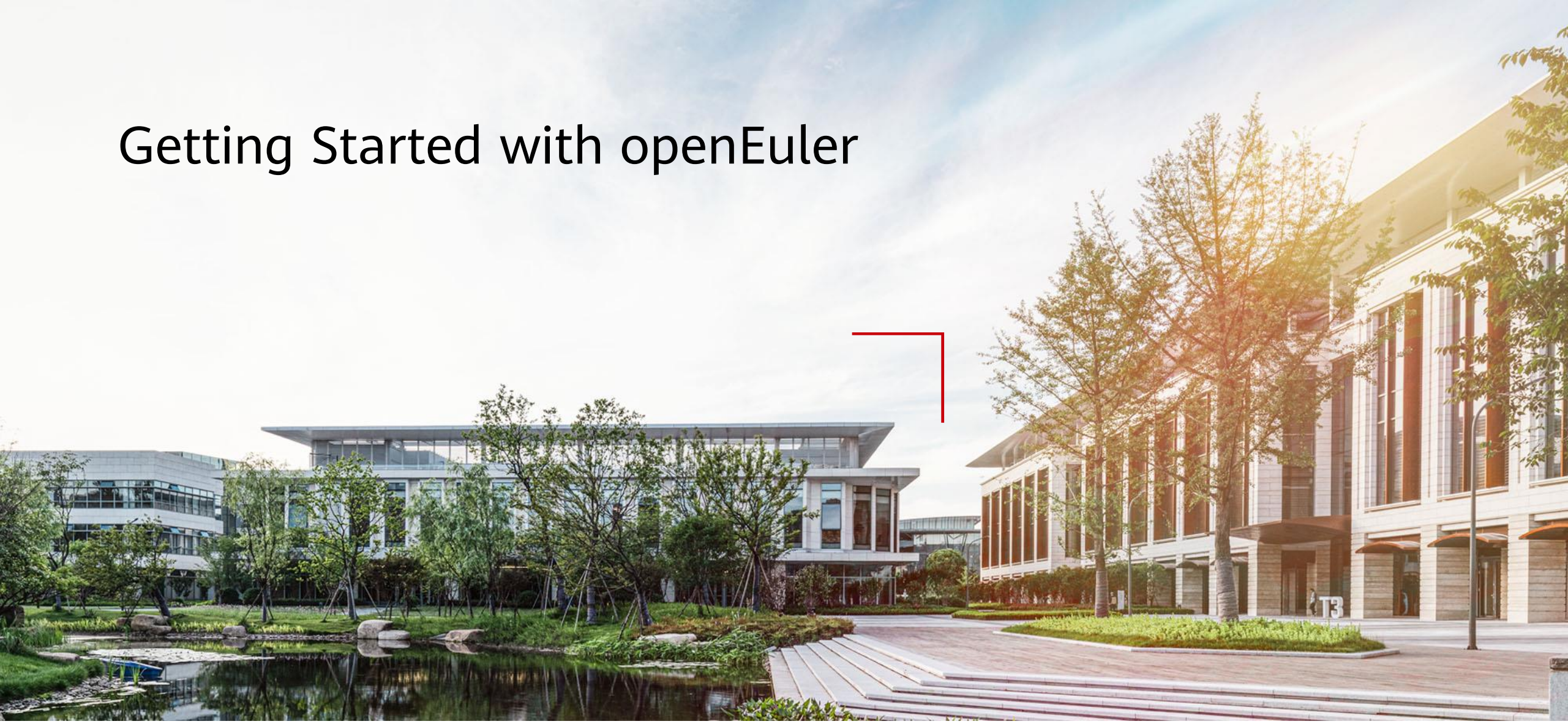
Getting Started with openEuler



HUAWEI

Foreword

- This document describes the following:
  - GNU Free Software Foundation
  - Origin of Linux
  - openEuler operating system (OS)
  - How to install and log in to the openEuler OS

Objectives

- After completing this course, you will understand:
  - Open source and GNU
  - Origin of Linux
  - Linux principles
  - How to install openEuler
  - How to log in to openEuler

Contents

OS Overview

- An OS is a set of programs that controls and manages the hardware and software resources of an entire computer system, providing a convenient interface and environment for users and other software. A computer‘s OS is its most basic system software, and it gradually evolves in line with the development of computer research and application.

