



Indian Institute of Technology Jammu
Information Security
Assignment 3
Firewall

Deadline: 05:00 PM, February 04, 2023

1 Network Topology

Create a network using the Cisco Packet Tracer (can be downloaded from <https://skillsforall.com/resources/lab-downloads>) with the following devices:

One Cisco ASA 5505 firewall

One Cisco switch 2960

The switch is further connected to the firewall on a vlan at interface Eth-0/1

The network address at Eth-0/1 is 172.16.1.0/24

Two computers are connected to the router with IP configured as static

One web server with IP 192.168.1.2/24 connected to the interface Eth-0/0 of the firewall

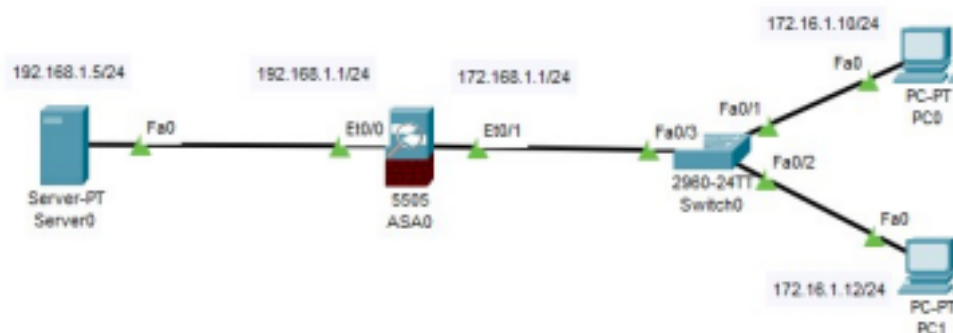


Figure 1: Network topology

Hint: Make sure all ports and IPs are shown in the topology.

Enable it via options => preferences => always show port labels. Also ensure that all ports are UP (green colored).

2 Tasks

Eth-0/1 of the firewall should be associated with a vlan with low security levels to make the outside network as untrusted.

Eth-0/0 of the firewall should be associated with a vlan with a high security level to make the inside network as trusted.

Assign the IP addresses with subnet masks to all ports as mentioned above.

The computers in the outside network and the web server in the inside network need to be configured with proper gateway.

Configure static NAT rules on the firewall to translate server traffic from IP 192.168.1.2 to 172.16.1.2

Configure an access list rule on the firewall to permit any computer from the outside to initiate web traffic to the inside server.

Configure an access list rule on the firewall to deny any computer from the outside to initiate web traffic to the inside server.

Configure ip table rules on one of the computer to deny the other computer to initiate ping.

Configure an access list rule on the firewall to deny any computer from a specific outside network to initiate web traffic to the inside server.

Apply access list rule to the outside interface in the appropriate direction.

Generate various traffic (such as telnet, ssh, web) from the computer to the server by running a telnet/ssh client and web browser on computer.

3 Submission

You need to submit a detailed lab report with the following:

- (a) Screenshot of the topology created using Cisco Packet Tracer. (b) The screenshot must include all the interfaces labeled with IP and port numbers.
- (c) A copy of the configuration file of the entire Cisco ASA 5505 firewall. Hint: running config from GUI config settings or by capturing the entire output of show-running-config from CLI enable mode.

- (d) Show the outputs of the following: show switch vlan, show access-list, and show nat to see that firewall is properly configured, which only allows http traffic from outside, rest are blocked.

Best wishes