



U Y U N I

Installation Guide

Uyuni 4.0

September 05, 2019



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Introduction

This book provides guidance on installing Uyuni.

Installing Uyuni

Requirements

General Requirements

Before you begin installation, ensure that your environment meets these requirements:

- Current SUSE Customer Center organization credentials
- Access to installation media
- Environment meets the hardware and networking requirements
- You understand the supported client operating systems

This section contains more information on each of these requirements.



Uyuni 4.0 is based on SLES 15 SP1 as the host operating system. Uyuni comes with a dedicated support period. Long Term Service Pack Support (LTSS) for 15 cannot be added to Uyuni. It is also not possible to use SLES for SAP as a base for Uyuni for a longer lifecycle.

Obtain Your SUSE Customer Center Credentials

Create an account with SUSE Customer Center before installation of SUSE Linux Enterprise Server and Uyuni.

Procedure: Obtaining Your SCC Organization Credentials

1. Navigate to <https://scc.suse.com/login> in your Web browser.
2. Log in to your SCC account, or follow the prompts to create a new account.
3. If you have not yet done so, click **[Connect to an Organization]** and type or search for your organization.
4. Click **[Manage my Organizations]** and select your organization from the list by clicking on the organization name.
5. Click the **[Organization]** tab, and then select the **[Organization Credentials]** tab.
6. Record your login information for use during Uyuni setup.

Depending on your organization's setup, you might also need to activate your subscription, using the **[Activate Subscriptions]** menu.

Obtain the Unified Installer

From SLES 15 SP1, SUSE Manager 4.0 Server and Proxy is available as a base product, and can be installed with the SLES Unified Installer.

If not already done, download the SUSE Linux Enterprise Unified Installer (version 15 SP1 or higher)

from [SUSE Linux Enterprise Server - Media Download](#). With the Unified Installer you can install many SLE-based base products such as SLES, {sled}, SLES for SAP Applications, or SUSE Manager.

Supported Browsers for the SUSE Manager Web UI

In order to use the Web UI to manage your SUSE Manager environment, you will need to ensure you are running an up to date web browser.

SUSE Manager is supported on:

- Latest Firefox browser shipped with SLES
- Latest Chrome browser on all operating systems
- Latest Edge browser shipped with Windows

Windows Internet Explorer is not supported. The Uyuni Web UI will not render correctly under Windows Internet Explorer.

Hardware Requirements

This table outlines hardware and software requirements on x86_64 and IBM Power PC architecture. For installation on IBM Z, see [[Installation > Install-ibmz](#)].

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 <i>/var/lib/pgsql</i> Minimum 50 GB <i>/var/spacewalk</i> Minimum 50 GB per SUSE product and 360 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

Hardware	Recommended
Disk Space:	/ Minimum 100 GB /var/lib/pgsql Minimum 50 GB
	/var/spacwalk Minimum 50 GB per SUSE product and 360 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 link:https://www.suse.com/documentation/sles-15/book_sle_admin/data/sec_network_yast.html#sec_network_yast_change_host

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 link:https://www.suse.com/documentation/sles-15/book_sle_admin/data/cha_dns.html

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 link:https://www.suse.com/documentation/sles-15/book_sle_deployment/data/sec_boot_parameters_advanced.html#sec_boot_parameters_advance_d_proxy



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 clients
4506	TCP	Salt, used by the Salt-master to accept communication requests from clients
5222	TCP	XMPP client, used for communications with the osad daemon on traditional client systems
5269	TCP	XMPP server, used for pushing actions to SUSE Manager Proxy

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

- [client-configuration:disconnected-setup.pdf](#)
- [Installation > Ports >]

Supported Client Systems

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

In this table, ✓ indicates that clients running the operating system are supported by SUSE, and ✗ indicates that it is not supported. Fields marked as ? are under consideration, and may or may not be supported at a later date.



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>.

