# Lesson 7: Configuring the GUI, Localization, and Printing

# Objectives covered

- 106.2 Graphical Desktop (weight: 1)
- 106.3 Accessibility (weight: 1)
- 106.1 Install and Configure X11 (weight: 2)
- 107.3 Localization and internationalization (weight: 3)
- 108.4 Manage printers and printing (weight: 2)

# Localization and internationalization

# Character sets

## ASCII

- The American Standard Code for Information Interchange (ASCII) uses 7 bits to store characters found in the English language.

## ISO-8859

- The International Organization for Standardization (ISO) worked with the International Electrotechnical Commission (IEC) to produce a series of standard codes for handling international characters

## Unicode

- The Unicode Consortium, composed of many computing industry companies, created an international standard that uses a 3-byte code and can represent every character known to be in use in all countries of the world

## UTF

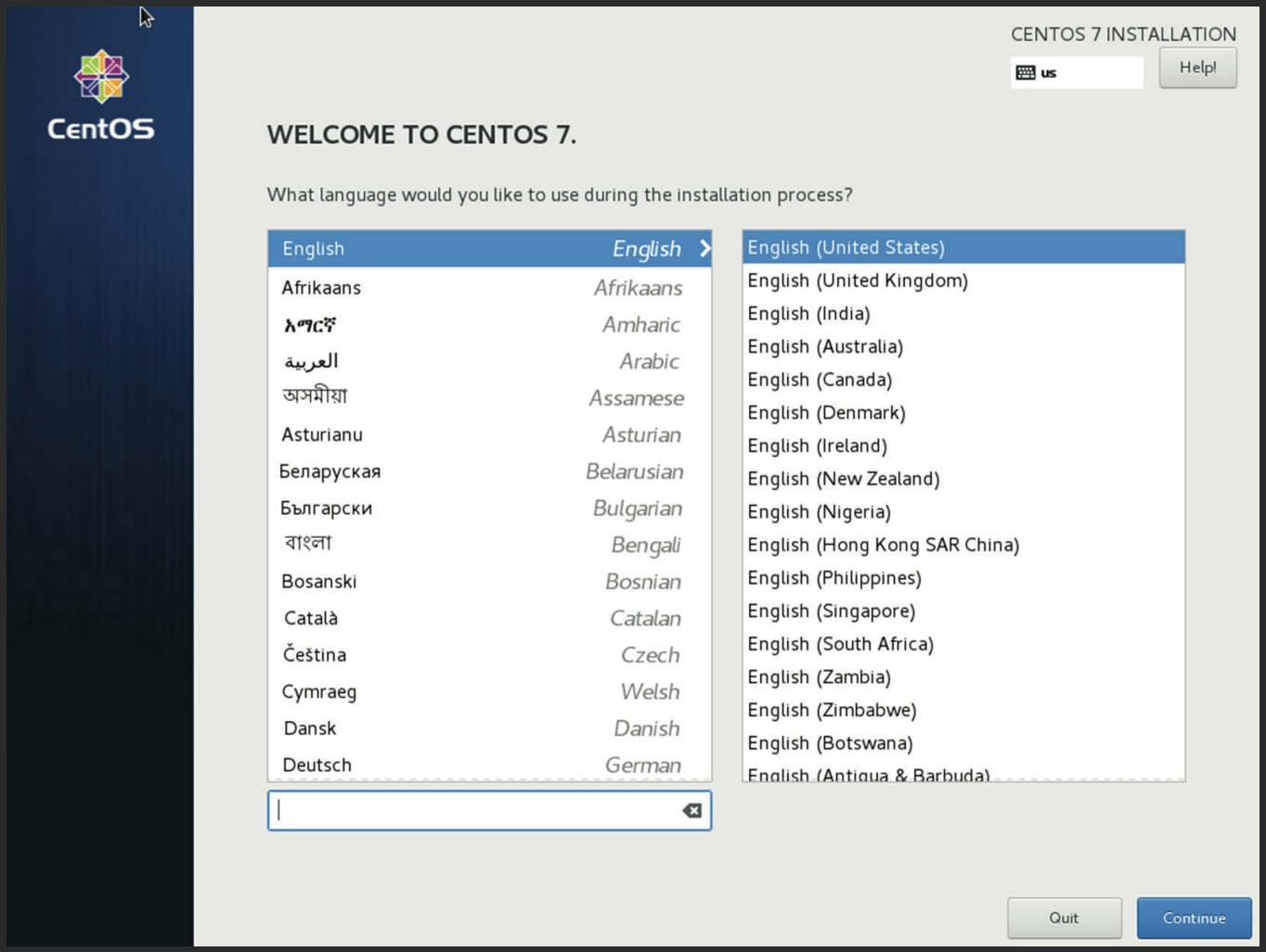
- The Unicode Transformation Format (UTF) transforms the long Unicode values into either 1-byte (*UTF-8*) or 2-byte (*UTF-16*) simplified codes. For work in English-speaking countries, the UTF-8 character set is replacing ASCII as the standard.

