

In Anlehnung zu: <https://linuxhint.com/configure-dns-server-ubuntu/>

How to configure Ubuntu DNS Server

DNS Server Configuration through the Ubuntu terminal

We can also configure the DNS through the terminal.

For this purpose, first open the terminal by pressing CTRL + ALT + T.

Before the installation process we will update our repository:

```
$ sudo apt update
```

```
gamer@linuxhint:~$ sudo apt update
Get:1 http://security.ubuntu.com/ubuntu focal-security InRelease [114 kB]
Ign:2 http://ppa.launchpad.net/mc3man/trusty-media/ubuntu focal InRelease
Hit:3 http://pk.archive.ubuntu.com/ubuntu focal InRelease
Get:4 http://pk.archive.ubuntu.com/ubuntu focal-updates InRelease [114 kB]
```

Now we will install the DNS server by using the command bind9:

```
$ sudo apt install bind9
```

```
gamer@linuxhint:~$ sudo apt install bind9
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
 chromium-codecs-ffmpeg-extra gstreamer1.0-vaapi libgstreamer-plugins-bad1.0-0
 libllvm11 libva-wayland2
```

Next step is to install the utilities of the DNS by using the command of “dnsutils”:

```
$ sudo apt install dnsutils
```

```
gamer@linuxhint:~$ sudo apt install dnsutils
Reading package lists... Done
Building dependency tree
Reading state information... Done
```

Now to configure the DNS, we will first go to the address **/etc/bind/named.conf.options** and add the Google DNS for just understanding.

We will add the following text by opening the address in the nano editor.

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

```
gamer@linuxhint:~$ sudo nano /etc/bind/named.conf.options
```

Replace the following text in the editor, 8.8.8.8 is Google's DNS:

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

```
GNU nano 4.8 /etc/bind/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 {
    // 1.1.1.1;
    // };

    //=====
    // If BIND logs error messages about the root key being expired,

[ Read 24 lines ]
^G Get Help    ^O Write Out  ^W Where Is   ^K Cut Text   ^J Justify    ^C Cur Pos    M-U Undo
^X Exit        ^R Read File  ^_ Replace    ^U Paste Text ^T To Spell   ^_ Go To Line M-E Redo
```

Now quit after saving it and enable the new configuration by restarting the DNS using the systemctl command.

```
$ sudo systemctl restart bind9
```

```
gamer@tecadmin:~$ sudo systemctl restart bind9
gamer@tecadmin:~$
```

Check the status of bind9

```
$ sudo systemctl status bind9
```

```
gamer@linuxhint:~$ sudo systemctl status bind9
● named.service - BIND Domain Name Server
   Loaded: loaded (/lib/systemd/system/named.service; enabled; vendor preset: enabled)
   Active: active (running) since Thu 2021-09-02 10:49:38 PKT; 11min ago
     Docs: man:named(8)
  Main PID: 12110 (named)
    Tasks: 5 (limit: 4651)
   Memory: 11.8M
   CGroup: /system.slice/named.service
           └─12110 /usr/sbin/named -f -u bind

10:49:39 02 ستمبر linuxhint named[12110]: network unreachable resolving './NS/IN': 2001:500:12::d0d#53
10:49:39 02 ستمبر linuxhint named[12110]: network unreachable resolving './DNSKEY/IN': 2001:500:2::c#53
10:49:39 02 ستمبر linuxhint named[12110]: network unreachable resolving './NS/IN': 2001:500:2::c#53
10:49:39 02 ستمبر linuxhint named[12110]: network unreachable resolving './DNSKEY/IN': 2001:500:9f::42#53
10:49:39 02 ستمبر linuxhint named[12110]: network unreachable resolving './NS/IN': 2001:500:9f::42#53
10:49:39 02 ستمبر linuxhint named[12110]: network unreachable resolving './DNSKEY/IN': 2001:500:1::53#53
10:49:39 02 ستمبر linuxhint named[12110]: network unreachable resolving './DNSKEY/IN': 2001:500:200::b#53
10:49:39 02 ستمبر linuxhint named[12110]: network unreachable resolving './DNSKEY/IN': 2001:500:a8::e#53
10:49:39 02 ستمبر linuxhint named[12110]: managed-keys-zone: Key 20326 for zone . is now trusted (accepted)
10:49:40 02 ستمبر linuxhint named[12110]: resolver priming query complete
lines 1-20/20 (END)
```

As the bind9 is running now we will test the domain which we edit in the configuration file as:

```
$ dig google.com
```

```
gamer@linuxhint:~$ dig google.com

; <<>> DiG 9.16.1-Ubuntu <<>> google.com
;; global options: +cmd
;; Got answer:
;; ->HEADER<<- opcode: QUERY, status: NOERROR, id: 5199
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 65494
;; QUESTION SECTION:
;google.com.                IN      A

;; ANSWER SECTION:
google.com.                212     IN      A      142.250.185.46

;; Query time: 4 msec
;; SERVER: 127.0.0.53#53(127.0.0.53)
;; WHEN: 11:02:38 02 جمعبرك ستمبر PKT 2021
;; MSG SIZE rcvd: 55
```

The output is showing it is the domain of Google and it runs successfully.

Now we will do primary zone configuration but before configuration lets have an idea what is going on.

We stored some files at some host and in this configuration the DNS gets its data from that specific file for its zone.

