



Cloud Computing and Virtualization Lab

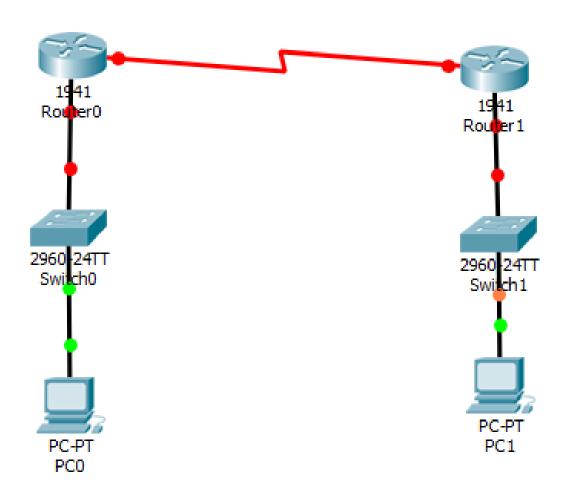
Presented by:

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Assistant Professor

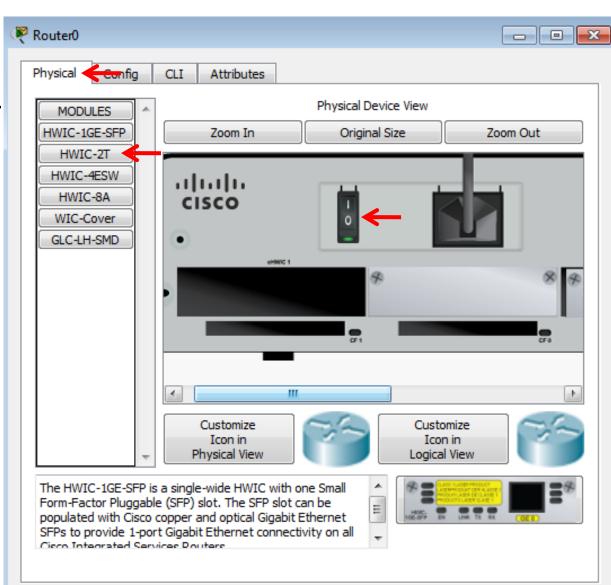


- 2 Routers 1941
- 2 Switches 2960
- PCs
- Cables



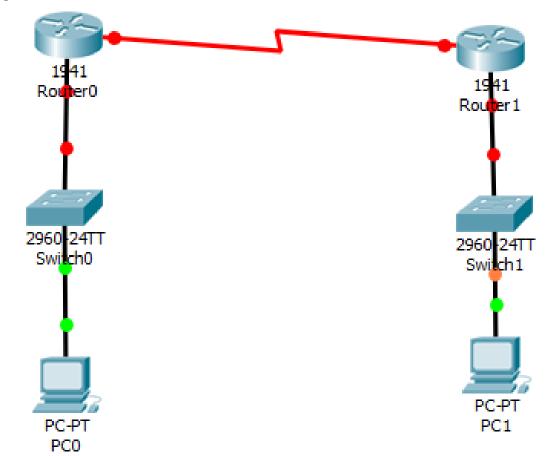


- Click on Router
- Click on Physical Tab
- Turn the power off of Router
- Add HWIC-2T module to router

