Contents

Myron Decster Furtado **19703402** **Network fundamentals**

IP ADDRESSING SCHEME

Location A

Name	Amount (host devices)	Subnet mask	Host IP ranges	Subnet mask	Broadcast address
Sales staff	28	/27	192.168.10.1 -192.168.10.30	255.255.255.224	192.168.10.31
Finance staff	7	/28	192.168.10.33 – 192.168.10.46	255.255.255.240	192.168.10.47
Technical support staff	4	/29	192.168.10.49 - 192.168.10.54	255.255.255.248	192.168.10.55
Management staff	3	/29	192.168.10.57 - 192.168.10.62	255.255.255.248	192.168.10.63
Administration staff	5	/29	192.168.10.65 - 192.168.10.70	255.255.255.248	192.168.10.71
Other devices		/25	192.168.10.129-192.168.10.254	255.255.255.128	192.168.10.255
Total IP's available			**254**		

Location B

Name	Amount (host devices)	Subnet mask	Host IP ranges	Subnet mask	Broadcast address
Finance Staff	9	/28	192.168.20.1 - 192.168.20.14	255.255.255.240	192.168.20.15
Technical staff	6	/28	192.168.20.17 - 192.168.20.30	255.255.255.240	192.168.20.31
Design and Planning	10	/28	192.168.20.33 - 192.168.20.46	255.255.255.240	192.168.20.47
Management	10	/28	192.168.20.49 - 192.168.20.62	255.255.255.240	192.168.20.63
Administration Staff	15	/27	192.168.20.65 - 192.168.20.94	255.255.255.224	192.168.20.95
Other devices		/25	192.168.20.129 - 192.168.20.254	255.255.255.128	192.168.20.255
Total IP's available			254		

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Location C

Name	Amount (host devices)	Subnet mask	Host IP ranges	Subnet mask	Broadcast address
Sales Staff	26	/27	192.168.30.1 - 192.168.30.30	255.255.255.224	192.168.30.31
Technical Staff	4	/29	192.168.30.33 - 192.168.30.38	255.255.255.248	192.168.30.39
Management Staff	3	/29	192.168.30.41 - 192.168.30.46	255.255.255.248	192.168.30.47
Administration Staff	5	/29	192.168.30.49 - 192.168.30.54	255.255.255.248	192.168.30.55
Other devices		/25	192.168.30.129 - 192.168.30.254	255.255.255.128	192.168.30.255
Total IP's available			254		

Location D

Name	Amount (host devices)	Subnet mask	Host IP ranges	Subnet mask	Broadcast address
Sales Staff	15	/27	192.168.40.1 - 192.168.40.30	255.255.255.224	192.168.40.31
Finance Staff	7	/28	192.168.40.33 - 192.168.40.46	255.255.255.240	192.168.40.47
Technical Staff	4	/29	192.168.40.49 - 192.168.40.54	255.255.255.248	192.168.40.55
Management Staff	3	/29	192.168.40.57 - 192.168.40.62	255.255.255.248	192.168.40.63
Design and planning staff	8	/28	192.168.40.65 - 192.168.40.78	255.255.255.240	192.168.40.79
Administration staff	5	/29	192.168.40.81 - 192.168.40.86	255.255.255.248	192.168.40.87
Other devices		/25	192.168.40.129 - 192.168.40.254	255.255.255.128	192.168.40.255

Router Mesh network IP's

Name	Wildcard mask	Subnet mask	Host IP ranges	Subnet mask	Broadcast address
Network 1	0.0.0.255	/24	192.168.10.0	255.255.255.0	N/A
Network 2	0.0.0.255	/24	192.168.20.0	255.255.255.0	N/A
Network 3	0.0.0.255	/24	192.168.30.0	255.255.255.0	N/A
Network 4	0.0.0.255	/24	192.168.40.0	255.255.255.0	N/A
Network 5	0.0.0.7	/29	192.168.50.1 - 192.168.50.6	255.255.255.248	192.168.50.7
Network 6	0.0.0.7	/29	192.168.50.9 - 192.168.50.14	255.255.255.248	192.168.50.15
Network 7	0.0.0.7	/29	192.168.50.17 - 192.168.50.22	255.255.255.248	192.168.50.23
Network 8	0.0.0.7	/29	192.168.50.25 - 192.168.50.30	255.255.255.248	192.168.50.31
Network 9	0.0.0.7	/29	192.168.50.33 - 192.168.50.38	255.255.255.248	192.168.50.39
Network 10	0.0.0.7	/29	192.168.50.41 - 192.168.50.46	255.255.255.248	192.168.50.47

VLSM

Host- 28

128 64 32 (28) 16 8 4 2 1

To calculate the Subnet bit (32- 5) = 27

TO calculate the subnet mask, I add the numbers on the LHS 128 + 64 + 32= 224

This makes the subnet mask 255.255.255.224

Number of hosts I can have: 256- 224 = (32 -2) = 30 Hosts

Subnet IP= 0

Broadcast IP = 31

Host Range of IP's = 1-30

2)

Host- 4

128 64 32 16 8 (4) 4 2 1

To calculate the Subnet bit (32- 3) = 29

TO calculate the subnet mask, I add the numbers on the LHS 128 + 64 + 32= 248

This makes the subnet mask 255.255.255.248

Number of hosts I can have: 256- 248 = (8 -2) = 6 Hosts

Subnet IP= 0

Broadcast IP = 7

Host Range of IP's = 1-6

WILDCARD MASK CALCULATION

/25

255.255.255.255

-255.255.255.128

(255-128=127) (255-255=0) = 0.0.0.127

/26

255.255.255.255

-255.255.255.192

(255-192 = 63) (255-255=0) = 0.0.0.63

/27

255.255.255.255

-255.255.255.224

(255-224 = 31) (255-255=0) = 0. 0.0.31

/28

255.255.255.255

-255.255.255.240

(255-240=15) (255-255=0) = 0.0.0.15

/29

255.255.255.255

-255.255.255.248

(255-248=7) (255-255=0) = 0.0.0.7

ROUTER HOST NAMES AND PASSWORDS

LOCATION A ROUTER			
Router host name	Privileged EXEC password	Secret password	Console password
Router	class	class1	cisco

LOCATION B ROUTER			
Router host name	Privileged EXEC password	Secret password	Console password
Router	class	class1	cisco

LOCATION C ROUTER			
Router host name	Privileged EXEC password	Secret password	Console password
Router	class	class1	cisco

LOCATION D ROUTER			
Router host name	Privileged EXEC password	Secret password	Console password
Router	class	class1	cisco

WIRELESS ACCESS POINTS SSID'S AND PASSWORDS

	SSID	**WAPSK-2 PASSWORD**
Location A	locationA-accesspoint	LocationA
Location B	locationB-accesspoint	LocationB
Location C	locationC-accesspoint	LocationC
Location D	locationD-acesspoint	LocationD

Port Numbers for each department for VLAN setup on the switches

Sales staff port – 10

Finance staff port – 20

Technical staff port – 30

Management staff port – 40

Administration staff port - 50

Design and planning staff port - 60