

SYCS CN

PRACTICAL 2

AIM :

Using Packet Tracer, create a basic network of two computers using appropriate network wire. Use Static IP address allocation and show connectivity.

1. Static routing method is most trusted by a router.
2. Static routing is not really a routing protocol.
3. Static routes do not dynamically adapt to network changes, are not particularly scalable, and require manual updating to reflect changes.

Static routing has the following advantages

1. There is no bandwidth usage between routers, which means you could possibly save money on WAN links.
2. There is no overhead on the router CPU, which means you could possibly buy a cheaper router than you would use if you were using dynamic routing.
3. It adds security because the administrator can choose to allow routing access to certain networks only.

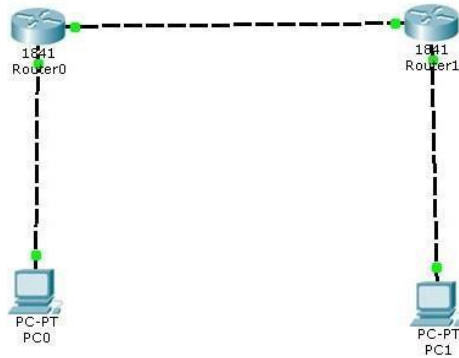
Static routing has the following disadvantages

1. Static routes don't dynamically adapt to network change.
2. If a network is added to the internetwork, the administrator has to add a route to it on all routers—by hand.
3. It's not feasible in large networks because maintaining it would be a full time job in itself.
4. With static routing, as your network grows, it can be difficult just to keep adding static routes to make sure everybody can still get everything.
5. The administrator must really understand the internetwork and how each router is connected in order to configure routes correctly.

There are two different styles to configure an “ip route” command:

1. Using a next hop IP address
2. Using an outgoing interface

Consider the following network



We configure it as follows

Step 1: (configure PC 0)

PC0

IP Configuration

IP Configuration

☐ DHCP ☒ Static

IP Address: 10.0.0.2

Subnet Mask: 255.0.0.0

Default Gateway: 10.0.0.1

DNS Server:

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

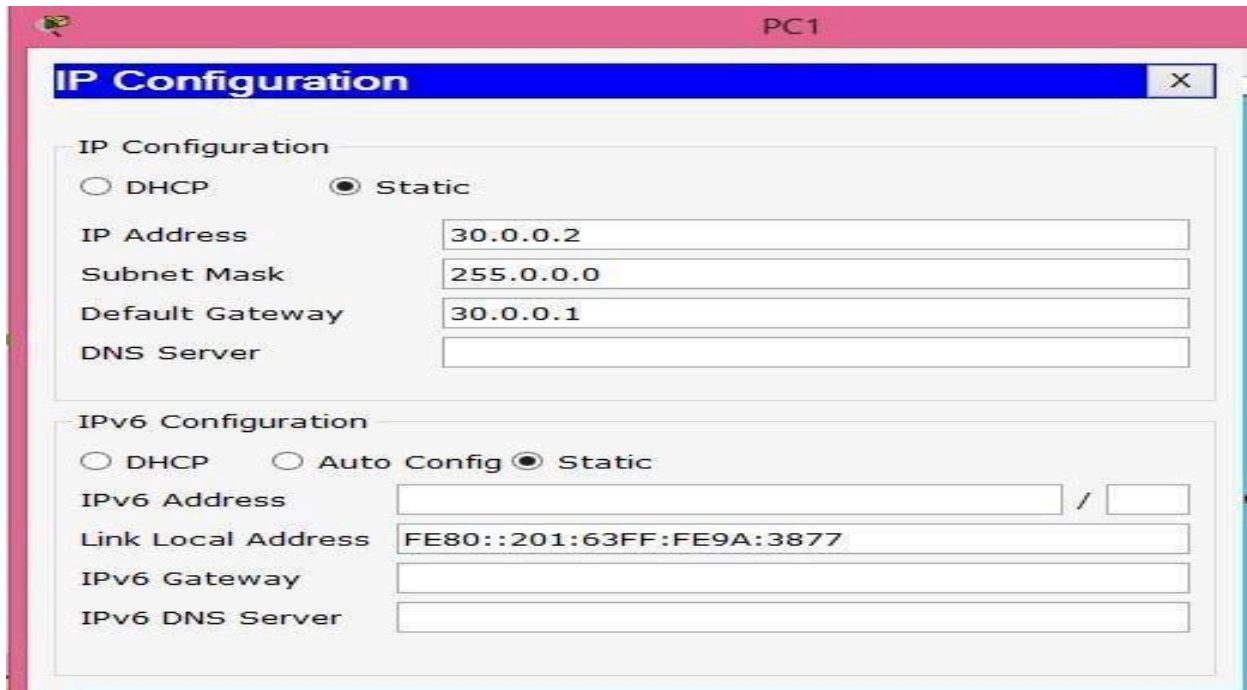
IPv6 Address: /

Link Local Address: FE80::201:C9FF:FE5B:90A4

IPv6 Gateway:

IPv6 DNS Server:

Step 2: (configure PC 1)

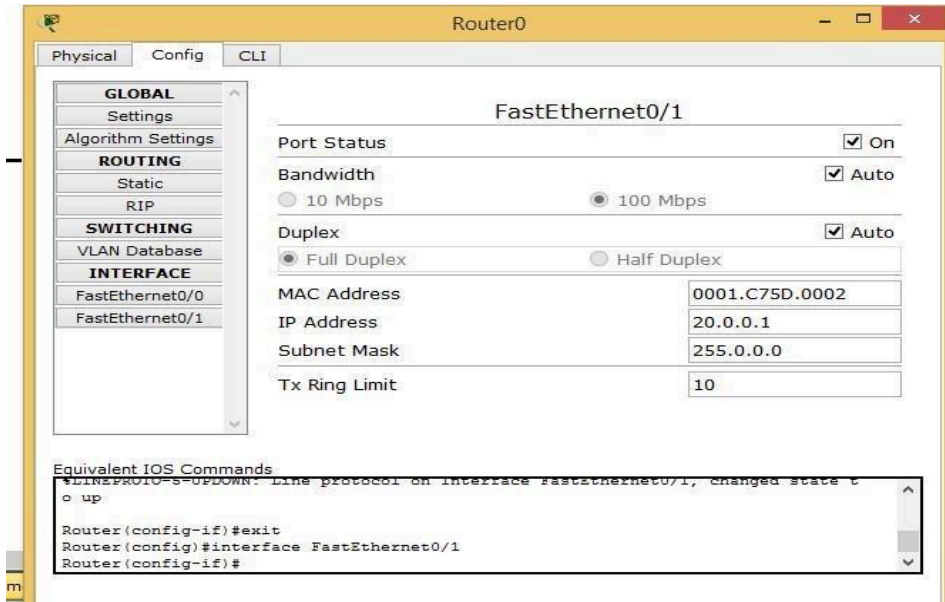


The screenshot shows the 'IP Configuration' window for PC1. It has a blue title bar with the text 'IP Configuration' and a close button. The window is divided into two sections: 'IP Configuration' and 'IPv6 Configuration'. In the 'IP Configuration' section, the 'Static' radio button is selected. The fields are: IP Address (30.0.0.2), Subnet Mask (255.0.0.0), Default Gateway (30.0.0.1), and DNS Server (empty). In the 'IPv6 Configuration' section, the 'Static' radio button is selected. The fields are: IPv6 Address (empty), Link Local Address (FE80::201:63FF:FE9A:3877), IPv6 Gateway (empty), and IPv6 DNS Server (empty).

IP Configuration	
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static
IP Address	30.0.0.2
Subnet Mask	255.0.0.0
Default Gateway	30.0.0.1
DNS Server	

IPv6 Configuration		
<input type="radio"/> DHCP	<input type="radio"/> Auto Config	<input checked="" type="radio"/> Static
IPv6 Address		
Link Local Address	FE80::201:63FF:FE9A:3877	
IPv6 Gateway		
IPv6 DNS Server		

Step 3: (configure Router 0)



