TUNKU ABDUL RAHMAN UNIVERSITY OF MANAGEMENT AND TECHNOLOGY

FACULTY OF COMPUTING AND INFORMATION TECHNOLOGY

BAIT2004 Fundamentals of Computer Networks

Assignment

Academic Session: 202301

Programme: RSD1S3G1

Tutorial Group: Group1

No	Student Name & Photo	Student ID	Signature	Final Mark
1	**(Team Leader)** Joshua	22PMR07601		
2	**(Team Member)** Tang Yee Hern	22PMR08430		

Tutor's Name: MR Tay Shu Shiang

Date of submission: 30/4/2023

Assignment Rubrics

Academic session: 202301

Learning outcome being assessed

CLO2: Use digital resources to complete tasks related to network configurations based on the given scenarios. (C3, PLO6)

Criteria / GROUP ASSESSMENT	Poor 0-3	Average 4-6	Good 7-8	Excellent 9-10	Score
1. Addressing design (10%) (Explanation on the FLSM or VLSM based on given scenario)	Explanation on the IP address design is completely not suitable to this scenario	Explanation on the IP address design is with some errors but still acceptable in this scenario	Explanation on the IP address design is adequate and appropriate for this scenario	Explanation on the IP address design is in very detail manner and accurate for this scenario	
2. Addressing Table (10%)	Addressing Table with 8 – 10 errors found. 7 errors – 3 marks 8 errors – 2 marks 9 errors – 1 mark 10 errors and more – 0 marks	Addressing Table with 5 – 7 errors found. 4 errors – 6 marks 5 errors – 5 marks 6 errors – 4 marks	Addressing Table with 3 – 4 errors found. 2 errors – 8 marks 3 errors – 7 marks	Addressing Table with 0 – 2 errors found. 0 error – 10 marks 1 error – 9 marks	
3. Network Topology (10%)	Network topology design is not suitable for the given scenario	Network topology design is with some errors but still acceptable in this scenario	Network topology design is adequate and appropriate for this scenario but with minor errors	Network topology design is correct and appropriate for this scenario	
4. Network Configuration (10%)	Network configuration is not suitable for the given scenario	Network configuration is with some errors but still acceptable in this scenario	Network configuration is adequate and appropriate for this scenario but with minor errors	Network configuration is correct and appropriate for this scenario	
5. Ping connectivity (10%)	Not able to provide end-to-end connectivity	Completed some of the end-to-end connectivity	Completed most of the end-to-end connectivity	Completed all the end-to-end connectivity	

6. Digitals resources used (10%)	Digital Resource, references and explanation are not suitable for the intended use	Digital resource, references and explanation has a limited suitability for the intended use	Digital resource, references and explanation accomplishes aims of the objective	Digital resource, references and explanation meets the explicit aims of the objective	
7. YouTube link and screen captures (10%)	Did not upload to YouTube link but with limited screen captures or no screen captures at all	Upload to YouTube link but with limited screen captures	Upload to YouTube link but with appropriate number screen captures	Upload to YouTube link and other social media and with appropriate number screen captures	
8. Quality of recorded video (10%) (Introduction and objectives in the recorded video)	No or little introduction and objectives were presented.	Introduction and objectives were presented but not very clear.	Introduction and objectives were clearly presented.	Introduction and objectives were clearly presented, and able to attract the audience attention.	
9. Quality of recorded video (10%) (Organization and content of the recorded video)	Unorganized, confusing, hard to follow, not planned out.	Sometimes hard to follow, not well planned out.	organized, easy to follow.	Instructed in easy to follow sequence, well organized, well planned out.	
10. Quality of recorded video (10%) (Video quality of the recorded video)	Low visual and audio quality	Audio and visual unclear at times	Visual clear, good audio	Clear audio and visual, overall excellent quality.	
				Total Marks:	
Remark:					

- Tutor is reminded to attached “LATE SUBMISSION OF COURSEWORK FROM” if any and deducted the mark accordingly

Coursework Declaration

Academic Session : 202301

Course Code & Title : BAIT2004 Fundamentals of Computer Networks

Declaration

I/We confirm that I/we have read and shall comply with all the terms and condition of TUNKU ABDUL RAHMAN UNIVERSITY OF MANAGEMENT AND TECHNOLOGY's plagiarism policy.

I/We declare that this assignment is free from all forms of plagiarism and for all intents and purposes is my/our own properly derived work.

No	Name & Your Photo	Student ID	Programme & Tutorial Group	Signature
1	Joshua Chew Chun Thoe 	22PMR07601	RSD1S3G1	
2	Tang Yee Hern 	22PMR08430	RSD1S3G1	Yee Hern

Date: 30/4/2023

Table of Content

Introduction

We will use Cisco Packet Tracer to put up a local area network and network configuration based on the situation below.

- The IP address range that I used is 172.16.0.0 to 172.16.1.99.
- The department's largest amount of hosts will be increased by 30%.

We employ Variable Length Subnet Mask VLSM for the company Pan Borneo Bhd, which is a new manufacturing company.

- Subnets allow for varying host sizes in each department.
- The number of hosts in a subnet varies.
- It allows for the smallest possible IP address.
- It is also referred to as classless subnetting.
- It only supports classless routing protocols.

Location (Department)	**Number of Hosts**
A (Administration)	50 Hosts* 130% = 65 Hosts
B (Human Resource)	6 Hosts
B (Accounting)	16 Hosts
B (Manufacturing)	80 Hosts * 130% = 104 Hosts
C (Sales)	12 Hosts

D (Warehouse)	24 Hosts

Addressing Design

The Alies name of each Department

Acronym	Full Name Of Department
D_Manufacturing	**Manufacturing Department**
D_Adminstration	**Administration Department**
D_Warehouse	**Warehouse Department**
D_Accouting	**Accounting Department**
D_Sales	**Sales Department**
D_HumanResource	**Human Resource Department**

The Alies name of each Device

Acronym	Device
L1	Laptop
PC1	Desktop
Printer	Printer

In our assignment, we will use the Variable Length Subnet Mask(VLSM) IP addressing scheme to calculate the subnet in each department.

We will choose VLSM because we think that VLSM can reduce the wastage

of IP addresses compared to FLSM. For an example, if choosing FLSM Manufacturing Department have 104 host so each subnet also must contain 120 total host no matter router and router just have 2 host we also need to give router and router network 120 host as total, but if using VLSM as IP addressing scheme, we can according to host of each subnet give the minimum number of host like manufacturing we can give 120 host and network between router and router we can give 4 host as total. This is the main reason why we choose VLSM as an IP addressing scheme.

The addressing design is that we will choose the first usable IP address to the router port and second IP is for end-device. Then we will use the last counted IP address as our Switch IP. Example network of administrator department is 172.16.0.130 and the broadcast address is 172.16.0.255 then Switch1 will be 172.16.0.254 and Switch2 will be 172.16.0.253 and so on.

We will decide Switch as last counted IP address because in a network we may have a lot of Switch and in future we also may add switch so this will not affect the count of assign IP to end-device. We will use the first IP address as router port because in each network there is less chance to have two or more router ports to assign. Even if we have two router ports we also will assign the first and second IP address and so on and there is less chance to add a new router port while Pan Borneo Bhd already uses this network design but Switch will get increase as Pan Borneo Bhd find that that no enough port to end-device connect. In conclusion routers have a less probability to increase router port while Pan Borneo Bhd is already using but Switch may increase.

Subnetting for Department

Subnet number	Number Hosts	Subnet address / prefix length	First usable address	Last usable address	Broadcast Address	Custom Subnet Mask
Manufacturing	80(110)	172.16.0.0/25	172.16.0.1	172.16.0.126	172.16.0.127	255.255.255.128
Administration	50 (70)	172.16.0.128/25	172.16.0.129	172.16.0.254	172.16.0.255	255.255.255.128
Warehouse	24(28)	172.16.1.0/27	172.16.0.1	172.16.1.30	172.16.1.31	255.255.255.224
Accounting	16(19)	172.16.1.32/27	172.16.1.33	172.16.1.62	172.16.1.63	255.255.255.224
Sales	12(14)	172.16.1.64/28	172.16.1.65	172.16.1.78	172.16.1.79	255.255.255.240
Human Resource	6(8)	172.16.0.80/28	172.16.0.81	172.16.1.94	172.16.1.95	255.255.255.240
Router	2	172.16.1.96/30	172.16.1.97	172.16.1.98	172.16.1.99	255.255.255.252

*Note : the number in the bracket is plus the Switch , Router and the growth needed

Pan Borneo Bhd has 6 departments. We will subnet the network by using a department and 2 routers to connect 6 networks. Location A is the Administration Department needs 50 hosts and 15 hosts for growth. Location B ground floor Manufacturing Department needs 80 hosts and 24 for growth. Location B first floor is the Human Resource Department needs 6 hosts and the Accounting Department needs 16 hosts. Location C is the Sales Department needs 12 hosts . Location D is the Warehouse Department needs 24 hosts.

We will subnet by using the VLSM IP addressing scheme. Then calculate from largest subnet to smaller. The Manufacturing Department is the largest subnet needing a total of 104 hosts. So the minimum number of hosts given to the Manufacturing Department is 120 hosts and usable hosts 118. Next is the Administration Department needs 65 hosts minimum number of hosts given to the Administration Department is 120 hosts and usable hosts 118. Furthermore, Warehouse Department will be the next lower subnet needing 24 hosts minimum number of hosts given to the Warehouse Department is 32 hosts and usable hosts 30 hosts. The Accounting Department needs 16 hosts minimum number of hosts given to the Accounting Department is 32 hosts and usable hosts 30 hosts. The Sales Department needs 12 hosts minimum number of hosts given to the Sales Department is 16 hosts and usable hosts 14 hosts. The Human Resource Department

needs 6 hosts minimum number of hosts given to the Human Resource Department is 16 hosts and usable hosts 14 hosts. Finally, the newtork between the router. needs 2 hosts minimum number of hosts given to it is 4 hosts and usable hosts 2 hosts

Addressing Table

Subnetting for End-Device in each department

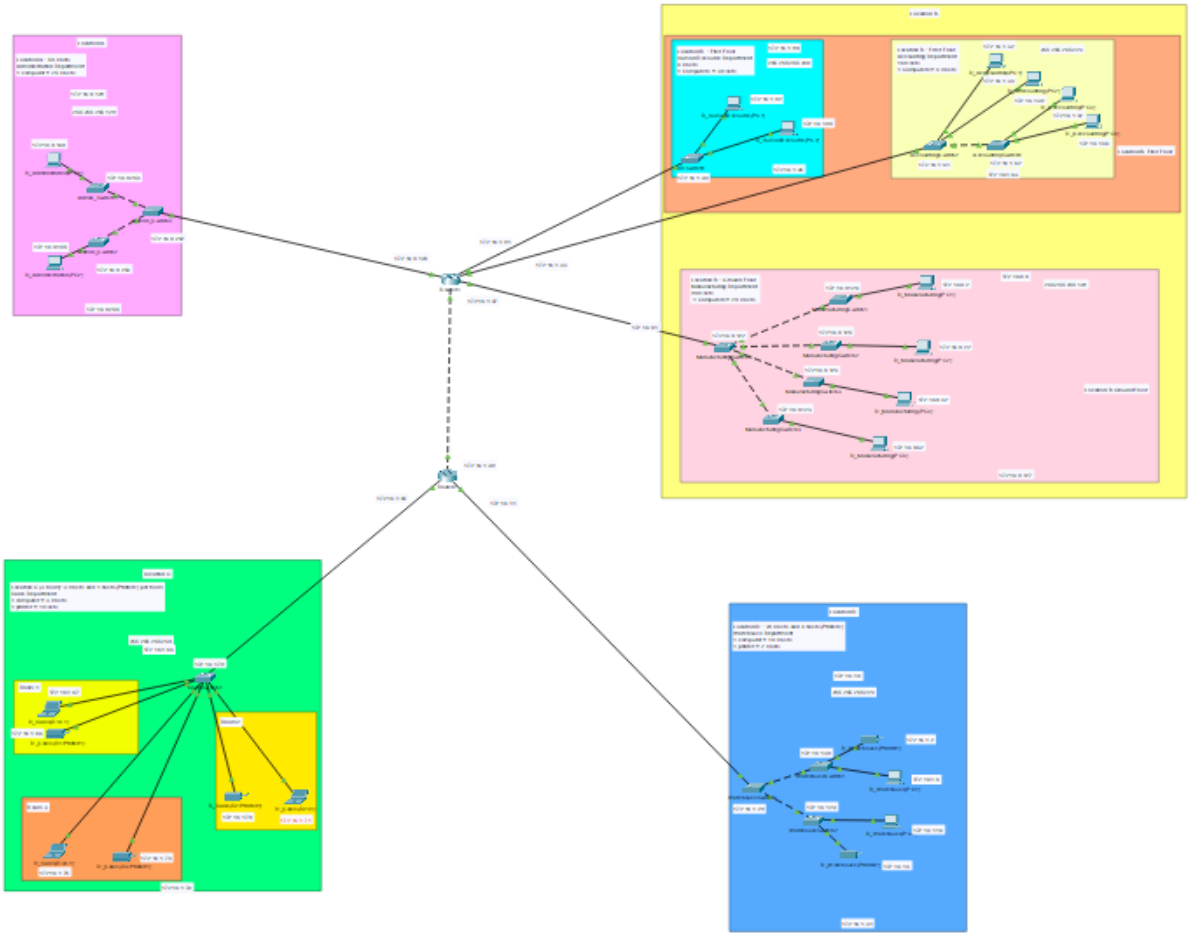
Location	End Device	Interface	IP Address	Subnet Mask	Default gateway
Manufacturing Department	D_Manufacturing(PC1)	NIC	172.16.0.2	255.255.255.128	172.16.0.1
	D_Manufacturing(PC2)	NIC	172.16.0.22	255.255.255.128	172.16.0.1
	D_Manufacturing(PC3)	NIC	172.16.0.42	255.255.255.128	172.16.0.1
	D_Manufacturing(PC4)	NIC	172.16.0.62	255.255.255.128	172.16.0.1
	ManufacturingSwitch1	VLAN1	172.16.0.126	255.255.255.128	172.16.0.1
	ManufacturingSwitch2	VLAN1	172.16.0.125	255.255.255.128	172.16.0.1
	ManufacturingSwitch3	VLAN1	172.16.0.124	255.255.255.128	172.16.0.1
	ManufacturingSwitch4	VLAN1	172.16.0.123	255.255.255.128	172.16.0.1
	ManufacturingSwitch5	VLAN1	172.16.0.122	255.255.255.128	172.16.0.1
Administration Department	D_Administration(PC1)	NIC	172.16.0.130	255.255.255.128	172.16.0.129
	D_Administration(PC2)	NIC	172.16.0.155	255.255.255.128	172.16.0.129
	Admin_Switch1	VLAN1	172.16.0.254	255.255.255.128	172.16.0.129
	Admin_Switch2	VLAN1	172.16.0.253	255.255.255.128	172.16.0.129
	Admin_Switch3	VLAN1	172.16.0.252	255.255.255.128	172.16.0.129

