10.5.6 Time Maintenance Facts

Applications and services, especially those that are used for security purposes, require accurate time.

This lesson covers the following topics:

- General considerations
- Clock and time files and utilities

General Considerations

Be aware of the following details:

- Services that communicate with other computers require that the clocks on all the computers are synchronized within a small degree of variance.
- A timestamp is a record attached to an event or an action that identifies the time when the event took place. Timestamps are used to:
  - Record when security events, such as logon or system changes, occur.
  - Identify the correct sequence of events. For example, if a database record is changed from two different computers, the timestamp associated with the changes are used to identify which change took place first (or last).

Clock and Time Files and Utilities

Use the following files and utilities to manage the hardware clock and system time:

Command	Function	Examples
/proc/driver/rtc	Views the hardware clock time.	**cat /proc/driver/rtc** displays the hardware clock time.
hwclock	Views and sets the hardware clock time and synchronize the hardware clock and the system time. Options include: - **-a, --adjust** adds or subtracts time from the hardware clock to account for systematic drift since the last time the clock was set or adjusted. - **-r, --show** displays the current hardware clock time. **hwclock** assumes **-r** if no options are used. - **--set --date=** sets the hardware clock time and date. - **-s, --hctosys** sets the system time to the current hardware clock time. - **-w, --systohc** sets the hardware clock based on the system time. - **--localtime** sets the hardware clock to local time. - **-u, --utc** sets the hardware clock to UTC time.	**hwclock -w** sets the hardware clock time to match the system time. **hwclock --set --date="2/24/2020 16:45:05" -utc** sets the hwclock time to 4:45:05 PM on February 24, 2020 on UTC time. **hwclock -s** sets the system time to match the hardware clock. **hwclock -u** sets the hardware clock time to UTC time.
netdate	Sets the system time to match the time on a server running the time daemon on the network. The time provider must be running the time service on UPD port 37.	**netdate 192.168.1.10** sets the time on the local computer to match the time on the time server at 192.168.1.10.
date	Views and manually sets the system time. Options include: - **-d** [*date*] displays the date specified by *date*. Use **now** to display the current date. - **-s** sets the date and time. - **-u, --utc** specifies UTC time.	**date -s "11/20/2020 15:48:00"** sets the time and date to 3:48:00 PM on November 20, 2020. **date -su "11/20/2020 15:48:00"** sets the UTC time and date to 3:48:00 PM on November 20, 2020 **date -d 01jan2014** displays the specified date. **date -u** shows the current UTC time.