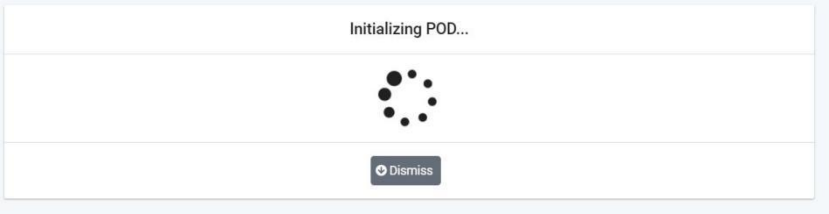
SIDDHANT GAHTORI
GATEWAY PROJECT 1

Module 1 : Connecting with NSG

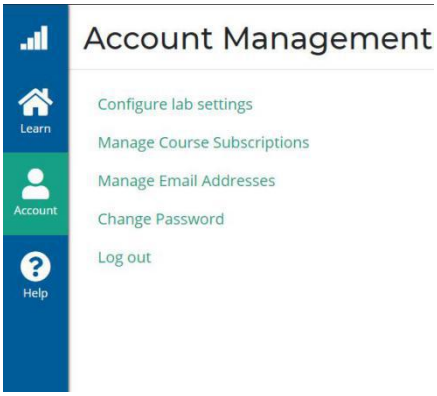
Summary: In this module, my objectives were : Register for NDG Account and completing the enrollment process and subscribing to NDG online LAB. This was a quite easy process.
First I created an account for NDG Lab, filled card details and availed 7 Days Free Trial. After that I explored the online NDG Lab Environment.

Screenshot (LAB1):



- This is the initialization process of labs

- After Lab initialization, All the options are there for specific requirements.

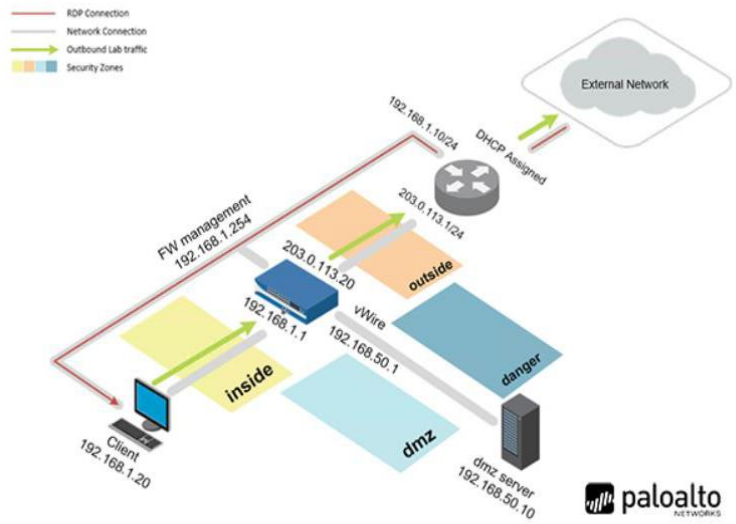


- This is account management option on homepage where you can do many account settings for the NSG Environment.

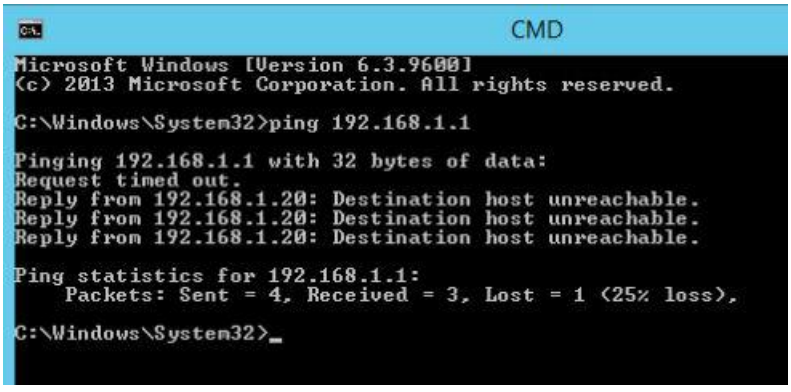
Module 2A (LAB 1) : TCP and Virtual Routing

