



# Installation Guide

Uyuni 4.0

March 16, 2019



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# Introduction

Uyuni is a solution for organizations that require absolute control over maintenance and package deployment on their servers. It lets you manage large sets of Linux systems and keep them up to date, with automated software management, asset management, and system provisioning. Uyuni allows you to maintain a high level of security while effectively managing system life-cycle requirements.

Uyuni uses *Salt* to provide event-driven configuration and management control. The Salt-master orchestrates thousands of Salt-minions (Uyuni Clients) using remote execution.

Uyuni is fully compatible with Red Hat Satellite Server and offers seamless management of both SUSE Linux Enterprise and Red Hat Enterprise Linux client systems.

Uyuni can be integrated with your network infrastructure in multiple ways. This book will guide you through an initial proof-of-concept setup, using these steps:

1. Install an operating system (either JeOS or SLES) for use with Uyuni
2. Install Uyuni Server
3. Register Uyuni with SUSE Customer Center
4. Perform initial setup of your Uyuni Server
5. Register a traditional client
6. Register a Salt minion

The book also contains a section about getting started with Salt.

## Overview

### About this book

This guide steps you through installing SUSE Manager.

The Requirements chapter covers the base system and networking requirements to be able to run SUSE Manager.

The First Install chapter covers a simple installation method for your first installation, or for use as a proof of concept. In this chapter, you will instantiate a KVM virtual machine running JeOS 12. This will serve as a sandbox for your SUSE Manager server.

The IBM zSystems chapter covers installing SUSE Manager on an IBM zSystems mainframe. This method is recommended for z/VM administrators trained on zSystems operating protocols.

# Requirements

## Prerequisites for Installation

Before you begin your installation, ensure you have fulfilled these prerequisites:

- Current SUSE Customer Center organization credentials
- Access to installation media for your chosen operating system
- Your environment meets the hardware and networking requirements
- You understand the supported client operating systems

This section contains more information on each of these prerequisites.



Uyuni 4.0 is based on SLES 12 SP3 as the host operating system.

## Obtaining your SUSE Customer Center Credentials

You will need to create an account with SUSE Customer Center before you install SUSE Linux Enterprise Server and Uyuni. To obtain your SUSE Customer Center credentials:

*Procedure: Obtaining Your SCC Organization Credentials*

1. Open a browser and direct it to <https://scc.suse.com/login>.
2. If you have not done so, create an account now.
3. Log in to your new SCC account.
4. Under the [ **Management tools** ] widget select [ **Manage Users** ].
5. Click the [ **Organization Credentials** ] tab.
6. Record your login information for use during Uyuni setup.

## Obtaining Installation Media

This book describes installation methods for both JeOS and SUSE Linux Enterprise Server. The JeOS image provides the quickest installation and setup, and is suitable for a test or proof of concept installation. Alternatively, SUSE Linux Enterprise Server provides a more robust installation, which requires a larger initial download. Choose your preferred operating system based on the type of environment you want to install, and the amount of bandwidth and time you have available.

You can find installation images for JeOS and SLES in your SUSE Customer Center account. Log in, then navigate to the URL for your chosen operating system:

- [JeOS - Media Download](#)
- [SUSE Linux Enterprise Server - Media Download](#)

## Hardware Requirements

This table outlines hardware and software requirements on x86\_64 and IBM Power PC architecture. For installation on z Systems, see:

- [xref:advanced\\_topics\\_suma3\\_zsystems.adoc#at-zsystems\[{productname} and {zseries}\]](#)

*Table 1. Hardware Requirements for x86\_64 Architecture*

Hardware	Recommended
CPU	Minimum 4 dedicated 64-bit CPU cores
RAM:	<i>Test Server</i> Minimum 8 GB
	<i>Base Installation</i> Minimum 16 GB
	<i>Production Server</i> Minimum 32 GB
Disk Space:	<i>/ (root)</i> The default JeOS root partition size of 24 GB is sufficient for this guide
	<a href="#">/var/lib/pgsql</a> Minimum 50 GB
	<a href="#">/var/pacewalk</a> Minimum 50 GB per SUSE product and 250 GB per Red Hat product

*Table 2. Hardware Requirements for IBM POWER8 or POWER9 Architecture*

Hardware	Recommended
CPU	Minimum 4 dedicated cores
RAM:	<i>Test Server</i> Minimum 8 GB
	<i>Base Installation</i> Minimum 16 GB
	<i>Production Server</i> Minimum 32 GB
Disk Space:	<i>/</i> Minimum 100 GB
	<a href="#">/var/lib/pgsql</a> Minimum 50 GB
	<a href="#">/var/pacewalk</a> Minimum 50 GB per SUSE product and 250 GB per Red Hat product

## Network Requirements

This section details the networking and port requirements for Uyuni.

### Fully Qualified Domain Name (FQDN)

The Uyuni server must resolve its FQDN correctly or cookies will not work properly on the WebUI.

For more information about configuring the hostname and DNS, see [SUSE Linux Enterprise Server Documentation - Configuring Host Name and DNS](#)

## Hostname and IP Address

To ensure that the Uyuni domain name can be resolved by its clients, both server and client machines must be connected to a working DNS server.

For more information about setting up a DNS server, see [SUSE Linux Enterprise Server Documentation - The Domain Name System](#)

## Using a Proxy When Installing from SUSE Linux Enterprise Media

If you are on an internal network and do not have access to SUSE Customer Center, you can set up and use a proxy during installation.

For more information about configuring a proxy for access to SUSE Customer Center during a SUSE Linux Enterprise installation, see [SUSE Linux Enterprise Server Documentation - Using a Proxy During Installation](#)



### *Naming Your Server*

The hostname of Uyuni must not contain uppercase letters as this may cause *jabberd* to fail. Choose the hostname of your Uyuni server carefully. Although changing the server name is possible, it is a complex process and unsupported.

In a production environment, Uyuni server and its clients should always use a firewall. This table gives an overview of required ports, to be used when you are setting up your firewall rules.

*Table 3. Required Server Ports*

Port	Protocol	Description
22	TCP	SSH
67	UDP	DHCP
69	UDP	TFTP, used to support PXE services
80	TCP	HTTP, used in some bootstrap cases
123	UDP	NTP time service
443	TCP	HTTPS, used for Web UI, client, Proxy server, and API traffic
4505	TCP	Salt, used by the Salt-master to accept communication requests from minions
4506	TCP	Salt, used by the Salt-master to accept communication requests from minions
5222	TCP	XMPP client, used for communications with the <i>osad</i> daemon on traditional client systems

Port	Protocol	Description
5269	TCP	XMPP server, used for pushing actions to SUSE Manager Proxy

For more information on disconnected setup and port configuration, see:

- [xref:bp\\_chap\\_choosing\\_dist\\_scheme.adoc#bp-dist-scheme\[Disconnected Setup\]](#)
- [xref:advanced\\_topics\\_ports.adoc#at-ports\[Firewall Ports\]](#)

## Supported Client Systems

Supported operating systems for traditional and Salt clients are listed in this table.

*Table 4. Supported Client Systems*

Operating Systems	Architecture	Traditional Clients	Salt Clients
SUSE Linux Enterprise 11 SP4	x86, x86_64, Itanium, IBM POWER, z Systems	Supported	Supported
SUSE Linux Enterprise 12 SP3, 12 SP4	x86_64, IBM POWER (IBM Power PC), z Systems, ARM	Supported	Supported
SUSE Linux Enterprise 15	x86_64, IBM POWER (IBM Power PC), z Systems, ARM	Supported	Supported
<i>Latest minor release Red Hat Enterprise Linux Server 6</i>	x86, x86_64	Supported	Supported
<i>Latest minor release Red Hat Enterprise Linux Server 7</i>	x86_64	Supported	Supported
Open Enterprise Server 2015, 2015 SP1, 2018	x86_64	Supported	Supported



### *Supported Versions and SP Levels*

Client operating system versions and SP levels must be under general support (normal or LTSS) to be supported with Uyuni. For details on supported product versions, see <https://www.suse.com/lifecycle>.



# First Installations

## Installing the virtual machine environment

### Virtual Machine Manager (virt-manager) Settings

This chapter provides the required (KVM) settings for installation of SUSE Linux Enterprise Just Enough Operating System (JeOS) 12 as the base for Uyuni. A kernel virtual machine (KVM) combined with Virtual Machine Manager (*virt-manager*) will be used as a sandbox for your first installation.



*SUSE Virtualization Guide*

For more information on virtualization, see: [SUSE Linux Enterprise Virtualization Guide](#)

Enter the following settings when creating a new virtual machine using **virt-manager**. In the following table replace *version* with the actual product version string.

KVM Settings	
Installation Method	Import Existing Disk Image
OS:	Linux
Version:	SLES_version_-JeOS-for-kvm-and-xen.x86_64-GM.qcow2
Memory:	4096 MB
CPU's:	2
Storage Format:	.qcow2 24 GB (Default) JeOS Root Partition
Virtual Disks:	
VirtIO Disk 2	101 GB for <a href="#">/var/pacewalk</a>
VirtIO Disk 3	50 GB for <a href="#">/var/lib/pgsql</a>
VirtIO Disk 4	4 GB for swap
Name:	test-setup
Network	Bridge <i>br0</i>



*SUSE Virtualization Guide*

For more information on virtualization, see: [SUSE Linux Enterprise Virtualization Guide](#)

### JeOS KVM Settings

Create three additional virtual disks required for the Uyuni storage partitions.