# Display locale environment variables

```
$ locale
LANG=en_US.UTF-8
LC_CTYPE="en_US.UTF-8"
LC_NUMERIC="en_US.UTF-8"
LC_TIME="en_US.UTF-8"
LC_COLLATE="en_US.UTF-8"
LC_MONETARY="en_US.UTF-8"
LC_MESSAGES="en_US.UTF-8"
LC_PAPER="en_US.UTF-8"
LC_NAME="en_US.UTF-8"
LC_ADDRESS="en_US.UTF-8"
LC_TELEPHONE="en_US.UTF-8"
LC_MEASUREMENT="en_US.UTF-8"
LC_IDENTIFICATION="en_US.UTF-8"
LC_ALL=
```

```
$ locale -ck LC_MONETARY
LC_MONETARY
int_curr_symbol="USD "
currency_symbol="$"
mon_decimal_point="."
mon_thousands_sep=","
mon_grouping=3;3
positive_sign=""
negative_sign="-"
...
monetary-decimal-point-wc=46
monetary-thousands-sep-wc=44
monetary-codeset="UTF-8"
```

# Setting locale



# Changing locale

```
$ export LANG=en_GB.UTF-8
```

```
$ export LC_MONETARY=en_GB.UTF-8
```

Just effective with the your current session. If you need to permanently change the locale, you must put the export command to user profile (.bashrc)

```
$ localectl set-locale LANG=en_GB.utf8
```

Work with systemd-localed to modify the /etc/locale.conf, /etc/vconsole.conf and make the changes persistent.

# *Time zone*

```
$ date
Fri Aug  2 05:52:29 EDT 2019
```

This is your time zone

# *Changing time zone*

Time zone is specified in /etc/localtime

To change it to US Pacific (for example), do the following method:

```
$ sudo mv /etc/localtime /etc/localtime.bak
$ sudo ln -s /usr/share/zoneinfo/US/Pacific /etc/localtime
```

To confirm the result:

```
$ date
Fri Aug  2 02:55:28 PDT 2019
```

# Time and date

| Command | Description |
|---|---|
| hwclock | Displays or sets the time as kept on the internal BIOS or UEFI clock on the workstation or server |
| date | Displays or sets the date as kept by the Linux system |

```
# hwclock
Sat 10 Aug 2013 08:26:12 AM PDT  -0.312862 seconds

# hwclock -r
Sat 10 Aug 2013 08:20:54 AM PDT  -0.109748 seconds

# hwclock --show
Sat 10 Aug 2013 08:21:12 AM PDT  -0.640982 seconds
```

```
# date
Sat Aug 10 08:11:21 PDT 2013
```

# Setting time and date with hwclock

```
# hwclock --systohc
```

```
# hwclock --set --date 8/11/2013

# hwclock
Sun 11 Aug 2013 12:00:04 AM PDT  -0.703489 seconds
```

```
$ date +"%A, %B %d %Y"
Friday, August 02 2019
```

# Display time and date in formated form

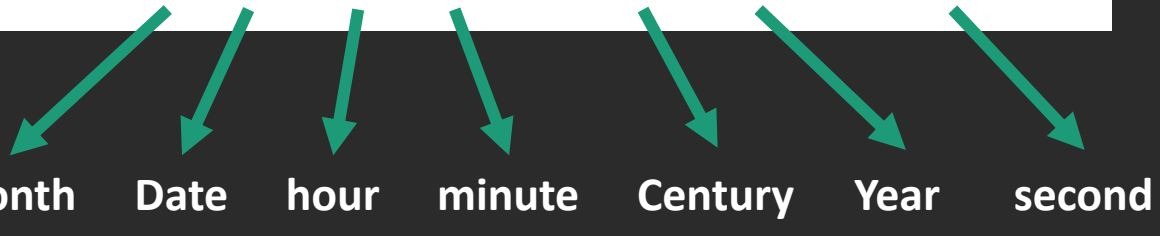
```
$ date +"%A, %B %d %Y"
Friday, August 02 2019
```

