Manual for

Installation and Configuration of DNS Server Using Bind on CentOS

April 2022

BIND 9.18.2

Centre of Excellence in DNS SECURITY

System Requirements

1) Operating System: CentOS 8.x
2) Internet connection.
3) All the commands to be executed as "*root*" user.
4) A valid IP address.

Procedure at Glance:

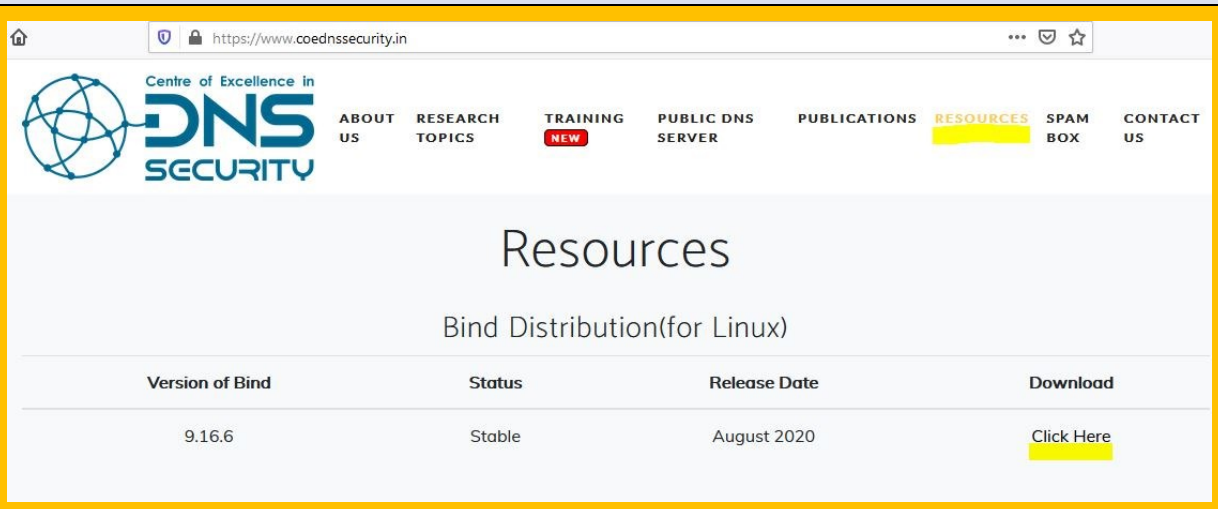
Overview of Steps:

Stepwise Procedure

Step 1: Download the latest stable Bind Software

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

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



Step 2: 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
```

Install the **make** tool using the command as shown below:

```
#  yum install make
```

2.3) Install the **libuv** package as shown below:

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

2.4) Install of **libuv-devel** package by following step below:

```
# dnf --enablerepo=powertools install libuv-devel
```

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
```

2.9) Install **libnghttp2** package as shown below:

```
# yum install libnghttp2
```

2.10) Install **libnghttp2-devel** package using the command below:

```
# dnf --enablerepo=powertools install libnghttp2-devel
```

Step 3: Untar the Bind tar file

Navigate to the download location of **BIND9.18.2.tar.xz** and run the following command. By default, the downloaded files will be in "*Downloads*" folder.

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

Step 4: Configure the libraries required for the Bind Software and Build, Install Bind

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

```
# cd bind-9.18.2
```

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) Execute the **make** as shown below:

```
# make
```

4.4) Execute the **make install** as shown below:

```
# make install
```

Step 5: 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
```

The output of the above command should provide the version of the bind installation.

Step 6: Configuring rndc utility

Run the following command as shown below:

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

If successful, you would see the following output of the command:

```
wrote key file "/usr/local/etc/rndc.key"
```

Run the following command as shown below to get execution privileges on the file:

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

Step 7: Configure the named.conf file

7.1) Navigate to the directory as shown below:

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

7.2) Create a file **named.conf** file at the above location using the command as shown below:

```
# nano named.conf
```

7.3) Make the changes in the **named.conf** file by refering the sample given below. Replace the IP Address highlighted with machine's IP Address and port to 53.

```
options {
        Listen-on port 53 { 127.0.0.1; <IP Address> ;};
//      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";
```

7.4) Check for the correctness of the named configuration file use the following command.

```
# named-checkconf
```

For a correctly configured file, the command does not provide any output.

Step 8: Start the DNS Server

Start the DNS Server by running the command as shown below:

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

Step 9: 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
```

Step 10: 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 @<IP Address> cdac.in
```

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

```
; <<>> DiG 9.16.5 <<>> @<IP Address> cdac.in
; (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: 7045cc7e5a12a93001000000626fb55261bf5d44cb63ab61 (good)
;; QUESTION SECTION:
;cdac.in.                       IN      A

;; ANSWER SECTION:
cdac.in.                300     IN      A       196.1.113.45

;; Query time: 3106 msec
;; SERVER: <IP Address>#53(<IP Address>)
;; WHEN: Fri Apr 29 13:40:48 IST 2022
;; MSG SIZE  rcvd: 83
```

References:

(1) https://downloads.isc.org/isc/bind9/9.18.2/doc/arm/html/requirements.html
(2) https://downloads.isc.org/isc/bind9/9.18.2/doc/arm/html/configuration.html

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