Table 4. Supported Client Systems

Operating System	Architecture	Traditional Clients	Salt Clients
SUSE Linux Enterprise 15	x86_64, POWER, IBM Z, ARM	✓	✓
SUSE Linux Enterprise 12	x86_64, POWER, IBM Z, ARM	✓	✓
SUSE Linux Enterprise 11	x86, x86_64, Itanium, IBM POWER, IBM Z	✓	✓
SUSE Linux Enterprise Server-ES 7	x86_64	✓	✓
SUSE Linux Enterprise Server-ES 6	x86_64	✓	✓
SUSE Linux Enterprise Server for SAP	x86_64, POWER	✓	✓
Red Hat Enterprise Linux 8	x86_64	?	?
Red Hat Enterprise Linux 7	x86_64	✓	✓
Red Hat Enterprise Linux 6	x86, x86_64	✓	✓
CentOS 7	x86, x86_64	?	?
CentOS 6	x86, x86_64	?	?
{opensuse} Leap 15.1	x86_64	✗	✓
Ubuntu 16.04	x86_64	✗	✓
Ubuntu 18.04	x86_64	✗	✓

Installation

Install SUSE Manager in a Virtual Machine Environment with JeOS

Virtual Machine Manager (*virt-manager*) Settings

This chapter provides the required (KVM) settings for installation of SUSE Linux Enterprise Just Enough Operating System (JeOS) 15 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.

Enter the following settings when creating a new virtual machine using ***virt-manager***.



This table specifies the minimum requirements. These are suitable for a quick test installation, such as a server with one client. If you want to use a production environment, review the requirements listed in [hardware-requirements.pdf](#).

In the following table replace *version* with the actual product version string. Find the JeOS image at <https://download.suse.com/>.

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 <i>/var/spacewalk</i>
VirtIO Disk 3	50 GB for <i>/var/lib/pgsql</i>
VirtIO Disk 4	4 GB for swap
Name:	test-setup
Network	Bridge <i>br0</i>



SUSE Linux Enterprise 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. Click [**Add Hardware**] to create three new virtual disks with these specifications. These disks will be partitioned and mounted in [Procedure: Preparing JeOS for Uyuni Installation](#).



Storage size values are the absolute minimum—only suitable for a small test or demo installation. Especially `/var/spacewalk/` may quickly need more space. Also consider to create a separate partition for `/srv` where Kiwi images are stored.

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**] to boot the new VM from the JeOS image.

Follow the prompts to complete the basic JeOS installation, until the process is complete and the command prompt waits for input.

During the basic installation prompts you are asked to enter the root password. In the next message box click [**Confirm root Password**].

Preparing JeOS for SUSE Manager

Procedure: Preparing JeOS for Uyuni Installation

1. Log in as **root**.
2. Uninstall the **sles-release** package:

```
rpm -e --nodeps sles-release
```

3. Register Uyuni with SCC (for example, replace **<productnumber>** with **4.0** and **<architecture>** with **x86_64**):

```
SUSEConnect -e<EMAIL_ADDRESS> -r<SUSE_MANAGER_CODE> \
-p SUSE-Manager-Server/<productnumber>/<architecture>
```

4. Add Uyuni repositories:

```
SUSEConnect -p sle-module-basesystem/15.1/x86_64
SUSEConnect -p sle-module-python2/15.1/x86_64
SUSEConnect -p sle-module-server-applications/15.1/x86_64
SUSEConnect -p sle-module-web-scripting/15.1/x86_64
SUSEConnect -p sle-module-suse-manager-server/<productnumber>/x86_64
```

JeOS is configured to install only required packages. To get all features working you should allow to install also recommended packages. In `/etc/zypp/zypp.conf` change:

```
solver.onlyRequires = true
```

To:

```
solver.onlyRequires = false
```

5. Install yast2-storage-ng 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-ng
```

6. Partition and mount the virtual disks at the following locations using YaST Partitioner ([yast2 disk](#)).



Storage size values are the absolute minimum. They are suitable only for a small test or demonstration installation, such as a server with one client. Especially `/var/spacewalk/` may quickly need more space. Also consider to create a separate partition for `/srv` where Kiwi images are stored.

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

1. Exit the partitioner and install the Uyuni pattern (approximately 730 packages, using 1.4 GB of disk space when installed):