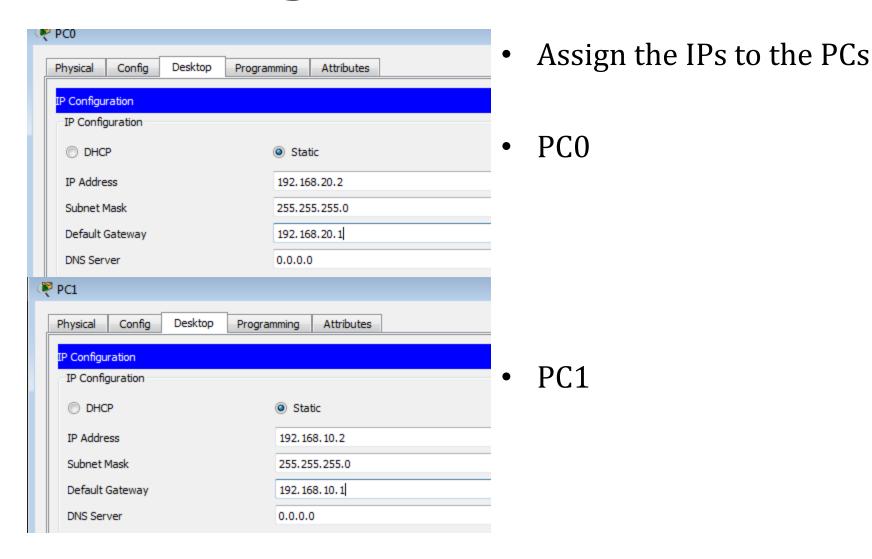




- Connect the two routers with Serial DCE cable with S/0/0
- Connect the Rest as shown in Figure.







- Click on Router 0 and Type:
 - no
 - Router>en
 - Router#conf t
 - Router(config)#int g0/0
 - Router(config-if)#ip address 192.168.20.1 255.255.255.0
 - Router(config-if)# no sh
 - Router(config)#int s0/0/0
 - Router(config-if)#ip address 10.0.0.1 255.0.0.0
 - Router(config-if)#no sh
 - Router(config-if)# Ctrl+Z
 - Router> sh ip int br

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- Router#conf t
- Router(config)#router rip
- Router(config-router)#network 192.168.20.0
- Router(config-router)#network 10.0.0.0

- Click on Router 1 and Type:
 - no
 - Router>en
 - Router#conf t
 - Router(config)#int g0/0
 - Router(config-if)#ip address 192.168.10.1 255.255.255.0
 - Router(config-if)# no sh
 - Router(config)#int s0/0/0
 - Router(config-if)#ip address 10.0.0.2 255.0.0.0
 - Router(config-if)#no sh
 - Router(config-if)# Ctrl+Z
 - Router> sh ip int br

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- Router#conf t
- Router(config)#router rip
- Router(config-router)#network 192.168.10.0
- Router(config-router)#network 10.0.0.0

- Click on PC
- Select desktop tab
- open command prompt
- ping the IP of other PC (ping 192.168.20.2)

- Click on Router 0 and type
 - Router#conf t
 - Router(config)#line vty 0
 - Router(config)#password 123456
 - Router(config)#enable password 123456

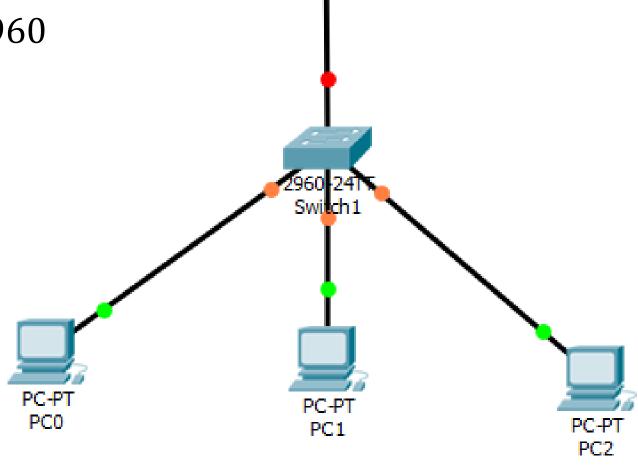
- Click on PC
- Select desktop tab
- open command prompt and type
 - telnet 192.168.20.1
 - -123456
 - En
 - -123456
 - conf t
 - hostname saurabh
- Click on Router 1 and check CLI



- Simple Network Management Protocol (SNMP) is an Internet Standard protocol for collecting and organizing information about managed devices on IP networks and for modifying that information to change device behavior.
- Devices that typically support SNMP include cable modems, routers, switches, servers, workstations, printers, and more.
- SNMP is widely used in network management for network monitoring.
- SNMP exposes management data in the form of variables on the managed systems organized in a management information base (MIB) which describe the system status and configuration.
- These variables can then be remotely queried by managing applications.