Unix Development History

- Unix development
  - In the 1960s, Bell Labs, MIT, and GE jointly developed a multiprogramming information computing system named Multics.
  - In 1970, Ken Thompson developed Unix.
  - In 1974, Bell Labs released Unix, which became widely used in universities.
  - After the breakup of AT&T in 1982, Unix began to charge for commercial use.
  - Some large hardware companies have developed different versions of Unix based on their own computer systems.
    - AIX
    - HP-UX
    - Digital Unix
    - ...

GNU and Open Source

- In 1984, Richard Stallman launched the Free Software Campaign, established the Free Software Foundation, and achieved the following:
  - Created an open source version of the Unix utility
  - Released the general public license (GPL)
- Open source, also known as open source code, laid the foundations for the rapid development of IT technologies.
- There are many open source licenses, each with different rules. Some common open source licenses are as follows:
  - Mulan Focus on this license
  - GPL
  - Lesser GPL (LGPL)
  - Berkeley Source Distribution (BSD)

Birth of Linux

- Birth of Minix
  - In 1987, Andrew S. Tanenbaum, a professor of Vrije University in Amsterdam, wrote Minix. Similar to Unix, this OS was instead dedicated to teaching.
- Birth of Linux
  - On September 17, 1991, Linus Torvalds released his own Linux OS on the Internet and claimed that it was free of charge. In addition, he hoped to improve the Linux OS through the efforts of developers.
  - In 1994, Linux kernel 1.0 was officially released.
  - More accurately, the full name of Linux is GNU/Linux.
- Today's Linux
  - Today, Linux has many derivatives, such as Red Hat, openSUSE, Ubuntu, and Deepin.
  - Linux distribution = Linux kernel + utility software

Introduction to Linux Releases

- Kernel versions
  - You can visit kernel.org to view or download all Linux kernel versions.
  - The Linux kernel version number is composed of three digits:
    - The first digit indicates the current major release.
    - An even second digit indicates a stable version, while an odd second digit indicates a version under development.
    - The third digit indicates the number of revisions.
  - The kernel version of openEuler 20.03 LTS is 4.19.90.
- Linux distributions
  - Commercial distros: maintained by companies and provides charged services, such as patch upgrades.
  - Community distros: maintained by the community organization and free of charge.

openEuler OS

- openEuler is a free, open source OS operated by the openEuler community. The current openEuler kernel is based on Linux and supports Kunpeng and other processors, fully unleashing the potential of computing chips. As an efficient, stable, and sustainable open source OS built by global open source contributors, openEuler applies to database, big data, cloud computing, and artificial intelligence (AI) scenarios.
- openEuler has two kinds of releases:
  - Innovation release
    - Supports the technical innovation and content innovation of Linux enthusiasts, such as openEuler 20.09.
    - Generally, a new version is released every half a year. 6 months
  - Long-term support (LTS) release
    - A stable version of openEuler, such as openEuler LTS 20.03.
    - Usually a new version is released every two years. 24 months

Contents

openEuler OS Installation Process

Prepare the installation environment.

- openEuler can be installed on the Arm- and x86-based computing platforms. The ISO files of the two platforms are incompatible.
- You can obtain the ISO image from the openEuler community .

Select an installation mode.