| Sequence | Description |
|---|---|
| %a | The abbreviated weekday name |
| %A | The full weekday name |
| %b | The abbreviated month name |
| %B | The full month name |
| %c | The date and time |
| %C | The century (e.g., 20) |
| %d | The numeric day of month |
| %D | The full numeric date |
| %e | The day of month, space padded |
| %F | The full date in SQL format (YYYY-MM-dd) |
| %g | The last two digits of year of the ISO week number |
| %G | The year of the ISO week number |
| %h | An alias for %b |
| %H | The hour in 24-hour format |
| %I | The hour in 12-hour format |
| %Y | The full year |
| %z | The time zone in +hhmm format |
| %:z | The time zone in +hh:mm format |
| %::z | The time zone in +hh:mm:ss fotmat |
| %:::z | The numeric time zone with: to necessary precision |
| %Z | The alphabetic time zone abbreviation |

| Sequence | Description |
|---|---|
| %j | The numeric day of year |
| %k | The hour in 24-hour format, space padded |
| %l | The hour in 12-hour format, space padded |
| %m | The numeric month |
| %M | The minute |
| %n | A newline character |
| %N | The nanoseconds |
| %p | AM or PM |
| %P | Lowercase am or pm |
| %r | The full 12-hour clock time |
| %R | The full 24-hour hour and minute |
| %s | The seconds since 1970-01-01 00:00:00 UTC |
| %S | The second |
| %t | A tab character |
| %T | The full time in hour:minute:second format |
| %u | The numeric day of week; 1 is Monday |
| %U | The numeric week number of year, starting on Sunday |
| %V | The ISO week number |
| %w | The numeric day of week; 0 is Sunday |
| %W | The week number of year, starting on Monday |
| %x | The locale's date representation as month/day/year or day/month/year |
| %X | The locale's full time representation |
| %y | The last two digits of the year |

# *Setting time and date*

```
date MMDDhhmm[[CC]YY][.ss]
```



# *timedatectl*

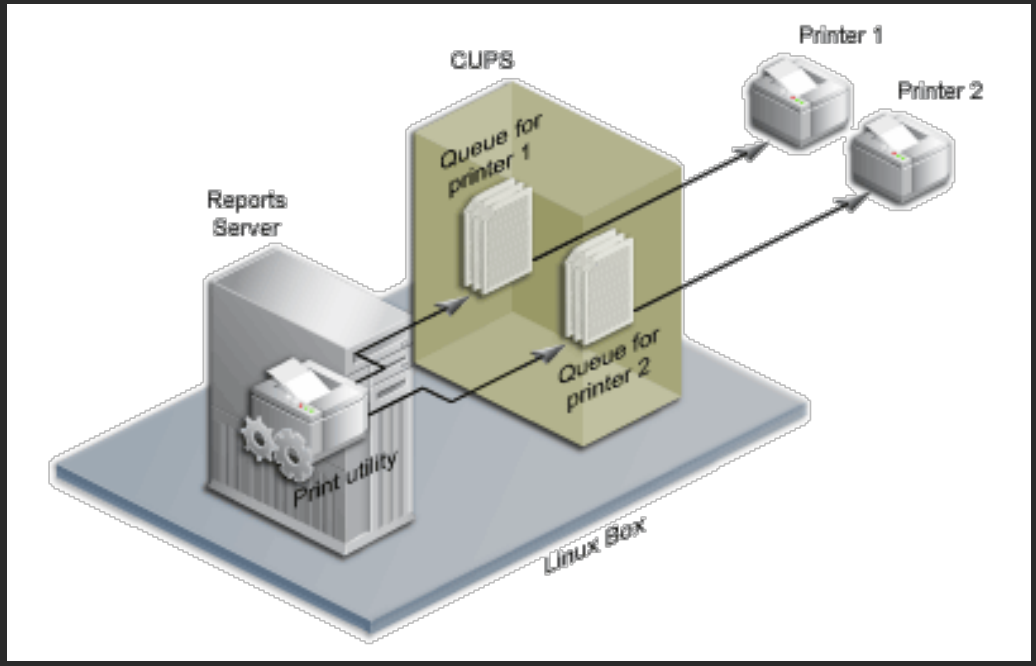
```
$ timedatectl
                      Local time: Fri 2019-08-02 06:00:20 EDT
                  Universal time: Fri 2019-08-02 10:00:20 UTC
                        RTC time: Fri 2019-08-02 10:00:19
                       Time zone: US/Eastern (EDT, -0400)
       System clock synchronized: no
systemd-timesyncd.service active: yes
                 RTC in local TZ: no
```

```
$ sudo timedatectl set-time "2019-08-02 06:15:00"
```

