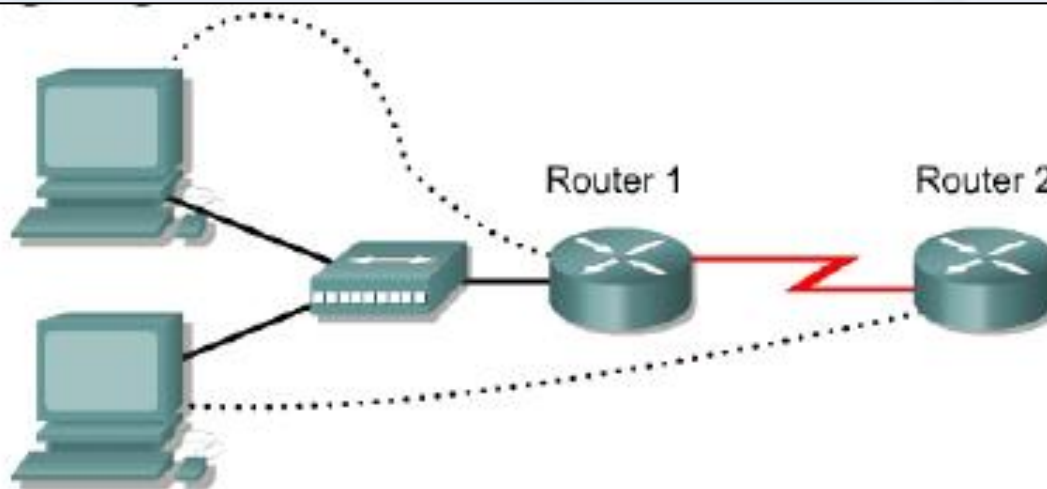




# DHCP Configuration

# Topology



Router Designation	Router Name	FastEthernet 0 Address/ Subnet Mask	Interface Type	Serial 0 Address/ Subnet Mask	Loopback 0 Address/ Subnet Mask	Enable Secret Password	Enable/VTY/ Console Passwords
Router 1	Campus	172.16.12.1/24	DCE	172.16.1.6/30	NA	class	cisco
Router 2	ISP	NA	DTE	172.16.1.5/30	172.16.13.1/32	class	cisco



# DHCP Configuration

```
campus(config)#ip dhcp pool campus
```

```
campus(dhcp-config)#network 172.16.12.0 255.255.255.0
```

```
campus(dhcp-config)#default-router 172.16.12.1
```

```
campus(dhcp-config)#dns-server 172.16.1.2
```

```
campus(dhcp-config)#domain-name foo.com
```

```
campus(dhcp-config)#netbios-name-server 172.16.1.10
```



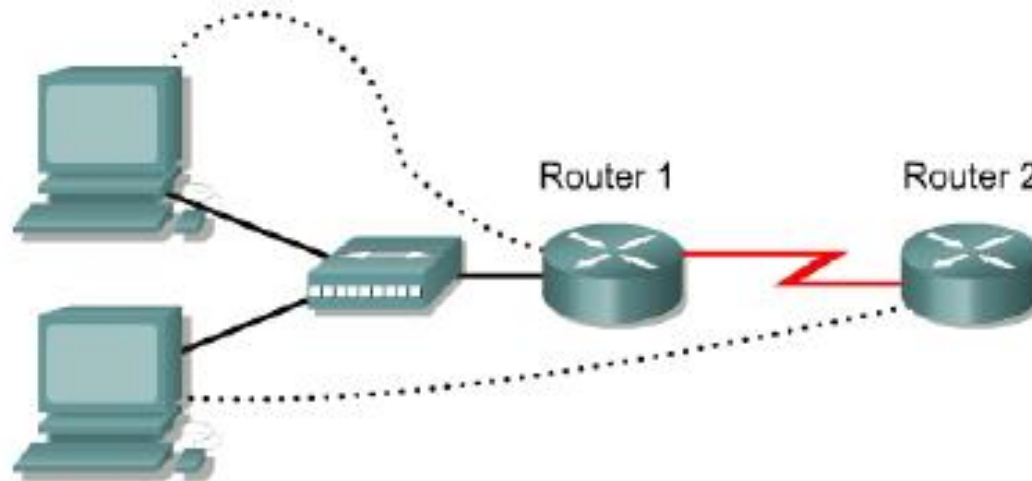
# Verify

**show ip dhcp binding**



# NAT Configuration

# Topology



Router	Router Designation Name	FastEthernet 0 Address/ Subnet Mask	Interface Type	Serial 0 Address/ Subnet Mask	Loopback 0 Address/ Subnet Mask	Enable Secret Password	Enable/VTY/ Console Passwords
Router 1	Gateway	10.10.10.1/24	DCE	200.2.2.18/30	NA	class	cisco
Router 2	ISP	NA	DTE	200.2.2.17/30	172.16.1.1/32	class	cisco