*Procedure: Creating the Required Partitions with KVM*

1. Create a new virtual machine using the downloaded JeOS KVM image and select **Import existing disk image**.
2. Configure RAM and number of CPUs (At least 4 GB RAM and 2 CPUs).
3. Name your KVM machine and select the **Customize configuration before install** check box.
4. Select the [ **Add Hardware** ] button and create three new virtual disks with the following specifications. These disks will be partitioned and mounted in [Procedure: Preparing JeOS for Uyuni Installation](#).

VirtIO Storage Disks	Name	Sizing
VirtIO Disk 2	spacewalk	101 GB
VirtIO Disk 3	pgsql	50 GB
VirtIO Disk 4	swap	4 GB

5. Click **Begin Installation** and your new VM will boot from the JeOS image.

Proceed through the basic JeOS installation prompts until you reach the command line.

*Root Password*

During the basic installation prompts you are asked to enter the root password. Select a strong password and then in the next message box [ **Confirm root Password** ].

## Preparing JeOS for Uyuni

*Procedure: Preparing JeOS for Uyuni Installation*

1. Register with SCC:

```
SUSEConnect -e<EMAIL_ADDRESS> -r<SUSE_MANAGER_CODE>
```

2. Add Uyuni repositories:

```
SUSEConnect -p SUSE-Manager-Server/<productnumber>/x86_64 -r<SUSE_MANAGER_CODE>
```

3. Install yast2-storage with all required dependencies (approx. 40 packages, 30 MB when installed). This basic administration package is required for preparing storage partitions:

```
zypper in -t package yast2-storage
```

4. Partition and mount the virtual disks at the following locations using YaST Partitioner (**yast2 disk**).

VirtIO Storage Disks	Name	Storage Size	File System Type
VirtIO Disk 2	<code>/var/spacwalk</code>	101 GB	XFS
VirtIO Disk 3	<code>/var/lib/pgsql</code>	50 GB	XFS
VirtIO Disk 4	<code>swap</code>	4 GB	swap

5. If you are still using an older version than SUSE Manager 3.2 check `/etc/fstab` for correctness as follows (*updated tools shipped with recent SPs will no longer require human intervention.*): Remove or comment out this mount point entry for `/var/lib/pgsql/` in the `/etc/fstab` file:

```
/var/lib/pgsql btrfs subvol=@/var/lib/pgsql 0 0
```



#### Remove `pgsql` from the `fstab` Configuration File

If you do not remove the `/var/lib/pgsql/` line from `fstab` the first time you shut down the server you will lose your database because of duplicated entries in the `fstab` file.

6. Exit the partitioner and install the Uyuni pattern:

```
zypper in -t pattern suma_server
```

For proceeding with Uyuni setup, see [SUSE Manager Setup](#).

## Installing Uyuni Server on x86

This chapter provides the required KVM settings for installation of SUSE Linux Enterprise Server media as the base for Uyuni. A kernel virtual machine KVM combined with Virtual Machine Manager (`virt-manager`) will be used as a sandbox for this installation.

### SLES KVM Requirements

Enter the following settings when creating a new virtual machine using `virt-manager` (replace `version` with the actual version string):

KVM Settings for SLES	Installation Method:
Local install media (ISO image or CDROM)	OS:
Linux	Version:
<code>SLE-[replaceable]version-Server-x86_64-GM-DVD1.iso</code>	Memory:
4096 MB	CPU:

KVM Settings for SLES	Installation Method:
2	Storage Format:
ISO 3 GB	Disk Space:
234 GB split between 4 GB swap and 130 GB mounted at <code>/var/spacwalk/</code>	
(Virtual Disk 1) and 50 GB mounted at <code>/var/lib/pgsql</code>	
(Virtual Disk 2). The rest for the root partition (100 GB+).	Name:
example-server	Network

## SLES KVM Settings

This section provides guidance on installation of Uyuni utilizing the full installation media with KVM and `virt-manager`. This section assumes you have previously setup an account with SCC and downloaded the SLES full installation media.

### Procedure: Preparing for SLES Installation

1. In `virt-manager` select **File > New Virtual Machine**.
2. Select [ **Local install media (ISO image or CDROM)** ].
3. Ensure [ **Use ISO Image** ] is selected then click [ **Browse** ] and locate the full SLES image you downloaded from your SCC account.
4. Configure your machine with at least 4096 MB RAM and a minimum of 2 CPUs.
5. Create a storage device with a minimum of 234 GB storage space for the installation. During the partitioning setup of the SLES installation this disk should be partitioned into the following disks:

Disk Space Requirements
4 GB Swap space
130 GB XFS partition (or dedicated virtual disk) for <code>/var/spacwalk/</code>
50 GB XFS partition (or dedicated virtual disk) for <code>/var/lib/pgsql/</code>

6. The remaining storage space will be used by the operating system for the root partition. Select [ **Finish** ] to begin the installation.

Installation of SUSE Linux Enterprise Server will begin. For more information on completing an installation of SUSE Linux Enterprise Server, see: [SUSE Linux Enterprise Installation Quickstart](#).

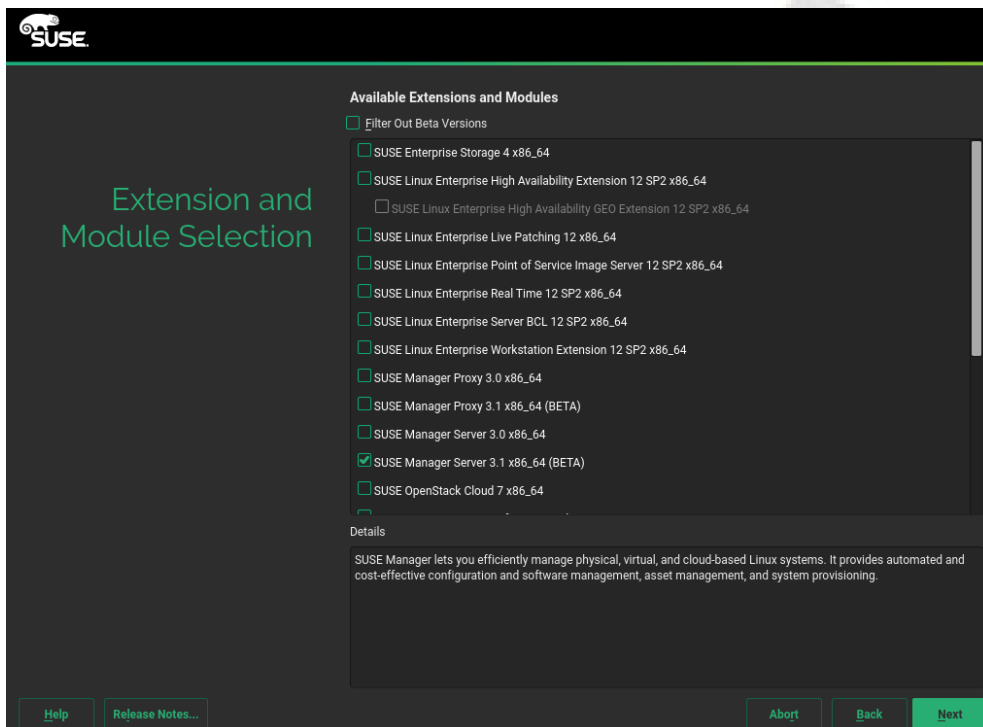
## Selecting the Uyuni Extension

1. During SUSE Linux Enterprise Server installation, you will be presented with the **Extension and Module Selection** screen.



This screen will not be shown if you have skipped the registration step at the beginning of the installation process. Ensure you have registered with SUSE and logged in.

2. Select the Uyuni Extension and then click the [ **Next** ] button.
3. Complete the SUSE Linux Enterprise Server installation.



## SUSE Manager Setup

### Topics

This section covers Uyuni setup. You will perform the following procedures:

- Start Uyuni setup via YaST or command line
- Create the main administration account with the Uyuni Web UI
- Name your base organization and add login credentials
- Sync the SUSE Linux Enterprise product channel from SUSE Customer Center

### Uyuni Setup

### Third Party Software

Uyuni is an extension of SUSE Linux Enterprise Server and compatible with the software shipped with SUSE Linux Enterprise Server.



Uyuni is a complex system, and therefore installing third party is not allowed. Installing monitoring software provided by a third party vendor is allowed only if you do not exchange basic libraries such as SSL, cryptographic software, and similar tools. In case of emergency, SUSE reserves the right to ask to remove any third party software (and associated configuration changes) and then to reproduce the problem on a clean system.

This section will guide you through Uyuni setup procedures.

### Procedure: Uyuni Setup

1. Login to the Uyuni server desktop and perform one of the following actions to begin setup:
  - Select **Applications > System Tools > YaST > SUSE Manager Setup**.
  - Open a terminal as root and type `yast2 susemanager_setup` to begin setup.
2. From the introduction screen select **SUSE Manager Setup > Setup SUSE Manager from scratch** and click [ **Next** ] to continue.
3. Enter an email address to receive status notifications and click [ **Next** ] to continue. Note that Uyuni can sometimes send a large volume of notification emails. You can disable email notifications in the Web UI after setup, if you need to.
4. Enter your certificate information and a password. Passwords must be at least seven characters in length, and must not contain spaces, single or double quotation marks ( ' or " ), exclamation marks ( ! ), or dollar signs ( \$ ). Always store your passwords in a secure location.



### Certificate Password

Without this password it will not be possible to set up a Uyuni Proxy Server.