Warehouse Department	D_Warehouse(Printer1)	NIC	172.16.1.2	255.255.255.224	172.16.1.1
	D_Warehouse(Printer2)	NIC	172.16.1.4	255.255.255.224	172.16.1.1
	D_Warehouse(PC1)	NIC	172.16.1.6	255.255.255.224	172.16.1.1
	D_Warehouse(PC2)	NIC	172.16.1.16	255.255.255.224	172.16.1.1
	WarehouseSwitch1	VLAN1	172.16.1.30	255.255.255.224	172.16.1.1
	WarehouseSwitch2	VLAN1	172.16.1.29	255.255.255.224	172.16.1.1
	WarehouseSwitch3	VLAN1	172.16.1.28	255.255.255.224	172.16.1.1
Accounting Department	D_Acccounting(PC1)	NIC	172.16.1.34	255.255.255.224	172.16.1.33
	D_Acccounting(PC2)	NIC	172.16.1.38	255.255.255.224	172.16.1.33
	D_Acccounting(PC3)	NIC	172.16.1.42	255.255.255.224	172.16.1.33
	D_Acccounting(PC4)	NIC	172.16.1.46	255.255.255.224	172.16.1.33
	AccountingSwitch1	VLAN1	172.16.1.62	255.255.255.224	172.16.1.33
	AccountingSwitch2	VLAN1	172.16.1.61	255.255.255.224	172.16.1.33
Sales Department	D_Sales(R1/L1)	NIC	172.16.1.67	255.255.255.240	172.16.1.65
	D_Sales(R1/Printer1)	NIC	172.16.1.66	255.255.255.240	172.16.1.65
	D_Sales(R2/L1)	NIC	172.16.1.71	255.255.255.240	172.16.1.65
	D_Sales(R2/Printer1)	NIC	172.16.1.70	255.255.255.240	172.16.1.65
	D_Sales(R3/L1)	NIC	172.16.1.75	255.255.255.240	172.16.1.65

	D_Sales(R3/Printer1)	NIC	172.16.1.74	255.255.255.240	172.16.1.65
	SalesSwitch1	VLAN1	172.16.1.78	255.255.255.240	172.16.1.65
Human Resource Department	D_HumanResource(PC1)	NIC	172.16.1.82	255.255.255.240	172.16.1.81
	D_HumanResource(PC2)	NIC	172.16.1.85	255.255.255.240	172.16.1.81
	HRSwitch1	VLAN1	172.16.1.94	255.255.255.240	172.16.1.81
Router	Router1	FE0/0	172.16.1.129	255.255.255.128	N/A
		FE1/0	172.16.1.81	255.255.255.240	N/A
		FE2/0	172.16.1.33	255.255.255.224	N/A
		FE3/0	172.16.0.1	255.255.255.128	N/A
		FE4/0	172.16.1.97	255.255.255.252	N/A
	Router2	FE0/0	172.16.1.1	255.255.255.224	N/A
		FE1/0	172.16.1.65	255.255.255.240	N/A
		FE2/0	172.16.1.98	255.255.255.224	N/A

Network Topology

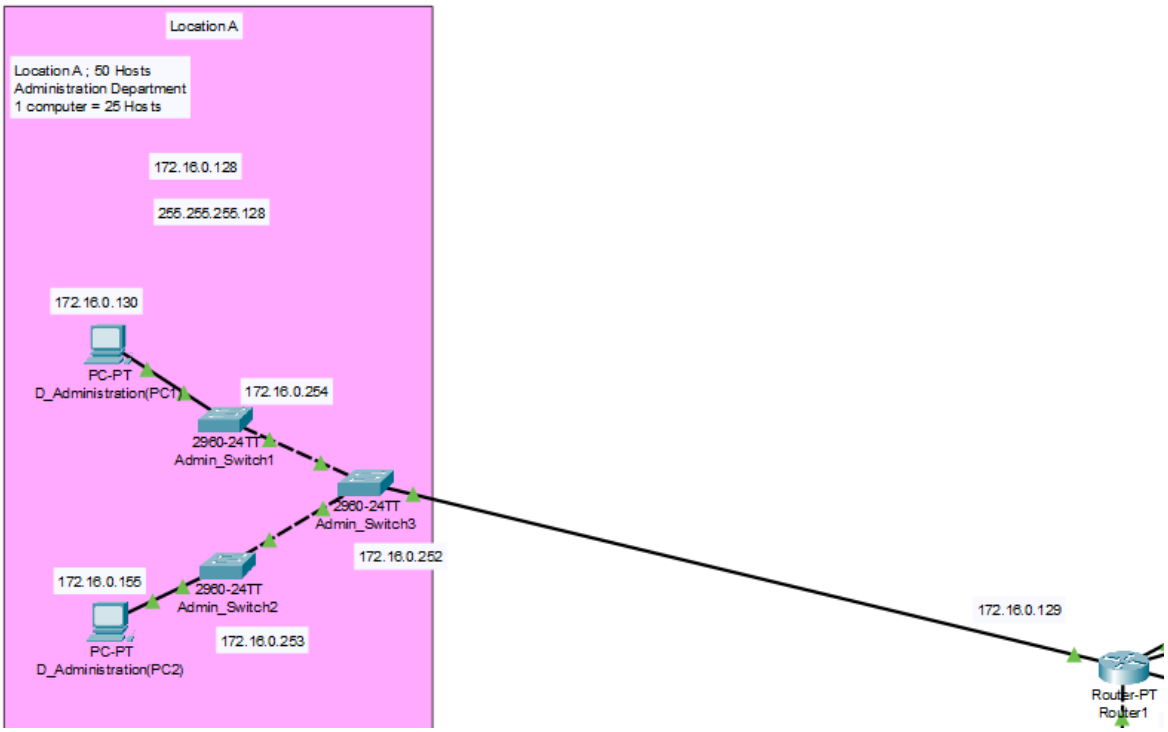
Overall



- Pink color box is Location A Administration Department
- Light blue box is Location B First Floor Human Resource Department
- Yellow color box is Location B First Floor Accounting Department
- Cream color box is Location B Ground Floor Manufacturing Department
- Green color box is Location C Sales Department
- Dark color box is Location D Warehouse Department

In the middle because location A and B are near so use one Router1 connection. Location C and D will be more far away so we use Router2 to connect so the connection will be more powerful. Other than that we use department subnet because location B has 3 departments it is not sufficient to Broadcast to all departments in location B.

Location A - Administration Department



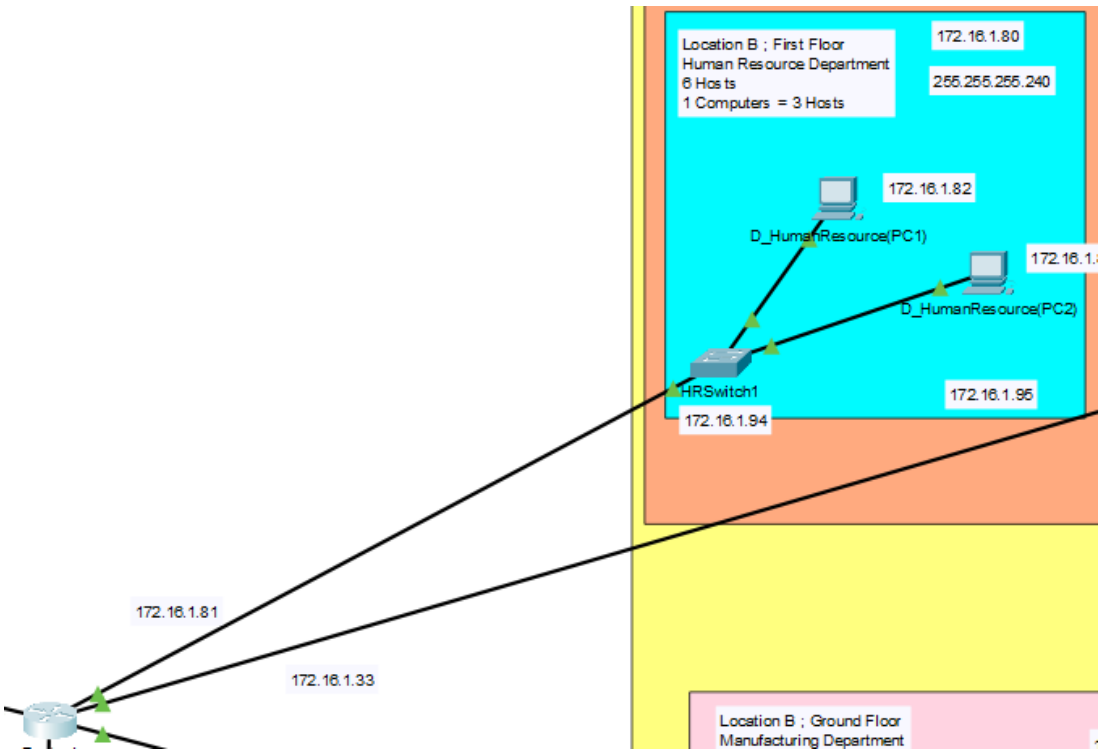
*Note : Picture show the no hosts is the originally need for company

Network Address = 172.16.1.128

- Default Gateway = 172.16.1.129
- Usable IP = 128 - 2 = 126
- Total Hosts = 70
- Broadcast address = 172.16.1.255

In this Administration Department originally needed 50 hosts because it is the second largest subnet and needed to add 30% and plus one router port and 3 Switch to connect all the devices. So the total host need is 70 hosts in the Administration Department. 1 computer represent 25 hosts so one switch can only connect 24 hosts other one can connect to Switch3

Location B First Floor - Human Resource Department



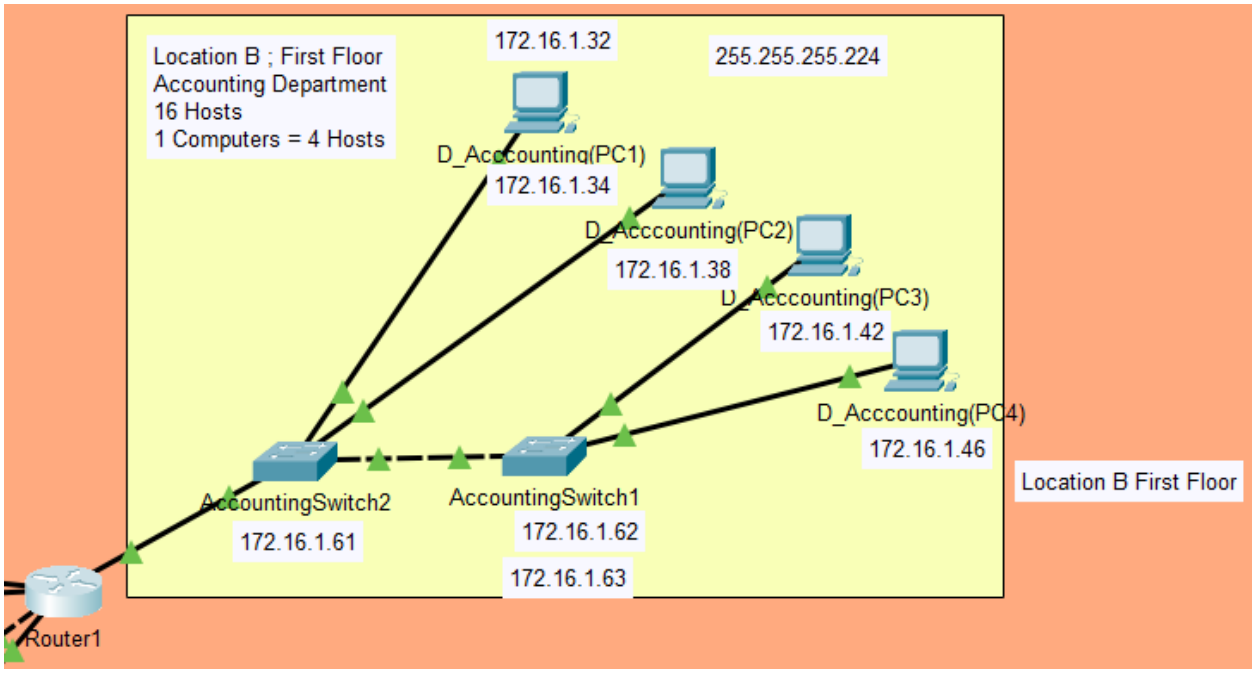
*Note : Picture show the no hosts is the originally need for company

Network Address = 172.16.1.80

- Default Gateway = 172.16.1.81
- Usable IP = 16 - 2 = 14
- Total Hosts = 8
- 1 Switch support more than 3 hosts
- Broadcast address = 172.16.1.95

Location B has two floors. Human Resources is placed on the location B first floor. This is the smallest subnet in this network. Host need is 6 hosts only and plus one router port and one Switch only needs 8 hosts. 1 Computer represents 3 hosts so 1 Switch is more than enough to support the hosts.