```
zypper in pattern-suma_server
```

2. Reboot.

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

Installing Uyuni Server

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:
SLE-[replaceable]version-Server-x86_64-GM-DVD1.iso	Memory:
4096 MB	CPUs:
2	Storage Format:
ISO 3 GB	Disk Space:
234 GB split between 4 GB swap and 130 GB mounted at /var/spacewalk/	
(Virtual Disk 1) and 50 GB mounted at /var/lib/pgsql	
(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 `/var/spacewalk/`

50 GB XFS partition (or dedicated virtual disk) for `/var/lib/pgsql/`

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](#).

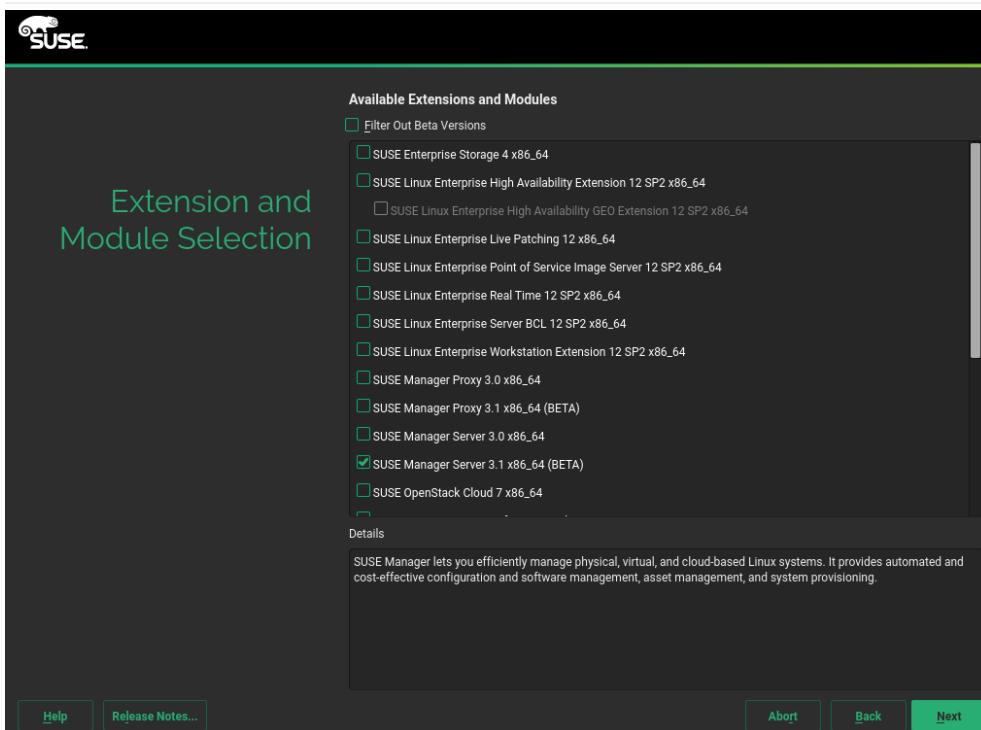
Selecting the Uyuni Extension

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.



Installing on IBM Z

This section is intended for z/VM systems programmers responsible for operating the IBM Z mainframes. It assumes that you are a z/VM systems programmer trained on IBM Z operating protocols, and steps you through installing Uyuni onto an existing mainframe system. This section does not cover the variety of hardware configuration profiles available on IBM Z, but provides a foundational overview of the procedure and requirements necessary for a successful Uyuni Server deployment on IBM Z.

System Requirements

Before you begin, check that your environment meets the base system requirements.

The base system for Uyuni 4.0 is SLES 15 SP1.

Compatible IBM Z Systems:

- IBM zEnterprise System z196
- IBM zEnterprise System z114
- IBM zEnterprise EC12
- IBM zEnterprise EC12
- IBM zEnterprise BC12
- IBM z13
- LinuxOne Rockhopper
- LinuxOne Emperor

Table 5. Hardware Requirements

Hardware	Recommended
CPU	Minimum 4 dedicated 64-bit CPU cores
RAM:	Test Server: Minimum 3 GB RAM and 2 GB Swap space
	Base Installation: Minimum 16 GB
	Production Server: Minimum 32 GB
Disk Space:	Root Partition: Minimum 100 GB
	<code>/var/lib/pgsql</code> : Minimum 50 GB
	<code>/var/spacewalk</code> : Minimum 50 GB per SUSE product and 360 GB per Red Hat product



Memory should be split 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 evaluated based on the number of clients you will be installing.

You will require an additional disk for database storage. This should be an **zFCP** or **DASD** device as these are preferred for use with **HYPERP AV**. The database storage disk should have:

- At least 50 GB for `/var/lib/pgsql`
- At least 50 GB for each SUSE product in `/var/spacewalk`
- At least 360 GB for each Red Hat product in `/var/spacewalk`

You will need to ensure you have sufficient disk storage for Uyuni before running **yast2 susemanagersetup**. By default, the Uyuni file system, including the embedded database and patch directories, reside within the root directory. While adjustments are possible when installation is complete, it is important that you specify and monitor these adjustments closely. For information on storage management and reclaiming disk space, see the troubleshooting section in the Uyuni Administration Guide.



If your Uyuni runs out of disk space, this can have a severe impact on its database and file structure. A full recovery is only possible with a previous backup or a new Uyuni installation. SUSE technical services will not be able to provide support for systems suffering from low disk space conditions.

Network Requirements:

- OSA Express Ethernet (including Fast and Gigabit Ethernet)
- HiperSockets or Guest LAN
- 10 GBE, VSWITCH
- RDMA over Converged Ethernet (RoCE)

These interfaces are still included but no longer supported:

- CTC or virtual CTC
- IP network interface for IUCV

The z/VM guest you want to run Uyuni from will require a static IP address and hostname before you begin, as these cannot easily be changed after initial installation. The hostname should contain less than eight characters.

Media Requirements:

SUSE Linux Enterprise 15 SP1 Installation Media for IBM Z is available from <https://www.suse.com/products/server/download/>

Installing Uyuni on IBM Z

This section covers the installation of Uyuni 4.0 as an extension to SUSE Linux Enterprise Server 15 SP1.

For more information on deploying SLES 15 SP1 on your hardware, see https://www.suse.com/documentation/sles-15/book_sle_deployment/data/cha_zseries.html.

1. Install SUSE Linux Enterprise Server 15 SP1 from the installation media, and select Uyuni as an extension.
2. If you have not already done so, set up any additional storage required for `/var/spacewalk` and `/var/lib/pgsql` and swap space using the YaST partitioner tool. This must be set up before you continue with installation.
3. Perform a YaST online update and reboot the system.
4. Run Uyuni setup to finalize the Uyuni installation:

```
yast2 susemanagersetup
```

Setting Up

SUSE Manager Server Setup

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

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

Third Party Software

Uyuni is part of the SUSE Linux Enterprise 4.0 product family and thus 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.

Set up Uyuni with YaST

This section will guide you through Uyuni setup procedures.

Procedure: Uyuni Setup

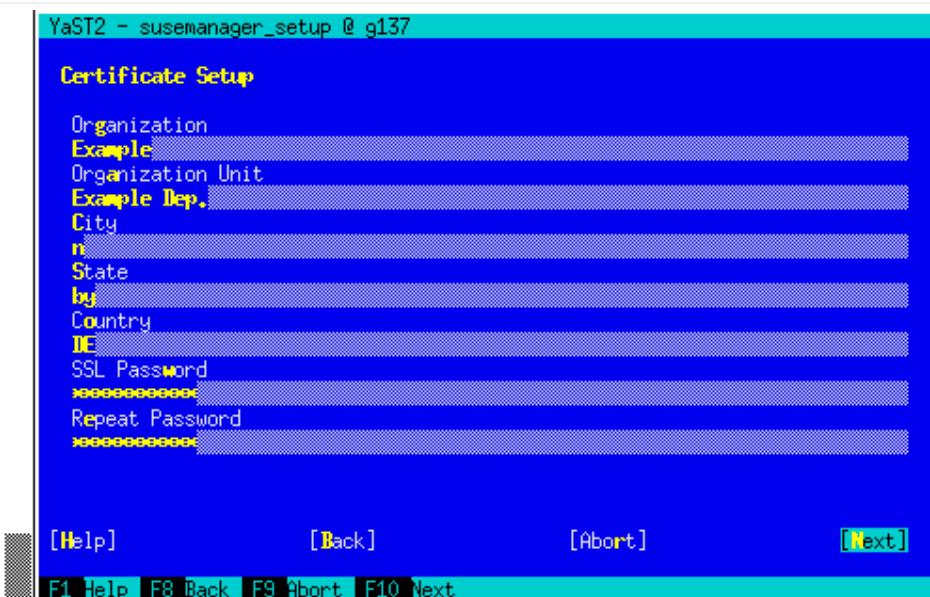
1. Log in to the Uyuni server and type `yast2 susemanager_setup` to begin the setup.
1. From the introduction screen select **SUSE Manager Setup > Setup SUSE Manager from scratch** and click **[Next]** to continue.
2. Enter an email address to receive status notifications and click **[Next]** to continue. 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.
3. 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.



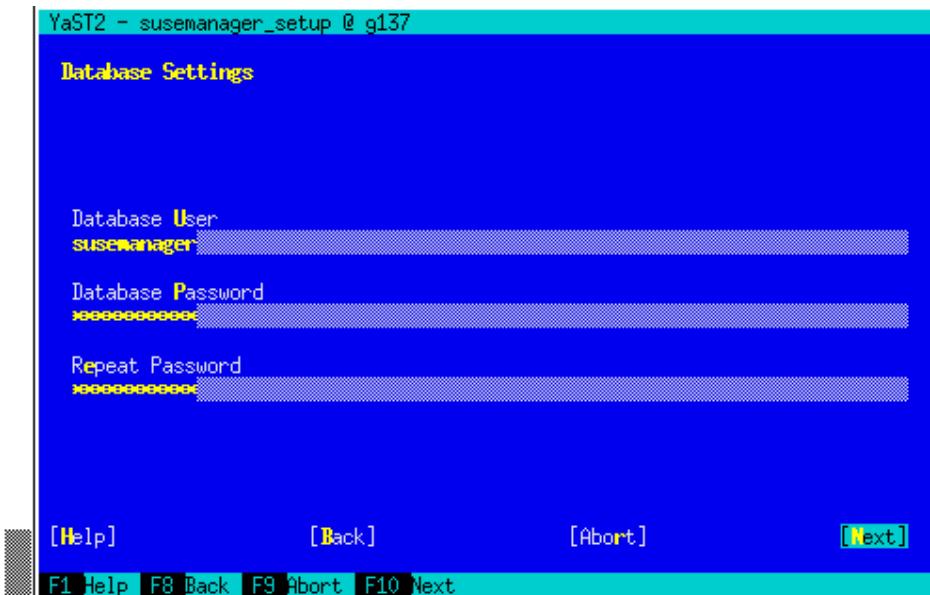
Certificate Password

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

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



- 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.



- Click **[Next]** to continue.
- Click **[Yes]** to run setup when prompted.
- When setup is complete, click **[Next]** to continue. You will see the address of the Uyuni Web UI.
- Click **[Finish]** to complete Uyuni setup.

Creating the Main Administration Account

This section will walk you through creating your organization's 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: Setting Up the Main Administration Account

1. In the browser, enter the address provided after completing setup. With this address you open the Uyuni Web UI.
2. In the Web UI, navigate to the **Create Organization** > **Organization Name** field and enter your organization name.
3. In the **Create Organization** > **Desired Login** and **Create Organization** > **Desired Password** fields, enter your username and password.
4. Fill in the Account Information fields including an email for system notifications.
5. Click [**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 are now presented with the Uyuni **Home** > **Overview** page.

Synchronizing 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.

