

Configuring Subnets Using The Numeric Method

The Numeric method extends the technique from the IP Addressing and Subnetting workbook to allow for classless subnetting. Start by listing the needed hosts per subnets from largest to smallest.

Step 1

In this sample the needed host groups are:

- 120 Washington D. C.
- 60 Baltimore
- 20 Frederick
- 2 Serial #1
- 2 Serial #2



Step 2

Lay out the IP address the same way you would in the IP Addressing and Subnetting workbook showing the binary values of the bits, the number of subnets, and the number of hosts.

	256	128	64	32	16	8	4	2	-	Number of Hosts
Number of Subnets	-	2	4	8	16	32	64	128	256	
		128	64	32	16	8	4	2	1	- Binary values
	192.	10	.	10	.	0	0	0	0	0

Step 3

Draw a line allowing for 120 hosts. Using the value of the last bit borrowed or magic number, write in your first range. Then add the subnet address to start the second range.

	120 <i>Hosts</i>									
	256	128	64	32	16	8	4	2	-	Number of Hosts
Number of Subnets	-	2	4	8	16	32	64	128	256	
	(128)	64	32	16	8	4	2	1	-	Binary values
	192.	10	.	10	.	0	0	0	0	0

	<u>Address Ranges</u>			
<u>Hosts</u>	192.168.16.0	to	192.168.16.127	<u>CIDR</u>
120	192.168.16.128	to		/25

Step 4

Draw a second line for the 60 hosts. Use the value of the last bit borrowed or magic number to lay out the second largest subnet. Add the subnet address which will begin the third range.

		<u>120</u>		<u>60</u>																
		<u>Hosts</u>		<u>Hosts</u>																
		256	128	64	32	16	8	4	2	-	Number of Hosts									
Number of Subnets	-	2	4	8	16	32	64	128	256											
		128	64	32	16	8	4	2	1	-	Binary values									
192.10.10.0		0	0	0	0	0	0	0	0	0										

<u>Hosts</u>	<u>Address Ranges</u>	<u>CIDR</u>
120	192.168.16.0 to 192.168.16.127	/25
60	192.168.16.128 to 192.168.16.191	/26
	192.168.16.192 to	

Step 5

Continue the same process until all the subnets are accounted for. The CIDR is the total number of bits borrowed for the network and subnetwork portion of the address.

		<u>120</u>		<u>60</u>		<u>20</u>		<u>2</u>													
		<u>Hosts</u>		<u>Hosts</u>		<u>Hosts</u>		<u>Hosts</u>													
		256	128	64	32	16	8	4	2	-	Number of Hosts										
Number of Subnets	-	2	4	8	16	32	64	128	256												
		128	64	32	16	8	4	2	1	-	Binary values										
192.10.10.0		0	0	0	0	0	0	0	0	0											

<u>Hosts</u>	<u>Address Ranges</u>	<u>CIDR</u>
120	192.168.16.0 to 192.168.16.127	/25
60	192.168.16.128 to 192.168.16.191	/26
20	192.168.16.192 to 192.168.16.223	/27
2	192.168.16.224 to 192.168.16.227	/30
2	192.168.16.228 to 192.168.16.231	/30