

# 通过网络 PXE 引导部署 SUSE Linux Enterprise Server for SAP Applications

## 内容

SUSE Linux Enterprise Server for SAP Applications 提供了可通过目标设备的 PXE 引导进行远程部署的映像。

## 原因

您希望远程部署 SUSE Linux Enterprise Server for SAP Applications。

## 工作量

读完本文大约需要 15 分钟。

## 目标

获得一个正确安装且可正常运行的 SUSE Linux Enterprise Server for SAP Applications 实例。

## 要求

一台配置正确的 PXE 引导服务器。有关详细信息，请参见：[PXE 服务器安装 \(https://susedoc.github.io/doc-modular/main/html/SLE-PXE-server/\)](https://susedoc.github.io/doc-modular/main/html/SLE-PXE-server/) 。

出版日期：2026 年 04 月 23 日

# 目录

- 1 SUSE Linux Enterprise Server for SAP Applications 的 PXE 安装简介 3
- 2 远程部署 SLES for SAP 3
- 3 法律声明 12
- A GNU Free Documentation License 12

# 1 SUSE Linux Enterprise Server for SAP Applications 的 PXE 安装简介

SUSE Linux Enterprise Server for SAP Applications 可通过预引导执行环境（简称 PXE）进行安装。客户端硬件需支持通过 PXE 引导。网络需要提供 DHCP 服务器和 TFTP 服务器，以向客户端提供所需的数据。

部署过程可以归纳为以下步骤：

1. 确保 DHCP 服务器配置正确。
2. 在目标计算机上，选择 PXE 引导并引导计算机。有关详细信息，请参见第 2.1 节 “引导计算机”。

## 2 远程部署 SLES for SAP

部署过程分为两个阶段。第一阶段是引导计算机并加载内核和 `initrd`。第二阶段是使用 Agama 执行安装本身。各阶段的详细信息如下文各节所述。

### 2.1 引导计算机

以下过程介绍如何引导客户端计算机，以通过 PXE 客户端开始 SLES for SAP 的远程部署。

1. 将目标物理计算机开机，或创建一台虚拟机。确保使用桥接网络。
2. 进入 UEFI 或传统 BIOS 引导菜单，选择通过 PXE 或 HTTP 引导。继续引导计算机。
3. 计算机应该会启动部署过程。从 PXE 引导服务器下载内核和 `initrd`。引导加载程序即会启动。
4. 在 GRUB 2 菜单中，选择安装目标。如有需要，可传递内核引导参数。

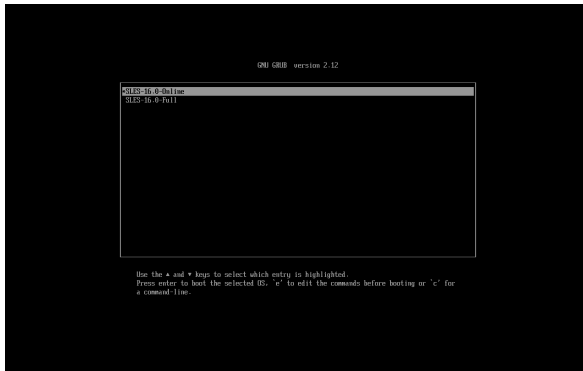


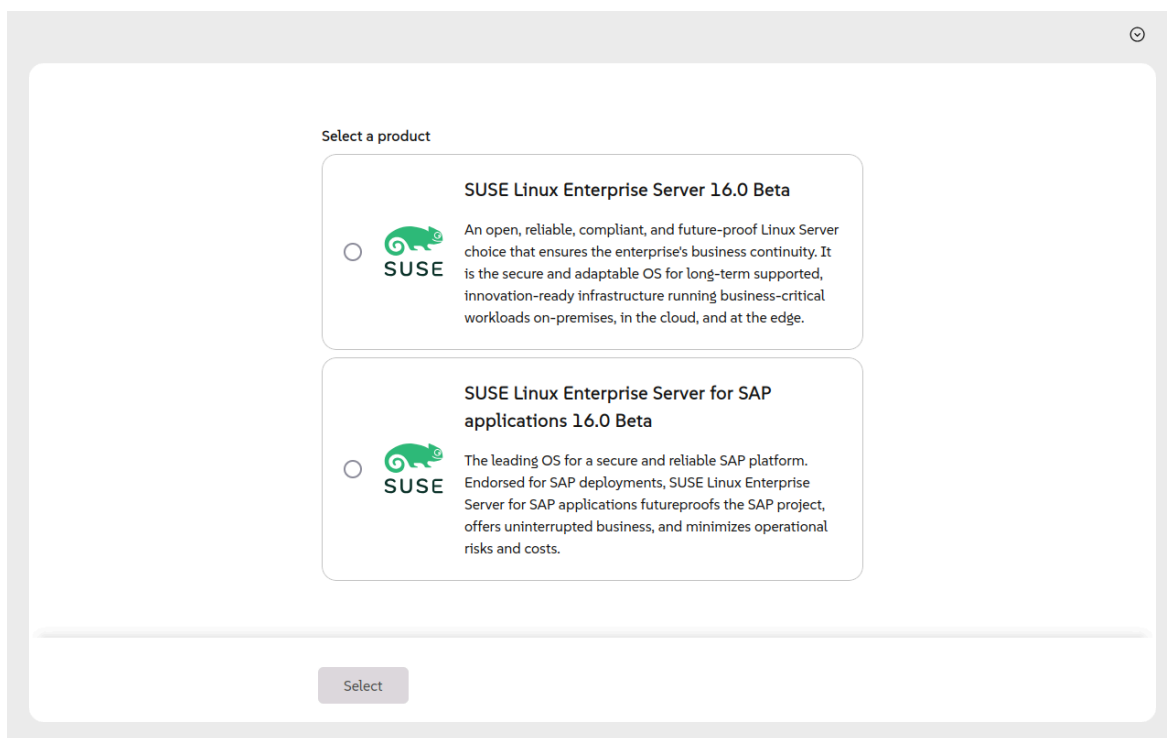
图 1：在 PXE 引导菜单中选择安装目标

5. initrd 会配置网络并启动使用 Agama 部署 SUSE Linux Enterprise Server for SAP Applications 的流程。