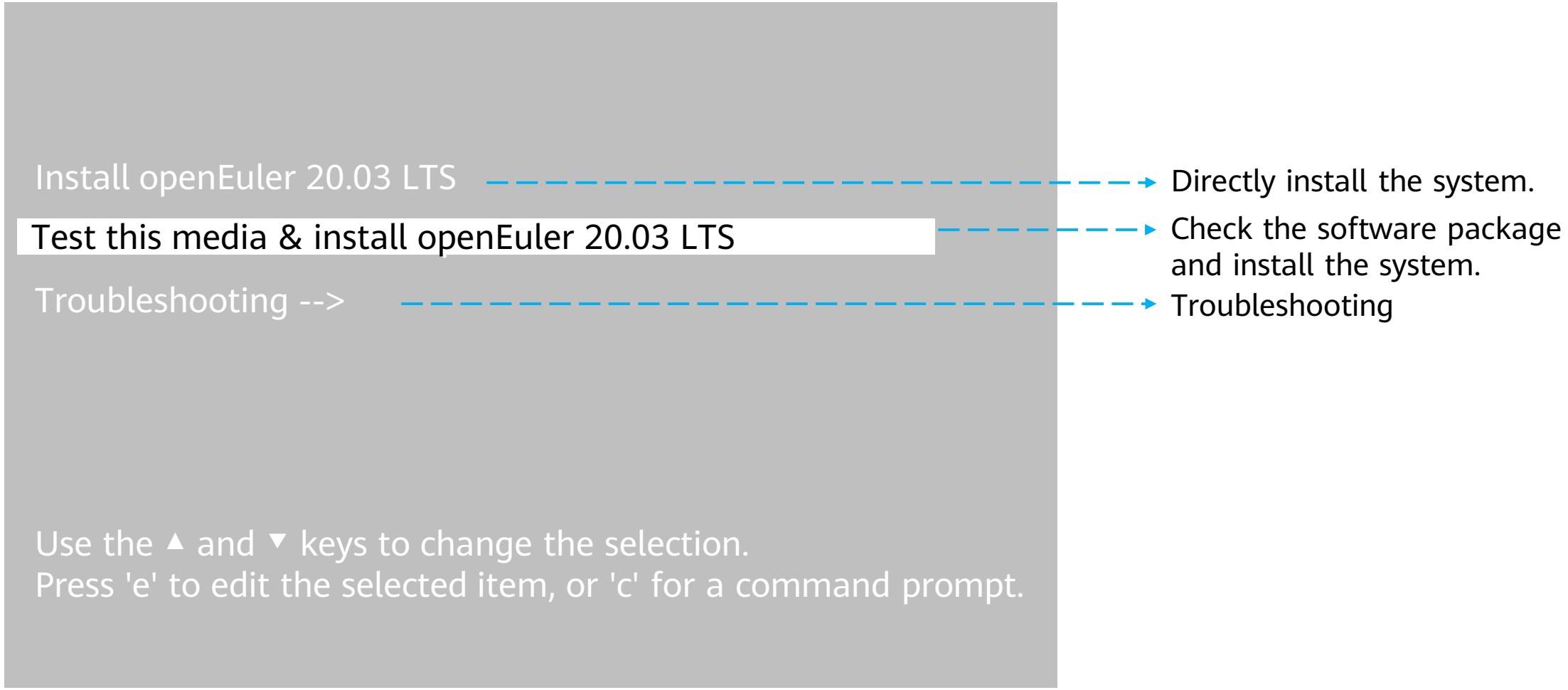
- openEuler supports various installation modes. If only a few devices need to be installed, use a USB flash drive, CD-ROM, or virtual CD-ROM drive. During batch installation, use the PXE boot mode.

Configure system settings.

