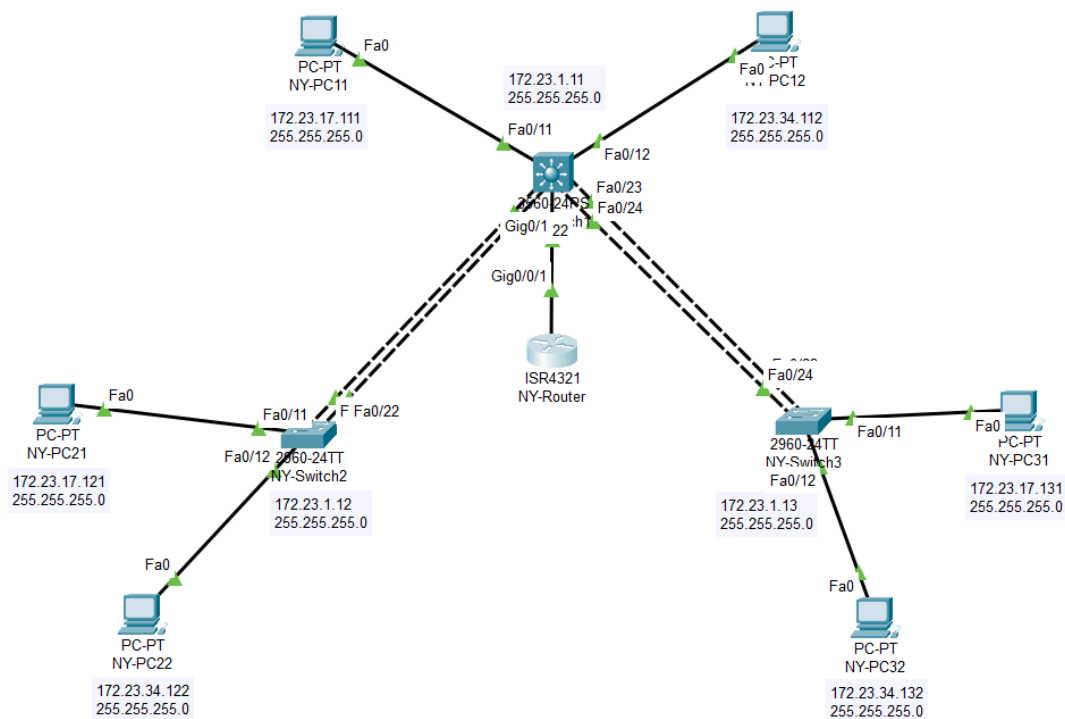


### Lab 3

**Description:** We used a router on a stick to be able to communicate with outside of our vlans.

### **Topology:**



### **Syntax:**

Command	Description	Cisco IOS Mode
Int G0/1	Navigates to the interface you want to configure	Int config
Switchport mode trunk	Sets the interface to trunk port	Int config

Switchport trunk encapsulation dot1q	Changes the encapsulation to IEEE 802.1Q	Int Config
Switchport trunk allowed vlan all	Allows all vlans on the trunk port	Int config

## Verification:

B. This screenshot shows NY-Switch1s VLAN table.

```
NY-Switch1#show vlan

VLAN Name                Status    Ports
-----
1    default                active    Fa0/1, Fa0/2, Fa0/3, Fa0/4
                                           Fa0/5, Fa0/6, Fa0/7, Fa0/8
                                           Fa0/9, Fa0/10, Fa0/13, Fa0/14
                                           Fa0/15, Fa0/16, Fa0/17,
Fa0/18
                                           Fa0/19, Fa0/20, Gig0/1,
Gig0/2
17   BLUE                   active    Fa0/11
34   GREEN                  active    Fa0/12
1002 fddi-default          active
1003 token-ring-default    active
1004 fddinet-default        active
1005 trnet-default          active

VLAN Type  SAID      MTU   Parent RingNo BridgeNo Stp  BrdgMode Transl
Trans2
-----
1    enet    100001   1500   -    -    -    -    -    0    0
17   enet    100017   1500   -    -    -    -    -    0    0
34   enet    100034   1500   -    -    -    -    -    0    0
1002 fddi    101002   1500   -    -    -    -    -    0    0
1003 tr     101003   1500   -    -    -    -    -    0    0
1004 fdnet  101004   1500   -    -    -    -    -    0    0
```