# ISP Router

```
Router(config)#hostname ISP
ISP(config)#enable password cisco
ISP(config)#enable secret class
ISP(config)#line console 0
ISP(config-line)#password cisco
ISP(config-line)#login
ISP(config-line)#exit
ISP(config)#line vty 0 4
ISP(config-line)#password cisco
ISP(config-line)#login
ISP(config-line)#exit

ISP(config)#interface loopback 0
ISP(config-if)#ip add 172.16.1.1 255.255.255.255
ISP(config-if)#no shutdown
ISP(config-if)#exit
ISP(config)#interface serial 0
ISP(config-if)#ip add 200.2.2.17 255.255.255.252
ISP(config-if)#no shutdown
ISP(config-if)#clockrate 64000
ISP(config)#ip route 199.99.9.32 255.255.255.224 200.2.2.18
```

# Gateway Router

```

Router(config)#hostname Gateway
Gateway(config)#enable password cisco
Gateway(config)#enable secret class
Gateway(config)#line console 0
Gateway(config-line)#password cisco
Gateway(config-line)#login
Gateway(config-line)#exit
Gateway(config)#line vty 0 4
Gateway(config-line)#password cisco
Gateway(config-line)#login
Gateway(config-line)#exit
Gateway(config)#fastethernet 0
Gateway(config-if)#ip add 10.10.10.1 255.255.255.0
Gateway(config-if)#no shutdown
Gateway(config-if)#exit
Gateway(config)#interface serial 0
Gateway(config-if)#ip add 200.2.2.18 255.255.255.252
Gateway(config-if)#no shutdown
Gateway(config)#ip route 0.0.0.0 0.0.0.0 200.2.2.17
!Pool of public addresses
Gateway(config)#ip nat pool public-access 199.99.9.40 199.99.9.62 netmask 255.255.255.224
!ACL
Gateway(config)#access-list 1 permit 10.10.10.0 0.0.0.255
!NAT
Gateway(config)#ip nat inside source list 1 pool public-access
Gateway(config)#interface fastethernet 0
Gateway(config-if)#ip nat inside
Gateway(config-if)#interface serial 0
Gateway(config-if)#ip nat outside
  
```





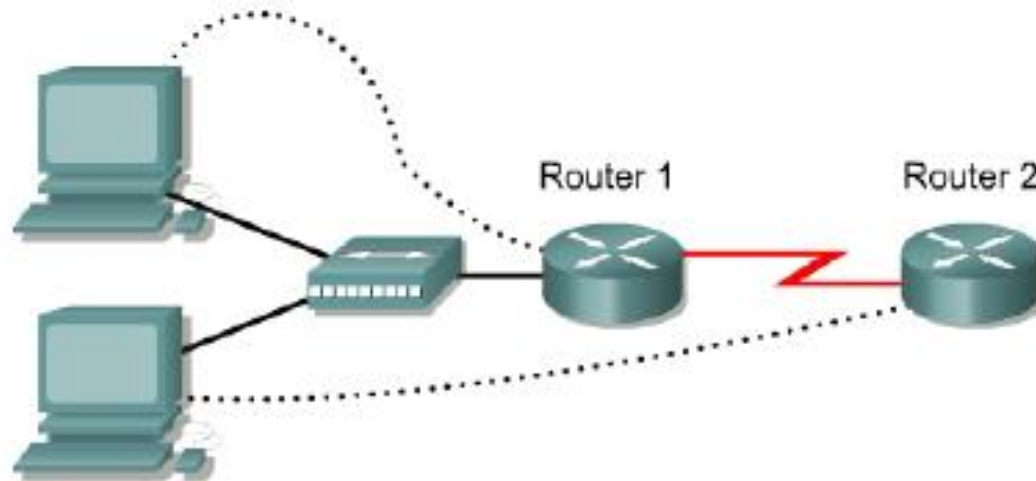
# Verify

**show ip nat translations**



# PAT Configuration

# Topology



Router	Router Designation Name	FastEthernet 0 Address/ Subnet Mask	Interface Type	Serial 0 Address/ Subnet Mask	Loopback 0 Address/ Subnet Mask	Enable Secret Password	Enable/VTY/ Console Passwords
Router 1	Gateway	10.10.10.1/24	DCE	200.2.2.18/30	NA	class	cisco
Router 2	ISP	NA	DTE	200.2.2.17/30	172.16.1.1/32	class	cisco

# ISP Router

```
Router(config)#hostname ISP
ISP(config)#enable password cisco
ISP(config)#enable secret class
ISP(config)#line console 0
ISP(config-line)#password cisco
ISP(config-line)#login
ISP(config-line)#exit
ISP(config)#line vty 0 4
ISP(config-line)#password cisco
ISP(config-line)#login
ISP(config-line)#exit

ISP(config)#interface loopback 0
ISP(config-if)#ip add 172.16.1.1 255.255.255.255
ISP(config-if)#no shutdown
ISP(config-if)#exit
ISP(config)#interface serial 0
ISP(config-if)#ip add 200.2.2.17 255.255.255.252
ISP(config-if)#no shutdown
ISP(config-if)#clockrate 64000
ISP(config)#ip route 199.99.9.32 255.255.255.224 200.2.2.18
```

