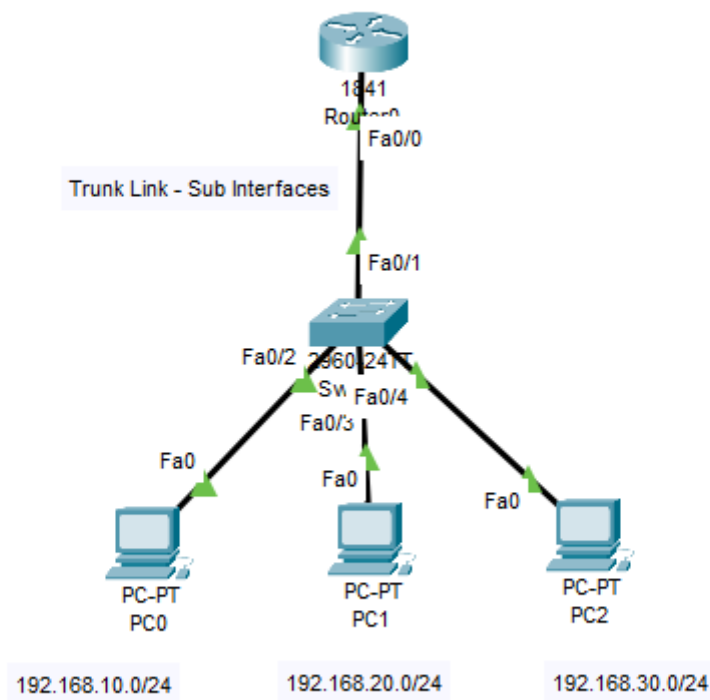


Cisco IOS Router on a Stick

Network Topology



Router0 Configuration Commands

```
Router0>enable
Router0#configure terminal
Router0(config)#interface fastEthernet 0/0
Router0(config-if)#no shutdown
Router0(config-if)#interface fastEthernet 0/0.10
Router0(config-subif)#encapsulation dot1q 10
Router0(config-subif)#ip address 192.168.10.1 255.255.255.0
Router0(config-if)#interface fastEthernet 0/0.20
Router0(config-subif)#encapsulation dot1q 20
Router0(config-subif)#ip address 192.168.20.1 255.255.255.0
Router0(config-if)#interface fastEthernet 0/0.30
Router0(config-subif)#encapsulation dot1q 30
Router0(config-subif)#ip address 192.168.30.1 255.255.255.0
Router0(config-subif)#end
```

Router0#show ip interface brief

```
Router0#show ip interface brief
Interface                IP-Address      OK? Method Status        Protocol
FastEthernet0/0          unassigned      YES unset  up            up
FastEthernet0/0.10       192.168.10.1    YES manual  up            up
FastEthernet0/0.20       192.168.20.1    YES manual  up            up
FastEthernet0/0.30       192.168.30.1    YES manual  up            up
FastEthernet0/1          unassigned      YES unset  administratively down down
Vlan1                    unassigned      YES unset  administratively down down
```

Router0#show interfaces

```
FastEthernet0/0.10 is up, line protocol is up (connected)
  Hardware is PQUICC_FEC, address is 0001.649a.6801 (bia 0001.649a.6801)
  Internet address is 192.168.10.1/24
  MTU 1500 bytes, BW 100000 Kbit, DLY 100 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation 802.1Q Virtual LAN, Vlan ID 10
  ARP type: ARPA, ARP Timeout 04:00:00,
  Last clearing of "show interface" counters never
FastEthernet0/0.20 is up, line protocol is up (connected)
  Hardware is PQUICC_FEC, address is 0001.649a.6801 (bia 0001.649a.6801)
  Internet address is 192.168.20.1/24
  MTU 1500 bytes, BW 100000 Kbit, DLY 100 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation 802.1Q Virtual LAN, Vlan ID 20
  ARP type: ARPA, ARP Timeout 04:00:00,
  Last clearing of "show interface" counters never
FastEthernet0/0.30 is up, line protocol is up (connected)
  Hardware is PQUICC_FEC, address is 0001.649a.6801 (bia 0001.649a.6801)
  Internet address is 192.168.30.1/24
  MTU 1500 bytes, BW 100000 Kbit, DLY 100 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation 802.1Q Virtual LAN, Vlan ID 30
  ARP type: ARPA, ARP Timeout 04:00:00,
  Last clearing of "show interface" counters never
```

Switch0 Configuration Commands

```
Switch0>enable
Switch0#configure terminal
Switch0(config)#interface fastEthernet 0/1
Switch0(config-if)#switchport mode trunk
Switch0(config-if)#interface fastEthernet 0/2
Switch0(config-if)#switchport access vlan 10
Switch0(config-if)#interface fastEthernet 0/3
Switch0(config-if)#switchport access vlan 20
Switch0(config-if)#interface fastEthernet 0/4
Switch0(config-if)#switchport access vlan 30
Switch0(config-if)#end
Switch0#show vlan brief
```

