

LAB 8

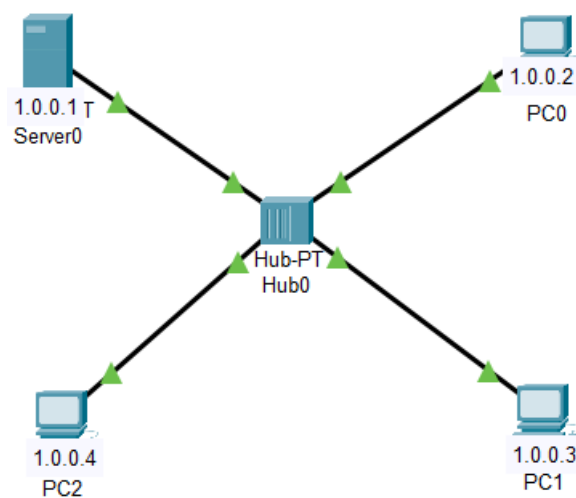
Firewall Implementation, Router Access Control List (ACL)

Objective:

- To understand the router firewall and Access Control Lists (ACLs).

Firewall Configuration:

To configure Firewall three PCs and a server is connected to a hub as shown in the figure below:

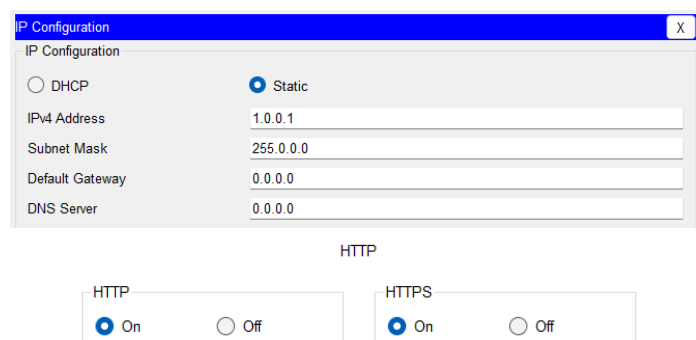


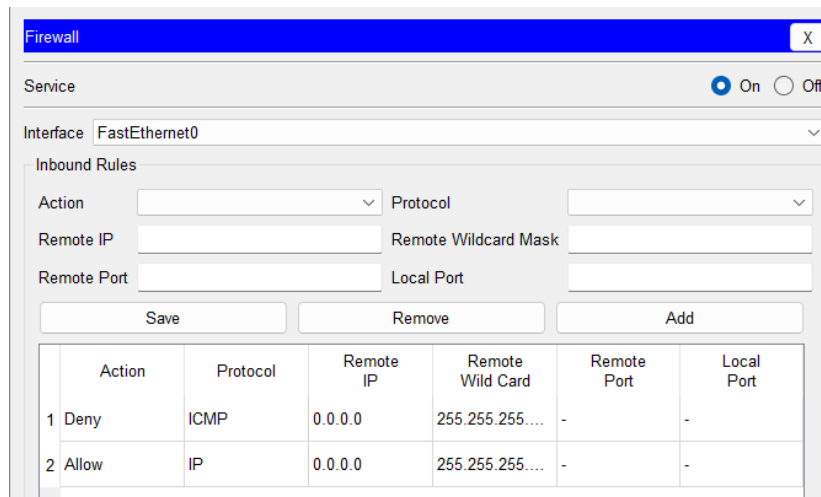
Configuration:

Connect the PCs and server to the hub.

