Installation Guide
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CUSTOMER

How to Install SUSE Linux Enterprise Server 12 SP3 for SAP Business One, Version for SAP HANA

All Countries

Typographic Conventions

Type Style	Description
Example	Words or characters quoted from the screen. These include field names, screen titles, pushbuttons labels, menu names, menu paths, and menu options. Textual cross-references to other documents.
Example	Emphasized words or expressions.
EXAMPLE	Technical names of system objects. These include report names, program names, transaction codes, table names, and key concepts of a programming language when they are surrounded by body text, for example, SELECT and INCLUDE.
Example	Output on the screen. This includes file and directory names and their paths, messages, names of variables and parameters, source text, and names of installation, upgrade and database tools.
Example	Exact user entry. These are words or characters that you enter in the system exactly as they appear in the documentation.
<Example>	Variable user entry. Angle brackets indicate that you replace these words and characters with appropriate entries to make entries in the system.
EXAMPLE	Keys on the keyboard, for example, F2 or ENTER.

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1 Introduction

This guide will walk you through how to install SUSE Linux Enterprise Server (SLES) 12, the SAP HANA® database and the SAP Business One, version for SAP HANA application with a SLES image specifically designed for SAP HANA and SAP Business One, version for SAP HANA. With this image, you can install the operating system, SAP HANA and SAP Business One, version for SAP HANA in one go.

> **Note**
>
> This guide and the image are designed for SAP Business One appliances that are not factory-preloaded with an OS and SAP software by the hardware vendor. If an appliance has been preloaded already by the hardware vendor, the installation process described here does not apply. In this case, please refer to the instructions of the respective hardware vendor.

Chapter 5 also explains how to register your system with SUSE to get timely updates and support.

For documentation about SUSE products, see https://www.suse.com/documentation.

1.1 Restrictions

There are certain restrictions with the special image. Make sure you have read and understood the restrictions before you decide to install SLES using this image.

Shared Password

If you install SAP HANA and SAP Business One using the SUSE installation wizard, you can specify a password only for the operating system user `<sid>adm`, which is created specifically for SAP HANA. This password will be shared by the following users:

- SAP HANA database administrator user `SYSTEM`.

  You cannot change the password for `SYSTEM` after installing SAP Business One; otherwise, you will have to reinstall the System Landscape Directory (SLD). Therefore, we recommend the following:

  - If you want to define a new password for `SYSTEM` after the installation of SAP HANA, do it before you install SAP Business One.
  - If you want to change the password for `SYSTEM` after you have installed SAP Business One, do it only if you are going to upgrade SAP Business One immediately after the change. During the upgrade process, you will be able to enter the new password.
- SAP Business One site user `B1SiteUser` if you install SAP Business One, version for SAP HANA using the default installation method.

  If you install SAP Business One using the custom installation method, you can define a different password. For both default and custom installation methods, you can change the password for `B1SiteUser` later in the System Landscape Directory.

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Operating System Upgrade and Uninstallation

This special image is not designed for upgrade from or uninstallation of earlier operating system versions.

For example, if you have installed SLES with a standard installation (for example, SLES 12 SP3) and now want to take advantage of the optimized configurations with this special image, you must remove the old installation and then do a fresh deployment with the special image.

Nevertheless, you can upgrade your operating system (special image) using standard SLES media kits or the respective online repositories.

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2 Prerequisites

Before performing the actual installation, ensure that you have fulfilled the prerequisites listed in the following sections.

2.1 Hardware

Your hardware platform must be validated for SAP Business One products powered by SAP HANA. For a list of validated hardware platforms, see SAP Note 2382775 and http://www.sap.com/certifiedsaphanahardware (choose View Listings, open Appliance Type and select SAP Business One).

You must set up your hardware platform according to the hardware configuration guide in the Attachments section of SAP Note 1944415.

2.2 Software

The following software must be available for installation:

- SLES 12 SP3 Installer for SAP Business One
- SAP HANA (platform edition)
- SAP Business One, version for SAP HANA

For more information, see Obtaining the Software.

2.3 Information

You have the following information about the machine on which you intend to perform the installation:

- IP address of the machine
- Host name of the machine
- Subnet mask
- Domain name
- IP address of the name servers
- Gateway IP address
- Valid subscription: SUSE Customer Center (SCC) account and registration code
- Password for the `root` user
- SAP master password (`<sid>adm` password)

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3 Obtaining the Software

3.1 Downloading Installation and Upgrade Packages for SAP Products

To download the installation packages of SAP HANA and SAP Business One, version for SAP HANA, go to the SAP Business One Software Download Center at https://launchpad.support.sap.com/#/softwarecenter. The following instructions are for the latest version of each product.

Installation Packages

SAP HANA

1. Find the software available for download.

   To download the installation package of SAP HANA for SAP Business One 9.3, choose Installations & Updates → SAP Business One → SAP Business One Products → SAP B1 VERSION FOR SAP HANA → SAP B1 9.3 FOR SAP HANA → HANA PLATFORM EDIT. 1.0 FOR B1 → Installation → Downloads.

   51052924 SAP HANA Platform Edition 1.0 SPS 12 Rev 122.16 for B1

   51051945 SAP HANA Platform Edition 1.0 SPS 12 Rev 122.05 for B1

   51051215 SAP HANA Platform Edition 1.0 SPS 12 Rev 122.04 for B1

   51050929 SAP HANA Platform Edition 1.0 SPS 12 Rev 122.03 for B1

   51050934 SAP HANA Platform Edition 1.0 SPS 11 Rev 122.03 for B1

   51050933 SAP HANA Platform Edition 1.0 SPS 10 Rev 102.05 for B1

   51050890 SAP HANA Platform Edition 1.0 SPS 9 Rev 97.00 for B1

   51049186 SAP HANA Platform Edition 1.0 SPS 08 Rev 85.03 for B1

   51049880 SAP HANA Platform Edition 1.0 SPS 07 Rev 74.03 for B1

   ...

   Choose the SAP HANA revision supported by the particular version of the SAP Business One product. To verify which SAP HANA revision is supported, check the following SAP Overview Note:
   2483613 - Central Note for SAP Business One 9.3, version for SAP HANA

SAP Business One, version for SAP HANA

1. Find the software available for download by clicking Installations → SAP B1 VERSION FOR SAP HANA → SAP B1 9.3 FOR SAP HANA → Installation → Downloads.
2. Download all listed objects.

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3.2 Extracting the SAP Software Packages

The SAP products are downloaded as archived files. You must extract the archives so that the installation wizard can recognize them as SAP HANA or SAP Business One software packages.

> **Recommendation**
>
> Extract the files directly on a Linux server or a Linux virtual machine. File transfer is more reliable between Linux machines than between Windows and Linux machines.

Extraction Methods

For EXE and RAR objects: Use a RAR, WinRAR, or UnRAR utility on Windows or Linux to extract EXE and RAR archives into a directory located on a USB stick, an NFS share, a Windows share, or a burned DVD.

> **Example**
>
> Example unpacking command on Linux: `unrar x 51043617_part1.exe`

For ZIP objects: Use a Zip, 7-Zip, or UnZip utility on Windows or Linux to extract ZIP archives.

> **Example**
>
> Example unpacking command on Linux: `unzip 51042150.ZIP`

For more details, see SAP Note 886535 (Downloading multi-spanning archives).

Result

After the extraction, the high-level folder and file structure looks like this this (only required files displayed):

SAP HANA

```
51050933 /
    DATA_UNITS/
        ├── SAP HANA AFL 1.0 FOR B1
        ├── SAP HANA CLIENT 1.0 FOR B1
        ├── SAP HANA DATABASE 1.0 FOR B1
        └── SAP HANA STUDIO 1.0 FOR B1
    LABEL.ASC
```

SAP Business One, version for SAP HANA

```
51050324
    AUTORUN.ico
    AUTORUN.INF
    Copyright.pdf
    CR_license_cs.pdf
    ...
    Documentation
```


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EasyStart_EN.pdf

info.txt

Migrate.exe

Packages.Linux

Packages.x64

Prerequisites

ReadMe.pdf

SAP_Software_Use_Rights.pdf

Setup.exe

3.3 Updating the SAP HANA Hardware Check

> **Note**
>
> This is not required for SAP HANA 1.0 revision 102 or higher.

During installation of the SAP HANA database, a check is performed to determine if the hardware is available. You must use the latest hardware check to make sure that recently certified hardware is recognized. To do so, proceed as follows:

1. Open SAP Note 1658845.
2. Download the attached `HanaHwCheck.zip` file and unzip it.
3. Replace the `HanaHwCheck.py` file in the extracted SAP HANA package. You can find the file on either of the following paths:
   - Installation package: …`/DATA_UNITS/HDB_SERVER_LINUX_X86_64/server/`
   - Upgrade package: …`/DATA_UNITS/SAP_HANA_DATABASE/server`

3.4 Obtaining the SLES Installation Image

You can obtain the tailored installation image of SLES in one of the following methods:

- DVD-based installation:
  1. Download the image from https://www.suse.com/slesb1hana.

     > **Note**
     >
     > This link directs you to the latest available image.

  2. Burn the downloaded file (`SLES12-SP3-SAPBOne-Installer.x86_64-GM.iso`) to a DVD ROM with a DVD-burning tool of your choice.
- USB stick-based installation:
  1. Download the image from https://www.suse.com/slesb1hana.
  2. Follow the steps below to write the image to a USB device:

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- On Linux:

  Use the “**dd**” command to copy the ISO file to a connected unmounted USB stick. Note that all the data on the USB stick will be overwritten.

  Example

  ```
  # dd if=/path/to/downloaded.iso of=/dev/sdX bs=4M status=progress && sync
  ```

  You can find more instructions at: https://en.opensuse.org/SDB:Live_USB_stick.

- On Microsoft Windows:

  1. Download the image from https://www.suse.com/slesb1hana.
  2. Install a public image writer application of your choice. The commonly used tools are Rufus (https://rufus.akeo.ie/) and Etcher (https://etcher.io/).
  3. Run the image writer tool and write the image to a USB device.

     You can find more instructions at: https://en.opensuse.org/SDB:Create_a_Live_USB_stick_using_Windows.

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4 Installing the Operating System and SAP Products

Prerequisites

- You have prepared the installation packages as described in Obtaining the Software.
- You have configured your hardware platform according to the instructions provided in the configuration guide in the Attachments section of SAP Note 1944415.

Procedure

1. Install the Linux operating system (SUSE installation wizard).
2. Install SAP HANA Platform Edition (SUSE installation wizard or SAP Product Installer).

   Note

   For Fujitsu servers RX2540, RX2560, and TX2560, before proceeding to install SAP software, you must download and install network drivers and RAID utilities as described in these SAP Notes:

   RX2540 M1, RX2560 M1, TX2560 M1: SAP Note 2184438

   RX2540M2, RX2560M2, TX2560M2: SAP Note 2339449

   Therefore, after the operating system is installed, you cannot continue using the SUSE installation wizard for SAP software installation; please use the SAP Product Installer to install SAP HANA and SAP Business One, version for SAP HANA.
3. Install the base version of SAP Business One, version for SAP HANA (SUSE installation wizard or SAP Product Installer).
4. If needed, upgrade the SAP Business One product through its own upgrade method. For example, use the server components setup wizard to upgrade SAP Business One, version for SAP HANA.

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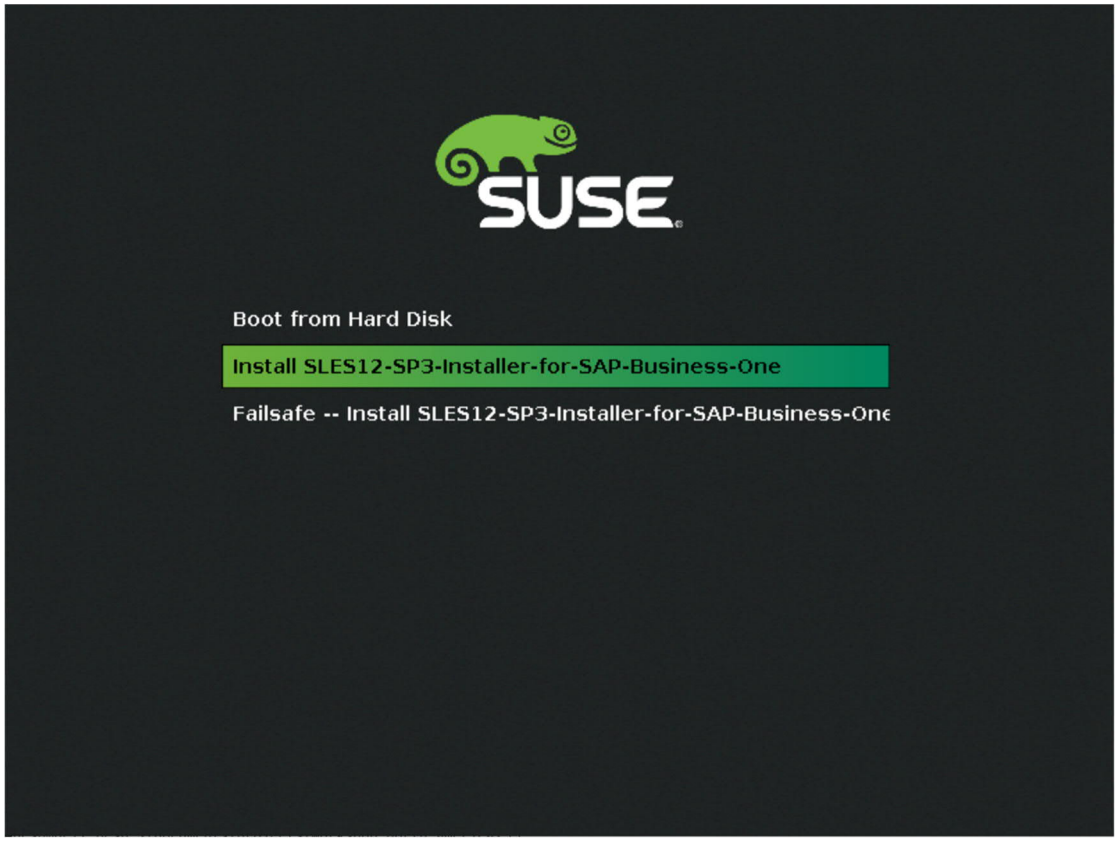
4.1 Installing and Configuring the Operating System

1. Boot from the DVDROM (or USB stick or remotely connected ISO image) that you have prepared.

   > **Note**
   >
   > You may need to temporarily change the BIOS boot order as described in the hardware configuration guide attached to SAP Note 1944415.

2. Choose Install and press ENTER.

   > **Note**
   >
   > Depending on the version, the text on the screenshots may vary.



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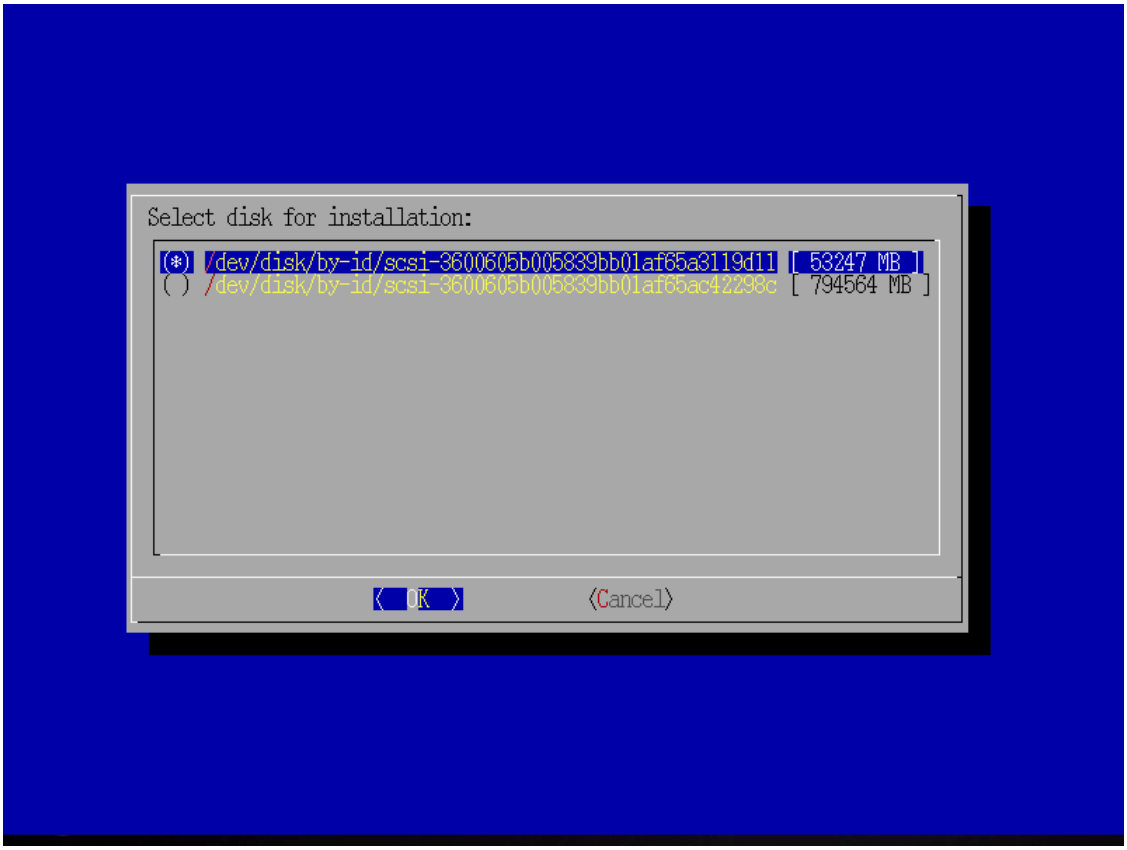
3. If the machine has more than one disk, choose the smaller one with approximately 53 GB for installing the operating system, confirm your choice by pressing SPACE, and then choose OK.