C. These screenshots show NY-Switch2s VLAN table, interfaces that are trunks and it's etherchannel summary.

```
NY-Switch2#show vlan

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

VLAN Type  SAID      MTU   Parent RingNo BridgeNo Stp  BrdgMode Transl
Trans2
-----
1    enet    100001   1500   -    -    -    -    -    0    0
17   enet    100017   1500   -    -    -    -    -    0    0
34   enet    100034   1500   -    -    -    -    -    0    0
1002 fddi    101002   1500   -    -    -    -    -    0    0
1003 tr     101003   1500   -    -    -    -    -    0    0
1004 fdnet  101004   1500   -    -    -    -    -    0    0
```

```

NY-Switch2#show int status
Port      Name      Status      Vlan      Duplex  Speed Type
Po2       Name      connected   trunk     auto    auto
Fa0/1     notconnect 1          auto    10/100BaseTX
Fa0/2     notconnect 1          auto    10/100BaseTX
Fa0/3     notconnect 1          auto    10/100BaseTX
Fa0/4     notconnect 1          auto    10/100BaseTX
Fa0/5     notconnect 1          auto    10/100BaseTX
Fa0/6     notconnect 1          auto    10/100BaseTX
Fa0/7     notconnect 1          auto    10/100BaseTX
Fa0/8     notconnect 1          auto    10/100BaseTX
Fa0/9     notconnect 1          auto    10/100BaseTX
Fa0/10    notconnect 1          auto    10/100BaseTX
Fa0/11    connected 17         auto    10/100BaseTX
Fa0/12    connected 34         auto    10/100BaseTX
Fa0/13    notconnect 1          auto    10/100BaseTX
Fa0/14    notconnect 1          auto    10/100BaseTX
Fa0/15    notconnect 1          auto    10/100BaseTX
Fa0/16    notconnect 1          auto    10/100BaseTX
Fa0/17    notconnect 1          auto    10/100BaseTX
Fa0/18    notconnect 1          auto    10/100BaseTX
Fa0/19    notconnect 1          auto    10/100BaseTX
Fa0/20    notconnect 1          auto    10/100BaseTX
Fa0/21    Link to NY-Switch1 connected trunk auto    10/100BaseTX
Fa0/22    Link to NY-Switch2 connected trunk auto    10/100BaseTX
Fa0/23    notconnect 1          auto    10/100BaseTX
Fa0/24    notconnect 1          auto    10/100BaseTX
Gig0/1    notconnect 1          auto    10/100BaseTX
Gig0/2    notconnect 1          auto    10/100BaseTX

```

```
NY-Switch2#show etherchannel summary
```

```

Flags: D - down      P - in port-channel
       I - stand-alone s - suspended
       H - Hot-standby (LACP only)
       R - Layer3      S - Layer2
       U - in use      f - failed to allocate aggregator
       u - unsuitable for bundling
       w - waiting to be aggregated
       d - default port

```

```
Number of channel-groups in use: 1
```

```
Number of aggregators: 1
```

Group	Port-channel	Protocol	Ports
2	Po2(SU)	LACP	Fa0/21(P) Fa0/22(P)

D. These screenshots show NY-Switch3s VLAN table, NY-Switch3s and NY-Switch1s interfaces that are trunks and their etherchannel summaries.

```
NY-Switch3#show vlan
```

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

VLAN	Type	SAID	MTU	Parent	RingNo	BridgeNo	Stp	BrdgMode	Trans1	Trans2
1	enet	100001	1500	-	-	-	-	-	0	0
17	enet	100017	1500	-	-	-	-	-	0	0
34	enet	100034	1500	-	-	-	-	-	0	0
1002	fddi	101002	1500	-	-	-	-	-	0	0
1003	tr	101003	1500	-	-	-	-	-	0	0
1004	fdnet	101004	1500	-	-	-	ieee	-	0	0
1005	trnet	101005	1500	-	-	-	ibm	-	0	0