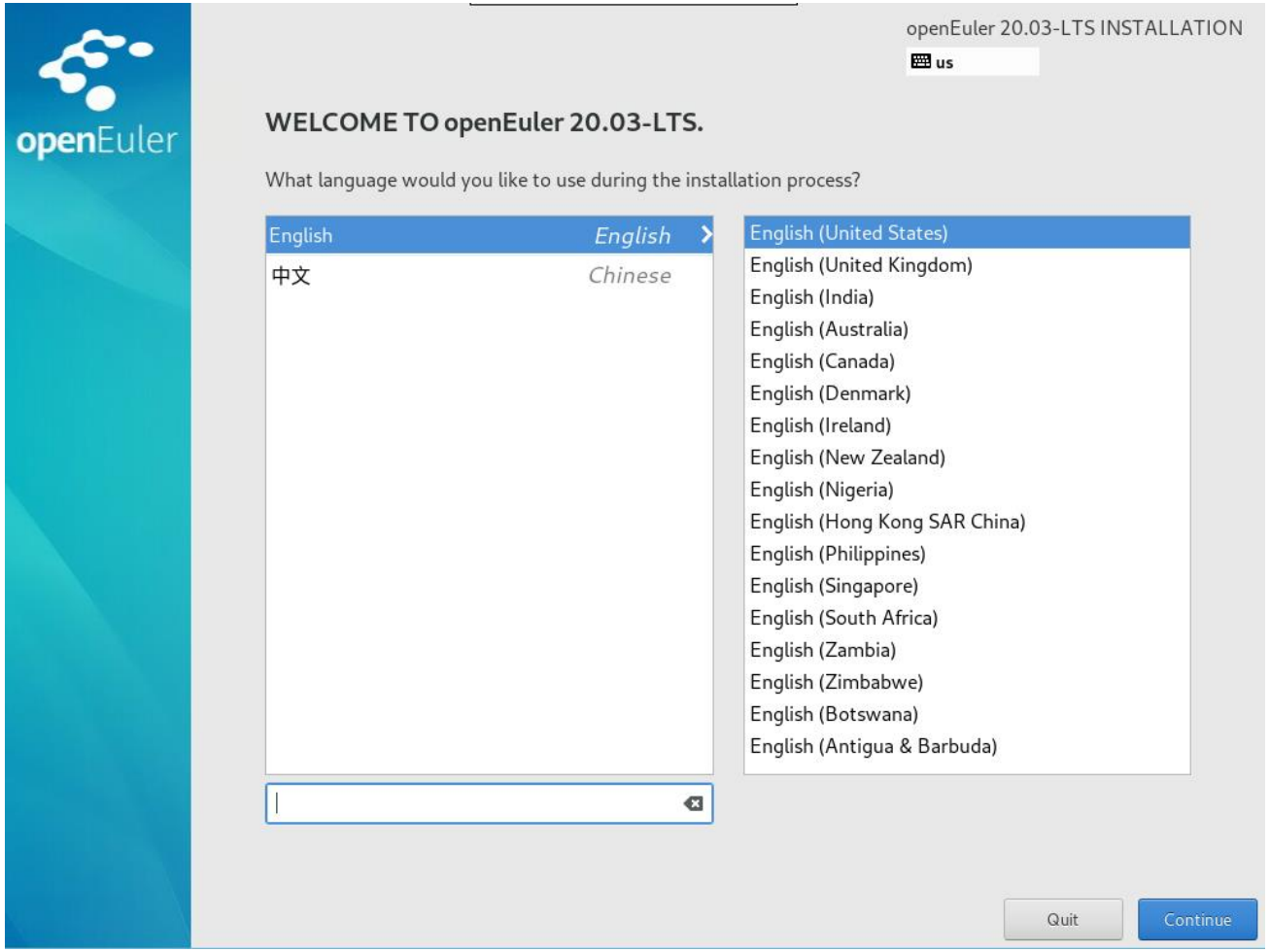
- When installing openEuler, you need to set the system parameters, such as the installation language, installation location, software version, host name, and network configuration.

Installation complete.

