

Linux exercises date and time.

Linux has two clocks:

1. The hardware clock (real-time clock) on a separate chip on the motherboard.
2. The system clock which is part of the linux kernel.

Timestamps that are written to log files come from the kernel.

When the hardware clock and the system clock differ in time, this is called drifting.

System Clock:

```
# date
```

To get the date in seconds since january 1 1970:

```
# date +%s
```

Date notation is MMDDhhmmCCYY.ss huh???

Setting the date

Date Formats for output: +%<character>

Some examples

```
# date +%A-%m-%Y
Thursday-12-2017
```

```
# date +%H%M
0834
```

```
# date +%A
Thursday
```

```
# date +"Today is %A"
Today is Thursday
```

Check the manual pages for more examples.

The hardware clock:

Synchronizing time between hardware clock and system clock.

Set the hardware clock from the system clock

```
# hwclock -w
```

Set the system clock from the hardware clock

```
# hwclock -s
```

Network Time Protocol.

To synchronise the time from a central clock, so you don't have to do it manually, the ntp-protocol can be used.

Coupled with NTP is a globally distributed network of freely usable servers.

The most accurate time is served by so-called stratum 1 servers. These servers get their time from the reference clock.

To set the time using ntpdate and a remote server.

```
# ntpdate ntp1.torix.ca
```

To set the TimeZone:

Look in /usr/share/zoneinfo
So for example, to set the TimeZone to Europe/Amsterdam
create a symbolic link to /etc/localtime

```
# ln -s /usr/share/zoneinfo/Europe/Amsterdam /etc/localtime
```

Automate synchronization:

Use **ntpd** (network time protocol daemon)
The configuration file for that is /etc/ntp.conf
It contains stratum servers.

On CentOS 7 the ntp service is called **chronyd.service**
So you can stop and start it with systemctl

```
# systemctl stop chronyd.service
```