

Installing SUSE Linux Enterprise Server Manually Using Agama On POWER

WHAT?

This article describes how to install SUSE Linux Enterprise Server using Agama. The information presented here applies to installation of the products on both bare metal and virtual machines.

WHY?

Read this article to understand the process of installing SUSE Linux Enterprise Server using Agama.

EFFORT

You may need 15 minutes to read this article.

GOAL

Learn how to manually install SUSE Linux Enterprise Server using Agama.

REQUIREMENTS

- A bare metal server or a virtual machine. For server installations without any desktop environment, SUSE recommends a minimum of 1 CPU, 2 GB memory and 32 GB storage (which includes storage for Btrfs snapshots in the root partition, swap space, and storage for software packages).
- An active registration code for the product you want to install. You can generate a registration code for the product and activate its subscription for your organization at the SUSE Customer Center.



Note: Optional registration

Certain images that are signed with the developer's key may allow you to skip registration before or while installation. Besides, certain images may contain all installable packages for your operating system that you can use as an offline package repository. In such cases, you may not need an active registration code before installation. However, if you use software packages from the official online repositories, SUSE recommends registering your product with the SUSE Customer Center.

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1 Introduction to Agama

This section provides a short overview of Agama, which is the default installer for SUSE Linux Enterprise Server 16.0 and later versions.

1.1 What is Agama?

Agama is a flexible and powerful open source installer developed by SUSE. You can use it to perform manual or automated installation of supported SUSE Linux Enterprise Server versions on a variety of machine architectures. The Agama-based installation method provides an intuitive interface for *ready-to-use* images for different use cases and workloads. In combination with Cockpit and Ansible, it substitutes YaST in SUSE Linux Enterprise Server.

2 Installing SUSE Linux Enterprise Server using Agama

This section describes how to install SUSE Linux Enterprise Server using the Agama-based ISO image file.

2.1 Introduction

The following sections describe the Agama-based manual installation procedure for SUSE Linux Enterprise Server. The information applies to installation on both bare metal and virtual machines.

2.2 Requirements

- An Agama-based ISO image file for supported versions of SUSE Linux Enterprise Server. You can download it from the SUSE Customer Center and verify its checksum to ensure its integrity.



Note: Available images for products

The Agama-based installation image is available for SUSE Linux Enterprise Server 16.0 and later versions.

2.3 Manually installing SUSE Linux Enterprise Server for ppc64le using Agama

To manually install SUSE Linux Enterprise Server using Agama, perform the following steps:

PROCEDURE 1: MANUAL INSTALLATION OF SUSE LINUX ENTERPRISE USING AGAMA

1. Copy the ISO image to the VIOS server:

```
> scp SLES-Online-16.0-ppc64le-Beta4.install.iso padmin@VIOS_SERVER
```

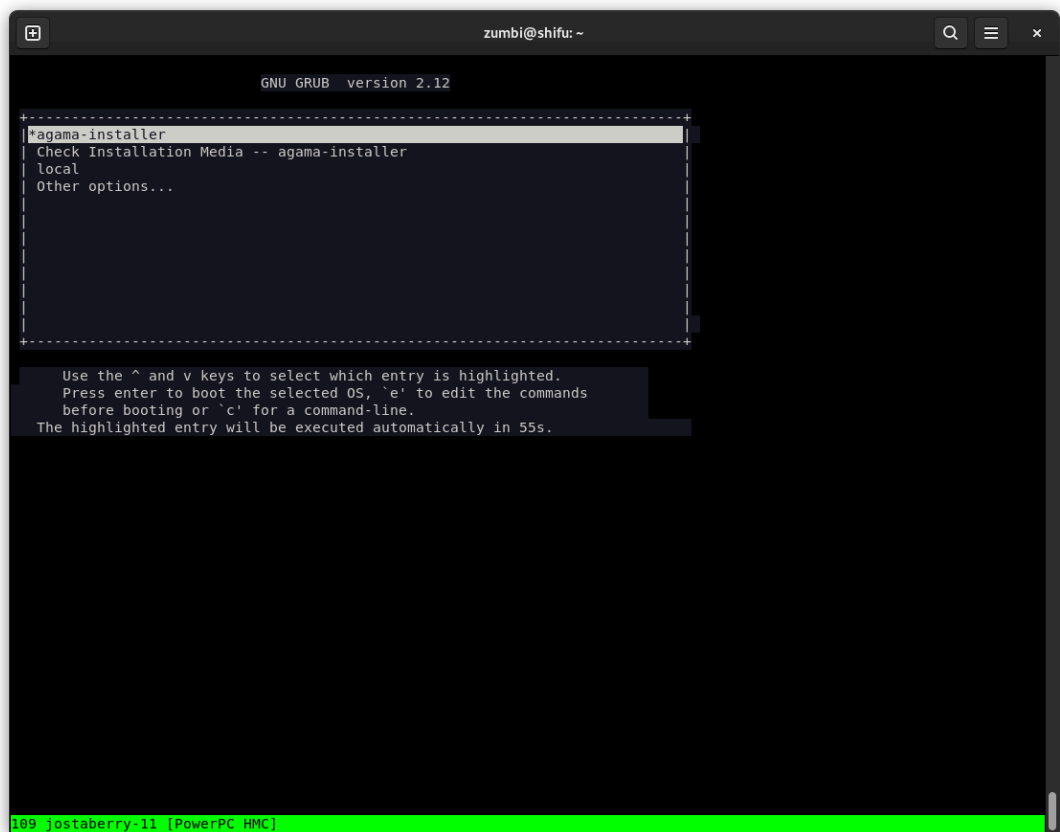
Replace VIOS_SERVER with the hostname or IP address of your VIOS server.