# Gateway Router

```

Router(config)#hostname Gateway
Gateway(config)#enable password cisco
Gateway(config)#enable secret class
Gateway(config)#line console 0
Gateway(config-line)#password cisco
Gateway(config-line)#login
Gateway(config-line)#exit
Gateway(config)#line vty 0 4
Gateway(config-line)#password cisco
Gateway(config-line)#login
Gateway(config-line)#exit
Gateway(config)#fastethernet 0
Gateway(config-if)#ip add 10.10.10.1 255.255.255.0
Gateway(config-if)#no shutdown
Gateway(config-if)#exit
Gateway(config)#interface serial 0
Gateway(config-if)#ip add 200.2.2.18 255.255.255.252
Gateway(config-if)#no shutdown
Gateway(config)#ip route 0.0.0.0 0.0.0.0 serial 0/0
!Pool of public addresses
Gateway(config)#ip nat pool public-access 199.99.9.40 199.99.9.62 netmask 255.255.255.224
!ACL
Gateway(config)#access-list 1 permit 10.10.10.0 0.0.0.255
!NAT
Gateway(config)#ip nat inside source list 1 interface serial 0 overload
Gateway(config)#interface fastethernet 0
Gateway(config-if)#ip nat inside
Gateway(config-if)#interface serial 0
Gateway(config-if)#ip nat outside

```



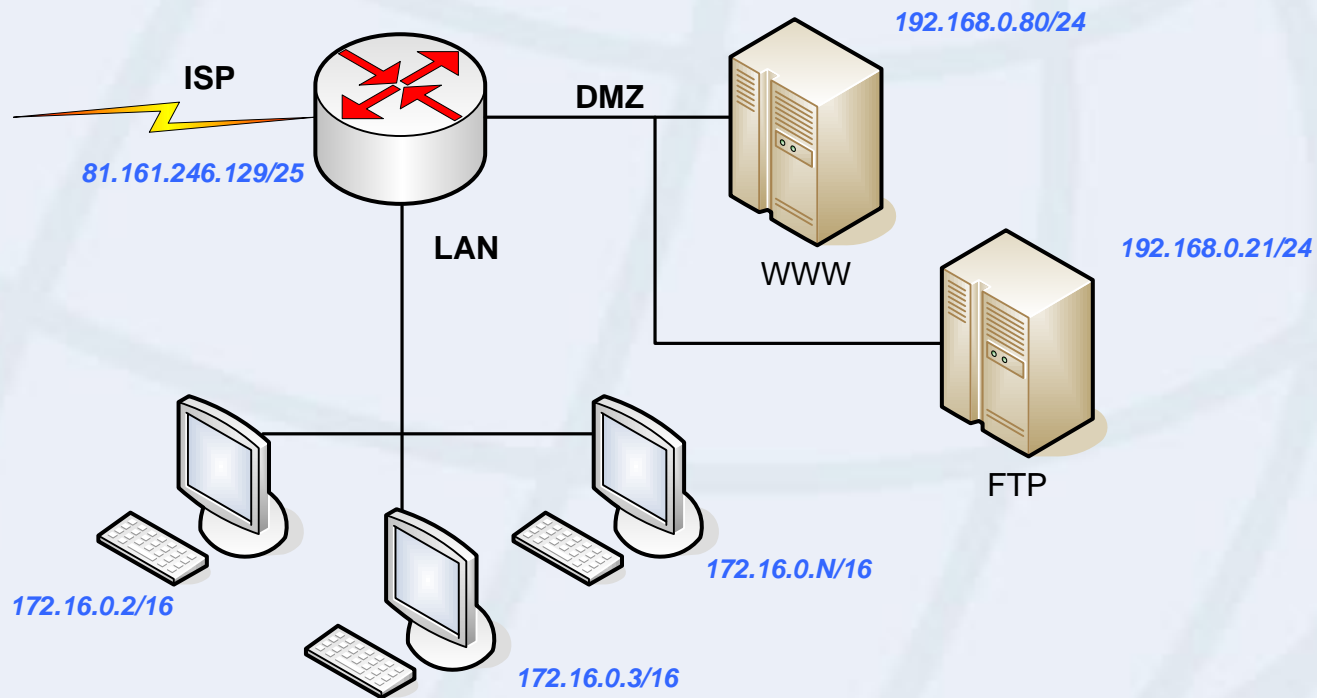
# Verify

**show ip nat translations**



# Port Forward

# Port Forwarding



```
ip nat inside source static tcp 192.168.0.80 80 81.161.246.129 80
ip nat inside source static tcp 192.168.0.21 21 81.161.246.129 21
ip nat inside source static tcp 192.168.0.21 20 81.161.246.129 20
```