   Note that the drive names, sizes, and numbers may differ on your machine from the example screenshot.

   Example: IBM setup



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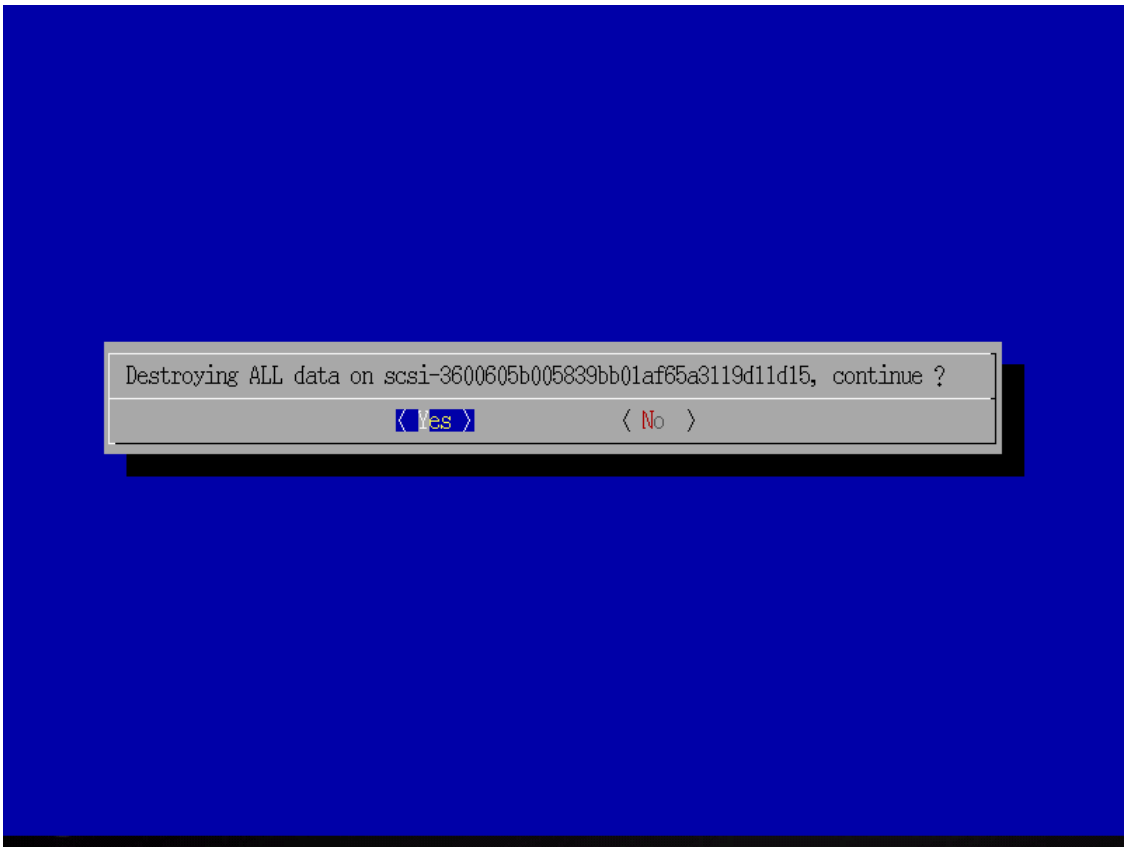
4. Choose Yes to confirm to format the selected disk.

> **Caution**
>
> All data is lost and you cannot abort your installation after the confirmation.



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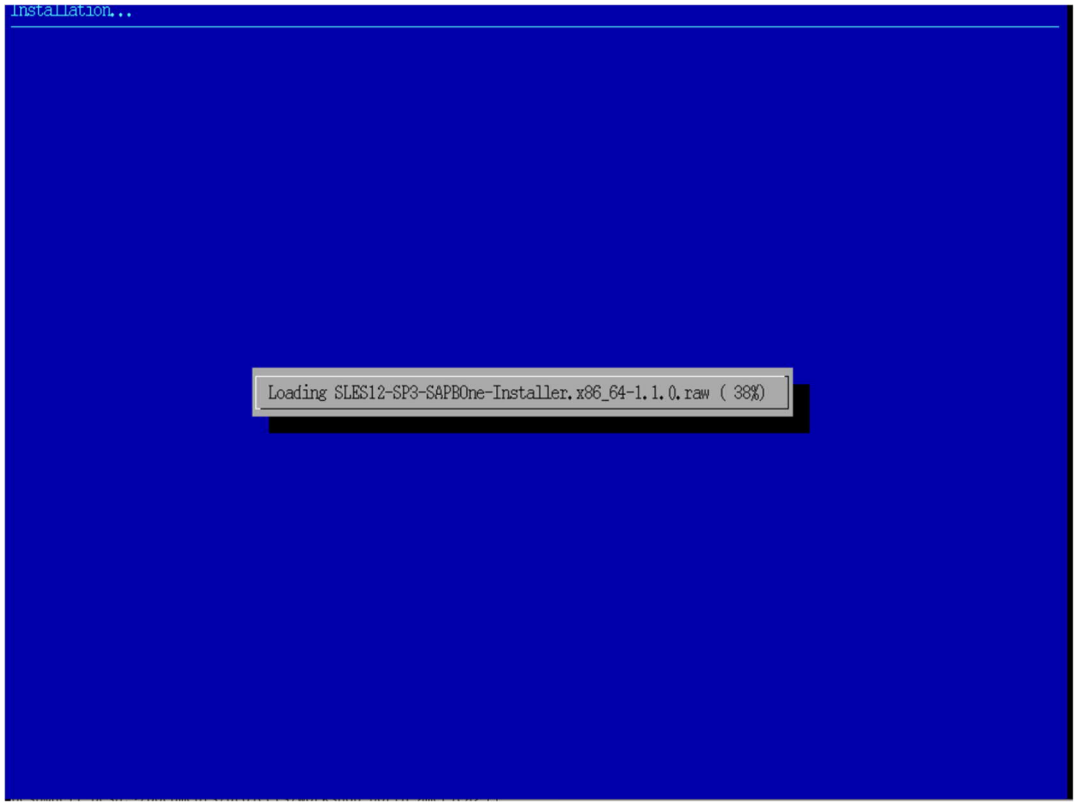
5. Wait for the system to complete the following operations:
    1. The operating system is copied to the selected disk.



    2. The system checks for any errors during the image-writing process.
    3. After verification, the disk is repartitioned and the system is ready for the installation.

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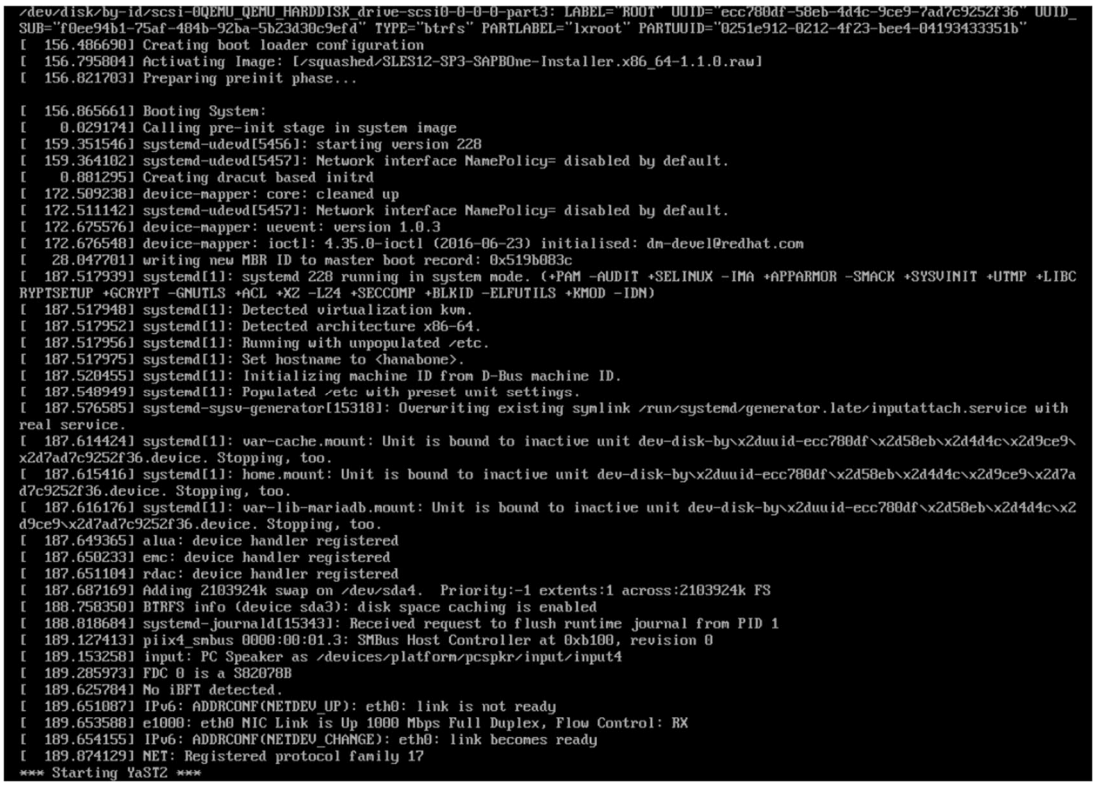
4. The system is being booted and is starting some services.



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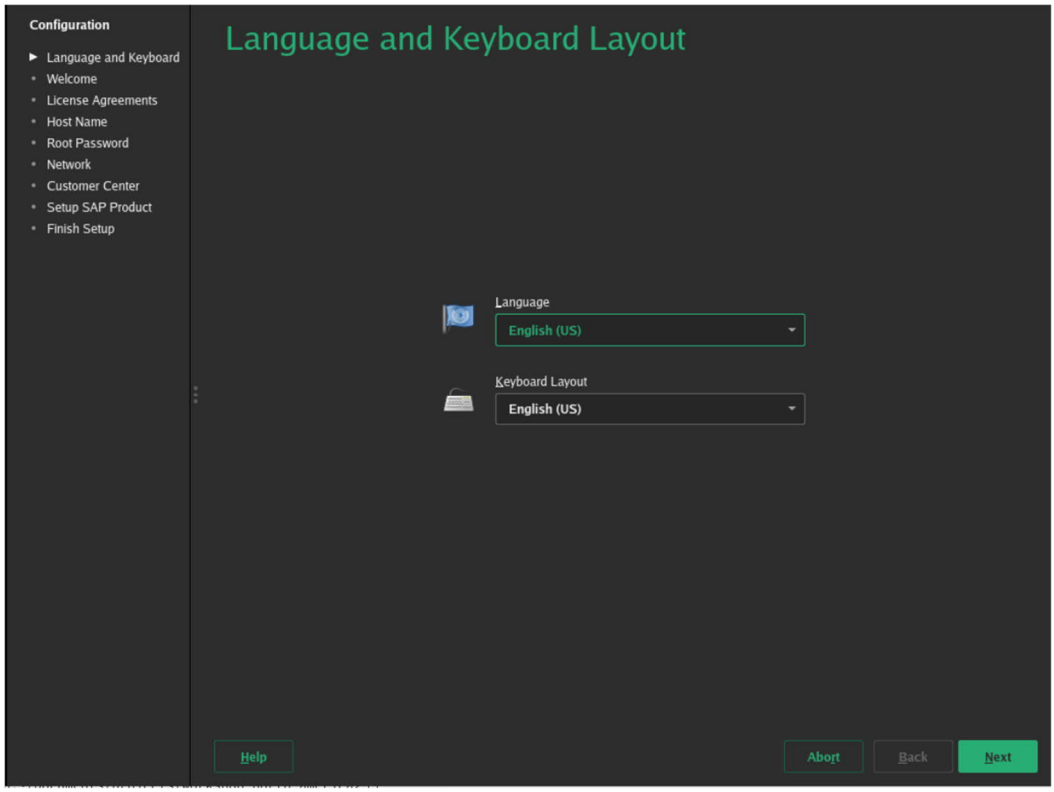
6. The installation wizard starts YaST2:
7. On the Language and Keyboard Layout page, choose your language and keyboard layout and then press ALT+N or click Next.



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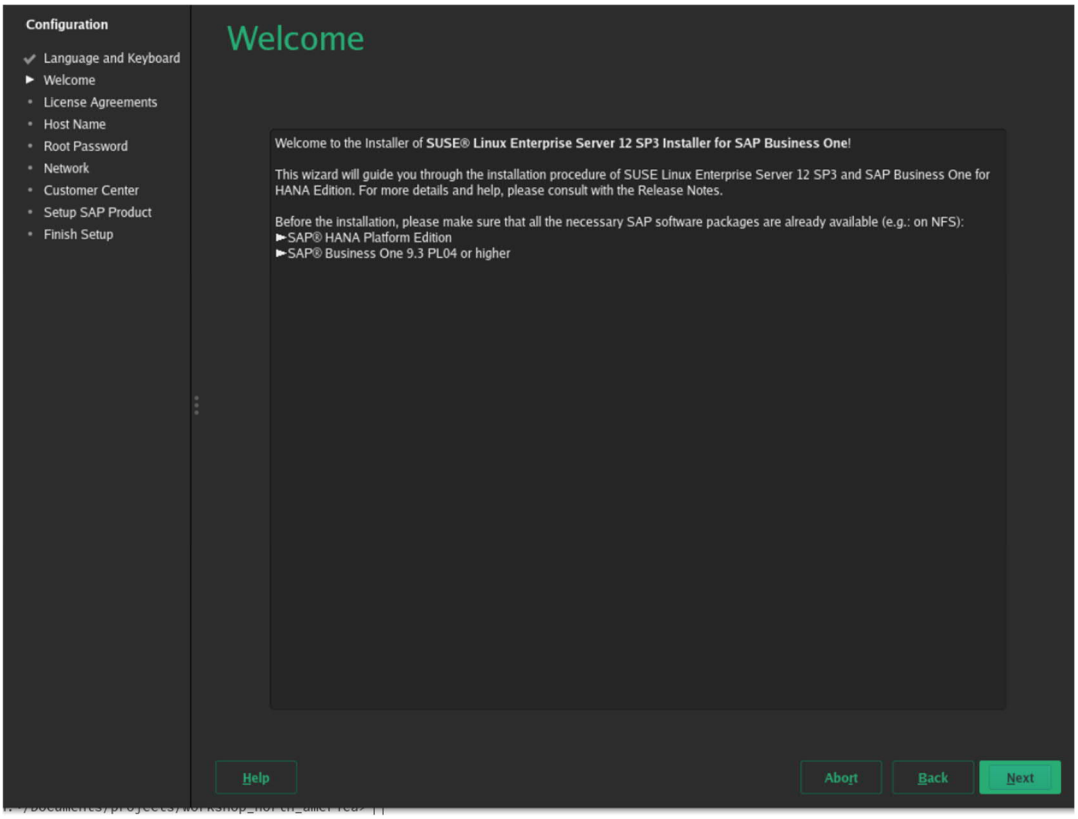
8. Read the information on the Welcome page and then press ALT+N or click Next.



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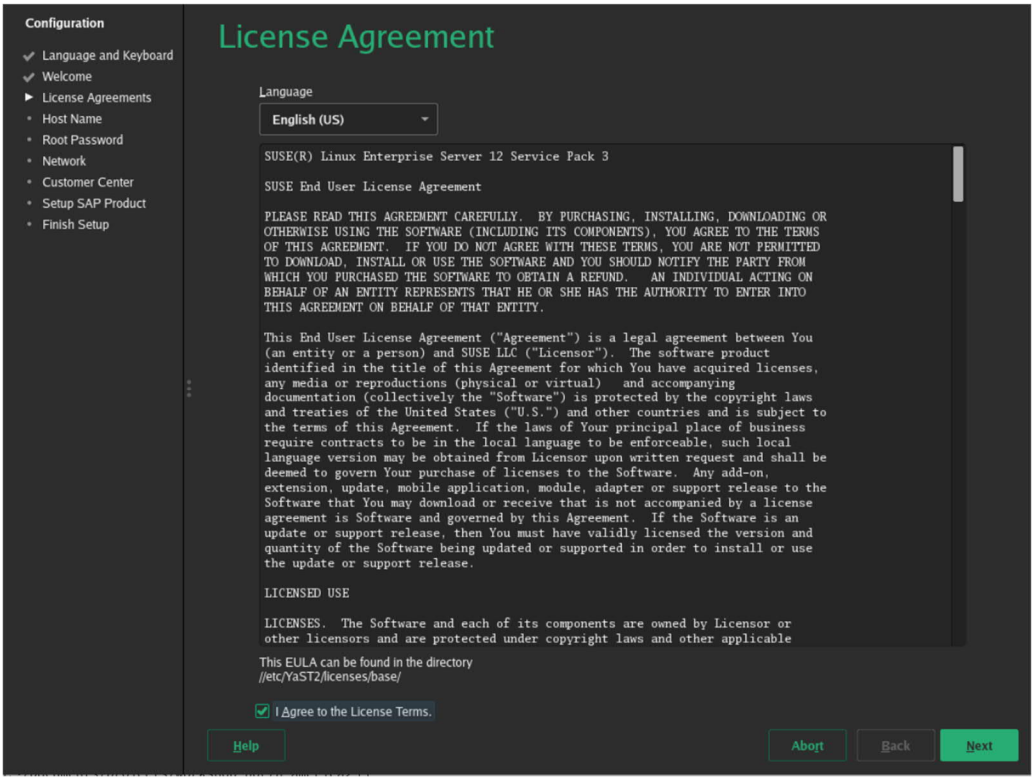
9. Read the license agreement. If you accept it, scroll down to select I Agree to the License Terms and then press ALT + A/N or click Next.