2. Create a virtual optical device and load the ISO in the virtual device at the VIOS server:

```
(VIOS)$ mkvopt -name sles16-offline -file SLES-Online-16.0-ppc64le-Beta4.install.iso  
-ro  
(VIOS)$ loadopt -f -release -disk sles16-offline -vtd vcdXY
```

Replace vcdXY with your virtual device unit attached to the LPAR you want to boot.

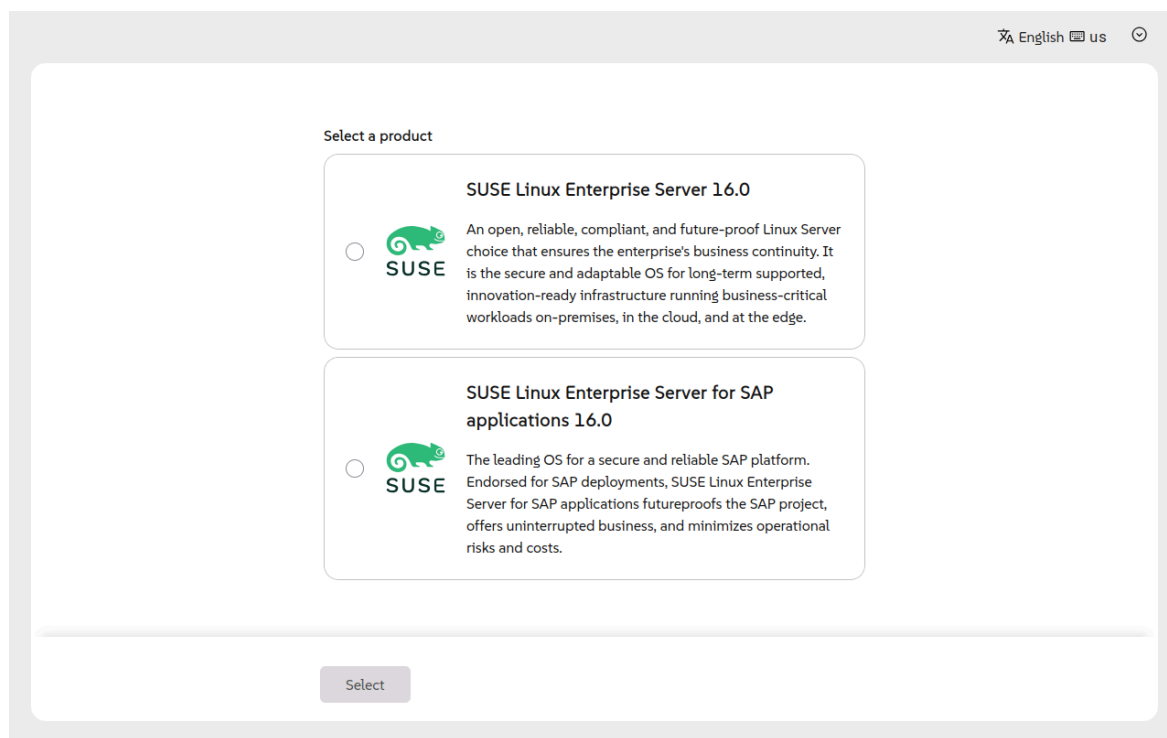
3. Boot the system from the attached virtual device. Select *Select Boot Options* > *Select Install/Boot Device* > *CD/DVD* > *List All Devices* and select the virtual optical device you created in [Step 2](#). Then select *Normal Boot Mode* and confirm your selection.
4. Log into the console to get the root password and IP address.
 - a. Select *agama_installer* and press **Enter** to boot the system.



