

In this exercise, you will create a new domain, `_something_.somaliren.org`. You will create a master nameservice on your own machine. Then you will ask the administrator for the domain above you (`somaliren.org`) to delegate your domain to you.

Install BIND9 on Ubuntu Server

On the DNS server, update the apt package cache by typing:

```
sudo apt-get update
```

Now install BIND:

```
sudo apt-get install bind9 bind9utils bind9-doc
```

Switch BIND9 named to using IPv4 only

By editing the `/etc/default/bind9` file, it's very easy to enforce IPv4 ONLY mode.

```
sudo nano /etc/default/named
```

Change the OPTIONS line from this:

```
OPTIONS="-u bind"
```

to this:

```
OPTIONS="-u bind -4"
```

Now we just need to restart named daemon. Confusingly enough, it's done by restarting the service:

```
sudo systemctl restart bind9
```

Configure Primary DNS Server

BIND's configuration consists of multiple files, which are included from the main configuration file, `named.conf`. These filenames begin with 'named' because that is the name of the process that BIND runs. We will start with configuring the options file.

Caching server:

Open the `named.conf.options` file for editing:

```
sudo nano /etc/bind/named.conf.options
```

Change forwarders like this by removing the comments:

```
forwarders {
    8.8.8.8;
    8.8.4.4;
};
```

When you are finished, save and close the named.conf.options file.
Next, we will configure the local file, to specify our DNS zones.

Configure Local File

On ns1, open the named.conf.local file for editing:

```
sudo nano /etc/bind/named.conf.local
```

Aside from a few comments, the file should be empty. Here, we will specify our forward and reverse zones.

Add the forward zone with the following lines (substitute the zone name with your own):

```
//
// 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 "yourdomain.somaliren.org" {
    type master;
    file "/etc/bind/db.yourdomain.somaliren.org";
};
```

When you are finished adding all of your desired zones, save and exit the named.conf.local file.

Now that our zones are specified in BIND, we need to create the corresponding forward zone file.

Create Forward Zone File

The forward zone file is where we define DNS records for forward DNS lookups. That is, when the DNS receives a name query, "events.somaliren.org" for example, it will look in the forward zone file to resolve events' corresponding IP address.

We will base our forward zone file on the sample db.local zone file. Copy it to the proper location with the following commands:

```
cd /etc/bind
sudo cp db.local db.yourdomain.somaliren.org

sudo nano db.yourdomain.somaliren.org
```

After configuration, this is how it should look, change these records as you want:

```

;
$TTL 604800
@      IN      SOA   ns1.yourdomain.somaliren.org.  info.somaliren.org. (
        2023102201 ; Serial
        604800 ; Refresh
        86400 ; Retry
        2419200 ; Expire
        604800 ) ; Negative Cache TTL
;
; name servers - NS records
        IN      NS       ns1.yourdomain.somaliren.org.

@      IN      A       154.73.25.X
; name servers - A records
ns1    IN      A       154.73.25.X (change this to your IP Address)
```

Check BIND Configuration Syntax

Run the following command to check the syntax of the named.conf* files:

```
sudo named-checkconf
```

If your named configuration files have no syntax errors, you will return to your shell prompt and see no error messages. If there are problems with your configuration files, review the error message and the "Configure Primary DNS Server" section, then try named-checkconf again.

The named-checkzone command can be used to check the correctness of your zone files. Its first argument specifies a zone name, and the second argument specifies the corresponding zone file, which are both defined in named.conf.local.

For example, to check the “[yourdomain.somaliren.org](#)” forward zone configuration, run the following command (change the names to match your forward zone and file):

```
sudo named-checkzone yourdomain.somaliren.org db.yourdomain.somaliren.org
```

When all of your configuration and zone files have no errors in them, you should be ready to restart the BIND service.

Restart BIND:

```
sudo systemctl restart bind9
```

Then check if there are any errors:

```
sudo systemctl status bind9
```

Check if your domain is set up:

```
dig @154.73.25.x ns1.yourdomain.somaliren.org
```

If your status is NOERROR, all is well.

Now you are ready to request delegation. Bring the following information to the classroom instructor:

Domain name: yourdomain.somaliren.org.

Master nameserver: ns1.yourdomain.somaliren.org

IP address: 154.73.25.x

You will not get delegation until the instructor has checked:

- Your nameserver is authoritative for your domain
- They all have the same SOA serial number
- The NS records within the zone match the list of servers you are requesting delegation for

* Once you have a delegation, try to resolve yourdomain.somaliren.org.:

- On your own machine
- On someone else's machine
- On a machine elsewhere on the Internet, if you have access to one

- Using Google Public DNS, 8.8.8.8 8.8.4.4

- * Add a new resource record to your zone file. Remember to update the serial number. Check that your slaves have updated. Try resolving this new name from elsewhere.

Use this website to verify that your domain is fully propagated:

<https://dnschecker.org/>

If your domain is setup, go and start working on the webserver Exercise.