Switch0#show vlan brief

VLAN Name	Status	Ports
1 default	active	Fa0/5, Fa0/6, Fa0/7, Fa0/8 Fa0/9, Fa0/10, Fa0/11, Fa0/12 Fa0/13, Fa0/14, Fa0/15, Fa0/16 Fa0/17, Fa0/18, Fa0/19, Fa0/20 Fa0/21, Fa0/22, Fa0/23, Fa0/24 Gig0/1, Gig0/2
10 VLAN0010	active	Fa0/2
20 VLAN0020	active	Fa0/3
30 VLAN0030	active	Fa0/4
1002 fddi-default	active	
1003 token-ring-default	active	
1004 fddinet-default	active	
1005 trnet-default	active	

Switch0#show interfaces status

Port	Name	Status	Vlan	Duplex	Speed	Type
Fa0/1		connected	trunk	auto	auto	10/100BaseTX
Fa0/2		connected	10	auto	auto	10/100BaseTX
Fa0/3		connected	20	auto	auto	10/100BaseTX
Fa0/4		connected	30	auto	auto	10/100BaseTX
Fa0/5		notconnect	1	auto	auto	10/100BaseTX
Fa0/6		notconnect	1	auto	auto	10/100BaseTX
Fa0/7		notconnect	1	auto	auto	10/100BaseTX
Fa0/8		notconnect	1	auto	auto	10/100BaseTX
Fa0/9		notconnect	1	auto	auto	10/100BaseTX
Fa0/10		notconnect	1	auto	auto	10/100BaseTX
Fa0/11		notconnect	1	auto	auto	10/100BaseTX
Fa0/12		notconnect	1	auto	auto	10/100BaseTX
Fa0/13		notconnect	1	auto	auto	10/100BaseTX
Fa0/14		notconnect	1	auto	auto	10/100BaseTX
Fa0/15		notconnect	1	auto	auto	10/100BaseTX
Fa0/16		notconnect	1	auto	auto	10/100BaseTX
Fa0/17		notconnect	1	auto	auto	10/100BaseTX
Fa0/18		notconnect	1	auto	auto	10/100BaseTX
Fa0/19		notconnect	1	auto	auto	10/100BaseTX
Fa0/20		notconnect	1	auto	auto	10/100BaseTX
Fa0/21		notconnect	1	auto	auto	10/100BaseTX
Fa0/22		notconnect	1	auto	auto	10/100BaseTX
Fa0/23		notconnect	1	auto	auto	10/100BaseTX
Fa0/24		notconnect	1	auto	auto	10/100BaseTX
Gig0/1		notconnect	1	auto	auto	10/100BaseTX
Gig0/2		notconnect	1	auto	auto	10/100BaseTX

Configure the Three PCs

PC0

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

0090.2B18.A2C9

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::290:2BFF:FE18:A2C9

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

0050.0F69.A9CB

IP Configuration

☐ DHCP☒ Static

IPv4 Address

192.168.20.20

Subnet Mask

255.255.255.0

IPv6 Configuration

☐ Automatic☒ Static

IPv6 Address

Link Local Address: FE80::250:FFF:FE69:A9CB

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

0060.2FDD.865B

IP Configuration

☐ DHCP☒ Static

IPv4 Address

192.168.30.30

Subnet Mask

255.255.255.0

IPv6 Configuration

☐ Automatic☒ Static

IPv6 Address

Link Local Address: FE80::260:2FFF:FEDD:865B

PC2

Physical

Config

Desktop

Programming

Attributes

GLOBAL

Settings

Algorithm Settings

INTERFACE

FastEthernet0

Bluetooth

Global Settings

Display NamePC2

InterfacesFastEthernet0

Gateway/DNS IPv4

DHCP

Static

Default Gateway192.168.30.1

DNS Server

Gateway/DNS IPv6

Automatic

Static

Default Gateway

DNS Server

Test with Ping and Tracert

Physical Config **Desktop** Programming Attributes

Command Prompt X

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.20.20

Pinging 192.168.20.20 with 32 bytes of data:

Request timed out.
Reply from 192.168.20.20: bytes=32 time<1ms TTL=127
Reply from 192.168.20.20: bytes=32 time<1ms TTL=127
Reply from 192.168.20.20: bytes=32 time<1ms TTL=127

Ping statistics for 192.168.20.20:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>tracert 192.168.20.20

Tracing route to 192.168.20.20 over a maximum of 30 hops:

  1  0 ms      0 ms      0 ms      192.168.10.1
  2  0 ms      0 ms      0 ms      192.168.20.20

Trace complete.