Summary: In this module, our objective were configure Ethernet with Layer 3 Information, Creation of a virtual router and verify the connectivity.
For this purpose, I logged in to the router and loaded the provided configuration for the lab 1. After that we have to established connectivity to 192.168.1.1 which tells us that there is no connectivity to the firewall from inside the network. To establishing this connectivity, we first initialized layer 3 information on interface ethernet1/2. After that we deployed a virtual router with the help of network tab. We also created a default route to external network (203.0.113.1). After committing all changes, we verified network connectivity.

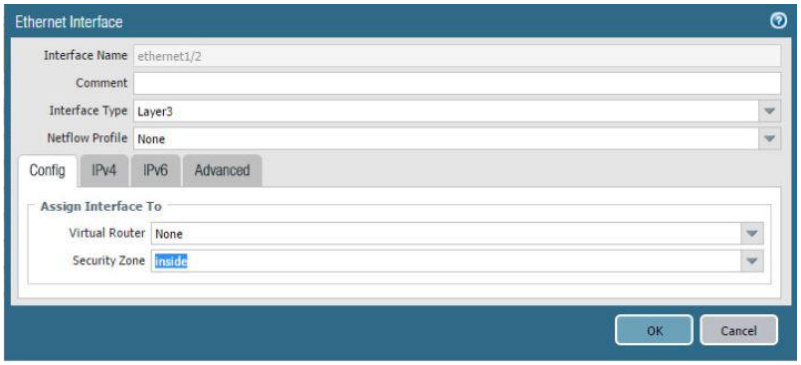
Screenshot (LAB2):



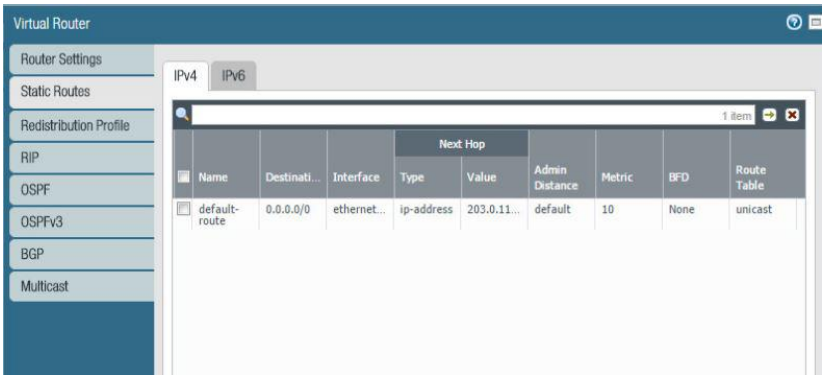
- The network diagram will be same for every lab.



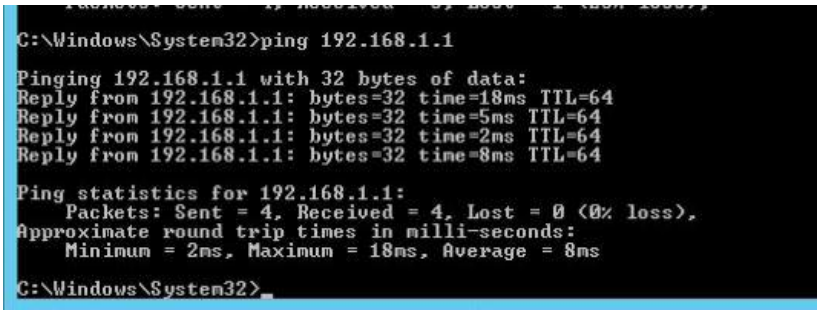
- No Connectivity to firewall from internal network



