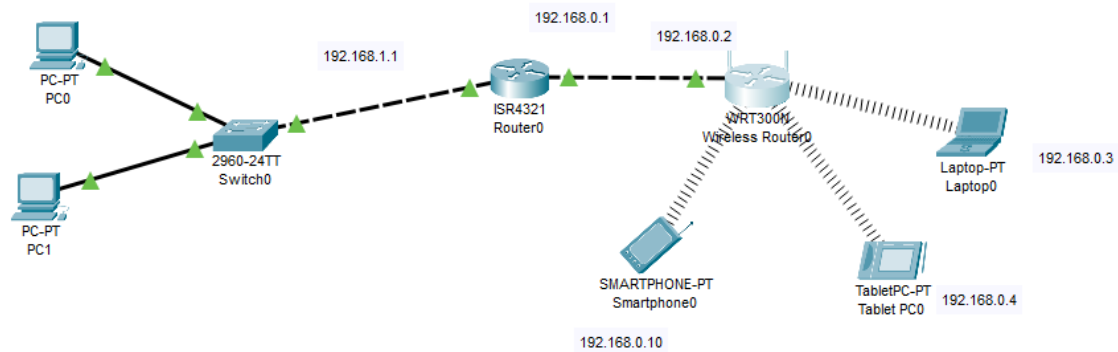


Configuring DHCP server on a Router.

1. Build the network topology:



2. On the router, configure *interface Gig0/0/0* to act as the default gateway for our LAN.

```
Router>enable
```

```
Router#config terminal
```

Enter configuration commands, one per line. End with CNTL/Z.

```
Router(config)#interface Gig0/0/0
```

```
Router(config-if)#ip add 192.168.1.1 255.255.255.0
```

```
Router(config-if)#no shutdown
```

```
Router(config-if)#
```

```
%LINK-5-CHANGED: Interface GigabitEthernet0/0/0, changed state to up
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0/0, changed state to up
```

```
exit
```

```
Router(config)#
```

3. Configure DHCP server on the Router. In the server we will define a **DHCP pool** of IP addresses to be assigned to hosts, a **Default gateway** for the LAN and a **DNS Server**.

```
Router(config)#ip dhcp pool My_LAN
Router(dhcp-config)#network 192.168.1.0 255.255.255.0
Router(dhcp-config)#default-router 192.168.1.1
Router(dhcp-config)#dns-server 192.168.1.10
Router(dhcp-config)#
```

We can add **ip dhcp excluded-address** command to our configuration so as to configure the router to exclude addresses **192.168.1.1** through **192.168.1.10** when assigning addresses to clients. The **ip dhcp excluded-address** command may be used to reserve addresses that are statically assigned to key hosts.

