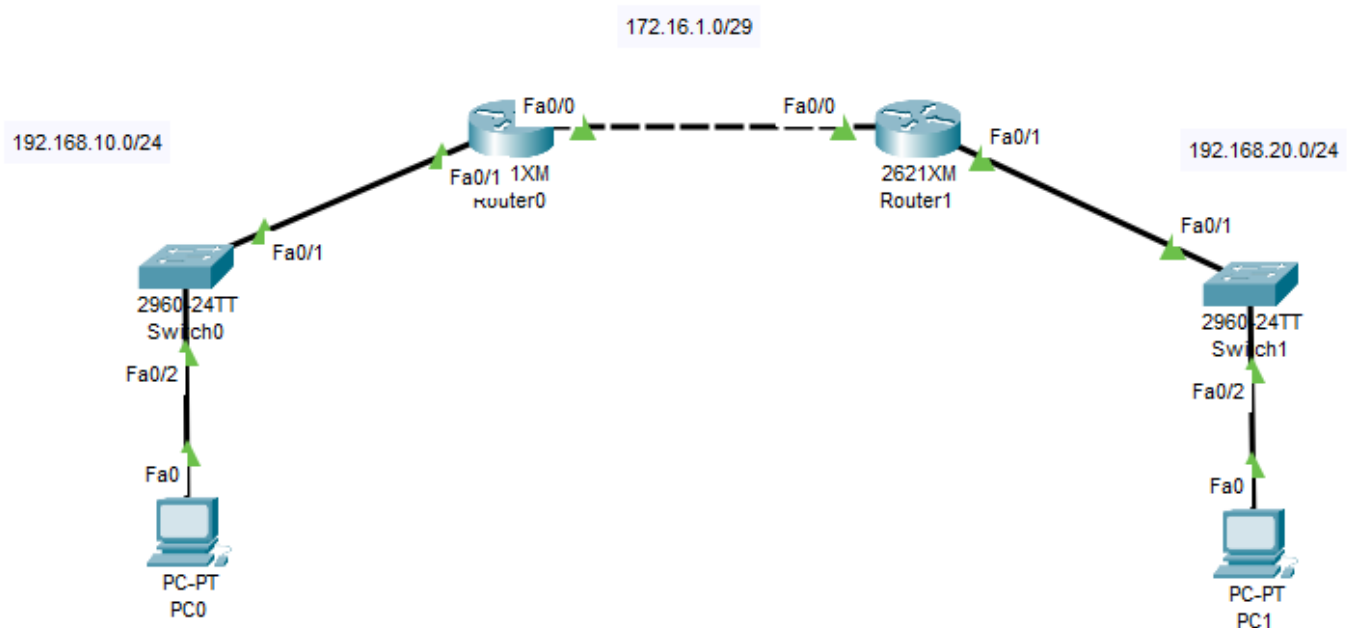


# Cisco IOS Router Static Route

## Network Topology



## Router0 Configuration Commands

```
Router0>enable
Router0#configure terminal
Router0(config)# interface fastEthernet 0/0
Router0(config-if)#ip address 172.16.1.1 255.255.255.248
Router0(config-if)#no shutdown
Router0(config-if)#interface fastEthernet 0/1
Router0(config-if)#ip address 192.168.10.1 255.255.255.0
Router0(config-if)#no shutdown
Router0(config-if)#exit
Router0(config)#ip route 192.168.20.0 255.255.255.0 172.16.1.2
Router0(config)#exit
```

Router0#show ip interface brief

Interface	IP-Address	OK?	Method	Status	Protocol
FastEthernet0/0	172.16.1.1	YES	manual	up	up
FastEthernet0/1	192.168.10.1	YES	manual	up	up

Router0#show ip route

Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP  
D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area  
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2  
E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP  
i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area  
\* - candidate default, U - per-user static route, o - ODR  
P - periodic downloaded static route

Gateway of last resort is not set

172.16.0.0/29 is subnetted, 1 subnets  
C 172.16.1.0 is directly connected, FastEthernet0/0  
C 192.168.10.0/24 is directly connected, FastEthernet0/1  
S 192.168.20.0/24 [1/0] via 172.16.1.2

## Router1 Configuration Commands

Router1>enable

Router1#configure terminal

Router1(config)# interface fastEthernet 0/0

Router1(config-if)#ip address 172.16.1.2 255.255.255.248

Router1(config-if)#no shutdown

Router1(config-if)#interface fastEthernet 0/1

Router1(config-if)#ip address 192.168.20.1 255.255.255.0

Router1(config-if)#no shutdown

Router1(config-if)#exit

Router1(config)#ip route 192.168.10.0 255.255.255.0 172.16.1.1

Router1(config)#exit

Router1#show ip interface brief

Interface	IP-Address	OK?	Method	Status	Protocol
FastEthernet0/0	172.16.1.2	YES	manual	up	up
FastEthernet0/1	192.168.20.1	YES	manual	up	up

