

Practical No 4

Aim: Using Packet Tracer, create a basic network of one server and two computers and two mobile / movable devices using appropriate network wire. And verify the connectivity

Theory:

A Wireless Access Point (WAP) is a networking device that allows wireless-capable devices to connect to a wired network. Instead of using wires and cables to connect every computer or device in the network, installing WAPs is a more convenient, more secure, and cost-efficient alternative.

Setting up a wireless network provides a lot of advantages and benefits for you and your small business.

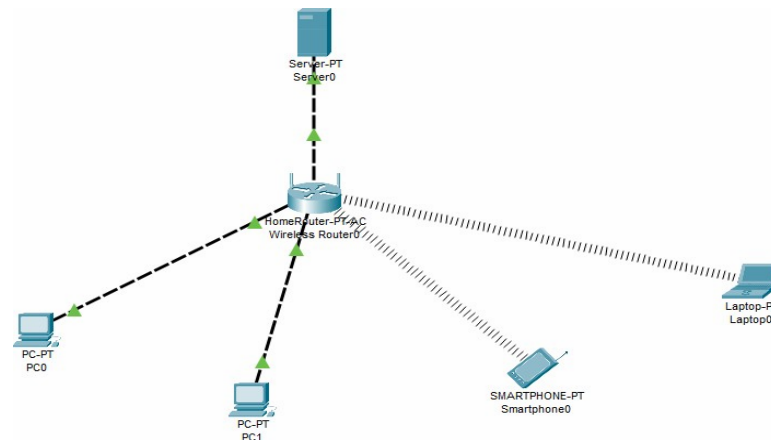
- 1) It is easier to set up compared to setting up a wired network.
- 2) It is more convenient to access.
- 3) It is less complicated to add new users in the network.
- 4) It gives users more flexibility to stay online even when moving from one area in the office to another.
- 5) Guest users can have Internet access by just using a password.
- 6) Wireless network protection can be set up even if the network is visible to the public by configuring maximum wireless security.
- 7) Segmentation of users, such as guests and employees, is possible by creating Virtual Local Area Networks (VLANs) to protect your network resources and assets.

There are different purposes of setting up a wireless network using a WAP.

With a WAP, the following can be done:

- 1) Create a wireless network within your existing wired network.
- 2) Extend the signal range and strength of your wireless network to provide complete wireless coverage and get rid of dead spots especially in larger office spaces or buildings.
- 3) Accommodate wireless devices within a wired network.
- 4) Configure the settings of your wireless access points in one device.

For the present case we use the following topology



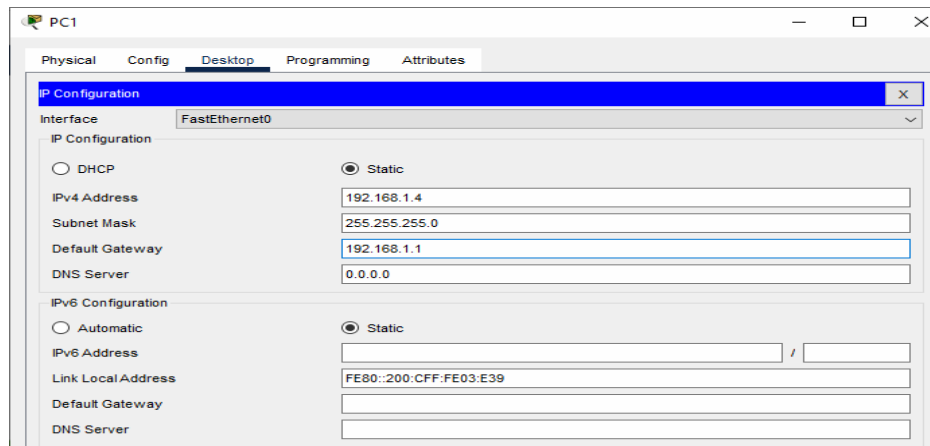
Configure the Server:

The screenshot shows the configuration window for Server0. The 'Desktop' tab is selected. Under 'IP Configuration', the 'Static' radio button is chosen. The fields are filled with: IPv4 Address: 192.168.1.2, Subnet Mask: 255.255.255.0, Default Gateway: 192.168.1.1, and DNS Server: 0.0.0.0. Under 'IPv6 Configuration', the 'Static' radio button is also chosen. The fields are filled with: IPv6 Address: (empty), Link Local Address: FE80::201:43FF:FECD:D046, Default Gateway: (empty), and DNS Server: (empty).

Configure PC0:

The screenshot shows the configuration window for PC0. The 'Desktop' tab is selected. Under 'IP Configuration', the 'Static' radio button is chosen. The fields are filled with: IPv4 Address: 192.168.1.3, Subnet Mask: 255.255.255.0, Default Gateway: 192.168.1.1, and DNS Server: 0.0.0.0. Under 'IPv6 Configuration', the 'Static' radio button is also chosen. The fields are filled with: IPv6 Address: (empty), Link Local Address: FE80::202:17FF:FEA8:7204, Default Gateway: (empty), and DNS Server: (empty).