- Committing L3 Ethernet Changes



- Virtual Router Configuration



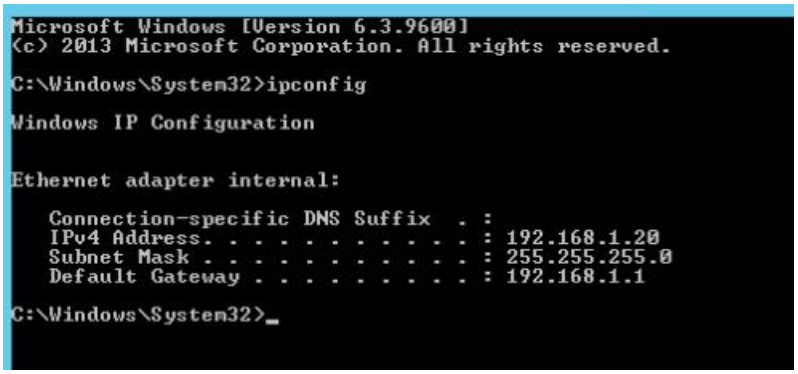
- Connectivity Verified

Module 2B (LAB 2) : Configuration of DHCP

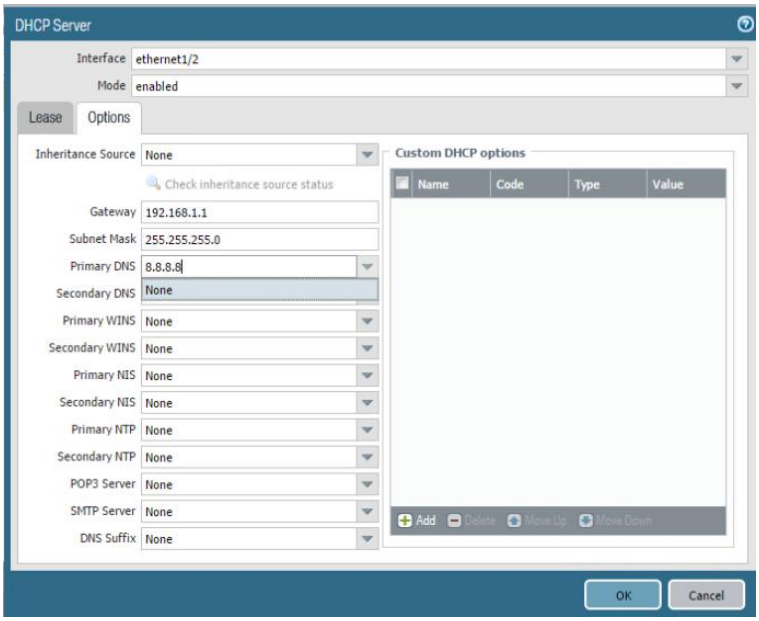
Summary: In this Module, objectives are to Configure a DHCP Server, Client, Client Reservation and Firewall outside interface of DHCP.

To complete these objectives, firstly we clicked Network tab then select DHCP option. Then we enabled DHCP option on ethernet1/2. Then we entered Gateway as 192.168.1.1. After committing all the changes, we chose the DHCP option for the IP Addressing on the client PC. After that we verified the IP address via ipconfig on CMD.

Screenshot:



- Before Enabling DHCP



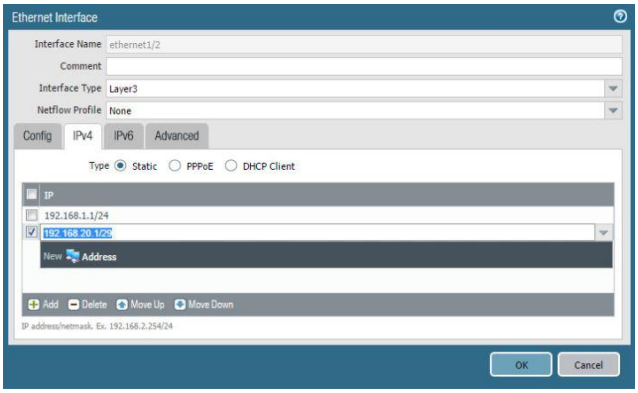
- DHCP Configuration

- After DHCP Address Allocation

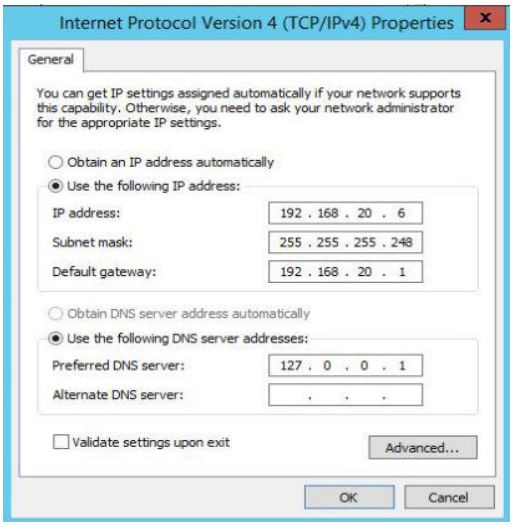
Module 3A (LAB 3) : Virtual Addressing

Summary: For this module, objective is to configure virtual IP address. For achieving our objective, firstly another virtual network (192.168.20.1/29) is added to Ethernet1/2 interface. After that, client is manually configured with the IP of 192.168.20.6 which falls under the range of the subnet (/29). Connectivity was verified at the end.

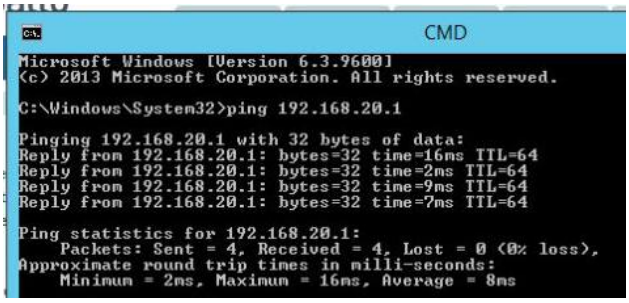
Screenshot:



- Adding the virtual network to the interface



- Manual IP Configurations on Client



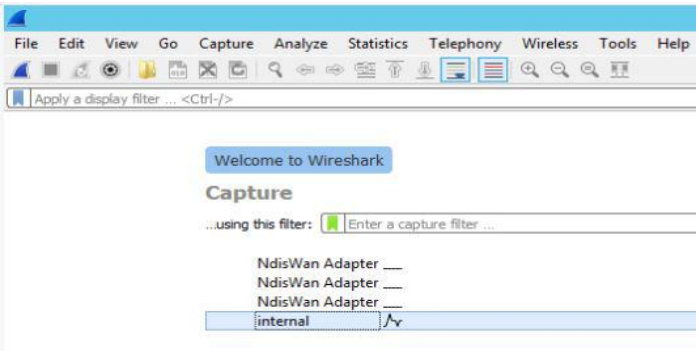
- Verifying the Connectivity

Module 4A (Lab 4) : Creating Packet Capture

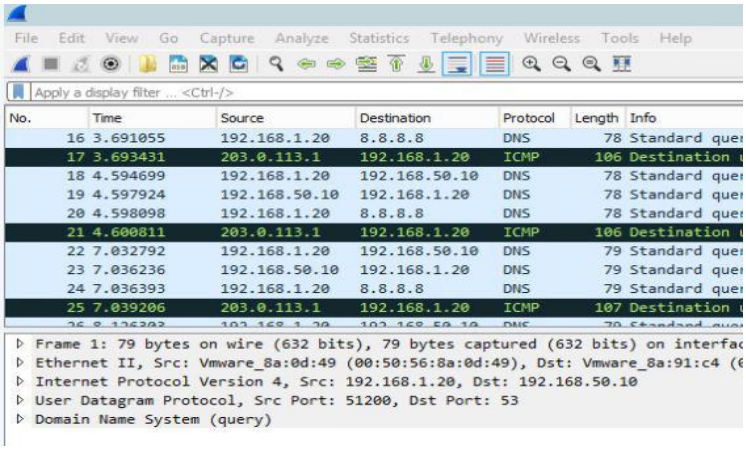
Summary: In this Module, the objective was to capture Packets and save the details into a file.