VLAN	Type	SAID	MTU	Parent	RingNo	BridgeNo	Stp	BrdgMode	Trans1	Trans2
1	enet	100001	1500	-	-	-	-	-	0	0
17	enet	100017	1500	-	-	-	-	-	0	0
34	enet	100034	1500	-	-	-	-	-	0	0
1002	fddi	101002	1500	-	-	-	-	-	0	0
1003	tr	101003	1500	-	-	-	-	-	0	0
1004	fdnet	101004	1500	-	-	-	ieee	-	0	0
1005	trnet	101005	1500	-	-	-	ibm	-	0	0

VLAN	Type	SAID	MTU	Parent	RingNo	BridgeNo	Stp	BrdgMode	Trans1	Trans2
1	enet	100001	1500	-	-	-	-	-	0	0
17	enet	100017	1500	-	-	-	-	-	0	0
34	enet	100034	1500	-	-	-	-	-	0	0
1002	fddi	101002	1500	-	-	-	-	-	0	0
1003	tr	101003	1500	-	-	-	-	-	0	0
1004	fdnet	101004	1500	-	-	-	ieee	-	0	0
1005	trnet	101005	1500	-	-	-	ibm	-	0	0

Primary	Secondary	Type	Ports
1	17	en	Fa0/1, Fa0/2, Fa0/3, Fa0/4, 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, Gig0/1, Gig0/2

```

NY-Switch3#show int status
Port      Name      Status      Vlan      Duplex  Speed Type
Po3       Name      connected   trunk     auto    auto
Po3       notconnect 1          auto    10/100BaseTX
Fa0/1     notconnect 1          auto    10/100BaseTX
Fa0/2     notconnect 1          auto    10/100BaseTX
Fa0/3     notconnect 1          auto    10/100BaseTX
Fa0/4     notconnect 1          auto    10/100BaseTX
Fa0/5     notconnect 1          auto    10/100BaseTX
Fa0/6     notconnect 1          auto    10/100BaseTX
Fa0/7     notconnect 1          auto    10/100BaseTX
Fa0/8     notconnect 1          auto    10/100BaseTX
Fa0/9     notconnect 1          auto    10/100BaseTX
Fa0/10    notconnect 1          auto    10/100BaseTX
Fa0/11    connected 17         auto    10/100BaseTX
Fa0/12    connected 34         auto    10/100BaseTX
Fa0/13    notconnect 1          auto    10/100BaseTX
Fa0/14    notconnect 1          auto    10/100BaseTX
Fa0/15    notconnect 1          auto    10/100BaseTX
Fa0/16    notconnect 1          auto    10/100BaseTX
Fa0/17    notconnect 1          auto    10/100BaseTX
Fa0/18    notconnect 1          auto    10/100BaseTX
Fa0/19    notconnect 1          auto    10/100BaseTX
Fa0/20    notconnect 1          auto    10/100BaseTX
Fa0/21    notconnect 1          auto    10/100BaseTX
Fa0/22    notconnect 1          auto    10/100BaseTX
Fa0/23    connected trunk     auto    10/100BaseTX
Fa0/24    connected trunk     auto    10/100BaseTX
Gig0/1    notconnect 1          auto    10/100BaseTX
Gig0/2    notconnect 1          auto    10/100BaseTX

```

```
NY-Switch3#show etherchannel summary
```

```

Flags: D - down      P - in port-channel
       I - stand-alone s - suspended
       H - Hot-standby (LACP only)
       R - Layer3      S - Layer2
       U - in use      f - failed to allocate aggregator
       u - unsuitable for bundling
       w - waiting to be aggregated
       d - default port

```

```
Number of channel-groups in use: 1
```

```
Number of aggregators: 1
```