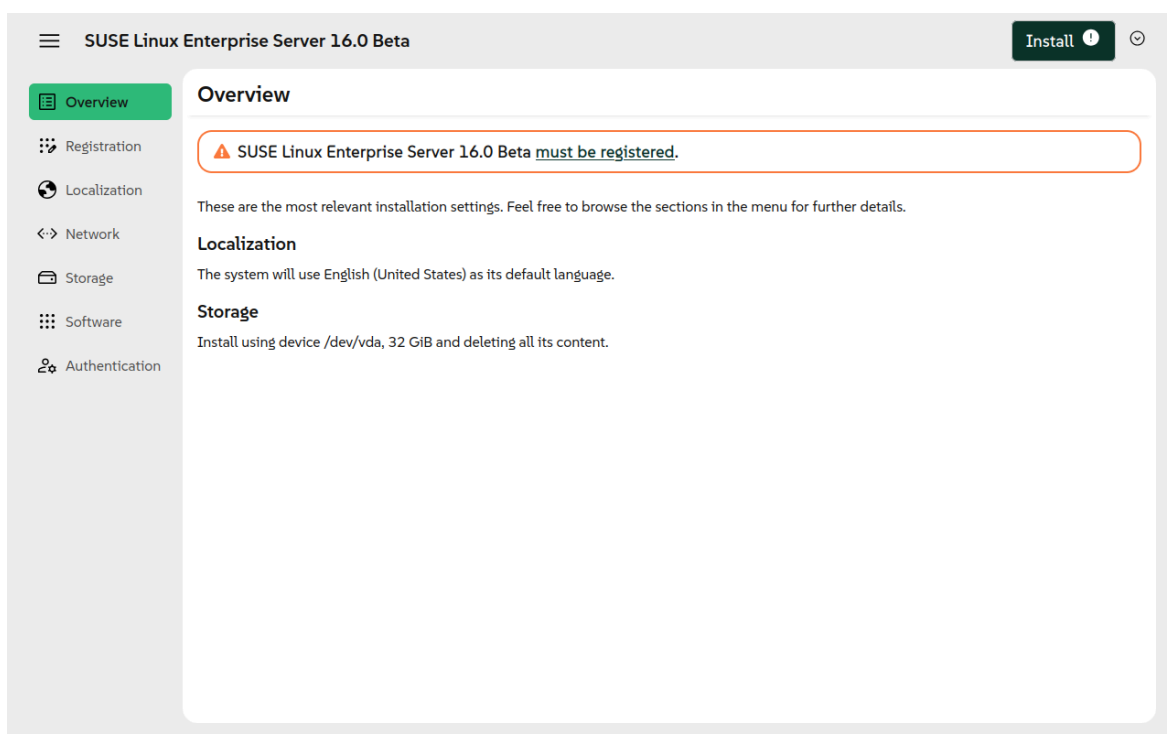
## 2.2 使用 Agama 安装 SLES for SAP

以下过程提供了如何使用 Agama 从远程服务器手动安装 SLES for SAP 的分步说明。

1. 选择 SUSE Linux Enterprise Server for SAP Applications 16.0 进行安装，并接受许可协议以继续。



2. 系统会显示包含核心安装设置的概览界面。您可以通过左侧菜单选择对应类别调整设置，也可以直接继续安装。





## 提示：安装程序语言和键盘

单击右上角的箭头菜单并选择安装程序选项，可更改安装程序使用的语言和键盘布局。只有本地安装支持更改语言。如果通过 Web 浏览器进行远程安装，请在浏览器设置中配置首选内容语言，然后重新加载安装程序。

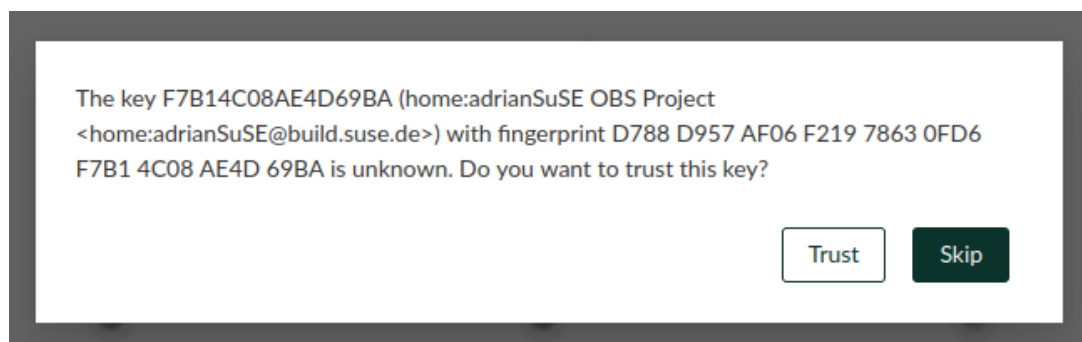
### 3. 注册产品。输入注册代码，也可选择输入有效的电子邮件地址。

The screenshot shows the 'Registration' page of the SUSE Linux Enterprise Server 16.0 Beta installer. The page has a sidebar with navigation links: Overview, Registration (highlighted), Localization, Network, Storage, Software, and Authentication. The main content area is titled 'Registration' and contains a warning message: 'SUSE Linux Enterprise Server 16.0 Beta must be registered.' Below this, there is a form with the following fields: 'Registration code' (with a toggle for visibility) and 'Email (optional)'. A 'Register' button is located at the bottom of the form.