- 1 Router 2911
- 1 Switch 2960
- 3 PCs

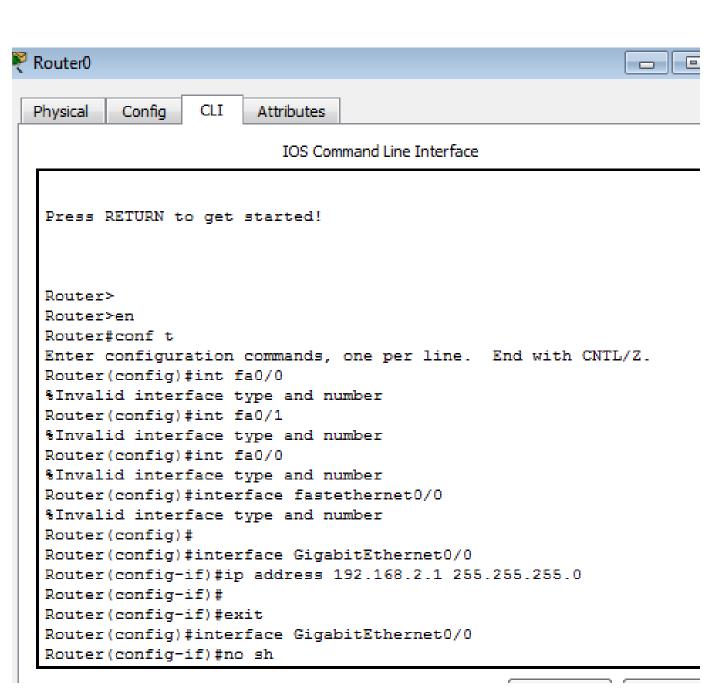


Router0



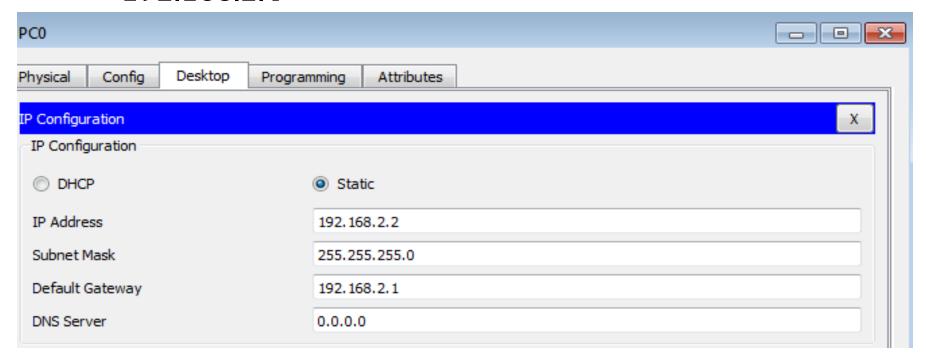
- Click on Router and Type
 - n
 - en
 - conf t
 - interface GigabitEthernet0/0
 - ip address 192.168.2.1 255.255.255.0
 - no sh
- The link between router and switch should be green







- Click on PCs and provide IP address as following
 - -192.168.2.2
 - -192.168.2.3
 - -192.168.2.4





- Now we need to SNMP community
- Click on Router and type
 - exit
 - snmp-server community 123 ro
 - snmp-server community 123 rw

