**DNS, stands for Domain Name System, translates hostnames or URLs into IP addresses.**

**For example, if we type www.unixmen.com in browser, the DNS server translates the domain**

**name into its associated ip address. Since the IP addresses are hard to remember all time,**

**DNS servers are used to translate the hostnames like www.unixmen.com to 173.xxx.xx.xxx.**

**So it makes easy to remember the domain names instead of its IP address.**

**DNS Server Details:**

Operating System : CentOS 7 minimal server

Hostname : abhi.mit.com

IP Address : 192.168.72.94/24

**Client Details:**

Operating System : CentOS 7 minimal server

Hostname : client.mit.com

IP Address : 192.168.72.91/24

**Install bind9 packages on your DNS server.**

yum install bind bind-utils -y

**Edit ‘/etc/named.conf’ file.**

vi /etc/named.conf

(Add the lines as shown in red:)

options {

listen-on port 53 { 127.0.0.1; 192.168.72.94; };

listen-on-v6 port 53 { ::1; };

directory "/var/named";

dump-file "/var/named/data/cache\_dump.db";

statistics-file "/var/named/data/named\_stats.txt";

memstatistics-file "/var/named/data/named\_mem\_stats.txt";

recursing-file "/var/named/data/named.recursing";

secroots-file "/var/named/data/named.secroots";

allow-query { localhost; 192.168.72.0/24; };

};

logging {

channel default\_debug {

file "data/named.run";

severity dynamic;

};

};

zone "." IN {

type hint;

file "named.ca";

};

zone "mit.com" IN {

type master;

file "fwd.mit";

allow-update { none; };

};

zone "72.168.192.in-addr.arpa" IN {

type master;

file "rvs.mit";

allow-update { none; };

};

include "/etc/named.rfc1912.zones";

include "/etc/named.root.key";

**Create Zone files**

**Create forward and reverse zone files which we mentioned in the ‘/etc/named.conf’ file.**

**Create fwd.mit file in the ‘/var/named’ directory.**

vi /var/named/fwd.mit

(Add the following lines:)

$TTL 86400

@ IN SOA abhi.mit.com. root.abhi.mit.com. (

2011071001 ;Serial

3600 ;Refresh

1800 ;Retry

604800 ;Expire

86400 ;Minimum TTL

)

@ IN NS abhi.mit.com.

@ IN NS client.mit.com.

abhi IN A 192.168.72.94

client IN A 192.168.82.91

**Create rvs.mit file in the ‘/var/named’ directory.**

vi /var/named/rvs.mit

(Add the following lines:)

$TTL 86400

@ IN SOA abhi.mit.com. root.abhi.mit.com. (

2011071001 ;Serial

3600 ;Refresh

1800 ;Retry

604800 ;Expire

86400 ;Minimum TTL

)

@ IN NS abhi.mit.com.

@ IN NS client.mit.com.

abhi IN A 192.168.72.94

client IN A 192.168.82.91

94 IN PTR abhi.mit.com.

91 IN PTR client.mit.com.

There are some special keywords for Zone Files

A – A record

NS – Name Server

MX – Mail for Exchange

CNAME – Canonical Name

PTR – Pointer

SOA – Start of Authority

**Test DNS configuration and zone files for any syntax errors**

named-checkconf /etc/named.conf

named-checkzone mit.com /var/named/fwd.mit

named-checkzone mit.com /var/named/rvs.mit

**(Answer should be Ok)**

**Add the Host entry in /etc/hosts**

vi /etc/hosts

192.168.72.94 abhi.mit.com abhi

192.168.72.91 client.mit.com client

**Visit any client machine and add a DNS server ip address in /etc/resolv.conf.**

search mit.com

nameserver 192.168.72.94

nameserver 8.8.8.8

systemctl restart network

systemctl restart named

systemctl enable named

**Add a allow rule in firewall to let clients can connect to DNS server for name resolution.**

firewall-cmd --permanent --add-port=53/udp

firewall-cmd --reload

**Test DNS Server**

dig abhi.mit.com

*; <<>> DiG 9.9.4-RedHat-9.9.4-74.el7\_6.2 <<>> abhi.mit.com*

*;; global options: +cmd*

*;; Got answer:*

*;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 33219*

*;; flags: qr aa rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 1, ADDITIONAL: 1*

*;; OPT PSEUDOSECTION:*

*; EDNS: version: 0, flags:; udp: 4096*

*;; QUESTION SECTION:*

*;abhi.mit.com. IN A*

*;; ANSWER SECTION:*

*abhi.mit.com. 86400 IN A 192.168.72.94*

*;; AUTHORITY SECTION:*

*mit.com. 86400 IN NS abhi.mit.com.*

*;; Query time: 1 msec*

*;; SERVER: 192.168.72.94#53(192.168.72.94)*

*;; WHEN: Fri Aug 16 09:22:20 EDT 2019*

*;; MSG SIZE rcvd: 71*

nslookup abhi.mit.com

*Server: 192.168.72.94*

*Address: 192.168.72.94#53*

*Name: abhi.mit.com*

*Address: 192.168.72.94*

nslookup client.mit.com

Server: 192.168.72.94

Address: 192.168.72.94#53

Name: client.mit.com

Address: 192.168.82.91

**Client Side Configuration**

yum install bind bind-utils -y

**Add the DNS server details in ‘/etc/resolv.conf’ file in all client systems**

vi /etc/resolv.conf

# Generated by NetworkManager

search mit.com

nameserver 192.168.72.94

nameserver 8.8.8.8

vi /etc/hosts

192.168.72.91 client.mit.com client

192.168.72.94 abhi.mit.com abhi

**Test DNS Server**

**Now, you can test the DNS server using any one of the following commands:**

dig abhi.mit.com

dig -x 192.3168.72.91

nslookup 192.168.72.94

useful links

<https://www.unixmen.com/setting-dns-server-centos-7/>

<https://www.itzgeek.com/how-tos/linux/centos-how-tos/configure-dns-bind-server-on-centos-7-rhel-7.html>