5. Click [ **Next** ] to continue.





Certificate Setup

Organization  
SUSE

Organization Unit  
Galaxy

City  
NUE

State  
BY

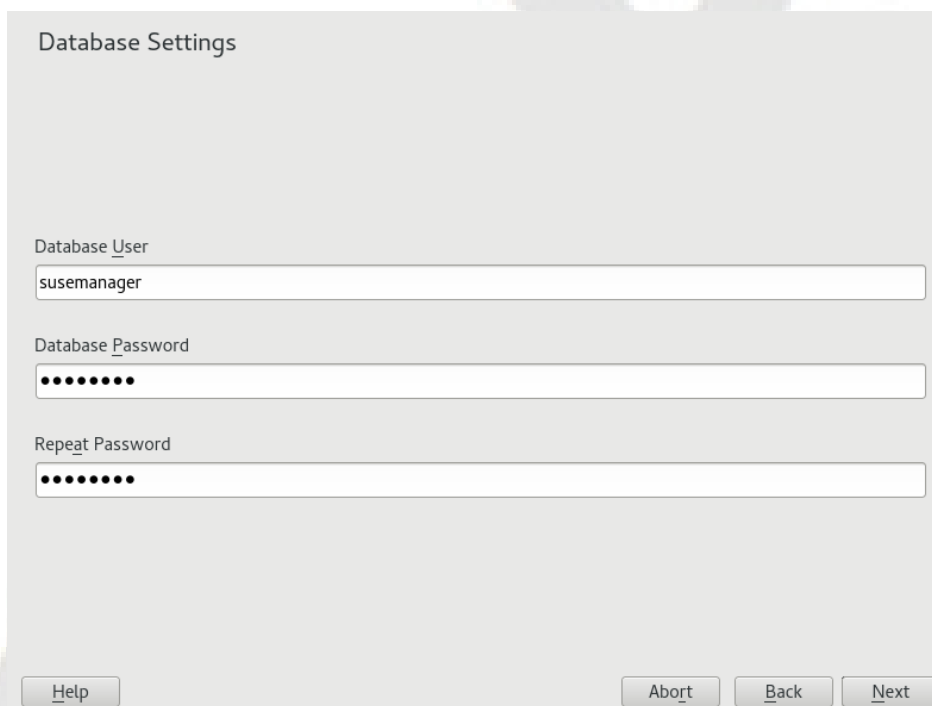
Country  
DE

SSL Password  
●●●●●●●●

Repeat Password  
●●●●●●●●

[Help](#) [Abort](#) [Back](#) [Next](#)

6. From the **SUSE Manager Setup > Database Settings** screen, enter a database user and password and click [ **Next** ] to continue. Passwords must be at least seven characters in length, and must not contain spaces, single or double quotation marks ( ' or " ), exclamation marks ( ! ), or dollar signs ( \$ ). Always store your passwords in a secure location.



Database Settings

Database User  
susemanager

Database Password  
●●●●●●●●

Repeat Password  
●●●●●●●●

[Help](#) [Abort](#) [Back](#) [Next](#)

7. Enter your SUSE Customer Center [Organization Credentials](https://scc.suse.com/login). Open <https://scc.suse.com/login> to register or access to your organization credentials.

**[ Skip ]**

If you are using SUSE Enterprise products, Uyuni requires that you connect to SUSE Customer Center for software, updates and patches. You will not be able to synchronize or provide Enterprise channels to your clients without this information.

However if you would like to work with open source software channels and repositories then click the **[ Skip ]** button to continue. You can setup your SUSE Customer Center credentials or configure inter-server sync at a later time.

8. Click **[ Next ]** to continue.

9. Click **[ Yes ]** to run setup when prompted.

10. Once setup has completed, click **[ Next ]** to continue. You will see the address of the Uyuni Web UI.

11. Click **[ Finish ]** to complete Uyuni setup.

In the next section you will create the administrator's account and synchronize with SUSE Customer Center.

### Creating the Main Administration Account

This section will walk you through creating your organizations main administration account for Uyuni.



### Admin and User Accounts

The main administration account is the *highest authority account* within Uyuni and therefore account access information should be stored in a secure location.

For security it is recommended that the main administrator creates *low level admin accounts* designated for administration of organizations and individual groups.

#### Procedure: Setup the Main Administration Account

1. In the browser, enter the address provided after completing setup and open the Uyuni Web UI.
2. Add your organization name to the **Create Organization > Organization Name** field.
3. Add your username and password to the **Create Organization > Desired Login** and **Create Organization > Desired Password** fields.
4. Fill in the Account Information fields including an email for system notifications.
5. Select **Create Organization** to finish creating your administration account.

**Create Organization**

Organization Details

**Organization Name\*:**

Tip: Between 3 and 128 characters

Create SUSE Manager Administrator

Create the first SUSE Manager Administrator account. This account will have access to all resources on this SUSE Manager. This account will also be able to create new users and delegate permissions to them.

**Desired Login\*:**

Tip: Between 5 and 64 characters

**Desired Password\*:**

**Confirm Password\*:**

**Password Strength:**

**Email\*:**

**First Name\*:**

**Last Name\*:**

\* - Required Field

**Create Organization**

You should now be presented with the Uyuni Front Page. In the next section you will prepare the server for connecting the first client.

### Syncing Products from SUSE Customer Center

SUSE Customer Center (SCC) maintains a collection of repositories which contain packages, software and updates for all supported enterprise client systems. These repositories are organized into channels each of which provide software specific to a distribution, release and architecture. After synchronizing with SCC clients may receive updates, and be organized into groups and assigned to specific product software channels.

This section covers synchronizing with SCC from the Web UI and adding your first client channel.

*Procedure: Synchronizing with SUSE Customer Center*

1. From the Uyuni Web UI start page select **Admin > Setup Wizard**.
2. From the **Main Menu > Admin > Setup Wizard** page select the [ **SUSE Products** ] tab. Wait a moment for the products list to populate. If you previously registered with SUSE Customer Center a list of products will populate the table. This table lists architecture, channels, and status information. For more information, see:

xref:FILENAME.adoc#vle.webui.admin.wizard.products[]

+

**Setup Wizard**

HTTP Proxy   Organization Credentials   SUSE Products

Filter by product Description   Filter by architecture   25 items per page

Items 1 - 25 of 94

Product Description	Arch	Channels
<input type="checkbox"/> Open Enterprise Server 2018	x86_64	
<input type="checkbox"/> RHEL Expanded Support 5	i386	
<input type="checkbox"/> RHEL Expanded Support 5	x86_64	
<input type="checkbox"/> > RHEL Expanded Support 6	i386	
<input type="checkbox"/> > RHEL Expanded Support 6	x86_64	
<input type="checkbox"/> > RHEL Expanded Support 7	x86_64	
<input type="checkbox"/> SUSE Container as a Service Platform 1.0	x86_64	
<input type="checkbox"/> SUSE Container as a Service Platform 2.0	x86_64	
<input type="checkbox"/> > SUSE Linux Enterprise Desktop 11 SP2	i586	
<input type="checkbox"/> > SUSE Linux Enterprise Desktop 11 SP2	x86_64	
<input type="checkbox"/> > SUSE Linux Enterprise Desktop 11 SP3	i586	
<input type="checkbox"/> > SUSE Linux Enterprise Desktop 11 SP3	x86_64	
<input type="checkbox"/> > SUSE Linux Enterprise Desktop 11 SP4	i586	
<input type="checkbox"/> > SUSE Linux Enterprise Desktop 11 SP4	x86_64	
<input type="checkbox"/> > SUSE Linux Enterprise Desktop 12	x86_64	
<input type="checkbox"/> > SUSE Linux Enterprise Desktop 12 SP1	x86_64	
<input type="checkbox"/> > SUSE Linux Enterprise Desktop 12 SP2	x86_64	
<input type="checkbox"/> > SUSE Linux Enterprise Desktop 12 SP3	x86_64	
<input checked="" type="checkbox"/> > SUSE Linux Enterprise Desktop 15	x86_64	100%
<input type="checkbox"/> > SUSE Linux Enterprise High Performance Computing 15	aarch64	include recommended
<input type="checkbox"/> > SUSE Linux Enterprise High Performance Computing 15	x86_64	include recommended
<input type="checkbox"/> > SUSE Linux Enterprise Server 10 SP3	i586	
<input type="checkbox"/> > SUSE Linux Enterprise Server 10 SP3	ia64	
<input type="checkbox"/> > SUSE Linux Enterprise Server 10 SP3	ppc	
<input type="checkbox"/> > SUSE Linux Enterprise Server 10 SP3	s390x	

Page 1 of 4   First   Prev   Next   Last

Refresh the product catalog from SUSE Customer Center

☐ Channels  
☐ Channel Families  
☐ Products  
☐ Product Channels  
☐ Subscriptions

Refresh

Why aren't all SUSE products displayed in the list?

The products displayed on this list are directly linked to your Organization credentials (Mirror credentials) as well as your SUSE subscriptions.

If you believe there are products missing, make sure you have added the correct Organization credentials in the previous wizard step.

← Prev   3 of 3

+

1. Since Your SUSE Linux Enterprise client is based on **x86\_64** architecture scroll down the page and select the check box for this channel now.
  - Add channels to Uyuni by selecting the check box to the left of each channel. Click the arrow symbol to the left of the description to unfold a product and list available modules.

- Start product synchronization by clicking the [ **Add Products** ] button.

After adding the channel Uyuni will schedule the channel to be copied. This can take a long time as Uyuni will copy channel software sources from the SUSE repositories located at SUSE Customer Center to local `/var/Spacewalk/` directory of your server.