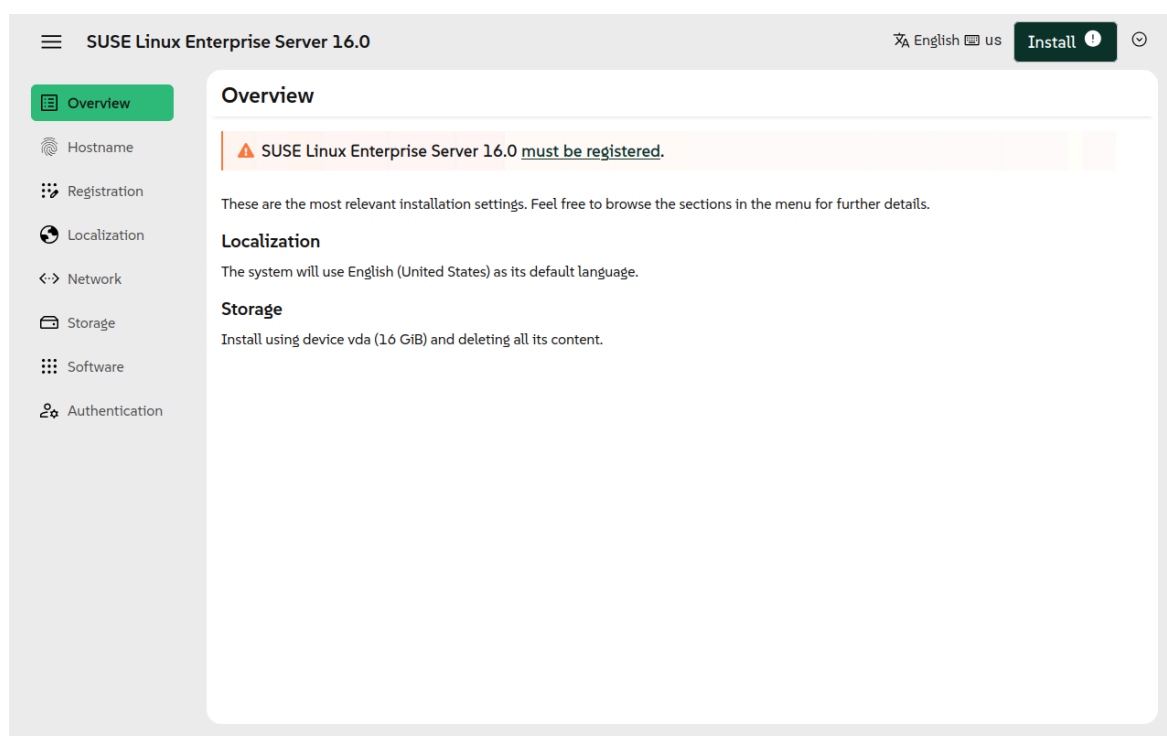
- b. When booting finishes, the IP address and root password are displayed.

```
zumbi@shifu: ~  
[ OK ] Finished Permit User Sessions.  
[ OK ] Started Agama Installer Service.  
Starting Agama's D-Bus bus monitor...  
Starting Agama Web Server...  
[ OK ] Started Agama's D-Bus bus monitor.  
Starting Generate issue file for Agama SSL certificate...  
[ OK ] Started Agama Web Server.  
[ OK ] Started Agama automatic profile runner.  
Starting Postpone login prompt aft...L fingerprint issue is generated...  
[ OK ] Finished Generate issue file for Agama SSL certificate.  
[ OK ] Finished Postpone login prompt aft...SSL fingerprint issue is generated.  
[ OK ] Started Getty on tty1.  
[ OK ] Started Serial Getty on hvc0.  
[ OK ] Reached target Login Prompts.  
[ OK ] Reached target Multi-User System.  
[ OK ] Reached target Graphical Interface.  
Starting X11 session...  
Starting Service enabling compressing RAM with zRam...  
[ 39.519984][ T4578] zram: Added device: zram0  
[ 39.523811][ T4571] zram0: detected capacity change from 0 to 133694080  
[ OK ] Created slice User Slice of UID 0.  
Starting User Runtime Directory /run/user/0...  
[ OK ] Finished User Runtime Directory /run/user/0.  
Starting User Manager for UID 0...  
[ 39.609973][ T4588] Adding 66846976k swap on /dev/zram0. Priority:100 extents:1 across:66846976k SS  
[ OK ] Finished Service enabling compressing RAM with zRam.  
[ OK ] Started User Manager for UID 0.  
[ OK ] Started Session 1 of User root.  
[ OK ] Started X11 session.  
  
Welcome to Agama installer version 11+105! (hvc0)  
  
SSH host key fingerprints:  
SHA256:nUjAtYbVkiw6E9yC+gRKNHA0bUnueLZJ8iI3Ghmy8k (ECDSA)  
SHA256:qGExR9jnnCMh7WM0EV8dUjDu26HiDID2Mk/5b0cL4g (ED25519)  
SHA256:zoEcwrsfa5gxHWhIiKomi664JTW3kMT0iWKZKrb0k (RSA)  
  
Connect to the Agama installer using these URLs:  
https://agama.local  
https://10.161.27.65  
https://192.168.0.42  
  
Password for root user: eMyYKMHr  
jostaberry-11 login:   
109 jostaberry-11 [PowerPC HMC]
```

5. Open a web browser pointing to the given URL in the console. Enter the root password and proceed with the installation.
6. Select SUSE Linux Enterprise Server 16.0 for installation and accept the license to continue.



7. The overview with 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.

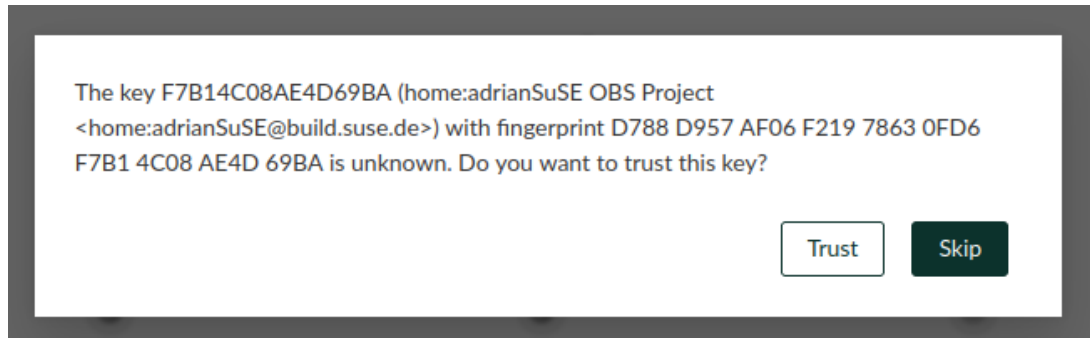
8. Register your product. Enter a registration code and optionally a valid email address.

The screenshot shows the 'Registration' screen of the SUSE Linux Enterprise Server 16.0 installer. The interface is in English and has a dark theme. On the left, a sidebar lists navigation options: Overview, Hostname, Registration (highlighted in green), Localization, Network, Storage, Software, and Authentication. The main content area is titled 'Registration' and contains 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. 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.