Location B First Floor - Accounting Department



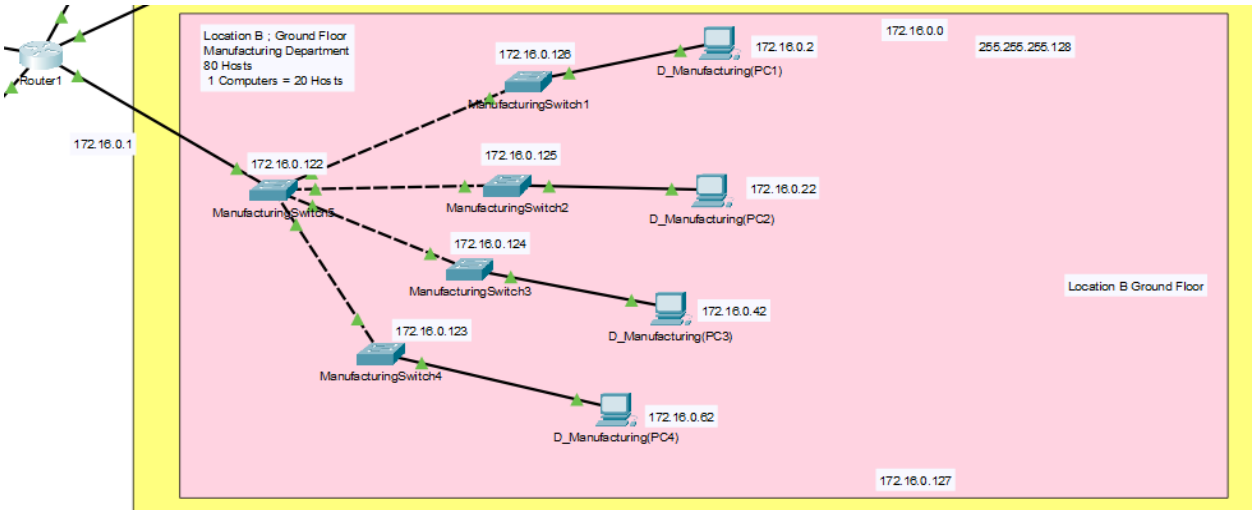
*Note : Picture show the no hosts is the originally need for company

Network Address = 172.16.1.32

- Default Gateway = 172.16.1.33
- Usable IP = 32 - 2 = 30
- Total Hosts = 19
- 1 Switch support more than 8 hosts
- Broadcast address = 172.16.1.63

Next, location B first floor also has another department that is the Accounting Department. This department needs 16 hosts plus one router port and two switches for 19 hosts. 1 computer represents 4 computers. so two switches is more than enough.

Location B Ground Floor - Manufacturing Department



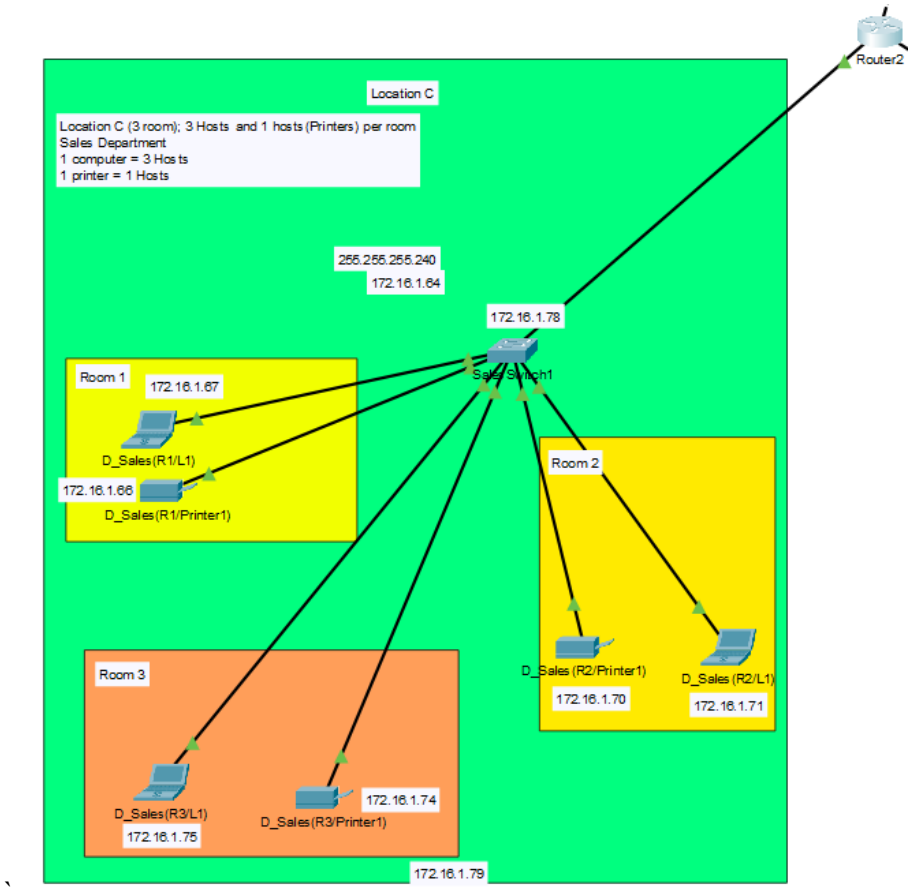
*Note : Picture show the no hosts is the originally need for company

Network Address = 172.16.0.1

- Largest Network in this department
- Default Gateway = 172.16.0.1
- Usable IP = 128-2=126
- Total Hosts = 110
- 1 Switch support more than 20 hosts
- Broadcast address = 172.16.0.127

Location B Ground floor is Manufacturing Department. This Department is the largest subnet in this network and needs 80 hosts because it is the largest subnet so needs to add 30% and plus one Router port and 5 Switch to connect all the end- device . So the total number of hosts is 110.

Location C - Sales Department



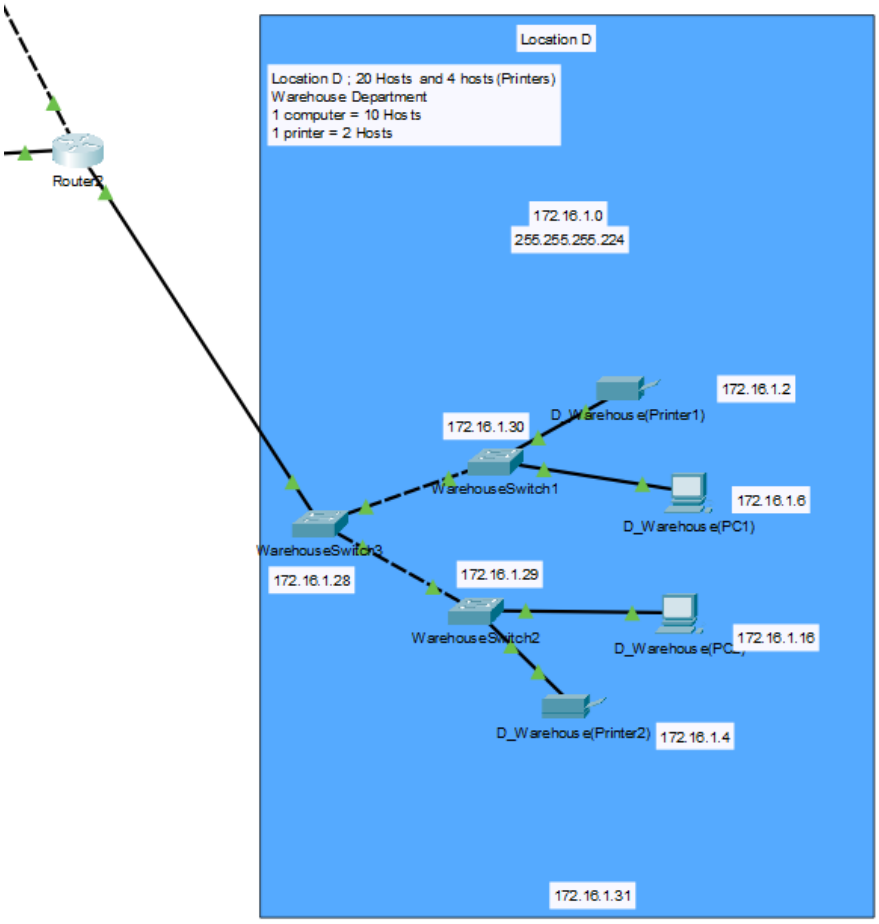
*Note : Picture show the no hosts is the originally need for company

Network Address = 172.16.1.64

- 3 rooms in this department
- Default Gateway = 172.16.1.65
- Usable IP = 16 -2 = 14
- Total Hosts = 14
- 1 Switch connect to 3 rooms and 12 end-devices
- Broadcast address = 172.16.1.79\

Location C is the Sales Department needs 12 hosts and plus one port and one Switch. Total host needed is 14 hosts. 1 computer represents 3 hosts and 1 printer represents 1 host. 1 Switch can connect to the S4 host so is enough to connect hosts.

Location D - Warehouse Department



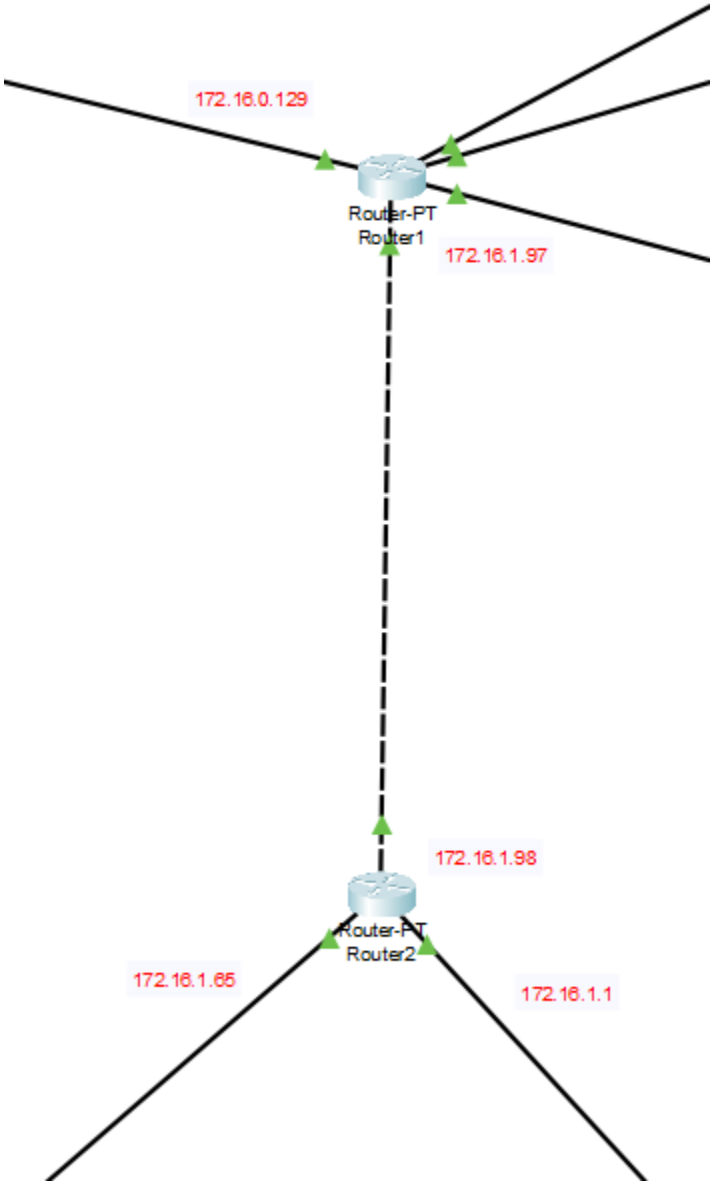
*Note : Picture show the no hosts is the originally need for company

Network Address = 172.16.1.0

- Default Gateway = 172.16.1.1
- Usable IP Address = 32 - 2 = 30
- Total Hosts = 24
- 1 Switch connects to 10 end-devices and 2 Printers.
- Broadcast address = 172.16.1.31

Location D is the Warehouse department. This Department needs 24 hosts and plus one router port and 3 Switch to support the end-device in this department. So the total host needed is 28. 1computer represents 10 hosts. and 1 printer represents 2 hosts so 3 switches can connect to support this network.

LAN connection



- 2 Router
- Router 1 // Default Gateway = 172.16.1.97
- Router 2 // Default Gateway = 172.16.1.98
- Responsible to connect 6 department or 4 location

These two routers connected also represent one network. To connect all locations together.