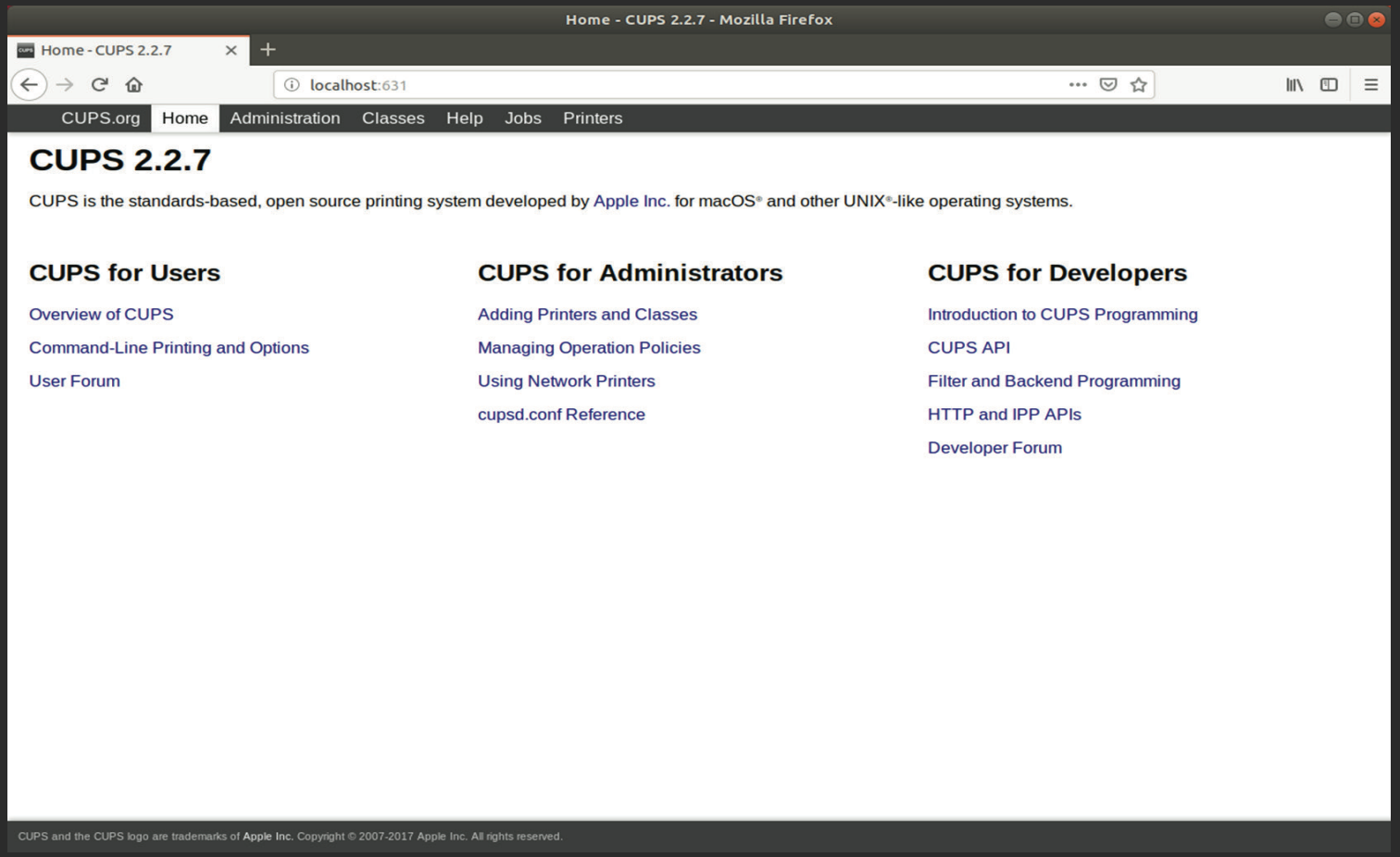
# Manage printers and printing

# Common Unix Printing System (CUPS)

CUPS provides a common interface for working with any type of printer on your Linux system. It accepts print jobs using the PostScript document format and sends them to printers using a *print queue* system.



# Common Unix Printing System (CUPS)



# Common Unix Printing System (CUPS)

## CUPS command line tools

### Standard CUPS command

**cancel:** Cancels a print request
**cupsaccept:** Enables queuing of print requests
**cupsdisable:** Disables the specified printer
**cupsenable:** Enables the specified printer
**cupsreject:** Rejects queuing of print requests

### Other commands also allowed

**lpc:** Start, stop, or pause the print queue
**lpq:** Display the print queue status, along with any print jobs waiting in the queue lpr: Submit a new print job to a print queue
**lprm:** Remove a specific print job from the print queue

```
$ lpq -P EPSON_ET_3750_Series
EPSON_ET_3750_Series is ready
no entries
$ lpr -P EPSON_ET_3750_Series test.txt
$ lpq -P EPSON_ET_3750_Series
EPSON_ET_3750_Series is ready and printing
Rank    Owner   Job     File(s)                         Total Size
active  rich    1       test.txt                        1024 bytes
```

# Question...