Group	Port-channel	Protocol	Ports
3	Po3(SU)	LACP	Fa0/23(P) Fa0/24(P)

```

NY-Switch1#show int status
Port      Name      Status      Vlan      Duplex  Speed Type
Po2       Name      connected   trunk     auto    auto
Po3       Name      connected   trunk     auto    auto
Fa0/1     notconnect 1          auto    10/100BaseTX
Fa0/2     notconnect 1          auto    10/100BaseTX
Fa0/3     notconnect 1          auto    10/100BaseTX
Fa0/4     notconnect 1          auto    10/100BaseTX
Fa0/5     notconnect 1          auto    10/100BaseTX
Fa0/6     notconnect 1          auto    10/100BaseTX
Fa0/7     notconnect 1          auto    10/100BaseTX
Fa0/8     notconnect 1          auto    10/100BaseTX
Fa0/9     notconnect 1          auto    10/100BaseTX
Fa0/10    notconnect 1          auto    10/100BaseTX
Fa0/11    connected 17         auto    10/100BaseTX
Fa0/12    connected 34         auto    10/100BaseTX
Fa0/13    notconnect 1          auto    10/100BaseTX
Fa0/14    notconnect 1          auto    10/100BaseTX
Fa0/15    notconnect 1          auto    10/100BaseTX
Fa0/16    notconnect 1          auto    10/100BaseTX
Fa0/17    notconnect 1          auto    10/100BaseTX
Fa0/18    notconnect 1          auto    10/100BaseTX
Fa0/19    notconnect 1          auto    10/100BaseTX
Fa0/20    notconnect 1          auto    10/100BaseTX
Fa0/21    Link to NY-Switch2 connected trunk auto    10/100BaseTX
Fa0/22    Link to NY-Switch2 connected trunk auto    10/100BaseTX
Fa0/23    Link to NY-Switch3 connected trunk auto    10/100BaseTX
Fa0/24    Link to NY-Switch3 connected trunk auto    10/100BaseTX
Gig0/1    notconnect trunk     auto    10/100BaseTX
Gig0/2    notconnect 1          auto    10/100BaseTX

```

```

NY-Switch1#show etherchannel summary
Flags:  D - down          P - in port-channel
        I - stand-alone s - suspended
        H - Hot-standby (LACP only)
        R - Layer3        S - Layer2
        U - in use        f - failed to allocate aggregator
        u - unsuitable for bundling
        w - waiting to be aggregated
        d - default port

Number of channel-groups in use: 2
Number of aggregators:          2

```

```

Group  Port-channel  Protocol    Ports
-----+-----+-----
+-----+-----+-----
2      Po2(SU)        LACP        Fa0/21(P) Fa0/22(P)
3      Po3(SU)        LACP        Fa0/23(P) Fa0/24(P)
....

```

E. This screenshot shows that NY-PC11 can reach NY-PC21 and NY-PC31.

```

C:\>ping 172.23.17.121

Pinging 172.23.17.121 with 32 bytes of data:

Reply from 172.23.17.121: bytes=32 time<1ms TTL=128
Reply from 172.23.17.121: bytes=32 time<1ms TTL=128
Reply from 172.23.17.121: bytes=32 time<1ms TTL=128
Reply from 172.23.17.121: bytes=32 time<1ms TTL=128

Ping statistics for 172.23.17.121:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 172.23.17.131

Pinging 172.23.17.131 with 32 bytes of data:

Reply from 172.23.17.131: bytes=32 time<1ms TTL=128
Reply from 172.23.17.131: bytes=32 time<1ms TTL=128
Reply from 172.23.17.131: bytes=32 time<1ms TTL=128
Reply from 172.23.17.131: bytes=32 time<1ms TTL=128

Ping statistics for 172.23.17.131:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

```

F. This screenshot shows that NY-PC12 can reach NY-PC22 and NY-PC32.

```

C:\>ping 172.23.34.122

Pinging 172.23.34.122 with 32 bytes of data:

Reply from 172.23.34.122: bytes=32 time<1ms TTL=128
Reply from 172.23.34.122: bytes=32 time<1ms TTL=128
Reply from 172.23.34.122: bytes=32 time<1ms TTL=128
Reply from 172.23.34.122: bytes=32 time<1ms TTL=128

Ping statistics for 172.23.34.122:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 172.23.34.132

Pinging 172.23.34.132 with 32 bytes of data:

Reply from 172.23.34.132: bytes=32 time<1ms TTL=128
Reply from 172.23.34.132: bytes=32 time<1ms TTL=128
Reply from 172.23.34.132: bytes=32 time<1ms TTL=128
Reply from 172.23.34.132: bytes=32 time<1ms TTL=128

Ping statistics for 172.23.34.132:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