Network Configuration

User Profile

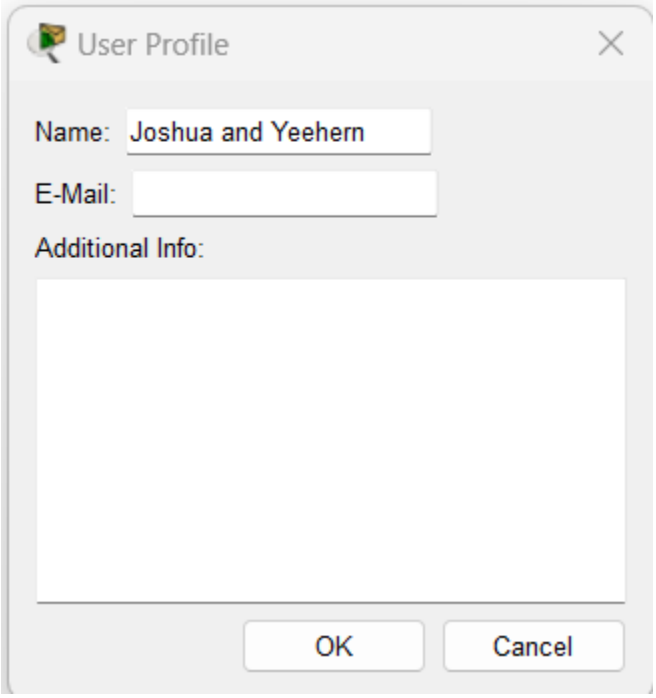


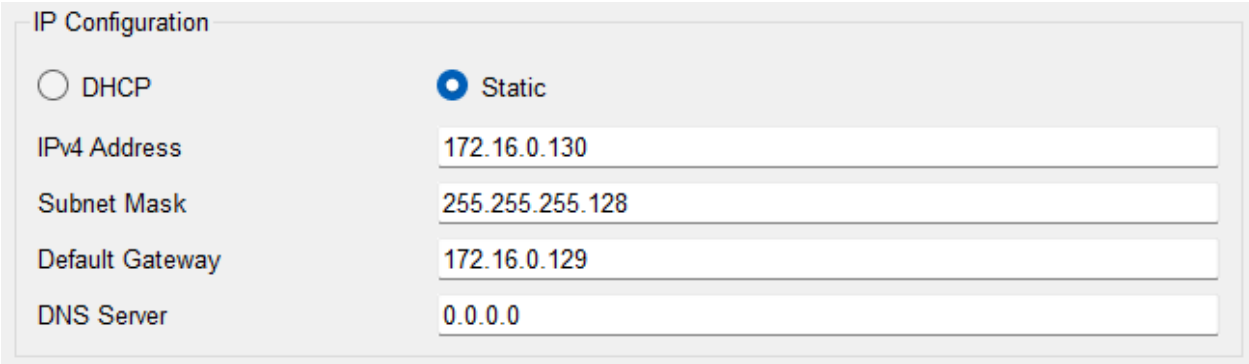
Table of Configuration command

CLI Command	Explaination
Router and Switch Configuration	
Router / Switch> enable	Enter privileged mode to configure operating parameters
Router / Switch# configure terminal	To make global configurations
Router / Switch(config)# line console 0 / line console vty 0 15	Enter console line. 0 represents the console port Enter into Virtual Terminal line. 0 15 refers the 16 telnet sessions available
Router / Switch(config-line)# password cisco	Set plain password when enter console line
Router / Switch(config-line)# login	To require password checking during login
Router / Switch(config-line)# exit	Back to the previous user mode
Router / Switch(config)# service password encryption	Make ALL passwords in a device are encrypted
Router / Switch(config)# enable secret class	Set encrypted password when “enable” command is used
Router / Switch(config)# hostname [NAME]	Change device name
Router / Switch(config)# banner motd [SELECT_A_CHARACTER_TO_END] User Verification [CHARACTER_THAT_SELECTED_TO_END]	Display message when log on to the switch (through console port)
Router / Switch# copy running-config	Save (backup) current configurations to NVRAM. No power also no problem.
Switch Configuration	
Switch(config)# interface vlan 1	To enter the Interface Configuration (VLAN) mode.
Switch(config-if)# ip address [IP_ADDRESS] [SUBNET_MASK]	Assign IP address to device (eg. PC or switch)
Switch(config-if)# ip default-gateway [IP_ADDRESS]	Assign default gateway to device (eg. PC or switch)
Switch(config-if)# no shutdown	To enable an interface (brings it up). This command must be used in interface configuration mode. By default, all switch ports in switch are shutdown

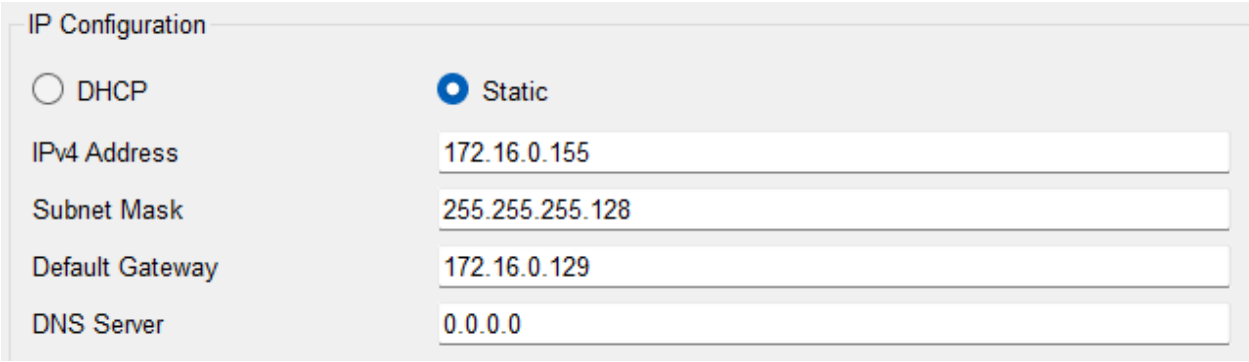
Router Configuration	
Router(config)# interface [ROUTER_PORT_THAT_WANT_TO_ASSIGN_IP_ADDRESS]	To enter into Interface Configuration
Router(config-if)# ip address [IP_ADDRESS] [SUBNET_MASK]	Assign IP address to device (eg. PC or switch)
Router(config)# ip route [NETWORK_ADDRESS] [SUBNET_MASK_OF_NETWORK_ADDRESS] [NEXT_HOP_IP_ADDRESS]	set the network address to the router to help router know hot the packet can go to find

Department Administration

PC1

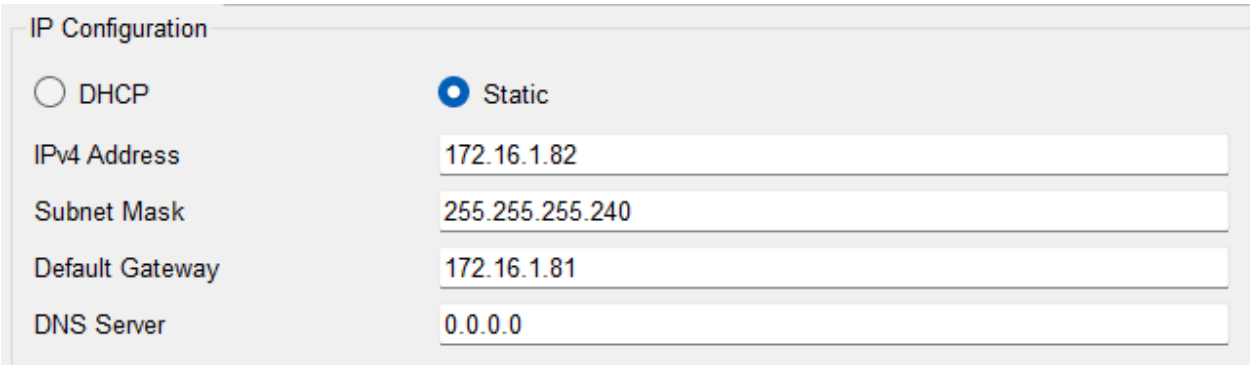


PC2

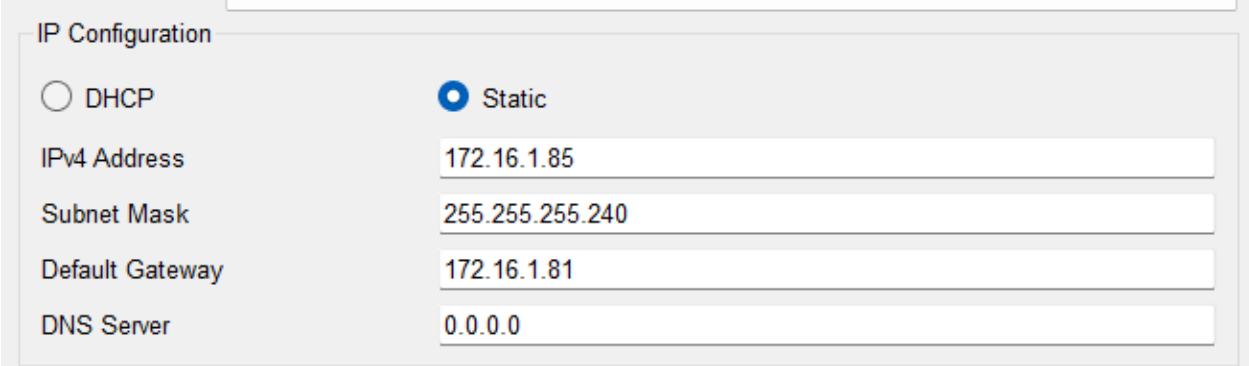


Human Resource Department

PC1

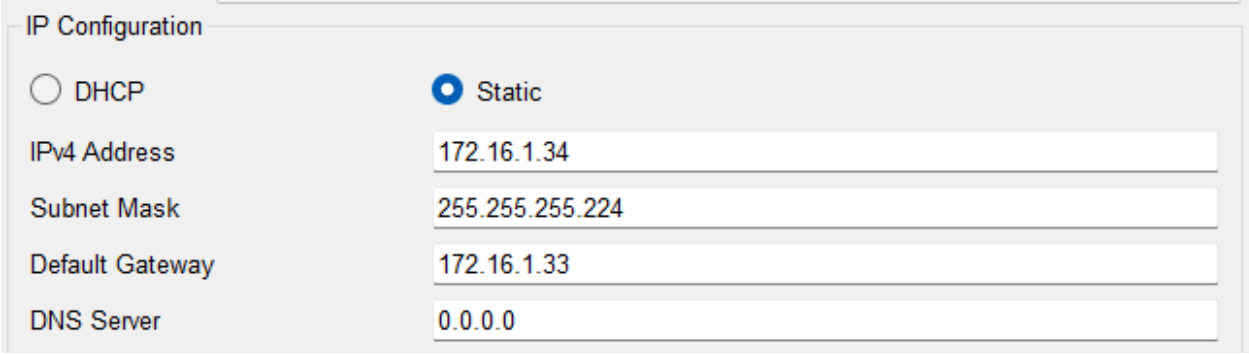


PC2

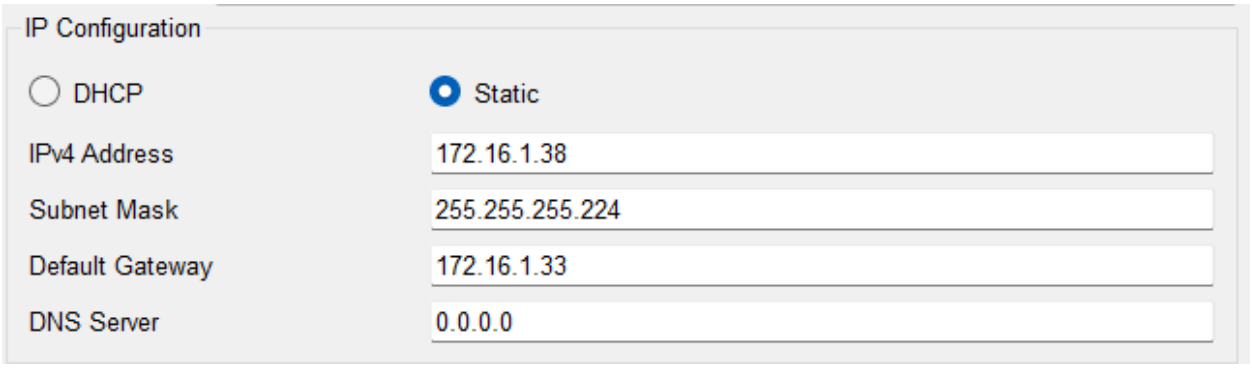


Accounting Department

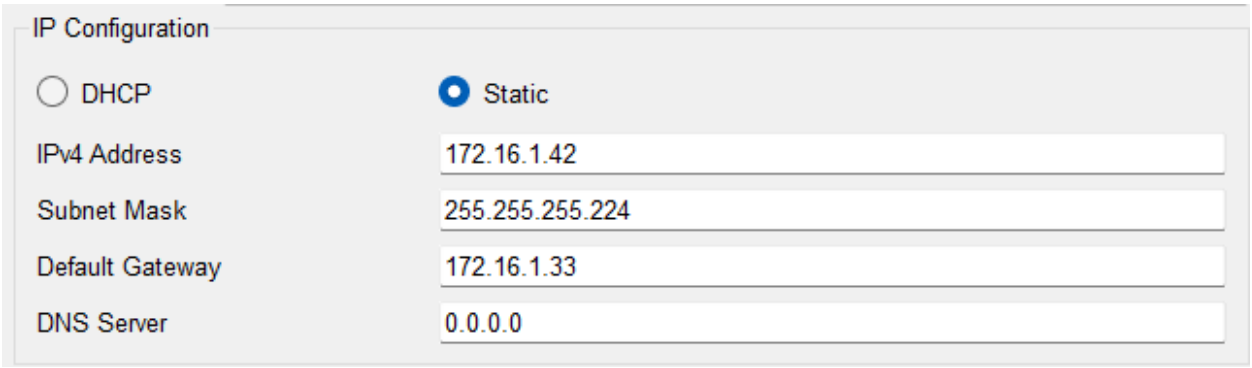
PC1



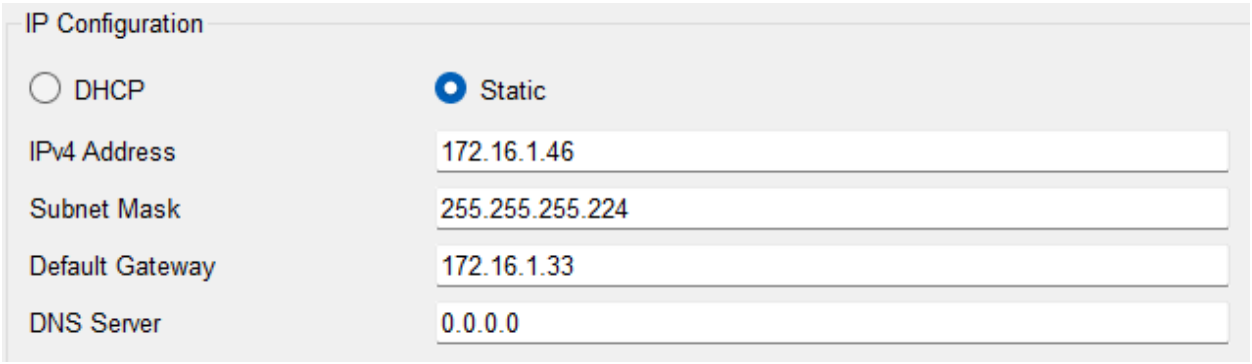
PC2


IP Configuration
DHCP
Static
IPv4 Address
172.16.1.38
Subnet Mask
255.255.255.224
Default Gateway
172.16.1.33
DNS Server
0.0.0.0

