



DATA COMMUNICATION AND NETWORKING II

COURSE CODE: 512

NEHA NOOR

B21110006101

SEMESTER: 6TH

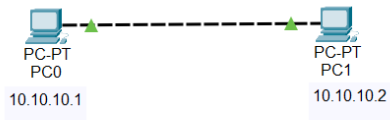
BSCS-III

SUBMITTED BY : MISS ATTIA AGHA

Computer Science Department
University Of Karachi

LAB 1

Connecting Two PC



Devices:

- 2 PC
- Crossover cable

```
Physical Config Desktop Programming Attributes
Command Prompt

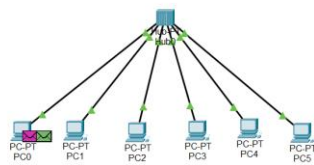
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 10.10.10.2

Pinging 10.10.10.2 with 32 bytes of data:

Reply from 10.10.10.2: bytes=32 time<1ms TTL=128
Reply from 10.10.10.2: bytes=32 time<1ms TTL=128
Reply from 10.10.10.2: bytes=32 time<1ms TTL=128
Reply from 10.10.10.2: bytes=32 time<1ms TTL=128

Ping statistics for 10.10.10.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

HUB



Devices:

- 1 Hub
- 6 PC

```
Command Prompt

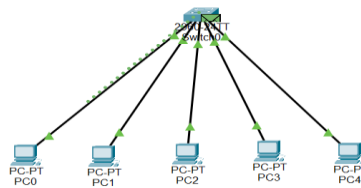
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 10.10.10.5

Pinging 10.10.10.5 with 32 bytes of data:

Reply from 10.10.10.5: bytes=32 time<1ms TTL=128
Reply from 10.10.10.5: bytes=32 time<1ms TTL=128
Reply from 10.10.10.5: bytes=32 time<1ms TTL=128
Reply from 10.10.10.5: bytes=32 time<1ms TTL=128

Ping statistics for 10.10.10.5:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

Switch



Devices:

- 1 Switch
- 5 PC

```

Command Prompt

Cisco Packet Tracer PC Command Line 1.0
C:\>ping 10.10.10.3

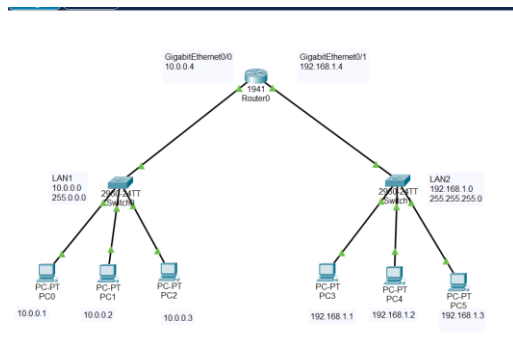
Pinging 10.10.10.3 with 32 bytes of data:

Reply from 10.10.10.3: bytes=32 time<1ms TTL=128
Reply from 10.10.10.3: bytes=32 time=6ms TTL=128
Reply from 10.10.10.3: bytes=32 time=6ms TTL=128
Reply from 10.10.10.3: bytes=32 time<1ms TTL=128

Ping statistics for 10.10.10.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 6ms, Average = 3ms

```

Router



- 6 PC

```

Command Prompt

Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.3

Pinging 192.168.1.3 with 32 bytes of data:

Reply from 192.168.1.3: bytes=32 time=16ms TTL=128
Reply from 192.168.1.3: bytes=32 time=7ms TTL=128
Reply from 192.168.1.3: bytes=32 time=7ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128

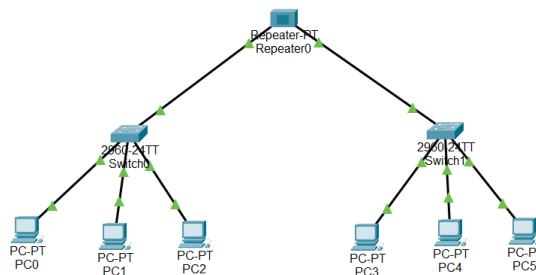
Ping statistics for 192.168.1.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 16ms, Average = 7ms

```

Devices:

- 1 Router
- 2 Switch

Repeater



Devices:

- 1 Repeater
- 2 Switch
- 6 PC

```

Command Prompt

Cisco Packet Tracer PC Command Line 1.0
C:\>ping 10.10.10.5

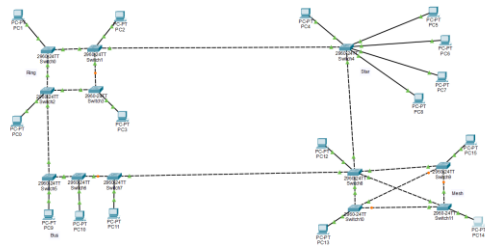
Pinging 10.10.10.5 with 32 bytes of data:

Reply from 10.10.10.5: bytes=32 time<1ms TTL=128
Reply from 10.10.10.5: bytes=32 time<1ms TTL=128
Reply from 10.10.10.5: bytes=32 time=12ms TTL=128
Reply from 10.10.10.5: bytes=32 time<1ms TTL=128

Ping statistics for 10.10.10.5:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 12ms, Average = 3ms

```

Topology



Command Prompt

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.0.4

Pinging 192.168.0.4 with 32 bytes of data:

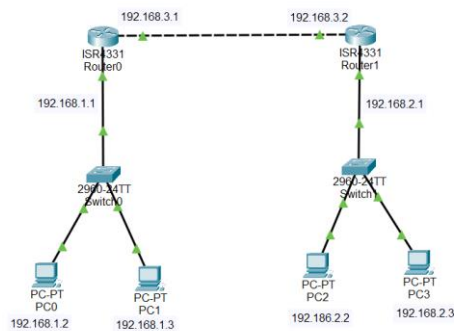
Reply from 192.168.0.4: bytes=32 time=1ms TTL=128
Reply from 192.168.0.4: bytes=32 time<1ms TTL=128
Reply from 192.168.0.4: bytes=32 time<1ms TTL=128
Reply from 192.168.0.4: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.0.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms
```

Devices:

- 12 Switch
- 16 PC

Static Routing



Devices:

- 2 Switch
- 2 router
- 4 PC

Command Prompt

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.3

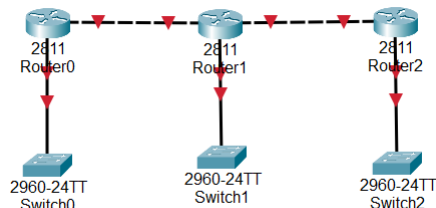
Pinging 192.168.1.3 with 32 bytes of data:

Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time=4ms TTL=128
Reply from 192.168.1.3: bytes=32 time=10ms TTL=128
Reply from 192.168.1.3: bytes=32 time=4ms TTL=128

Ping statistics for 192.168.1.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 10ms, Average = 4ms
```


LAB 2

Add port in router

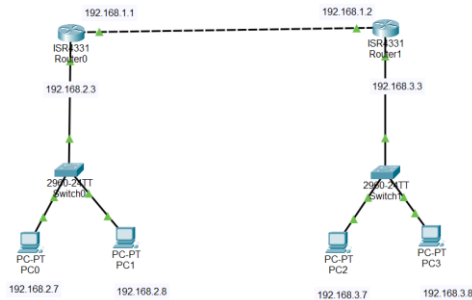


Devices:

- 3 Switch
- 3 router



Dynamic Routing with CLI



Devices:

- 2 Switch
- 2 router

- 4 PC

```

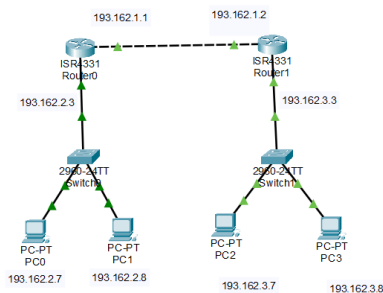
C:\>ping 192.168.3.7

Pinging 192.168.3.7 with 32 bytes of data:

Reply from 192.168.3.7: bytes=32 time<1ms TTL=126
Reply from 192.168.3.7: bytes=32 time<1ms TTL=126
Reply from 192.168.3.7: bytes=32 time<1ms TTL=126
Reply from 192.168.3.7: bytes=32 time=1ms TTL=126

Ping statistics for 192.168.3.7:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms
  