For server:

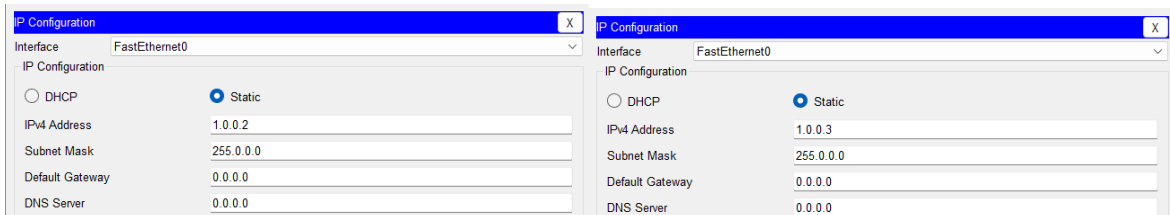
- Double click on the server and go to desktop.
- Then set 1.0.0.1 as the IP Address for the server.
- Go to services and turn on HTTP and HTTPS.
- Click on firewall in the desktop and turn it on.
- Specify the rules as desired. Here IP is allowed whereas ICMP is Blocked.





For PCs:

- Double click on the Pc and go to desktop.
- Then set the IP Address for the PC.
 - 1.0.0.2 For PC 0
 - 1.0.0.3 For PC 1
 - 1.0.0.4 For PC 2

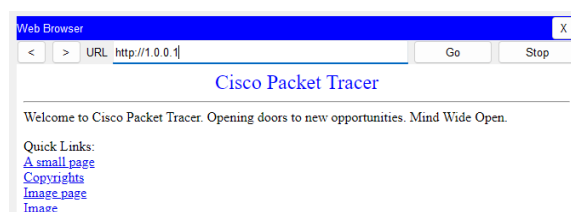


To test for proper configuration:

- Double click on any of the PC and go to desktop.
- Open Command prompt.
- Ping the server from any other PC in the network. If firewall is configured successfully Request will time out.
- Then open browser in any Pc and put the IP of the server the webpage will load.

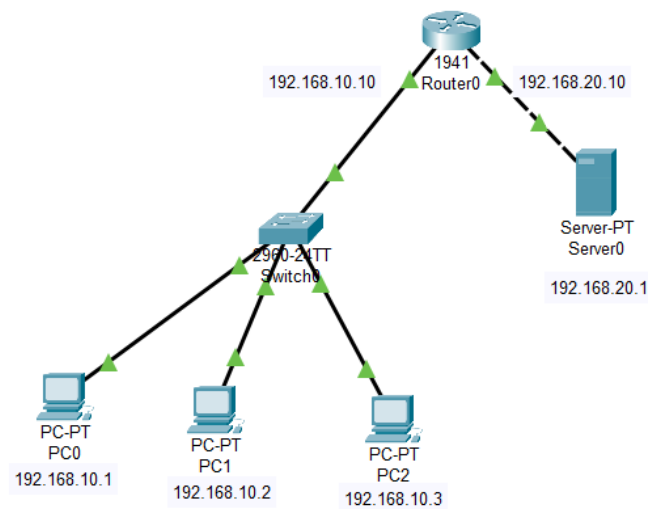
```
Pinging 1.0.0.1 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 1.0.0.1:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
C:\>|
```



ACL Configuration:

To configure Firewall three PCs and a server is connected to a hub as shown in the figure below:



Configuration:

Connect the PCs to the switch and the connect it with the router. Then router is connected to the server.

For server:

- Double click on the server and go to desktop.
- Set the IP address as 192.166.20.1 and the Gateway as 192.168.20.10.

IP Configuration	
IP Configuration	
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static
IPv4 Address	192.168.20.1
Subnet Mask	255.255.255.0
Default Gateway	192.168.20.10
DNS Server	0.0.0.0

For PCs:

- Double click on PC and go to Desktop.
- Then set the IP address for the PC. The IP Address are:
 - 192.168.10.1 for PC0.
 - 192.168.10.2 for PC1.
 - 192.168.10.3 for PC2.

