

```
$ dig node1.raja.com
```

```
$ ping masterdns.raja.com -c 2
```

```
$ ping slavedns.raja.com -c 2
```

```
$ ping 192.168.7.122 -c 2
```

```
$ ping 192.168.7.123 -c 2
```

### **Chroot and Jail Bind DNS Server**

[http://www.ehowstuff.com/how-to-setup-bind-chroot-dns-server-on-centos-6-3-x86\\_64/](http://www.ehowstuff.com/how-to-setup-bind-chroot-dns-server-on-centos-6-3-x86_64/)

The idea of chroot is fairly simple. When you run BIND in a chroot jail, the process is simply unable to see any part of the filesystem outside the jail. For example, in this post, i will setting up BIND to run chrooted to the directory `/var/named/chroot/`. Well, to BIND, the contents of this directory will appear to be `/`, the root directory. A “jail” is a software mechanism for limiting the ability of a process to access resources outside a very limited area, and it’s purposely to enhance the security.

Where is Bind chrooted directory set ?

It was by default configured to `/var/named/chroot` as below :

```
..  
..  
ROOTDIR=/var/named/chroot
```

Execution:

```
[root@masterdns ~]# cat /etc/sysconfig/named | grep  
ROOTDIR  
  
# ROOTDIR="/var/named/chroot" -- will run named in a  
chroot environment.  
  
#      empty in the ROOTDIR directory. It will simplify  
maintenance of your  
  
#      at startup. Don't add -t here, use  
ROOTDIR instead.  
  
ROOTDIR=/var/named/chroot  
  
[root@masterdns ~]# vim /etc/sysconfig/named
```

1. Install Bind-Chroot :

```
[root@CentOS63 ~]# yum install bind-chroot bind -y
```

2. Copy all bind related files to prepare bind chrooted environments :

```
[root@CentOS63 ~]# cp -R /usr/share/doc/bind-
*/sample/var/named/* /var/named/chroot/var/named/
```

3. Create bind related files into chrooted directory :

```
[root@CentOS63 ~]# touch
/var/named/chroot/var/named/data/cache_dump.db
```

```
[root@CentOS63 ~]# touch
/var/named/chroot/var/named/data/named_stats.txt
```

```
[root@CentOS63 ~]# touch
/var/named/chroot/var/named/data/named_mem_stats.txt
```

```
[root@CentOS63 ~]# touch
/var/named/chroot/var/named/data/named.run
```

```
[root@CentOS63 ~]# mkdir
/var/named/chroot/var/named/dynamic
```

```
[root@CentOS63 ~]# touch
/var/named/chroot/var/named/dynamic/managed-
keys.bind
```

4. Bind lock file should be writeable, therefore set the permission to make it writable as below :

```
[root@CentOS63 ~]# chmod -R 777
/var/named/chroot/var/named/data
```

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```
[root@CentOS63 ~]# chmod -R 777 /var/named/chroot/var/named/dynamic
```

5. Set if you do not use IPv6 :

```
[root@CentOS63 ~]# echo 'OPTIONS="-4"' >> /etc/sysconfig/named
```

6. Configure main bind configuration in /etc/named.conf. Append the ehowstuff.local information to the file :

```
[root@CentOS63 ~]# vi /var/named/chroot/etc/named.conf
```

```
//
```

```
// named.conf
```

```
//
```

```
// Provided by Red Hat bind package to configure the ISC BIND named(8) DNS
```

```
// server as a caching only nameserver (as a localhost DNS resolver only).
```

```
//
```

```
// See /usr/share/doc/bind*/sample/ for example named configuration files.
```

```
//
```

```
options {
    listen-on port 53 { 127.0.0.1;192.168.2.58; };
    listen-on-v6 port 53 { ::1; };
    directory    "/var/named";
    dump-file    "/var/named/data/cache_dump.db";
    statistics-file "/var/named/data/named_stats.txt";
    memstatistics-file
"/var/named/data/named_mem_stats.txt";
    allow-query   { localhost; };
    recursion yes;

    dnssec-enable yes;
    dnssec-validation yes;
    dnssec-lookaside auto;

    /* Path to ISC DLV key */
    bindkeys-file "/etc/named.iscdlv.key";

    managed-keys-directory "/var/named/dynamic";
};
```

```
logging {
    channel default_debug {
        file "data/named.run";
        severity dynamic;
    };
};

zone "." IN {
    type hint;
    file "named.ca";
};

zone "ehowstuff.local" {
    type master;
    file "ehowstuff.local.zone";
};

zone "2.168.192.in-addr.arpa" IN {
    type master;
    file "192.168.2.zone";
};
```

```
include "/etc/rndc.key";  
include "/etc/named.rfc1912.zones";  
include "/etc/named.root.key";
```

Execution:

```
[root@masterdns ~]# cp /etc/named.conf  
/var/named/chroot/etc/
```

7. Create Forward and Reverse zone files for domain ehowstuff.local.

a) Create Forward Zone :