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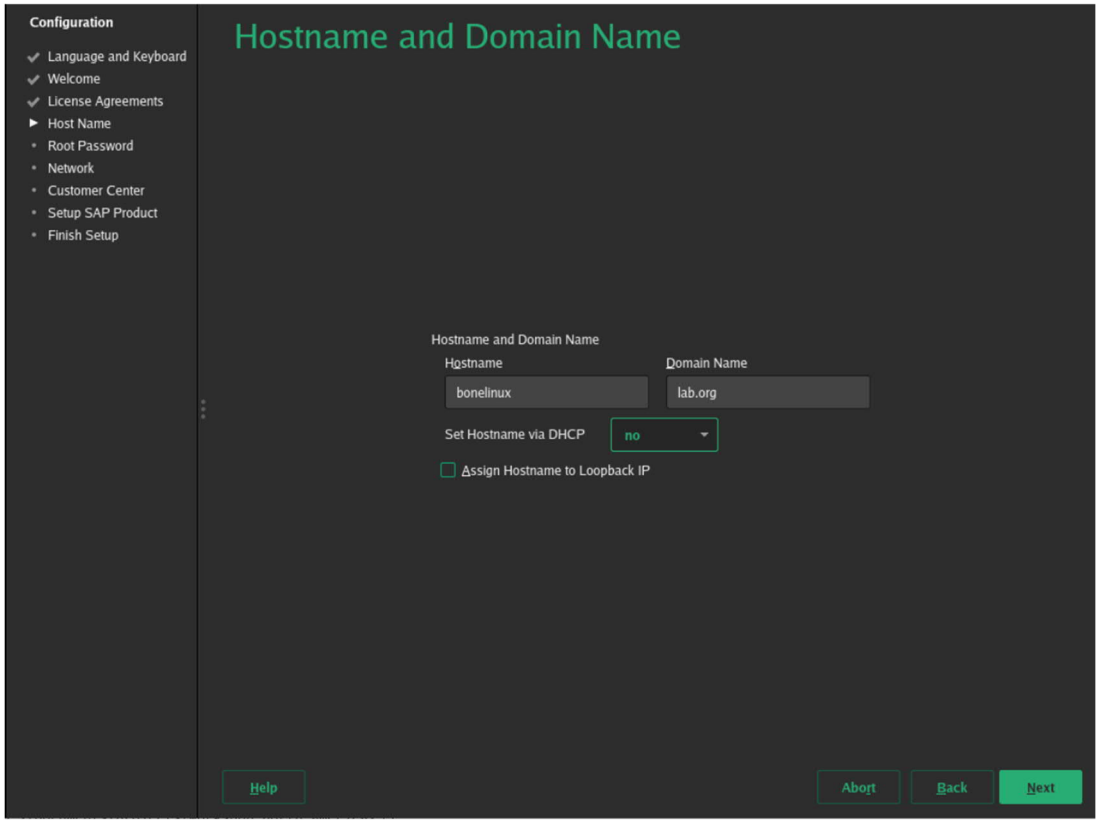
10. Enter the hostname and the domain name, then press ALT + N or click Next.

> **Note**
>
> You must set Set Hostname via DHCP to no.



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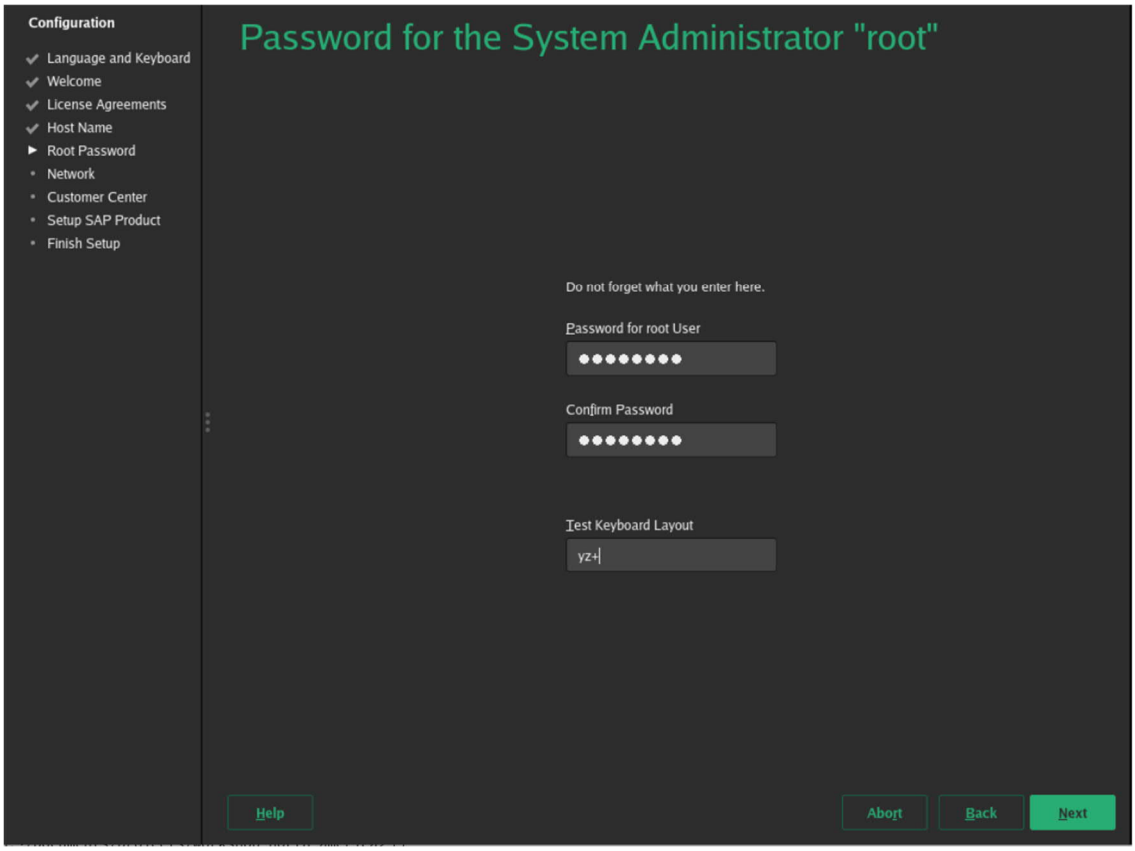
12. On the Password for the System Administrator ”root” page, enter and confirm the password for the root user, then enter text in the Test Keyboard Layout field to check your keyboard layout.

    Press ALT+N or click Next to go to the next step.



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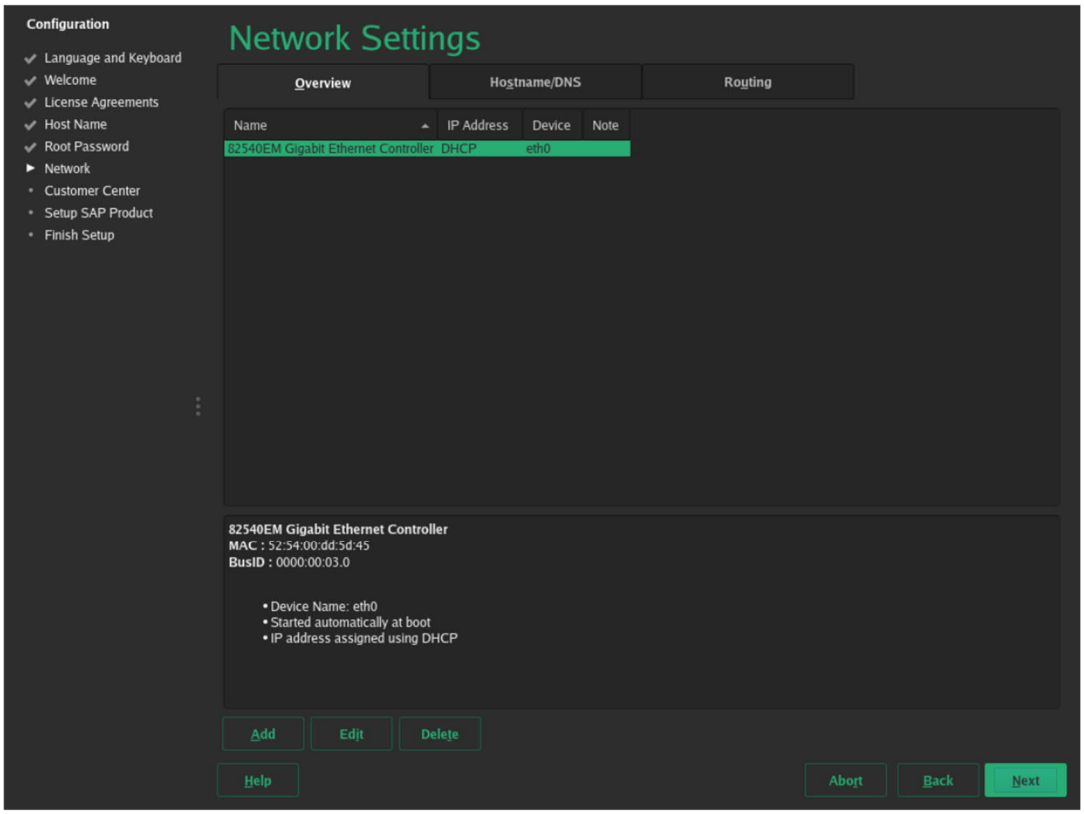
13. Change the network interfaces as follows:

    1. On the Overview tab, select the device eth0 and then choose Edit or press ALT+I.



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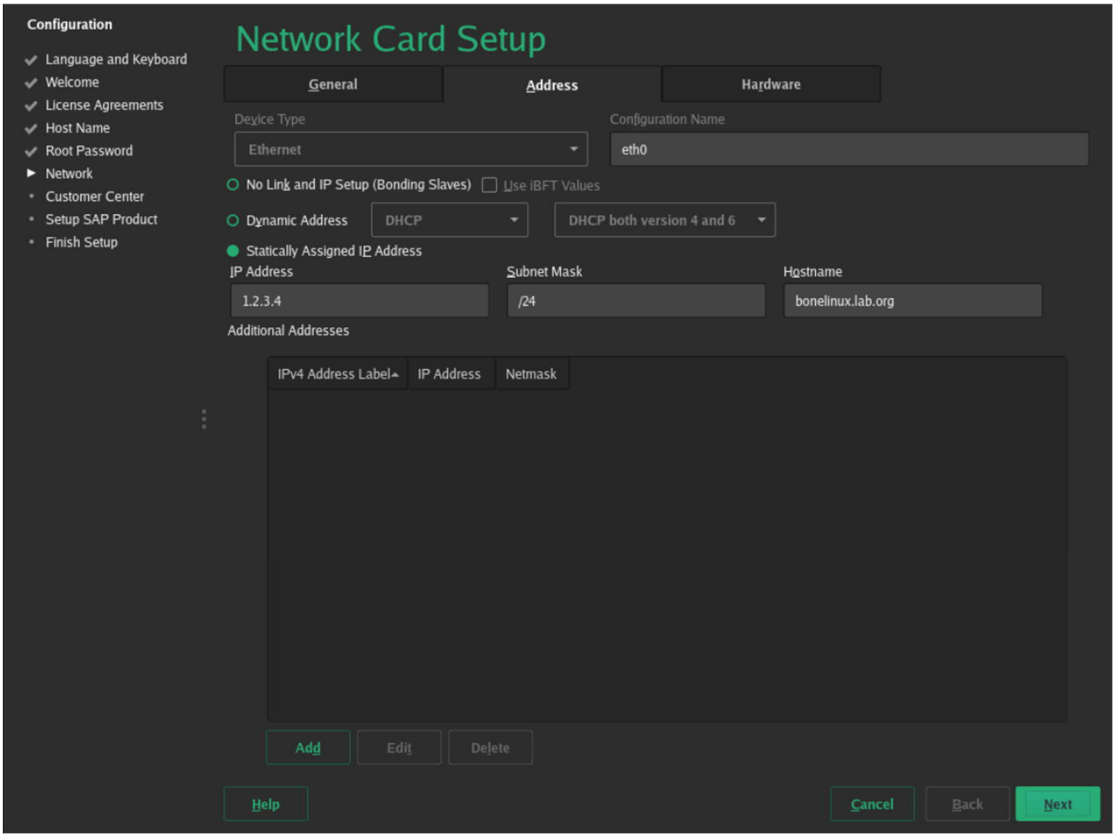
2. On the Network Card Setup page→ Address tab, select Statically Assigned IP Address and enter your IP address, subnet mask, and hostname. Then choose Next to return to the Network Settings page.



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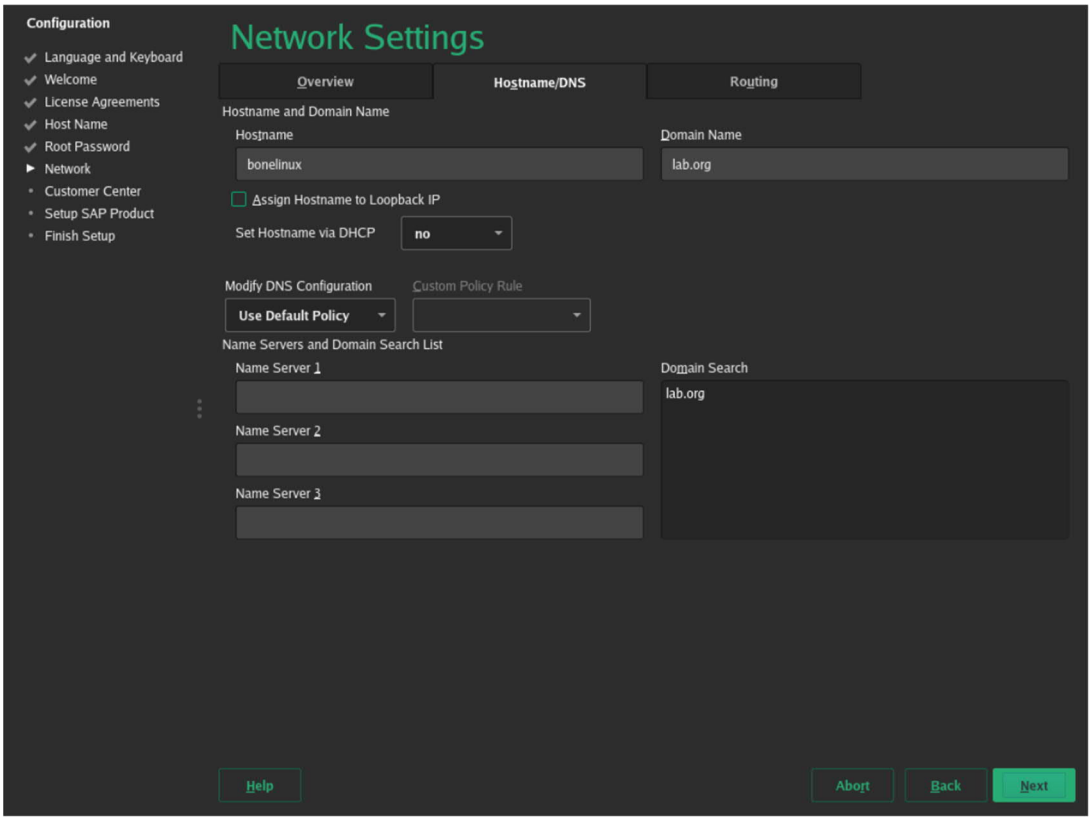
3. On the Hostname/DNS tab, enter the hostname, domain name, and the DNS servers.



