

# DNS

## Experiment: 4

**Aim:** To create and configure DNS Server

### Description:

DNS Server

A DNS server is a computer server that contains a database of public IP addresses and their associated hostnames, and in most cases, serves to resolve, or translate, those common names to IP addresses as requested.

**Port No:** 53

**Package name:** bind9

**Configuration file:** /etc/bind/named.conf. (Primary configuration file),/etc/bind/db.root (root nameservers)

### Procedure:

CASHING NAMESERVER

When configured as a caching nameserver BIND9 will find the answer to name queries and remember the answer when the domain is queried again.

1. Install bind9 by typing

```
$sudo apt install bind9  
$sudo apt install dnsutils
```

2. The default configuration is set up to act as a caching server. All that is required is simply adding the IP Addresses of your ISP's DNS servers. Simply uncomment and edit the following in /etc/bind/named.conf.options:

3. Restart it by typing

```
$sudo systemctl restart bind9.service
```

## PRIMARY MASTER

As a primary master server BIND9 reads the data for a zone from a file on it's host and is authoritative for that zone.

### Forward zone file

To add a DNS zone to BIND9, turning BIND9 into a Primary Master server, the first step is to edit `/etc/bind/named.conf.local`:

```
$sudo cp /etc/bind/db.local /etc/bind/db.example.com
$sudo systemctl restart bind9.service
```

### Reverse Zone File

Now that the zone is set up and resolving names to IP Addresses, a *Reverse zone* needs to be added to allows DNS to resolve an address to a name.

1. Edit `/etc/bind/named.conf.local`

2. Now create the `/etc/bind/db.192` file:

```
$sudo cp /etc/bind/db.127 /etc/bind/db.192
```

3. edit `/etc/bind/db.192` changing the basically the same options as `/etc/bind/db.example.com`:

4. After creating the reverse zone file restart BIND9:

```
$sudo systemctl restart bind9.service
```

5. Check the status

```
$Sudo service bind9 status
```

6. Check if nslookup can resolve

```
$nslookup ftp.example.com
$nslookup ubuntu.example.com
```

7. Gather information about your DNS server

```
$dig ubuntu.example.com
```

```
$dig www.example.com
```

```
$dig ftp.example.com
```