PC3

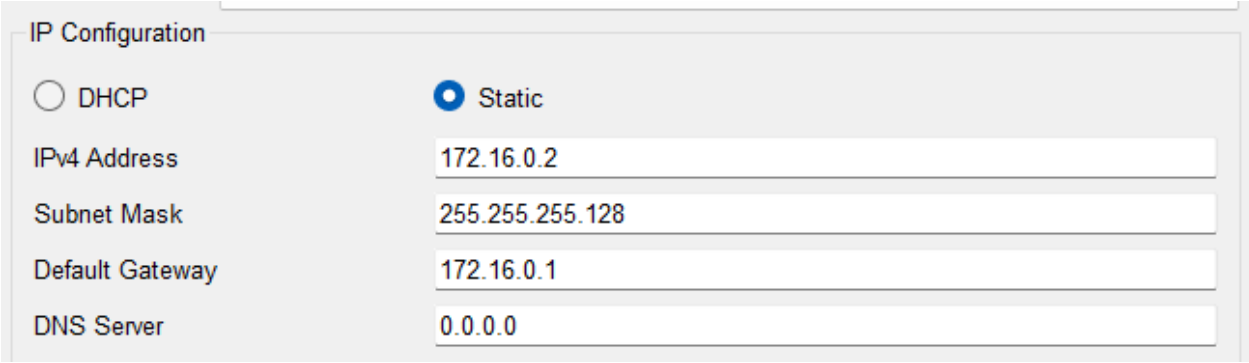

IP Configuration
DHCP
Static
IPv4 Address
172.16.1.42
Subnet Mask
255.255.255.224
Default Gateway
172.16.1.33
DNS Server
0.0.0.0

PC4

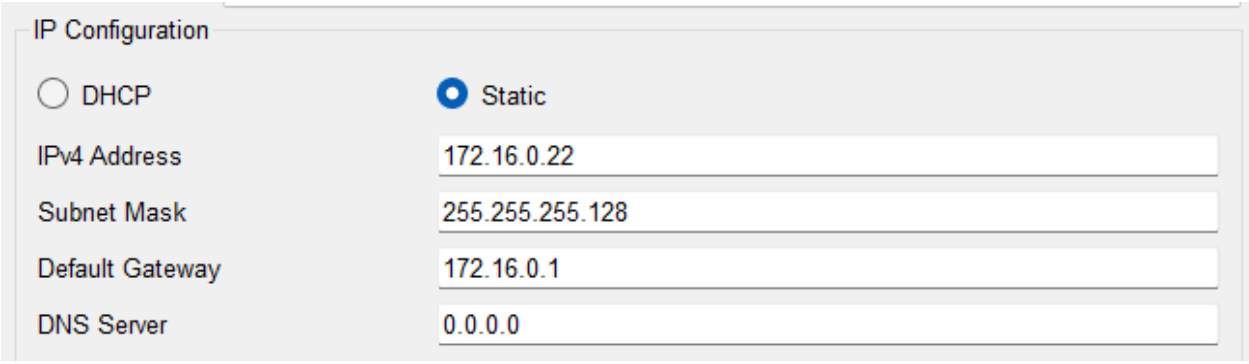

IP Configuration
DHCP
Static
IPv4 Address
172.16.1.46
Subnet Mask
255.255.255.224
Default Gateway
172.16.1.33
DNS Server
0.0.0.0