```
[root@CentOS63 ~]# vi  
/var/named/chroot/var/named/ehowstuff.local.zone
```

```
;  
;     Addresses and other host information.  
;  
$TTL 86400
```

```
@           IN           SOA           ehowstuff.local.  
hostmaster.ehowstuff.local. (  
                2013022401   ; Serial  
                43200     ; Refresh  
                3600      ; Retry  
                3600000   ; Expire  
                2592000 ) ; Minimum
```

; Define the nameservers and the mail servers

```
IN  NS  ns.ehowstuff.local.  
IN  A   192.168.2.58  
IN  MX  10 mail.ehowstuff.local.
```

```
mail  IN  A   192.168.2.58  
ns    IN  A   192.168.2.58
```

b) Create Reverse Zone :

```
[root@CentOS63 ~]#  
/var/named/chroot/var/named/192.168.2.zone
```



```
;  
;     Addresses and other host information.  
;  
$TTL 86400  
@           IN           SOA           ehowstuff.local.  
hostmaster.ehowstuff.local. (  
                          2013022402     ; Serial  
                          43200         ; Refresh  
                          3600          ; Retry  
                          3600000       ; Expire  
                          2592000 )     ; Minimum  
  
2.168.192.in-addr.arpa.     IN                                 NS  
centos63.ehowstuff.local.  
  
58.2.168.192.in-addr.arpa. IN PTR mail.ehowstuff.local.  
58.2.168.192.in-addr.arpa. IN PTR ns.ehowstuff.local.  
  
[root@masterdns ~]# cd /var/named/  
[root@masterdns named]# ls
```

```
chroot          linuxcbt.internal.zone      named.ca
named.loopback  slaves
```

```
data           my.external.zone.db        named.empty
raja.com.rev.zone
```

```
dynamic       my.internal.zone.db      named.localhost
raja.com.zone
```

```
[root@masterdns named]# cp raja.com.zone chroot/
```

```
dev/ etc/ usr/ var/
```

```
[root@masterdns named]# cp raja.com.zone
chroot/var/named/
```

```
cp: `raja.com.zone' and `chroot/var/named/raja.com.zone'
are the same file
```

```
[root@masterdns named]# cp raja.com.rev.zone
chroot/var/named/
```

```
cp: `raja.com.rev.zone' and
`chroot/var/named/raja.com.rev.zone' are the same file
```

```
[root@masterdns named]#
```

8. RHEL 6 and CentOS 6 apparently no longer generates the `rndc.key` during installation. Instead, the key is automatically generated on the first start of `named` service.

Start Bind service :

```
[root@CentOS6 ~]# service named start
Generating /etc/rndc.key:           [ OK ]
Starting named:                    [ OK ]
```

9. Configure Bind auto start at boot :

```
[root@CentOS63 ~]# chkconfig --levels 235 named on
```

10. Verifying permissions and ownership. Created the files required inside the jail, but the matter of setting the permissions and ownership should remains.

Go to `chroot/var/named/` directory :

```
[root@CentOS63 ~]# cd /var/named/chroot/var/named/
```

Change owner as below :

```
[root@CentOS63 named]# chown root:named
ehowstuff.local.zone
```

```
[root@CentOS63 named]# chown root:named
192.168.2.zone

[root@CentOS63 named]# chown root:named
my.external.zone.db

[root@CentOS63 named]# chown root:named
my.internal.zone.db

[root@CentOS63 named]# chown root:named named.ca

[root@CentOS63 named]# chown root:named
named.localhost

[root@CentOS63 named]# chown root:named
named.loopback
```

Verify permissions and ownership rest of the chrooted directories :

```
[root@CentOS63 ~]# ll /var/named/
```

```
total 32
```

```
drwxr-x--- 6 root named 4096 Feb 24 13:51 chroot
```

```
drwxrwx--- 2 named named 4096 Dec 7 04:49 data
```

```
drwxrwx--- 2 named named 4096 Dec 7 04:49 dynamic
```

```
-rw-r----- 1 root named 1892 Feb 18 2008 named.ca
```

```
-rw-r----- 1 root named 152 Dec 15 2009 named.empty
-rw-r----- 1 root named 152 Jun 21 2007
named.localhost
-rw-r----- 1 root named 168 Dec 15 2009
named.loopback
drwxrwx--- 2 named named 4096 Dec 7 04:49 slaves
```

```
[root@CentOS63 ~]# ll /var/named/chroot/
```

```
total 16
```

```
drwxr-x--- 2 root named 4096 Feb 24 13:51 dev
drwxr-x--- 4 root named 4096 Feb 24 14:40 etc
drwxr-x--- 3 root named 4096 Feb 24 13:51 usr
drwxr-x--- 6 root named 4096 Feb 24 13:51 var
```

```
[root@CentOS63 ~]# ll /var/named/chroot/etc
```

```
total 32
```

```
-rw-r--r-- 1 root root 372 Feb 20 06:51 localtime
drwxr-x--- 2 root named 4096 Dec 7 04:49 named
-rw-r--r-- 1 root named 1201 Feb 24 14:16 named.conf
```

