Synchronizing 3070 System Clocks

Gary O'Brien, EMTD Lab
September 27, 2001

Preparation

Identify the system that is considered the most stable. This would be a system that is constantly on, connected to the network and with a stable system clock. This system will be configured to serve the other systems from its local clock. The other systems will be clients and will synchronize their system clocks to the clock on the server. You will need the IP address of the server in order to configure the client systems.

Server Configuration

Login as root on the server system.

The file /etc/ntp.conf is used to configure the NPT daemon. Save the original configuration file and make a copy that can be edited.

```
cd /etc
mv ntp.conf ntp.conf.orig
cp ntp.conf.orig ntp.conf
```

Edit the file /etc/ntp.conf and remove everything after the following line:

```
# server 127.127.4.1
```

This line will be very close to the bottom of the file. It will be the last line in the file if no modifications have been made to the file. Add the following line to the end of the file and save the file. This line tells the system to use its local clock as the timeserver for the system.

```
server 127.127.1.1
```

The file /etc/rc.config.d/netdaemons is used to configure several network daemons including xntpd. Save the original file and make a copy that can be edited.

```
cd /etc/rc.config.d
mv netdaemons netdaemons.orig
cp netdaemons.orig netdaemons
```

Search for NTPDATE_SERVER. The following lines should be visible.

```
export NTPDATE_SERVER=
export XNTPD=0
export XNTPD_ARGS=
```

Change the value of XNTPD from a 0 to a 1, as shown below, and save the file. Setting this variable to 1 will cause the xntpd daemon to be restarted every time the system is booted. The other variables are not required and should be left empty.

```
export XNTPD=1
```

At this point the xntpd daemon on the server has been configured to use the local clock as its time source and to restart the daemon every time the system is booted. All that remains is to start xntpd.

```
/sbin/init.d/xntpd stop  # Make sure xntpd is not running
/sbin/init.d/xntpd start # Start xntpd
```

A warning will be generated stating "no server suitable for synchronization found". This warning may be safely ignored. The daemon will require five to 10 minutes before it is ready to serve clients. Messages generated by xntpd will be stored in /var/adm/syslog/syslog.log. You can check the progress of xntpd by issuing the following command.

```
tail –f /var/adm/syslog/syslog.log
```

Once a message similar to the following is generated, the server is ready to serve client NTP daemons.

```
<date> <hostname> xntpd[23247]: synchronized to LOCAL(1), stratum=3
```

Client Configuration

Login as root on each client system and perform the following.

The file /etc/ntp.conf is used to configure the NPT daemon. Save the original configuration file and make a copy that can be edited.

```
cd /etc
mv ntp.conf ntp.conf.orig
cp ntp.conf.orig ntp.conf
```

Edit the file /etc/ntp.conf and remove everything after the following line:

```
# server 127.127.4.1
```

This line will be very close to the bottom of the file. It will be the last line in the file if no modifications have been made to the file. Add the following line to the end of the file and save the file. This line informs the client of the address of the preferred NTP server. Substitute the IP address of the server in place of 156.140.109.3.

```
server 156.140.109.3 prefer
```

The file /etc/rc.config.d/netdaemons is used to configure several network daemons including xntpd. Save the original file and make a copy that can be edited.

```
cd /etc/rc.config.d
mv netdaemons netdaemons.orig
cp netdaemons.orig netdaemons
```

Search for NTPDATE_SERVER. The following lines should be visible.

```
export NTPDATE_SERVER=
export XNTPD=0
export XNTPD_ARGS=
```

Set NTPDATE_SERVER to the IP address of the timeserver and change the value of XNTPD from a 0 to a 1, as shown below, and save the file. Setting this variable to 1 will cause the xntpd daemon to be restarted every time the system is booted.

```
export NTPDATE_SERVER=156.140.109.3 # Substitute server address here
export XNTPD=1
```

At this point the xntpd daemon on the client has been configured to be served from the timeserver and to restart the daemon everytime the system is booted. All that remains is to start xntpd.

```
/sbin/init.d/xntpd stop  # Make sure xntpd is not running
/sbin/init.d/xntpd start # Start xntpd
```

A warning may be generated stating "no server suitable for synchronization found". This warning may be safely ignored. The daemon will require five to 10 minutes before it is ready to talk to the server. Messages generated by xntpd will be stored in /var/adm/syslog/syslog.log. You can check on the progress of xntpd by issuing the following command.

```
tail -f /var/adm/syslog/syslog.log
```

Once a message similar to the following is generated, the client is being served by the NTP daemon.

```
<date> <hostname> xntpd[23247]: synchronized to 156.140.109.3, stratum=4
```

Note that it is not necessary for the server to be ready for clients before the client NTP daemons are started but no time synchronization will be performed until both the server and client daemons are ready.