

# Deploying SUSE Linux Enterprise Server Using Network PXE Boot

## WHAT?

SUSE Linux Enterprise Server provides images that can be deployed remotely using the PXE boot of the target device.

## WHY?

You want to deploy SUSE Linux Enterprise Server remotely.


## EFFORT

It takes about 15 minutes to read the article.

## GOAL

A properly installed and running instance of SUSE Linux Enterprise Server.

## REQUIREMENTS

A properly configured PXE boot server. For details, refer to: [PXE server installation \(https://documentation.suse.com/sles/16.0/html/SLES-PXE-server\)](https://documentation.suse.com/sles/16.0/html/SLES-PXE-server/) .

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# 1 Introduction to the PXE installation of SUSE Linux Enterprise Server

SUSE Linux Enterprise Server can be installed via a Preboot Execution Environment (PXE). The client hardware needs to support booting via PXE. The network needs to provide a DHCP server and a TFTP server providing the required data to the clients.

The deployment procedure can be summarized to the following steps:

1. Make sure the DHCP server is configured properly.
2. Prepare the TFTP or HTTP server by adding the installation image and configuring the boot settings. For details refer to [preparing installation files \(https://documentation.suse.com/sles/16.0/html/SLES-PXE-server/index.html#sles-pxe-server-prepare-installer\)](https://documentation.suse.com/sles/16.0/html/SLES-PXE-server/index.html#sles-pxe-server-prepare-installer)  [preparing installation files \(https://documentation.suse.com/sles-sap/16.0/html/SAP-PXE-server/index.html#sles-pxe-server-prepare-installer\)](https://documentation.suse.com/sles-sap/16.0/html/SAP-PXE-server/index.html#sles-pxe-server-prepare-installer) .
3. On the target machine, select PXE boot and boot the machine. For details, refer to [Section 2.1, "Booting the machine"](#).

## 2 Deploying SLES remotely

The deployment process consists of two phases. The first phase involves booting the machine and loading the kernel and `initrd`. The second phase is the installation itself using Agama. Details are provided in the following sections.

### 2.1 Booting the machine

The following procedure describes how to boot the client machine to start the remote deployment of SLES using the PXE client.

1. Power on the target machine or create a virtual machine. Make sure to use bridged networking.
2. Enter the UEFI or legacy BIOS boot menu and select booting using PXE or HTTP. Continue to boot the machine.
3. The machine should start the deployment. Kernel and `initrd` are downloaded from the PXE boot server. Boot loader is started.