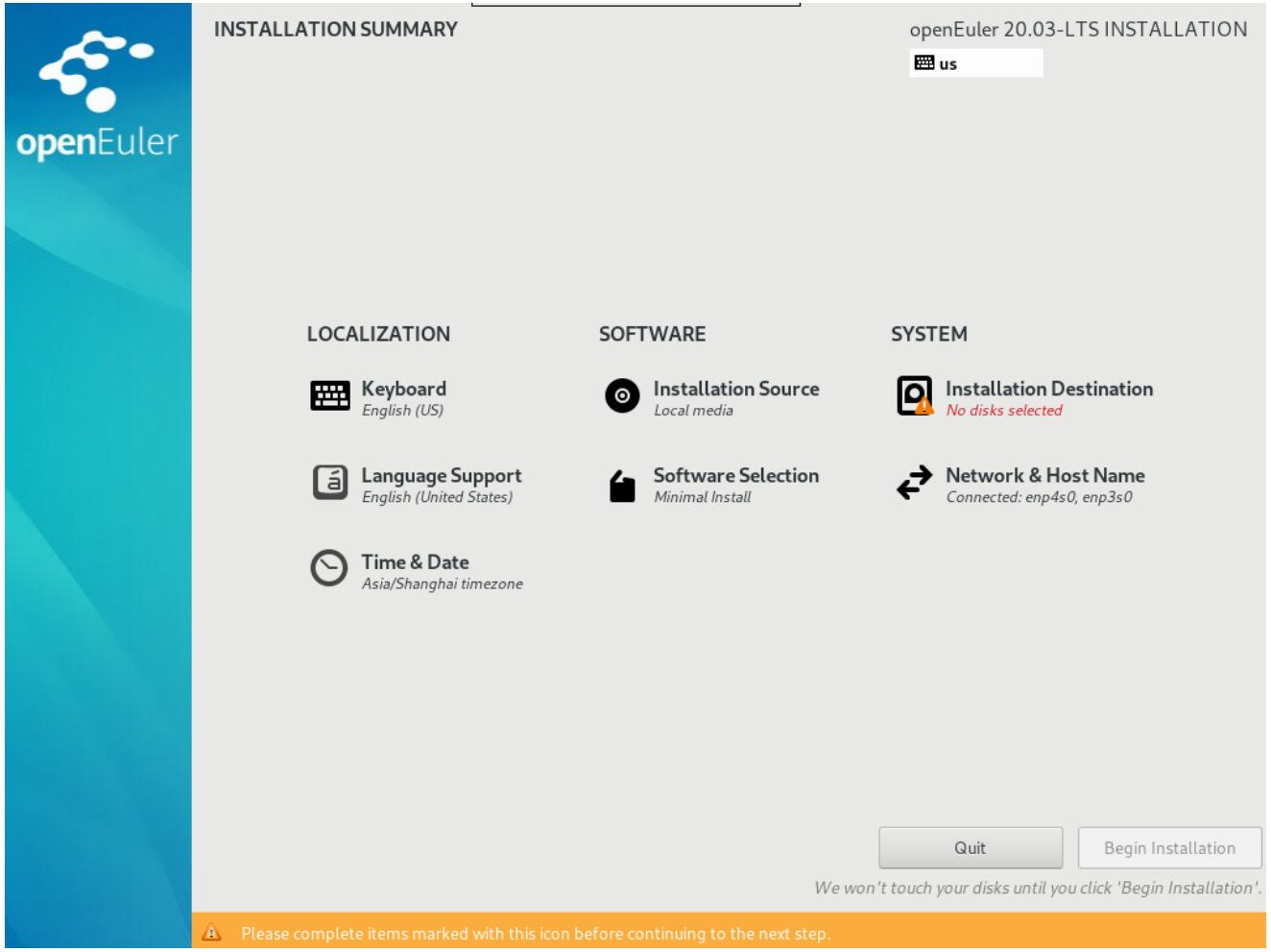
openEuler Installation and Configuration - Selecting Installation Options