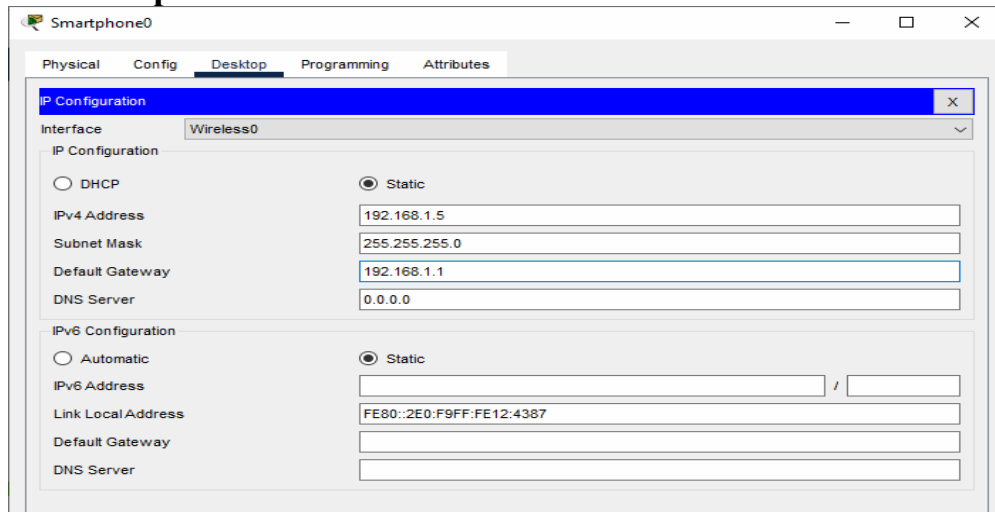
Configure PC1:



The screenshot shows the 'PC1' configuration window with the 'Desktop' tab selected. The 'IP Configuration' section is expanded, showing settings for the 'FastEthernet0' interface. The 'Static' radio button is selected under 'IP Configuration'. The IPv4 Address is 192.168.1.4, Subnet Mask is 255.255.255.0, Default Gateway is 192.168.1.1, and DNS Server is 0.0.0.0. The IPv6 Configuration section is also expanded, showing 'Static' selected, with an empty IPv6 Address field, Link Local Address FE80::200:CFF:FE03:E39, and empty Default Gateway and DNS Server fields.

Interface	FastEthernet0
IP Configuration	
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static
IPv4 Address	192.168.1.4
Subnet Mask	255.255.255.0
Default Gateway	192.168.1.1
DNS Server	0.0.0.0
IPv6 Configuration	
<input type="radio"/> Automatic	<input checked="" type="radio"/> Static
IPv6 Address	
Link Local Address	FE80::200:CFF:FE03:E39
Default Gateway	
DNS Server	

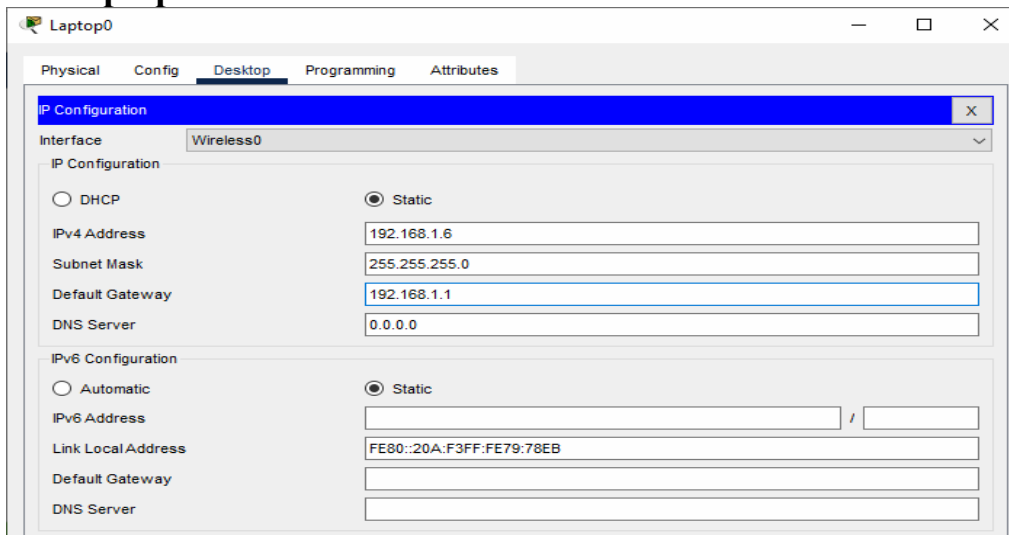
Configure Smartphone0:



The screenshot shows the 'Smartphone0' configuration window with the 'Desktop' tab selected. The 'IP Configuration' section is expanded, showing settings for the 'Wireless0' interface. The 'Static' radio button is selected under 'IP Configuration'. The IPv4 Address is 192.168.1.5, Subnet Mask is 255.255.255.0, Default Gateway is 192.168.1.1, and DNS Server is 0.0.0.0. The IPv6 Configuration section is also expanded, showing 'Static' selected, with an empty IPv6 Address field, Link Local Address FE80::2E0:F9FF:FE12:4387, and empty Default Gateway and DNS Server fields.

