# **Project 1 Manual**

In this manual I will cover how to setup a DHCP, DNS and NAT Server:

## **Configuration of DHCP Server:**

DHCP Server is a server that helps us distribute IP Addresses in our network. We can use this server to distribute either IPv4 or IPv6 IP Addresses. We can also configure MAC Reservation in DHCP Servers to help us bind any specific IP Address with any specific MAC Address. For this exercise we will be using 1 server and 1 client.

**Lets Install the DHCP Server Role in Our Windows Server 2016:**

See attached file for slides

**Let’s Configure DHCP Pool after the successful installation of the DHCP Server Role.**

DHCP Pool is a combination of multiple parts which include:

* IP Address Range
* IP Exclusion List
* Server Options
  + DNS Name and IP
  + Default Gateway
  + WINS Server (If Needed)

See attached file for slides

**Let’s Assign the IP to Client and configure MAC Reservation:**

See attached file for slides

This is how we can configure a basic DHCP Server in our network that helps us to distribute IP Addresses and reserve some IP Addresses with MAC Address Reservation.

## **Configuration of a DNS server:**

A DNS server is a server that helps us with name resolution in our network translating URLs into numerical IP addresses that our computers use to locate and connect to internet services. We can use the DNS services to resolve names into IP Addresses by creating a forward lookup zone where we will add host records, FQDN and CName records. We will also create a simple web page in our web server to access from our client computer. For this exercise we will be using 2 servers (1 DNS, 1 Web server) and 1 client.

**Lets install the DNS server and Web server Role in our Windows Server 2016:**

See attached files for slides

**Lets configure the DNS Services and Web Page (Web server) after successful installation of our DNS server Role:**

DNS services is a combination of multiple parts which include:

* Resolving names into IP Addresses by configuring a forward lookup zone.
* Syncing DNS/ Web Server
* Update DNS server by adding server records (Host, FQDN, CName)
* By default we will have SOA and NS record.

See attached file for slides

**Let’s Assign the IP/preferred DNS to Client and connect to our web page:**

See attached file for slides

This is how we can configure a basic DNS/WEB Server in our network to help us translate URLs into numerical IP addresses that our client computers can use to locate and connect to internet services.

## **Configuration of a NAT Server:**

A NAT (Network Address Translation) Server is a server that helps us send our local/private packets over the internet by using routing and remote access services. For this exercise we will be using 1 server and 1 client.

**Lets Install the NAT Server Role in Our Windows Server 2016:**

See attached file for slides

**Let’s Configure NAT Server after the successful installation of NAT Server Role.**

NAT Server configuration is a combination of multiple parts which include:

* Configuring routing and remote access
* Address assignment
* Assigning clients preferred/alternate DNS IP and default gateway.
* Verify packets being sent/received in routing and remote access

See attached file for slides

**Let’s Assign the DNS IP and default gateway to Client Computer and verify internet access:**

See attached file for slides

This is how we can configure a basic NAT Server Role in our network that helps us to send our local/private packets over the internet by using routing and remote access services.