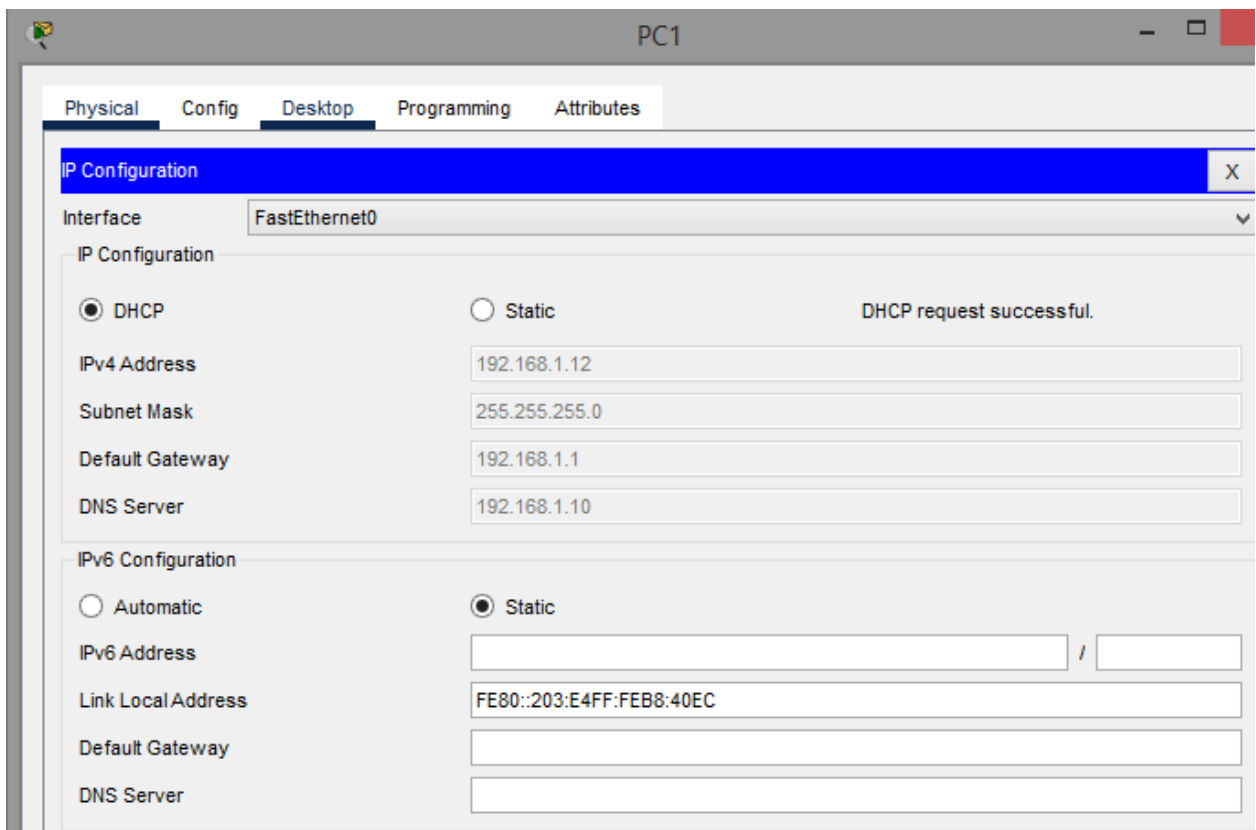
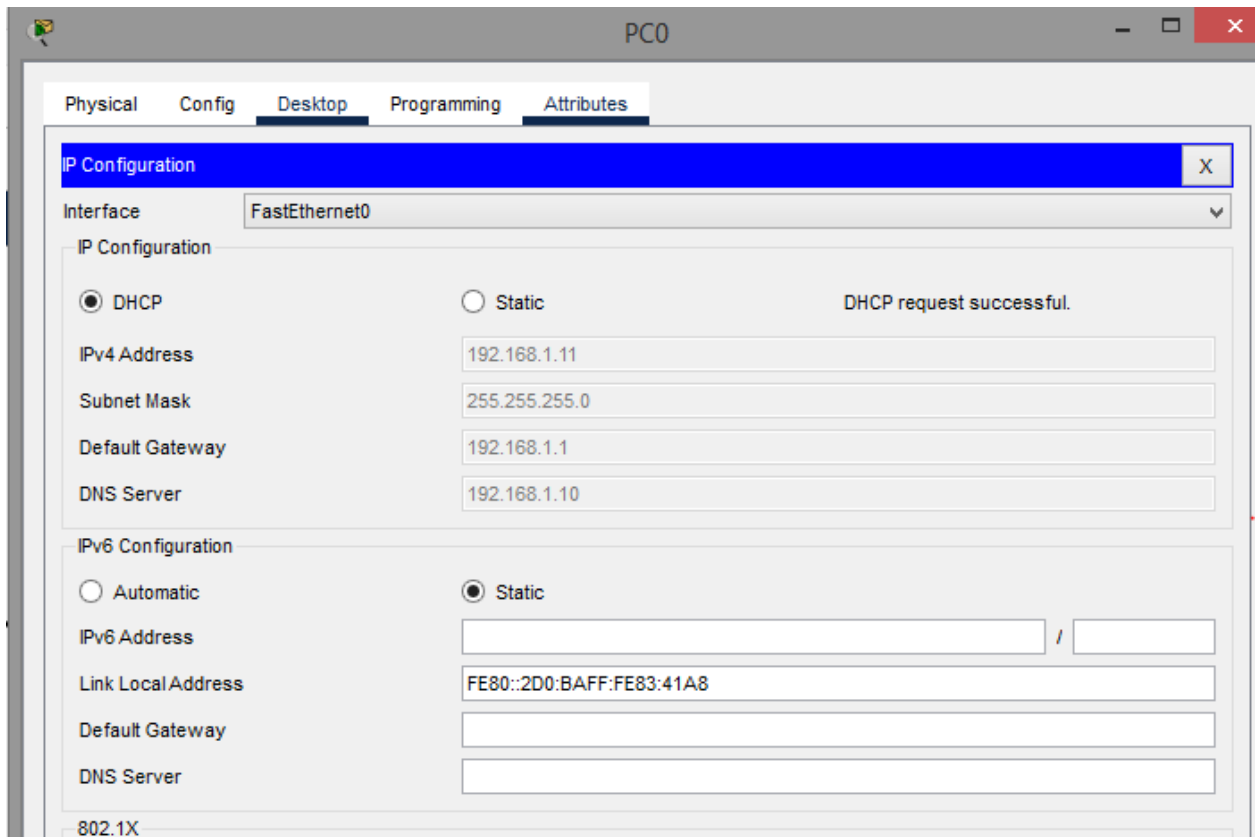
So add the above command under the **global configuration mode**.

```
Router(config)#ip dhcp excluded-address 192.168.1.1 192.168.1.10
```