Manufacturing Department

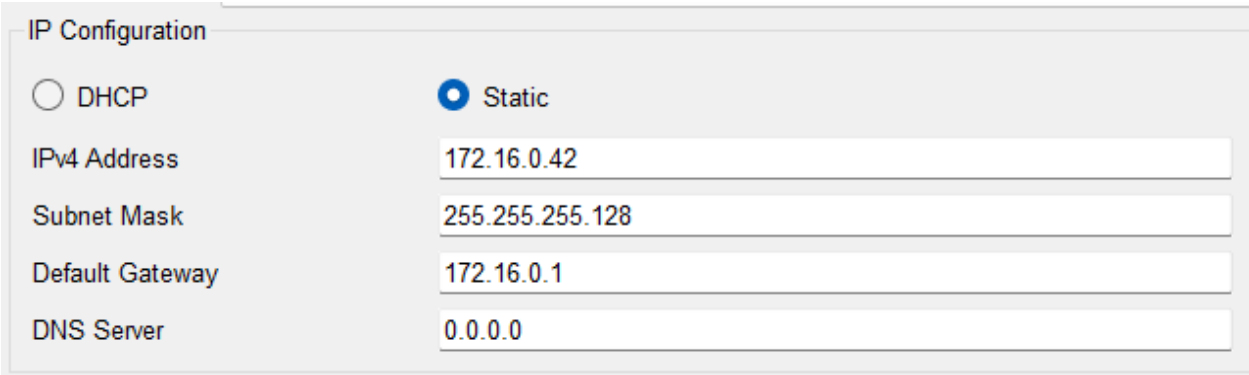
PC1



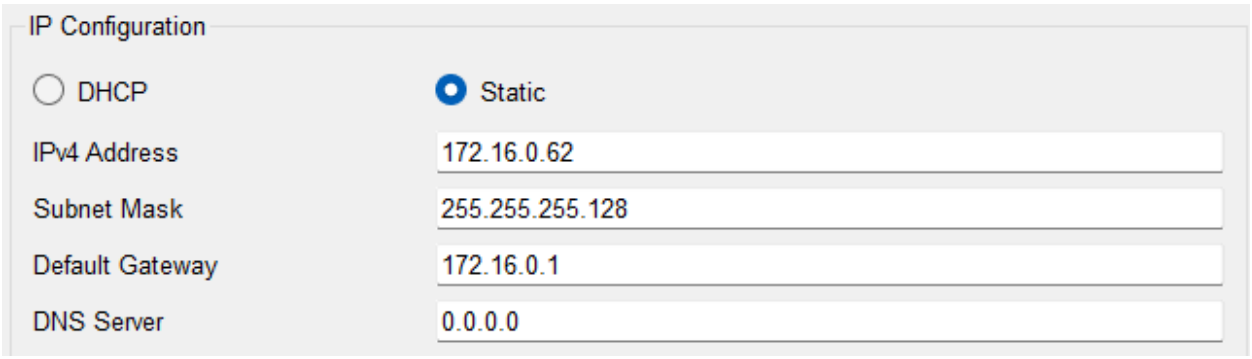
PC2



PC3

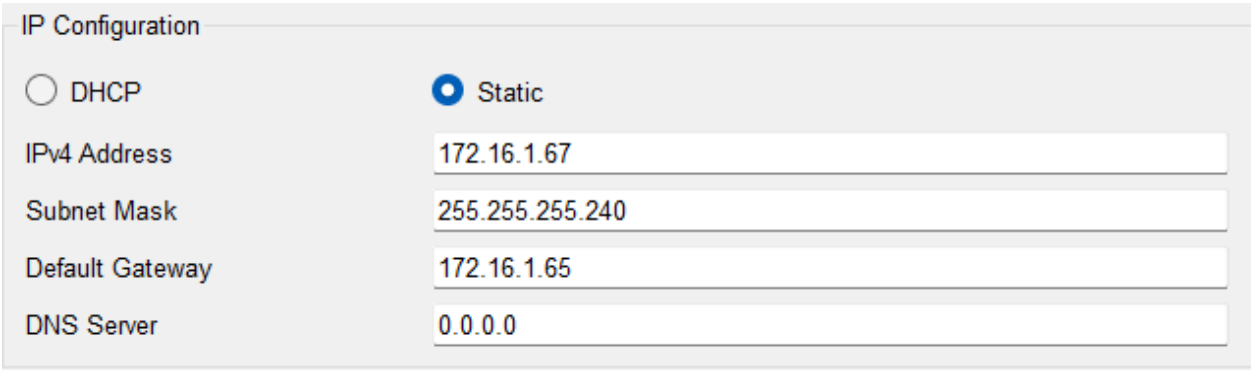


PC4

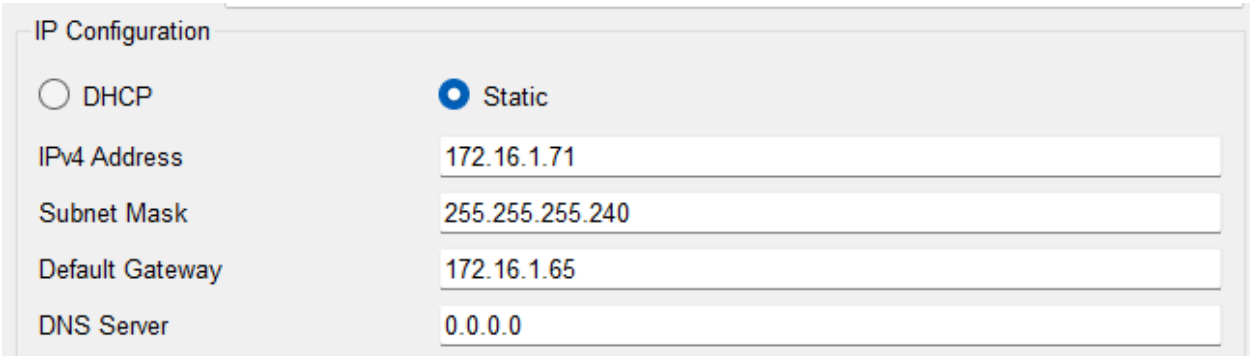


Sales Department

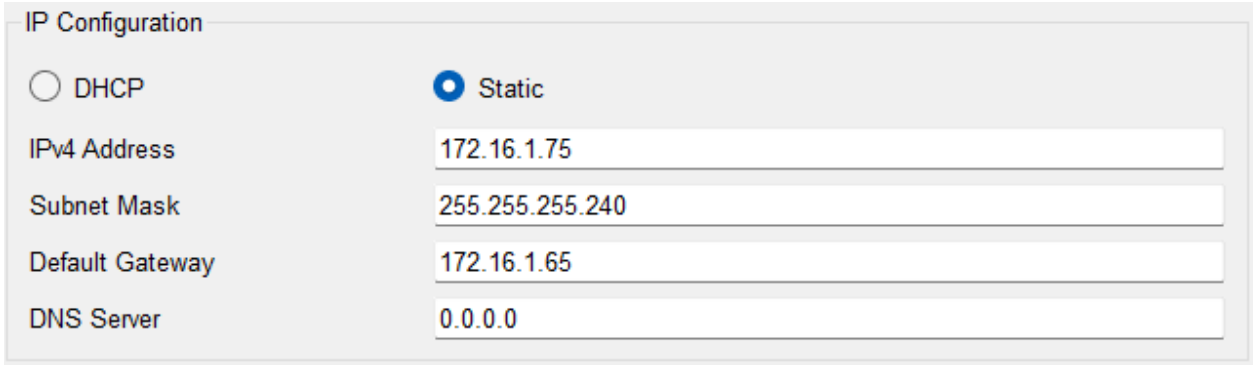
Room1 - Laptop1



Room2 - Laptop1

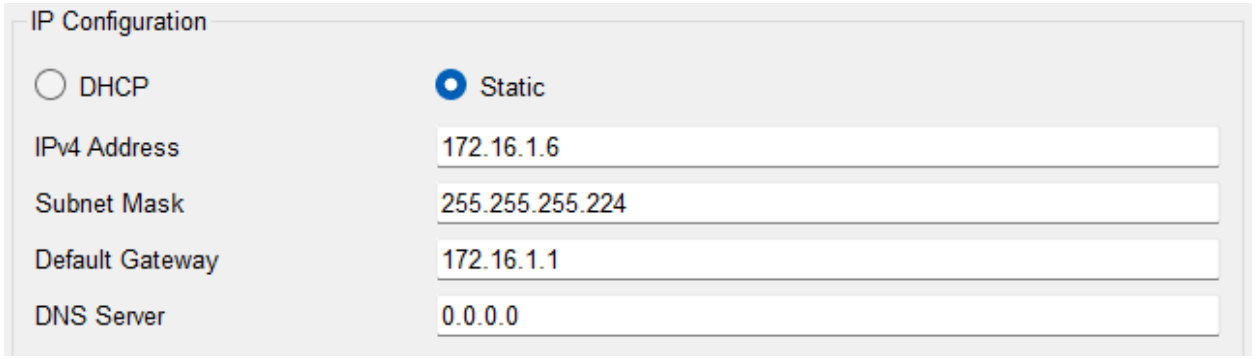


Room3 - Laptop1

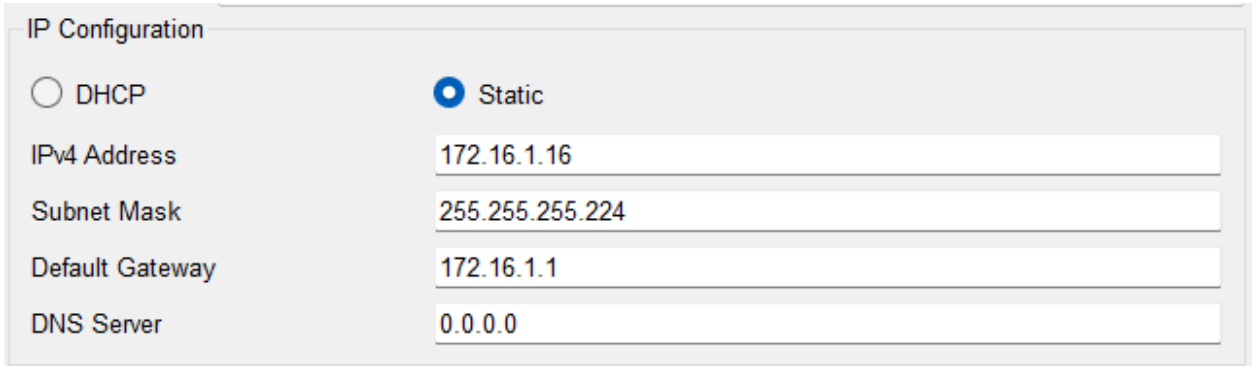


Warehouse Department

PC1



PC2



Ping Connectivity

Ping Test In Location A

Department From	Device	IP address	Location Department	Device	IP address
Location A Administartion Department	D_Administration (PC1)	172.16.0.130	Location A Administartion Department	D_Administration(PC2)	172.16.0.155
				Admin_Switch1	172.16.0.254
			Location B Human Resource Department	D_HumanResource(PC1)	172.16.1.82
				HRSwitch1	172.16.1.94
			Location B Accounting Department	D_Acccounting(PC1)	172.16.1.34
				AccountingSwitch1	172.16.1.62
			Location B Manufacturing Department	D_Manufacturing(PC1)	172.16.0.2
				ManufacturingSwitch1	172.16.0.126
			Location C Sales Department	D_Sales(R2/L1)	172.16.1.71
				SalesSwitch1	172.16.1.78
			Location D Warehouse Department	D_Warehouse(PC2)	172.16.1.16
				WarehouseSwitch1	172.16.1.30

D_Administration (PC1) to D_Administration(PC2)

```
C:\>ping 172.16.0.155

Pinging 172.16.0.155 with 32 bytes of data:

Reply from 172.16.0.155: bytes=32 time=1ms TTL=128
Reply from 172.16.0.155: bytes=32 time<1ms TTL=128
Reply from 172.16.0.155: bytes=32 time<1ms TTL=128
Reply from 172.16.0.155: bytes=32 time<1ms TTL=128

Ping statistics for 172.16.0.155:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms
```

D_Administration (PC1) to Admin_Switch1

```
C:\>ping 172.16.0.254

Pinging 172.16.0.254 with 32 bytes of data:

Reply from 172.16.0.254: bytes=32 time<1ms TTL=255
Reply from 172.16.0.254: bytes=32 time<1ms TTL=255
Reply from 172.16.0.254: bytes=32 time<1ms TTL=255
Reply from 172.16.0.254: bytes=32 time<1ms TTL=255

Ping statistics for 172.16.0.254:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

D_Administration (PC1) to D_HumanResource (PC1)

```
C:\>ping 172.16.1.82

Pinging 172.16.1.82 with 32 bytes of data:

Reply from 172.16.1.82: bytes=32 time=12ms TTL=127
Reply from 172.16.1.82: bytes=32 time<1ms TTL=127
Reply from 172.16.1.82: bytes=32 time<1ms TTL=127
Reply from 172.16.1.82: bytes=32 time<1ms TTL=127

Ping statistics for 172.16.1.82:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 12ms, Average = 3ms
```

D_Administration (PC1) to HRSwitch1

```
C:\>ping 172.16.1.94

Pinging 172.16.1.94 with 32 bytes of data:

Reply from 172.16.1.94: bytes=32 time<1ms TTL=254
Reply from 172.16.1.94: bytes=32 time<1ms TTL=254
Reply from 172.16.1.94: bytes=32 time<1ms TTL=254
Reply from 172.16.1.94: bytes=32 time<1ms TTL=254

Ping statistics for 172.16.1.94:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

D_Administration (PC1) to D_Acccounting(PC1)

```
C:\>ping 172.16.1.34

Pinging 172.16.1.34 with 32 bytes of data:

Reply from 172.16.1.34: bytes=32 time<1ms TTL=127
Reply from 172.16.1.34: bytes=32 time<1ms TTL=127
Reply from 172.16.1.34: bytes=32 time<1ms TTL=127
Reply from 172.16.1.34: bytes=32 time<1ms TTL=127

Ping statistics for 172.16.1.34:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

D_Administration (PC1) to AccountingSwitch1

```
C:\>ping 172.16.1.62

Pinging 172.16.1.62 with 32 bytes of data:

Reply from 172.16.1.62: bytes=32 time<1ms TTL=254
Reply from 172.16.1.62: bytes=32 time<1ms TTL=254
Reply from 172.16.1.62: bytes=32 time<1ms TTL=254
Reply from 172.16.1.62: bytes=32 time<1ms TTL=254

Ping statistics for 172.16.1.62:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

D_Administration (PC1) to D_Manufacturing(PC1)

```
C:\>ping 172.16.0.2

Pinging 172.16.0.2 with 32 bytes of data:

Reply from 172.16.0.2: bytes=32 time<1ms TTL=127
Reply from 172.16.0.2: bytes=32 time<1ms TTL=127
Reply from 172.16.0.2: bytes=32 time<1ms TTL=127
Reply from 172.16.0.2: bytes=32 time<1ms TTL=127

Ping statistics for 172.16.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

D_Administration (PC1) to ManufacturingSwitch1

```
C:\>ping 172.16.0.126

Pinging 172.16.0.126 with 32 bytes of data:

Reply from 172.16.0.126: bytes=32 time<1ms TTL=254
Reply from 172.16.0.126: bytes=32 time<1ms TTL=254
Reply from 172.16.0.126: bytes=32 time<1ms TTL=254
Reply from 172.16.0.126: bytes=32 time<1ms TTL=254

Ping statistics for 172.16.0.126:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

D_Administration (PC1) to D_Sales(R2/L1)

```
C:\>ping 172.16.1.71

Pinging 172.16.1.71 with 32 bytes of data:

Reply from 172.16.1.71: bytes=32 time=1ms TTL=126
Reply from 172.16.1.71: bytes=32 time<1ms TTL=126
Reply from 172.16.1.71: bytes=32 time<1ms TTL=126
Reply from 172.16.1.71: bytes=32 time=1ms TTL=126

Ping statistics for 172.16.1.71:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms
```

D_Administration (PC1) to SalesSwitch1

```
C:\>ping 172.16.1.78

Pinging 172.16.1.78 with 32 bytes of data:

Reply from 172.16.1.78: bytes=32 time<1ms TTL=253
Reply from 172.16.1.78: bytes=32 time<1ms TTL=253
Reply from 172.16.1.78: bytes=32 time<1ms TTL=253
Reply from 172.16.1.78: bytes=32 time<1ms TTL=253

Ping statistics for 172.16.1.78:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

D_Administration (PC1) to D_Warehouse(PC2)

```
C:\>ping 172.16.1.16

Pinging 172.16.1.16 with 32 bytes of data:

Reply from 172.16.1.16: bytes=32 time<1ms TTL=126
Reply from 172.16.1.16: bytes=32 time<1ms TTL=126
Reply from 172.16.1.16: bytes=32 time<1ms TTL=126
Reply from 172.16.1.16: bytes=32 time<1ms TTL=126

Ping statistics for 172.16.1.16:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

D_Administration (PC1) to WarehouseSwitch1

```
C:\>ping 172.16.1.30

Pinging 172.16.1.30 with 32 bytes of data:

Reply from 172.16.1.30: bytes=32 time<1ms TTL=253
Reply from 172.16.1.30: bytes=32 time<1ms TTL=253
Reply from 172.16.1.30: bytes=32 time=3ms TTL=253
Reply from 172.16.1.30: bytes=32 time<1ms TTL=253

Ping statistics for 172.16.1.30:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 3ms, Average = 0ms
```

Ping Test In Location B

Department From	Device	IP address	Location Department	Device	IP address
Location B Human Resource Department	D_HumanResource (PC1)	172.16.1.82	Location B Human Resource Department	D_HumanResource(PC2)	172.16.1.85
				HRSwitch1	172.16.1.94
			Location B Accounting Department	D_Acccounting(PC1)	172.16.1.34
				AccountingSwitch1	172.16.1.62
			Location B Manufacturing Department	D_Manufacturing(PC1)	172.16.0.2
				ManufacturingSwitch1	172.16.0.126
			Location C Sales Department	D_Sales(R2/L1)	172.16.1.71
				SalesSwitch1	172.16.1.78
			Location D Warehouse Department	D_Warehouse(PC2)	172.16.1.16
				WarehouseSwitch1	172.16.1.30

D_HumanResource(PC1) to D_HumanResource (PC2)

```
C:\>ping 172.16.1.85

Pinging 172.16.1.85 with 32 bytes of data:

Reply from 172.16.1.85: bytes=32 time<1ms TTL=128
Reply from 172.16.1.85: bytes=32 time<1ms TTL=128
Reply from 172.16.1.85: bytes=32 time<1ms TTL=128
Reply from 172.16.1.85: bytes=32 time<1ms TTL=128

Ping statistics for 172.16.1.85:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

D_HumanResource(PC1) to HRSwitch1

```
C:\>ping 172.16.1.94

Pinging 172.16.1.94 with 32 bytes of data:

Reply from 172.16.1.94: bytes=32 time<1ms TTL=255
Reply from 172.16.1.94: bytes=32 time<1ms TTL=255
Reply from 172.16.1.94: bytes=32 time<1ms TTL=255
Reply from 172.16.1.94: bytes=32 time<1ms TTL=255

Ping statistics for 172.16.1.94:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

D_HumanResource(PC1) to D_Acccounting(PC1)

```
C:\>ping 172.16.1.34

Pinging 172.16.1.34 with 32 bytes of data:

Reply from 172.16.1.34: bytes=32 time<1ms TTL=127
Reply from 172.16.1.34: bytes=32 time<1ms TTL=127
Reply from 172.16.1.34: bytes=32 time<1ms TTL=127
Reply from 172.16.1.34: bytes=32 time<1ms TTL=127

Ping statistics for 172.16.1.34:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

D_HumanResource(PC1) to AccountingSwitch1

```
C:\>ping 172.16.1.62

Pinging 172.16.1.62 with 32 bytes of data:

Reply from 172.16.1.62: bytes=32 time<1ms TTL=254
Reply from 172.16.1.62: bytes=32 time<1ms TTL=254
Reply from 172.16.1.62: bytes=32 time<1ms TTL=254
Reply from 172.16.1.62: bytes=32 time<1ms TTL=254

Ping statistics for 172.16.1.62:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

D_HumanResource(PC1) to D_Manufacturing(PC1)

```
C:\>ping 172.16.0.2

Pinging 172.16.0.2 with 32 bytes of data:

Reply from 172.16.0.2: bytes=32 time<1ms TTL=127
Reply from 172.16.0.2: bytes=32 time<1ms TTL=127
Reply from 172.16.0.2: bytes=32 time<1ms TTL=127
Reply from 172.16.0.2: bytes=32 time<1ms TTL=127

Ping statistics for 172.16.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

D_HumanResource(PC1) to ManufacturingSwitch1

```
C:\>ping 172.16.0.126

Pinging 172.16.0.126 with 32 bytes of data:

Reply from 172.16.0.126: bytes=32 time<1ms TTL=254
Reply from 172.16.0.126: bytes=32 time<1ms TTL=254
Reply from 172.16.0.126: bytes=32 time<1ms TTL=254
Reply from 172.16.0.126: bytes=32 time<1ms TTL=254

Ping statistics for 172.16.0.126:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

