

DNS Exercise: Creating a New Domain on BIND9

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In this exercise, you will create a new domain: *something.somaliren.org*.

You will configure a **master nameserver** (authoritative server) on your machine. Then, you will request the administrator of the parent domain (somaliren.org) to delegate the domain to you.

Install BIND9 on Ubuntu Server

Update package lists:

```
sudo apt update
```

Install BIND9:

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

Switch BIND9 to IPv4 Only

Edit the configuration file:

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

Modify the OPTIONS line:

From:

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

To:

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

Restart the service:

```
sudo systemctl restart bind9
```

Configure Primary DNS Server

BIND configuration is composed of multiple files loaded from `named.conf`.

Configure Caching Server (Forwarders)

Edit the options file:

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

Uncomment and update forwarders:

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

Save and exit.

Configure Local Zone File Definitions

Edit the local configuration file:

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

Add your forward zone:

```
// Do any local configuration here
zone "yourdomain.somaliren.org" {
    type master;
    file "/etc/bind/db.yourdomain.somaliren.org";
};
```

Save and exit.

Create Forward Zone File

This file holds DNS records for forward lookups.

Copy the sample local zone file:

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

Example zone file:

```
$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
IN NS ns1.yourdomain.somaliren.org.

; A Records
@ IN A 154.73.25.X
ns1 IN A 154.73.25.X ; Replace with your actual IP
```

Validate BIND Configuration

Check syntax of BIND configuration:

```
sudo named-checkconf
```

Check the forward zone file:

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

Restart BIND

```
sudo systemctl restart bind9  
sudo systemctl status bind9
```

Test Your Domain

Use dig:

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

If the result shows **NOERROR**, your configuration is good.

Delegation Request

Provide the following information to the instructor:

- **Domain name:** yourdomain.somaliren.org
- **Master nameserver:** ns1.yourdomain.somaliren.org
- **IP address:** 154.73.25.x

Delegation will be granted only if:

- Your nameserver is authoritative for your domain
- All servers report the same serial number
- NS records match the requested delegation nameservers

After Delegation

Test resolution of your domain:

- From your own machine
- From another student's machine
- From an Internet host (if available)
- Using Google DNS: 8.8.8.8, 8.8.4.4

Add a New DNS Record

- Edit the zone file
- Increase the serial number
- Wait for slave servers to update
- Test the new record using dig from multiple locations

Verify DNS Propagation

Use:

<https://dnschecker.org/>

If your domain is set up correctly, proceed to the **Webserver Exercise**.