#### *PostgreSQL and Transparent Huge Pages*

In some environments, *Transparent Huge Pages* provided by the kernel may slow down PostgreSQL workloads significantly.

To disable *Transparent Huge Pages* set the `transparent_hugepage` kernel parameter to `never`. This has to be changed in `/etc/default/grub` and added to the line `GRUB_CMDLINE_LINUX_DEFAULT`, for example:

```
GRUB_CMDLINE_LINUX_DEFAULT="resume=/dev/sda1 splash=silent quiet  
showopts elevator=noop transparent_hugepage=never"
```

To write the new configuration run `grub2-mkconfig -o /boot/grub2/grub.cfg`. To update the grub2 during boot run `grub2-install /dev/sda`.

Monitor channel synchronization process in real-time by viewing channel log files located in the directory `/var/log/rhn/reposync`:

```
tailf /var/log/rhn/reposync/<CHANNEL_NAME>.log
```

After the channel sync process has completed proceed to:

```
pass:c[xref:FILENAME.adoc#preparing.and.registering.clients[]]
```



# IBM zSystems

## SUSE Manager on IBM z Systems

### Introduction

This best practice guide is intended for z/VM administrators responsible for operating the IBM z Systems Mainframe. The goal of this guide is to lead an z/VM administrator trained on normal z Systems operating protocols through the installation of Uyuni onto an existing mainframe system. The intent of this article is not to cover the variety of hardware configuration profiles available on z Systems but instead to provide a foundational overview of the procedure and requirements necessary for a successful Uyuni server deployment.

### Base System Requirements

The z/VM administrator should acquire and prepare the following resources for a successful Uyuni installation. Uyuni4.0 is delivered as an extension. These sections will provide you with the minimum and recommended system requirements for Uyuni . The base system for Uyuni 4.0 is SLES 12SP3 .

Hardware	Recommended Hardware
IBM Systems	* IBM zEnterprise System z196 (z196) * IBM zEnterprise System z114 (z114) * IBM zEnterprise EC12 (zEC12) * IBM zEnterprise EC12 (zEC12) * IBM zEnterprise BC12 (zBC12) * IBM z13 (z13) * LinuxOne Rockhopper * LinuxOne Emperor
RAM	<p><i>Split memory requirements across available RAM, VDISK and swap to suit your environment. On a production system the ratio of physical memory to VDISK will need to be re-evaluated based on the number of clients which will be supported.</i></p> <p>Minimum 5 GB+ for test server (3 GB RAM + 2 GB VDISK Swap)</p> <p>Minimum 16 GB+ for base installation</p> <p>Minimum 32 GB+ for a production server</p>
Free Disk Space	<p>Minimum 100 GB for root partition</p> <p>Minimum 50 GB for <code>/var/lib/pgsql</code></p> <p>Minimum 50 GB per SUSE product + 100 GB per Red Hat product <code>/var/spacwalk</code></p>

Hardware	Recommended Hardware
Network Connection	<p>* OSA Express Ethernet (including Fast and Gigabit Ethernet) _ * HiperSockets or Guest LAN * 10 GBE, VSWITCH * RoCE _(RDMA over Converged Ethernet)</p> <p>The following interfaces are still included but no longer supported:</p> <p>* CTC (or virtual CTC) * IP network interface for IUCV</p>

### Media Requirements

- SUSE Linux Enterprise 12SP3 Installation Media for IBM z Systems :

<https://www.suse.com/products/server/download/>

## Additional Requirements

There are a few additional resource requirements you will need to prepare before installing the Uyuni extension on your system. This section overviews these requirements.

The guest z/VM should be provided with a static IP address and hostname as these cannot be easily changed after initial setup. The hostname should contain less than 8 characters.

For more information on Uyuni additional requirements, see [https://www.suse.com/documentation/suse-manager-3/book\\_suma\\_best\\_practices/data/mgr\\_conceptual\\_overview.html](https://www.suse.com/documentation/suse-manager-3/book_suma_best_practices/data/mgr_conceptual_overview.html).

You will need to ensure you have sufficient disk storage for Uyuni before running **yast2 susemanagersetup**.

This section explains these requirements in more detail.

### UyuniDefault Volume Groups and Disk Space

By default the file system of Uyuni, including the embedded database and patch directories, reside within the root volume. While adjustments are possible once installation is complete, it is the administrator's responsibility to specify and monitor these adjustments.



If your Uyuni runs out of disk space, this can have a severe impact on its database and file structure. Preparing storage requirements in accordance with this section will aid in preventing these harmful effects. SUSE technical services will not be able to provide support for systems suffering from low disk space conditions as this can have an effect on an entire system and therefore becomes unresolvable. A full recovery is only possible with a previous backup or a new Uyuni installation.

### Required Storage Devices

An additional disk is required for database storage. This should be an **zFCP** or **DASD** device as these are preferred for use with **HYPERPAV**. The disk should fulfill the following requirements:

- At least 50 GB for **/var/lib/pgsql**
- At least 50 GB for each SUSE product in **/var/pacewalk**
- At least 100 GB for each Red Hat product in **/var/pacewalk**

### Reclaiming Disk Space

If you need to reclaim more disk space, try these suggestions:

- Remove custom channels (you cannot remove official SUSE channels)
- Use the **pacewalk-data-fsck --help** command to compare the pacewalk database to the filesystem and remove entries if either is missing.

## SLES 12SP3 Installation and the Uyuni Extension

This section covers the installation of Uyuni4.0 as an extension to SLES 12SP3 .

For more information on deploying SLES 12SP3 on your hardware, see [https://www.suse.com/documentation/sles-12/book\\_sle\\_deployment/data/cha\\_zseries.html](https://www.suse.com/documentation/sles-12/book_sle_deployment/data/cha_zseries.html).

During installation of SLES 12SP3 select Uyuni as an extension.

After rebooting you will need to set up the additional storage required for **/var/pacewalk** and **/var/lib/pgsql** and swap space using the yast partitioner tool. This step is *required* before running **yast2 susemanagersetup**.

After configuring the storage requirements, having executed a YaST online update and completed a full system reboot, run Uyuni setup to finalize the Uyuni installation on your z Systems mainframe:

```
{prompt.root}yast2 susemanagersetup
```

This completes the installation of Uyuni on your z Systems . For more information on beginning management with Uyuni , see [Setup Uyuni with YaST](#).

# Proxy

## Uyuni 4.0 Proxy

This chapter explains how to install and set up Uyuni 4.0 Proxy. It also provides notes about migrating a previous proxy to version 3.2.

### Overview

Uyuni 4.0 Proxy is a Uyuni add-on that caches software packages on an internal, central server. The proxy caches patch updates from SUSE or custom RPMs generated by third-party organizations. A proxy allows you to use bandwidth more effectively because client systems connect to the proxy for updates, and the Uyuni server is no longer required to handle all client requests. A SUSE Manager Proxy can serve both Traditional and Salt clients. The proxy also supports transparent custom package deployment.

Uyuni Proxy is an open source (GPLv2) solution that provides the following features:

- Cache software packages within a Squid proxy.
- Client systems see the SUSE Manager Proxy as a Uyuni server instance.
- The SUSE Manager Proxy is registered as a client system with the Uyuni server.

The primary goal of a SUSE Manager Proxy is to improve Uyuni performance by reducing bandwidth requirements and accelerating response time.

## Proxy Installation and Connecting Clients

### Requirements

The following section provides SUSE Manager Proxy requirements.

#### *Supported Client Systems*

For supported clients and their requirements, see `xref:FILENAME.adoc#quickstart.sect.prereq.clientos[]`.

#### *Hardware Requirements*

Hardware requirements highly depend on your usage scenario. When planning proxy environments, consider the amount of data you want to cache on your proxy. If your proxy should be a 1:1 mirror of your Uyuni, the same amount of disk space is required. For specific hardware requirements, see the following table.

Hardware	Required
CPU	Multi-core 64-bit CPU (x86_64).
RAM	Minimum 4 GB for a non-production server
	Minimum 16 GB for a production server

Hardware	Required
Free Disk Space	Minimum 100 GB for base installation and at least 50 GB for caching per SUSE product and +100 GB per Red Hat product; a resizeable partition strongly recommended.



#### *Storage for Proxy Data*

SUSE recommends storing the squid proxy caching data on a separate disk formatted with the XFS file system.

#### *SSL Certificate Password*

For installing the proxy, you need the SSL certificate password entered during the initial installation of Uyuni.

#### *Network Requirements*

For additional network requirements, see `xref:FILENAME.adoc#quickstart.sect.prereq.network[]`.

#### *SUSE Customer Center*

For using SUSE Manager Proxy, you need an account at SUSE Customer Center (SCC) where your purchased products and product subscriptions are registered. Make sure you have the following subscriptions:

- One or more subscriptions for SUSE Manager Proxy.
- One or more subscriptions for Uyuni.
- Subscriptions for the products on the client systems you want to register with Uyuni via SUSE Manager Proxy .
- Subscriptions to client entitlements for the client system you want to register with Uyuni via SUSE Manager Proxy .

#### *Network Time Protocol (NTP)*

The connection to the Web server via Secure Sockets Layer (SSL) requires correct time settings on the server, proxy and clients. For this reason, all systems must use NTP. For more information, see [https://www.suse.com/documentation/sles-12/book\\_sle\\_admin/data/cha\\_netz\\_xntp.html](https://www.suse.com/documentation/sles-12/book_sle_admin/data/cha_netz_xntp.html).