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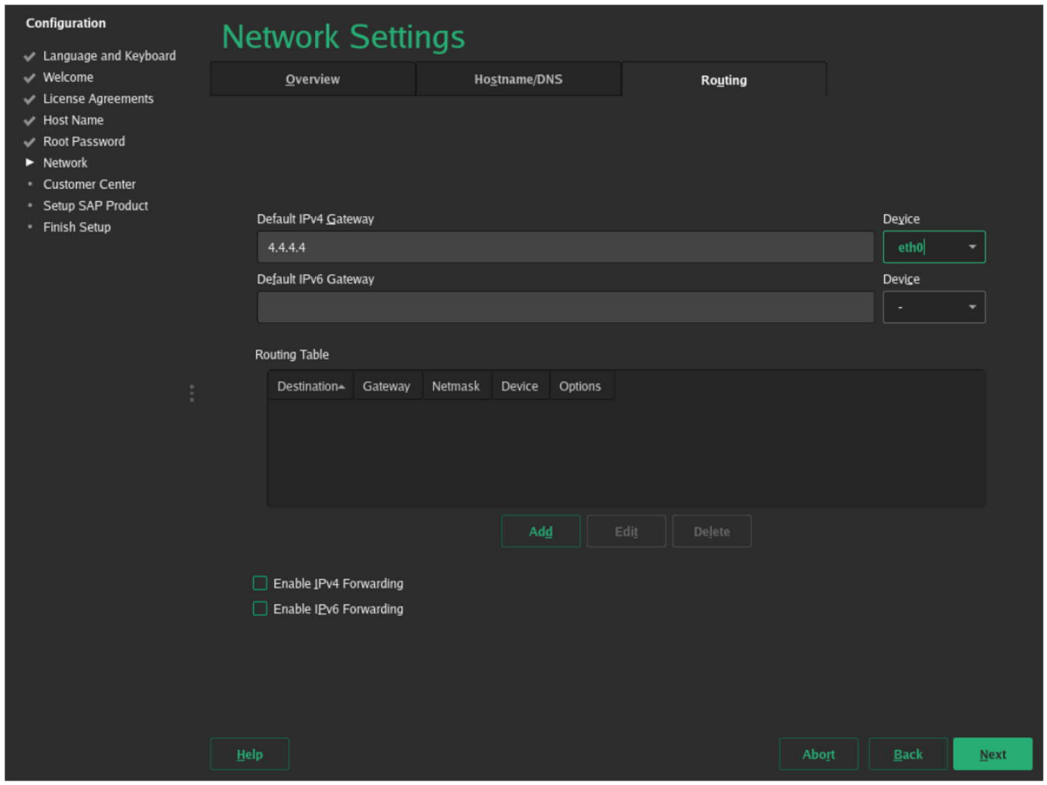
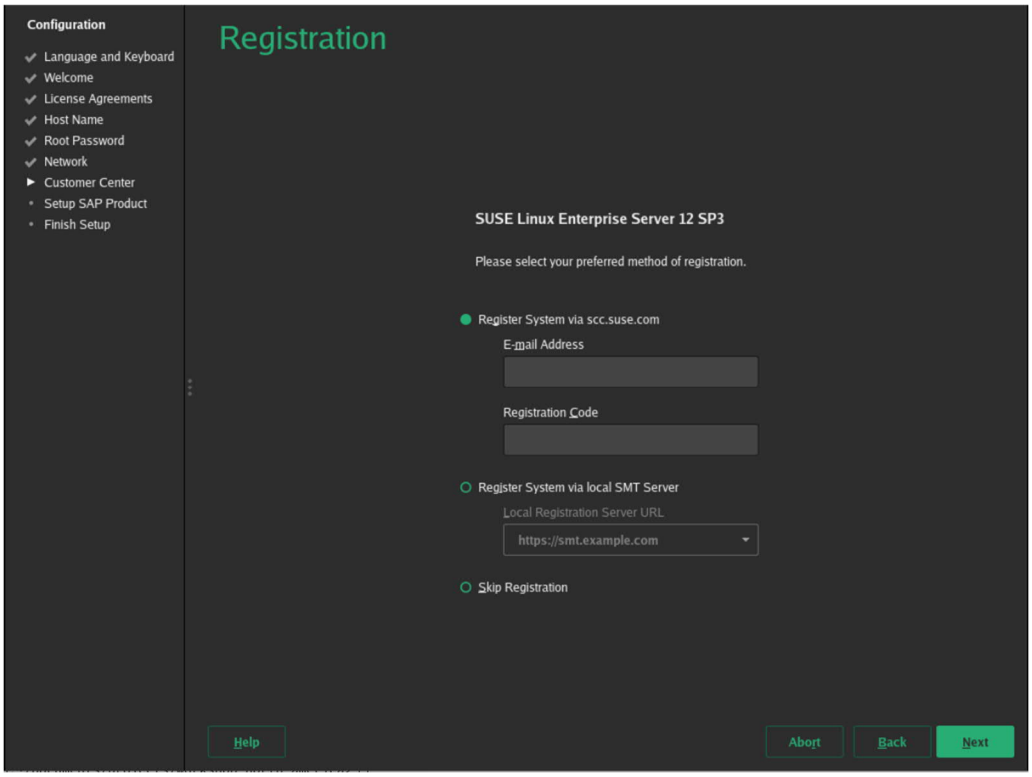
4. On the Routing tab, enter the default gateway and then choose Next.



14. Choose to register the operating system in the SUSE Customer Center for updates now or later. For instructions on how to register, see Registering the Linux Operating System.



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15. In the Product Installation Mode window, choose one of the following options to continue:
    - Create SAP file systems and start SAP product installation.

      Create SAP -related partitions, logical volumes and file systems, such as `/usr/sap`, `/hana/shared`, `/hana/data`, `/hana/log`, and proceed to install SAP HANA, as described in Installing SAP HANA.

      If you choose this option, select the disks; the wizard will then automatically create the related partitions.
    - Only create SAP HANA file systems, do not install SAP products now.

      Create SAP -related partitions, logical volumes and file systems only; install SAP products manually later.

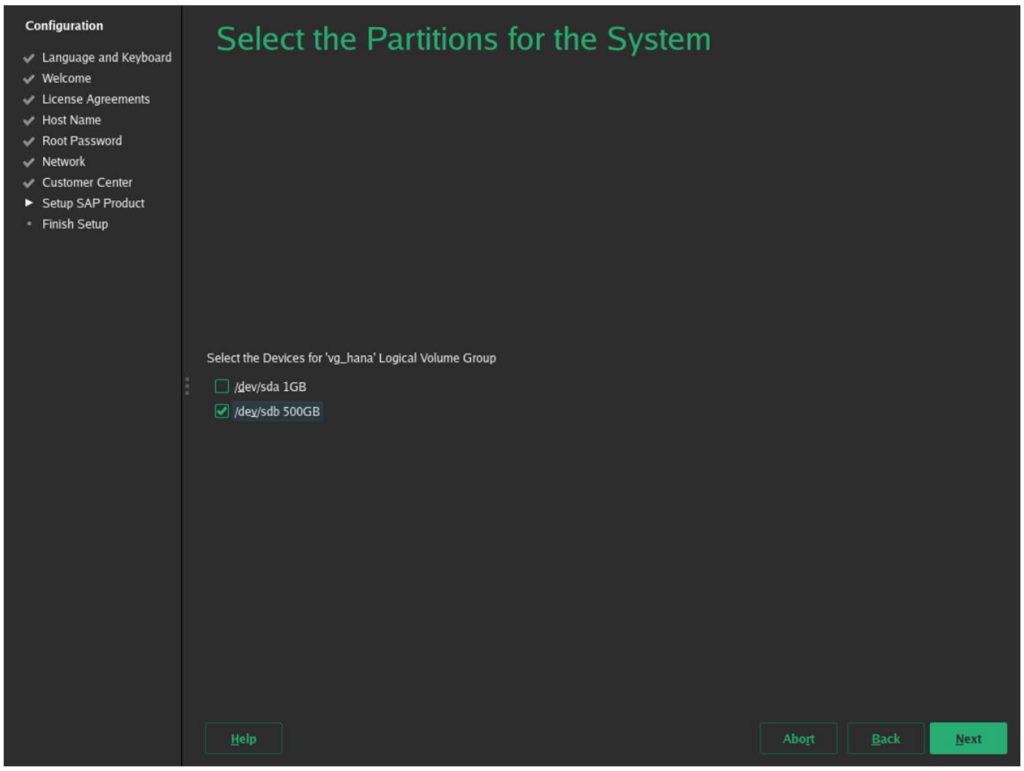
      If you choose this option, select the disks; the wizard will then automatically create the related partitions.
    - Finish wizard and proceed to OS login (see Registering the Linux Operating System).

      Exit the wizard; manually create SAP file systems and start SAP product installation later.

      Note that the default file system of SLES 12, btrfs, is not supported by SAP HANA. The supported file systems are: XFS, EXT3, GPFS, NFS, and OCFS2. It's highly recommended that you use the XFS file system as the default. For more information, see SAP Note 405827.

    Note

    The example below does not match a certified server setup and sizing.



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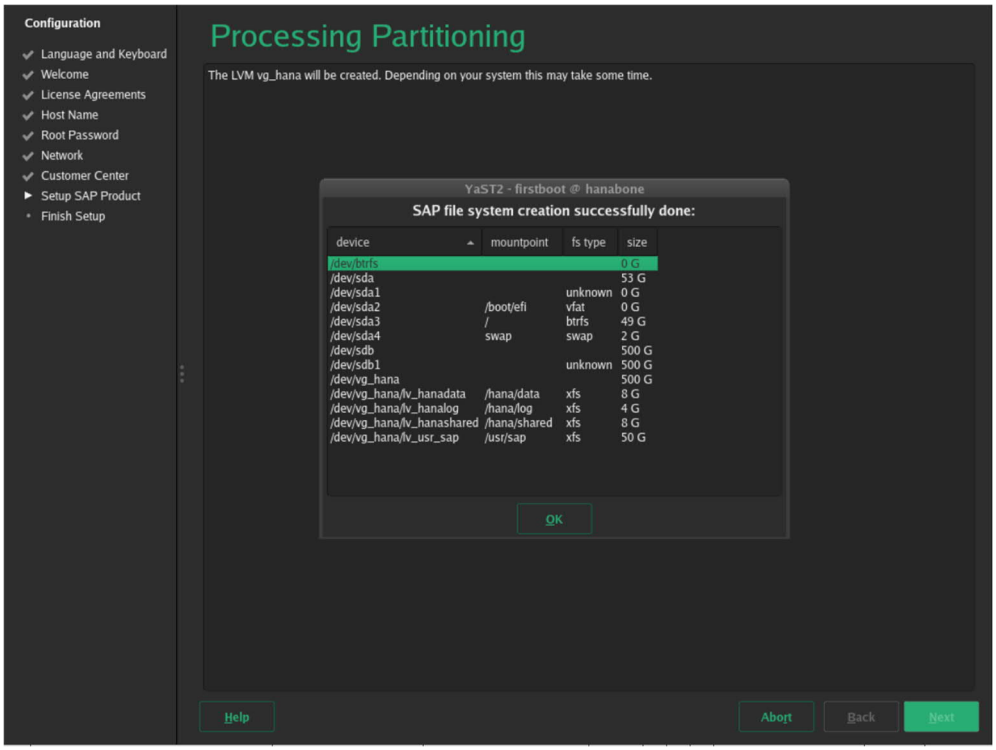

For more information about SUSE logical volume manager (LVM), please read the SUSE Storage Administration Guide, section LVM Configuration.

Note

You can achieve the same result and automatically create HANA partitions from the installed OS by opening a terminal and running the following command as user **root**:

```
yast2 sap-installation-wizard hana_partitioning
```

Note

For FUJITSU servers, before proceeding to install SAP software, you must download and install network drivers and RAID utilities as described in the following SAP Notes:

RX2540 M1, RX2560 M1, TX2560 M1: SAP Note 2184438.

RX2540M2, RX2560M2, TX2560M2: SAP Note 2339449.

Caution

After the initial OS installation, a reboot is required so that these OS performance settings get activated:

CPU C-states configured for lower latency in Linux (SAP Note 2240716)

CPU governor set to 'performance' (SAP Note 1890444)

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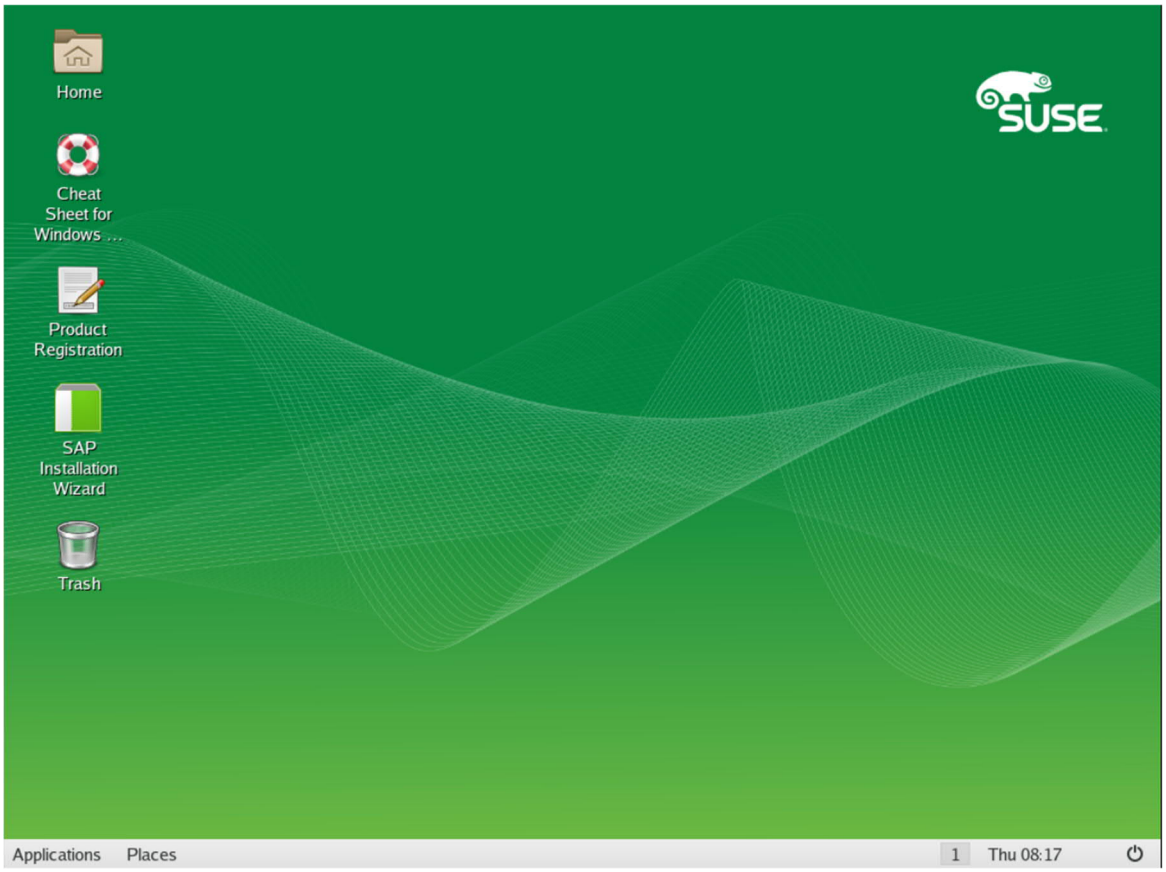
4.2 Installing SAP HANA

After installing the operating system, continue with the installation of SAP HANA.

> **Note**
>
> You must install SAP HANA before you install any other SAP Business One components, version for SAP HANA.
>
> In addition, you can also use SAP Installation Wizard to install SAP HANA using a similar procedure.
>
> For instructions on how to launch SAP Installation Wizard, see Installing SAP Business One, version for SAP HANA or use the link on the desktop of your freshly installed OS.



Prerequisite

The unpacked SAP installation packages are available on one of the following types of device:

- NFS
- CIFS

> **Note**
>
> The CIFS mount command varies according to your Windows environment:

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If you use workgroups:`<UserName>:<Password>@<ServerName>/share/<Path>/on/the/share?workgroup=<GroupName>`

If you do not use workgroups:

`<UserName>:<Password>@<ServerName>/share/<Path>/on/the/share`

If you have anonymous access without a user account and password:

`<ServerName>/share/<Path>/on/the/share`

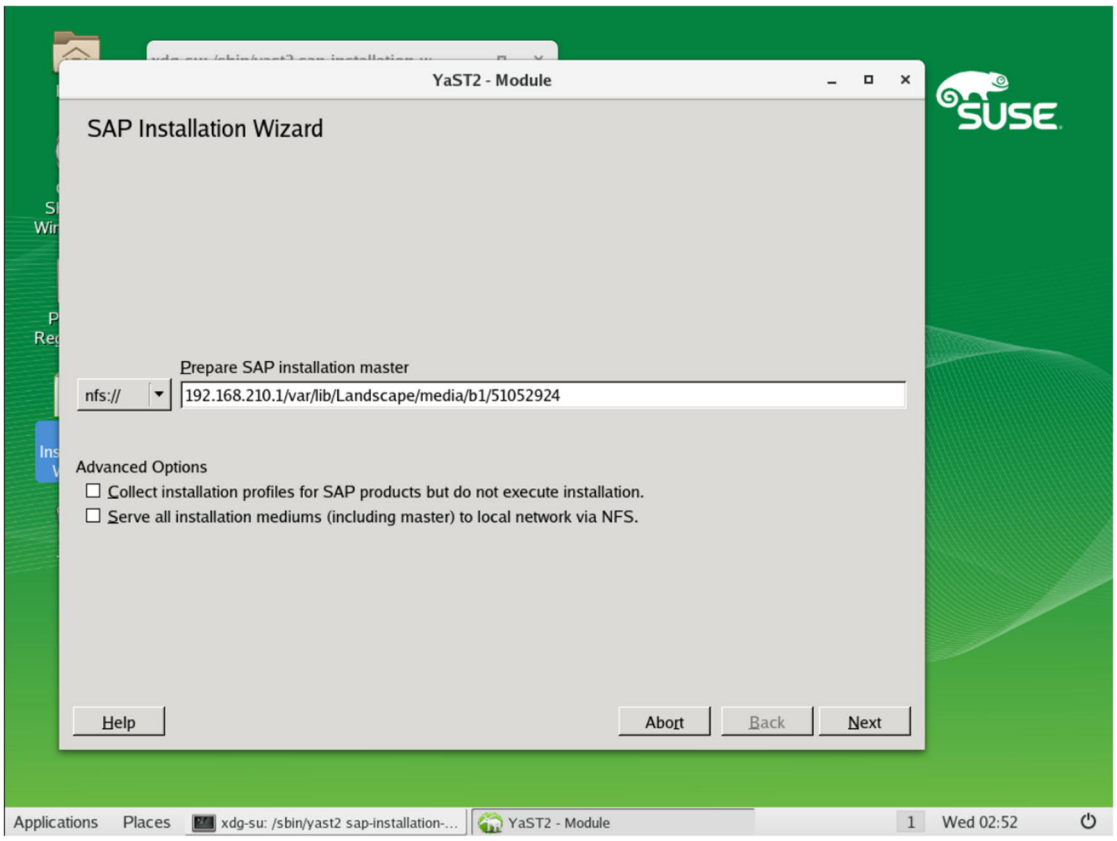
- USB device
- DVD

> **Caution**
>
> Do not store the packages on a local directory.

Procedure

1. Provide the location of the unpacked package of SAP HANA and then choose Next.

   You must provide the full path, including the directory with the SAP material number (for example, `<path>/51043617`). This directory contains the `LABEL.ASC` file that the wizard reads to recognize the SAP HANA product.



   The SAP HANA installation files are copied to a temporary location on the installation disk.