Result:

```
root@kali: /etc/bind

File Actions Edit View Help

(root@kali)-[~]
# sudo apt install bind9
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
bind9 is already the newest version (1:9.19.24-185-g392e7199df2-1).
The following packages were automatically installed and are no longer required:
  libkate1 libnsl-dev libtirpc-dev libzxing2
Use 'sudo apt autoremove' to remove them.
0 upgraded, 0 newly installed, 0 to remove and 1970 not upgraded.

(root@kali)-[~]
# sudo apt install dnstools
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
dnstools is already the newest version (1:9.19.24-185-g392e7199df2-1).
The following packages were automatically installed and are no longer required:
  libkate1 libnsl-dev libtirpc-dev libzxing2
Use 'sudo apt autoremove' to remove them.
0 upgraded, 0 newly installed, 0 to remove and 1970 not upgraded.

(root@kali)-[~]
# cd /etc/bind

(root@kali)-[/etc/bind]
# nano named.conf.options
```

```
root@kali: /etc/bind

File Actions Edit View Help

root@kali: /etc/bind x root@kali: /etc/bind x
GNU nano 7.2 named.conf.options
options {
    directory "/var/cache/bind";

    // If there is a firewall between you and nameservers you want
    // to talk to, you may need to fix the firewall to allow multiple
    // ports to talk. See http://www.kb.cert.org/vuls/id/800113

    // If your ISP provided one or more IP addresses for stable
    // nameservers, you probably want to use them as forwarders.
    // Uncomment the following block, and insert the addresses replacing
    // the all-0's placeholder.

    forwarders {
        192.168.254.130;
    };

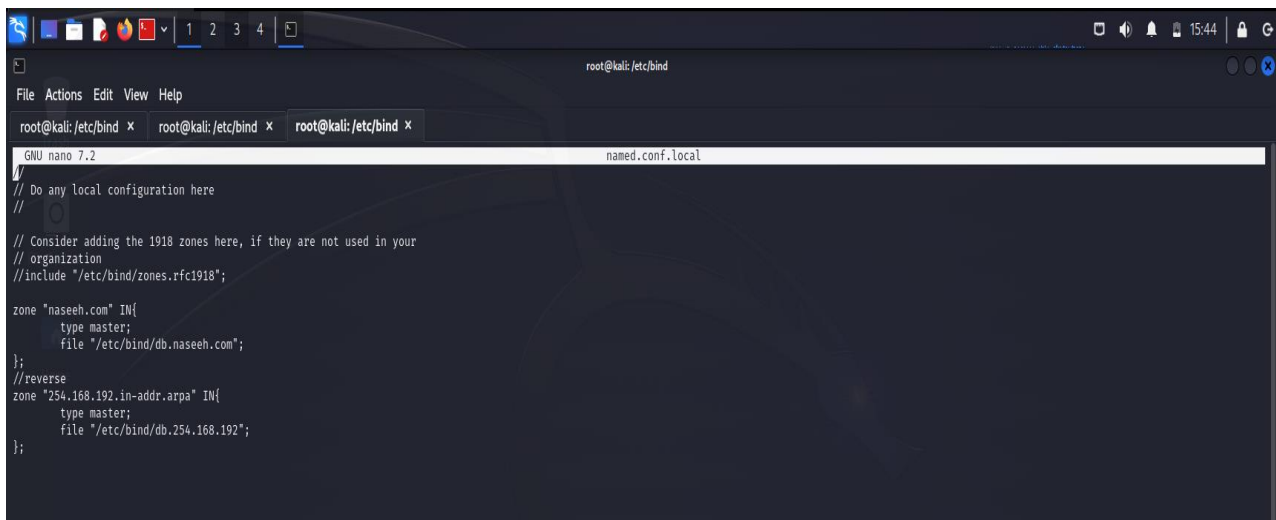
    // If BIND logs error messages about the root key being expired,
    // you will need to update your keys. See https://www.isc.org/bind-keys
    //
    dnssec-validation auto;

    listen-on-v6 { any; };
};

Read 24 lines
Help Write Out Where Is Cut Execute Location M-U Undo M-A Set Mark M-B To Bracket M-P Previous B Back Prev Word
Exit Read File Replace Paste Justify Go To Line M-E Redo M-C Copy M-W Where Was M-N Next B Forward Next Word
```

```
(root@kali)~[/etc/bind]
# systemctl status bind9.service
● bind9.service - BIND Domain Name Server
   Loaded: loaded (/lib/systemd/system/bind9.service; enabled; preset: disabled)
   Active: active (running) since Mon 2024-09-09 14:27:31 EDT; 42s ago
     Docs: man:named(8)
    Main PID: 17382 (named)
      Tasks: 14 (limit: 4587)
     Memory: 59.0M
        CPU: 2.962s
    CGroup: /system.slice/bind9.service
            └─17382 /usr/sbin/named -f -u bind

(root@kali)~[/etc/bind]
# nano named.conf.local
```



```
GNU nano 7.2 named.conf.local
//
// Do any local configuration here
//
// Consider adding the 1918 zones here, if they are not used in your
// organization
//include "/etc/bind/zones.rfc1918";

zone "naseeh.com" IN{
    type master;
    file "/etc/bind/db.naseeh.com";
};

//reverse
zone "254.168.192.in-addr.arpa" IN{
    type master;
    file "/etc/bind/db.254.168.192";
};
```



```
GNU nano 7.2 db.naseeh.com
; BIND data file for local loopback interface
$TTL 604800
@ IN SOA naseeh.com. root.naseeh.com. (
    2 ; Serial
    604800 ; Refresh
    86400 ; Retry
    2419200 ; Expire
    604800 ) ; Negative Cache TTL
;
@ IN NS naseeh.com.
@ IN A 192.168.254.130
@ IN AAAA ::1
```

```
root@kali: /etc/bind
File Actions Edit View Help
root@kali: /etc/bind x root@kali: /etc/bind x root@kali: /etc/bind x root@kali: /etc/bind x
GNU nano 7.2 db.254.168.192
; BIND reverse data file for local loopback interface
$TTL 604800
@ IN SOA naseeh.com. root.naseeh.com. (
    1 ; Serial
    604800 ; Refresh
    86400 ; Retry
    2419200 ; Expire
    604800 ) ; Negative Cache TTL
;
@ IN NS naseeh.com.
130 IN PTR ftp.naseeh.com.
```

```
(root@kali)-[/etc/bind]
# sudo systemctl restart bind9.service
```

```
(root@kali)-[/etc/bind]
# sudo systemctl restart bind9.service

"the quieter you become the more you are able to hear"

(root@kali)-[/etc/bind]
# nslookup naseeh.com
Server:      192.168.254.130
Address:     192.168.254.130#53

Name:   naseeh.com
Address: 192.168.254.130
Name:   naseeh.com
Address: ::1

(root@kali)-[/etc/bind]
# nslookup 192.168.254.130
130.254.168.192.in-addr.arpa    name = ftp.naseeh.com.
```

## Conclusion:

All the commands have been executed and the output has been obtained successfully.