User Manual

Installation and Configuration of DNS Server Using Bind.

System Requirements:

1) The System should have CentOS 8 Operating System.
2) The IP of the System has been configured.
3) The System should have an Internet Connection.
4) The user should be a root user.

Overview of Steps:

Step1: Download the latest stable version of Bind Software.

Step2: Download and Install the prerequisite libraries for Bind Software.

Step3: Untar the Bind tar file.

Step4: Configure the libraries to the Bind Software and Install Bind.

Step5: Verify the installation of Bind Software.

Step6: Configure the named.conf file.

Step7: Configuring rndc utility.

Step8: Start the DNS Server.

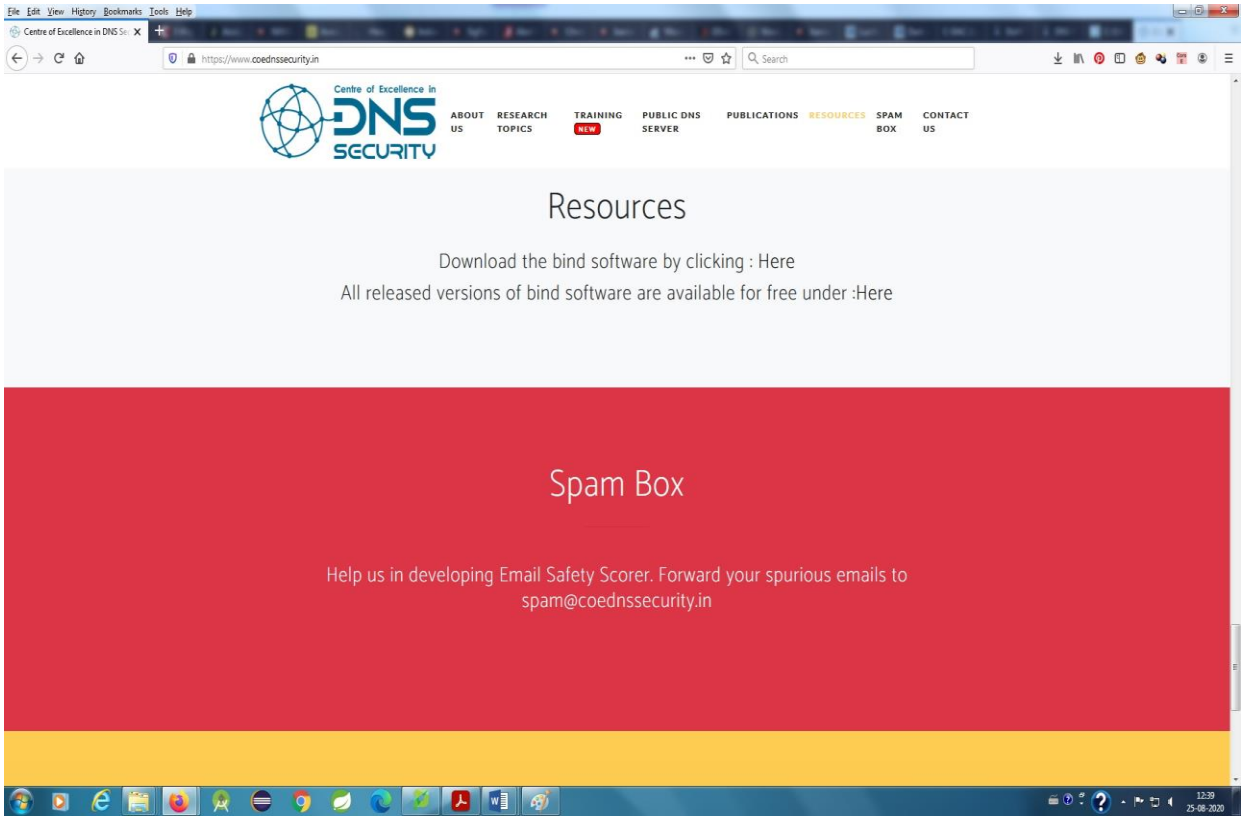
Step9: Verification of the start of DNS Server.

Step10: Test the DNS Server.