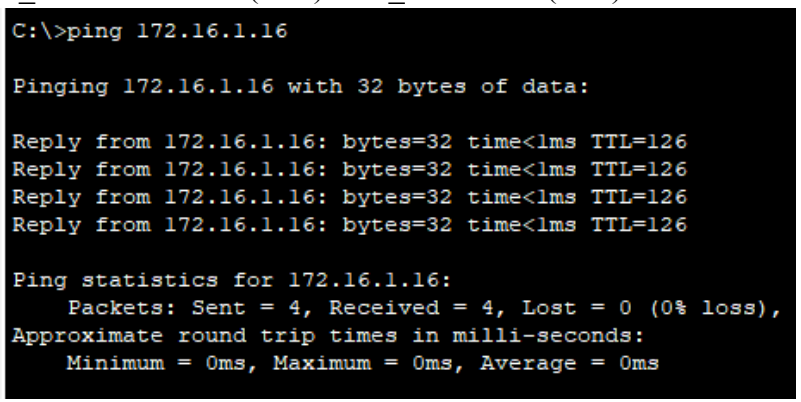
D_HumanResource(PC1) to D_Sales(R2/L1)

```
C:\>ping 172.16.1.71

Pinging 172.16.1.71 with 32 bytes of data:

Reply from 172.16.1.71: bytes=32 time<1ms TTL=126
Reply from 172.16.1.71: bytes=32 time<1ms TTL=126
Reply from 172.16.1.71: bytes=32 time<1ms TTL=126
Reply from 172.16.1.71: bytes=32 time<1ms TTL=126

Ping statistics for 172.16.1.71:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

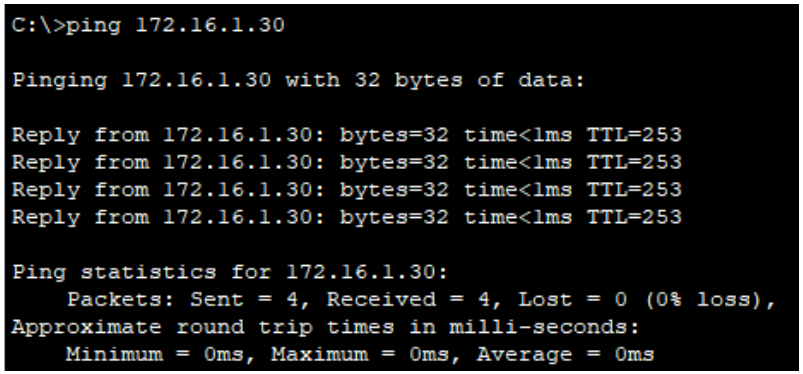
D_HumanResource(PC1) to SalesSwitch1

```
C:\>ping 172.16.1.78

Pinging 172.16.1.78 with 32 bytes of data:

Reply from 172.16.1.78: bytes=32 time<1ms TTL=253
Reply from 172.16.1.78: bytes=32 time<1ms TTL=253
Reply from 172.16.1.78: bytes=32 time<1ms TTL=253
Reply from 172.16.1.78: bytes=32 time<1ms TTL=253

Ping statistics for 172.16.1.78:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

D_HumanResource(PC1) to D_Warehouse(PC2)



D_HumanResource(PC1) to WarehouseSwitch1



Ping Test In Location B

Department From	Device	IP address	Location Department	Device	IP address
Location B Accounting Department	D_Acccounting (PC1)	172.16.1.34	Location B Accounting Department	D_Acccounting(PC2)	172.16.1.38
				AccountingSwitch1	172.16.1.62
			Location B Manufacturing Department	D_Manufacturing(PC1)	172.16.0.2
				ManufacturingSwitch1	172.16.0.126
			Location C Sales Department	D_Sales(R2/L1)	172.16.1.71
				SalesSwitch1	172.16.1.78
			Location D Warehouse Department	D_Warehouse(PC2)	172.16.1.16
				WarehouseSwitch1	172.16.1.30

D_Acccounting(PC1) to D_Acccounting(PC2)

```
C:\>ping 172.16.1.38

Pinging 172.16.1.38 with 32 bytes of data:

Reply from 172.16.1.38: bytes=32 time=1ms TTL=128
Reply from 172.16.1.38: bytes=32 time<1ms TTL=128
Reply from 172.16.1.38: bytes=32 time<1ms TTL=128
Reply from 172.16.1.38: bytes=32 time<1ms TTL=128

Ping statistics for 172.16.1.38:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms
```

D_Acccounting(PC1) to AccountingSwitch1

```
C:\>ping 172.16.1.62

Pinging 172.16.1.62 with 32 bytes of data:

Reply from 172.16.1.62: bytes=32 time<1ms TTL=255
Reply from 172.16.1.62: bytes=32 time=12ms TTL=255
Reply from 172.16.1.62: bytes=32 time<1ms TTL=255
Reply from 172.16.1.62: bytes=32 time<1ms TTL=255

Ping statistics for 172.16.1.62:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 12ms, Average = 3ms
```

D_Acccounting(PC1) to D_Manufacturing(PC1)

```
C:\>ping 172.16.0.2

Pinging 172.16.0.2 with 32 bytes of data:

Reply from 172.16.0.2: bytes=32 time<1ms TTL=127
Reply from 172.16.0.2: bytes=32 time=1ms TTL=127
Reply from 172.16.0.2: bytes=32 time<1ms TTL=127
Reply from 172.16.0.2: bytes=32 time<1ms TTL=127

Ping statistics for 172.16.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms
```

D_Acccounting(PC1) to ManufacturingSwitch1

```
C:\>ping 172.16.0.126

Pinging 172.16.0.126 with 32 bytes of data:

Reply from 172.16.0.126: bytes=32 time<1ms TTL=254
Reply from 172.16.0.126: bytes=32 time<1ms TTL=254
Reply from 172.16.0.126: bytes=32 time<1ms TTL=254
Reply from 172.16.0.126: bytes=32 time<1ms TTL=254

Ping statistics for 172.16.0.126:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

D_Acccounting(PC1) to D_Sales(R2/L1)

```
C:\>ping 172.16.1.71

Pinging 172.16.1.71 with 32 bytes of data:

Reply from 172.16.1.71: bytes=32 time<1ms TTL=126
Reply from 172.16.1.71: bytes=32 time=1ms TTL=126
Reply from 172.16.1.71: bytes=32 time<1ms TTL=126
Reply from 172.16.1.71: bytes=32 time<1ms TTL=126

Ping statistics for 172.16.1.71:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms
```

D_Acccounting(PC1) to SalesSwitch1

```
C:\>ping 172.16.1.78

Pinging 172.16.1.78 with 32 bytes of data:

Reply from 172.16.1.78: bytes=32 time<1ms TTL=253
Reply from 172.16.1.78: bytes=32 time=1ms TTL=253
Reply from 172.16.1.78: bytes=32 time<1ms TTL=253
Reply from 172.16.1.78: bytes=32 time<1ms TTL=253

Ping statistics for 172.16.1.78:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms
```

D_Acccounting(PC1) to D_Warehouse(PC2)

```
C:\>ping 172.16.1.16

Pinging 172.16.1.16 with 32 bytes of data:

Reply from 172.16.1.16: bytes=32 time<1ms TTL=126
Reply from 172.16.1.16: bytes=32 time<1ms TTL=126
Reply from 172.16.1.16: bytes=32 time<1ms TTL=126
Reply from 172.16.1.16: bytes=32 time<1ms TTL=126

Ping statistics for 172.16.1.16:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

D_Acccounting(PC1) to WarehouseSwitch1

```
C:\>ping 172.16.1.30

Pinging 172.16.1.30 with 32 bytes of data:

Reply from 172.16.1.30: bytes=32 time<1ms TTL=253
Reply from 172.16.1.30: bytes=32 time<1ms TTL=253
Reply from 172.16.1.30: bytes=32 time<1ms TTL=253
Reply from 172.16.1.30: bytes=32 time<1ms TTL=253

Ping statistics for 172.16.1.30:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

Ping Test In Location B

Department From	Device	IP address	Location Department	Device	IP address
Location B Manufacturing Department	D_Manufacturing (PC1)	172.16.0.2	Location B Manufacturing Department	D_Manufacturing(PC2)	172.16.0.22
				ManufacturingSwitch1	172.16.0.126
			Location C Sales Department	D_Sales(R2/L1)	172.16.1.71
				SalesSwitch1	172.16.1.78
			Location D Warehouse Department	D_Warehouse(PC2)	172.16.1.16
				WarehouseSwitch1	172.16.1.30

D_Manufacturing(PC1) to D_Manufacturing(PC2)

```
C:\>ping 172.16.0.22

Pinging 172.16.0.22 with 32 bytes of data:

Reply from 172.16.0.22: bytes=32 time<1ms TTL=128
Reply from 172.16.0.22: bytes=32 time<1ms TTL=128
Reply from 172.16.0.22: bytes=32 time<1ms TTL=128
Reply from 172.16.0.22: bytes=32 time<1ms TTL=128

Ping statistics for 172.16.0.22:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

D_Manufacturing(PC1) to ManufacturingSwitch1

```
C:\>ping 172.16.0.126

Pinging 172.16.0.126 with 32 bytes of data:

Reply from 172.16.0.126: bytes=32 time<1ms TTL=255
Reply from 172.16.0.126: bytes=32 time=12ms TTL=255
Reply from 172.16.0.126: bytes=32 time<1ms TTL=255
Reply from 172.16.0.126: bytes=32 time<1ms TTL=255

Ping statistics for 172.16.0.126:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 12ms, Average = 3ms
```

D_Manufacturing(PC1) to D_Sales(R2/L1)

```
C:\>ping 172.16.1.71

Pinging 172.16.1.71 with 32 bytes of data:

Reply from 172.16.1.71: bytes=32 time<1ms TTL=126
Reply from 172.16.1.71: bytes=32 time<1ms TTL=126
Reply from 172.16.1.71: bytes=32 time<1ms TTL=126
Reply from 172.16.1.71: bytes=32 time<1ms TTL=126

Ping statistics for 172.16.1.71:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

D_Manufacturing(PC1) to SalesSwitch1

```
C:\>ping 172.16.1.78

Pinging 172.16.1.78 with 32 bytes of data:

Reply from 172.16.1.78: bytes=32 time<1ms TTL=253
Reply from 172.16.1.78: bytes=32 time<1ms TTL=253
Reply from 172.16.1.78: bytes=32 time<1ms TTL=253
Reply from 172.16.1.78: bytes=32 time<1ms TTL=253

Ping statistics for 172.16.1.78:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

D_Manufacturing(PC1) to D_Warehouse(PC2)

```
C:\>ping 172.16.1.16

Pinging 172.16.1.16 with 32 bytes of data:

Reply from 172.16.1.16: bytes=32 time<1ms TTL=126
Reply from 172.16.1.16: bytes=32 time<1ms TTL=126
Reply from 172.16.1.16: bytes=32 time=1ms TTL=126
Reply from 172.16.1.16: bytes=32 time<1ms TTL=126

Ping statistics for 172.16.1.16:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms
```

D_Manufacturing(PC1) to WarehouseSwitch1

```
C:\>ping 172.16.1.30

Pinging 172.16.1.30 with 32 bytes of data:

Reply from 172.16.1.30: bytes=32 time<1ms TTL=253
Reply from 172.16.1.30: bytes=32 time<1ms TTL=253
Reply from 172.16.1.30: bytes=32 time=4ms TTL=253
Reply from 172.16.1.30: bytes=32 time<1ms TTL=253

Ping statistics for 172.16.1.30:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 4ms, Average = 1ms
```

Ping Test In Location C

Department From	Device	IP address	Location Department	Device	IP address
Location C Sales Department	D_Sales(R1/L1)	172.16.1.67	Location C Sales Department	D_Sales(R2/L1)	172.16.1.71
				SalesSwitch1	172.16.1.78
			Location D Warehouse Department	D_Warehouse(PC2)	172.16.1.16
				WarehouseSwitch1	172.16.1.30

D_Sales(R1/L1) to D_Sales(R2/L1)

```
C:\>ping 172.16.1.71

Pinging 172.16.1.71 with 32 bytes of data:

Reply from 172.16.1.71: bytes=32 time<1ms TTL=128
Reply from 172.16.1.71: bytes=32 time<1ms TTL=128
Reply from 172.16.1.71: bytes=32 time<1ms TTL=128
Reply from 172.16.1.71: bytes=32 time<1ms TTL=128

Ping statistics for 172.16.1.71:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

D_Sales(R1/L1) to SalesSwitch1

```
C:\>ping 172.16.1.78

Pinging 172.16.1.78 with 32 bytes of data:

Reply from 172.16.1.78: bytes=32 time<1ms TTL=255
Reply from 172.16.1.78: bytes=32 time<1ms TTL=255
Reply from 172.16.1.78: bytes=32 time<1ms TTL=255
Reply from 172.16.1.78: bytes=32 time=11ms TTL=255

Ping statistics for 172.16.1.78:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 11ms, Average = 2ms
```

D_Sales(R1/L1) to D_Warehouse(PC2)

```
C:\>ping 172.16.1.16

Pinging 172.16.1.16 with 32 bytes of data:

Reply from 172.16.1.16: bytes=32 time<1ms TTL=127
Reply from 172.16.1.16: bytes=32 time<1ms TTL=127
Reply from 172.16.1.16: bytes=32 time<1ms TTL=127
Reply from 172.16.1.16: bytes=32 time<1ms TTL=127

Ping statistics for 172.16.1.16:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

D_Sales(R1/L1) to WarehouseSwitch1

```
C:\>ping 172.16.1.30

Pinging 172.16.1.30 with 32 bytes of data:

Reply from 172.16.1.30: bytes=32 time<1ms TTL=254
Reply from 172.16.1.30: bytes=32 time<1ms TTL=254
Reply from 172.16.1.30: bytes=32 time=12ms TTL=254
Reply from 172.16.1.30: bytes=32 time=11ms TTL=254

Ping statistics for 172.16.1.30:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 12ms, Average = 5ms
```

Ping Test In Location D

Department From	Device	IP address	Location Department	Device	IP address
Location D Warehouse Department	D_Warehouse (PC1)	172.16.1.6	Location D Warehouse Department	D_Warehouse(PC2)	172.16.1.16
				WarehouseSwitch1	172.16.1.30

D_Warehouse(PC1) to D_Warehouse(PC2)

```
C:\>ping 172.16.1.16

Pinging 172.16.1.16 with 32 bytes of data:

Reply from 172.16.1.16: bytes=32 time=1ms TTL=128
Reply from 172.16.1.16: bytes=32 time<1ms TTL=128
Reply from 172.16.1.16: bytes=32 time<1ms TTL=128
Reply from 172.16.1.16: bytes=32 time<1ms TTL=128

Ping statistics for 172.16.1.16:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms
```