```

G. These screenshots shows NY-Router's abbreviated interfaces, routing table and NY-Switch1's interfaces that are trunks.

```
Router#show ip int brief
Interface          IP-Address      OK? Method Status
Protocol
GigabitEthernet0/0/0 unassigned      YES unset  administratively down down
GigabitEthernet0/0/1 unassigned      YES unset  up
GigabitEthernet0/0/1.1 172.23.1.1     YES manual  up
GigabitEthernet0/0/1.17 172.23.17.1    YES manual  up
GigabitEthernet0/0/1.34 172.23.34.1    YES manual  up
Vlan1              unassigned      YES unset  administratively down down
-

Router#show ip route
Codes: L - local, C - connected, S - static, 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

      172.23.0.0/16 is variably subnetted, 6 subnets, 2 masks
C       172.23.1.0/24 is directly connected, GigabitEthernet0/0/1.1
L       172.23.1.1/32 is directly connected, GigabitEthernet0/0/1.1
C       172.23.17.0/24 is directly connected, GigabitEthernet0/0/1.17
L       172.23.17.1/32 is directly connected, GigabitEthernet0/0/1.17
C       172.23.34.0/24 is directly connected, GigabitEthernet0/0/1.34
L       172.23.34.1/32 is directly connected, GigabitEthernet0/0/1.34

NY-Switch1#show int status
Port      Name              Status      Vlan      Duplex  Speed Type
Po2       Po2               connected   trunk     auto    auto
Po3       Po3               connected   trunk     auto    auto
Fa0/1     Fa0/1             notconnect  1         auto    auto  10/100BaseTX
Fa0/2     Fa0/2             notconnect  1         auto    auto  10/100BaseTX
Fa0/3     Fa0/3             notconnect  1         auto    auto  10/100BaseTX
Fa0/4     Fa0/4             notconnect  1         auto    auto  10/100BaseTX
Fa0/5     Fa0/5             notconnect  1         auto    auto  10/100BaseTX
Fa0/6     Fa0/6             notconnect  1         auto    auto  10/100BaseTX
Fa0/7     Fa0/7             notconnect  1         auto    auto  10/100BaseTX
0/8       0/8               notconnect  1         auto    auto  10/100BaseTX
0/9       0/9               notconnect  1         auto    auto  10/100BaseTX
0/10      0/10              notconnect  1         auto    auto  10/100BaseTX
0/11      0/11              connected   17         auto    auto  10/100BaseTX
0/12      0/12              connected   34         auto    auto  10/100BaseTX
0/13      0/13              notconnect  1         auto    auto  10/100BaseTX
0/14      0/14              notconnect  1         auto    auto  10/100BaseTX
0/15      0/15              notconnect  1         auto    auto  10/100BaseTX
0/16      0/16              notconnect  1         auto    auto  10/100BaseTX
0/17      0/17              notconnect  1         auto    auto  10/100BaseTX
0/18      0/18              notconnect  1         auto    auto  10/100BaseTX
0/19      0/19              notconnect  1         auto    auto  10/100BaseTX
0/20      0/20              notconnect  1         auto    auto  10/100BaseTX
0/21      0/21              connected   trunk     auto    auto  10/100BaseTX
0/22      0/22              connected   trunk     auto    auto  10/100BaseTX
0/23      0/23              connected   trunk     auto    auto  10/100BaseTX
0/24      0/24              connected   trunk     auto    auto  10/100BaseTX
g0/1      g0/1              connected   trunk     auto    auto  10/100BaseTX
g0/2      g0/2              notconnect  1         auto    auto  10/100BaseTX
```

H. These screenshots verify that all of the PCs can reach their own default gateways.

```
C:\>ipconfig

FastEthernet0 Connection: (default port)

    Connection-specific DNS Suffix...:
    Link-local IPv6 Address . . . . .: FE80::20C:85FF:FE02:CC82
    IPv6 Address . . . . .: ::
    IPv4 Address . . . . .: 172.23.17.111
    Subnet Mask . . . . .: 255.255.255.0
    Default Gateway . . . . .: ::

Bluetooth Connection:

    Connection-specific DNS Suffix...:
    Link-local IPv6 Address . . . . .: ::
    IPv6 Address . . . . .: ::
    IPv4 Address . . . . .: 0.0.0.0
    Subnet Mask . . . . .: 0.0.0.0
    Default Gateway . . . . .: ::
                                0.0.0.0

C:\>ping 172.23.17.1

Pinging 172.23.17.1 with 32 bytes of data:

Reply from 172.23.17.1: bytes=32 time<1ms TTL=255
Reply from 172.23.17.1: bytes=32 time<1ms TTL=255
Reply from 172.23.17.1: bytes=32 time<1ms TTL=255
Reply from 172.23.17.1: bytes=32 time<1ms TTL=255

Ping statistics for 172.23.17.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