#### *Virtual Environments*

The following virtual environments are supported:

- [http://www.linux-kvm.org/page/Main\\_Page](http://www.linux-kvm.org/page/Main_Page)
- <http://www.vmware.com/>
- <http://www.microsoft.com/en-us/server-cloud/solutions/virtualization.aspx>

For running SUSE Manager Proxy in virtual environments, use the following settings for the virtual machine (VM):

- At least 1 GB of RAM
- Bridged network

## Installation and Setup

The following section will guide you through the installation and setup procedure.

Uyuni Proxy systems are registered as traditional clients or as Salt clients using a bootstrap script. Migrating a traditionally registered Proxy system to a Salt Proxy system is not possible. Re-install the Proxy if you want to switch to Salt.



### Downloading Channels

Before you can select the correct child channels while creating the activation key, ensure you have completely downloaded the channels for SUSE Linux Enterprise 12 SP4.

### Procedure: Registering the Proxy

1. Create an activation key based on the SUSE Linux Enterprise 12 SP4 base channel. For more information about activation keys, see `xref:FILENAME.adoc#create.act.keys[]`.

**Create Activation Key** ?

Activation Key Details

Systems registered with this activation key will inherit the settings listed below.

**Description:**

SUSE Mgr 3.1 Proxy

Use this to describe what kind of settings this key will reflect on systems that use it. If left blank, this field will be filled in 'None'.

**Key:**

1- susemgr\_3\_1\_proxy

Activation key can contains only numbers [0-9], letters [a-z A-Z], '-', '\_' and ''

Leave blank for automatic key generation. Note that the prefix is an indication of the SUSE Manager organization the key is associated with.

**Usage:**

Leave blank for unlimited use.

**Base Channel:**

SLES12-SP3-Pool for x86\_64

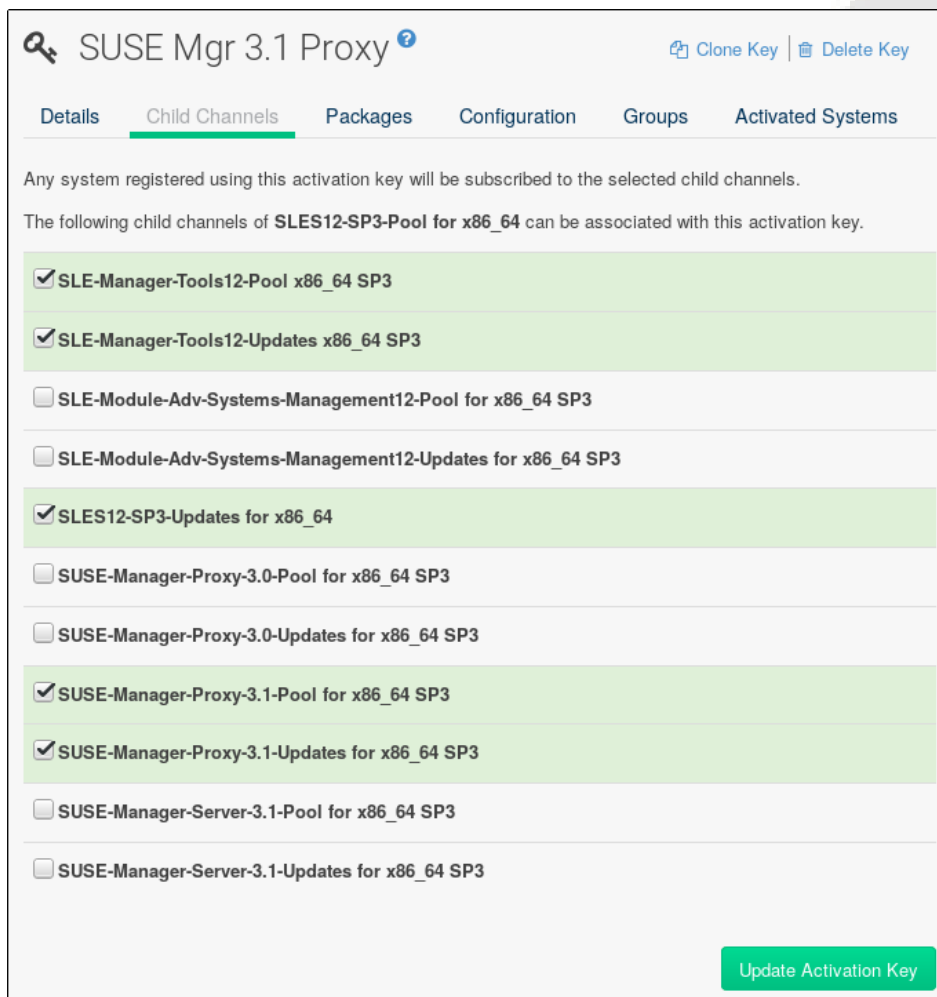
Choose "SUSE Manager Default" to allow systems to register to the default SUSE Manager provided channel that corresponds to the installed SUSE Linux version. Instead of the default, you may choose a particular SUSE provided channel or a custom base channel, but if a system using this key is not compatible with the selected channel, it will fall back to its SUSE Manager Default channel.

Figure 1. Proxy Activation Key

2. From the **Child Channels** listing select the Uyuni 4.0 Proxy child channel with the matching update channel (**SUSE Manager Proxy-3.2-Pool** and **SUSE-Manager-Proxy-3.2-Updates**). These child channels are required for providing the proxy packages and updates. For



normal SLES clients, [SLES12-SP4-Updates](#) plus [SLE-Manager-Tools12-Pool](#) and [SLE-Manager-Tools12-Updates](#) are mandatory.



**SUSE Mgr 3.1 Proxy** [Clone Key](#) [Delete Key](#)

**Details** **Child Channels** Packages Configuration Groups Activated Systems

Any system registered using this activation key will be subscribed to the selected child channels.

The following child channels of **SLES12-SP3-Pool for x86\_64** can be associated with this activation key.

- ☒ **SLE-Manager-Tools12-Pool x86\_64 SP3**
- ☒ **SLE-Manager-Tools12-Updates x86\_64 SP3**
- ☐ SLE-Module-Adv-Systems-Management12-Pool for x86\_64 SP3
- ☐ SLE-Module-Adv-Systems-Management12-Updates for x86\_64 SP3
- ☒ **SLES12-SP3-Updates for x86\_64**
- ☐ SUSE-Manager-Proxy-3.0-Pool for x86\_64 SP3
- ☐ SUSE-Manager-Proxy-3.0-Updates for x86\_64 SP3
- ☒ **SUSE-Manager-Proxy-3.1-Pool for x86\_64 SP3**
- ☒ **SUSE-Manager-Proxy-3.1-Updates for x86\_64 SP3**
- ☐ SUSE-Manager-Server-3.1-Pool for x86\_64 SP3
- ☐ SUSE-Manager-Server-3.1-Updates for x86\_64 SP3

[Update Activation Key](#)

Figure 2. Base and Child Proxy Channel

3. Modify a bootstrap script for the proxy if needed. If you want to run the proxy on a traditional client (system type [Management](#)) uncheck [Bootstrap using Salt](#). Using Salt is supported since version 3.2. For more information about bootstrap scripts, see [xref:FILENAME.adoc#modify.bootstrap.script\[\]](#).

SUSE Manager Configuration - Bootstrap

The following information will be used to generate bootstrap scripts. These bootstrap scripts can be used to configure a client to receive updates. Once the bootstrap scripts have been generated, they will be available from [this server](#).

Please note that some manual configuration of these scripts may still be required. The bootstrap script can be found on the S server here: `/srv/www/htdocs/pub/bootstrap`

General

Bootstrap Script

Organizations

Restart

Cobbler

Bare-metal systems

Client Bootstrap Script Configuration

SUSE Manager server hostname\*

manager.example.com

SSL cert location\*

/srv/www/htdocs/pub/rhn-org-trusted-ssl-cert-1.0-1.noarch.rpm

Bootstrap using Salt

☒

Enable SSL

☒

Enable Client GPG checking

☒

Enable Remote Configuration

☐

Enable Remote Commands

☒

Client HTTP Proxy

Client HTTP Proxy username

Client HTTP Proxy password

Update

Figure 3. Modifying Bootstrap Script

- Create the SUSE Manager Tools Repository for bootstrapping, see `xref:FILENAME.adoc#create.tools.repository[]`.
- Bootstrap the client with the bootstrap script. For more information, see `xref:FILENAME.adoc#connect.first.client[]`.
- In case of a Salt client, accept the key on the **Main Menu** > **Salt** > **Keys** page by clicking the check mark and it will appear in the **Main Menu** > **Systems** > **Overview**.
- Check via **System Details** > **Software** > **Software Channels** that the two proxy channels **SUSE Manager Proxy-3.2-Pool** and **SUSE-Manager-Proxy-3.2-Updates** are selected.

