Configure NTP server

To configure your Linux system as an NTP server, you will need to install the **ntp daemon** (**ntpd**). You can do this with the *sudo apt-get install ntp* command:

```
bob@bobs-computer:~$ sudo apt-get install ntp
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  libblas3 liblinear-tools liblinear1
Use 'apt-get autoremove' to remove them.
The following extra packages will be installed:
  libopts25
Suggested packages:
  ntp-doc
The following NEW packages will be installed:
  libopts25 ntp
0 upgraded, 2 newly installed, 0 to remove and 0 not upgraded.
Need to get 473 kB of archives.
After this operation, 1676 kB of additional disk space will be used.
Do you want to continue? [Y/n] Y
Get:1 http://hr.archive.ubuntu.com/ubuntu/ trusty/main libopts25 amd64 1:5.18-2u
buntu2 [55,3 kB]
Get:2 http://hr.archive.ubuntu.com/ubuntu/ trusty-updates/main ntp amd64 1:4.2.6
.p5+dfsg-3ubuntu2.14.04.3 [418 kB]
Fetched 473 kB in 0s (1717 kB/s)
Selecting previously unselected package libopts25:amd64.
```

The ntpd configuration file is **/etc/ntp.conf**. Open this file in a text editor:

```
# /etc/ntp.conf, configuration for ntpd; see ntp.conf(5) for help

driftfile /var/lib/ntp/ntp.drift


# Enable this if you want statistics to be logged.
#statsdir /var/log/ntpstats/

statistics loopstats peerstats clockstats
filegen loopstats file loopstats type day enable
filegen peerstats file peerstats type day enable
filegen clockstats file clockstats type day enable

# Specify one or more NTP servers.

# Use servers from the NTP Pool Project. Approved by Ubuntu Technical Board
```

```
# Use servers from the NTP Pool Project. Approved by Ubuntu Technical Board
# on 2011-02-08 (LP: #104525). See http://www.pool.ntp.org/join.html for
# more information.
server 0.ubuntu.pool.ntp.org
server 1.ubuntu.pool.ntp.org
server 2.ubuntu.pool.ntp.org
server 3.ubuntu.pool.ntp.org

# Use Ubuntu's ntp server as a fallback.
server ntp.ubuntu.com
```

This file contains the list of internet NTP servers that will be used for time synchronization by your NTP server. You should also add a range of IP addresses that will be allowed to use this server as their NTP server. This can be done using the *restrict* command:

```
  GNU nano 2.2.6               File: /etc/ntp.conf                    Modified

# Access control configuration; see /usr/share/doc/ntp-doc/html/accopt.html for
# details.  The web page <http://support.ntp.org/bin/view/Support/AccessRestric$
# might also be helpful.
#
# Note that "restrict" applies to both servers and clients, so a configuration
# that might be intended to block requests from certain clients could also end
# up blocking replies from your own upstream servers.

# By default, exchange time with everybody, but don't allow configuration.
restrict -4 default kod notrap nomodify nopeer noquery
restrict -6 default kod notrap nomodify nopeer noquery
restrict 192.168.168.0 mask 255.255.255.0 nomodify notrap

# Local users may interrogate the ntp server more closely.
restrict 127.0.0.1
restrict ::1

# Clients from this (example!) subnet have unlimited access, but only if
# cryptographically authenticated.
#restrict 192.168.123.0 mask 255.255.255.0 notrust


# If you want to provide time to your local subnet, change the next line.
# (Again, the address is an example only.)
#broadcast 192.168.123.255
```

In our example, the *restrict 192.168.198.0 mask 255.255.255.0 nomodify notrap* line will allow clients from the **192.168.198.0 – 192.168.198.255** subnet to query our NTP server.