4. In the GRUB 2 menu, select the installation target. You can pass kernel boot parameters if needed.

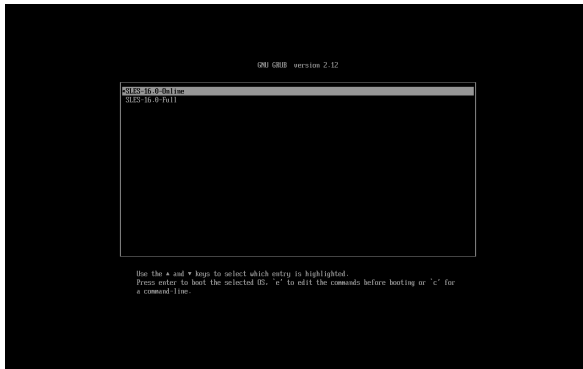


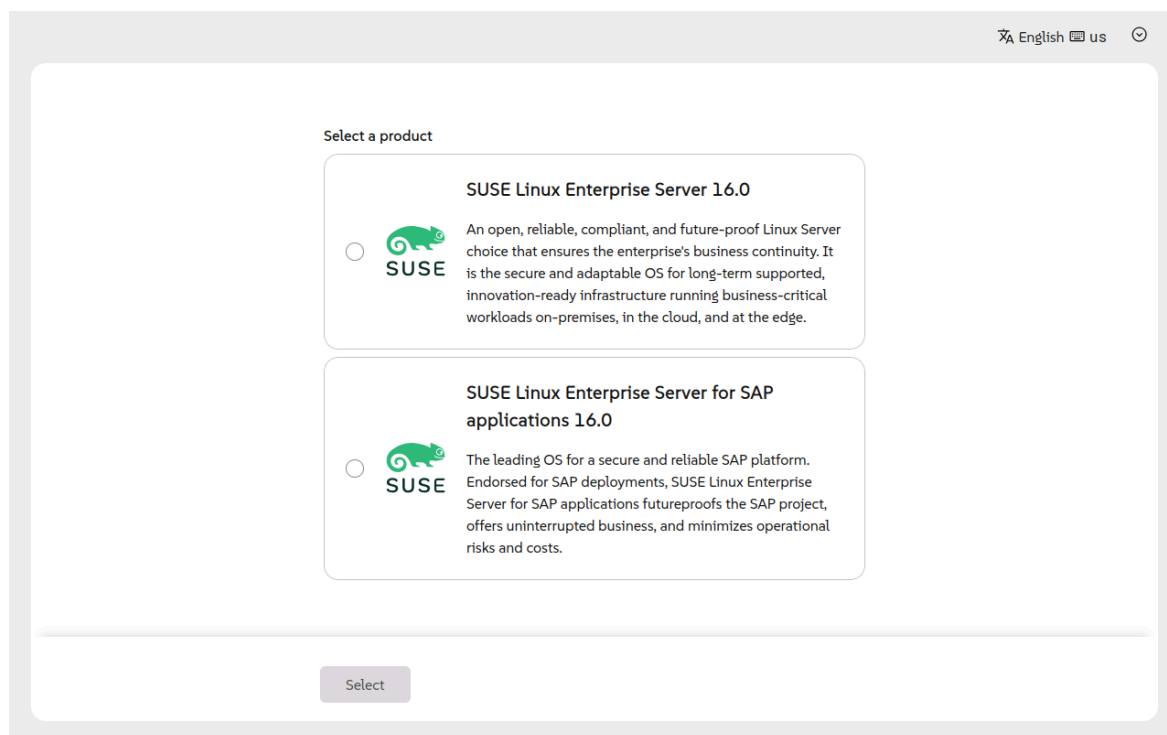
FIGURE 1: SELECT INSTALLATION TARGET IN PXE BOOT MENU

5. `initrd` configures the network and starts the SUSE Linux Enterprise Server deployment using Agama.