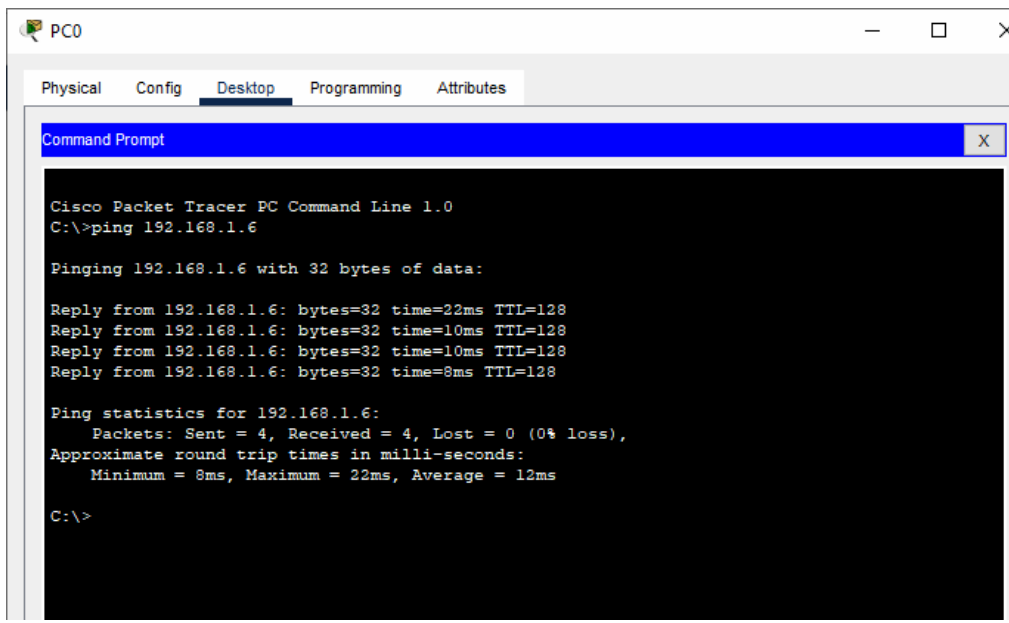
Interface	Wireless0
IP Configuration	
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static
IPv4 Address	192.168.1.5
Subnet Mask	255.255.255.0
Default Gateway	192.168.1.1
DNS Server	0.0.0.0
IPv6 Configuration	
<input type="radio"/> Automatic	<input checked="" type="radio"/> Static
IPv6 Address	
Link Local Address	FE80::2E0:F9FF:FE12:4387
Default Gateway	
DNS Server	

Configure Laptop0:



The screenshot shows the 'Laptop0' configuration window with the 'Desktop' tab selected. The 'IP Configuration' section is expanded, showing settings for the 'Wireless0' interface. The 'Static' radio button is selected under 'IP Configuration'. The IPv4 Address is 192.168.1.6, Subnet Mask is 255.255.255.0, Default Gateway is 192.168.1.1, and DNS Server is 0.0.0.0. The IPv6 Configuration section is also expanded, showing 'Static' selected, with an empty IPv6 Address field, Link Local Address FE80::20A:F3FF:FE79:78EB, and empty Default Gateway and DNS Server fields.

Interface	Wireless0
IP Configuration	
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static
IPv4 Address	192.168.1.6
Subnet Mask	255.255.255.0
Default Gateway	192.168.1.1
DNS Server	0.0.0.0
IPv6 Configuration	
<input type="radio"/> Automatic	<input checked="" type="radio"/> Static
IPv6 Address	
Link Local Address	FE80::20A:F3FF:FE79:78EB
Default Gateway	
DNS Server	

Checking the connectivity (pinging laptop0 from PC0):

The screenshot shows a Cisco Packet Tracer interface with a window titled 'PC0'. The 'Desktop' tab is selected, displaying a 'Command Prompt' window. The command prompt shows the execution of the 'ping 192.168.1.6' command, resulting in four successful replies and a summary of ping statistics.

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.6

Pinging 192.168.1.6 with 32 bytes of data:

Reply from 192.168.1.6: bytes=32 time=22ms TTL=128
Reply from 192.168.1.6: bytes=32 time=10ms TTL=128
Reply from 192.168.1.6: bytes=32 time=10ms TTL=128
Reply from 192.168.1.6: bytes=32 time=8ms TTL=128

Ping statistics for 192.168.1.6:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 8ms, Maximum = 22ms, Average = 12ms

C:\>
```

Similarly the ping message can be checked for all the devices

Result:

Hence the Connectivity of the network has been verified.