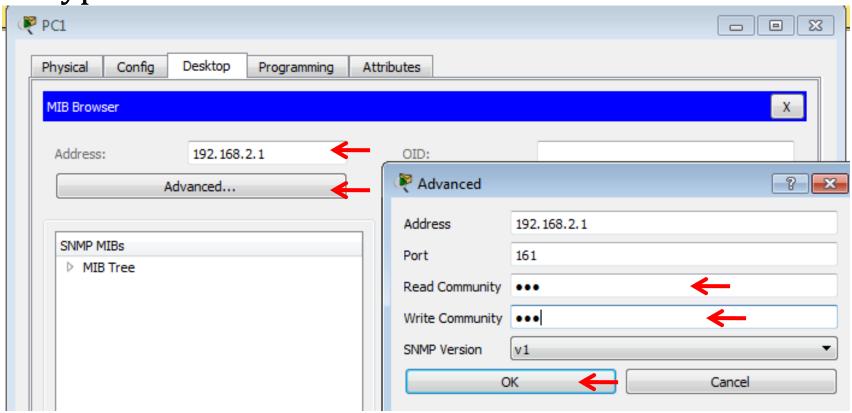
```
Router(config) # Snmp-server community 123 ro
% SNMP-5-WARMSTART: SNMP agent on host Router is undergoing a warm
start
Router(config) # Snmp-server community 123 r2
% Invalid input detected at '^' marker.

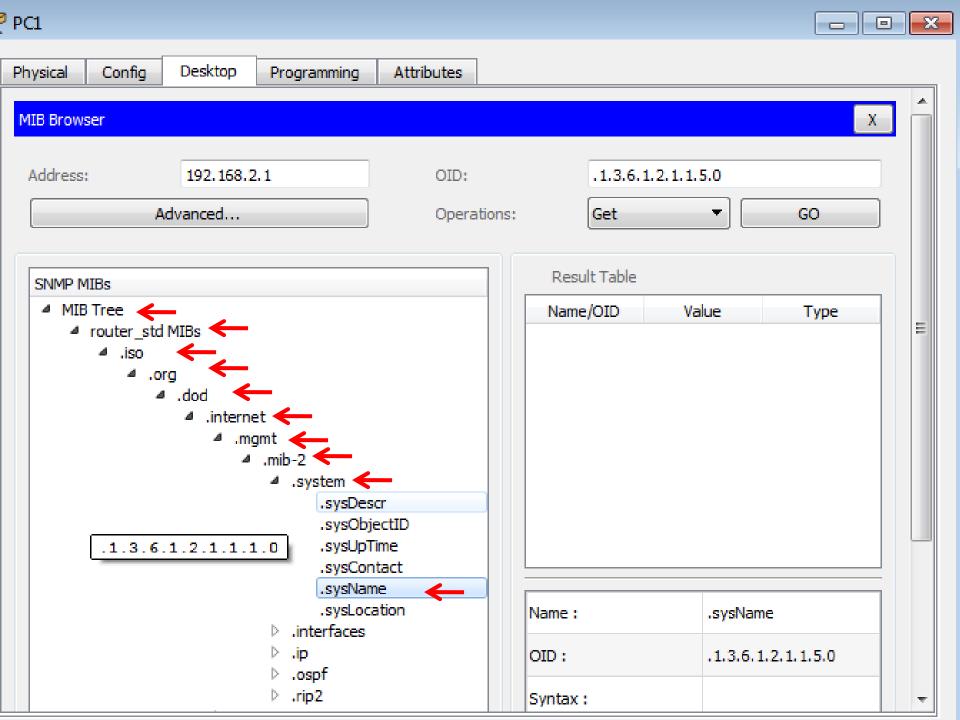
Router(config) #
Router(config) # Snmp-server community 123 rw
Router(config) # Snmp-server community 123 rw
Router(config) #
```