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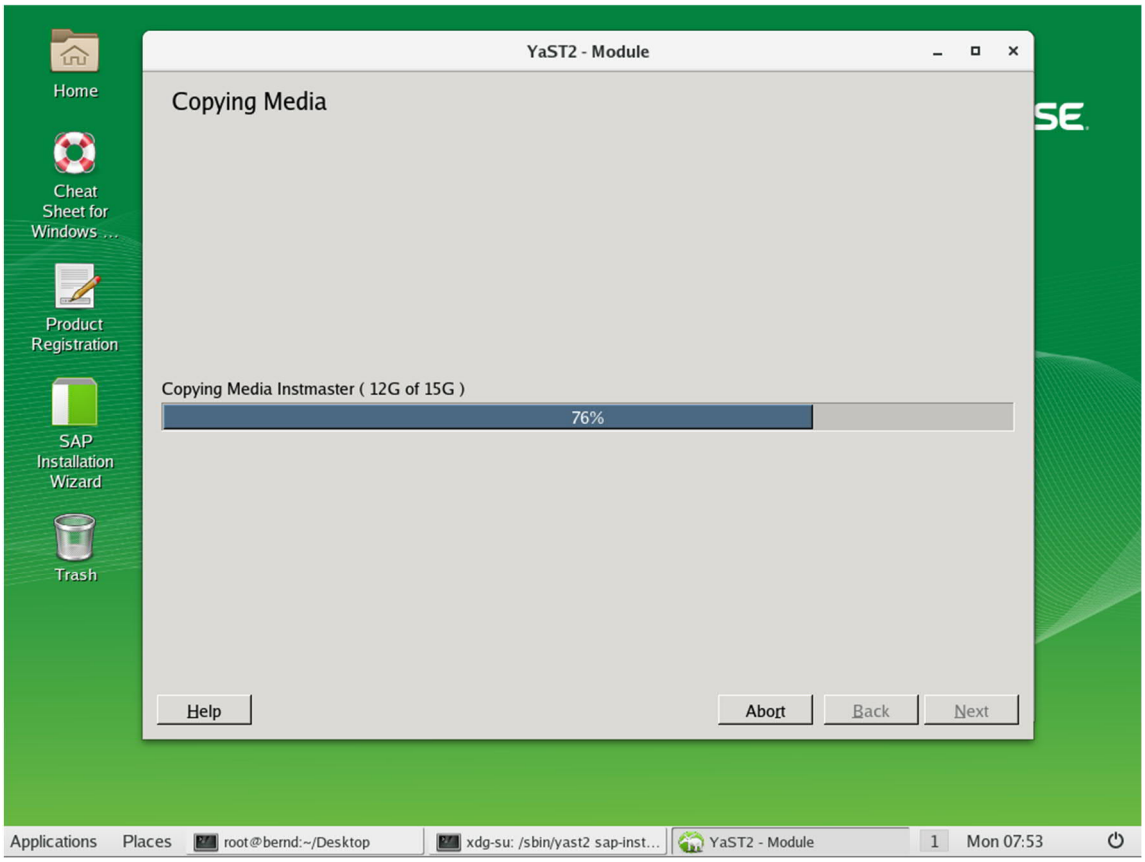

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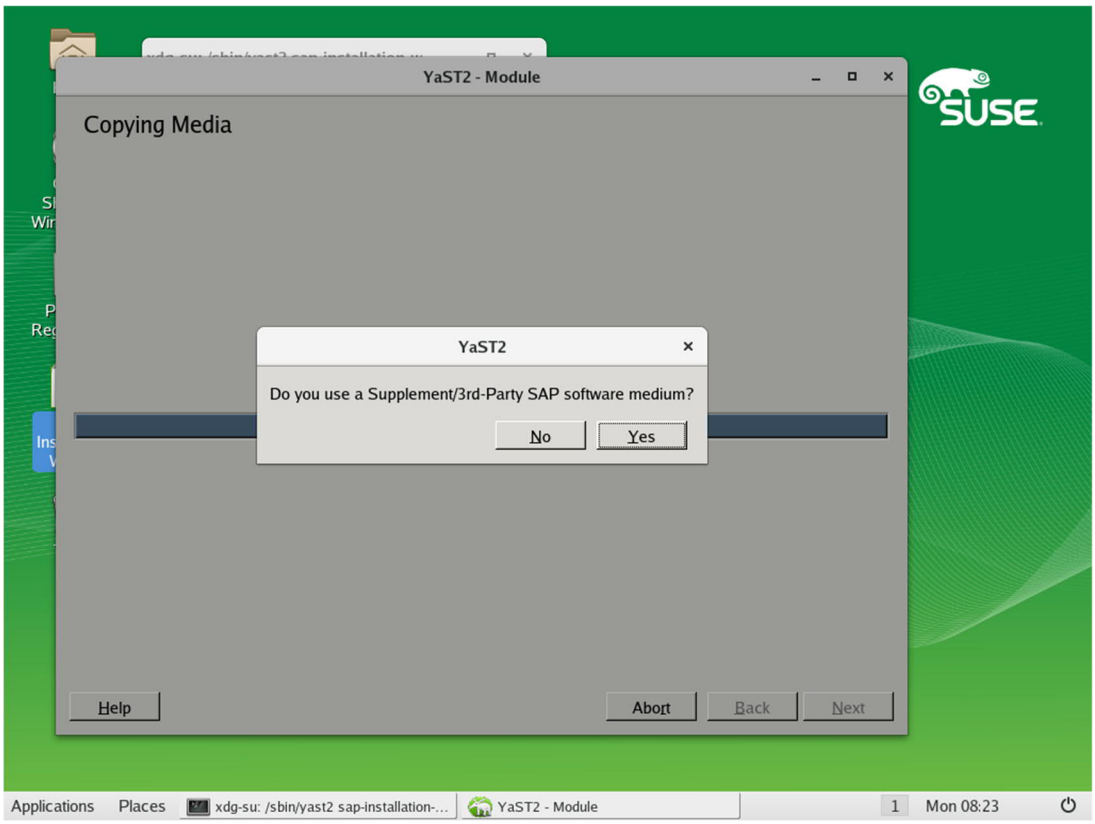
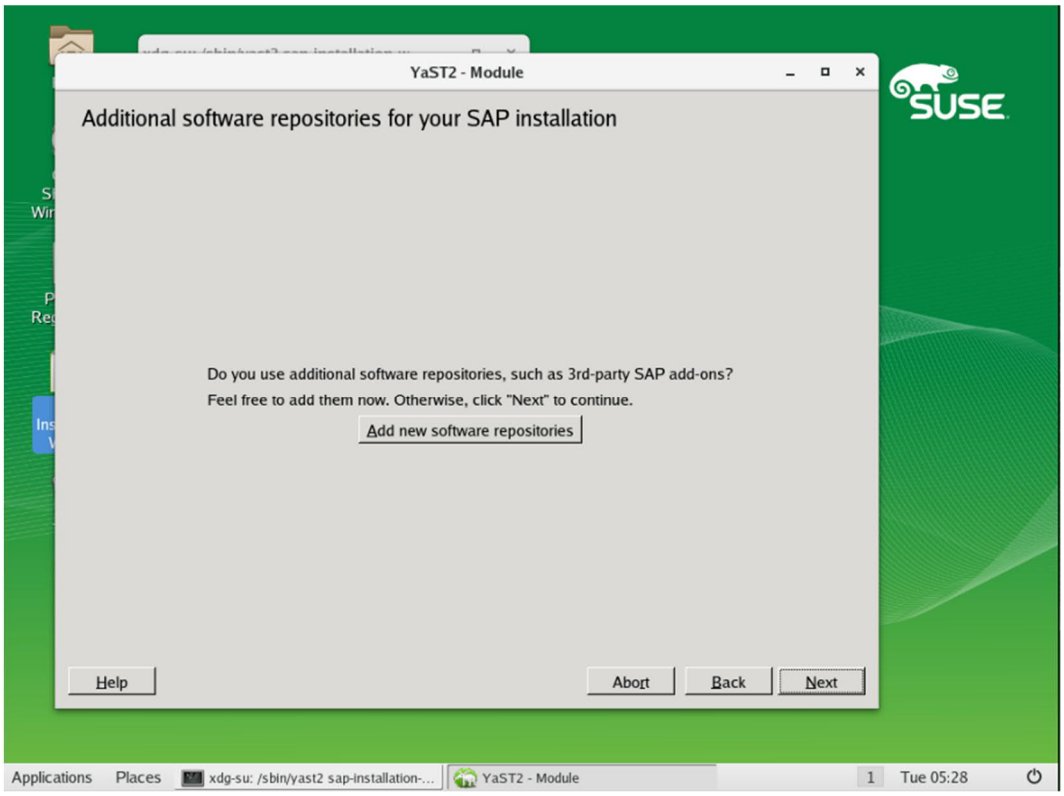
2. After the copy process, select No for the following question.



3. Choose Next.



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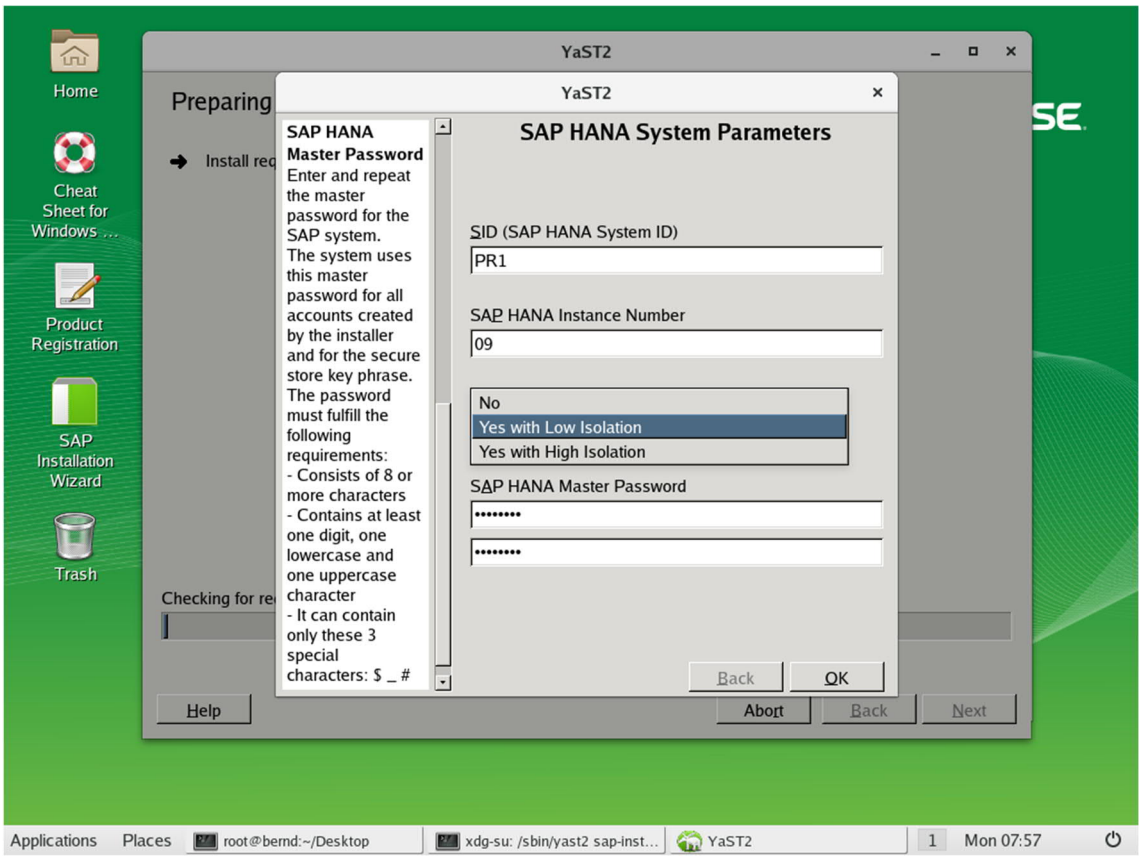
4. Enter the SAP HANA installation parameters and choose OK.

> **Note**
>
> You can keep the default SID `NDB` or enter a different SID. The system ID must be exactly three alphanumeric characters, starting with a letter A-Z.
>
> You should avoid using `B01` as the system ID, as this is reserved for SAP Business One systems. For a list of more reserved SIDs, see SAP Note 1979280.



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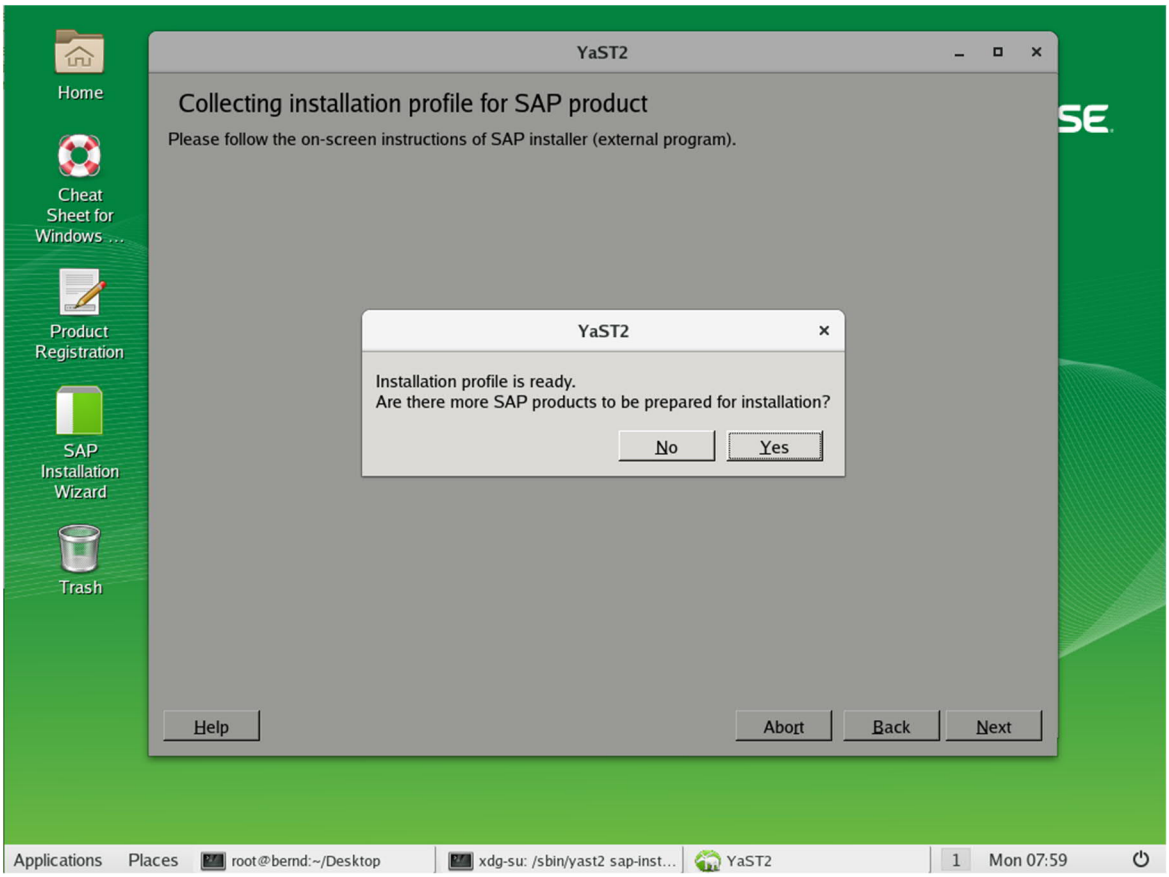
5. When prompted for other SAP products, choose Yes to install SAP HANA and SAP Business One in one go.

> **Note**
>
> Do not choose No.
>
> You must ensure that the version of the installed SAP HANA is compatible with the SAP Business One product (base version) to be installed. Please check SAP Note 2483613 - Central Note for SAP Business One 9.3, version for SAP HANA



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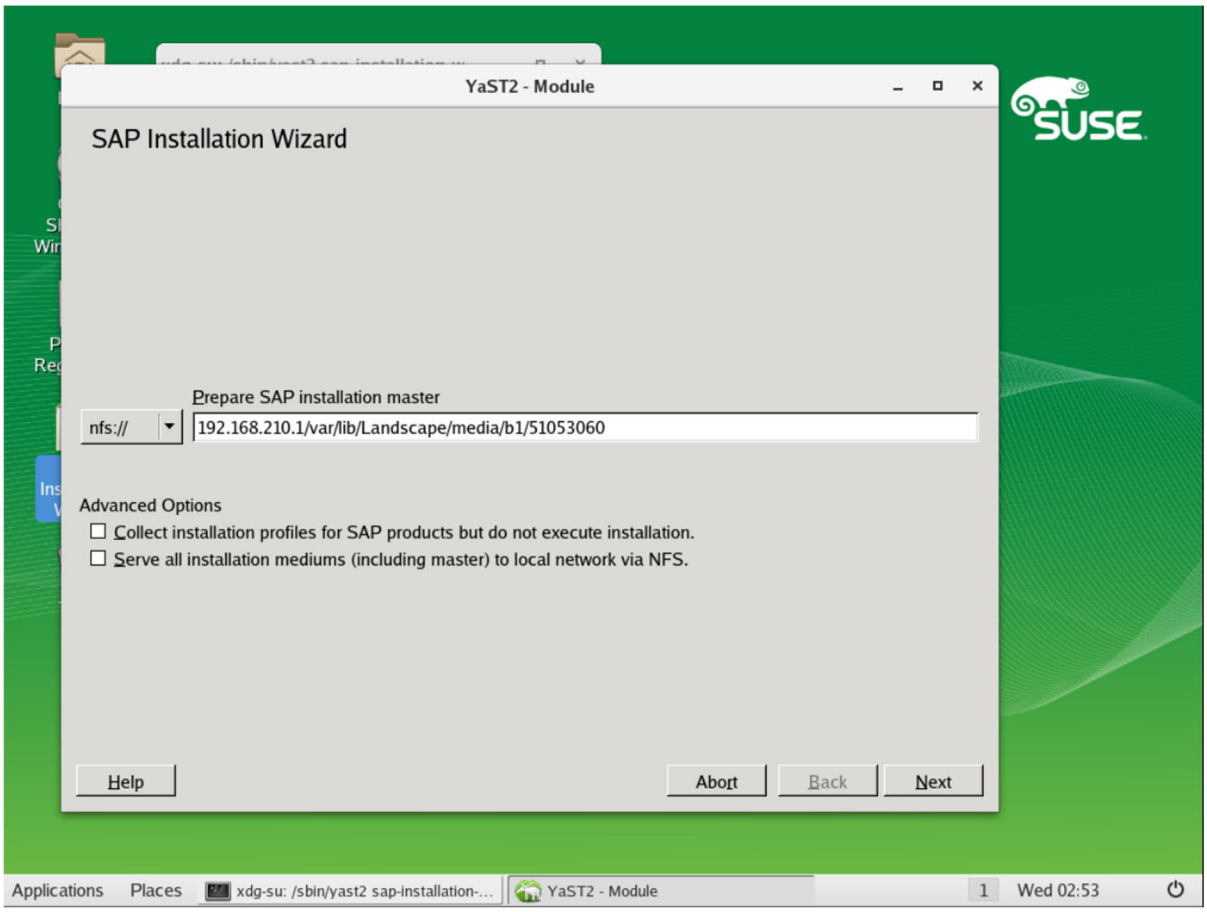
6. Modify the path and start the copy process.