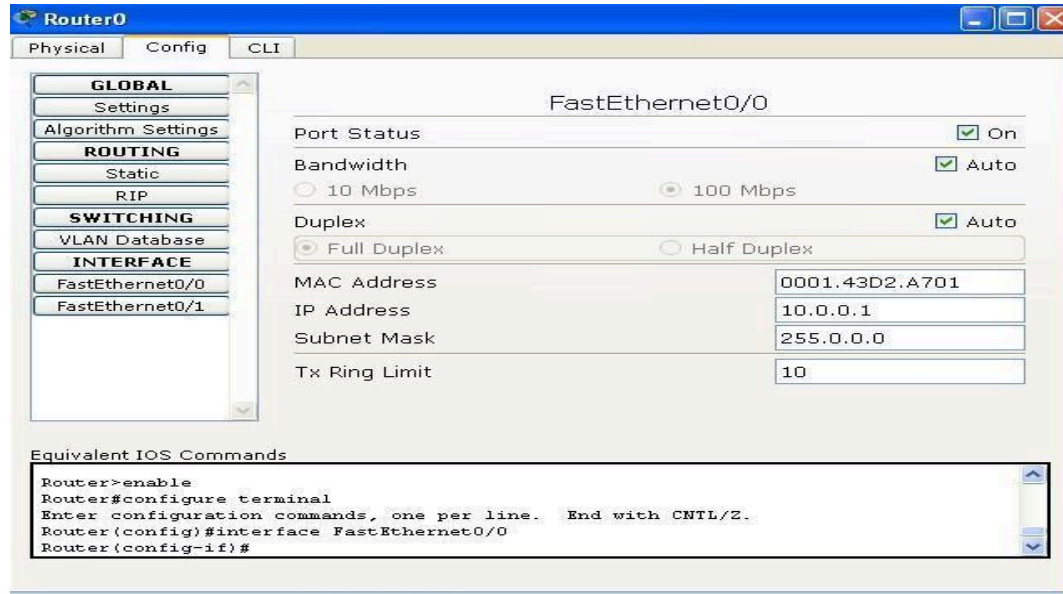
The screenshot shows the 'Router0' configuration window. It has a yellow title bar with the text 'Router0'. The window is divided into three tabs: 'Physical', 'Config', and 'CLI'. The 'Config' tab is selected. On the left, there is a tree view with the following categories: GLOBAL, Settings, Algorithm Settings, ROUTING, Static, RIP, SWITCHING, VLAN Database, INTERFACE, FastEthernet0/0, and FastEthernet0/1. The 'FastEthernet0/1' interface is selected. The main area shows the configuration for 'FastEthernet0/1'. The fields are: Port Status (On), Bandwidth (Auto), Duplex (Full Duplex), MAC Address (0001.C75D.0002), IP Address (20.0.0.1), Subnet Mask (255.0.0.0), and Tx Ring Limit (10). At the bottom, there is a section titled 'Equivalent IOS Commands' with the following commands:

```
Router(config-if)#exit
Router(config)#interface FastEthernet0/1
Router(config-if)#
```

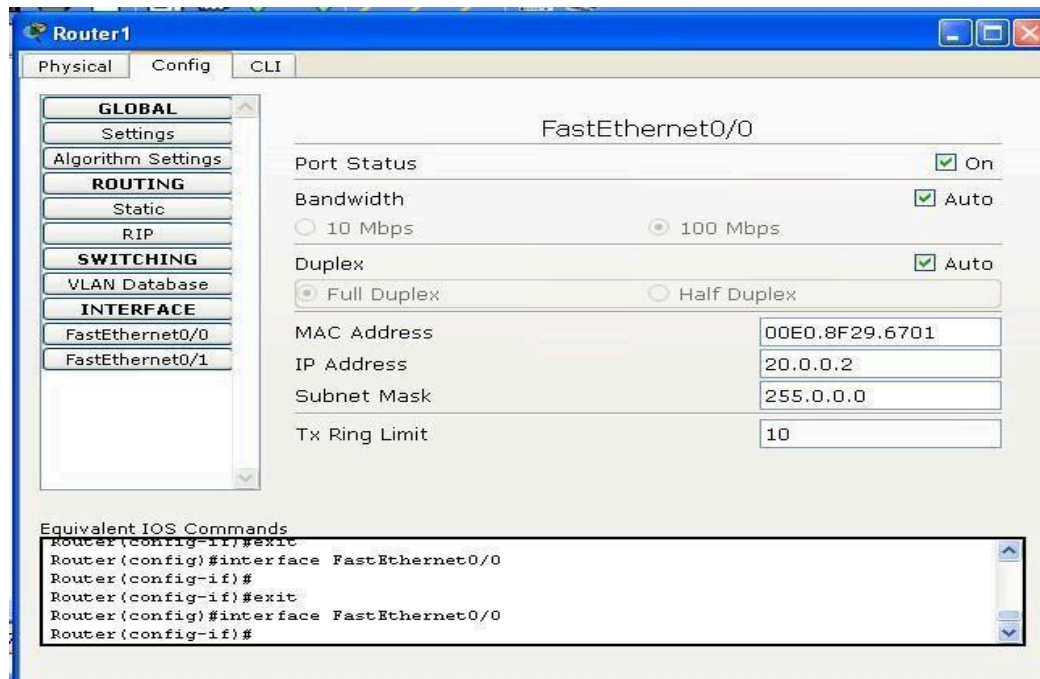
FastEthernet0/1	
Port Status	<input checked="" type="checkbox"/> On
Bandwidth	<input checked="" type="checkbox"/> Auto
Duplex	<input checked="" type="checkbox"/> Auto
MAC Address	0001.C75D.0002
IP Address	20.0.0.1
Subnet Mask	255.0.0.0
Tx Ring Limit	10