D_Warehouse(PC1) to WarehouseSwitch1

```
C:\>ping 172.16.1.30

Pinging 172.16.1.30 with 32 bytes of data:

Reply from 172.16.1.30: bytes=32 time<1ms TTL=255
Reply from 172.16.1.30: bytes=32 time<1ms TTL=255
Reply from 172.16.1.30: bytes=32 time<1ms TTL=255
Reply from 172.16.1.30: bytes=32 time<1ms TTL=255

Ping statistics for 172.16.1.30:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

Digital Resources Used

Youtube

Purpose:

We can learn new skills from YouTube and apply them in our assignments, such as configuring routing protocols between two routers. Beside that, when we meet some [roblem we also find the education video to have a look how to solve this problem.

URL Link

https://www.youtube.com/

Meet

Purpose:

We use it to discuss the assignment. Example we share a screen to discuss the assignment or teach the part that we don't know. Next we use Google meet to record our video. We use the funcntion of sharescrean to share the slide and record the video.

URL Link

https://meet.google.com/

Whatsapp

Purpose:

We use Whatsapp to discuss our assignments. We cannot every time to open a google meet to discuss our assignment is too trouble so when we want to discuss a little thing of assignment we will use whatsapp function send message and voice call so we no need to open a google meet every time. It will be easier to use Whatsapp than Google meet.

URL link

https://web.whatsapp.com/

Capcut

Purpose:

We use CapCut to edit videos like cut the video length and add some effect to make the video more interesting. So the audience will not be so bored while watching our video.

URL link

https://www.capcut.com/

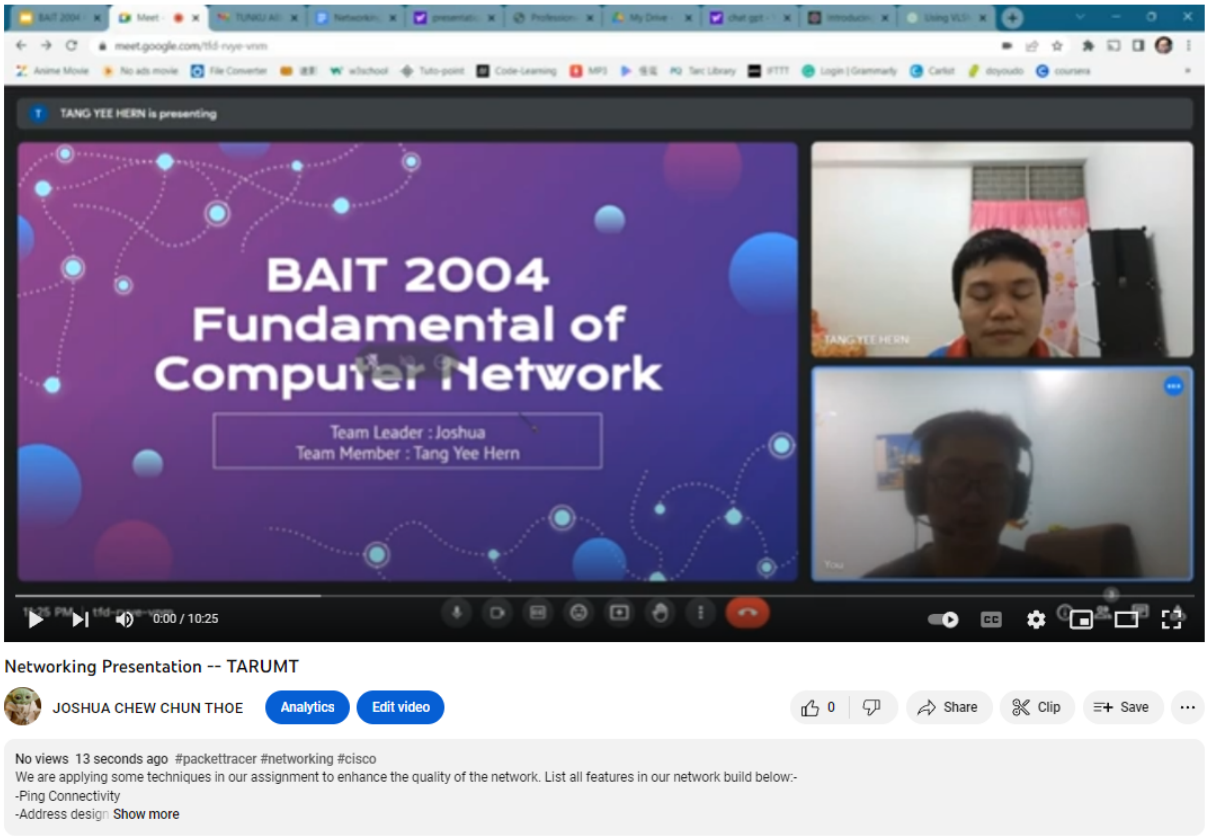
Cisco Packet Tracer

Purpose:

Cisco Packet Tracer is the most important application in our assignment. Without it we cannot complete our assignment. Because it can design the network topology and assign the ip address to each end-device so we can ping and see if the IP address that we assign is successfully or not using the ping command. Other than taht we can also configure router port and Switch . to have a look at what will happen if we use this scenario.

YouTube link, social media posting and screen captures

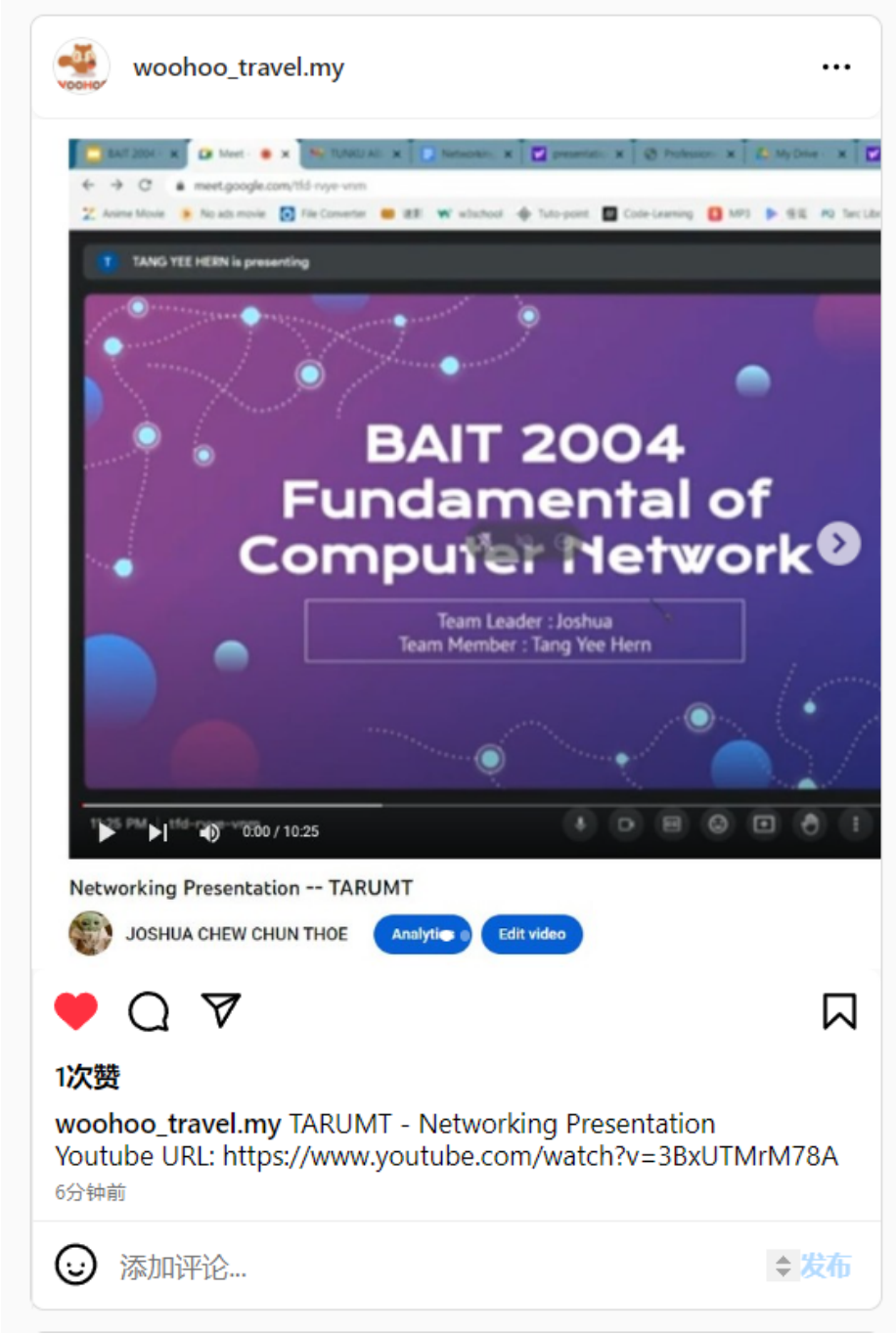
Youtube Screenshot



URL: [YouTube - Assignment Presentation]

We intend to upload the video to YouTube so that our audience may view it quickly in comparison to other methods.

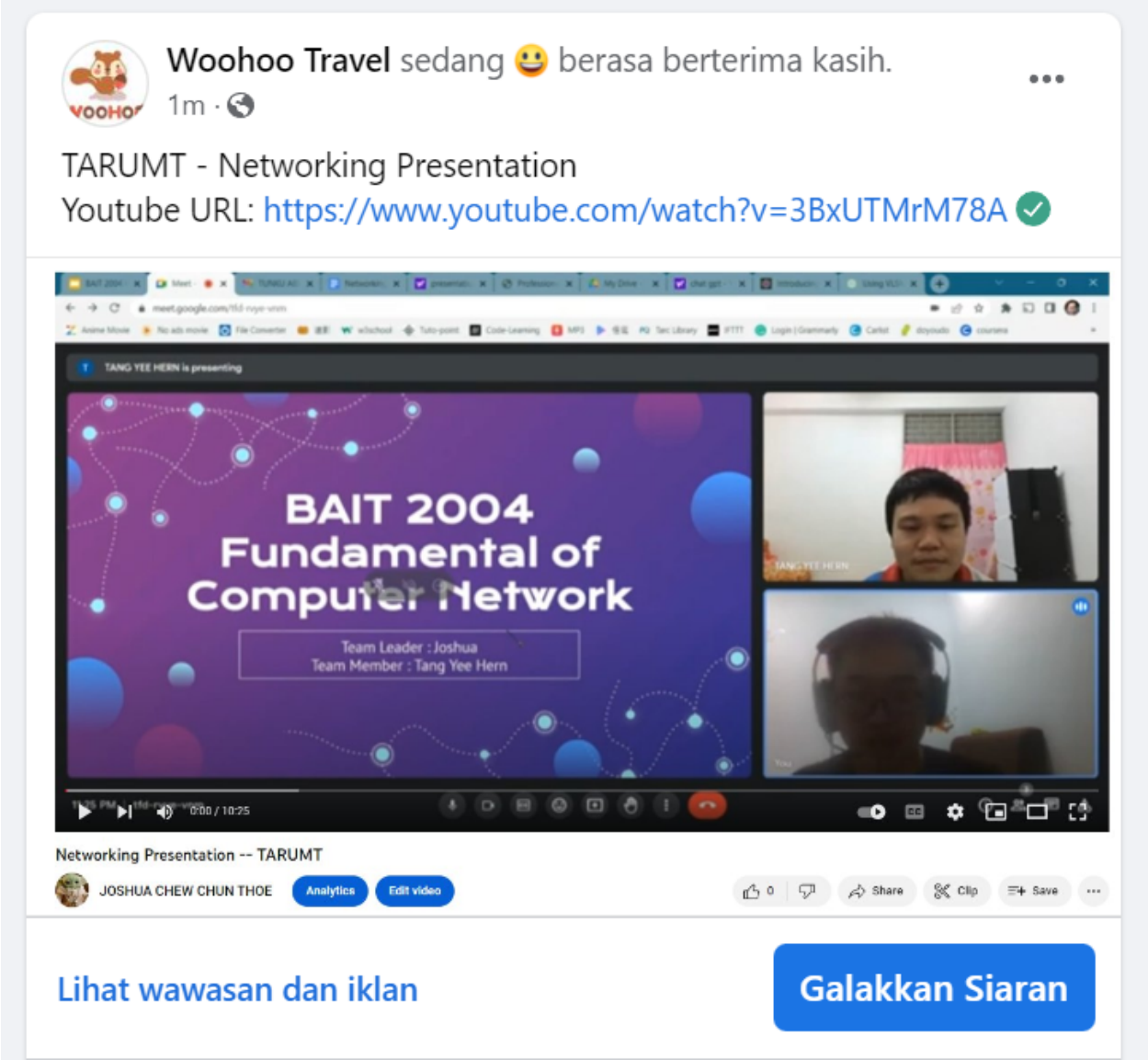
Instagram Post



URL: [Instagram - Networking Presentation]

We need to perform some advertising on social media apps to get more people to see our movie so that we can collect all of the feedback.

Facebook Post



URL: [Facebook - Networking Presentation]

We need to perform some advertising on social media apps to get more people to see our movie so that we can collect all of the feedback.

References

IP Address

UTC. “Ip Address.” *Ip Address*, Wikipedia, 2 March 2023, https://en.wikipedia.org/wiki/IP_address. Accessed 16 April 2023.

IP Configuration

UTC. “IP Configuration.” *IP Configuration*, Wikipedia, 27 March 2023, https://en.wikipedia.org/wiki/Ipconfig. Accessed 16 April 2023.

Routing Protocols

UTC. “Routing Protocols.” Routing Protocols, Wikipedia, 19 March 2023, https://en.wikipedia.org/wiki/Routing_protocol. Accessed 16 4 2023.