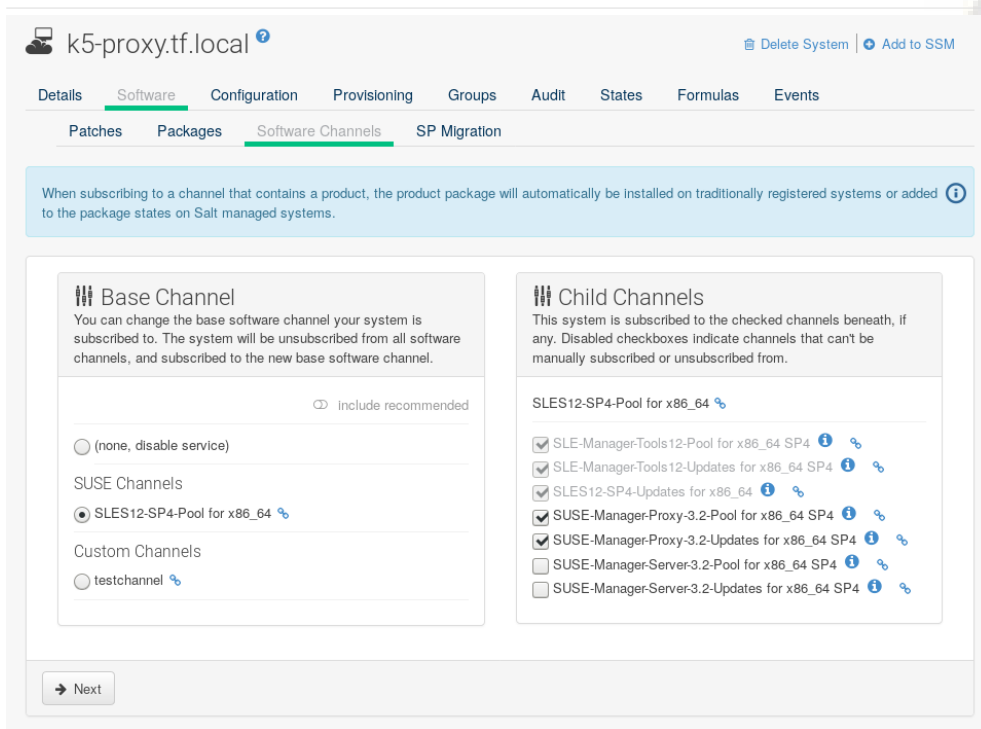


Figure 4. Proxy Channels

A few more steps are still needed:

- Install the `patterns-suma_proxy` pattern (see `xref:FILENAME.adoc#at.manager.proxy.run.pattern[]`)
- Copy the SSL certificate and key from the server (see `xref:FILENAME.adoc#at.manager.proxy.run.copycert[]`)
- Run `configure-proxy.sh` (see `pass:c[xref:FILENAME.adoc#at.manager.proxy.run.confproxy]`)

You will then be able to register your clients against the proxy using the Web UI or a bootstrap script as if it were a Uyuni server. For more information, see `xref:FILENAME.adoc#at.manager.proxy.register.saltclients[]`.

### Install the `suma_proxy` pattern

On the server select the `pattern_suma_proxy` package for installation, or make sure the `suma_proxy` pattern is installed using the following command on the proxy as root:

```
zypper in -t pattern suma_proxy
```

The new salt-broker service will be automatically started at the end of the package installation. This service forwards the Salt interactions to the Uyuni server.



### Proxy Chains

It is possible to arrange Salt proxies in a chain. In such a case, the upstream proxy is named “parent”.

Make sure the proxy’s TCP ports **4505** and **4506** are open and that the proxy can reach the Uyuni server (or another upstream proxy) on these ports.

### Copy Server Certificate and Key

The proxy will share some SSL information with the Uyuni server, so the next step is to copy the certificate and its key from the Uyuni server or the upstream proxy.

As root, enter the following commands on the proxy using your Uyuni server or chained proxy named **PARENT**:

```
mkdir /root/ssl-build
cd /root/ssl-build
scp root@PARENT:/root/ssl-build/RHN-ORG-PRIVATE-SSL-KEY .
scp root@PARENT:/root/ssl-build/RHN-ORG-TRUSTED-SSL-CERT .
scp root@PARENT:/root/ssl-build/rhn-ca-openssl.cnf .
```



### Known Limitation

The SUSE Manager Proxy functionality is only supported if the SSL certificate was signed by the same CA as the Uyuni Server certificate. Using certificates signed by different CAs for Proxies and Server is not supported.

### Running `configure-proxy.sh`

The `configure-proxy.sh` script will finalize the setup of your SUSE Manager Proxy.

Now execute the interactive `configure-proxy.sh` script. Pressing **Enter** without further input will make the script use the default values provided between brackets `[]`. Here is some information about the requested settings:

#### Uyuni Parent

A Uyuni parent can be either another proxy server or a Uyuni server.

#### HTTP Proxy

A HTTP proxy enables your Uyuni proxy to access the Web. This is needed if direct access to the Web is prohibited by a firewall.

#### Proxy Version to Activate

Normally, the correct value (3.0, 3.1, or 3.2) should be offered as a default.

#### Traceback Email

---

An email address where to report problems.

### Use SSL

For safety reasons, press **Y**.

### Do You Want to Import Existing Certificates?

Answer **N**. This ensures using the new certificates that were copied previously from the Uyuni server.

### Organization

The next questions are about the characteristics to use for the SSL certificate of the proxy. The organization might be the same organization that was used on the server, unless of course your proxy is not in the same organization as your main server.

### Organization Unit

The default value here is the proxy's hostname.

### City

Further information attached to the proxy's certificate. Beware the country code must be made of two upper case letters. For further information on country codes, refer to the online [list of alpha-2 codes](#).



#### Country Code

As the country code enter the country code set during the SUSE Manager installation. For example, if your proxy is in US and your Uyuni in DE, you must enter **DE** for the proxy.

### Cname Aliases (Separated by Space)

Use this if your proxy server can be accessed through various DNS CNAME aliases. Otherwise it can be left empty.

### CA Password

Enter the password that was used for the certificate of your Uyuni server.

### Do You Want to Use an Existing SSH Key for Proxying SSH-Push Salt Minions?

Use this option if you want to reuse a SSH key that was used for SSH-Push Salt minions on the server.

### Create and Populate Configuration Channel `rhnp_proxy_config_1000010001`?

Accept default **Y**.

### SUSE Manager Username

Use same user name and password as on the Uyuni server.

### Activate advertising proxy via SLP?

SLP stands for Service Location Protocol.

If parts are missing, such as CA key and public certificate, the script prints commands that you must execute to integrate the needed files. When the mandatory files are copied, re-run `configure-proxy.sh`. Also restart the script if a HTTP error was met during script execution.

`configure-proxy.sh` activates services required by Uyuni Proxy, such as `squid`, `apache2`, `salt-broker`, and `jabberd`.

To check the status of the proxy system and its clients, click the proxy system's details page on the Web UI (**Main Menu** > **Systems** > **Proxy**, then the system name). **Connection** and **Proxy** subtabs display the respective status information.

### Registering Salt Clients via SUSE Manager Proxy

Proxy servers may now act as a broker and package cache for Salt minions. These minions can be registered with a bootstrap script like the traditional clients, or from the Web UI, or the command line.

Registering Salt clients via SUSE Manager Proxy from the Web UI is done almost the same way as registering clients directly with the Uyuni server. The difference is that you specify the name of the proxy in the **Proxy** drop-box on the **Main Menu** > **Systems** > **Bootstrapping** page.

**Bootstrap Minions**

You can add systems to be managed by providing SSH credentials only. SUSE Manager will prepare the system remotely and will perform the registration.

**Host:**

**SSH Port:**

**User:**

**Password:**

**Activation Key:**

**Proxy:**

☒ Disable SSH strict host key checking during bootstrap process

☐ Manage system completely via SSH (will not install an agent)

Figure 5. Bootstrapping a Salt Client With a Proxy

*Procedure: Register a Salt client through a proxy from the command line*

1. Instead of the Web UI, you may use the command line to register a minion through a proxy. Note that this procedure requires that you have installed the salt package on the minion before registration, and have the Advanced systems module activated. Add the proxy FQDN as the master in the minions configuration file located at:

```
/etc/salt/minion
```

or alternatively:

```
/etc/salt/minion.d/NAME.conf
```

2. Add the FQDN to the minion file:

```
master: proxy123.example.com
```

Save and restart the salt-minion service with:

```
systemctl restart salt-minion
```

3. On the Server, accept the new minion key with:

```
salt-key -a 'minion'
```

The minion will now connect to the proxy exclusively for Salt operations and normal HTTP package downloads.

### Registering Clients via SUSE Manager Proxy with a Script

Registering clients (either traditional or Salt) via SUSE Manager Proxy with a script is done almost the same way as registering clients directly with the Uyuni server. The difference is that you create the bootstrap script on the SUSE Manager Proxy with a command-line tool. The bootstrap script then deploys all necessary information to the clients. The bootstrap script refers some parameters (such as activation keys or GPG keys) that depend on your specific setup.

1. Create a client activation key on the Uyuni server using the Web UI. See [xref:FILENAME.adoc#create.act.keys\[\]](#).
2. On the proxy, execute the `mgr-bootstrap` command-line tool as root. If needed, use the additional command-line switches to tune your bootstrap script. An important option is `--traditional` that enables to opt for a traditional client instead of a salt minion.

To view available options type `mgr-bootstrap --help` from the command line:

```
# mgr-bootstrap --activation-keys=key-string
```

3. Optionally edit the resulting bootstrap script. Execute the bootstrap script on the clients as described in [xref:FILENAME.adoc#connect.first.client\[\]](#).

The clients are registered with the SUSE Manager Proxy specified in the bootstrap script.

### Additional Information about Client Registration on Proxies

Within the Web UI, standard proxy pages will show information about client, no matter whether minions or traditional clients.

A list of clients connected to a proxy can be seen by clicking on the name of the Proxy in **Main Navigation** > **Systems** > **Systems** > **Proxy**, selecting the **Details** tab, and then selecting the **Proxy** tab.

A list of chained proxies for a minion can be seen by clicking on the name of the minion in **Main Navigation** > **Systems** > **All**, selecting the **Details** tab, and then selecting the **Connection** tab.