7. Follow the steps as described before. After the copy process, you can start the installation. Choose No when you are asked for more SAP products to be prepared for installation.

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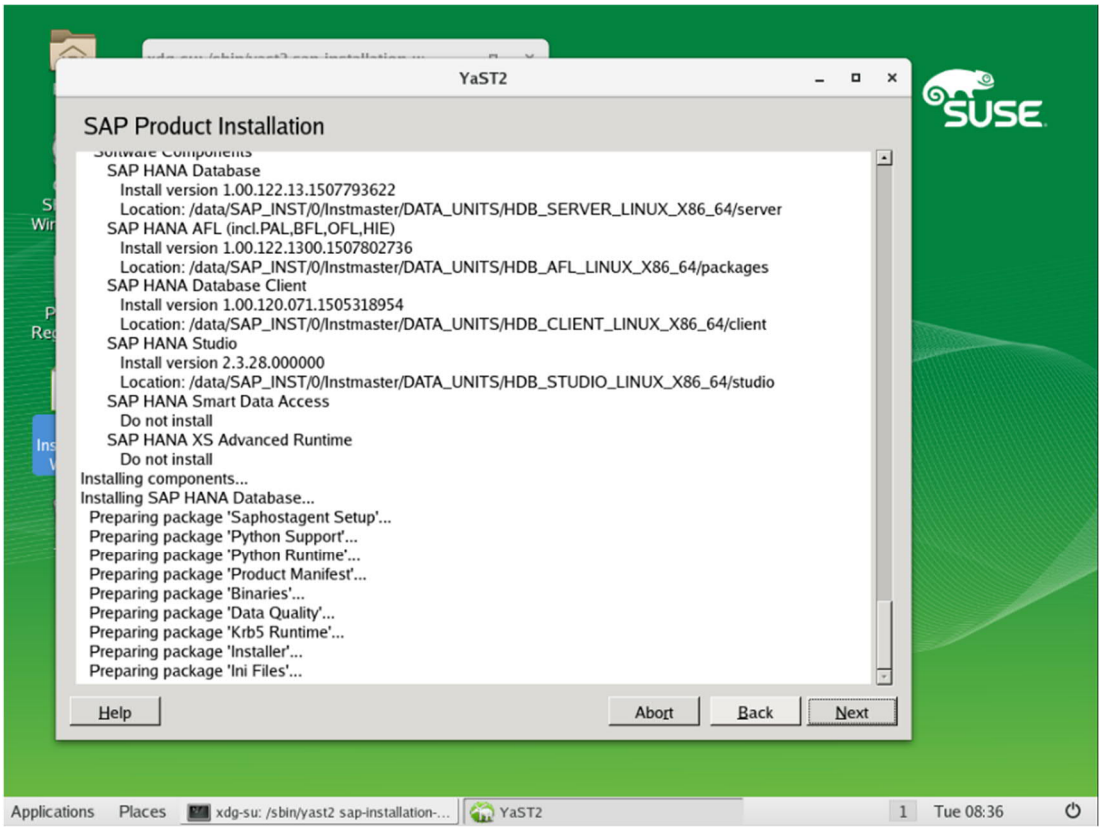
8. The installation of HANA is running. Wait for the system to finish the installation.



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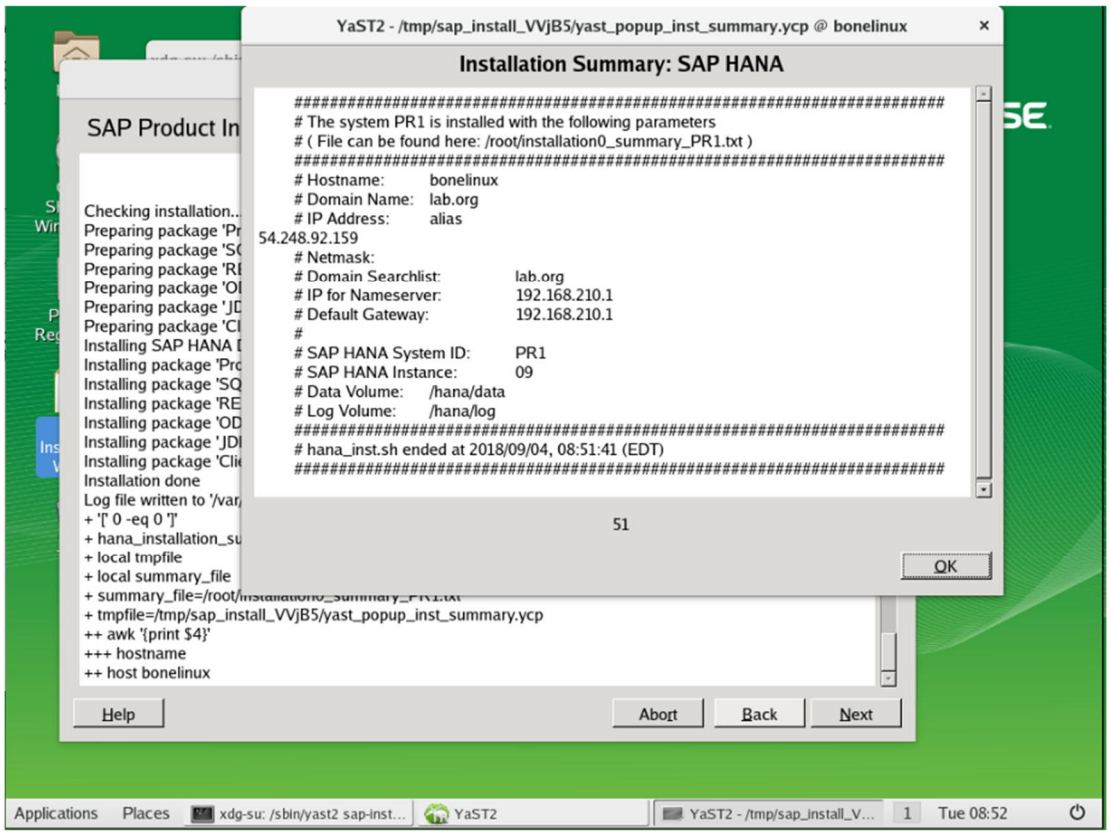
9. After SAP HANA is installed, a summary window for the SAP HANA installation is displayed (timeout after 90 seconds). The content shown is also available in a log file `/root/installation0_summary_<SID>.txt`.



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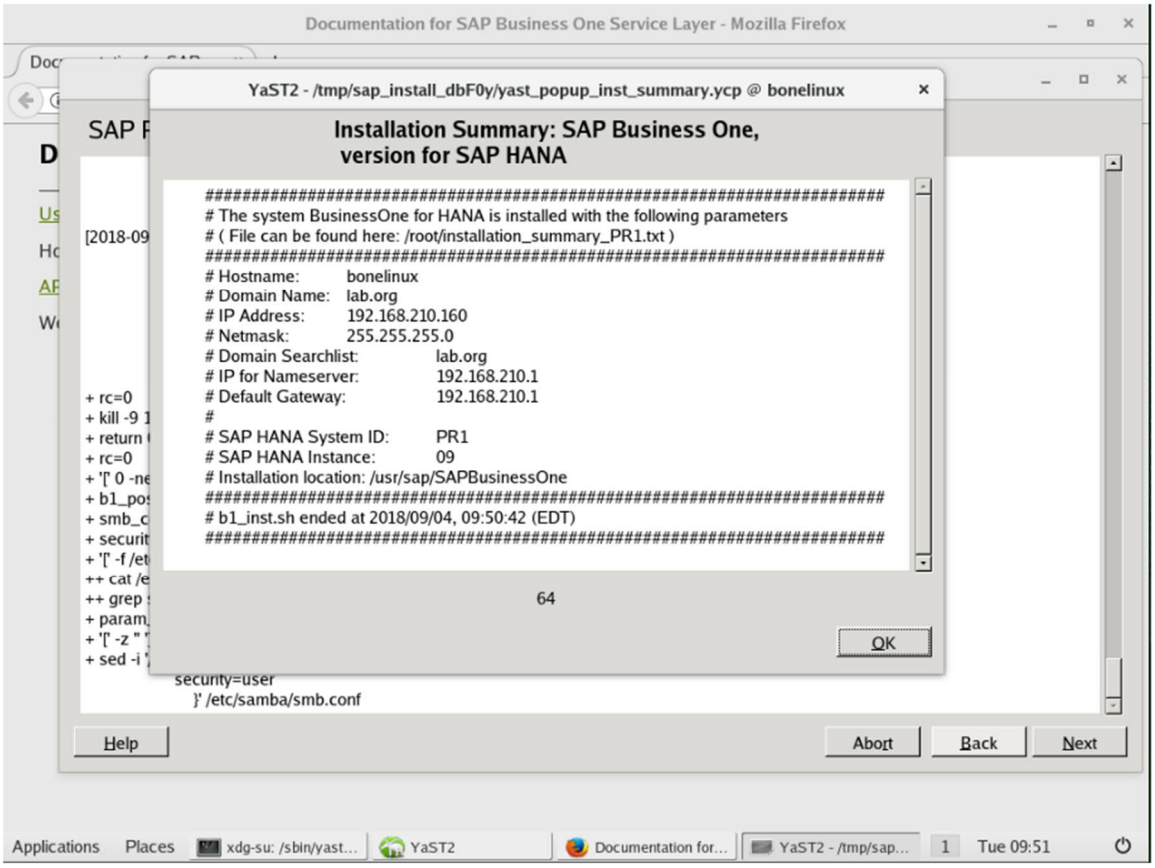
10. The installation of SAP Business One runs immediately after SAP HANA.



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Post-installation Steps

For optimal storage performance of the SAP HANA data and log volumes, it is required to set the hdbparam parameter vector in the HANA database server configuration. These hardware-dependent settings were determined during hardware certification and may differ between hardware vendor models. If a certified hardware vendor model is not listed below, the default parameters apply.

Fujitsu RX2540 M2, RX2560 M2, TX2560 M2

Parameter value	data volumes	log volumes
async_read_submit	**on**	**on**
async_write_submit_active	**auto**	**auto**
async_write_submit_blocks	**all**	**all**
size_kernel_io_queue	**1024**	**1024**
max_parallel_io_requests	**512**	**128**

Parameter Configuration

To set the parameters you can run these commands in a terminal as user <sid>adm (example values for Fujitsu):

```
hdbsql -i 00 -u system  -p <password> -jaxC "select FILE_NAME from M_VOLUME_FILES
where FILE_TYPE = 'DATA'" | while read fname; do
  dn=$(dirname $fname)
  echo $dn
done | sort | uniq | while read hdir; do
  hdbparam - - paramset "fileio[$hdir].async_read_submit=on"
  hdbparam - - paramset "fileio[$hdir].async_write_submit_active=auto"
  hdbparam - - paramset "fileio[$hdir].async_write_submit_blocks=all"
  hdbparam - - paramset "fileio[$hdir].size_kernel_io_queue=1024"
  hdbparam - - paramset "fileio[$hdir].max_parallel_io_requests=512"
done
hdbsql -i 00 -u system -p <password> -jaxC "select FILE_NAME from M_VOLUME_FILES where
FILE_TYPE = 'LOG'" | while read fname; do
  dn=$(dirname $fname)
  echo $dn
done | sort | uniq | while read hdir; do
  hdbparam - - paramset "fileio[$hdir].async_read_submit=on"
  hdbparam - - paramset "fileio[$hdir].async_write_submit_active=auto"
  hdbparam - - paramset "fileio[$hdir].async_write_submit_blocks=all"
  hdbparam - - paramset "fileio[$hdir].size_kernel_io_queue=1024"
  hdbparam - - paramset "fileio[$hdir].max_parallel_io_requests=128"
done
```


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Result

You can now proceed to install the SAP Business One product.

For more information, see Updating SAP HANA.

4.3 Installing SAP Business One, version for SAP HANA

This section describes the SAP Business One installation using the SUSE SAP Installation Wizard as a wrapper. If you want to install SAP Business One directly, run the script in the ServerComponents directory as described in the SAP Business One Administrator's Guide available at https://help.sap.com/viewer/p/SAP_BUSINESS_ONE_VERSION_FOR_SAP_HANA.

Prerequisite

- You have installed SAP HANA and updated SAP HANA to a revision that is compatible with the SAP Business One product version you intend to install.
- SAP HANA is running.
- The unpacked SAP Business One, version for SAP HANA installation packages are available on one of the following types of device:
  - NFS
  - CIFS

    Note

    The CIFS mount command varies according to your Windows environment:

    If you use workgroups:`<UserName>:<Password>@<ServerName>/share/<Path>/on/the/share?workgroup=<GroupName>`

    If you do not use workgroups:

    `<UserName>:<Password>@<ServerName>/share/<Path>/on/the/share`

    If you have anonymous access without a user account and password:

    `<ServerName>/share/<Path>/on/the/share`
  - USB device
  - DVD

    Caution

    Do not store the packages on a local directory.

Procedure

1. Log on to the Linux server as user `root` and launch the SAP Installation Wizard in either of the following ways:

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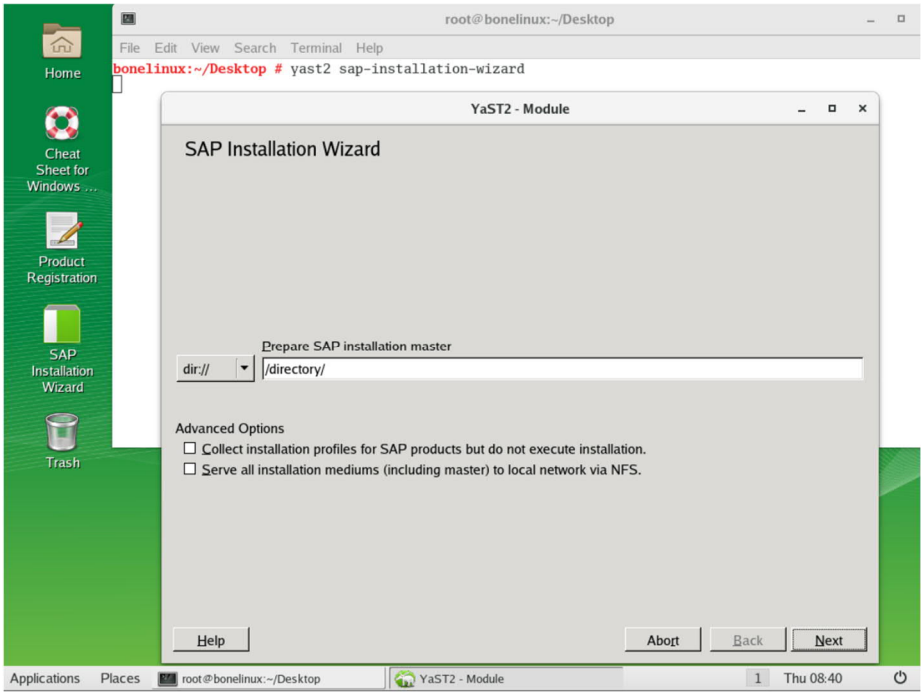
- Menu installation

  From the Linux desktop, choose SAP Installation Wizard.

- Command installation

  Open a terminal or ssh session, log on as the root user, and then run the command: **`yast2 sap-installation-wizard`**.