```
C:\>ipconfig

FastEthernet0 Connection: (default port)

    Connection-specific DNS Suffix...:
    Link-local IPv6 Address . . . . .: FE80::2E0:8FFF:FE47:D7E8
    IPv6 Address . . . . .: ::
    IPv4 Address . . . . .: 172.23.34.112
    Subnet Mask . . . . .: 255.255.255.0
    Default Gateway . . . . .: ::
                                172.23.34.1

Bluetooth Connection:

    Connection-specific DNS Suffix...:
    Link-local IPv6 Address . . . . .: ::
    IPv6 Address . . . . .: ::
    IPv4 Address . . . . .: 0.0.0.0
    Subnet Mask . . . . .: 0.0.0.0
    Default Gateway . . . . .: ::
                                0.0.0.0

C:\>ping 172.23.34.1

Pinging 172.23.34.1 with 32 bytes of data:

Reply from 172.23.34.1: bytes=32 time=2ms TTL=255
Reply from 172.23.34.1: bytes=32 time<1ms TTL=255
Reply from 172.23.34.1: bytes=32 time<1ms TTL=255
Reply from 172.23.34.1: bytes=32 time<1ms TTL=255

Ping statistics for 172.23.34.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 2ms, Average = 0ms
```

```

C:\>ipconfig

FastEthernet0 Connection:(default port)

    Connection-specific DNS Suffix...:
    Link-local IPv6 Address . . . . .: FE80::290:2BFF:FEED:DC14
    IPv6 Address . . . . .: ::
    IPv4 Address . . . . .: 172.23.17.121
    Subnet Mask . . . . .: 255.255.255.0
    Default Gateway . . . . .: ::
                                172.23.17.1

Bluetooth Connection:

    Connection-specific DNS Suffix...:
    Link-local IPv6 Address . . . . .: ::
    IPv6 Address . . . . .: ::
    IPv4 Address . . . . .: 0.0.0.0
    Subnet Mask . . . . .: 0.0.0.0
    Default Gateway . . . . .: ::
                                0.0.0.0

C:\>ping 172.23.17.1

Pinging 172.23.17.1 with 32 bytes of data:

Reply from 172.23.17.1: bytes=32 time<1ms TTL=255
Reply from 172.23.17.1: bytes=32 time<1ms TTL=255
Reply from 172.23.17.1: bytes=32 time<1ms TTL=255
Reply from 172.23.17.1: bytes=32 time<1ms TTL=255

Ping statistics for 172.23.17.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

```

```

C:\>ipconfig

FastEthernet0 Connection:(default port)

    Connection-specific DNS Suffix...:
    Link-local IPv6 Address . . . . .: FE80::2E0:A3FF:FE51:BC99
    IPv6 Address . . . . .: ::
    IPv4 Address . . . . .: 172.23.34.122
    Subnet Mask . . . . .: 255.255.255.0
    Default Gateway . . . . .: ::
                                172.23.34.1

Bluetooth Connection:

    Connection-specific DNS Suffix...:
    Link-local IPv6 Address . . . . .: ::
    IPv6 Address . . . . .: ::
    IPv4 Address . . . . .: 0.0.0.0
    Subnet Mask . . . . .: 0.0.0.0
    Default Gateway . . . . .: ::
                                0.0.0.0

C:\>ping 172.23.34.1

Pinging 172.23.34.1 with 32 bytes of data:

Reply from 172.23.34.1: bytes=32 time<1ms TTL=255
Reply from 172.23.34.1: bytes=32 time<1ms TTL=255
Reply from 172.23.34.1: bytes=32 time<1ms TTL=255
Reply from 172.23.34.1: bytes=32 time<1ms TTL=255