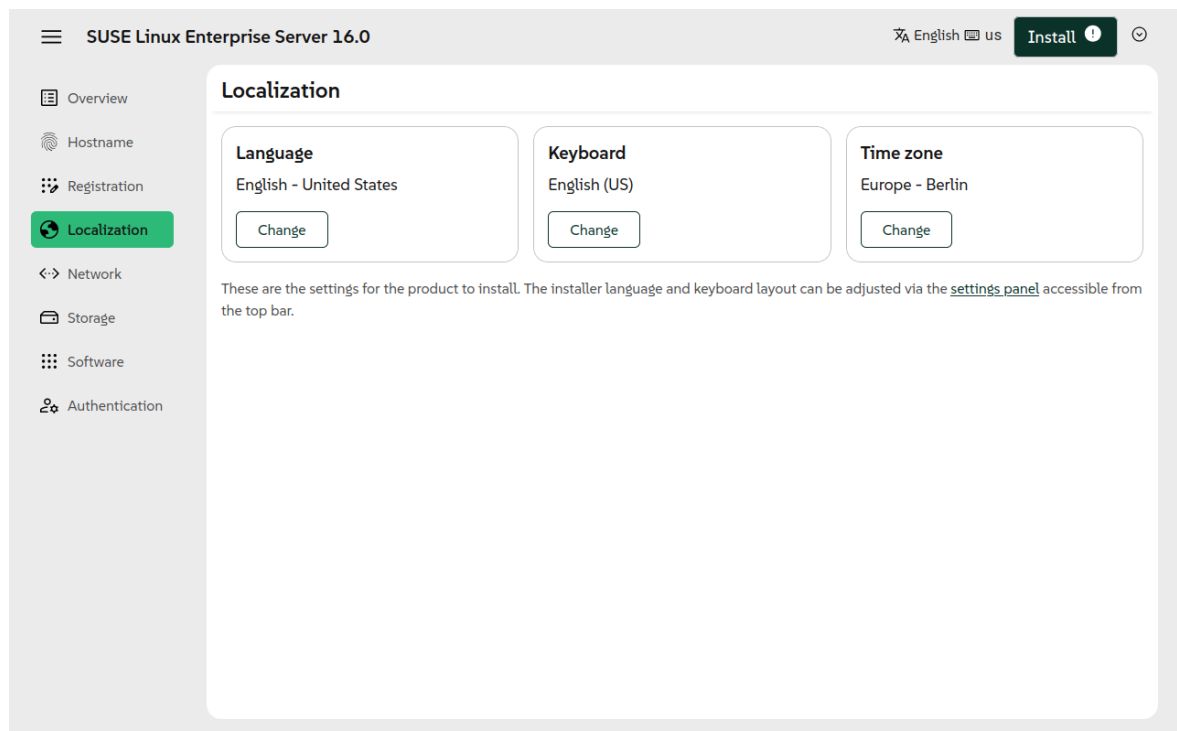
Note: Optional registration for images signed with the developer's key

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:

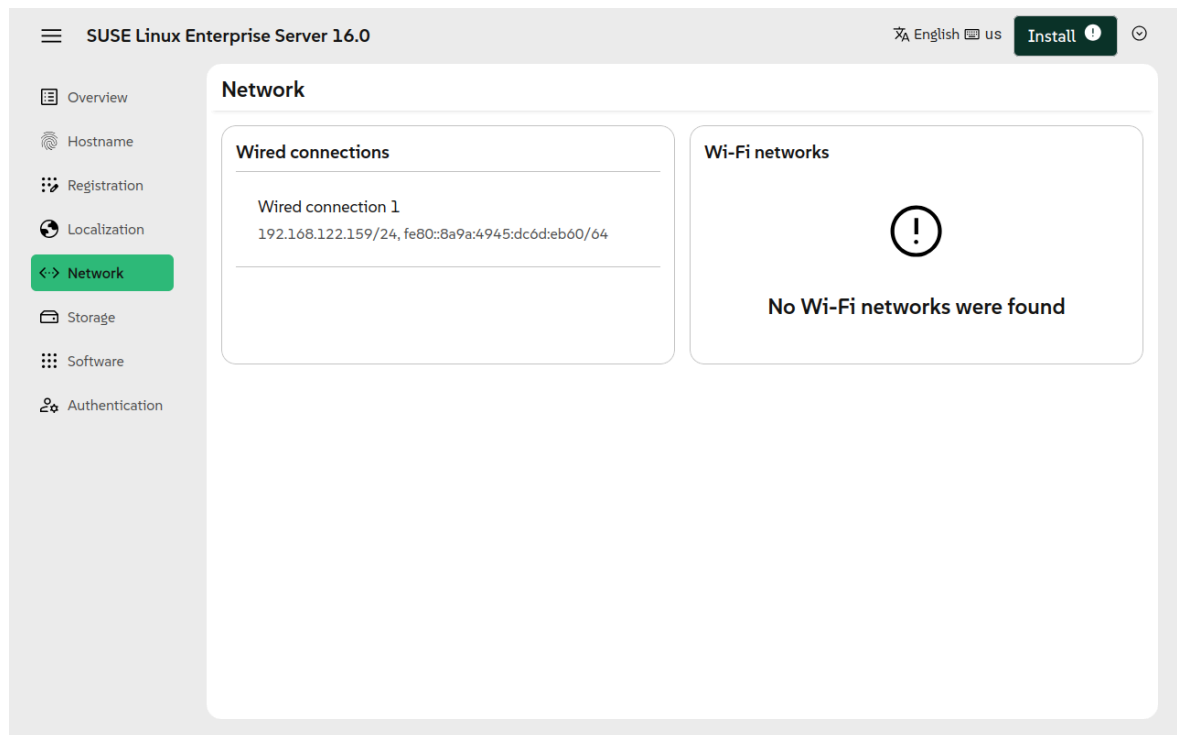


To install without registration, select *Trust* on the pop-up.