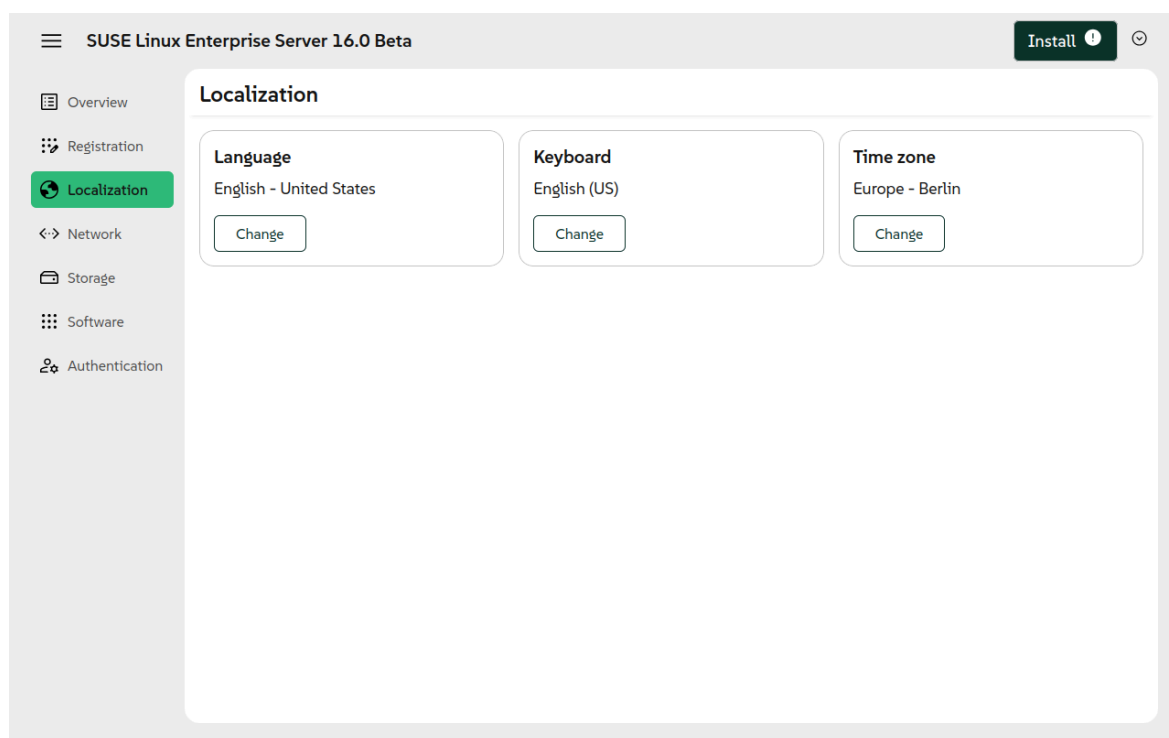
## 注意：使用开发者密钥签名的映像可选择跳过注册

使用开发者密钥签名的映像可能允许您在安装前跳过注册步骤。如果您使用的产品映像支持无注册安装，可能会弹出类似以下的窗口：

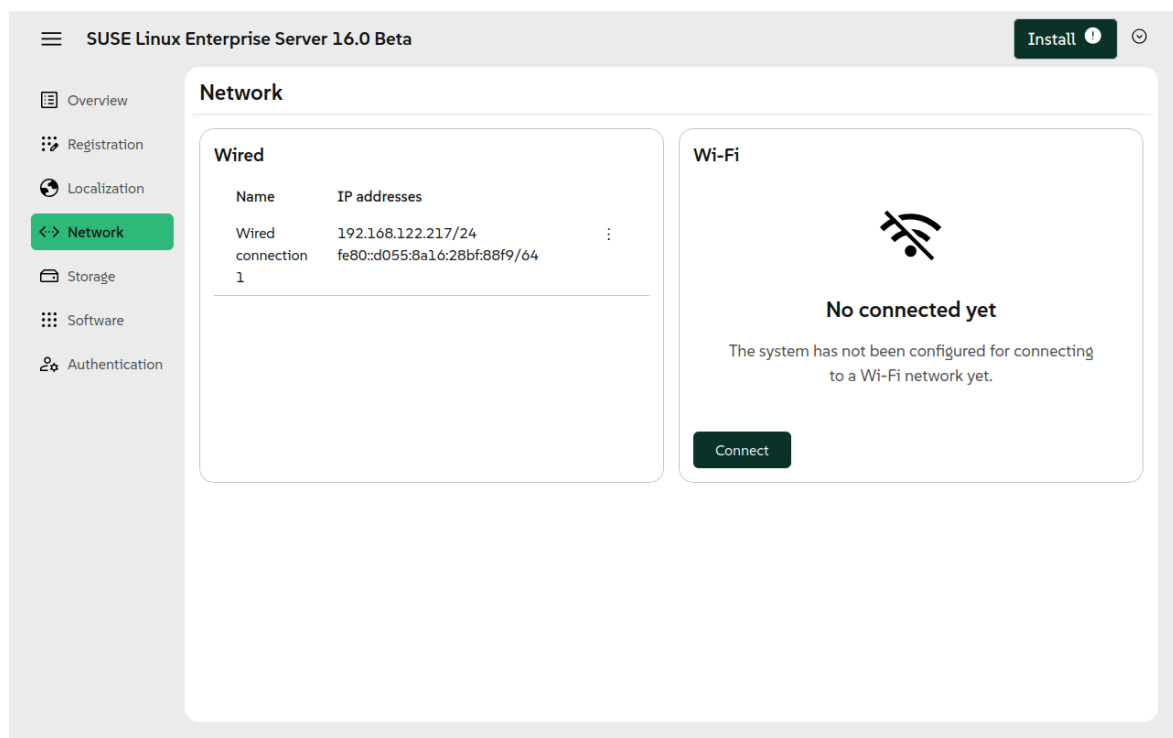


要进行无注册安装，请在弹出窗口中选择信任。

4. （可选）调整本地化设置，如语言、键盘布局和时区。



5. （可选）配置网络设置。要编辑现有网络连接，请单击相应的三点图标。



## 6. 选择用于安装的存储设备。

目前支持在单个磁盘或 LVM 上进行安装。要更换磁盘或使用 LVM，请在安装设备部分，单击对应设备名称旁的更多选项按钮。

要检测 iSCSI 磁盘，请选择 iSCSI 启动器，然后单击发现 iSCSI 目标。

默认情况下，文件系统会作为新分区分配到所选设备上。您可以在安装设备部分的所有内容都将被删除下拉列表中更改此行为。系统提供以下磁盘空间策略：

### 磁盘空间策略

#### 删除现有内容

将去除所有分区，磁盘上的所有数据都将被清除。

#### 缩小现有分区

将保留数据，但会根据需要缩小现有分区。