openEuler Installation and Configuration - Selecting an Installation Language



openEuler Installation and Configuration - System Settings



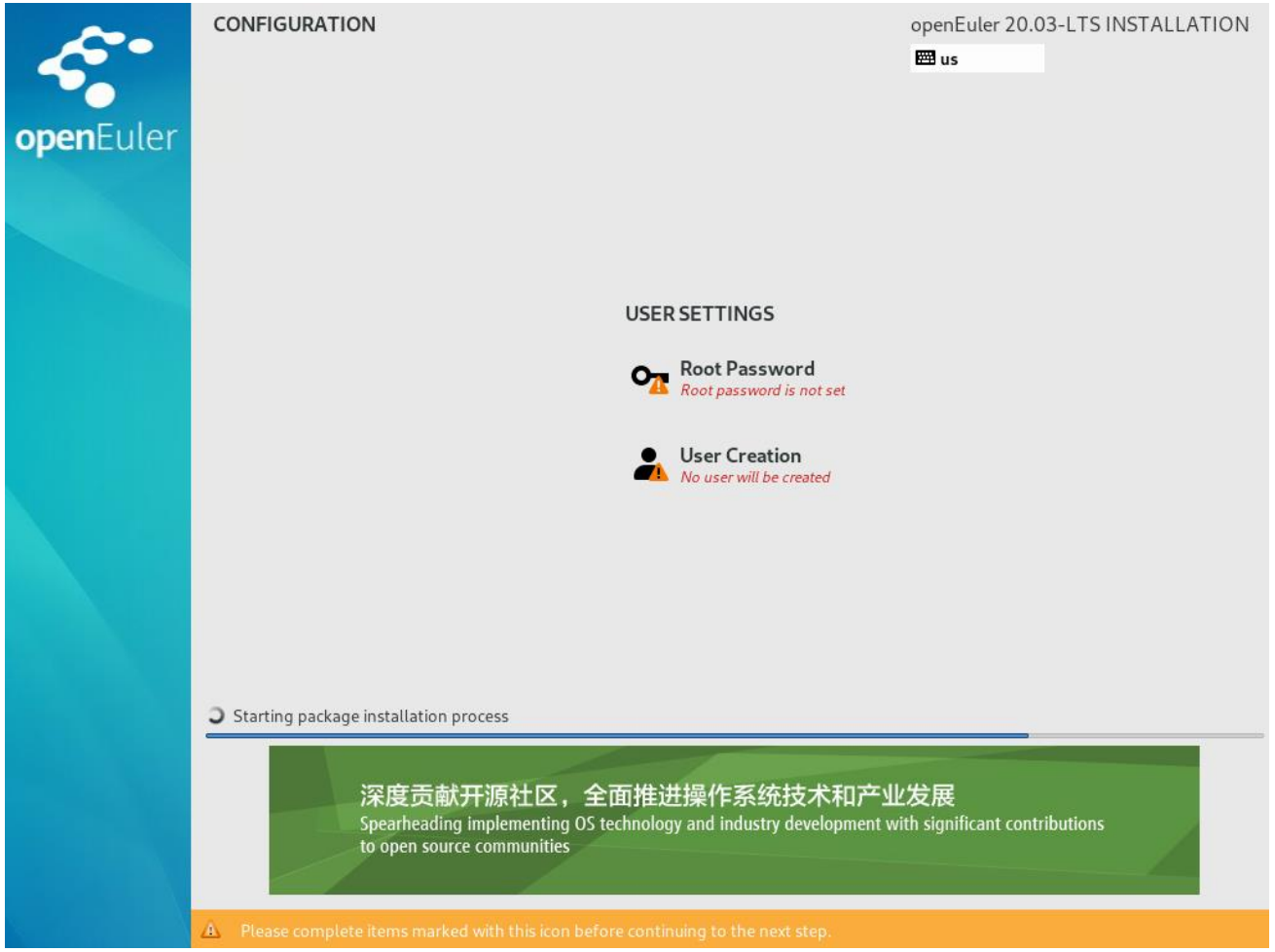
openEuler Installation and Configuration - Setting the Installation Location

- Set the system installation location and system partitions.
  - Select the disk where the OS is to be installed.
  - Choose how to partition your disk.
    - In manual mode, you can set partitions, including common partitions, logical volumes, and thin-provisioning logical volumes.
    - You are advised to set the following partitions for the openEuler system startup:
      - **swap**: swap partition, which is used to swap dirty data in the memory when space is insufficient. If the memory is small, you are advised to set the swap partition size to twice the memory size. If the memory is large, you can reduce the swap partition size.
      - **/boot**: booting
      - **/boot/efi**: boot device and application program to be started by the extensible firmware interface (EFI).
      - **/**: root partition. In Linux, everything starts from the root partition.

openEuler Installation and Configuration - Selecting Software to Be Installed

- openEuler 20.03 LTS supports the following software installation options:
  - Minimum installation
    - Minimum Linux installation: Most software is not installed. This mode is applicable to scholars who have background in Linux and want to further understand the Linux architecture. Other software is also available on the right.
  - Server
    - Install the software involved in the server scenario. Other software is also available on the right.
  - Hypervisor
    - Install the software involved in the virtualization scenario. Other software is also available on the right.

openEuler Installation and Configuration - Setting the Password of the Root User and Creating a User



Contents

Linux GUI and CLI

- GUI stands for graphical user interface. All elements of this user interface are graphical. The mouse is used as the input tool, and buttons, menus, and dialog boxes are used for interaction, enhancing ease of use.
- CLI is short for command line interface. All elements of a CLI are character-based. The keyboard is used as the input tool to enter commands, options, and parameters to execute programs, achieving high efficiency.
- No GUI is available for openEuler 20.03 LTS.