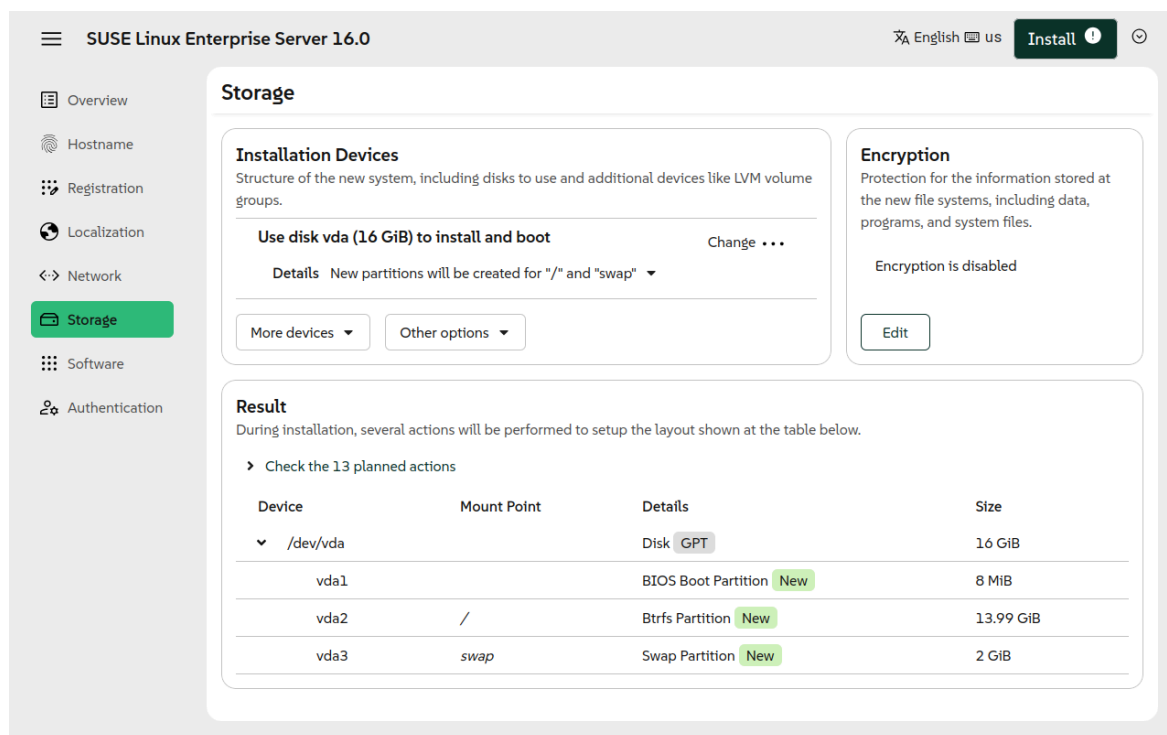
9. (Optional) Adjust your localization settings such as language, keyboard layout and time zone.



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



11. 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* drop-down list 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 kept, but current partitions will be shrunk as needed.

Use available space

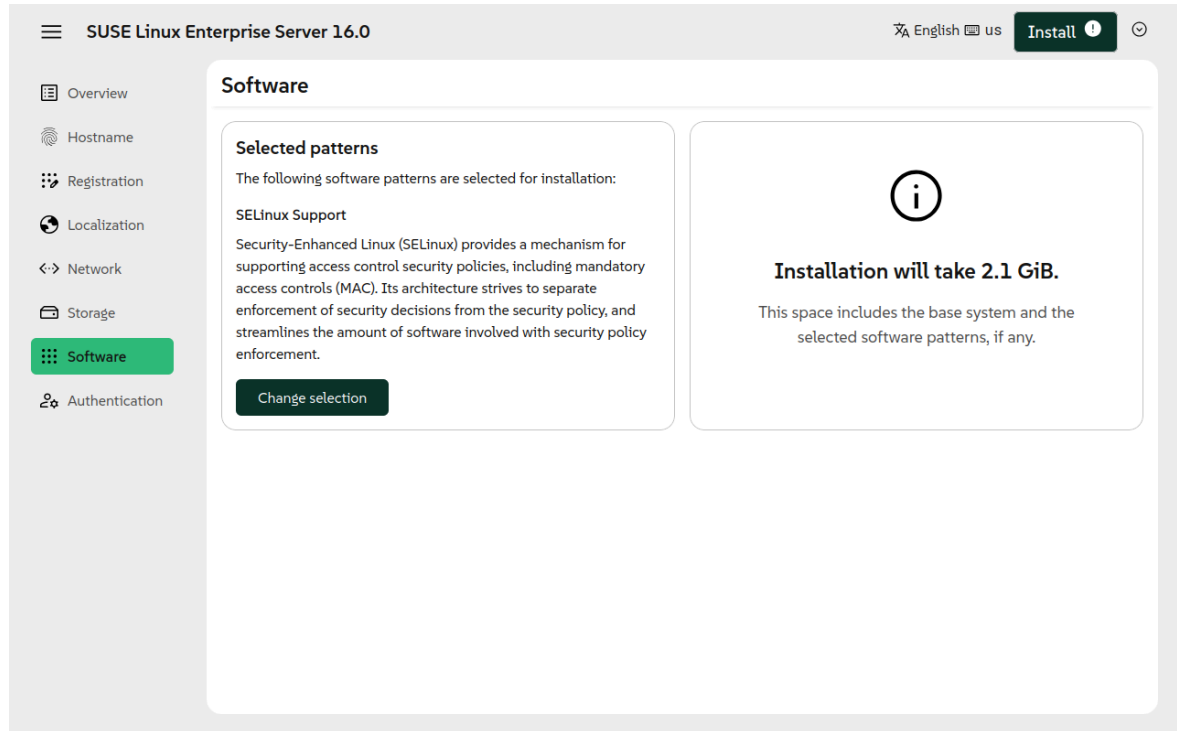
The data is kept. Only the space not assigned to any partition will be used.