#### 使用可用空间

将保留数据。仅使用未分配给任何分区的空闲空间。

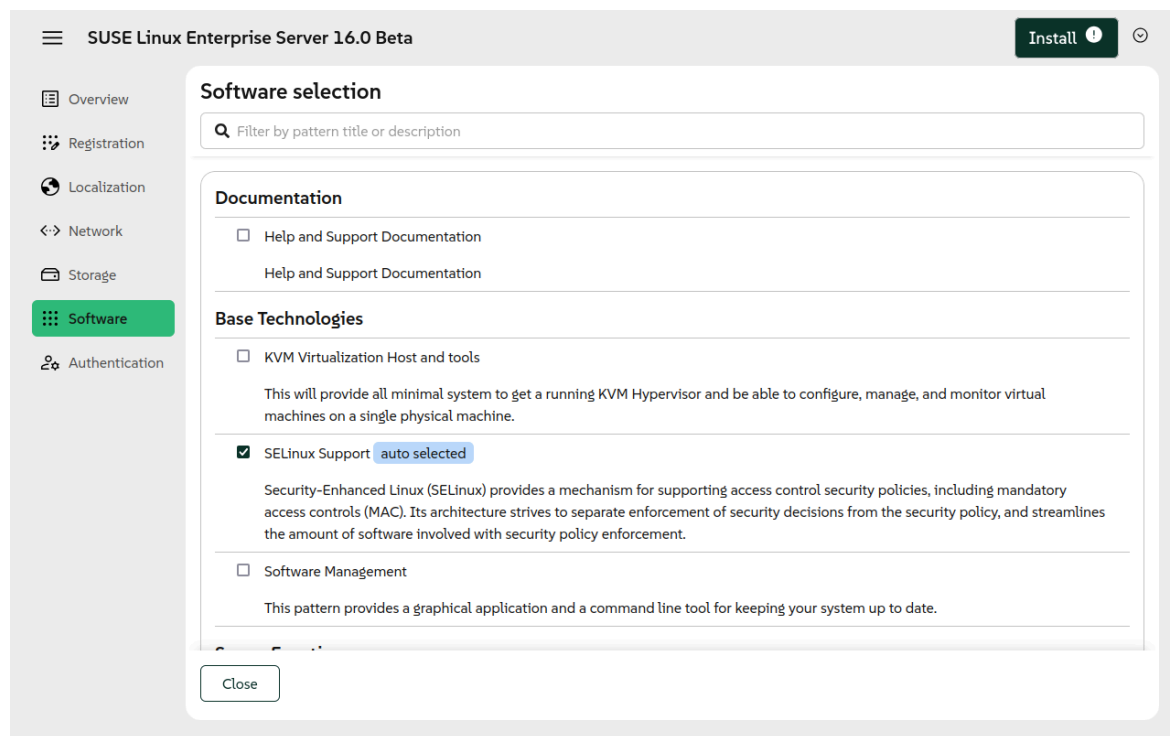
#### 自定义

手动选择对每个分区的处理方式。



要单独编辑某个分区，请单击 > 符号展开分区和文件系统部分。您也可以选择配置 Btrfs 快照、引导选项，并启用全盘加密 (FDE)。

7. (可选) 添加需额外安装的软件，如 KVM 超级管理程序或 Cockpit 系统管理服务。



8. 配置身份验证设置。

! 重要：root 默认没有 SSH 权限

root 的 SSH 权限默认处于禁用状态。因此，强烈建议创建一个系统用户。第一个系统用户会自动获得 **sudo** 权限，也可用于访问 Cockpit。

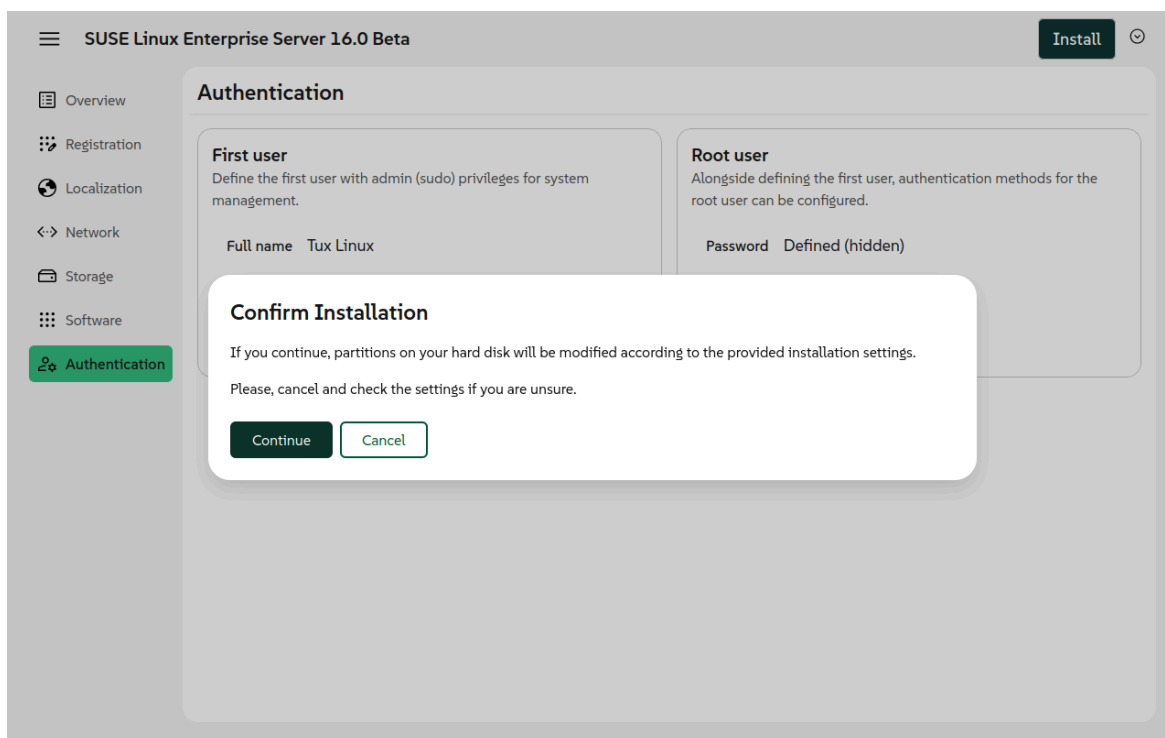
a. 创建非 root 用户。单击现在设定用户，输入用户名、口令等详细信息。

The screenshot shows the 'Create user' form in the SUSE Linux Enterprise Server 16.0 Beta web