Now for such primary master configuration we will run the editor and will confirm that the following three commands are there and not commented on.

```
include "/etc/bind/named/.conf.option";
```

```
include "/etc/bind/named/.conf.local";
```

```
include "/etc/bind/named/.conf.default-zones";
```

To verify this we will open the editor as:

```
$ sudo vi /etc/bind/named.conf
```

```
gamer@tecadmin:~$ sudo vi /etc/bind/named.conf
```

As a result we will see:

```
// This is the primary configuration file for the BIND DNS server named.
//
// Please read /usr/share/doc/bind9/README.Debian.gz for information on the
// structure of BIND configuration files in Debian, *BEFORE* you customize
// this configuration file.
//
// If you are just adding zones, please do that in /etc/bind/named.conf.local

include "/etc/bind/named.conf.options";
include "/etc/bind/named.conf.local";
include "/etc/bind/named.conf.default-zones";
~
~
~
~
~
~
~
"/etc/bind/named.conf" 11 lines, 463 characters
```

All the three lines are present in the output.

Now for example we have a domain “gamer.com” for which we are going to configure so we will edit the file **named.conf.local** by opening as:

```
$ sudo vi /etc/bind/named.conf.local
```

```
gamer@tecadmin:~$ sudo vi /etc/bind/named.conf.local
```

Edit the following text in the editor as:

```
zone "gamer.com" {
type master;
file "/etc/bind/db.gamer.com";
};
```

```
//
// 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 "gamer.com" {
type master;
file "/etc/bind/db.gamer.com";
};
~
~
~
~
~
~
"/etc/bind/named.conf.local" 8 lines, 165 characters
```

We will copy the contents from the **db.local** to the **db.gamer.com**:

```
$ sudo cp /etc/bind/db.local /etc/bind/db.gamer.com
```

```
gamer@tecadmin:~$ sudo cp /etc/bind/db.local /etc/bind/db.gamer.com
gamer@tecadmin:~$
```

And at this step, we will open the newly created file **gamer.com** as:

```
$ sudo vi /etc/bind/db.gamer.com
```

```
gamer@tecadmin:~$ sudo vi /etc/bind/db.gamer.com
```

Output should be like this:

```

;
; BIND data file for local loopback interface
;
$TTL      604800
@         IN      SOA      localhost. root.localhost. (
                        2      ; Serial
                        604800 ; Refresh
                        86400  ; Retry
                        2419200; Expire
                        604800 ) ; Negative Cache TTL
;
@         IN      NS       localhost.
@         IN      A        127.0.0.1
@         IN      AAAA     ::1
~
~
~
"/etc/bind/db.gamer.com" 14 lines, 270 characters
```

After making changes we will restart the DNS.

```
$ sudo systemctl restart bind9
```

```
gamer@tecadmin:~$ sudo systemctl restart bind9
gamer@tecadmin:~$
```

For communication of our created domain “gamer.com” with some IP address we have to do a reverse zone file.

For such purpose we will also configure the reverse zone file as:

```
$ sudo vi /etc/bind/named.conf.local
```

```
gamer@tecadmin:~$ sudo vi /etc/bind/named.conf.local
```

Here we will add the following text:

```
zone "192.168.18.in-addr.arpa" {  
type master;  
file "/etc/bind/db.10";  
};
```

```
//  
// 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 "gamer.com" {  
type master;  
file "/etc/bind/db.gamer.com";  
};  
zone "192.168.18.in-addr.arpa" {  
type master;  
file "/etc/bind/db.10";  
};  
~  
~  
"/etc/bind/named.conf.local" 12 lines, 239 characters
```

Where 192.168.18 is the first three octets of my network, here you will replace it with your own.

Now we will copy and create the new file with db.10 as:

```
$ sudo cp /etc/bind/db.127 /etc/bind/db.10
```

```
gamer@tecadmin:~$ sudo cp /etc/bind/db.127 /etc/bind/db.10  
gamer@tecadmin:~$
```

Now we will open this file which we have created and its output should be as shown below:

```
$ sudo vi /etc/bind/db.10
```

```
gamer@tecadmin:~$ sudo vi /etc/bind/db.10
```

Output is as follows:

```

;
; BIND reverse data file for local loopback interface
;
$TTL      604800
@         IN      SOA      localhost. root.localhost. (
                        1      ; Serial
                        604800 ; Refresh
                        86400  ; Retry
                        2419200 ; Expire
                        604800 ) ; Negative Cache TTL
;
@         IN      NS       localhost.
1.0.0     IN      PTR      localhost.
~
~
~
~
"/etc/bind/db.10" 13 lines, 271 characters

```

In this last part we will confirm the configurations first by executing all these commands and check whether they generate errors or not:

```

$ named-checkzone gamer.com /etc/bind/db.gamer.com
$ named-checkzone 192.168.0.0/32 /etc/bind/db.10
$ named-checkconf /etc/bind/named.conf.local
$ named-checkconf /etc/bind/named.conf

```

```

gamer@tecadmin:~$ named-checkzone gamer.com /etc/bind/db.gamer.com
zone gamer.com/IN: loaded serial 2
OK
gamer@tecadmin:~$ named-checkzone 192.168.0.0/32 /etc/bind/db.10
zone 192.168.0.0/32/IN: loaded serial 1
OK
gamer@tecadmin:~$ named-checkconf /etc/bind/named.conf.local
gamer@tecadmin:~$ named-checkconf /etc/bind/named.conf
gamer@tecadmin:~$

```

Running all the above commands we have received no errors so our DNS has been configured successfully.

Conclusion

DNS is a technique through which we name the domains of different websites alphabetically and numerically so it is easy for servers to understand it.

We have learned the configuration of the DNS (domain name system) in the article.

We have learned that DNS is used to assign numerical based addresses to the alphabetical domains.

We configured the google domain in the command line method and also tested it, also in the terminal method, we did forward and reverse file zone configuration by creating a domain of gamer.com.