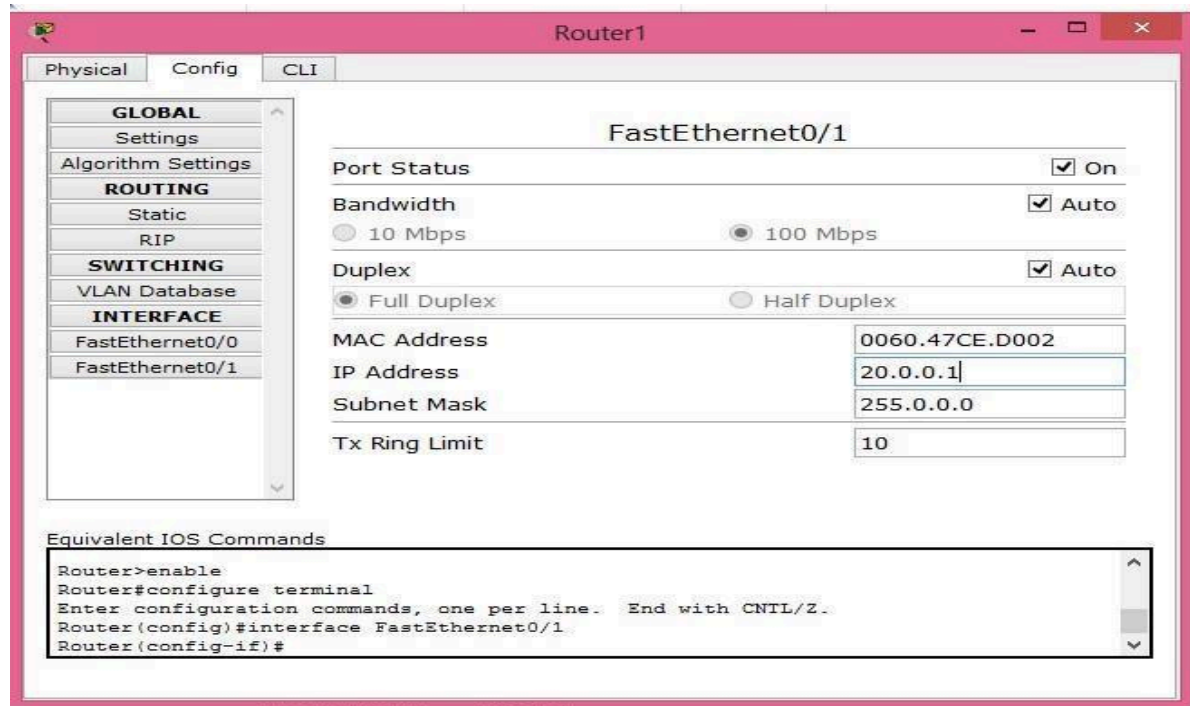
Equivalent IOS Commands

```
Router(config-if)#exit
Router(config)#interface FastEthernet0/1
Router(config-if)#
```

