

NRENum.net Course - Section 3 – DNS Server Installation

Tutorial to install a DNS server on Linux CentOS 7 operating system

Berkeley Internet Name Domain (BIND) is a software that implements the DNS protocol (Domain Name System) specified in RFC 1034 [1] and RFC 1035 [2], and the port number 53 on TCP and UDP.

Assumptions:

Operating System: CentOS 7

Plain text editor: vi

Network Address: 192.168.0.1/24

Step 1. Install software BIND

We use the package manager "yum" to install the BIND software and the BIND tools from the repositories:

```
# yum -y install bind bind-utils
```

Step 2. Creating zone file

Create and edit the file of the zone "/etc/db.example.com" by using the following template:

```
# vi /var/named/db.example.com

$TTL 86400

@   IN  SOA    ns.example.com. root.example.com. (
        2015080101 ;Serial, based on date
        3600      ;Refresh
        1800     ;Retry
        604800   ;Expire
        86400    ;Minimum TTL 1 Day
)

;Name Server Record
@   IN  NS    ns.example.com.

;Address Record
ns  IN  A     192.168.0.1
@   IN  A     192.168.0.2
mail IN A     192.168.0.3

; IPv6 Address Record
ns  IN  AAAA  2001:13f8::1
@   IN  AAAA  2001:13f8::2
mail IN AAAA  2001:13f8::3

;Mail Exchanger Records
smtp IN MX 10 mail.example.com.
```

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Step 3. Setup BIND zone

Edit the file `"/etc/named.conf"` and add the following block:

```
# vi /etc/named.conf

zone "example.com" IN {
    type master;
    file "/etc/db.example.com";
    allow-update { none; };
};
```

Step 4. Restart the service

```
# systemctl restart named.service
```

Step 5. Query the DNS server

To query the DNS server, we can use command line tools such as `"dig"`, `"host"` and `"nslookup"`.

dig

```
# dig @127.0.0.1 -t A example.com
```

host

```
# host -t A example.com 127.0.0.1
```

nslookup

```
# nslookup example.com 127.0.0.1
```

Step 6. Add firewall rules

We use the command line tool `"firewall-cmd"` to add and apply the rules:

```
# firewall-cmd --zone=public --permanent --add-service=dns
# firewall-cmd --reload
```

Good practices:

NTP (Network Time Protocol) allows to synchronize the date and time of the system

Install time synchronization service NTP

```
# yum -y install ntp
```

We add the NTP service on the system startup

```
# systemctl enable ntp
```

We add the NTP service on the system startup

```
# systemctl start ntp
```

References

[1] IETF RFC 1034, available at: <https://tools.ietf.org/html/rfc1034>

[2] IETF RFC 1035, available at: <https://tools.ietf.org/html/rfc1035>

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