IP Configuration		IP Configuration		IP Configuration	
Interface	FastEthernet0	Interface	FastEthernet0	Interface	FastEthernet0
IP Configuration		IP Configuration		IP Configuration	
<input type="radio"/> DHCP	<input checked="" type="radio"/> Static	<input type="radio"/> DHCP	<input checked="" type="radio"/> Static	<input type="radio"/> DHCP	<input checked="" type="radio"/> Static
IPv4 Address	192.168.10.1	IPv4 Address	192.168.10.2	IPv4 Address	192.168.10.3
Subnet Mask	255.255.255.0	Subnet Mask	255.255.255.0	Subnet Mask	255.255.255.0
Default Gateway	192.168.10.10	Default Gateway	192.168.10.10	Default Gateway	192.168.10.10
DNS Server	0.0.0.0	DNS Server	0.0.0.0	DNS Server	0.0.0.0

For Router:

- Double click on router and go to configure then Interfaces.
- Turn on GigabitEthernet 0/0 and set the IP as 192.168.10.10.
- Turn on GigabitEthernet 0/1 and set the IP as 192.168.20.10.
- Go to CLI and type the following:
 1. Ip access-list standard 10
 2. Deny host 192.168.10.2
 3. Permit any
 4. Exit

GigabitEthernet0/0	GigabitEthernet0/1
Port Status <input checked="" type="checkbox"/> On Bandwidth <input type="radio"/> 1000 Mbps <input checked="" type="radio"/> 100 Mbps <input type="radio"/> 10 Mbps <input checked="" type="checkbox"/> Auto Duplex <input type="radio"/> Half Duplex <input checked="" type="radio"/> Full Duplex <input checked="" type="checkbox"/> Auto MAC Address 0090.0C05.E201	Port Status <input checked="" type="checkbox"/> On Bandwidth <input type="radio"/> 1000 Mbps <input checked="" type="radio"/> 100 Mbps <input type="radio"/> 10 Mbps <input checked="" type="checkbox"/> Auto Duplex <input type="radio"/> Half Duplex <input checked="" type="radio"/> Full Duplex <input checked="" type="checkbox"/> Auto MAC Address 0090.0C05.E202
IP Configuration IPv4 Address 192.168.10.10 Subnet Mask 255.255.255.0	IP Configuration IPv4 Address 192.168.20.10 Subnet Mask 255.255.255.0
Tx Ring Limit 10	Tx Ring Limit 10

```
Router(config)#ip access-list standard 10
Router(config-std-nacl)#deny host192.168.10.2
      ^
% Invalid input detected at '^' marker.

Router(config-std-nacl)#deny host 192.168.10.2
Router(config-std-nacl)#permit any
Router(config-std-nacl)#exit
```

```
Router(config)#interface GigabitEthernet0/0
Router(config-if)#ip access-group 10 in
Router(config-if)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#show ac
Standard IP access list 10
 10 deny host 192.168.10.2
 20 permit any
```

To test for proper configuration:

- Double click on any of the PC and go to desktop.
- Open Command prompt.
- Ping the server form the PC. If the Configuration is successful then host will be unreachable when pinging form PC 1. Other PCs will get proper reply.

Command Prompt	Command Prompt
<pre>Cisco Packet Tracer PC Command Line 1.0 C:\>ping 192.168.20.1 Pinging 192.168.20.1 with 32 bytes of data: Reply from 192.168.10.10: Destination host unreachable. Reply from 192.168.10.10: Destination host unreachable. Reply from 192.168.10.10: Destination host unreachable. Reply from 192.168.10.10: Destination host unreachable. Ping statistics for 192.168.20.1: Packets: Sent = 4, Received = 0, Lost = 4 (100% loss), C:\></pre>	<pre>Cisco Packet Tracer PC Command Line 1.0 C:\>ping 192.168.20.1 Pinging 192.168.20.1 with 32 bytes of data: Request timed out. Reply from 192.168.20.1: bytes=32 time<1ms TTL=127 Reply from 192.168.20.1: bytes=32 time=6ms TTL=127 Reply from 192.168.20.1: bytes=32 time<1ms TTL=127 Ping statistics for 192.168.20.1: Packets: Sent = 4, Received = 3, Lost = 1 (25% loss), Approximate round trip times in milli-seconds: Minimum = 0ms, Maximum = 6ms, Average = 2ms C:\></pre>