4. Now go to every PC and on their **IP configuration** tabs, enable **DHCP**. Every PC should be able to obtain an IP address, default gateway and DNS server, as defined in step 2.

For example, to enable DHCP on PC1:

Click **PC1->Desktop->IP configuration**. Then enable DHCP:



Router0

PhysicalConfigCLIAttributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

GigabitEthernet0/0/0

GigabitEthernet0/0/1

GigabitEthernet0/0/0

Port Status

☒ On

Bandwidth

☒ 1000 Mbps☐ 100 Mbps☐ 10 Mbps

☒ Auto

Duplex

☐ Half Duplex☒ Full Duplex

☒ Auto

MAC Address0001.42B8.7001

IP Configuration

IPv4 Address192.168.1.1

Subnet Mask255.255.255.0

Tx Ring Limit10

Router0

PhysicalConfigCLIAttributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

GigabitEthernet0/0/0

GigabitEthernet0/0/1

GigabitEthernet0/0/1

Port Status

☒ On

Bandwidth

☐ 1000 Mbps☒ 100 Mbps☐ 10 Mbps

☒ Auto

Duplex

☐ Half Duplex☒ Full Duplex

☒ Auto

MAC Address0001.42B8.7002

IP Configuration

IPv4 Address192.168.0.1

Subnet Mask255.255.255.0

Tx Ring Limit10

Configure Wireless Router

Wireless Router0

Physical Config GUI Attributes

GLOBAL

Settings

Algorithm Settings

INTERFACE

Internet

LAN

Wireless

Internet Settings

IP Configuration

☐ DHCP

☒ Static

☐ PPPoE

UserName

Password

IPv4 Address

Subnet Mask

Default Gateway 192.168.0.1

DNS Server

The screenshot shows the configuration window for 'Wireless Router0'. The 'Config' tab is selected, and the 'LAN Settings' sub-tab is active. On the left, a sidebar contains a tree view with 'GLOBAL' and 'INTERFACE' sections. Under 'INTERFACE', 'LAN' is selected. The main area displays the 'IP Configuration' for the LAN interface, showing the 'IPv4 Address' as '192.168.0.2' and the 'Subnet Mask' as '255.255.255.0'.

LAN Settings	
IP Configuration	
IPv4 Address	192.168.0.2
Subnet Mask	255.255.255.0

Wireless Router0

Physical Config GUI Attributes

GLOBAL

Settings

Algorithm Settings

INTERFACE

Internet

LAN

Wireless

Wireless Settings

SSID: sana

2.4 GHz Channel: 1 - 2.412GHz

Coverage Range (meters): 250.00

Authentication:

- ☒ Disabled
- ☐ WEP
- ☐ WPA-PSK
- ☐ WPA2-PSK
- ☐ WPA
- ☐ WPA2

WEP Key:

PSK Pass Phrase:

RADIUS Server Settings

IP Address:

Shared Secret:

Encryption Type: Disabled

Configure devices

Laptop0

PhysicalConfigDesktopProgrammingAttributes

IP Configuration

InterfaceWireless0

IP Configuration

☐ DHCP

☒ Static

IPv4 Address192.168.0.3

Subnet Mask255.255.255.0

Default Gateway192.168.0.1

DNS Server0.0.0.0

IPv6 Configuration

☒ Automatic

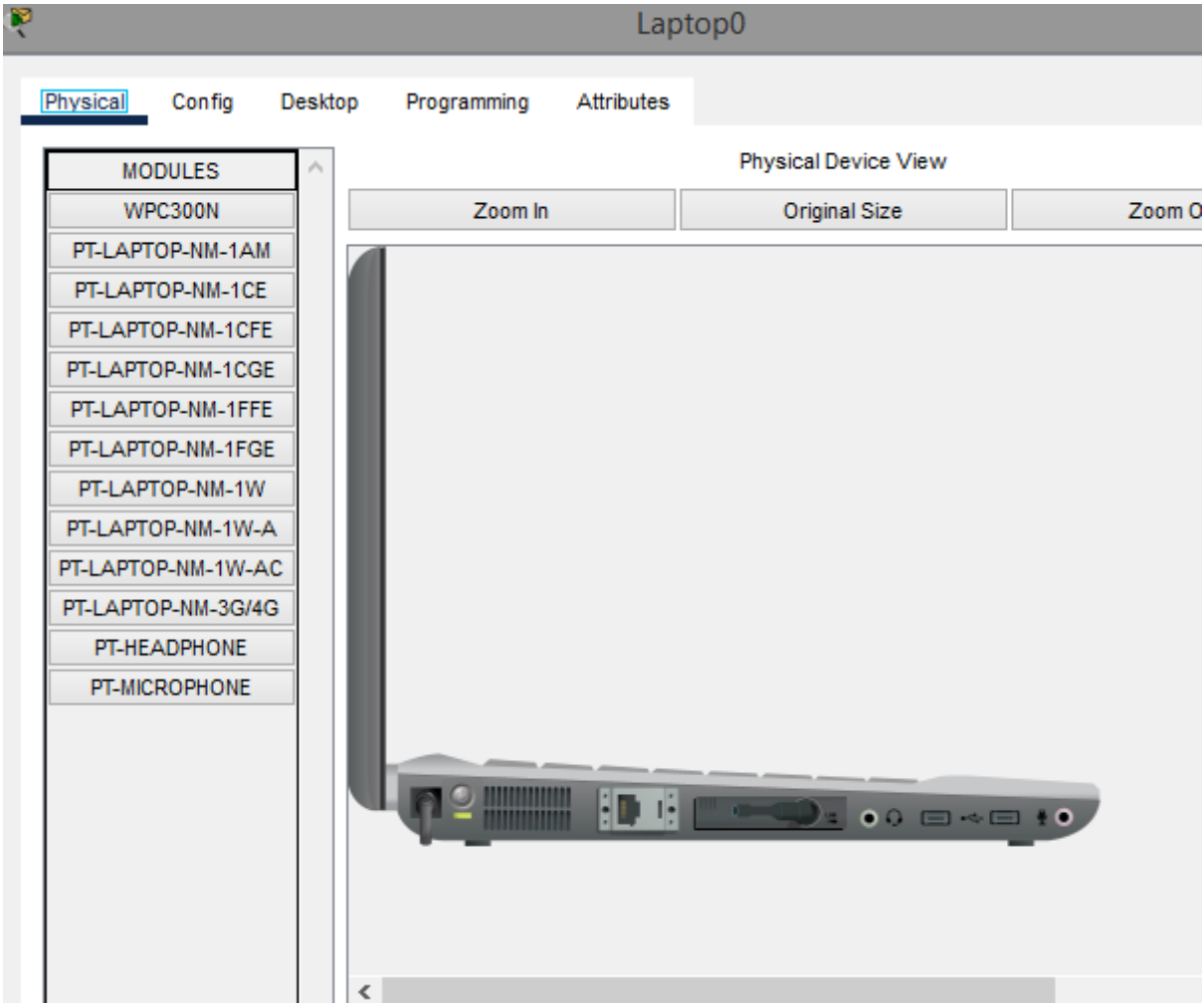
☐ Static

IPv6 Address /

Link Local AddressFE80::201:97FF:FE32:ACB9

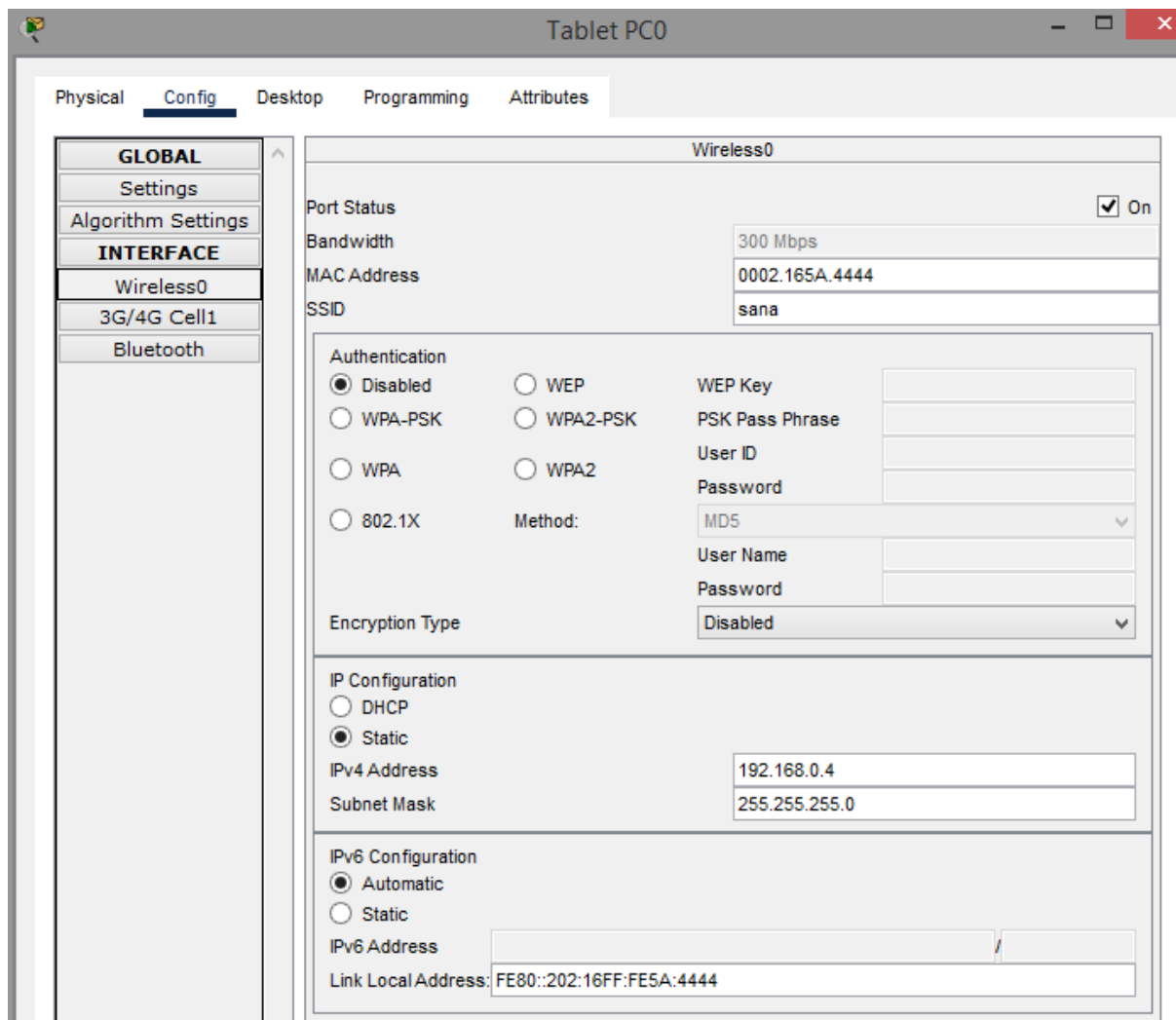
Default Gateway

DNS Server





Configure tablet



Tablet PC0

Physical Config **Desktop** Programming Attributes

IP Configuration

Interface: Wireless0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address: 192.168.0.4

Subnet Mask: 255.255.255.0

Default Gateway: 192.168.0.1

DNS Server: 0.0.0.0

IPv6 Configuration

☒ Automatic ☐ Static

IPv6 Address: /

Link Local Address: FE80::202:16FF:FE5A:4444

Default Gateway:

DNS Server:

Configure Smart phone

Smartphone0

PhysicalConfigDesktopProgrammingAttributes

GLOBAL

Settings

Algorithm Settings

INTERFACE

Wireless0

3G/4G Cell1

Bluetooth

Wireless0

Port Status☒

Bandwidth300 Mbps

MAC Address000C.8554.79C5

SSIDsana

Authentication

☒ Disabled

☐ WEP

☐ WPA-PSK

☐ WPA

☐ 802.1X

☐ WPA2-PSK

☐ WPA2

Method:

MD5

WEP Key

PSK Pass Phrase

User ID

Password

User Name

Password

Encryption TypeDisabled

IP Configuration

☐ DHCP

☒ Static

IPv4 Address192.168.0.10

Subnet Mask255.255.255.0

IPv6 Configuration

☐ Automatic

☒ Static

IPv6 Address

Link Local Address:FE80::20C:85FF:FE54:79C5

Smartphone0

Physical Config Desktop Programming Attributes

IP Configuration X

Interface Wireless0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.0.10

Subnet Mask 255.255.255.0

Default Gateway 192.168.0.1

DNS Server 0.0.0.0

IPv6 Configuration

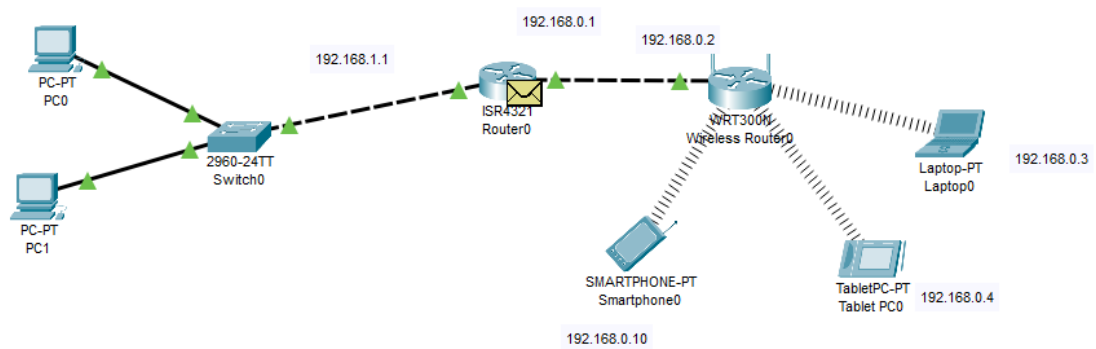
☐ Automatic ☒ Static

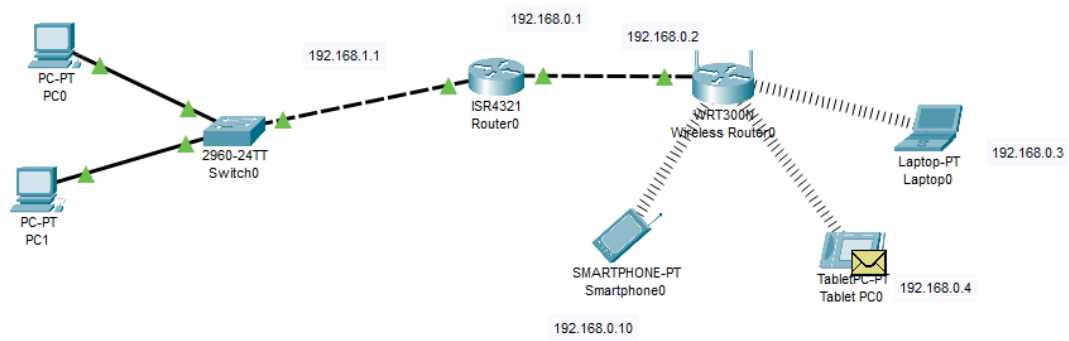
IPv6 Address /



Link Local Address FE80::20C:85FF:FE54:79C5

Default Gateway

DNS Server





<div> <div>Realtime</div> <div>Simulation</div> </div>									
Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit
	Successful	PC0	Tablet PC0	ICMP		0.000	N	0	(edit)