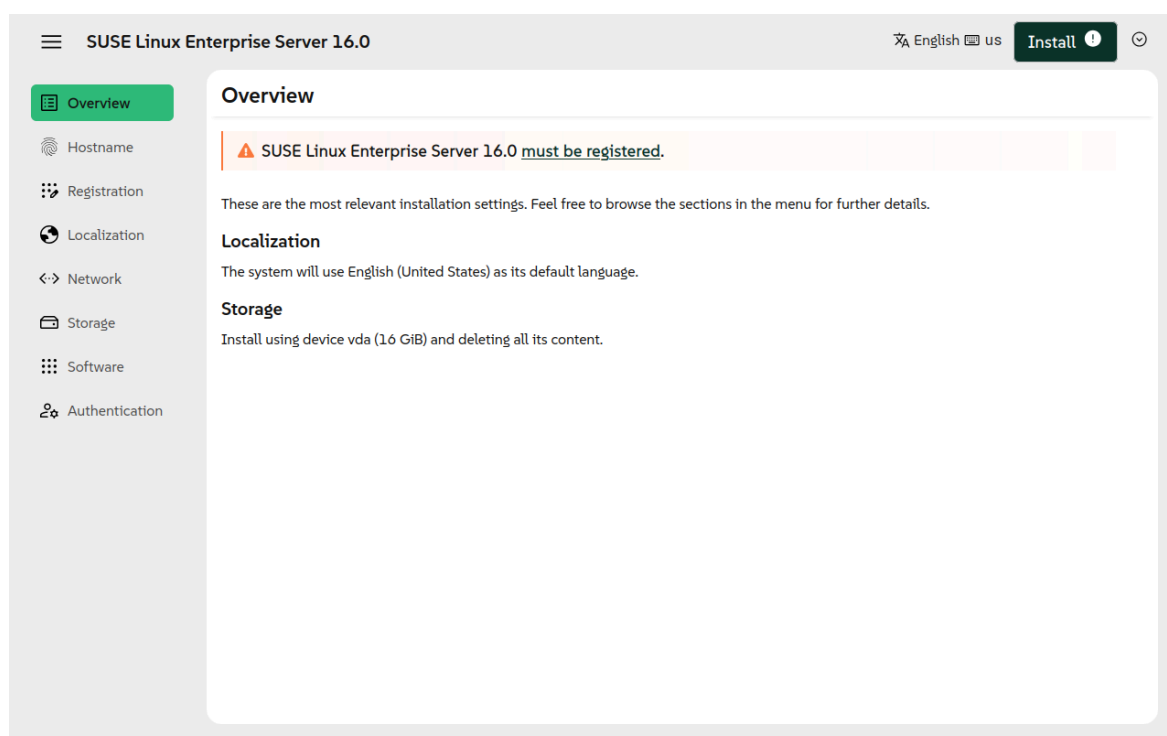
## 2.2 Installing SLES using Agama

The following procedure provides a step-by-step description of how to manually install SLES using Agama from the remote server.

1. Select SUSE Linux Enterprise Server 16.0 for installation and accept the license to continue.



2. The overview of the most relevant installation settings is shown. Adjust the settings by selecting the category from the menu on the left or directly proceed with the installation.





## Tip: Installer language and keyboard

Click the arrow menu in the top-right corner and select *Installer options* to change the language and keyboard layout used by the installer. The language can only be changed on local installations. If you are using a Web browser for a remote installation, configure the preferred content language in the browser settings and reload the installer.

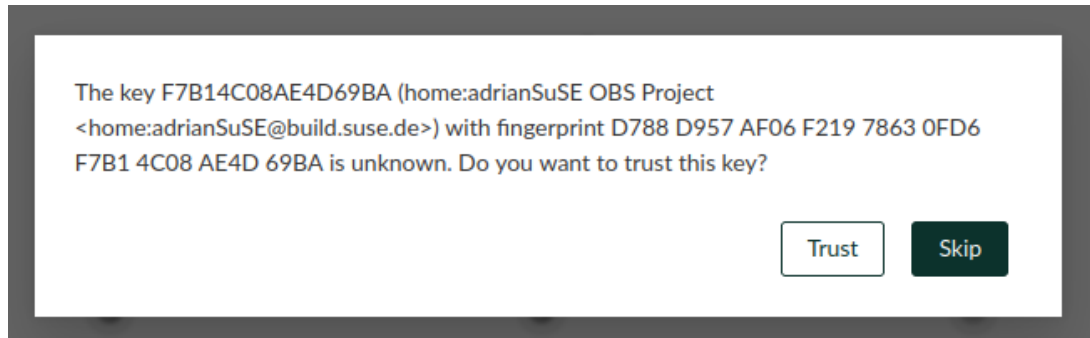
3. Register your product. Enter a registration code and, optionally, a valid e-mail address.

The screenshot shows the 'Registration' screen of the SUSE Linux Enterprise Server 16.0 installer. The interface is in English and has an 'Install' button in the top right corner. A sidebar on the left contains navigation links: Overview, Hostname, Registration (highlighted), Localization, Network, Storage, Software, and Authentication. The main content area is titled 'Registration' and features a warning message: 'SUSE Linux Enterprise Server 16.0 must be registered.' Below this, a bell icon indicates that the product will be registered with the 'agama' hostname, with a note that this cannot be changed later and a link to the 'hostname' section. The 'Registration server' is set to 'SUSE Customer Center (SCC)'. There is a text input field for the 'Registration code' with a toggle icon to its right. Below this, it says 'Using US keyboard'. There is an unchecked checkbox for 'Provide email address'. At the bottom, there is a 'Register' button.