interface. The left sidebar contains navigation links: Overview, Registration, Localization, Network, Storage, Software, and Authentication (highlighted in green). The main content area has the title 'Create user' and four input fields: 'Full name', 'Username', 'Password', and 'Password confirmation'. The 'Password' and 'Password confirmation' fields have toggle icons to show or hide the text. At the bottom, there are 'Accept' and 'Cancel' buttons.

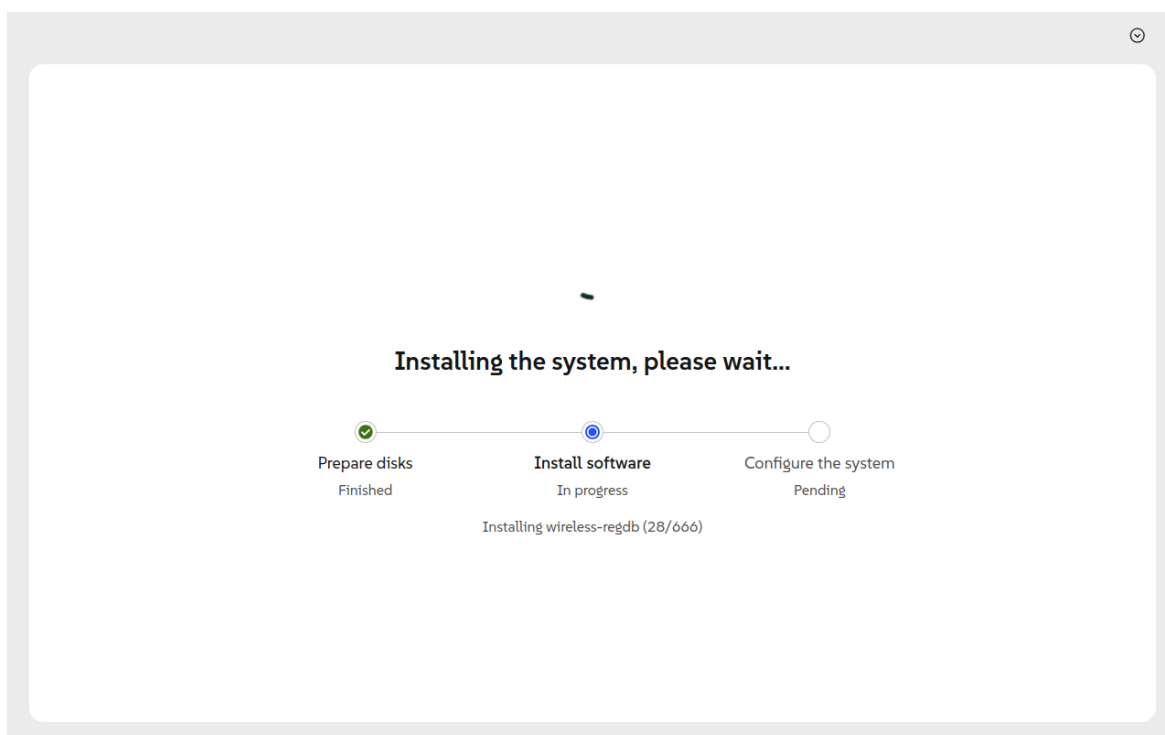
- b. 配置 root 的身份验证方式。可以使用安全口令、SSH 公钥，或同时使用两种方式。