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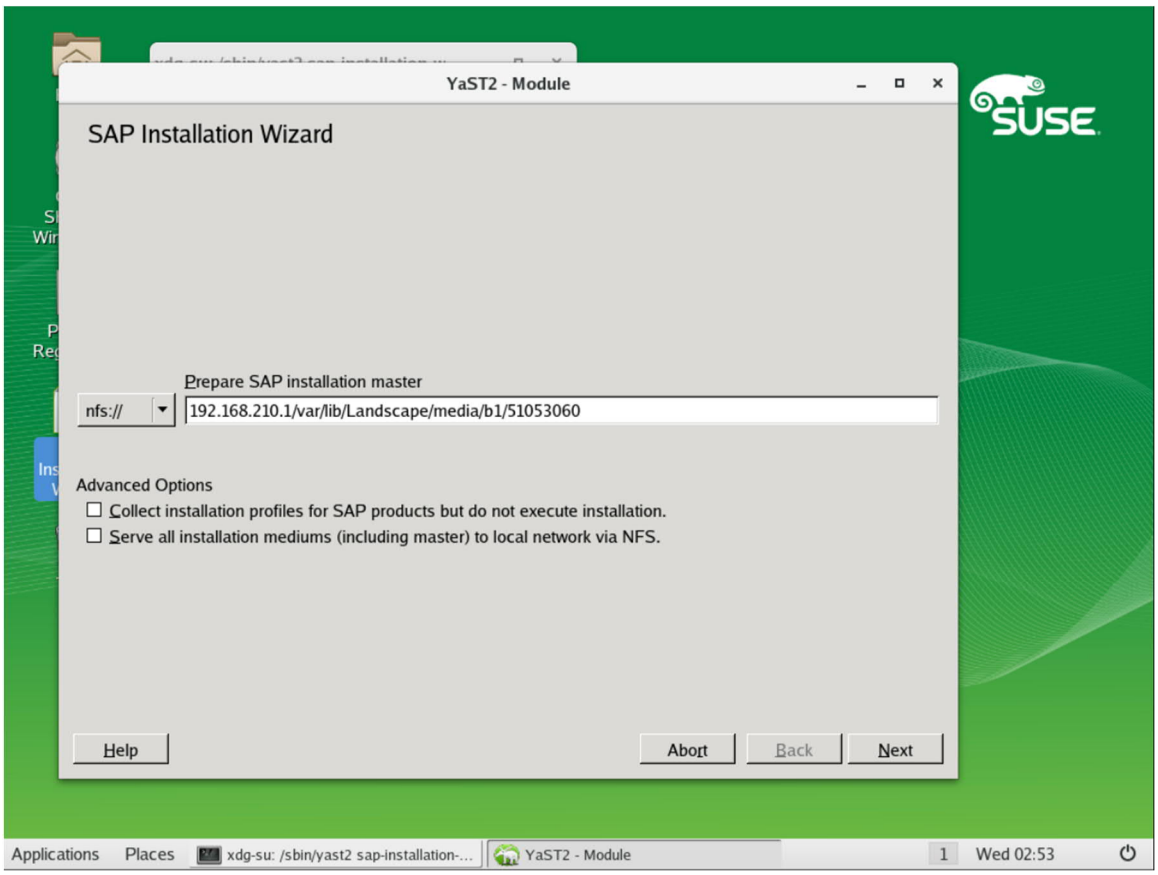
2. Provide the location of the unpacked package of SAP Business One and then choose Next.

   You must provide the full path, including the directory with the SAP material number (for example, `<path>/51043617`). This directory contains the `info.txt` file that the wizard reads to detect the SAP Business One product.



The SAP Business installation files are copied to a temporary location on the installation disk.

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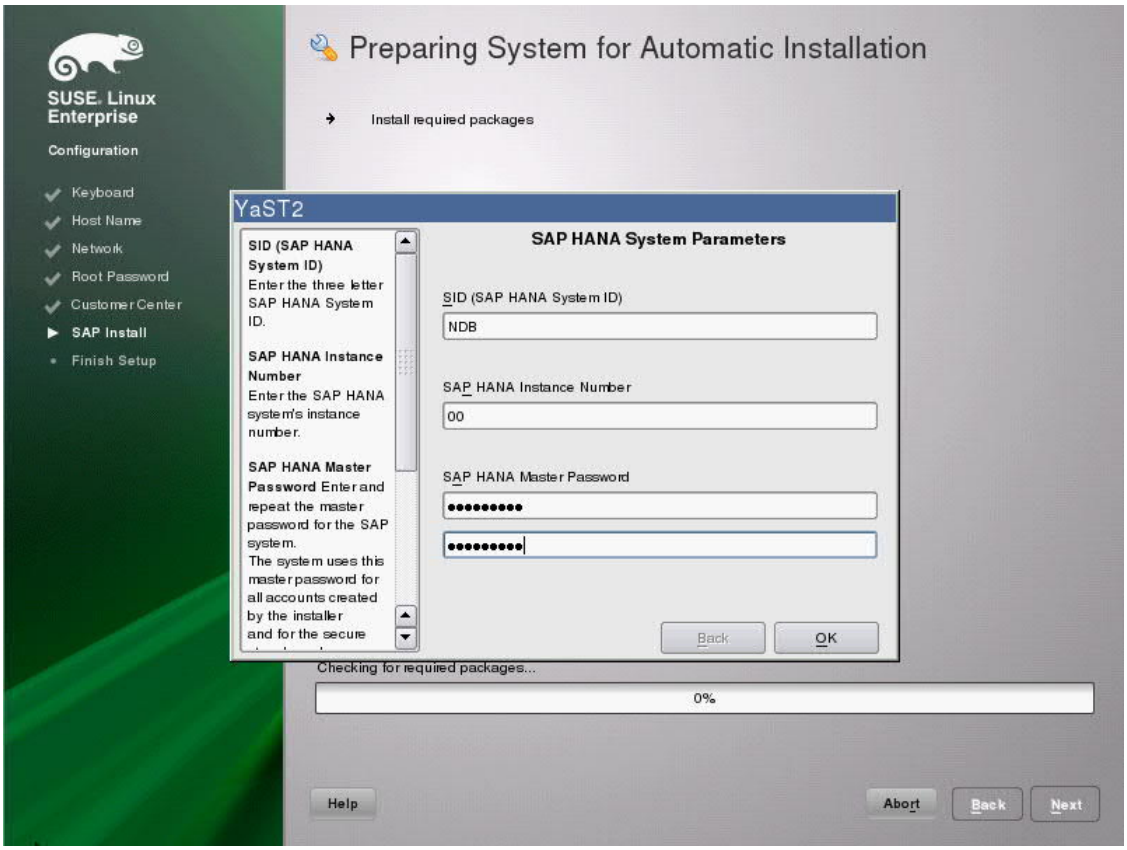
3. If you are prompted for the SAP HANA parameters, enter the same SID, instance number, and credentials as for the SAP HANA installation.



4. You can choose between a default installation and a customized installation.

   As opposed to the custom installation, the default installation does not require any further user input. On the other hand, it does not allow you to specify any custom values. Some examples:

   - You will not be able to enable the single sign-on function (logging on to SAP Business One using Windows domain user accounts) because Windows domain user credentials must be provided during installation. If you want to use the single sign-on function later, you will have to reinstall the server tools.
   - You cannot specify security certificates signed by certificate authorities, but you can provide self-signed certificates for the System Landscape Directory and the app framework

     As of 9.0 PL13 and 9.1 PL02, you can update the certificate for the System Landscape Directory manually after the installation. For more information, see the SAP Business One Administrator's Guide, version for SAP HANA.

     To update the certificate for the app framework (the XS Engine), see the SAP HANA Administrator's Guide.

   For more information, see the Shared Password section in Restrictions.

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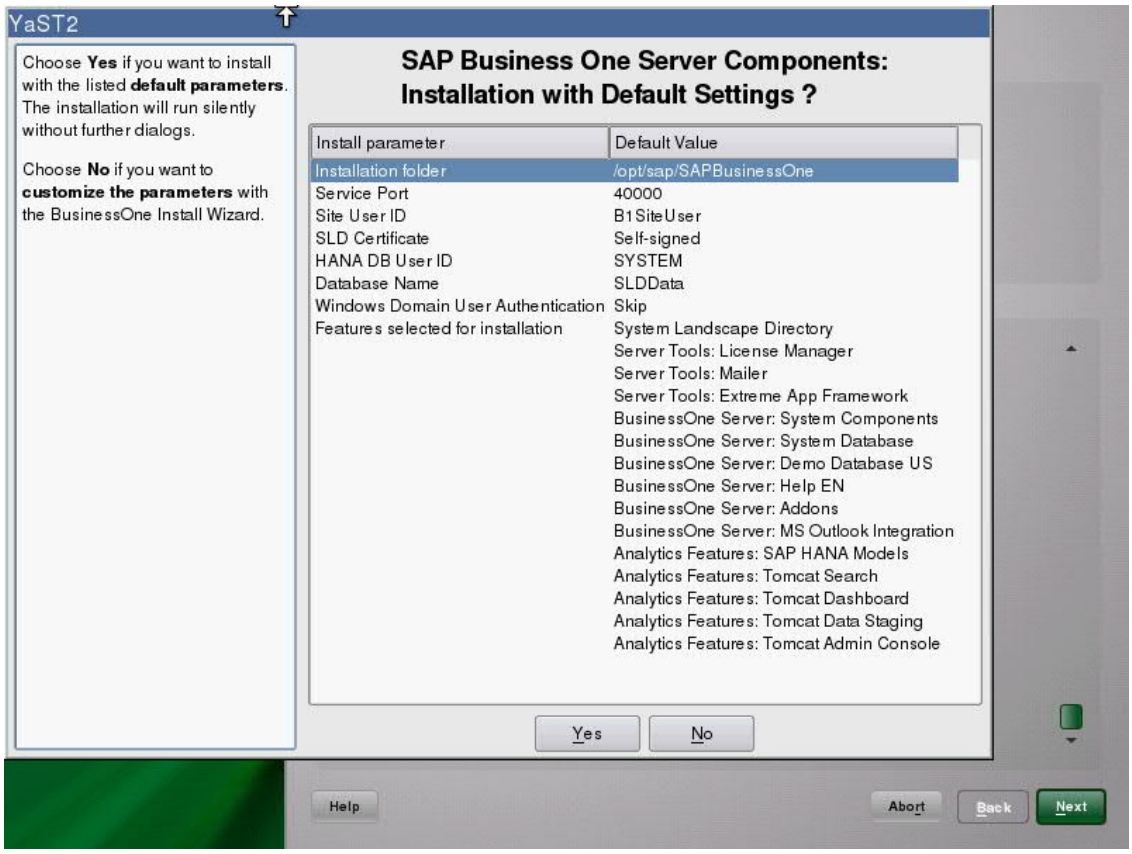

- If you choose Yes, the SAP Business One installation will run silently without need for further input.
- If you choose No, the SAP Business One server components setup wizard will guide you through the installation.

5. SAP Business One 9.3: the SAP HANA server is restarted to make the app framework work.
6. After SAP Business One is installed, a summary window for the SAP Business One installation is displayed (timeout after 90 seconds).

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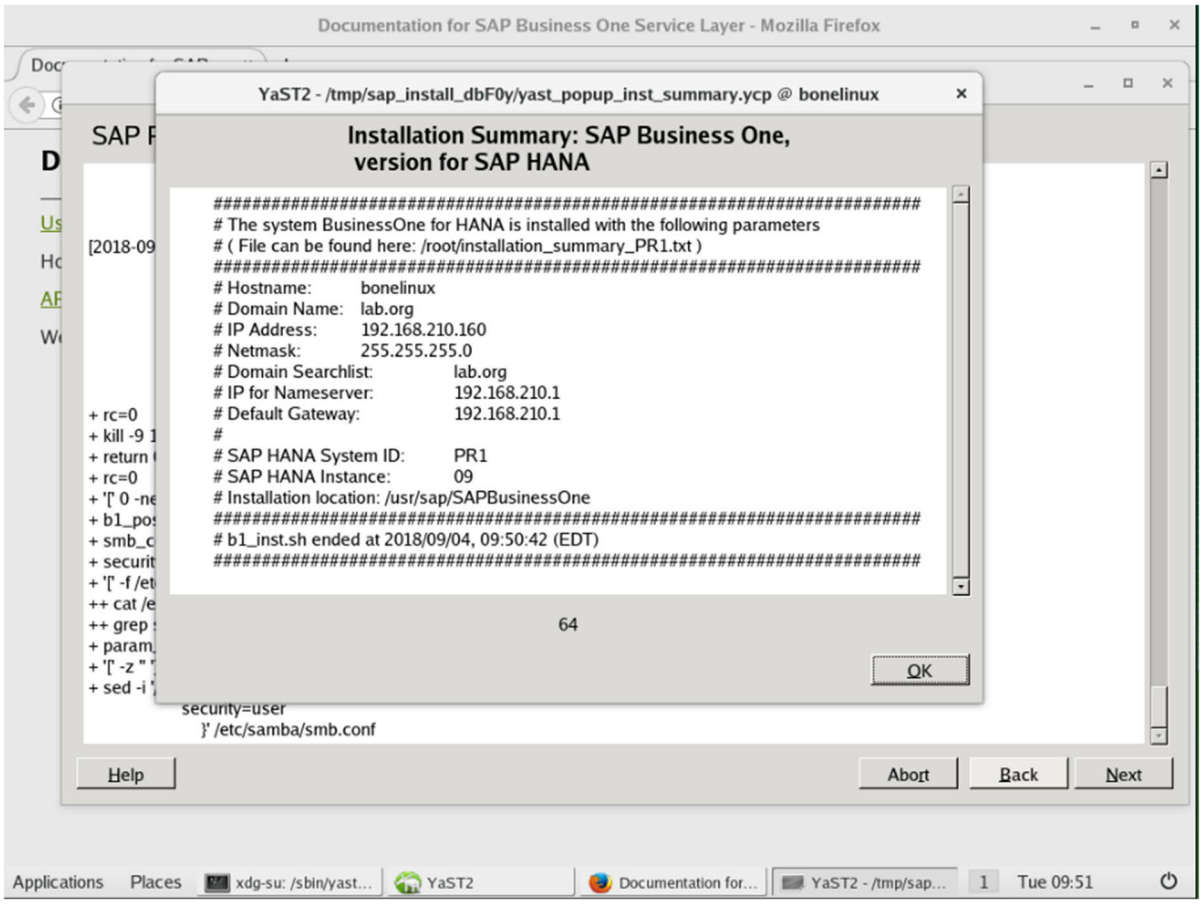

Note

For both customized and default installations, SAP Business One is installed under the `/usr/sap/` folder, which has been sized accordingly to accommodate SAP Business One.

Result

After installation of the base version of SAP Business One, version for SAP HANA is complete, if you need to upgrade to a higher version, run the server components setup wizard from the upgrade package. For more information, see the SAP Business One Administrator's Guide, version for SAP HANA. You can find the guide in the upgrade package along with the installation files.

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5 Registering the Linux Operating System

You must register your SLES installation to get support from SUSE.

After installing the operating system, if you chose to continue with the installation of SAP products instead of closing the wizard and registering the system with SUSE (see page 26), you can do the registration using the administrative tool YaST after you finish all installations. You can register the system with SUSE either as a customer or as a partner on behalf of your customer.

> **Note**
>
> A "desktop" is an application in Linux, so you can install different desktops. The most common desktops in Linux are GNOME and KDE.

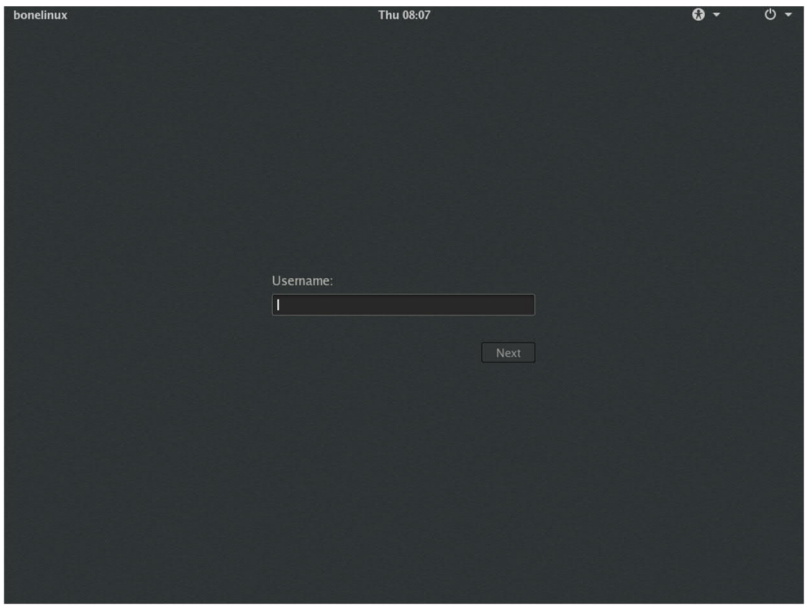
After the registration, an update source is added to the operating system at YaST2 → Software → Software Repositories.

Prerequisites

- You can connect to the Internet from the Linux server.
- You have a valid service contract with SUSE. For more information about SUSE's subscription options, see http://www.suse.com/products/server/how-to-buy.

Procedure

1. On the login page of the system, enter the user name **root** and the password you specified during installation.



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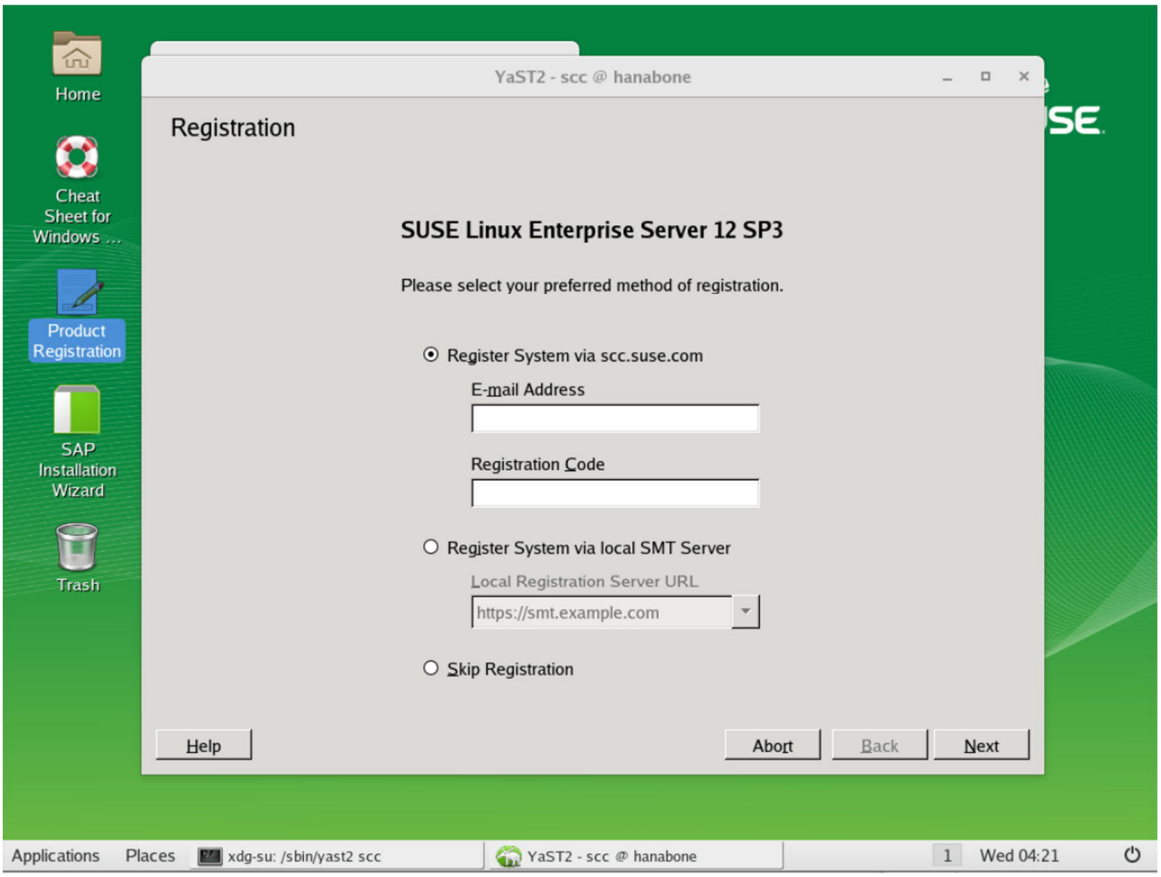
2. Choose the icon Product Registration on the desktop.