```

Static routing using CLI



Devices:

- 2 Switch
- 2 router

- 4 PC

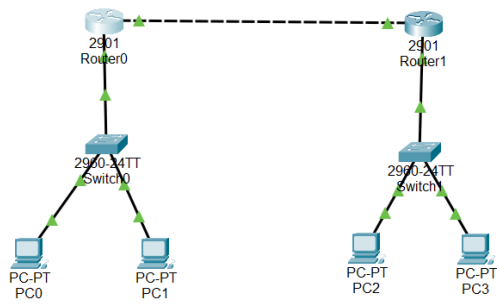
```

Cisco IOS Software, 1841 Software (C1841-ADVIPSERVICESK9-M), Version 12.4
(fc2)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2007 by Cisco Systems, Inc.
Compiled Wed 18-Jul-07 04:52 by pt_team

Press RETURN to get started!

Router>en
Router>enable
Router>conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ip route 192.168.3.0 255.255.255.0 192.168.1.2
  
```

Dynamic Routing RIP



Devices:

- 2 Switch
- 2 Router
- 4 PC

Physical	Config	CLI	Attributes
GLOBAL			
Settings			
Algorithm Settings			
ROUTING			
Static			
RIP			
SWITCHING			
VLAN Database			
INTERFACE			
GigabitEthernet0/0			
GigabitEthernet0/1			

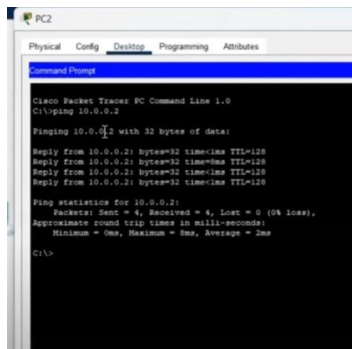
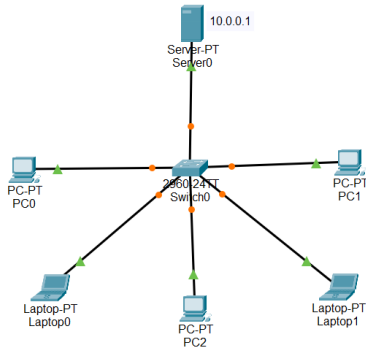
RIP Routing	
Network	
	Add
Network Address	
192.168.1.0	
192.168.2.0	

LAB 3

DHCP server :

Devices:

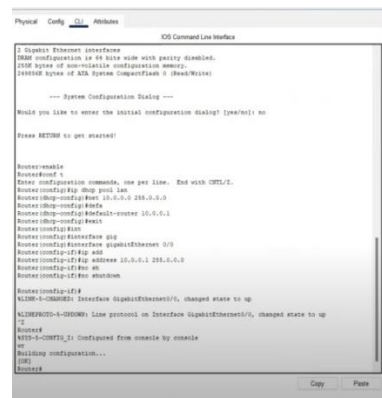
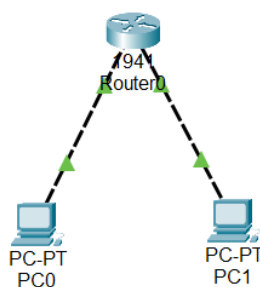
- 1 Switch , 1 Server, 3 PC, 2 Laptop



DHCP router

Devices:

- 2 PC, 1 Router

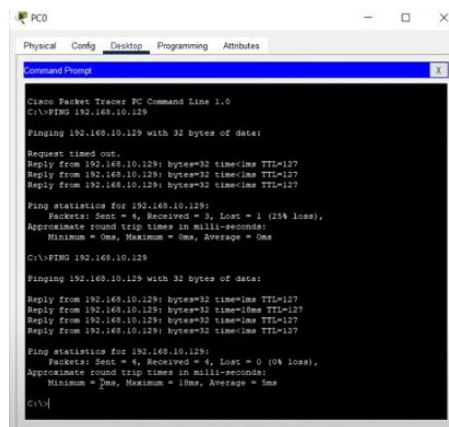
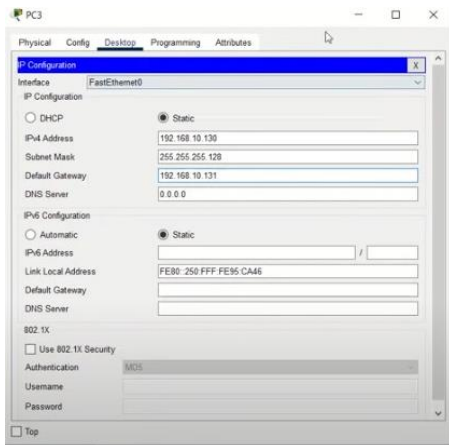
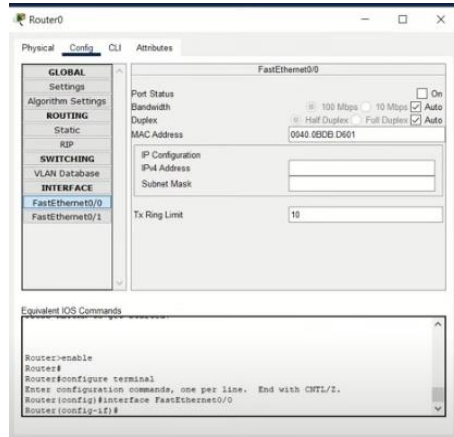
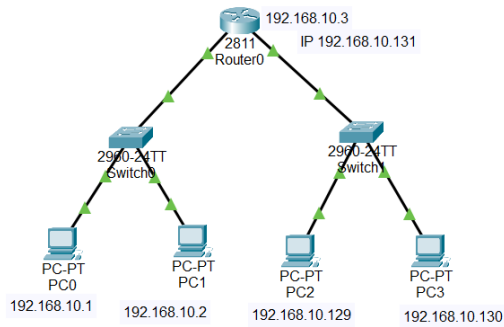
[illegible]

LAB 4

Subnetting

Devices:

- 1 Router , 2 Switch , 4 PC



LAB 5

Setting password on switches and routers

Devices:

- 2 Router


2960-24TT
Switch0


2960-24TT
Switch1

Switch 0

```
Switch>en
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#enablw password 12345
      ^
% Invalid input detected at '^' marker.

Switch(config)#enabl password 12345
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#show running-conig
      ^
% Invalid input detected at '^' marker.

Switch#show running-config
Building configuration...

Current configuration : 1104 bytes
!
version 15.0
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname Switch
!
enable password 12345
```

switch 1

```
Switch>en
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z
Switch(config)#enable secret 12345
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#show running-config
Building configuration...

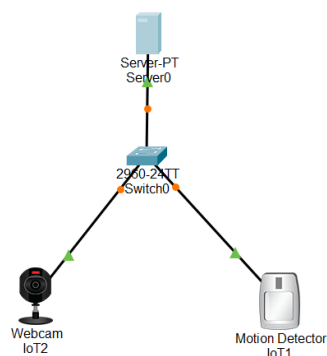
Current configuration : 1129 bytes
!
version 15.0
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname Switch
!
enable secret 5 $1$mERr$/Q/mbs309cHsKR7rNG4e81
!
!
!
```

LAB 6

Implementation of Smart Home

Devices:

- 1 server
- 1 switch
- 1 Motion detector
- 1 webcam



Physical Config Services **Desktop** Programming Attributes

URL: http://1.1.1.1 Go Stop

Registration Server Login

Username:

Password:

Sign In

Don't have an IoT account? [Sign up now](#)

Top

Physical Config Services **Desktop** Programming Attributes

URL: http://1.1.1.1/conditions.html Go Stop

IoT Server - Device Conditions Home | Conditions | Editor | Log Out

Actions	Enabled	Name	Condition	Actions
Edit Remove	Yes	Web camera	Motion detector On is true	Set Web camera On to true
Edit Remove	Yes	Motion detector	Motion detector On is false	Set Web camera On to false