Custom

Select what to do with each partition.

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

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



Note: Trust the GPG key for the Package Hub repository

If you select the Package Hub add-on and see a popup, trust the GPG key for that repository.

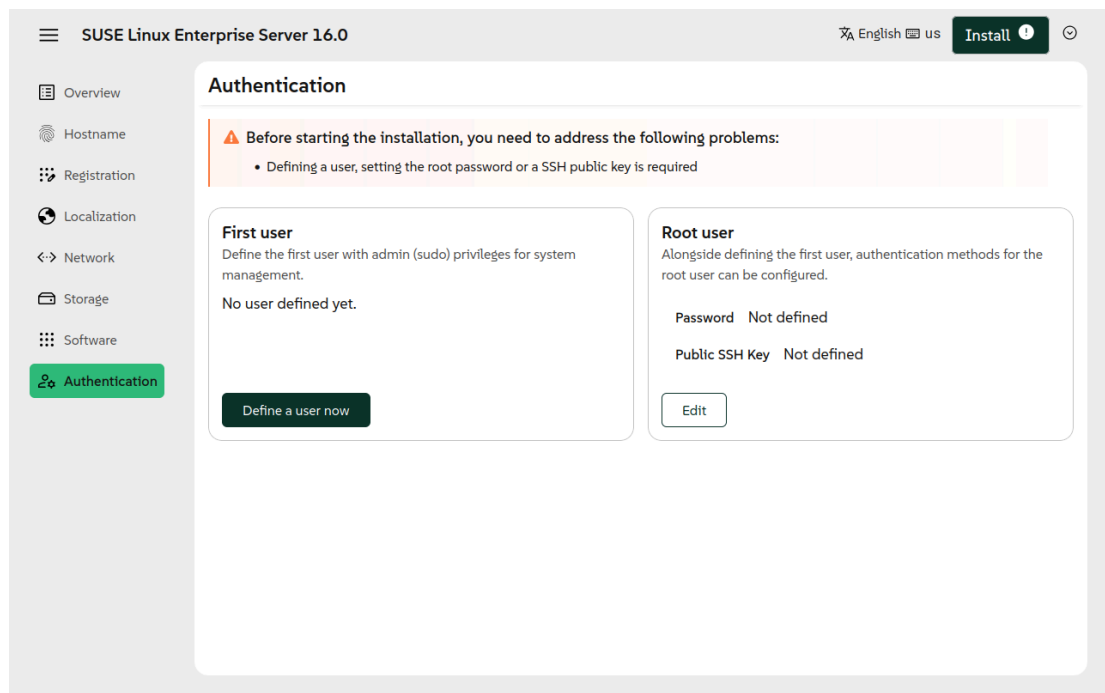
13. Configure the authentication settings.



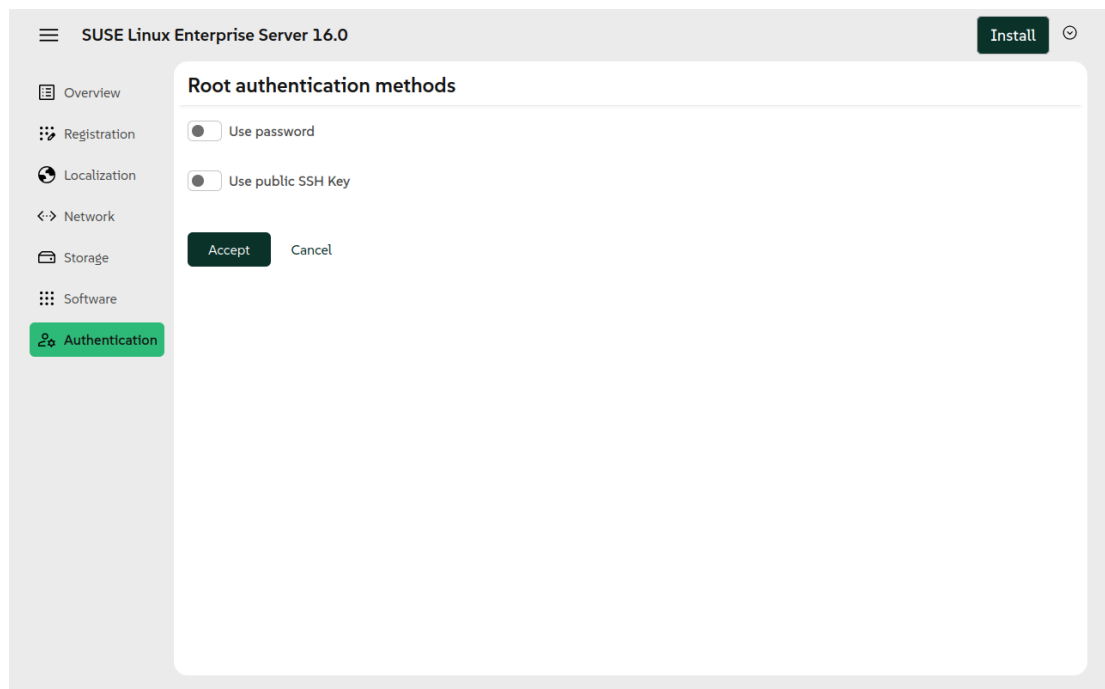
Important: No SSH root access

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.

