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How To Set Caching DNS Server

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Q. How do I set caching dns server to speed up dns lookup for my LAN (500 PC)? The DNS lookups creating a lot of network activity. There are a few times when this causes performance issues. How do I configure caching dns under Debian Linux?



[1]

A. Often many users and running daemon can perform tons of dns lookup. This can create problems for slow network connections as well the latency of the lookup can slow down overall experience for end users. For large sites / LANs / WANs it is recommended that you set your own caching dns servers.

dnsmasq dns caching server

dnsmasq is a lightweight DNS, TFTP and DHCP server. It is intended to provide coupled DNS and DHCP service to a LAN. Dnsmasq accepts DNS queries and either answers them from a small, local, cache or forwards them to a real, recursive, DNS server.

Step # 1: Install dnsmasq

Simply, type the following command under Debian / Ubuntu Linux:

```
# apt-get install dnsmasq
```

Red Hat, Fedora / CentOS Linux user can grab [dnsmasq rpm here](#) ^[2] or just enter:

```
# rpm -ivh http://dag.wieers.com/rpm/packages/dnsmasq/dnsmasq-2.41-1.el5.rf.x86_64.rpm
```

Step # 2: Configure dnsmasq

Open /etc/resolv.conf

```
# vi /etc/resolv.conf
```

Set up upstream DNS servername i.e add ISP name server:

```
nameserver 202.1.10.10
nameserver 203.2.10.10
nameserver 203.3.10.10
```

Save and close the file. Start dnsmasq dns caching server:

```
# /etc/init.d/dnsmasq start
```

Sample output:

```
Starting DNS forwarder and DHCP server: dnsmasq
```

Now test your caching server:

```
$ dig openbsd.nixcraft.in
```

Sample output:

```
; <<>> DiG 9.4.1-P1 <<>> openbsd.nixcraft.in
;; global options: printcmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 24426
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 2, ADDITIONAL: 2
```

```
;; QUESTION SECTION:
;openbsd.nixcraft.in.          IN      A

;; ANSWER SECTION:
openbsd.nixcraft.in.  86341   IN      A      74.86.49.141

;; AUTHORITY SECTION:
nixcraft.in.          51538   IN      NS      ns1.softlayer.com.
nixcraft.in.          51538   IN      NS      ns2.softlayer.com.

;; ADDITIONAL SECTION:
ns2.softlayer.com.    222764  IN      A      66.228.119.9
ns1.softlayer.com.    220797  IN      A      66.228.118.8

;; Query time: 26 msec
;; SERVER: 127.0.0.1#53(127.0.0.1)
;; WHEN: Tue Jun 17 00:50:02 2008
;; MSG SIZE rcvd: 134
```

Try it one more time to see caching server in action:

```
$ dig openbsd.nixcraft.in
```

```
; <<>> DiG 9.4.1-P1 <<>> openbsd.nixcraft.in
;; global options: printcmd
;; Got answer:
;; ->HEADER<- opcode: QUERY, status: NOERROR, id: 46610
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 0

;; QUESTION SECTION:
;openbsd.nixcraft.in. IN A

;; ANSWER SECTION:
openbsd.nixcraft.in. 86272 IN A 74.86.49.141

;; Query time: 0 msec
;; SERVER: 127.0.0.1#53(127.0.0.1)
;; WHEN: Tue Jun 17 00:51:11 2008
;; MSG SIZE rcvd: 53
```

Step # 3: Optional dnsmasq configuration

The default configuration file is located at /etc/dnsmasq.conf. By default it works out of box. However, configuration files offers more options. It is possible to use dnsmasq to block Web advertising by using a list of known banner-ad servers, all resolving to 127.0.0.1 or 0.0.0.0. It is also possible redirect local LAN mail traffic to central mail hub server. Please refer dnsmasq man pages for all advanced configuration options.

```
$ man dnsmasq
```

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[1] Image: <http://www.cyberciti.biz/faq/faq/category/debian-ubuntu/>

[2] dnsmasq rpm here: <http://dag.wieers.com/rpm/packages/dnsmasq/>