Add

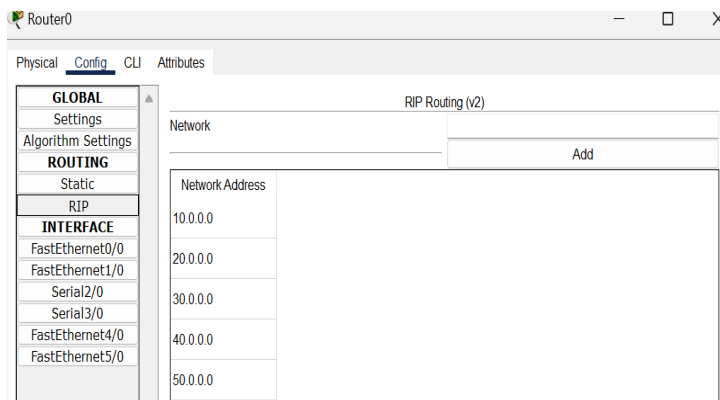
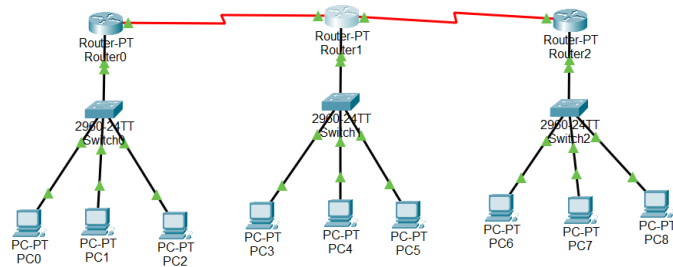
Top

LAB 7

RIPv2

Devices:

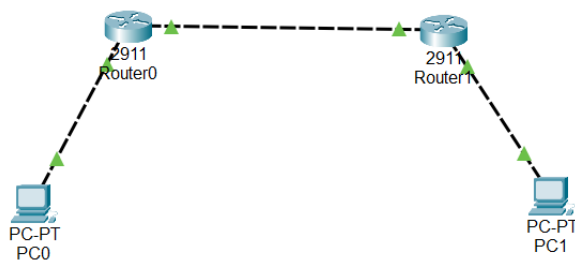
- 6 PC, 3 Router, 3 switch



Configuring RIPv2

Devices:

- 2 PC, 2 Router

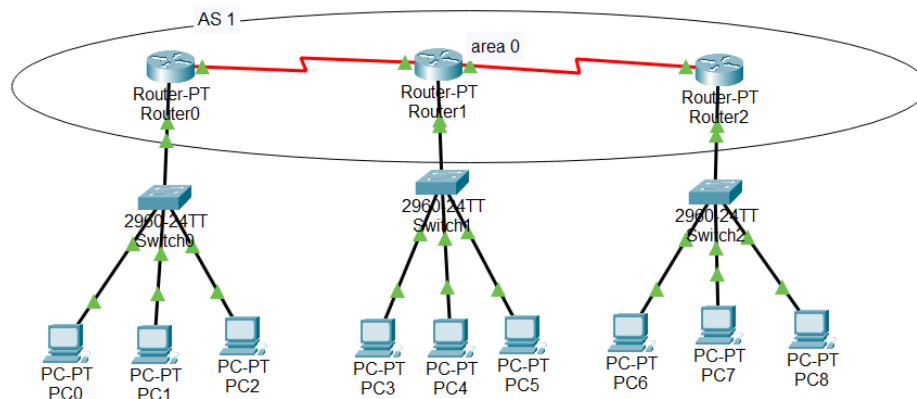


LAB 8

OSPF

Devices:

- 6 PC, 3 Router, 3 switch



```
Physical Config CLI Attributes
IOS Command Line Interface

Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
ip address 10.10.10.1 255.0.0.0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial2/0
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up
ip address 40.40.40.1 255.0.0.0
Router(config-if)#ip address 40.40.40.1 255.0.0.0
Router(config-if)#
Router(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up
exit
Router(config)#router ospf 1
Router(config-router)#network 10.0.0.0 0.255.255.255 area 0
Router(config-router)#network 20.0.0.0 0.255.255.255 area 0
Router(config-router)#network 30.0.0.0 0.255.255.255 area 0
Router(config-router)#network 40.0.0.0 0.255.255.255 area 0
Router(config-router)#network 50.0.0.0 0.255.255.255 area 0
Router(config-router)#exit
Router(config)#
```