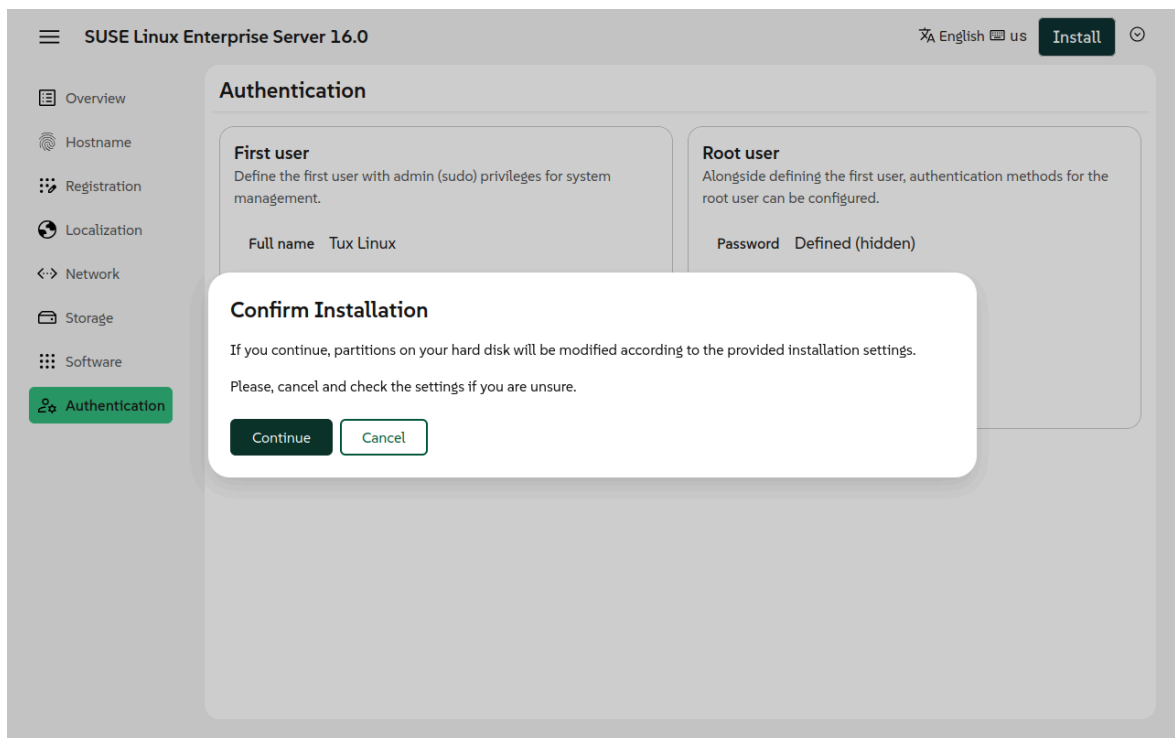
- a. Create a non-root user. Click *Define a user now* and enter details such as user name and password.



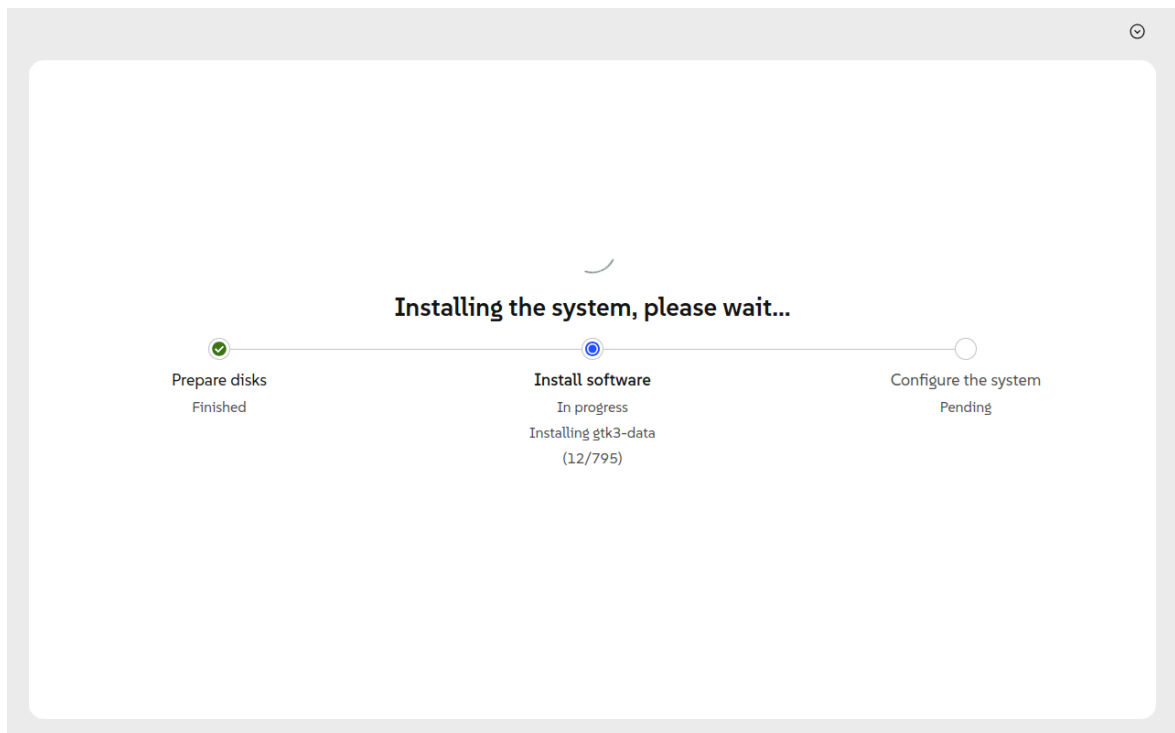
- b. Configure the authentication methods for the root. You can use a secure password, a SSH public key, or both.