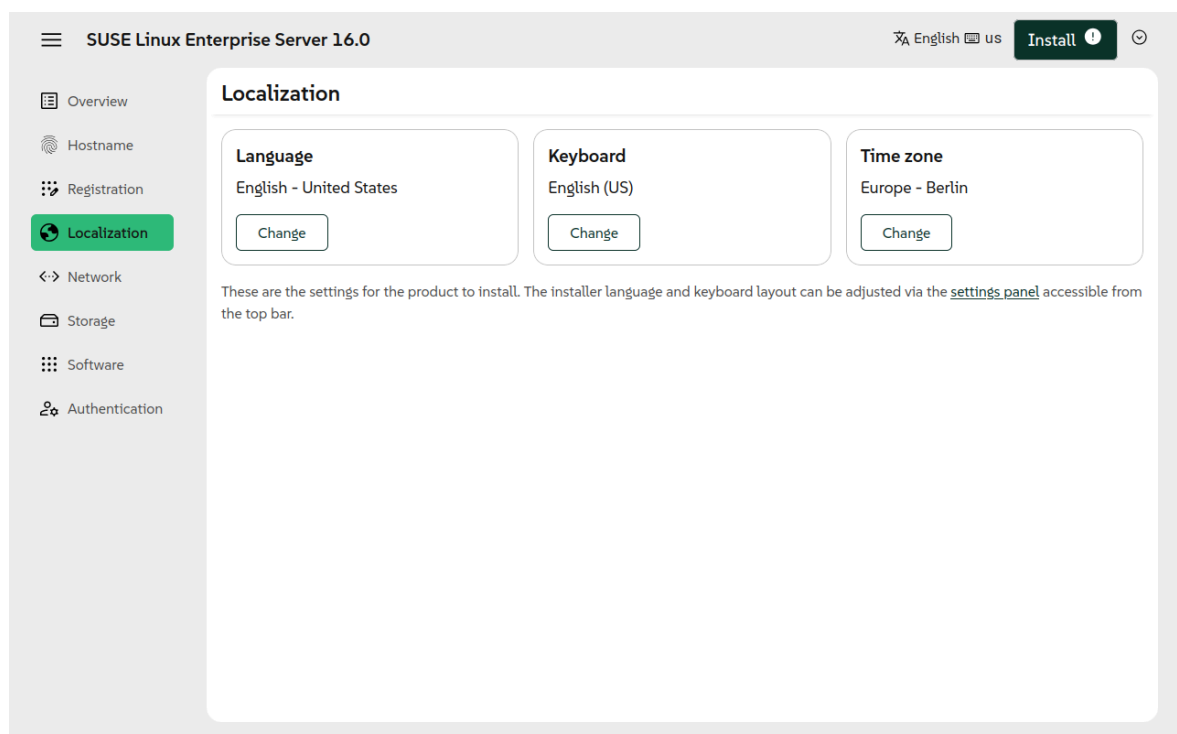
## Note: Optional registration for images signed with the developer's key

Images signed with the developer's key may allow you to skip registration before installation. If your product's image supports installation without registration, you may see a pop-up similar to the following:

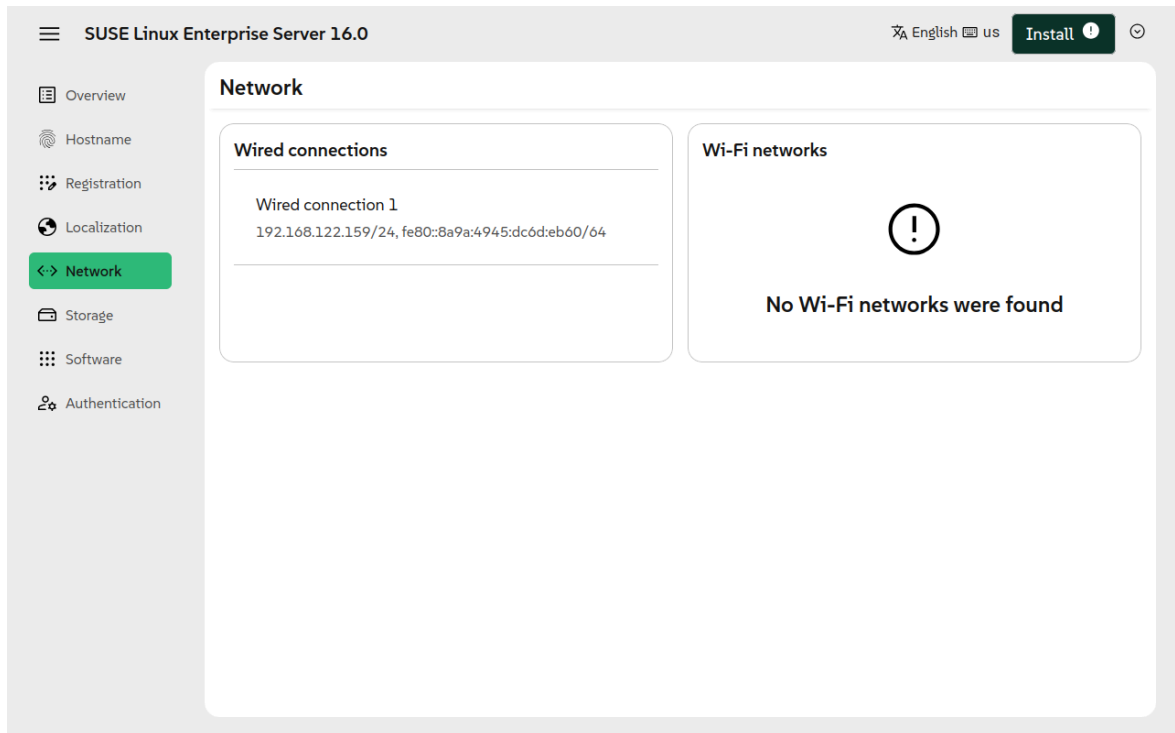


To install without registration, select *Trust* on the pop-up.

4. (*Optional*) Adjust your localization settings such as language, keyboard layout and time zone.



5. (Optional) Configure your network settings. To edit an existing network connection, click the three dots.



6. Select a storage device for installation.

Currently installations on single discs or LVM are supported. To change the disk or use LVM, click the device name *More options* button in the *Installation devices* section.

To detect an iSCSI disk, select the iSCSI initiator and click *Discover iSCSI targets*.

By default, the file systems will be allocated as new partitions on the selected device. You can change this behavior in the drop-down list labeled *All content will be deleted* in the *Installation devices* section. The following space policies are available:

#### SPACE POLICIES

##### Delete current content

All partitions will be removed, and any data on the disks will be lost.

##### Shrink existing partitions

The data is preserved, but current partitions will be shrunk as needed.

##### Use available space

The data is preserved. Only the space not assigned to any partition will be used.