Router1#show ip route

```
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
* - candidate default, U - per-user static route, o - ODR
P - periodic downloaded static route
```

```
Gateway of last resort is not set
```

```
172.16.0.0/29 is subnetted, 1 subnets
C 172.16.1.0 is directly connected, FastEthernet0/0
S 192.168.10.0/24 [1/0] via 172.16.1.1
C 192.168.20.0/24 is directly connected, FastEthernet0/1
```

## Switch0 Configuration Commands

```
Switch0>enable
Switch0#configure terminal
Switch0(config)#int vlan1
Switch0(config-if)#ip address 192.168.10.2 255.255.255.0
Switch0(config-if)#ip default-gateway 192.168.10.1
Switch0(config-if)#no shutdown
Switch0(config-if)# exit
Switch0(config)#show interface vlan 1
```

```
Vlan1 is up, line protocol is up
Hardware is CPU Interface, address is 0001.4228.66d1 (bia 0001.4228.66d1)
Internet address is 192.168.10.2/24
MTU 1500 bytes, BW 100000 Kbit, DLY 1000000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
ARP type: ARPA, ARP Timeout 04:00:00
Last input 21:40:21, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
 1682 packets input, 530955 bytes, 0 no buffer
  Received 0 broadcasts (0 IP multicast)
  0 runs, 0 giants, 0 throttles
  0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
 563859 packets output, 0 bytes, 0 underruns
  0 output errors, 23 interface resets
  0 output buffer failures, 0 output buffers swapped out
```

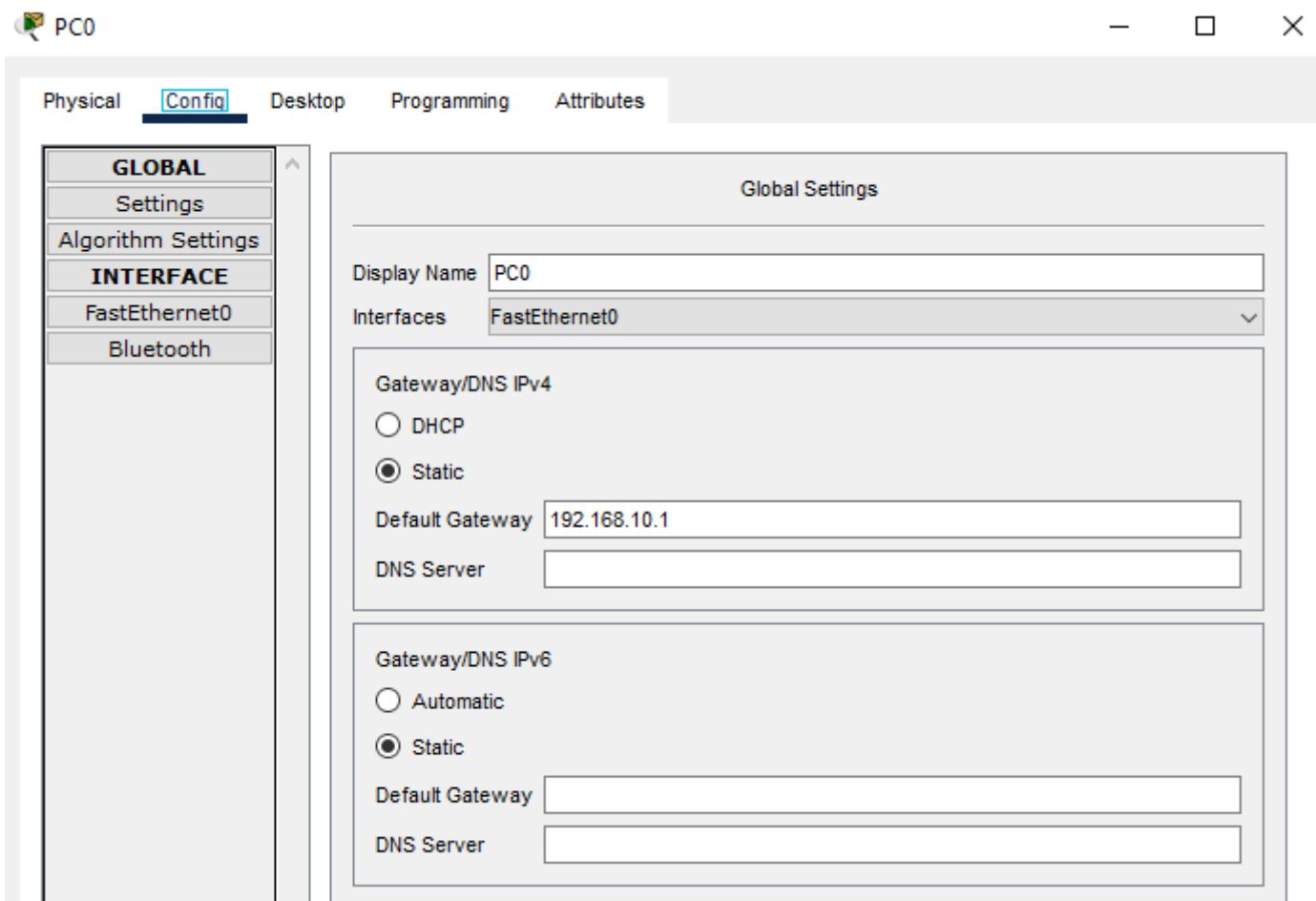
## Switch1 Configuration Commands

```
Switch1>enable
Switch1#configure terminal
Switch1(config)#int vlan1
Switch1(config-if)#ip address 192.168.20.2 255.255.255.0
Switch1(config-if)#ip default-gateway 192.168.20.1
Switch1(config-if)#no shutdown
Switch1(config-if)# exit
```