If you decide to move any of your clients between proxies or the server you will need to repeat the registration process from scratch.

## Enabling PXE Boot via SUSE Manager Proxy

### Synchronizing Profiles and System Information

To enable PXE boot via a proxy server, additional software must be installed and configured on both the Uyuni server and the SUSE Manager Proxy server.

1. On the Uyuni server install `susemanager-tftpsync` :

```
zypper in susemanager-tftpsync
```

2. On the SUSE Manager Proxy server install `susemanager-tftpsync-recv` :

```
zypper in susemanager-tftpsync-recv
```

3. Run the `configure-tftpsync.sh` setup script and enter the requested information:

```
configure-tftpsync.sh
```

It asks for hostname and IP address of the Uyuni server and of the proxy itself. Additionally, it asks for the tftpboot directory on the proxy.

4. On the Uyuni server, run `configure-tftpsync.sh` to configure the upload to the SUSE Manager Proxy server:

```
configure-tftpsync.sh FQDN_of_Proxy_Server
```



5. To initiate an initial synchronization on the SUSE Manager Server run:

```
cobbler sync
```

Also can also be done after each a change within Cobbler that needs to be synchronized immediately. Otherwise Cobbler synchronization will also run automatically when needed. For more information about Cobbler, see [xref:FILENAME.adoc#advanced.topics.cobbler\[\]](#).

### Configuring DHCP for PXE via SUSE Manager Proxy

Uyuni is using Cobbler to provide provisioning. PXE (tftp) is installed and activated by default. To enable systems to find the PXE boot on the SUSE Manager Proxy server add the following to the DHCP configuration for the zone containing the systems to be provisioned:

```
next-server: <IP_Address_of_SUSE_Manager_Proxy_Server>
filename: "pxelinux.0"
```

## Migrating Uyuni 3.1 Proxy to Version 4.0 [Management]

The recommended order for migrations is to first migrate the server and then the proxies.

For the migration of traditionally managed proxies there are two possible approaches:

- Existing Uyuni proxies may be upgraded to version 3.2 with YaST or [zypper](#) migration.
- Alternatively, the proxies may be replaced by new ones.

This section documents both approaches.



#### *Migrating Uyuni 3 Proxy and Earlier*

For migrating Uyuni 3 Proxy and earlier, see [https://www.suse.com/documentation/suse-manager-3/book\\_suma\\_advanced\\_topics\\_31/data/sect1\\_chapter\\_book\\_suma\\_advanced\\_topics\\_31.html](https://www.suse.com/documentation/suse-manager-3/book_suma_advanced_topics_31/data/sect1_chapter_book_suma_advanced_topics_31.html), Chapter "SUSE Manager 3.1 Proxy".

### Replacing a SUSE Manager Proxy

A SUSE Manager Proxy is **dumb** in the sense that it does not contain any information about the clients which are connected to it. A SUSE Manager Proxy can therefore be replaced by a new one. Naturally, the replacement proxy must have the same name and IP address as its predecessor.

In order to replace a SUSE Manager Proxy and keeping the clients registered to the proxy leave the old proxy in Uyuni. Create a reactivation key for this system and then register the new proxy using the reactivation key. If you do not use the reactivation key, you will need to re-registered all the clients against the new proxy.

*Procedure: Replacing a SUSE Manager Proxy and Keeping the Clients Registered*

1. Before starting the actual migration procedure, save the data from the old proxy, if needed. Consider copying important data to a central place that can also be accessed by the new server:
  - Copy the scripts that are still needed.
  - Copy the activation keys from the previous server. Of course, it is always better to re-create the keys.
2. Shutdown the server.
3. Install a new Uyuni 4.0 Proxy, see `xref:FILENAME.adoc#at.manager.proxy.inst-and-clients[]`.
4. In the Uyuni Web UI select the newly installed SUSE Manager Proxy and delete it from the systems list.
5. In the Web UI, create a reactivation key for the old proxy system: On the System Details tab of the old proxy click **Reactivation**. Then click **Generate New Key**, and remember it (write it on a piece of paper or copy it to the clipboard). For more information about reactivation keys, see `xref:FILENAME.adoc#s5-sm-system-details-react[]`.
6. After the installation of the new proxy, perform the following actions (if needed):
  - Copy the centrally saved data to the new proxy system.
  - Install any other needed software.
  - If the proxy is also used for autoinstallation, do not forget to setup TFTP synchronization.

*Proxy Installation and Client Connections*

During the installation of the proxy, clients will not be able to reach the Uyuni server. After a SUSE Manager Proxy system has been deleted from the systems list, all clients connected to this proxy will be (incorrectly) listed as **directly connected** to the Uyuni server. After the first successful operation on a client *such as execution of a remote command or installation of a package or patch* this information will automatically be corrected. This may take a few hours.

*Upgrading a SUSE Manager Proxy from 3.1 to 4.0*

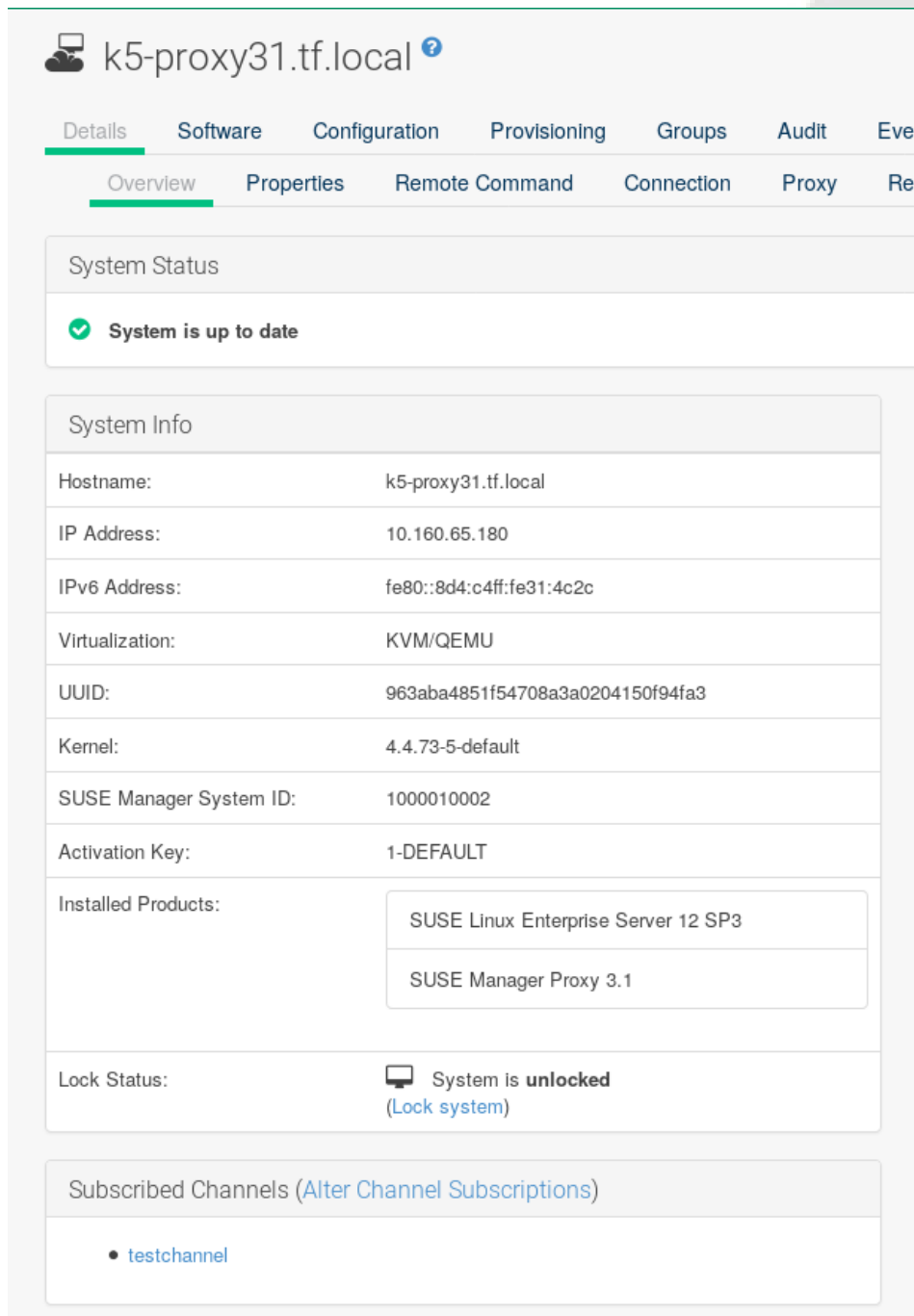
In most situations upgrading the proxy will be your preferred solution as this retains all cached packages. Selecting this route saves time especially regarding proxies connected to Uyuni server via low-bandwidth links. This upgrade is similar to a standard client migration.

*Synchronizing Target Channels*

Before successfully initializing the product migration, you first must make sure that the migration target channels are completely mirrored. To upgrade to Uyuni 3.2 Proxy, you will require at least the **SUSE Linux Enterprise Server 12 SP4** base channel with the **SUSE Manager Proxy 3.2** child channel for your architecture.

*Procedure: Migrating Proxy to 4.0*

1. Direct your browser to the Uyuni Web UI where your proxy is registered, and login.
2. On the **Main Menu** > **Systems** > **Systems** > **Proxy** page select your proxy server from the table.