Step1: Download the latest stable Bind Software

Download the latest stable Bind Software from the **Resources** section of the following portal.

```
# https://www.coednssecurity.in/
```



Step2: Download and Install the prerequisite libraries for Bind Software

2.1) Install epel release package as show below

```
# yum install epel-release -y
```

2.2) Install gcc package as shown below

```
# yum install gcc
```

2.3) Install the libuv package as shown below

```
# yum install libuv -y
```

2.4) For Installation of **libuv-devel** package follow the following steps if Operating System is **CentOS 8**

a) Download libuv-devel-1.23.1-1 rpm package from the following url

```
http://repo.okay.com.mx/centos/8/x86_64/release/libuv-devel-1.23.1-1.el8.x86_64.rpm
```

b) Navigate to the directory where files are downloaded. By default it is Downloads folder

```
# cd Downloads
```

c) *Install the libuv-devel-1.23.1-1 rpm package as shown below*

```
# rpm -Uvh libuv-devel-1.23.1-1.el8.x86_64.rpm
```

2.5) Install the openssl-devel package as shown below

```
# yum install openssl-devel -y
```

2.6) Install json-c-devel package as shown below

```
# yum install json-c-devel -y
```

In case you encounter an error as shown below when you run the above command

```
# yum install json-c-devel -y
Last metadata expiration check: 0:24:43 ago on Thu 13 Aug 2020 01:26:57 PM IST.
No match for argument: json-c-devel
Error: Unable to find a match: json-c-devel
```

Then you install the json-c-devel package as shown below

```
# dnf --enablerepo=PowerTools install json-c-devel -y
```

2.7) Install libxml2-devel package as shown below

```
# yum install libxml2-devel -y
```

2.8) Install libcap-devel package as shown below

```
# yum install libcap-devel -y
```

Step3: Untar the Bind tar file

Navigate to the location where **bind-*.tar.xz** is downloaded and run the following command. By default the downloaded files will be in **Downloads** folder.

```
# tar -xvf bind-*.tar.xz
```

Step4: Configure the libraries to the Bind Software and Install Bind

4.1) Navigate to the directory of the Bind Software installation as shown below

```
# cd bind-9.16.5/
```

4.2) Configure the Bind Software with the libraries by running the command as shown below

```
# ./configure --with-libxml2 --with-json-c --enable-auto-validation --enable-querytrace
```

4.3) Run the make command as shown below

```
# make
```

4.4) Run the make install command as shown below.

```
# make install
```

Step5: Verify the installation of Bind Software

For verifying the successful installation of the version of Bind Software run the following command as shown below:

```
# named -v
```

Step6: Configure the named.conf file

6.1) Copy the named.conf file as shown below

```
# cp contrib/dnspriv/named.conf /usr/local/etc/named.conf
```

6.2) Navigate to the directory of named.conf file as shown below

```
# cd /usr/local/etc/
```

6.3) Open the named.conf file using any editor like vim/nano or cat command as shown below

```
# nano named.conf
```

6.4) Make the changes in your named.conf file by seeing the sample given below. You have to replace the IP Address highlighted with your IP Address and port to 53.

```
options {
        Listen-on port 53 { 127.0.0.1; 192.168.3.106 ;};
//      listen-on-v6 port 53 {  };
        allow-query     { any; };
        recursion yes;
        dnssec-validation auto;
        bindkeys-file "/usr/local/etc/bind.keys";
};
include "/usr/local/etc/rndc.key";
```

6.5) For checking the correctness of the named configuration file use the following command.

```
# named-checkconf
```

If the configuration file is correct, it executes and will not display any information

Step 7 : Configuring rndc utility

Run the following command as shown below

```
# rndc-confgen -a
```

If it is successful, you will see the following information:

```
# rndc-confgen -a
wrote key file "/usr/local/etc/rndc.key"
```

Run the following command as shown below

```
# chmod 777 rndc.key
```

Step8: Start the DNS Server

Start the DNS Server by running the command as shown below

```
# named -c /usr/local/etc/named.conf
```

Step9: Verification of the start of DNS Server

For verification of the start of the DNS Server run the following command as shown below

```
# ps -eaf |grep named
```

If the DNS Server is successfully started, it should display the following information.

```
# ps -eaf |grep named
root       9024    1991  1 13:39 ?        00:00:00 named -c /usr/local/etc/named.conf
```

Step10: Test the DNS Server

Test the DNS Server, by running the following command as shown below.

Give your **DNS Server IP Address** in the highlighted IP Address.

```
# dig @192.168.3.106 google.com
```

If it is successful, you can see the following kind of information:

```
; <<>> DiG 9.16.5 <<>> @192.168.3.106 google.com
; (1 server found)
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 3966
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 4096
; COOKIE: 7bfd86f7ca346259010000005f364708bed2b20a97e908bb (good)
;; QUESTION SECTION:
;google.com.                    IN      A

;; ANSWER SECTION:
google.com.             300     IN      A       172.217.31.206

;; Query time: 3106 msec
;; SERVER: 192.168.3.106#53(192.168.3.106)
;; WHEN: Fri Aug 14 13:40:48 IST 2020
;; MSG SIZE  rcvd: 83
```