C:\>
```

Physical Config **Desktop** Programming Attributes

Command Prompt X

Cisco Packet Tracer PC Command Line 1.0

C:\>ping 192.168.30.30

Pinging 192.168.30.30 with 32 bytes of data:

Request timed out.

Reply from 192.168.30.30: bytes=32 time<1ms TTL=127

Reply from 192.168.30.30: bytes=32 time<1ms TTL=127

Reply from 192.168.30.30: bytes=32 time<1ms TTL=127

Ping statistics for 192.168.30.30:

Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),

Approximate round trip times in milli-seconds:

Minimum = 0ms, Maximum = 0ms, Average = 0ms

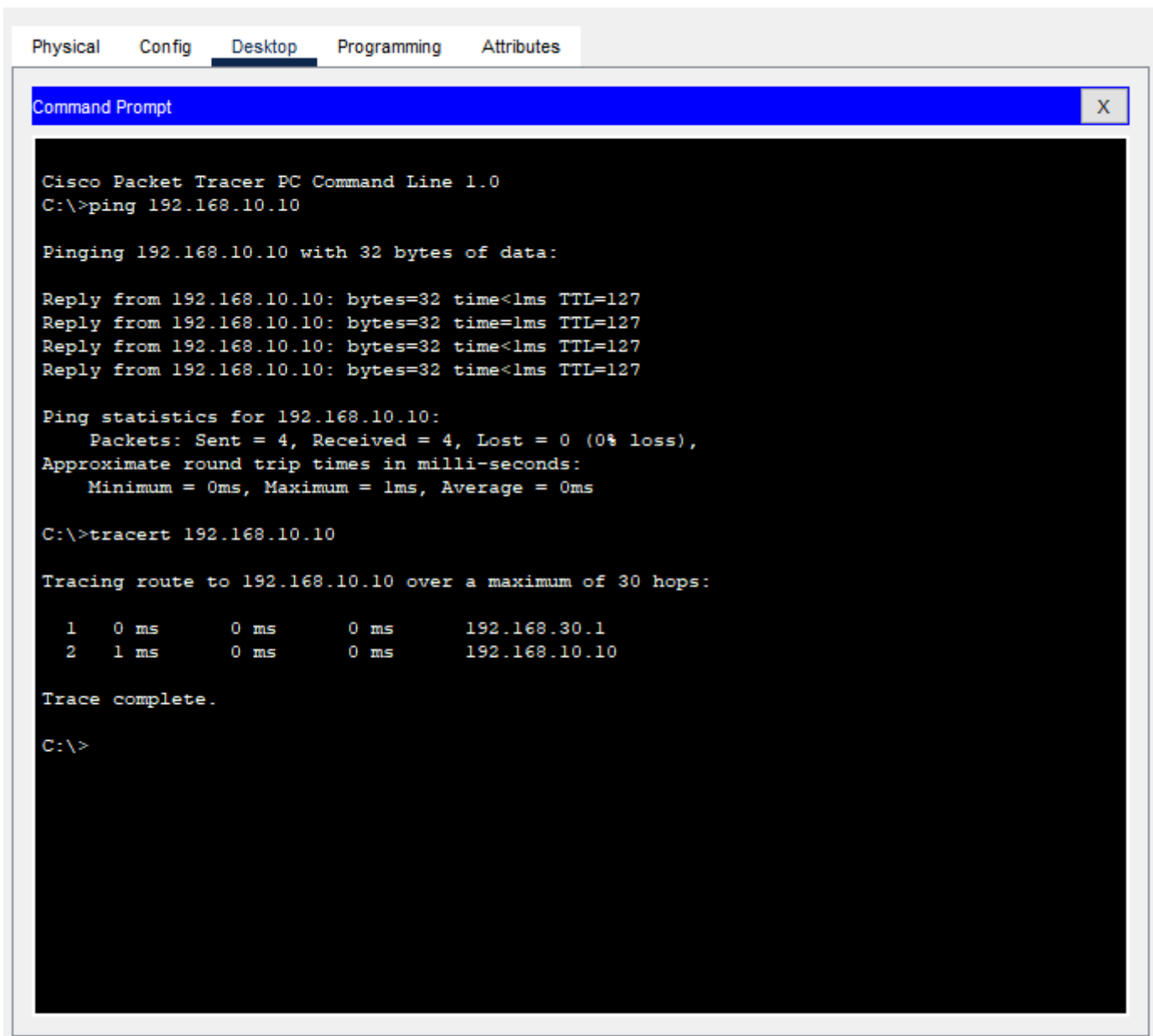
C:\>tracert 192.168.30.30

Tracing route to 192.168.30.30 over a maximum of 30 hops:

1	0 ms	0 ms	0 ms	192.168.20.1
2	0 ms	0 ms	1 ms	192.168.30.30

Trace complete.

C:\>



The screenshot shows a Cisco Packet Tracer PC Command Line window with a blue title bar and a close button. The window has tabs for Physical, Config, Desktop (selected), Programming, and Attributes. The command prompt shows the following output:

```
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<1ms TTL=127
Reply from 192.168.10.10: bytes=32 time=1ms TTL=127
Reply from 192.168.10.10: bytes=32 time<1ms TTL=127
Reply from 192.168.10.10: bytes=32 time<1ms TTL=127

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 = 1ms, Average = 0ms

C:\>tracert 192.168.10.10

Tracing route to 192.168.10.10 over a maximum of 30 hops:

  0  0 ms    0 ms    0 ms    192.168.30.1
  1  1 ms    0 ms    0 ms    192.168.10.10

Trace complete.

C:\>
```

Cisco Packet Tracer File

[net12 router on a stick.pkt](#)

Revision #2

Created 2 January 2023 15:34:09 by Glen Taylor

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