**CIS1360 – Week 7 Assignment 1**

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| **Date:** | **October 25, 2014** |
| **To:** | **Mike MacDonald** |
| **From:** | **Christopher Sigouin** |
| **Subject:** | **Determining the Subnet Mask and IP Ranges of a Class C IP Network Address in CIDR Notation** |

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This assignment was to determine the following values based on the CIDR notation values provided and create a table to showcase them:

* Subnet Number
* Subnet Address
* Subnet Mask
* First Usable IP Address
* Last Usable IP Address
* Broadcast Address

The following CIDR values were as follows:

* 193.56.132.0/26
* 206.112.213.0/28
* 199.123.45.0/27

I started with using Microsoft Excel and laying out each CIDR value in its own section. Using

basic formulas I was able to enter in the value of the CIDR and determine how many networks ( slices ) and how many IP addresses per network. The following is what I used in the spreadsheet:

Number of Networks:

* CIDR Value – # of Bits in Class Type = Number of Bits for Host (eg. If /30… 30-24 = 6 )
* 2 ^ Number of Bits for Host = Number of Networks

Number of IPs per Network:

* Total Number of IPs possible / Number of Networks = Number of IPs per Network

With each CIDR value and the calculations made, I was able to determine the information required to fill the chart. I then copy and pasted the table information from Excel into Word.

I attempted to make the spreadsheet more automated through formulas so that a person would only have to enter the CIDR value and the sheet would complete the rest of the chart, but my knowledge is lacking in those areas unfortunately and time constraints prevented me to go further.

I enjoyed developing the table for this exercise. It gave me a great insight into how the subnets are divided. I also learned a great deal with using Microsoft Excel. CIDR tables are below.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 193.56.132.0/26 | | | | | |
| Subnet Number | Subnet Address | Subnet Mask | First Usable IP Address | Last Usable IP Address | Broadcast Address |
| 0 | 193.56.132.0 | 255.255.255.192 | 193.56.132.1 | 193.56.132.62 | 193.56.132.63 |
| 1 | 193.56.132.64 | 255.255.255.192 | 193.56.132.65 | 193.56.132.126 | 193.56.132.127 |
| 2 | 193.56.132.128 | 255.255.255.192 | 193.56.132.129 | 193.56.132.190 | 193.56.132.191 |
| 3 | 193.56.132.192 | 255.255.255.192 | 193.56.132.193 | 193.56.132.254 | 193.56.132.255 |
|  |  |  |  |  |  |
| 206.112.213.0/28 | | | | | |
| Subnet Number | Subnet Address | Subnet Mask | First Usable IP Address | Last Usable IP Address | Broadcast Address |
| 0 | 206.112.213.0 | 255.255.255.240 | 206.112.213.1 | 206.112.213.14 | 206.112.213.15 |
| 1 | 206.112.213.16 | 255.255.255.240 | 206.112.213.17 | 206.112.213.30 | 206.112.213.31 |
| 2 | 206.112.213.32 | 255.255.255.240 | 206.112.213.33 | 206.112.213.46 | 206.112.213.47 |
| 3 | 206.112.213.48 | 255.255.255.240 | 206.112.213.49 | 206.112.213.62 | 206.112.213.63 |
| 4 | 206.112.213.64 | 255.255.255.240 | 206.112.213.65 | 206.112.213.78 | 206.112.213.79 |
| 5 | 206.112.213.80 | 255.255.255.240 | 206.112.213.81 | 206.112.213.94 | 206.112.213.95 |
| 6 | 206.112.213.96 | 255.255.255.240 | 206.112.213.97 | 206.112.213.110 | 206.112.213.111 |
| 7 | 206.112.213.112 | 255.255.255.240 | 206.112.213.113 | 206.112.213.126 | 206.112.213.127 |
| 8 | 206.112.213.128 | 255.255.255.240 | 206.112.213.129 | 206.112.213.142 | 206.112.213.143 |
| 9 | 206.112.213.144 | 255.255.255.240 | 206.112.213.145 | 206.112.213.158 | 206.112.213.159 |
| 10 | 206.112.213.160 | 255.255.255.240 | 206.112.213.161 | 206.112.213.174 | 206.112.213.175 |
| 11 | 206.112.213.176 | 255.255.255.240 | 206.112.213.177 | 206.112.213.190 | 206.112.213.191 |
| 12 | 206.112.213.192 | 255.255.255.240 | 206.112.213.193 | 206.112.213.206 | 206.112.213.207 |
| 13 | 206.112.213.208 | 255.255.255.240 | 206.112.213.209 | 206.112.213.222 | 206.112.213.223 |
| 14 | 206.112.213.224 | 255.255.255.240 | 206.112.213.225 | 206.112.213.238 | 206.112.213.239 |
| 15 | 206.112.213.240 | 255.255.255.240 | 206.112.213.241 | 206.112.213.254 | 206.112.213.255 |
|  |  |  |  |  |  |
| 199.123.45.0/27 | | | | | |
| Subnet Number | Subnet Address | Subnet Mask | First Usable IP Address | Last Usable IP Address | Broadcast Address |
| 0 | 199.123.45.0 | 255.255.255.224 | 199.123.45.1 | 199.123.45.30 | 199.123.45.31 |
| 1 | 199.123.45.32 | 255.255.255.224 | 199.123.45.33 | 199.123.45.62 | 199.123.45.63 |
| 2 | 199.123.45.64 | 255.255.255.224 | 199.123.45.65 | 199.123.45.94 | 199.123.45.95 |
| 3 | 199.123.45.96 | 255.255.255.224 | 199.123.45.97 | 199.123.45.126 | 199.123.45.127 |
| 4 | 199.123.45.128 | 255.255.255.224 | 199.123.45.129 | 199.123.45.158 | 199.123.45.159 |
| 5 | 199.123.45.160 | 255.255.255.224 | 199.123.45.161 | 199.123.45.190 | 199.123.45.191 |
| 6 | 199.123.45.192 | 255.255.255.224 | 199.123.45.193 | 199.123.45.222 | 199.123.45.223 |
| 7 | 199.123.45.224 | 255.255.255.224 | 199.123.45.225 | 199.123.45.254 | 199.123.45.255 |