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



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

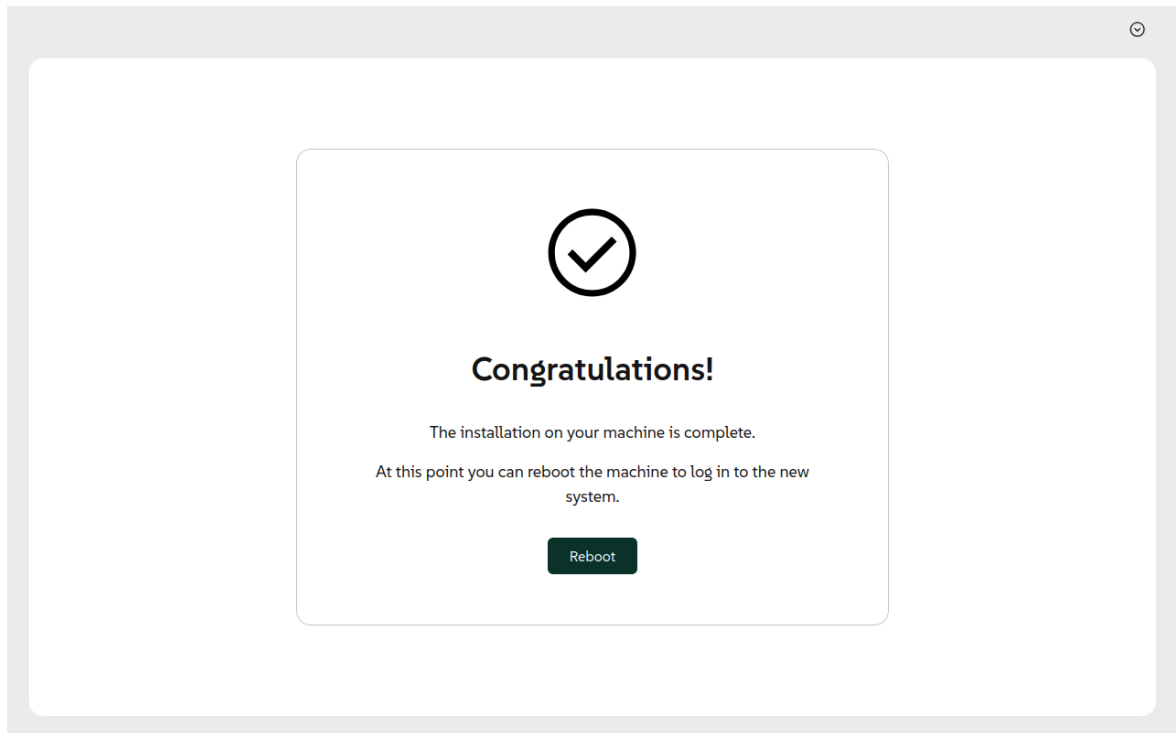




Tip: Installation logs

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

16. Once the installation is complete, select *Reboot*.



2.4 Summary

After successful configuration checks, product registration, installation and reboot, verify that you can log in and use your system.

PROCEDURE 2: VERIFYING THE SYSTEM AFTER INSTALLATION

1. Log in to the system as root.

```
Welcome to SUSE Linux Enterprise Server 16.0 Alpha3 (x86_64) - Kernel 6.4.0-sifo.1.8-default (tty1).

SSH host key: SHA256:bUpdqEfAYuo1gbMY0s70qIdMEHHC/eKikm7cL3kwCMA (RSA)
SSH host key: SHA256:L5PQdXeaN9edpLw0z29LWxCNKe26EWWtNFopxMgn3U (ECDSA)
SSH host key: SHA256:CKA9BUCHu5jKhECTUSyBGQRyDQQMRegIfUIOR/nDsXY (ED25519)
enp1s0: 192.168.122.40 fe80::a486:c31a:e64:6c0c

Hint: Num Lock on

localhost login: root
Password: _
```

2. To verify that your system is working as expected, run a few basic commands.

```
Welcome to SUSE Linux Enterprise Server 16.0 Alpha3 (x86_64) - Kernel 6.4.0-sifo.1.8-default (tty1).

SSH host key: SHA256:bUpdqEfAYuo1gbMY0s70qIdMEHHC/eKikm7cL3kwCMA (RSA)
SSH host key: SHA256:L5PQdXeaN9edpLw0z29LWxCNKe26EWWtNFopxMgn3U (ECDSA)
SSH host key: SHA256:CKA9BUCHu5jKhECTUSyBGQRyDQQMRegIfUIOR/nDsXY (ED25519)
enp1s0: 192.168.122.40 fe80::a486:c31a:e64:6c0c

Hint: Num Lock on

localhost login: root
Password:
Have a lot of fun...
localhost:~ # whoami
root
localhost:~ # pwd
/root
localhost:~ #
```

3 For more information


For information on related topics, refer to the following resources:

- Documentation of the Agama open-source project: <https://agama-project.github.io/docs> 
- IBM quick start guides for installing Linux on POWER: <https://www.ibm.com/docs/en/linux-on-systems?topic=servers-quick-start-guides-installing-linux> 
- IBM instructions for installing Linux on PowerVM LPAR by using virtual DVD (vDVD): <https://www.ibm.com/docs/en/linux-on-systems?topic=aim-installing-linux-powervm-lpar-by-using-virtual-dvd-vdvd> 

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