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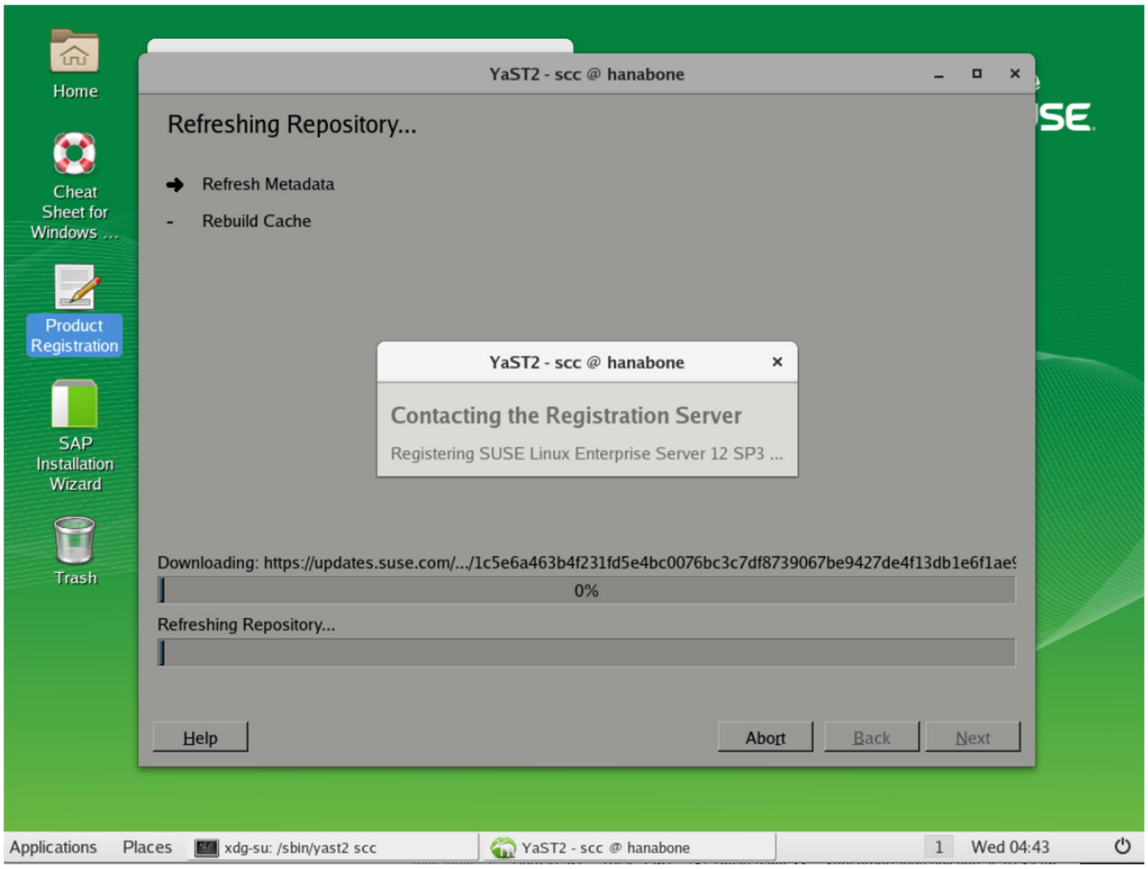
3. Provide the registration details and choose Next.



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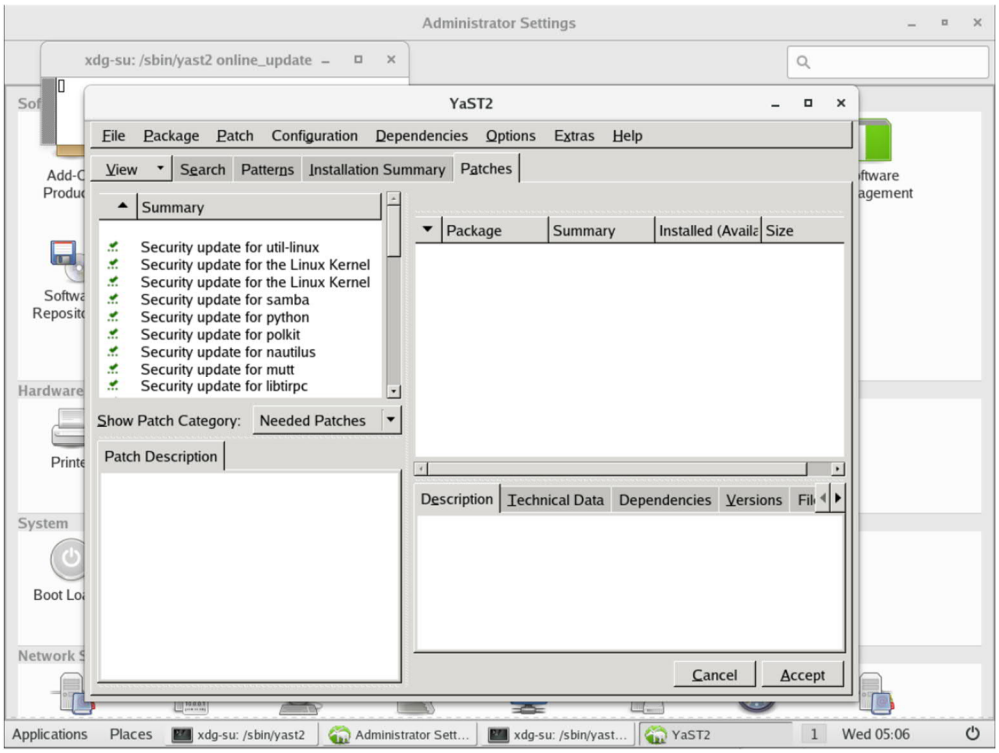
4. Start Yast2 and choose Online Update.

5. After you start the online update, all repositories will be refreshed. You will see a summary of packages with available updates.



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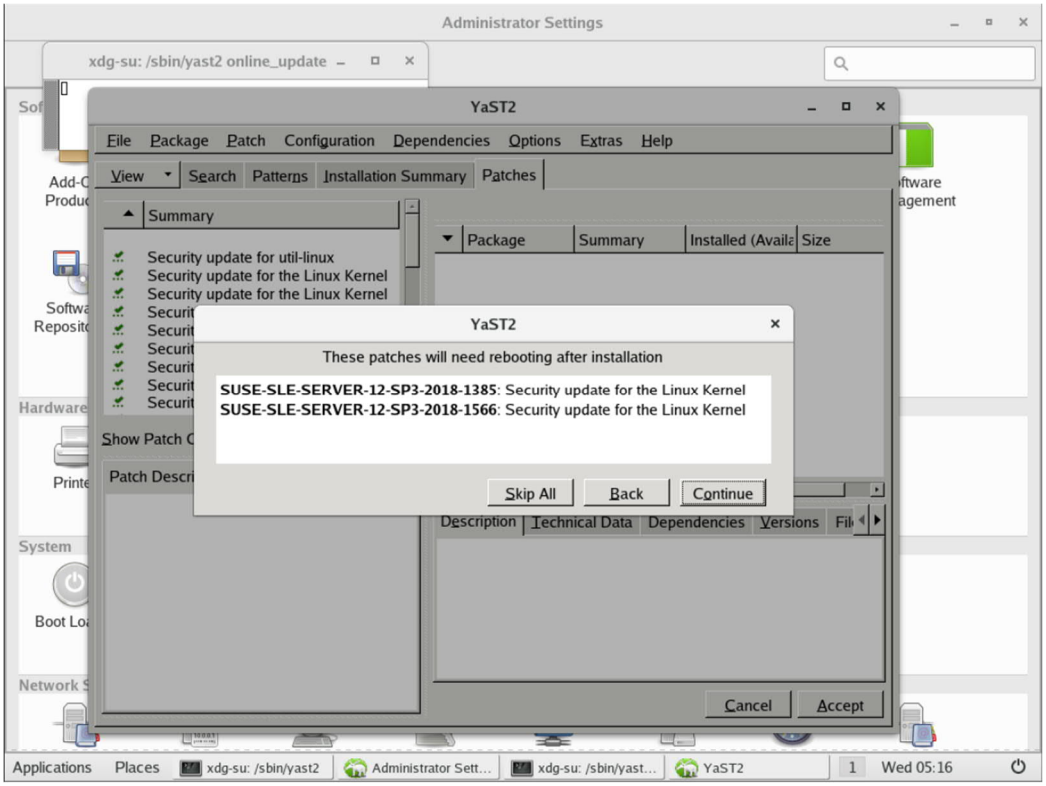
6. Choose Accept.

If some of the patches need a reboot to activate the changes, you will see the following window:



For more information about SUSE registration, see https://www.suse.com/products/register.html.

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6 Updating SAP HANA

SAP HANA can be updated through the SAP HANA Lifecycle Manager (LCM). For more information, see the SAP HANA Master Update Guide and the SAP HANA Update and Configuration Guide at http://help.sap.com/hana_appliance.

You can also update SAP HANA manually, as below:

- To update the SAP HANA database, run the component upgrade tool `hdblcmgui`.
- To update the SAP HANA database client and AFLs, run the installation tool `hdbinst` or `hdbsetup` (GUI mode).

  Caution

  AFLs must be installed after you install the SAP HANA database, but you must upgrade AFLs before you upgrade the SAP HANA database.

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7 Troubleshooting

For some frequently asked questions and troubleshooting for common errors, refer to SAP Note 1969397.

7.1 Operating system installation fails after choosing the installation disk

Problem

In step 3 of section 4.1, you are provided with a list of available devices to choose from. You pick the 52 GB device and choose OK/`Enter`. When the installation process starts, you may receive this error message:

```
...] System installation canceled
...] rebootException: error consoles at Alt-F3/F4
...] rebootException: reboot in 120 sec ...
```

Solution

Restart the installation in debug mode. To do so, add the following parameter to the boot options at the very first boot screen:

```
kiwidebug=1
```

If you encounter errors again, a shell will be created, and you do not have to reboot the machine. With the shell file /var/log/boot.kiwi, you can troubleshoot your problem, as below:

1. Search below error lines in the file (near then end):

   ++ setctsid /dev/tty1 fbiterm -m /usr/share/fbiterm/fonts/b16.pcf.gz -- bash -i /tmp/rid

   +++ cat /tmp/out.exit

   ++ code=255

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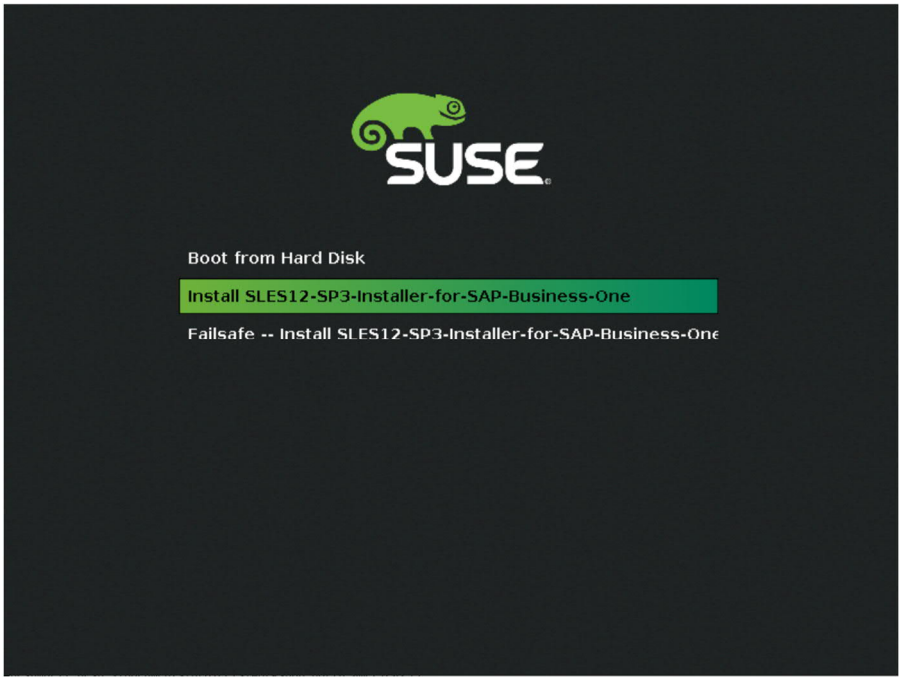
2. If you find these error lines, add the following parameter to the boot options:

   vga=0

   1. Press E on the screen below.



   2. Add “vga=0” to the boot line and press F10 or CTRL+X to boot the system.

3. If you do not find these error lines, copy the shell file, for example, to a USB stick and then provide it to SUSE for support.

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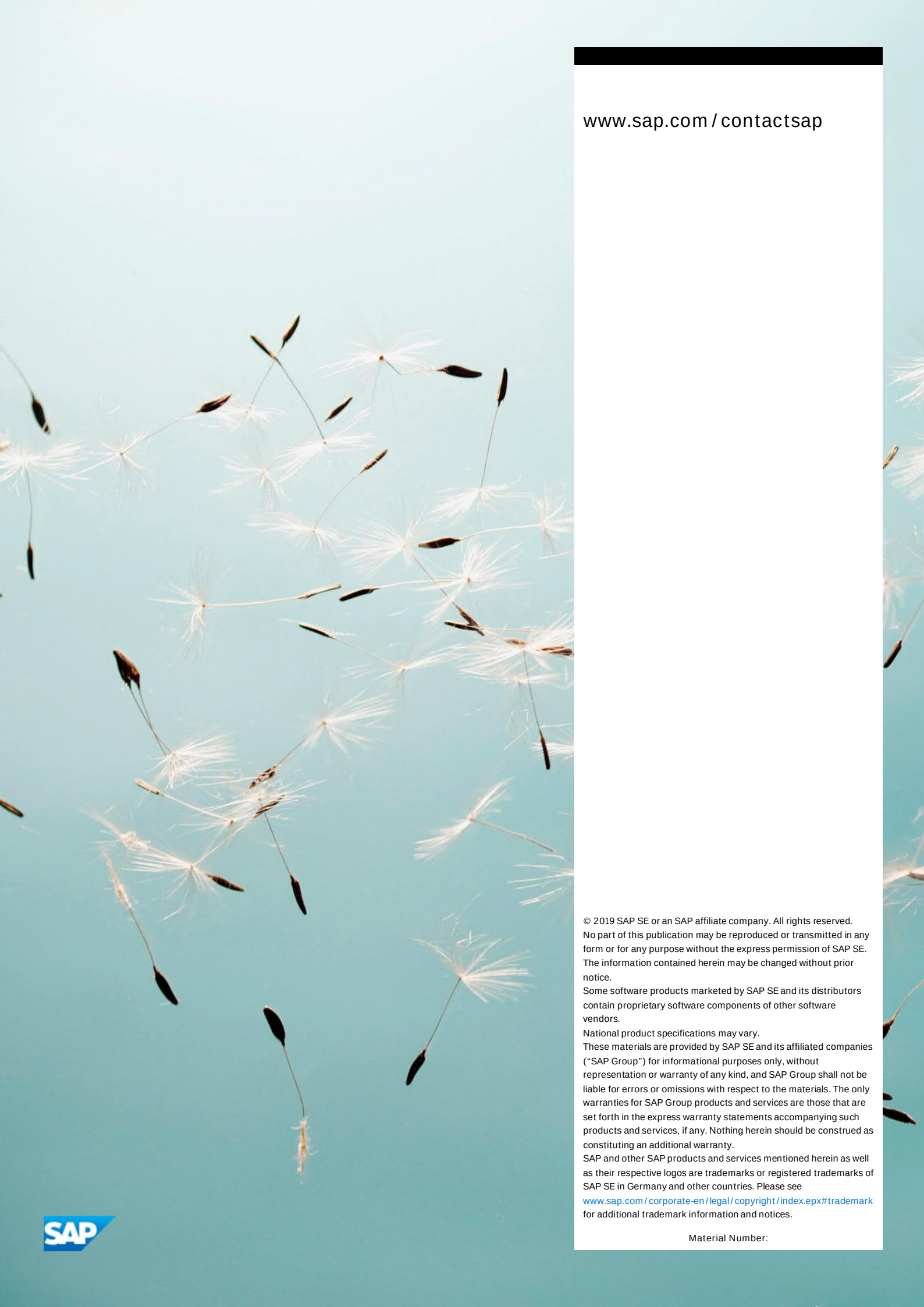

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