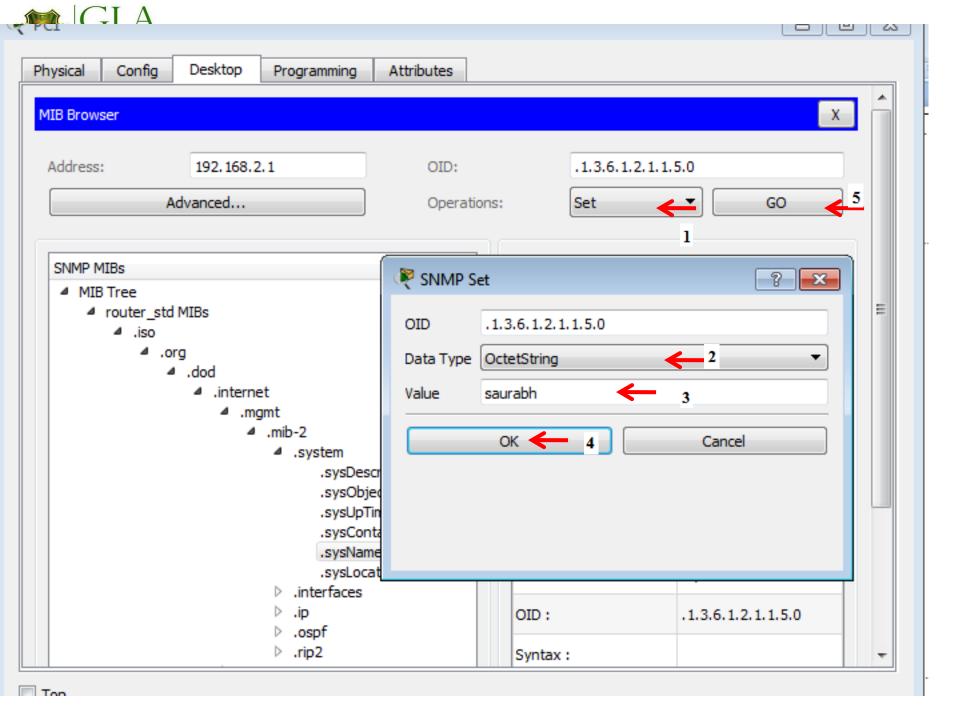


Select MIB browser from any PC

Type IP address of Router









Click on router and press enter

```
% Invalid input detected at '^' marker.

Router(config) #
saurabh(config) #
```



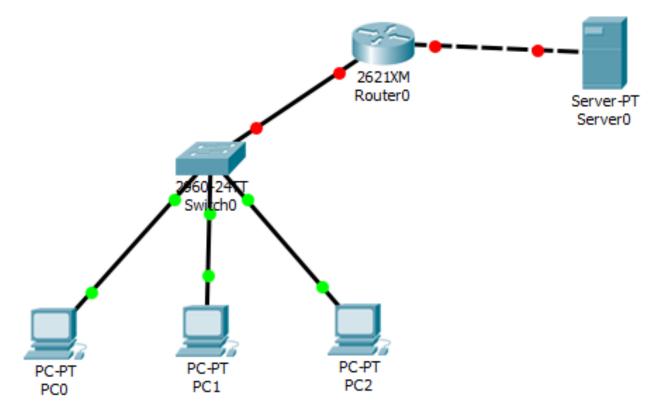
- A **network access control list (ACL)** is an optional layer of security for your VPC that acts as a firewall for controlling traffic in and out of one or more subnets.
- You might set up **network ACLs** with rules similar to your security groups in order to add an additional layer of security to your VPC.
- There are several **types** of access control lists and most are defined for a distinct purpose or protocol.
- On Cisco routers, there are two main types:
 - Standard
 - Extended



- 1 Router 2621XM
- 1 Switch 2960

• PCs

Server





- Assign the IPs to the PCs as follows:
 - -192.168.10.1
 - -192.168.10.2
- 192 168 1በ 3 PC0 Physical Config Desktop Attributes Programming IP Configuration IP Configuration O DHCP Static IP Address 192, 168, 10, 1 Subnet Mask 255, 255, 255, 0 Default Gateway 192, 168, 10, 10 DNS Server 0.0.0.0