Ping statistics for 172.23.34.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

```

```

C:\>ipconfig

FastEthernet0 Connection:(default port)

    Connection-specific DNS Suffix...:
    Link-local IPv6 Address . . . . .: FE80::206:2AFF:FE99:542B
    IPv6 Address . . . . .: ::
    IPv4 Address . . . . .: 172.23.17.131
    Subnet Mask . . . . .: 255.255.255.0
    Default Gateway . . . . .: ::
                                172.23.17.1

Bluetooth Connection:

    Connection-specific DNS Suffix...:
    Link-local IPv6 Address . . . . .: ::
    IPv6 Address . . . . .: ::
    IPv4 Address . . . . .: 0.0.0.0
    Subnet Mask . . . . .: 0.0.0.0
    Default Gateway . . . . .: ::
                                0.0.0.0

C:\>ping 172.23.17.1

Pinging 172.23.17.1 with 32 bytes of data:

Reply from 172.23.17.1: bytes=32 time<1ms TTL=255
Reply from 172.23.17.1: bytes=32 time<1ms TTL=255
Reply from 172.23.17.1: bytes=32 time<1ms TTL=255
Reply from 172.23.17.1: bytes=32 time<1ms TTL=255

Ping statistics for 172.23.17.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

```

```

C:\>ipconfig

FastEthernet0 Connection:(default port)

    Connection-specific DNS Suffix...:
    Link-local IPv6 Address . . . . .: FE80::201:C7FF:FE0E:6BEB
    IPv6 Address . . . . .: ::
    IPv4 Address . . . . .: 172.23.34.132
    Subnet Mask . . . . .: 255.255.255.0
    Default Gateway . . . . .: ::
                                172.23.34.1

Bluetooth Connection:

    Connection-specific DNS Suffix...:
    Link-local IPv6 Address . . . . .: ::
    IPv6 Address . . . . .: ::
    IPv4 Address . . . . .: 0.0.0.0
    Subnet Mask . . . . .: 0.0.0.0
    Default Gateway . . . . .: ::
                                0.0.0.0

C:\>ping 172.23.34.1

Pinging 172.23.34.1 with 32 bytes of data:

Reply from 172.23.34.1: bytes=32 time<1ms TTL=255
Reply from 172.23.34.1: bytes=32 time<1ms TTL=255
Reply from 172.23.34.1: bytes=32 time=4ms TTL=255
Reply from 172.23.34.1: bytes=32 time<1ms TTL=255

Ping statistics for 172.23.34.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 4ms, Average = 1ms

```

I. This screenshot shows that NY-PC11 can reach NY-PC12, NY-PC22 and NY-PC32.

```

C:\>ping 172.23.17.1

Pinging 172.23.17.1 with 32 bytes of data:

Reply from 172.23.17.1: bytes=32 time<1ms TTL=255
Reply from 172.23.17.1: bytes=32 time<1ms TTL=255
Reply from 172.23.17.1: bytes=32 time<1ms TTL=255
Reply from 172.23.17.1: bytes=32 time<1ms TTL=255

Ping statistics for 172.23.17.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 172.23.34.112

Pinging 172.23.34.112 with 32 bytes of data:

Reply from 172.23.34.112: bytes=32 time<1ms TTL=127
Reply from 172.23.34.112: bytes=32 time<1ms TTL=127
Reply from 172.23.34.112: bytes=32 time<1ms TTL=127
Reply from 172.23.34.112: bytes=32 time<1ms TTL=127

Ping statistics for 172.23.34.112:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 172.23.34.122

Pinging 172.23.34.122 with 32 bytes of data:

Reply from 172.23.34.122: bytes=32 time<1ms TTL=127
Reply from 172.23.34.122: bytes=32 time<1ms TTL=127
Reply from 172.23.34.122: bytes=32 time<1ms TTL=127
Reply from 172.23.34.122: bytes=32 time<1ms TTL=127

Ping statistics for 172.23.34.122:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 172.23.34.132

Pinging 172.23.34.132 with 32 bytes of data:

Reply from 172.23.34.132: bytes=32 time<1ms TTL=127
Reply from 172.23.34.132: bytes=32 time<1ms TTL=127
Reply from 172.23.34.132: bytes=32 time<1ms TTL=127
Reply from 172.23.34.132: bytes=32 time<1ms TTL=127

Ping statistics for 172.23.34.132:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:

```

J. This screenshot shows that NY-PC12 can reach NY-PC11, NY-PC21 and NY-PC31.