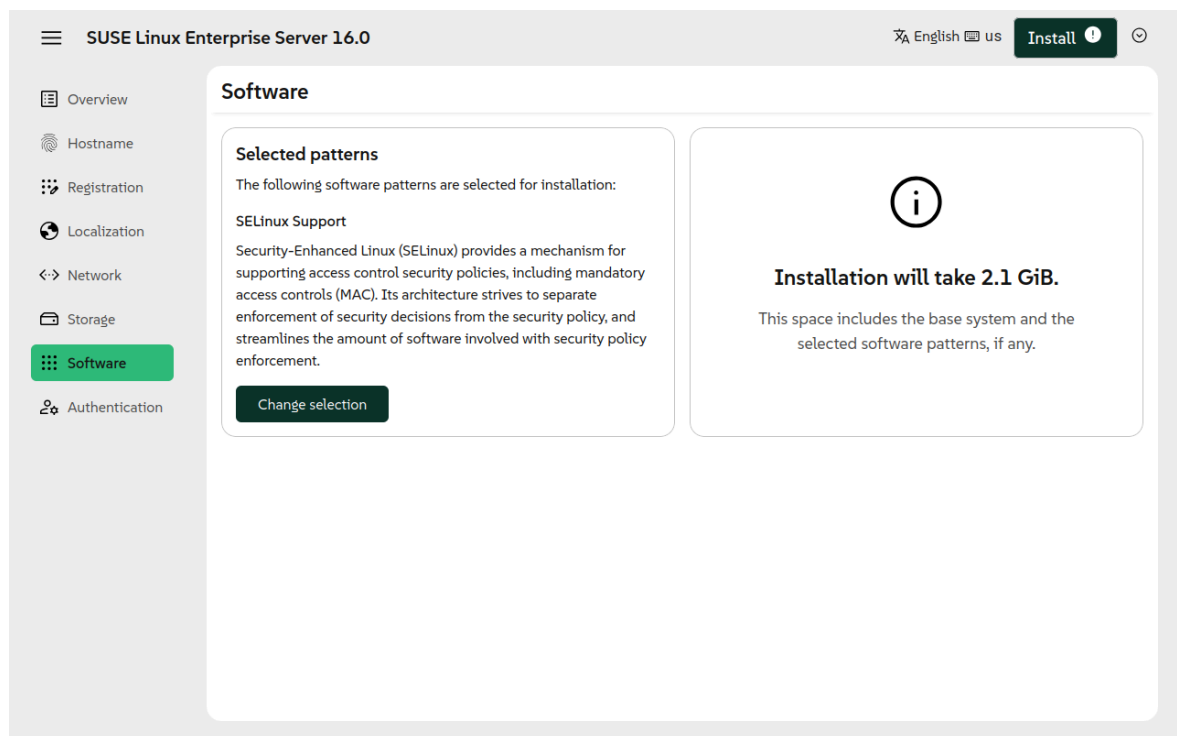


## Custom

Select what to do with each partition.

To edit individual partitions, expand the *Partitions and file systems* section by clicking on the > symbol. Optionally, you can also configure Btrfs snapshots, boot options, and enable full disk encryption (FDE).

7. (*Optional*) Add additional software to install, such as the KVM hypervisor or Cockpit system management service.



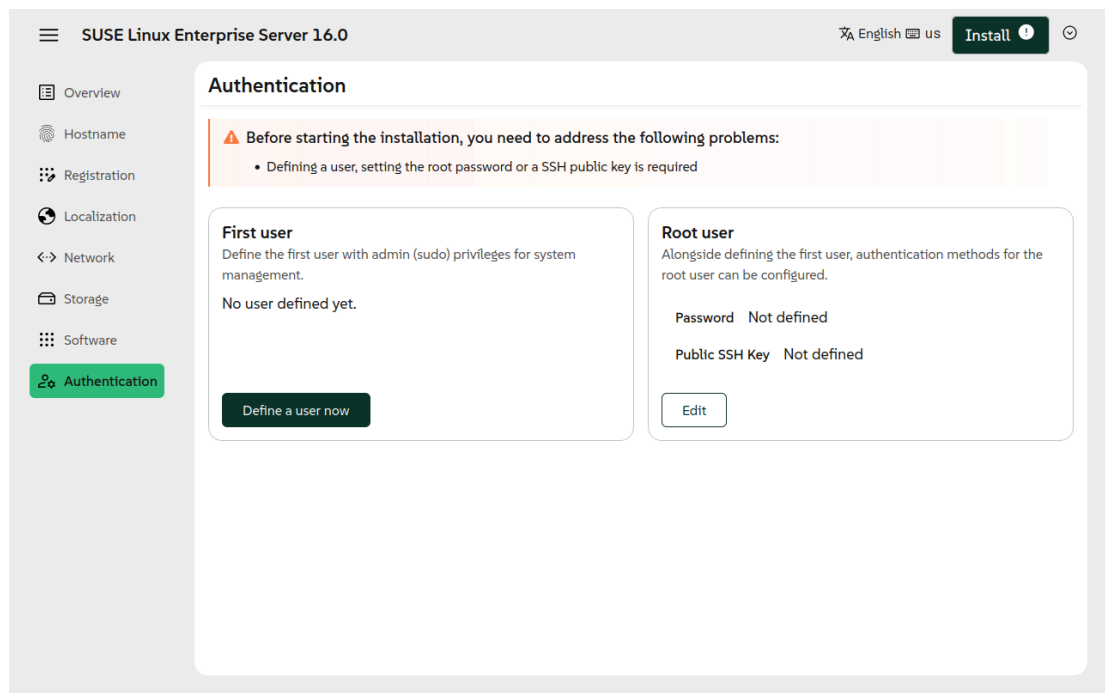
8. Configure the authentication settings.