**k5-proxy31.tf.local** ?


Details | Software | Configuration | Provisioning | Groups | Audit | Events

Overview | Properties | Remote Command | Connection | Proxy | Re

**System Status**

✔ System is up to date

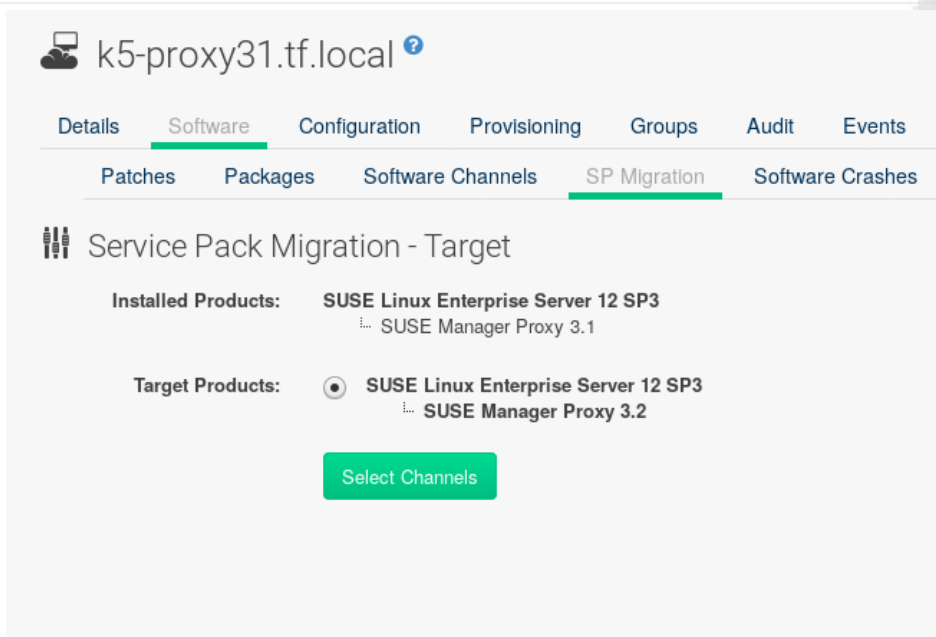
**System Info**

Hostname:	k5-proxy31.tf.local
IP Address:	10.160.65.180
IPv6 Address:	fe80::8d4:c4ff:fe31:4c2c
Virtualization:	KVM/QEMU
UUID:	963aba4851f54708a3a0204150f94fa3
Kernel:	4.4.73-5-default
SUSE Manager System ID:	1000010002
Activation Key:	1-DEFAULT
Installed Products:	<div>SUSE Linux Enterprise Server 12 SP3</div> <div>SUSE Manager Proxy 3.1</div>
Lock Status:	 System is <b>unlocked</b> <a href="#">(Lock system)</a>

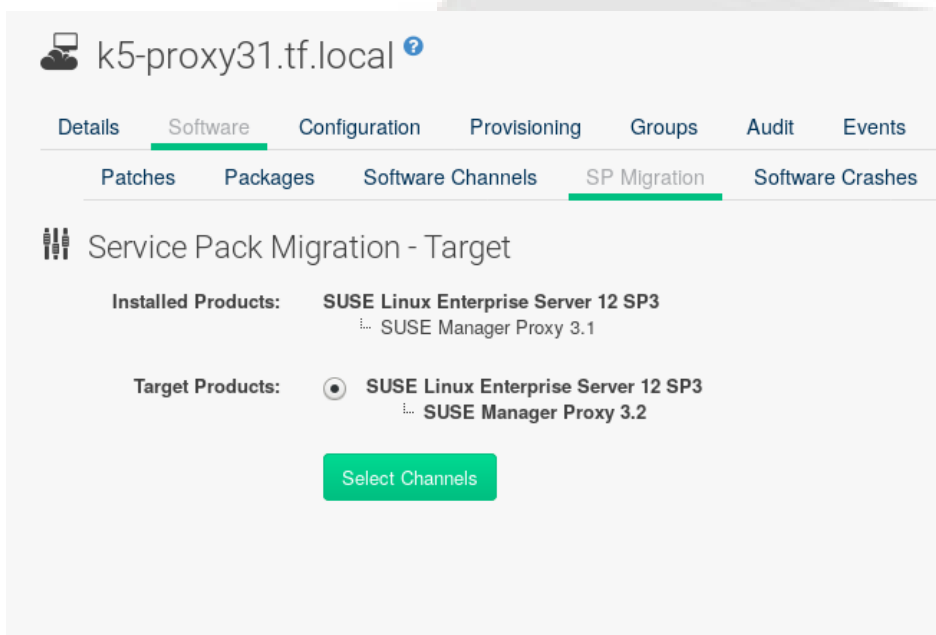
**Subscribed Channels** ([Alter Channel Subscriptions](#))

- [testchannel](#)


3. On the system's detail page select the **Software** > **SP Migration** tab.



4. From this page you will see installed products listed on your proxy client, and the available target products. Select the required **Target Products**. In this case, you will require **SUSE Linux Enterprise Server 12 SP4** with **SUSE Manager Proxy 3.2**.



5. Then confirm with [ **Select Channels** ].

 k5-proxy31.tf.local [?](#) [Delete System](#)

Details **Software** Configuration Provisioning Groups Audit Events

Patches Packages Software Channels **SP Migration** Software Crashes

### Service Pack Migration - Channels

**Installed Products:** SUSE Linux Enterprise Server 12 SP3  
SUSE Manager Proxy 3.1



**Target Products:** SUSE Linux Enterprise Server 12 SP3  
SUSE Manager Proxy 3.2

**Target Base Channel:** SLES12-SP3-Pool for x86\_64

- **Mandatory Child Channels:**
  - ☒ SLE-Manager-Tools12-Pool x86\_64 SP3
  - ☒ SLE-Manager-Tools12-Updates x86\_64 SP3
  - ☒ SLES12-SP3-Updates for x86\_64
  - ☒ SUSE-Manager-Proxy-3.2-Pool for x86\_64
  - ☒ SUSE-Manager-Proxy-3.2-Updates for x86\_64
- **Optional Child Channels:**
  - ☐ bettertest32
  - ☐ SLE-12-SP3-GA-Desktop-nVidia-Driver WE-SP3
  - ☐ SLE-Module-Adv-Systems-Management12-Pool for x86\_64 SP3
  - ☐ SLE-Module-Adv-Systems-Management12-Updates for x86\_64
  - ☐ SLE-WE12-SP3-Pool for x86\_64
  - ☐ SLE-WE12-SP3-Updates for x86\_64
  - ☐ SUSE-Manager-Retail-3.1-Pool for x86\_64 SP3
  - ☐ SUSE-Manager-Retail-3.1-Updates for x86\_64 SP3
  - ☐ SUSE-Manager-Server-3.2-Pool for x86\_64
  - ☐ SUSE-Manager-Server-3.2-Updates for x86\_64

[Schedule Migration](#)


6. From the [Schedule Migration](#) menu, select the time and click [ **Confirm** ].

 k5-proxy31.tf.local 

[Delete System](#) | [Add to SSM](#)

[Details](#) [Software](#) [Configuration](#) [Provisioning](#) [Groups](#) [Audit](#) [Events](#)

[Patches](#) [Packages](#) [Software Channels](#) [SP Migration](#) [Software Crashes](#)

 **Service Pack Migration - Confirm**


Please confirm below to schedule the migration of this system to the following products:


- **SUSE Linux Enterprise Server 12 SP3**
  - SUSE Manager Proxy 3.2

Channel subscriptions after the migration:



- **SLES12-SP3-Pool for x86\_64**
  - SLE-Manager-Tools12-Pool x86\_64 SP3
  - SLE-Manager-Tools12-Updates x86\_64 SP3
  - SLES12-SP3-Updates for x86\_64
  - SUSE-Manager-Proxy-3.2-Pool for x86\_64
  - SUSE-Manager-Proxy-3.2-Updates for x86\_64

**Schedule action for no sooner than:**

 9/18/18


 10:26 am

CEST

 In order to detect any possible problems it is recommended to always do a **Dry Run** before scheduling the actual Service Pack Migration. 

[Go Back](#) [Dry Run](#) [Confirm](#)


Check the [System Status](#) on the **System Details** > **Overview** when the migration is done.



**f51.suse.de**

Details
Software
Configuration
Provisioning
Groups
Virtualization
Audit


Overview
Properties
Remote Command
Connection
Proxy
Reactivation

System Status


**System is up to date**


The system requires a reboot ([Schedule System Reboot](#))

System Info

Hostname:	f51.suse.de
IP Address:	10.160.66.51
IPv6 Address:	::1
Kernel:	3.12.69-60.64.35-default
SUSE Manager System ID:	1000010006
Activation Key:	1-suma_3_proxy
Installed Products:	<div> SUSE Linux Enterprise Server 12 SP2 </div> <div> SUSE Manager Proxy 3.1 x86_64 (BETA) </div>
Lock Status:	 System is <b>unlocked</b> ( <a href="#">Lock system</a> )

Subscribed Channels ([Alter Channel Subscriptions](#))

- [SLES12-SP2-Pool for x86\\_64](#)
- [SLE-Manager-Tools12-Pool x86\\_64 SP2](#)
- [SLE-Manager-Tools12-Updates x86\\_64 SP2](#)
- [SLES12-SP2-Updates for x86\\_64](#)
- [SUSE-Manager-Proxy-3.1-Pool for x86\\_64](#)
- [SUSE-Manager-Proxy-3.1-Updates for x86\\_64](#)

Finally consider scheduling a reboot.