Switch1(config)#show interface vlan 1

```
Vlan1 is up, line protocol is up
Hardware is CPU Interface, address is 0090.2bc7.2ad8 (bia 0090.2bc7.2ad8)
Internet address is 192.168.20.2/24
MTU 1500 bytes, BW 100000 Kbit, DLY 1000000 usec,
  reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
ARP type: ARPA, ARP Timeout 04:00:00
Last input 21:40:21, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
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 1682 packets input, 530955 bytes, 0 no buffer
  Received 0 broadcasts (0 IP multicast)
   0 runts, 0 giants, 0 throttles
   0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
 563859 packets output, 0 bytes, 0 underruns
   0 output errors, 23 interface resets
   0 output buffer failures, 0 output buffers swapped out
```

## PC0 Configuration



The screenshot shows a window titled "PC0" with a "Config" tab selected. The left sidebar has a tree view with "GLOBAL" and "INTERFACE" sections. Under "INTERFACE", "FastEthernet0" is selected. The main area displays "Global Settings" for "FastEthernet0".

**Global Settings**

Display Name: PC0

Interfaces: FastEthernet0

**Gateway/DNS IPv4**

- DHCP
- Static

Default Gateway: 192.168.10.1

DNS Server: [Empty field]

**Gateway/DNS IPv6**

- Automatic
- Static

Default Gateway: [Empty field]

DNS Server: [Empty field]

Physical **Config** Desktop Programming Attributes

**GLOBAL**

Settings

Algorithm Settings

**INTERFACE**

FastEthernet0

Bluetooth

FastEthernet0

Port Status  On

Bandwidth  100 Mbps  10 Mbps  Auto

Duplex  Half Duplex  Full Duplex  Auto

MAC Address 00D0.976E.AAC7

IP Configuration

DHCP

Static

IPv4 Address 192.168.10.10

Subnet Mask 255.255.255.0

IPv6 Configuration

Automatic

Static

IPv6 Address

Link Local Address: FE80::2D0:97FF:FE6E:AAC7

## PC1 Configuration

Physical **Config** Desktop Programming Attributes

**GLOBAL**

Settings

Algorithm Settings

**INTERFACE**

FastEthernet0

Bluetooth

Global Settings

Display Name

Interfaces

Gateway/DNS IPv4

DHCP

Static

Default Gateway

DNS Server

Gateway/DNS IPv6

Automatic

Static

Default Gateway

DNS Server

Physical **Config** Desktop Programming Attributes

**GLOBAL**

Settings

Algorithm Settings

**INTERFACE**

FastEthernet0

Bluetooth

FastEthernet0

Port Status  On

Bandwidth  100 Mbps  10 Mbps  Auto

Duplex  Half Duplex  Full Duplex  Auto

MAC Address

IP Configuration

DHCP

Static

IPv4 Address

Subnet Mask

IPv6 Configuration

Automatic

Static

IPv6 Address

Link Local Address:

# Test Connectivity via Static Route

PC0



Physical Config **Desktop** Programming Attributes

Command Prompt

X

```
Cisco Packet Tracer PC Command Line 1.0
C:\>Ping 192.168.20.10

Pinging 192.168.20.10 with 32 bytes of data:

Request timed out.
Request timed out.
Reply from 192.168.20.10: bytes=32 time<lms TTL=126
Reply from 192.168.20.10: bytes=32 time<lms TTL=126

Ping statistics for 192.168.20.10:
    Packets: Sent = 4, Received = 2, Lost = 2 (50% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

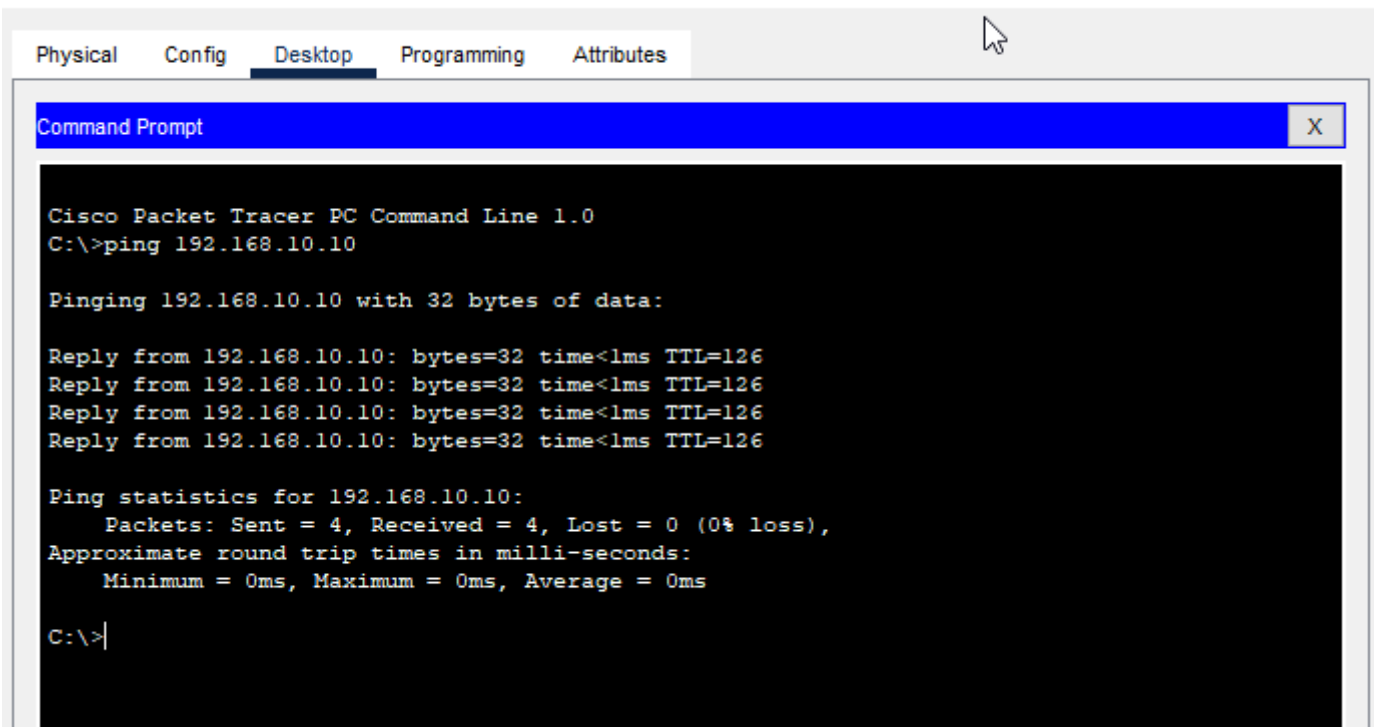
C:\>ping 192.168.20.10

Pinging 192.168.20.10 with 32 bytes of data:

Reply from 192.168.20.10: bytes=32 time<lms TTL=126
Reply from 192.168.20.10: bytes=32 time<lms TTL=126
Reply from 192.168.20.10: bytes=32 time<lms TTL=126
Reply from 192.168.20.10: bytes=32 time<lms TTL=126

Ping statistics for 192.168.20.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```



The screenshot shows a Cisco Packet Tracer PC Command Line window. The window title is "Command Prompt" and it has a blue header bar. The main content area is black with white text. The text shows the command prompt "C:\>ping 192.168.10.10" and the output of the ping command, which indicates that all four packets were received successfully with 0% loss. The output also shows the round trip times in milliseconds, with a minimum of 0ms, a maximum of 0ms, and an average of 0ms.

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.10.10

Pinging 192.168.10.10 with 32 bytes of data:

Reply from 192.168.10.10: bytes=32 time<lms TTL=126
Reply from 192.168.10.10: bytes=32 time<lms TTL=126
Reply from 192.168.10.10: bytes=32 time<lms TTL=126
Reply from 192.168.10.10: bytes=32 time<lms TTL=126

Ping statistics for 192.168.10.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>|
```

## Cisco Packet Tracer File

[net9 static routing.pkt](#)

Revision #3

Created 24 December 2022 20:34:31 by Glen Taylor

Updated 24 January 2023 22:41:53 by Glen Taylor