so the subnet mask is 255.255.255.248. the group size is 8 so there is a total of 8 IP addresses and 6 that are usable. Since the group size is 8, we count from 0 until we pass 85, but this would take far too long:

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To do this quicker the tip is to multiple the group size by 10, if we are incrementing by 8, we know at some point we will land at 80, so we can skip all that and start from 80 then just increment by 8:

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As we can see, we have passed the target IP, so the next network is 10.3.3.88, the network ID is 10.3.3.80, the broadcast IP is one less than the next network, so the broadcast IP is 10.3.3.87. the last host IP is one less than the broadcast IP, so the last host IP is 10.3.3.86. The first host IP is one more than the network ID, so the first host IP is 10.3.3.81.

* Network ID: 10.3.3.80
* Broadcast IP: 10.3.3.87
* First Host IP: 10.3.3.81
* Last Host IP: 10.3.3.86
* Next Network: 10.3.3.88
* Number of IP addresses: 8 (6 usable)
* CIDR/Subnet: 255.255.255.248

However, let’s use this speed tip on this target IP address: 10.3.3.170 /29.

We check the CIDR and see the subnet mask is 248, so the subnet mask is 255.255.255.248. the group size is 8 so there is a total of 8 IP addresses and 6 that are usable. Since the group size is 8, we count from 0 until we pass 170, but this would take far too long. Now we could use speed tip number 1 by multiplying the group size by 10 and incrementing by the group size (8), but for this case it will still take too long:

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The speed tip extension is that we can multiple the group size by 10 as usual, then double or triple until we get as close to the target IP as possible, then just start incrementing by the group size until the target IP is passed:

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So, we can now solve for the rest. Next network is 10.3.3.176, broadcast IP is 10.3.3.175, last host IP is 10.3.3.174. Network ID is 10.3.3.168. First host IP is 10.3.3.169.

* Network ID: 10.3.3.168
* Broadcast IP: 10.3.3.175
* First Host IP: 10.3.3.169
* Last Host IP: 10.3.3.174
* Next Network: 10.3.3.176
* Number of IP addresses: 8 (6 usable)
* CIDR/Subnet: 255.255.255.248

For the third speed tip we will solve for 10.3.3.147 /28. The CIDR is /28 so the subnet mask is 255.255.255.240. The group size is 16 so there are 16 IP addresses (14 usable). We could start from 0 and increment by 16 until we get to 147 but that would take a long time, and multiplying 16 by 10 takes us way past the target IP. So, speed tip number 2 is that whatever number you are incrementing by (group size number), eventually it would land at 128. So, if you are solving for an IP that is more than 128, you can just start at 128 and increment as normal:

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So now we can solve as normal, next network is 10.3.3.160, broadcast IP is 10.3.3.159, last host IP is 10.3.3.158, network ID is 10.3.3.144, first host IP is 10.3.3.145.

* Network ID: 10.3.3.144
* Broadcast IP: 10.3.3.159
* First Host IP: 10.3.3.145
* Last Host IP: 10.3.3.158
* Next Network: 10.3.3.160
* Number of IP addresses: 16 (14 usable)
* CIDR/Subnet: 255.255.255.240

Now for speed tip number 3 we will solve for 10.3.3.197 /30. The CIDR is /30 so the subnet mask is 255.255.255.252, the group size is 4 so the number of IP addresses is 4 (2 usable).

Normally we would start at 0 and increment by the group size (4) until we pass the target IP (.197). but this would take too long. We could try speed tip number 1 which we multiply the group size by 10 and doubling until we get close to the target IP then increment by the group size as normal but that would also take a long time. We could try speed tip number 2 and start from 128 then increment as normal but this would also take a long time.

A screenshot of a number

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So, speed tip number 3 is that every group size increment will eventually land on its own subnet mask and every subnet mask value to the left off the group size subnet mask:

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Meaning that eventually the increment would land on 128, 192, 224, 240, 248 and 252. So we can choose the one closest to the target IP (.197) which is 192 then start incrementing from there:

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Now we have passed the target IP, and we can solve as normal. The network ID is 10.3.3.196, the first host IP is 10.3.3.197, the next network is 10.3.3.200, the broadcast IP is 10.3.3.199, the last host IP is 10.3.3.198.

* Network ID: 10.3.3.196
* Broadcast IP: 10.3.3.199
* First Host IP: 10.3.3.197
* Last Host IP: 10.3.3.198
* Next Network: 10.3.3.200
* Number of IP addresses:
* CIDR/Subnet: 255.255.255.252

For speed tip number 4 we will solve for 10.3.3.117 /29. The CIDR is /29 so the subnet mask is 255.255.255.248. The group size is 8 so there is a total of 8 IP address (6 usable). Now we could start from 0 and increment by 8 but that would take a long time:

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We could try speed tip number 1 which is multiplying the group size by 10 then doubling but this would take us too far, and when we pass the target IP, it must be by the initial group size (8):

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It looks like we passed it, but this isn’t allowed, when we pass the target IP it has to be by the group size. We could do this method but instead of doubling we could increment by the group size, but this would also take long:

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Speed tip number 3 (starting with 128 IF the target IP is more than it) wouldn’t work here because the target IP is less than 128. So, speed tip number 4 is to solve for target IP’s which are less than 128, we start from 128 and decrement by the group size:

A red and green numbers

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As we can see this works, so we can now solve as normal. The network ID is 10.3.3.112, the first host IP is 10.3.3.113, the next network is 10.3.3.120, the broadcast IP is 10.3.3.119, the last host IP is 10.3.3.118.

* Network ID: 10.3.3.112
* Broadcast IP: 10.3.3.119
* First Host IP: 10.3.3.113
* Last Host IP: 10.3.3.118
* Next Network: 10.3.3.120
* Number of IP addresses: 8 (6 usable)
* CIDR/Subnet: 255.255.255.248