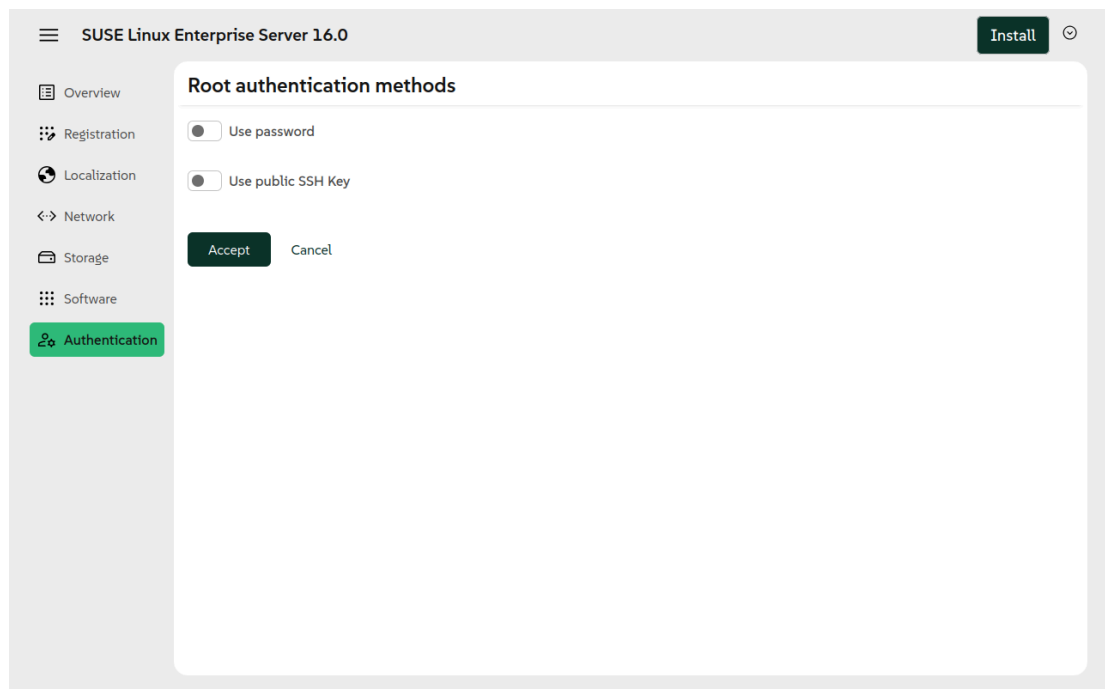
### Important: No SSH root access

SSH access for root is disabled by default. Therefore, it is strongly recommended to create a system user. The first system user is granted sudo privileges automatically and can also be used for accessing Cockpit.

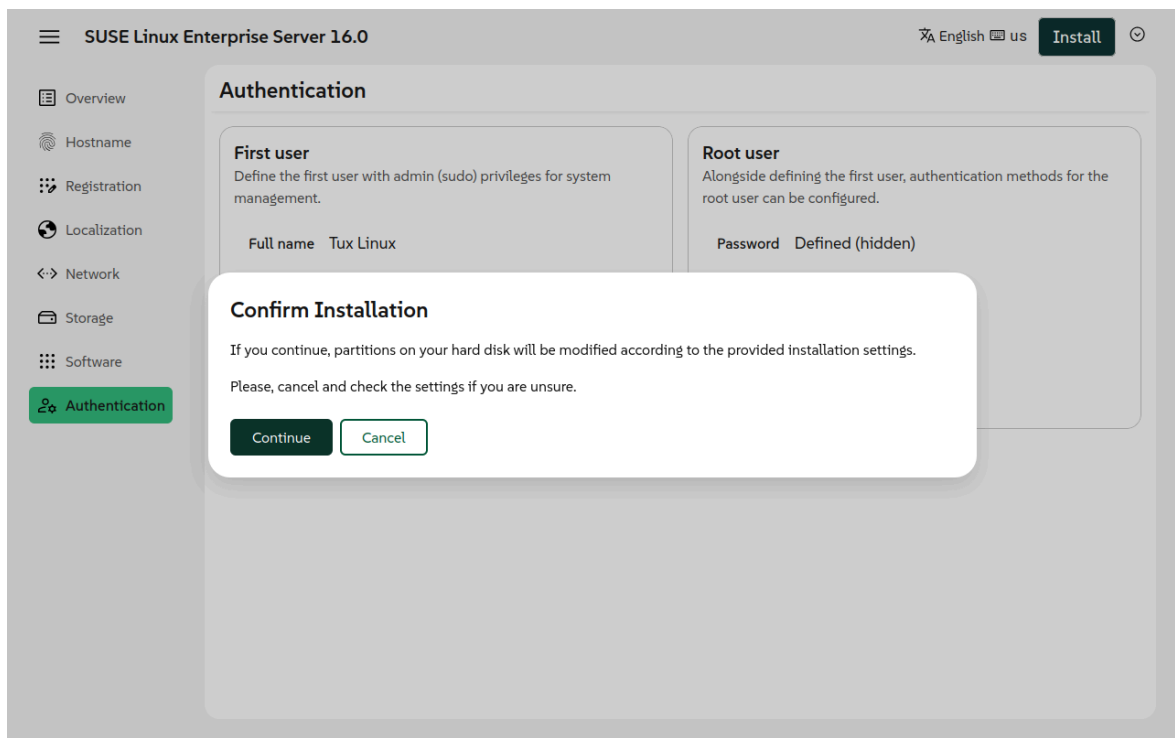
- a. Create a non-root user. Click *Define a user now* and enter details such as user name and password.