For this module, first we opened the wireshark application. After opening , we selected the interface (named as internal). After we started capturing the packets. After 5-10 second we stopped the process and saved captured packets into a file.

Screenshot:



- The wireshark interface from where we selected the interface



- Captured Packets in Wireshark

Module 4B (Lab 5) : Analyzing packet captures

Summary: In this Lab, we had to analyze the packet captures which were provided. First we analyzed DNS Query and Response on Port 53. Then we analyzed TCP 3 Way Handshake. After that we followed TCP Stream which lead us to Web Source Code of Panlabs.com

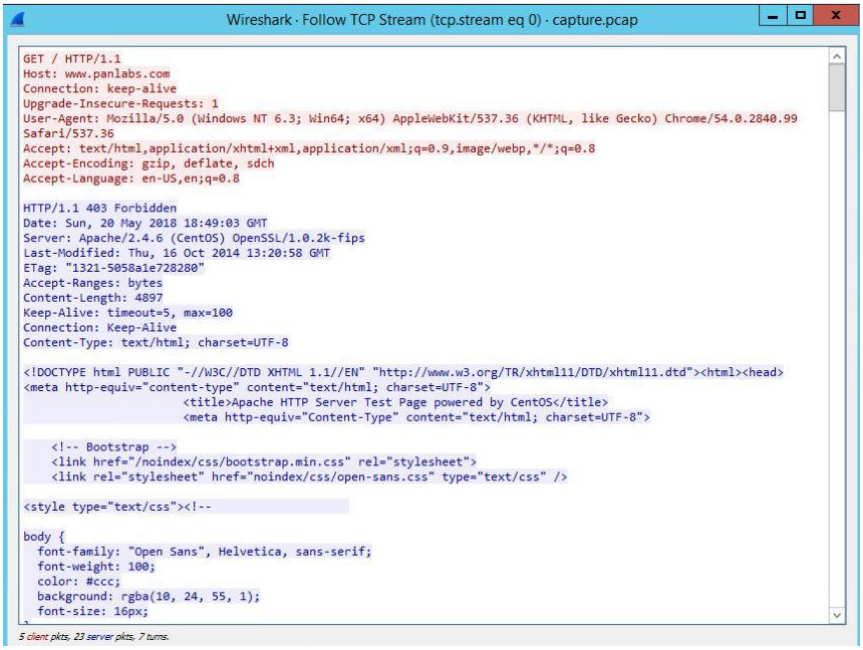
Screenshot:

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000	192.168.1.20	192.168.50.10	DNS	86	Standard query 0x1725 A www.panlabs.com OPT
2	0.020115	192.168.50.10	192.168.1.20	DNS	136	Standard query response 0x1725 A www.panlabs.com A 192.168.50.10 NS ns1.panlabs.com A 127.0.0.1 OPT

- DNS Packets Analyzed

3	0.031466	192.168.1.20	192.168.50.10	TCP	66	1321 → 80 [SYN, ECN, CWR] Seq=0 Win=8192 Len=0 MSS=1460 WS=256 SACK_PERM=1
4	0.031507	192.168.50.10	192.168.1.20	TCP	66	80 → 1321 [SYN, ACK] Seq=0 Ack=1 Win=29200 Len=0 MSS=1460 SACK_PERM=1 WS=64
5	0.031524	192.168.1.20	192.168.50.10	TCP	54	1321 → 80 [ACK] Seq=1 Ack=1 Win=131328 Len=0

- TCP Handshake Analyzed



- TCP Stream