The screenshot shows the 'Root authentication methods' form in the SUSE Linux Enterprise Server 16.0 Beta web interface. The left sidebar is the same as the previous screenshot, with 'Authentication' highlighted. The main content area has the title 'Root authentication methods' and two radio button options: 'Use password' and 'Use public SSH Key'. Both options are currently unselected. At the bottom, there are 'Accept' and 'Cancel' buttons.

9. 单击安装并确认开始安装。



10. 等待系统安装过程完成。安装过程大约需要 30 分钟才能完成。





## 提示：安装日志

您可以使用窗口右上角的箭头菜单查看日志和系统消息。

## 3 法律声明

版权所有© 2006–2026 SUSE LLC 和撰稿人。保留所有权利。

根据 GNU 自由文档许可证 (GNU Free Documentation License) 版本 1.2 或（根据您的选择）版本 1.3 中的条款，在此授予您复制、分发和/或修改本文档的权限；本版权声明和许可证附带不可变部分。许可版本 1.2 的副本包含在“GNU Free Documentation License”部分。

有关 SUSE 商标，请参见 <https://www.suse.com/company/legal/>。所有其他第三方商标分别为相应所有者的财产。商标符号（®、™ 等）代表 SUSE 及其关联公司的商标。星号 (\*) 代表第三方商标。

本指南力求涵盖所有细节，但这不能确保本指南准确无误。SUSE LLC 及其关联公司、作者和译者对于可能出现的错误或由此造成的后果皆不承担责任。

## A GNU Free Documentation License

Copyright (C) 2000, 2001, 2002 Free Software Foundation, Inc. 51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA. Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

### 0. PREAMBLE

The purpose of this License is to make a manual, textbook, or other functional and useful document "free" in the sense of freedom: to assure everyone the effective freedom to copy and redistribute it, with or without modifying it, either commercially or non-commercially. Secondly, this License preserves for the author and publisher a way to get credit for their work, while not being considered responsible for modifications made by others.

This License is a kind of "copyleft", which means that derivative works of the document must themselves be free in the same sense. It complements the GNU General Public License, which is a copyleft license designed for free software.

We have designed this License to use it for manuals for free software, because free software needs free documentation: a free program should come with manuals providing the same freedoms that the software does. But this License is not limited to software manuals; it can be used for any textual work, regardless of subject matter or whether it is published as a printed book. We recommend this License principally for works whose purpose is instruction or reference.

## 1. APPLICABILITY AND DEFINITIONS

This License applies to any manual or other work, in any medium, that contains a notice placed by the copyright holder saying it can be distributed under the terms of this License. Such a notice grants a world-wide, royalty-free license, unlimited in duration, to use that work under the conditions stated herein. The "Document", below, refers to any such manual or work. Any member of the public is a licensee, and is addressed as "you". You accept the license if you copy, modify or distribute the work in a way requiring permission under copyright law.

A "Modified Version" of the Document means any work containing the Document or a portion of it, either copied verbatim, or with modifications and/or translated into another language.

A "Secondary Section" is a named appendix or a front-matter section of the Document that deals exclusively with the relationship of the publishers or authors of the Document to the Document's overall subject (or to related matters) and contains nothing that could fall directly within that overall subject. (Thus, if the Document is in part a textbook of mathematics, a Secondary Section may not explain any mathematics.) The relationship could be a matter of historical connection with the subject or with related matters, or of legal, commercial, philosophical, ethical or political position regarding them.

The "Invariant Sections" are certain Secondary Sections whose titles are designated, as being those of Invariant Sections, in the notice that says that the Document is released under this License. If a section does not fit the above definition of Secondary then it is not allowed to be designated as Invariant. The Document may contain zero Invariant Sections. If the Document does not identify any Invariant Sections then there are none.

The "Cover Texts" are certain short passages of text that are listed, as Front-Cover Texts or Back-Cover Texts, in the notice that says that the Document is released under this License. A Front-Cover Text may be at most 5 words, and a Back-Cover Text may be at most 25 words.

A "Transparent" copy of the Document means a machine-readable copy, represented in a format whose specification is available to the general public, that is suitable for revising the document straightforwardly with generic text editors or (for images composed of pixels) generic paint programs or (for drawings) some widely available drawing editor, and that is suitable for input to text formatters or for automatic translation to a variety of formats suitable for input to text formatters. A copy made in an otherwise Transparent file format whose markup, or absence of markup, has been arranged to thwart or discourage subsequent modification by readers is not Transparent. An image format is not Transparent if used for any substantial amount of text. A copy that is not "Transparent" is called "Opaque".

Examples of suitable formats for Transparent copies include plain ASCII without markup, Texinfo input format, LaTeX input format, SGML or XML using a publicly available DTD, and standard-conforming simple HTML, PostScript or PDF designed for human modification. Examples of transparent image formats include PNG, XCF and JPG. Opaque formats include proprietary formats that can be read and edited only by proprietary word processors, SGML or XML for which the DTD and/or processing tools are not generally available, and the machine-generated HTML, PostScript or PDF produced by some word processors for output purposes only.