```
C:\>ping 172.23.34.1

Pinging 172.23.34.1 with 32 bytes of data:

Reply from 172.23.34.1: bytes=32 time=2ms TTL=255
Reply from 172.23.34.1: bytes=32 time<1ms TTL=255
Reply from 172.23.34.1: bytes=32 time<1ms TTL=255
Reply from 172.23.34.1: bytes=32 time<1ms TTL=255

Ping statistics for 172.23.34.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 2ms, Average = 0ms

C:\>ping 172.23.17.111

Pinging 172.23.17.111 with 32 bytes of data:

Reply from 172.23.17.111: bytes=32 time<1ms TTL=127
Reply from 172.23.17.111: bytes=32 time<1ms TTL=127
Reply from 172.23.17.111: bytes=32 time<1ms TTL=127
Reply from 172.23.17.111: bytes=32 time<1ms TTL=127

Ping statistics for 172.23.17.111:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 172.23.17.121

Pinging 172.23.17.121 with 32 bytes of data:

Reply from 172.23.17.121: bytes=32 time<1ms TTL=127
Reply from 172.23.17.121: bytes=32 time<1ms TTL=127
Reply from 172.23.17.121: bytes=32 time<1ms TTL=127
Reply from 172.23.17.121: bytes=32 time<1ms TTL=127

Ping statistics for 172.23.17.121:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 172.23.17.131

Pinging 172.23.17.131 with 32 bytes of data:

Reply from 172.23.17.131: bytes=32 time<1ms TTL=127
Reply from 172.23.17.131: bytes=32 time<1ms TTL=127
Reply from 172.23.17.131: bytes=32 time<1ms TTL=127
Reply from 172.23.17.131: bytes=32 time<1ms TTL=127

Ping statistics for 172.23.17.131:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
```

K. All of the PCs can reach every pc, but can not ping the switches. The switches discard the requests to increase their efficiency.



## L.This screenshot shows the implementation and demonstration of Rapid Spanning-Tree Protocol.

```
NY-Switch1(config)#spanning-tree mode rapid
NY-Switch1(config)#
NY-Switch1#
%SYS-5-CONFIG_I: Configured from console by console

NY-Switch1#show spann
NY-Switch1#show spanning-tree
VLAN0001
  Spanning tree enabled protocol rstp
    Root ID    Priority    24577
               Address     0006.2A45.EECE
               This bridge is the root
               Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec

    Bridge ID  Priority    24577 (priority 24576 sys-id-ext 1)
               Address     0006.2A45.EECE
               Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
               Aging Time  20

Interface      Role Sts Cost      Prio.Nbr Type
-----
Po2             Desg FWD 9         128.27 Shr
Gi0/1           Desg FWD 4         128.25 P2p
Po3             Desg FWD 9         128.28 Shr

VLAN0017
  Spanning tree enabled protocol rstp
    Root ID    Priority    32785
               Address     0001.C94B.3598
               Cost        9
               Port        27(Port-channel2)
               Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec

    Bridge ID  Priority    32785 (priority 32768 sys-id-ext 17)
               Address     0006.2A45.EECE
               Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
               Aging Time  20

Interface      Role Sts Cost      Prio.Nbr Type
-----
Po2             Root FWD 9         128.27 Shr
Fa0/11         Desg FWD 19        128.11 P2p
Gi0/1          Desg FWD 4         128.25 P2p

VLAN0034
  Spanning tree enabled protocol rstp
    Root ID    Priority    32802
               Address     0001.C94B.3598
               Cost        9
               Port        27(Port-channel2)
               Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
```

## Conclusion:

This lab was very similar to what we do in class in my opinion. There were a few new commands I had to research but everything else came pretty easily. I did struggle for a little while with one of the EtherChannels not working on one of the switches, but after a little trial and error I got it working. I enjoy these labs, working on getting better at the commands and wiring a small network.