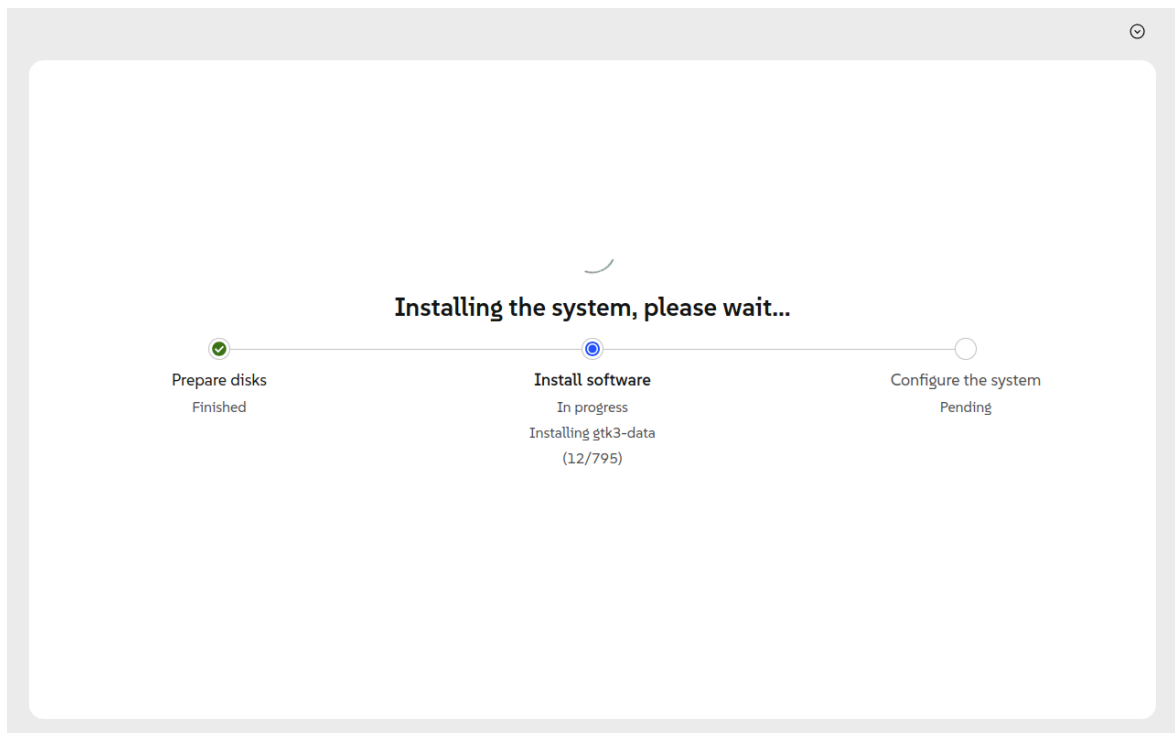
- b. Configure the authentication methods for the root user. You can use a secure password, an SSH public key, or both.



9. Click *Install* and confirm to start the installation.



10. Wait for the system installation to complete. It takes around 30 minutes to complete the installation.





## Tip: Installation logs

You can use the arrow menu in the top-right corner of the window to view the logs and system messages.

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