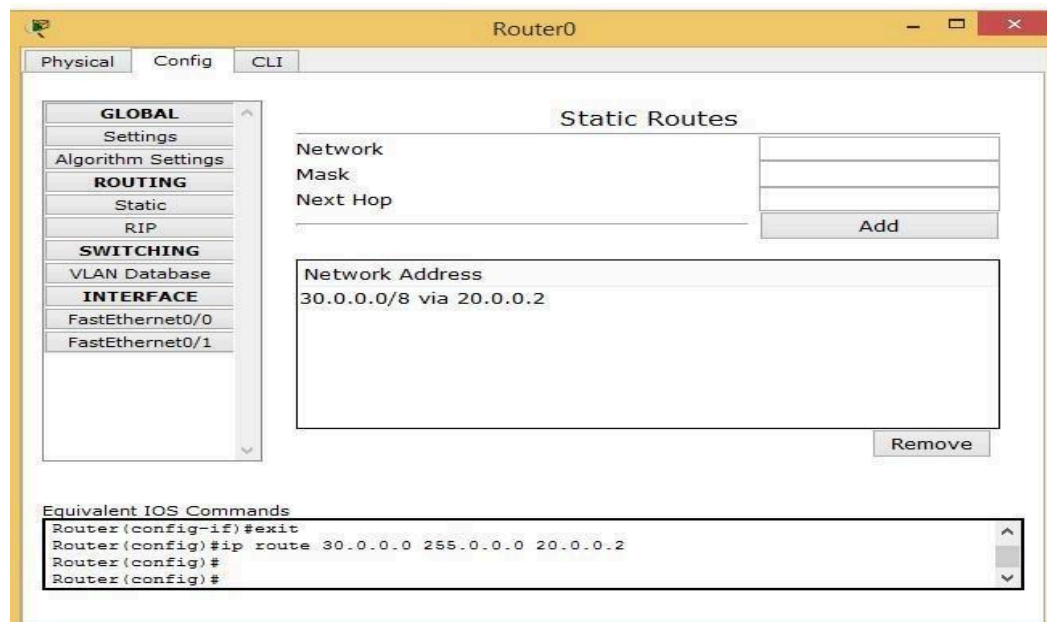


Step 4: (configure Router 1)

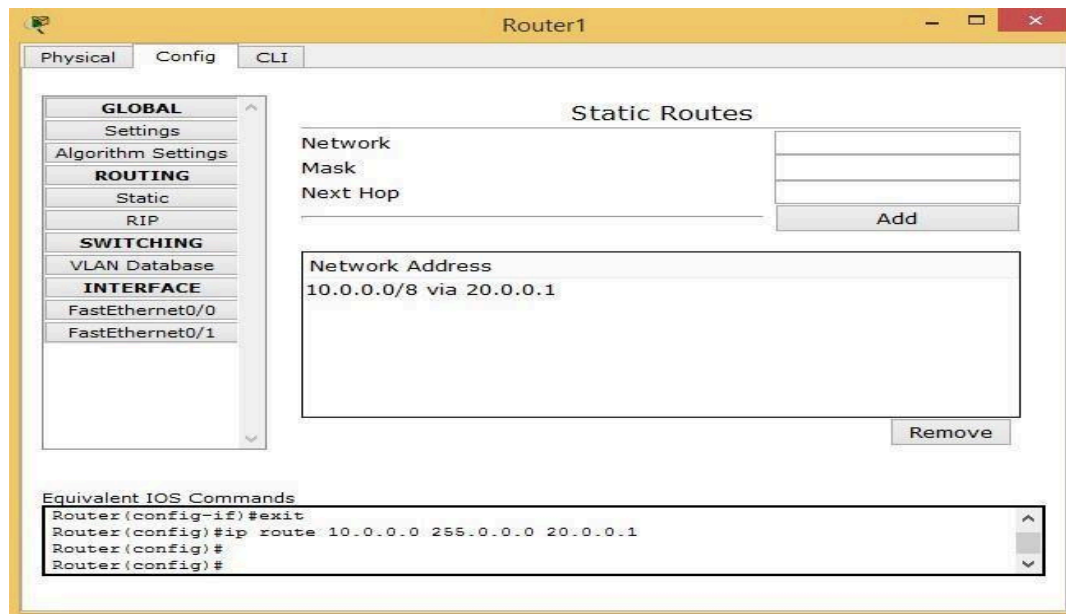




The routing table is configured in the following way For router 0



For router 1



Now we can give the ping command as shown to check the connectivity