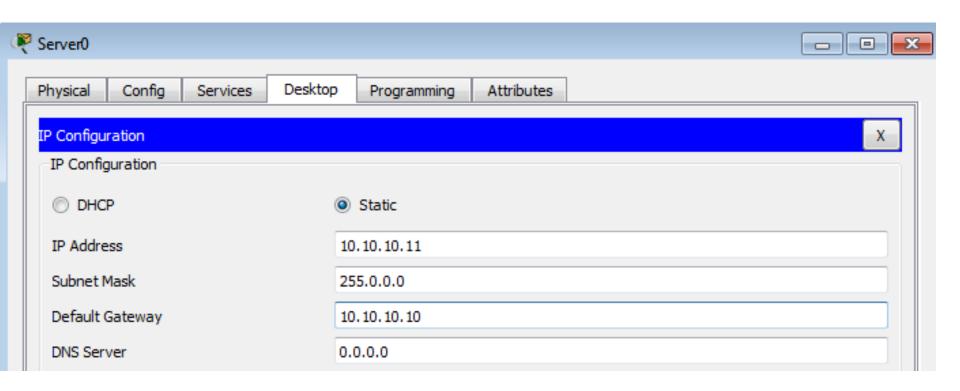
- Click on Router and Type
 - n
 - en
 - conf t
 - int fa0/0
 - ip address 192.168.10.10 255.255.255.0
 - no sh
- The link between switch and router must be green
- Ping the IP 192.168.10.10 from PCs



- Click on Router and Type
 - Exit
 - interface fastEthernet0/1
 - ip address 10.10.10.10 255.0.0.0
 - no sh
- The link between Server and router must be green
- Ping the IP 10.10.10.10 from PCs



- Click on Server and assign the following IP
 - -10.10.10.11
- Ping the server from PC





- Click on Router and type
 - Router(config)# ip access-list standard 11
 - Router(config-std-nacl)#deny host 192.168.10.2
 - Router(config-std-nacl)#permit any
 - Router(config-std-nacl)#exit
 - Router(config)#int fa0/0
 - Router(config-if)#ip access-group 11 in
 - Router(config-if)#exit
 - Router(config)#exit
 - Router# show access-lists

Router0





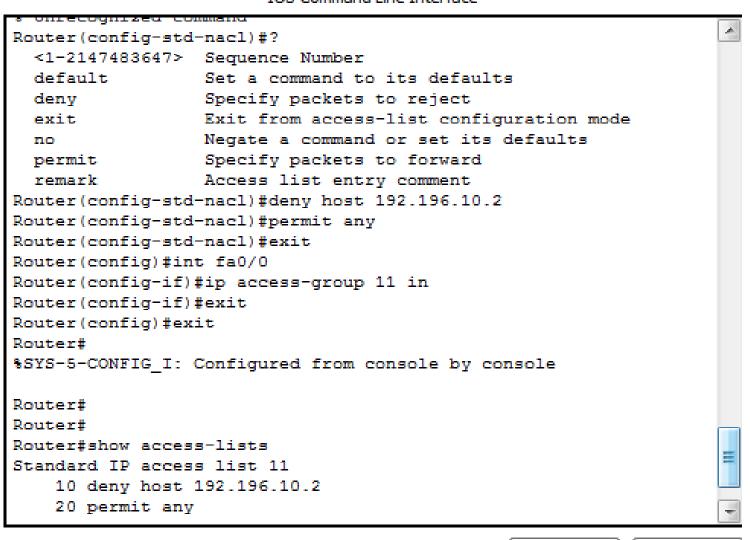
Physical -

Config

CLI

Attributes

IOS Command Line Interface



Ctrl+F6 to exit CLI focus

Copy

Paste



- Ping 10.10.10.11 from PCs
- Click on Router and Type
 - Router# show access-lists

```
Router0
Physical
        Config
               CLI
                    IOS Command Line Interface
 Router(config-if) #ip access-group 11 ?
        inbound packets
        outbound packets
 Router(config-if) #ip access-group 11 in
 Router (config-if) #exit
 Router (config) #exit
 %SYS-5-CONFIG I: Configured from console by console
 Router#show ac
 Router#show access-lists
 Standard IP access list 11
     deny host 192,168,10,2
     permit any
 Router#show access-lists
 Standard IP access list 11
     deny host 192,168,10,2 (4 match(es))
     permit any (8 match(es))
 Routerfe
```