The "Title Page" means, for a printed book, the title page itself, plus such following pages as are needed to hold, legibly, the material this License requires to appear in the title page. For works in formats which do not have any title page as such, "Title Page" means the text near the most prominent appearance of the work's title, preceding the beginning of the body of the text.

A section "Entitled XYZ" means a named subunit of the Document whose title either is precisely XYZ or contains XYZ in parentheses following text that translates XYZ in another language. (Here XYZ stands for a specific section name mentioned below, such as "Acknowledgements", "Dedications", "Endorsements", or "History".) To "Preserve the Title" of such a section when you modify the Document means that it remains a section "Entitled XYZ" according to this definition.

The Document may include Warranty Disclaimers next to the notice which states that this License applies to the Document. These Warranty Disclaimers are considered to be included by reference in this License, but only as regards disclaiming warranties: any other implication that these Warranty Disclaimers may have is void and has no effect on the meaning of this License.

## 2. VERBATIM COPYING

You may copy and distribute the Document in any medium, either commercially or non-commercially, provided that this License, the copyright notices, and the license notice saying this License applies to the Document are reproduced in all copies, and that you add no other conditions whatsoever to those of this License. You may not use technical measures to obstruct or control the reading or further copying of the copies you make or distribute. However, you may accept compensation in exchange for copies. If you distribute a large enough number of copies you must also follow the conditions in section 3.

You may also lend copies, under the same conditions stated above, and you may publicly display copies.

## 3. COPYING IN QUANTITY

If you publish printed copies (or copies in media that commonly have printed covers) of the Document, numbering more than 100, and the Document's license notice requires Cover Texts, you must enclose the copies in covers that carry, clearly and legibly, all these Cover Texts: Front-Cover Texts on the front cover, and Back-Cover Texts on the back cover. Both covers must also clearly and legibly identify you as the publisher of these copies.

The front cover must present the full title with all words of the title equally prominent and visible. You may add other material on the covers in addition. Copying with changes limited to the covers, as long as they preserve the title of the Document and satisfy these conditions, can be treated as verbatim copying in other respects.

If the required texts for either cover are too voluminous to fit legibly, you should put the first ones listed (as many as fit reasonably) on the actual cover, and continue the rest onto adjacent pages.

If you publish or distribute Opaque copies of the Document numbering more than 100, you must either include a machine-readable Transparent copy along with each Opaque copy, or state in or with each Opaque copy a computer-network location from which the general network-using public has access to download using public-standard network protocols a complete Transparent copy of the Document, free of added material. If you use the latter option, you must take reasonably prudent steps, when you begin distribution of Opaque copies in quantity, to ensure that this Transparent copy will remain thus accessible at the stated location until at least one year after the last time you distribute an Opaque copy (directly or through your agents or retailers) of that edition to the public.

It is requested, but not required, that you contact the authors of the Document well before redistributing any large number of copies, to give them a chance to provide you with an updated version of the Document.



## 4. MODIFICATIONS

You may copy and distribute a Modified Version of the Document under the conditions of sections 2 and 3 above, provided that you release the Modified Version under precisely this License, with the Modified Version filling the role of the Document, thus licensing distribution and modification of the Modified Version to whoever possesses a copy of it. In addition, you must do these things in the Modified Version:

- A.** Use in the Title Page (and on the covers, if any) a title distinct from that of the Document, and from those of previous versions (which should, if there were any, be listed in the History section of the Document). You may use the same title as a previous version if the original publisher of that version gives permission.
- B.** List on the Title Page, as authors, one or more persons or entities responsible for authorship of the modifications in the Modified Version, together with at least five of the principal authors of the Document (all of its principal authors, if it has fewer than five), unless they release you from this requirement.
- C.** State on the Title page the name of the publisher of the Modified Version, as the publisher.
- D.** Preserve all the copyright notices of the Document.
- E.** Add an appropriate copyright notice for your modifications adjacent to the other copyright notices.
- F.** Include, immediately after the copyright notices, a license notice giving the public permission to use the Modified Version under the terms of this License, in the form shown in the Addendum below.
- G.** Preserve in that license notice the full lists of Invariant Sections and required Cover Texts given in the Document's license notice.
- H.** Include an unaltered copy of this License.
- I.** Preserve the section Entitled "History", Preserve its Title, and add to it an item stating at least the title, year, new authors, and publisher of the Modified Version as given on the Title Page. If there is no section Entitled "History" in the Document, create

one stating the title, year, authors, and publisher of the Document as given on its Title Page, then add an item describing the Modified Version as stated in the previous sentence.

- J.** Preserve the network location, if any, given in the Document for public access to a Transparent copy of the Document, and likewise the network locations given in the Document for previous versions it was based on. These may be placed in the "History" section. You may omit a network location for a work that was published at least four years before the Document itself, or if the original publisher of the version it refers to gives permission.
- K.** For any section Entitled "Acknowledgements" or "Dedications", Preserve the Title of the section, and preserve in the section all the substance and tone of each of the contributor acknowledgements and/or dedications given therein.
- L.** Preserve all the Invariant Sections of the Document, unaltered in their text and in their titles. Section numbers or the equivalent are not considered part of the section titles.
- M.** Delete any section Entitled "Endorsements". Such a section may not be included in the Modified Version.
- N.** Do not retitle any existing section to be Entitled "Endorsements" or to conflict in title with any Invariant Section.
- O.** Preserve any Warranty Disclaimers.