Next, restart the NTP deamon with the *sudo service ntp reload* command:

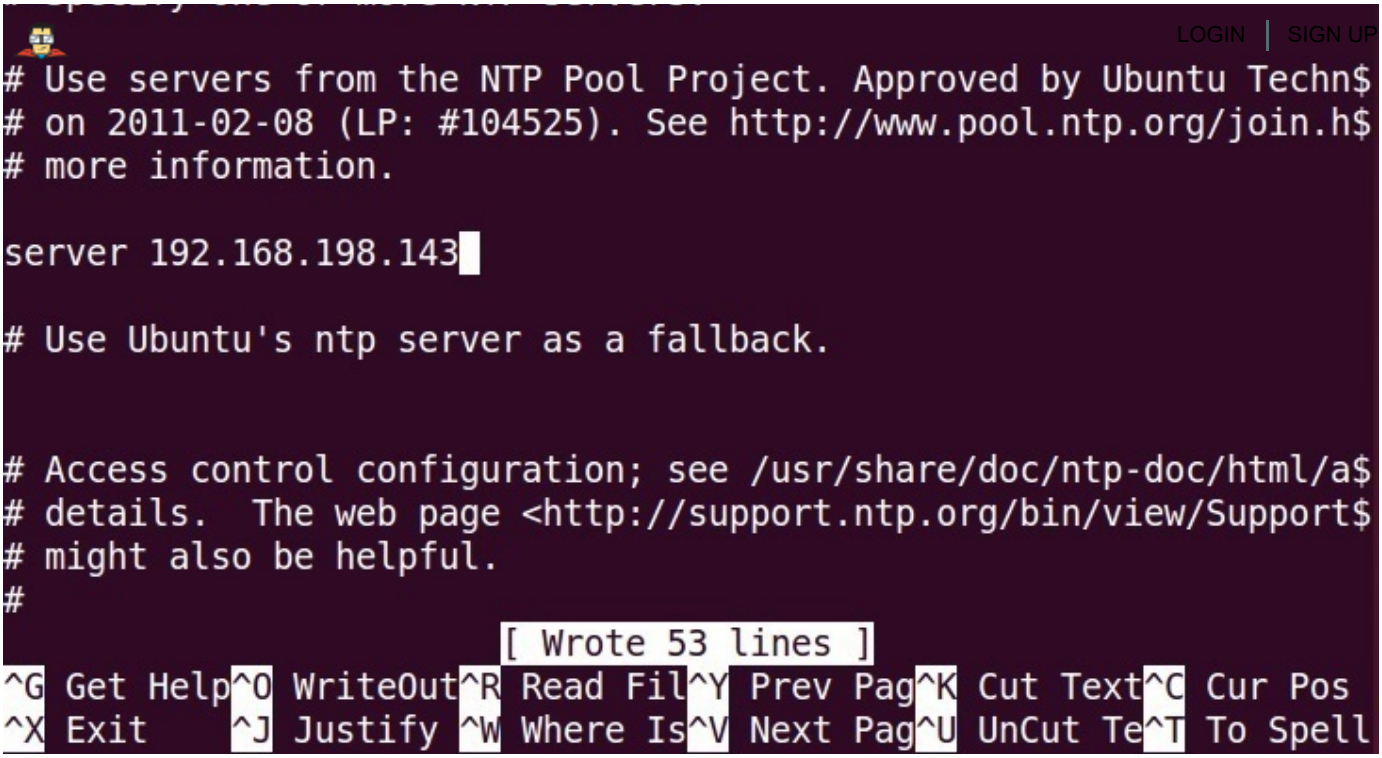
```
bob@bobs-computer:~$ sudo service ntp reload
```

Next, you need to configure your NTP clients to use your NTP server for time synchronization.:

```
  GNU nano 2.2.6          File: /etc/ntp.conf

filegen peerstats file peerstats type day enable
filegen clockstats file clockstats type day enable

# Specify one or more NTP servers.
```



Restart the NTP deamon on the NTP client (*sudo service ntp reload*). You can check whether time synchronization is successful by executing the *sudo ntpq -p* command on your NTP client:

```
programmer@ubuntu:~/scripts$ sudo ntpq -p
     remote           refid      st t when poll reach   delay   offset  jitter
==============================================================================
 192.168.198.143 161.53.131.231   3 u   14   64    3    0.232  3498.90   0.361
```

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