

SLES Minimal VM 简介

内容

SLES Minimal VM 的简要概述。

原因

您想知道 SLES Minimal VM 可以为您做些什么。

工作量

读完本文需要 10 分钟。

目标

了解什么是 SLES Minimal VM，以及可以用它来做些什么。

要求

- 大致熟悉 SUSE Linux Enterprise Server

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1 SLES Minimal VM 简介

SLES Minimal VM 是 SUSE Linux Enterprise Server 的精简版本，旨在提供一个基础平台供您构建用于数据中心的系统、创建虚拟应用程序映像和打造设备。您可以对其进行自定义，仅安装特定使用场景所需的软件包。这意味着需要管理的软件包和需要应用的补丁减少了。选择有限的软件包还可减少攻击面，从而提高系统的安全性。

2 SLES Minimal VM 亮点

- SLES Minimal VM 以虚拟机映像的形式提供，已经过预配置且可立即运行。
- 虽然您可以按原样部署提供的映像，但也可以使用提供的 KIWI NG 模板创建自定义的 SLES Minimal VM 映像。
- 提供的 `jeos-firstboot` 向导会在系统首次引导时运行，可用于配置基本设置，例如系统区域设置和 `root` 口令。
适用于 OpenStack 的 SLES Minimal VM 不同，它使用 `cloud-init`（而非 `jeos-firstboot`）来配置 OpenStack 实例。
- 您无需进行任何其他配置，即可与正在运行的 SLES Minimal VM 实例建立 SSH 连接。
- 默认网络配置设置为使用 DHCP。
- 初始配置完成后，系统会自动创建 Btrfs 快照。这意味着，如有必要，您可以轻松撤消所有后续更改。
- SLES Minimal VM 映像使用 `kernel-default-base` 作为默认内核，如此可减少使用的空间。
- 由于 openSUSE Leap SLES Minimal VM 和 SLES Minimal VM 相似，因此可以轻松从前者迁移到后者。

3 SLES Minimal VM 与 SUSE Linux Enterprise Server 之间的差异

SLES Minimal VM 与 SUSE Linux Enterprise Server 之间存在一些重大差异。

JeOS Firstboot

SLES Minimal VM 附带了 JeOS Firstboot 工具（适用于 OpenStack 的 SLES Minimal VM 不同，它使用 cloud-init），可用于在系统首次引导期间配置基本设置。这些设置包括键盘布局、时区以及 root 口令。

kernel-default-base

由于存在大小限制，SLES Minimal VM 映像使用 kernel-default-base 作为默认内核。因为该内核不包含裸机的驱动程序，所以占用的空间更小。

如果特定使用场景需要任何被省略的模块，请安装 kernel-default 软件包，以实现完整的内核模块树。常规 SUSE Linux Enterprise Server 安装使用的就是该内核。

默认无储存库

从安装媒体安装 SUSE Linux Enterprise Server 时，系统会自动将安装媒体设置为默认脱机通道。



注意

默认情况下，jeos-firstboot、jeos-licenses 和 live-langset-data 软件包不会接收更新。只有在进行系统的初始配置时需要这些软件包，之后可以将它们去除或保持原样，不会引发问题。如果您希望它们保持最新状态，请启用 Development Tools 模块。

Zypper 配置

SLES Minimal VM 是 SUSE Linux Enterprise Server 的精简版本。有一部分大小的缩减是通过启用 /etc/zypp/zypp.conf 中的以下两个选项实现的：rpm.install.excludedocs = yes（默认在安装过程中排除所有标记为文档的文件）和 solver.onlyRequires = true（默认禁止安装建议的软件包）。

基本软件包

您可以使用 KIWI NG 工具构建 SLES Minimal VM 映像。KIWI NG 的配置文件（称为模板）列出了映像中必须包含的软件包。请注意，模板中列出的软件包可能会在映像构建过程中提取所需的依赖项。这表示生成的映像所包含的软件包可能比模板中指定的多。

磁盘布局

与 SUSE Linux Enterprise Server 在安装期间计算可调整的磁盘布局建议不同，SLES Minimal VM 使用如下固定的虚拟映像分区方案：

- 2 MB BIOS 引导
- 33 MB EFI 系统
- 24 GB Linux 文件系统

要获得额外的磁盘空间，您可以扩展虚拟主机中的现有磁盘，也可以向虚拟机添加另一个磁盘。如果您选择后一个选项，则必须手动进行分区和格式化。

已禁用 systemd-coredump

systemd-coredump 在 SLES Minimal VM 映像中默认处于禁用状态。要收集查错所需的应用程序内核转储，请执行以下步骤：

- 安装 `systemd-coredump` 软件包，该软件包中包含 `/usr/lib/sysctl.d/50-coredump.conf`。
- 重引导系统或使用 `sysctl --system` 命令启用核心转储。

有关更多信息，请参见 <https://documentation.suse.com/sles/html/SLES-all/cha-tuning-systemd-coredump.html>。

4 获取 SLES Minimal VM

您可以从官方[下载 \(https://www.suse.com/download/sles/\)](https://www.suse.com/download/sles/) 页面下载所需的 SLES Minimal VM 变体。该页面提供以下 SLES Minimal VM 版本：