If the Modified Version includes new front-matter sections or appendices that qualify as Secondary Sections and contain no material copied from the Document, you may at your option designate some or all of these sections as invariant. To do this, add their titles to the list of Invariant Sections in the Modified Version's license notice. These titles must be distinct from any other section titles.

You may add a section Entitled "Endorsements", provided it contains nothing but endorsements of your Modified Version by various parties--for example, statements of peer review or that the text has been approved by an organization as the authoritative definition of a standard.

You may add a passage of up to five words as a Front-Cover Text, and a passage of up to 25 words as a Back-Cover Text, to the end of the list of Cover Texts in the Modified Version. Only one passage of Front-Cover Text and one of Back-Cover Text may be added by (or through arrangements made by) any one entity. If the Document already includes a cover text for the same cover, previously added by you or by arrangement made by the same entity you are acting on behalf of, you may not add another; but you may replace the old one, on explicit permission from the previous publisher that added the old one.

The author(s) and publisher(s) of the Document do not by this License give permission to use their names for publicity for or to assert or imply endorsement of any Modified Version.

## 5. COMBINING DOCUMENTS

You may combine the Document with other documents released under this License, under the terms defined in section 4 above for modified versions, provided that you include in the combination all of the Invariant Sections of all of the original documents, unmodified, and list them all as Invariant Sections of your combined work in its license notice, and that you preserve all their Warranty Disclaimers.

The combined work need only contain one copy of this License, and multiple identical Invariant Sections may be replaced with a single copy. If there are multiple Invariant Sections with the same name but different contents, make the title of each such section unique by adding at the end of it, in parentheses, the name of the original author or publisher of that section if known, or else a unique number. Make the same adjustment to the section titles in the list of Invariant Sections in the license notice of the combined work.

In the combination, you must combine any sections Entitled "History" in the various original documents, forming one section Entitled "History"; likewise combine any sections Entitled "Acknowledgements", and any sections Entitled "Dedications". You must delete all sections Entitled "Endorsements".

## 6. COLLECTIONS OF DOCUMENTS

You may make a collection consisting of the Document and other documents released under this License, and replace the individual copies of this License in the various documents with a single copy that is included in the collection, provided that you follow the rules of this License for verbatim copying of each of the documents in all other respects.

You may extract a single document from such a collection, and distribute it individually under this License, provided you insert a copy of this License into the extracted document, and follow this License in all other respects regarding verbatim copying of that document.

## 7. AGGREGATION WITH INDEPENDENT WORKS

A compilation of the Document or its derivatives with other separate and independent documents or works, in or on a volume of a storage or distribution medium, is called an "aggregate" if the copyright resulting from the compilation is not used to limit the legal rights of the compilation's users beyond what the individual works permit. When the Document is included in an aggregate, this License does not apply to the other works in the aggregate which are not themselves derivative works of the Document.

If the Cover Text requirement of section 3 is applicable to these copies of the Document, then if the Document is less than one half of the entire aggregate, the Document's Cover Texts may be placed on covers that bracket the Document within the aggregate, or the electronic equivalent of covers if the Document is in electronic form. Otherwise they must appear on printed covers that bracket the whole aggregate.

## 8. TRANSLATION

Translation is considered a kind of modification, so you may distribute translations of the Document under the terms of section 4. Replacing Invariant Sections with translations requires special permission from their copyright holders, but you may include translations of some or all Invariant Sections in addition to the original versions of these Invariant Sections. You may include a translation of this License, and all the license notices in the Document, and any Warranty Disclaimers, provided that you also include the original

English version of this License and the original versions of those notices and disclaimers. In case of a disagreement between the translation and the original version of this License or a notice or disclaimer, the original version will prevail.

If a section in the Document is Entitled "Acknowledgements", "Dedications", or "History", the requirement (section 4) to Preserve its Title (section 1) will typically require changing the actual title.

## 9. TERMINATION

You may not copy, modify, sublicense, or distribute the Document except as expressly provided for under this License. Any other attempt to copy, modify, sublicense or distribute the Document is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

## 10. FUTURE REVISIONS OF THIS LICENSE

The Free Software Foundation may publish new, revised versions of the GNU Free Documentation License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns. See <https://www.gnu.org/copyleft/>.

Each version of the License is given a distinguishing version number. If the Document specifies that a particular numbered version of this License "or any later version" applies to it, you have the option of following the terms and conditions either of that specified version or of any later version that has been published (not as a draft) by the Free Software Foundation. If the Document does not specify a version number of this License, you may choose any version ever published (not as a draft) by the Free Software Foundation.

## ADDENDUM: How to use this License for your documents

Copyright (c) YEAR YOUR NAME.

Permission is granted to copy, distribute and/or modify this document under the terms of the GNU Free Documentation License, Version 1.2

```
or any later version published by the Free Software Foundation;  
with no Invariant Sections, no Front-Cover Texts, and no Back-Cover Texts.  
A copy of the license is included in the section entitled "GNU  
Free Documentation License".
```

If you have Invariant Sections, Front-Cover Texts and Back-Cover Texts, replace the “with...Texts.” line with this:

```
with the Invariant Sections being LIST THEIR TITLES, with the  
Front-Cover Texts being LIST, and with the Back-Cover Texts being LIST.
```

If you have Invariant Sections without Cover Texts, or some other combination of the three, merge those two alternatives to suit the situation.

If your document contains nontrivial examples of program code, we recommend releasing these examples in parallel under your choice of free software license, such as the GNU General Public License, to permit their use in free software.