Configuring DNS: Client side

Setting up static clients is quite easy with bind. Just change `resolv.conf`

☞ configure /etc/resolv.conf

```
domain cs.fsu.edu
; CS nameserver
nameserver  128.186.120.179
; another CS nameserver
nameserver  128.186.120.178
```

```
        ; opendns, just for backup
        nameserver 208.67.222.222
```

DHCP clients by default overwrite `/etc/resolv.conf`; if you are configuring a DHCP client to use a fixed `/etc/resolv.conf`, you would have to look to see how to override the DHCP daemon's attempts to overwrite `/etc/resolv.conf`

DNS resolution

Traditionally, the client will try the listed nameservers in order: 128.186.120.179, then 128.186.120.178, then “opendns”; each machine was given 30 seconds to fail, thus a name lookup failure could take 90 seconds to be reported with three servers listed.

☞ you can comment out the CS nameservers then use nslookup and see results

- ☞ or put a bogus address in the first entry to see if the resolver tries number 2
- ☞ the changes take effect immediately

```
        # nslookup www.yahoo.com
```

A simple named.conf file

```
//
// named.conf for Red Hat Enterprise caching-nameserver
//

options {
        directory "/var/named";
        dump-file "/var/named/data/cache_dump.db";
        statistics-file "/var/named/data/named_stats.txt";
        /*
         * If there is a firewall between you and nameservers you want
         * to talk to, you might need to uncomment the query-source
         * directive below.  Previous versions of BIND always asked
         * questions using port 53, but BIND 8.1 uses an unprivileged
         * port by default.
         */
         // query-source address * port 53;
};

//
// a caching only nameserver config
//
controls {
        inet 127.0.0.1 allow { localhost; } keys { rndckey; };
};

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

zone "localdomain" IN {
        type master;
        file "localdomain.zone";
        allow-update { none; };
```

```
};

zone "localhost" IN {
        type master;
        file "localhost.zone";
        allow-update { none; };
};

zone "0.0.127.in-addr.arpa" IN {
        type master;
        file "named.local";
        allow-update { none; };
};

zone "0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.
         0.0.0.0.0.0.0.0.ip6.arpa" IN {
        type master;
        file "named.ip6.local";
        allow-update { none; };
};
```

```
zone "255.in-addr.arpa" IN {
        type master;
        file "named.broadcast";
        allow-update { none; };
};

zone "0.in-addr.arpa" IN {
        type master;
        file "named.zero";
        allow-update { none; };
};

include "/etc/rndc.key";
```

- Setting up a caching-only BIND server used to be more popular, now **nscd** appears to be more popular. **nscd** however has been problematic: it has been my experience that it can cache old or bad data, and fail to respect TTLs.

- In between caching-only BIND and **nscd** in functionality is **dnsmasq**, which incorporates support for most of a local DNS server and also includes a DHCP server.

☞ All of these are very easy to do these days: for instance, **yum -y install caching-nameserver** or **yum -y install dnsmasq**, then turn on the default installation **/etc/init.d/named start** or **/etc/init.d/dnsmasq**. (You may (or may not) have to make some changes to `/etc/resolv.conf`)

```
[root@sophie root]# nslookup
> www.yahoo.com
Server:         127.0.0.1
Address:        127.0.0.1#53

Non-authoritative answer:
```

```
www.yahoo.com   canonical name = www.yahoo.akadns.net.
Name:   www.yahoo.akadns.net
Address: 68.142.226.43
Name:   www.yahoo.akadns.net
Address: 68.142.226.45
Name:   www.yahoo.akadns.net
Address: 68.142.226.50
Name:   www.yahoo.akadns.net
Address: 68.142.226.35
Name:   www.yahoo.akadns.net
Address: 68.142.226.38
Name:   www.yahoo.akadns.net
Address: 68.142.226.39
```

```
Name:    www.yahoo.akadns.net
Address: 68.142.226.41
Name:    www.yahoo.akadns.net
Address: 68.142.226.42
>
```

Logging and named

errors: like most daemons, **named** errors (and other information) are routed through syslog, which you control wtih `/etc/syslog.conf`:

```
# Log all kernel messages to the console.
# Logging much else clutters up the screen.
#kern.*                                                  /dev/console

# Log anything (except mail) of level info or higher.
# Don't log private authentication messages!
*.info;mail.none;news.none;authpriv.none;cron.none                /var/log/messages
```

```
# The authpriv file has restricted access.
authpriv.*                                                /var/log/secure

# Log all the mail messages in one place.
mail.*                                                        /var/log/maillog


# Log cron stuff
cron.*                                                        /var/log/cron

# Everybody gets emergency messages
*.emerg                                                        *

# Save news errors of level crit and higher in a special file.
uucp,news.crit                                                /var/log/spooler

# Save boot messages also to boot.log
local7.*                                                /var/log/boot.log

#
```

```
# INN
#
news.=crit                                        /var/log/news/news.crit
news.=err                                         /var/log/news/news.err
news.notice                                       /var/log/news/news.notice
```

And here is what you see in /var/log/messages

```
[root@sophie root]# egrep -i named /var/log/messages
Feb 14 10:18:20 sophie named[7597]: starting BIND 9.2.4 -u named -t /var/named/chro
Feb 14 10:18:20 sophie named[7597]: using 1 CPU
Feb 14 10:18:20 sophie named: named startup succeeded
Feb 14 10:18:20 sophie named[7597]: loading configuration from '/etc/named.conf'Feb
Feb 14 10:18:20 sophie named[7597]: listening on IPv4 interface lo, 127.0.0.1#53Feb
Feb 14 10:18:20 sophie named[7597]: command channel listening on 127.0.0.1#953
Feb 14 10:18:20 sophie named[7597]: zone 0.in-addr.arpa/IN: loaded serial 42
Feb 14 10:18:20 sophie named[7597]: zone 0.0.127.in-addr.arpa/IN: loaded serial 199
Feb 14 10:18:20 sophie named[7597]: zone 255.in-addr.arpa/IN: loaded serial 42
Feb 14 10:18:20 sophie named[7597]: zone 0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.
Feb 14 10:18:20 sophie named[7597]: zone localdomain/IN: loaded serial 42
Feb 14 10:18:20 sophie named[7597]: zone localhost/IN: loaded serial 42
Feb 14 10:18:20 sophie named[7597]: running
```