- 适用于 KVM 和 Xen 的完全虚拟 SLES Minimal VM
- 适用于 VMware 的 SLES Minimal VM

- 适用于 Microsoft Hyper-V 的 SLES Minimal VM
- 适用于 OpenStack 的 SLES Minimal VM
- 适用于 Xen 的半虚拟 SLES Minimal VM
- 适用于 KVM 的完全虚拟 SLES Minimal VM (AArch64)



注意：需要订阅 SUSE

SLES Minimal VM 默认不包含任何储存库。您必须注册系统以访问联机储存库。需要付费订阅才能注册。

5 将 SLES Minimal VM 与 QEMU 搭配使用的示例

您可以从官方[下载 \(https://www.suse.com/download/sles/\)](https://www.suse.com/download/sles/) 页面下载现成的映像，以试用 SLES Minimal VM。创建基于 SLES Minimal VM 的虚拟机的具体过程取决于您选择的版本。以下示例演示了如何使用 JeOS Firstboot 或 Combustion 通过 QEMU 创建和配置 SLES Minimal VM 实例。

5.1 使用 JeOS Firstboot 手动运行和配置 SLES Minimal VM

在 QEMU 中运行以下命令创建 SLES Minimal VM 虚拟机。

```
> qemu-system-x86_64 \  
-enable-kvm \  
-m 1G \  
-smp 1 \  
-drive if=virtio,format=qcow2,file=IMAGE.qcow2 \  
-nographic \  
-netdev user,id=net0,hostfwd=tcp::2222-:22 \  
-device virtio-net-pci,netdev=net0
```

系统引导后，JeOS Firstboot 会指引您完成初始系统设置。



注意：更改区域设置

SLES Minimal VM 映像仅随附 `en_US` 区域设置。完成设置后，您可以通过安装 `glibc-locale` 软件包并运行 `localectl set-locale LANG=LOCALE` 命令（请将 `LOCALE` 替换为所需的语言区域设置，例如 `de_DE.UTF-8`），来安装并选择所需的系统区域设置。

请注意，要执行此操作，您需要订阅 SUSE，并使用 `SUSEConnect -e EMAIL -r REGISTRATION_CODE` 命令注册 VM。

1. 首先，系统会提示您使用键盘选择对话框选择合适的键盘布局。
2. 接下来阅读并接受许可协议。不接受许可协议将无法继续。
3. 指定所需的时区。
4. 出现提示时，指定并确认所需的 `root` 口令。
5. 最后一步，系统会引导您注册系统。如果您只打算测试 SLES Minimal VM，可以跳过注册步骤。
6. 完成初始配置后，您便可以使用在设置过程中指定的口令以 `root` 身份登录系统。



提示：首次引导后安装产品补丁

我们强烈建议您在成功安装并注册 SLES Minimal VM 后安装可用的最新联机更新。

5.2 使用 Combustion 自动运行和配置 SLES Minimal VM

SLES Minimal VM 附带 Combustion 配置工具，可以在首次引导时使用专用脚本文件自动配置系统。当您需要部署具有相同初始配置的多个虚拟机时，此功能特别有用。

要在 QEMU 中触发 Combustion 工具，请使用带 `fw_cfg` 参数的 `qemu` 命令，该参数用于指定 `script` 文件的位置。

要了解这在实践中是如何运作的，您可以使用一个简单的 Combustion 脚本，自动将 `root` 用户添加到在 QEMU 中运行的 SLES Minimal VM 实例。

首先，生成所需 `root` 口令的哈希值。可以使用 `openssl passwd -6` 命令来完成此任务。将以下指令添加到 `script` 文件中（请将示例哈希值替换为生成的哈希值）：

```
echo 'root:$5$.wn2BZHlEJ5R3B1C$TAHEchlU.h2tvf0p0ki54NaHpGYKwdNhjaBuSpDotD7' |  
chpasswd -e
```

使用以下命令在 QEMU 中基于 SLES Minimal VM 设置一个新虚拟机（请将 `IMAGE` 和 `SCRIPT` 分别替换为 `.qcow2` 映像和 `script` 文件的路径名称）：

```
> qemu-system-x86_64 \  
    -enable-kvm \  
    -m 1G \  
    -smp 1 \  
    -drive if=virtio,format=qcow2,file=IMAGE.qcow2 \  
    -nographic \  
    -netdev user,id=net0,hostfwd=tcp::2222-:22 \  
    -device virtio-net-pci,netdev=net0 \  
    -fw_cfg name=opt/org.opensuse.combustion/script,file=SCRIPT
```

请注意，Combustion 运行时不会提供任何反馈或输出。表明配置已正确执行的唯一迹象是系统未启动 JeOS Firstboot 工具，并且您可以使用之前生成的口令以 `root` 身份登录系统。




注意：Combustion 文档

有关使用 Combustion 的详细信息，请参见 <https://documentation.suse.com/sle-micro/6.1/html/Micro-deployment-selfinstall-images/index.html#deployment-configuring-with-combustion>。

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