```
-rw-r--r-- 1 root named 2389 Dec 7 04:49
named.iscdlv.key
-rw-r----- 1 root named 931 Jun 21 2007
named.rfc1912.zones
-rw-r--r-- 1 root named 487 Jul 19 2010 named.root.key
drwxr-x--- 3 root named 4096 Feb 24 13:51 pki
-rw-r----- 1 root named 77 Feb 24 14:00 rndc.key
```

```
[root@CentOS63 ~]# ll /var/named/chroot/var/named/
```

```
total 44
```

```
-rw-r-xr-x 1 root named 551 Feb 24 15:28
192.168.2.zone
drwxrwxrwx 2 named named 4096 Feb 24 14:04 data
drwxrwxrwx 2 named named 4096 Feb 24 15:30 dynamic
-rw-r-xr-x 1 root named 681 Feb 24 15:28
ehowstuff.local.zone
-rw-r--r-- 1 root named 56 Feb 24 13:54
my.external.zone.db
-rw-r--r-- 1 root named 56 Feb 24 13:54
my.internal.zone.db
-rw-r--r-- 1 root named 1892 Feb 24 13:54 named.ca
```

590 RHCE دستورات، کدها، مثال ها و سناریوهای عملی اجرا شده در مدرک بین‌المللی لینوکس

```
-rw-r--r-- 1 root root 152 Feb 24 13:54 named.empty
-rw-r--r-- 1 root named 152 Feb 24 13:54
named.localhost
-rw-r--r-- 1 root named 168 Feb 24 13:54
named.loopback
drwxr-xr-x 2 named named 4096 Feb 24 13:54 slaves
```

11. Test and make sure it's working.

```
[root@CentOS63 ~]# host -t mx ehowstuff.local
ehowstuff.local mail is handled by 10
mail.ehowstuff.local.

[root@CentOS63 ~]# nslookup
> set type=any
> ehowstuff.local
Server: 192.168.2.58
Address: 192.168.2.58#53

ehowstuff.local
origin = ehowstuff.local
mail addr = hostmaster.ehowstuff.local
```

serial = 2013023401

refresh = 43200

retry = 3600

expire = 3600000

minimum = 2592000

ehowstuff.local nameserver = ns.ehowstuff.local.

Name: ehowstuff.local

Address: 192.168.2.58

ehowstuff.local mail exchanger = 10 mail.ehowstuff.local.

12. If your server does not have nslookup, host or dig command, then you should install bind-utils. All these utilities are the friendly and useful utilities to test and diagnose the DNS issue.

```
[root@CentOS6 ~]# yum install bind-utils
```

```
Loaded plugins: fastestmirror
```

```
Loading mirror speeds from cached hostfile
```

```
* base: centos.biz.net.id
```

```
* extras: centos.biz.net.id
```

```
* updates: centos.biz.net.id
```



### Setting up Install Process

### Resolving Dependencies

--> Running transaction check

---> Package bind-utils.x86\_64 32:9.8.2-0.10.rc1.el6\_3.6 will be installed

--> Finished Dependency Resolution

### Dependencies Resolved

```
=====
=====
=====
```

Package	Arch	Version
Repository	Size	
=====		
=====		
=====		

### Installing:

bind-utils	x86_64	32:9.8.2-
0.10.rc1.el6_3.6	updates	182 k

### Transaction Summary

```
=====
=====
=====
```

Install 1 Package(s)

Total download size: 182 k

Installed size: 438 k

Is this ok [y/N]: y

Downloading Packages:

bind-utils-9.8.2-0.10.rc1.el6\_3.6.x86\_64.rpm  
| 182 kB 00:02

Running rpm\_check\_debug

Running Transaction Test

Transaction Test Succeeded

Running Transaction

Installing : 32:bind-utils-9.8.2-0.10.rc1.el6\_3.6.x86\_64  
1/1

Verifying : 32:bind-utils-9.8.2-0.10.rc1.el6\_3.6.x86\_64  
1/1

Installed:

bind-utils.x86\_64 32:9.8.2-0.10.rc1.el6\_3.6

Complete!

```
[root@masterdns named]# ps -aux | grep named
```

```
Warning: bad syntax, perhaps a bogus '-'? See
/usr/share/doc/procps-3.2.8/FAQ
```

```
named    8548  0.1  0.9 66072 9908 ?        Ssl 19:54
0:01    /usr/sbin/named-sdb  -u   named   -4   -t
/var/named/chroot
```

```
root    9164  0.0  0.0 4352  732 pts/0    S+  20:08  0:00
grep named
```

```
[root@masterdns named]#
```

## **File Sharing in Linux**

### **NFS Server Configuration**

#### **NFS Concepts**

#### **NFS Installation**

```
[root@linuxfedora ~]# rpm -qa | grep nfs
```

```
texlive-mfnfss-svn19410.0-19.fc23.noarch
```

```
libnfsidmap-0.26-3.1.fc23.i686
```

```
texlive-psnfss-svn23394.9.2a-19.fc23.noarch
```