How to Log In to the Linux OS

- You can log in to the Linux OS through either of the following methods:
  - Local login
    - This method is similar to starting up your own computer or directly connecting the server to the monitor.
    - A typical Linux system runs six virtual consoles and one graphical console. Currently, openEuler does not support the GUI.
    - You can press **Ctrl**+**Alt**+**F[1,6]** to switch between the six virtual consoles.
  - Remote login
    - The openEuler OS supports remote login by default. You can also change the login mode.
    - You can use PuTTY or Xshell to remotely log in to the openEuler OS.

Introduction to Shell

- Shell, a program compiled in C language, serves as a bridge for those who wish to use Linux. Users control the Linux system through shells, which are also used by the Linux system to display system information.
- Common shells include **bash**, **sh**, **csh**, and **ksh**. You can specify a login shell when creating a user, or enter a shell name to open a shell. For example:

```
[root@openEuler ~]# sh
sh: openEuler_history: command not find
sh-5.0#                                  # The interaction modes varies with different shells.
sh-5.0# exit                             # Enter exit to exit the current shell.
[root@openEuler ~]#
```

- The default login shell for openEuler users is **bash**.
- The default system prompt is [*Current login user*@*Host name Current location*]$.
  - Generally, the last prompt of the **root** user and common users is **#**.

Changing Passwords

- The password is directly related to the security of the system and its data.
- To ensure system security, perform the following operations:
  - Change the password upon the first login.
  - Change passwords periodically.
  - Set a password with high complexity. For example, set a password containing more than eight characters and three or more of the following types of characters: uppercase letters, lowercase letters, digits, and special characters.
- You can run the **passwd** command to change your password.

```
[root@openEuler ~]# passwd
Changing password for user root.
New password:                                  # Enter the new password.
Retype new password:                           # Enter the new password again.
passwd: all authentication tokens updated successfully
```

Linux Users

- The **root** user is a special administrator in the Linux OS.
  - This super administrator is similar to the administrator in the Windows OS.
  - The **root** user has the highest permissions, and can cause infinite damage.
  - Do not use the **root** user unless necessary.
- You can run the **su - username** command to switch users.
- You can check whether the current user is the **root** user or a common user through the command prompt. In the Unix or Linux OS, the command prompt of the **root** user generally ends with **#**, while that of a common user generally ends with **$**.
- You can also run the **id** command to view the current username.

Shortcut Operations with the Bash Shell

- tab
  - You can use the tab key to supplement functions and quickly enter commands or parameters.
- history
  - The **history** tool records historical commands. You can run the **history** command to view historical commands, or run the **history** *n* command to execute the historical command numbered *n*.
- ↑ and ↓
  - You can press the ↑ and ↓ arrow keys to quickly view historical commands.
- home and end
  - To move the cursor to the beginning or end of the current line, press **home** or **end**, respectively.
- clear and Ctrl+L
  - When the page is full of characters, you can enter **clear** or press **Ctrl**+**L** to quickly clear the screen.

Quiz

1. You do not need to specify the password of the **root** user during the openEuler OS installation. However, you must specify the password of the **root** user when logging in to the OS after the installation. (YES)
2. Which of the following keys can be used to quickly supplement commands and parameters? ( )

   A. Ctrl+L

   B. ↑ and ↓

   C. tab

   D. Space

Summary

- This document describes the development of the Linux OS, introduces the openEuler OS, and describes how to install openEuler and related shortcut operations.

More Information

- For more information about Linux shortcut keys, please visit https://linuxtoy.org/archives/bash-shortcuts.html.

Thank you.

把数字世界带入每个人、每个家庭、
每个组织，构建万物互联的智能世界。

Bring digital to every person, home, and organization for a fully connected, intelligent world.

HUAWEI