Before you can synchronize software repositories with SCC, you will need to enter organization credentials in SUSE Manager. In previous versions, so-called mirror credentials were used instead. The organization credentials give you access to the SUSE product downloads. You will find your organization credentials in <https://scc.suse.com/organization>.

Enter your organization credentials in the SUSE Manager Web UI:

Procedure: Entering Organization Credentials

1. In the SUSE Manager Web UI, select **Main Menu > Admin > Setup Wizard**.
2. From the **Setup Wizard** page select the **[Organization Credentials]** tab.
3. Click **[Add a new credential]**.
4. In the dialog, enter **Username** and **Password**, and confirm with **[Save]**.

When the credentials are confirmed with a check-mark icon, proceed with [Procedure: Synchronizing with SUSE Customer Center](#).

Procedure: Synchronizing with SUSE Customer Center

1. In the Web UI, navigate to **Admin > Setup Wizard**.
2. From the **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 **[Reference > Admin > Wizard]**.

The screenshot shows the 'Setup Wizard' interface for 'Organization Credentials'. The 'SUSE Products' tab is selected. On the left, a table lists products by description, architecture (Arch), and channels. The table includes rows for Open Enterprise Server 2018, RHEL Expanded Support 5, RHEL Expanded Support 5, RHEL Expanded Support 6, RHEL Expanded Support 6, RHEL Expanded Support 7, SUSE Container as a Service Platform 1.0, SUSE Container as a Service Platform 2.0, SUSE Linux Enterprise Desktop 11 SP2, SUSE Linux Enterprise Desktop 11 SP2, SUSE Linux Enterprise Desktop 11 SP3, SUSE Linux Enterprise Desktop 11 SP3, SUSE Linux Enterprise Desktop 11 SP4, SUSE Linux Enterprise Desktop 11 SP4, SUSE Linux Enterprise Desktop 12, SUSE Linux Enterprise Desktop 12 SP1, SUSE Linux Enterprise Desktop 12 SP2, SUSE Linux Enterprise Desktop 12 SP3, SUSE Linux Enterprise Desktop 15, SUSE Linux Enterprise High Performance Computing 15, SUSE Linux Enterprise High Performance Computing 15, SUSE Linux Enterprise Server 10 SP3, SUSE Linux Enterprise Server 10 SP3, SUSE Linux Enterprise Server 10 SP3, and SUSE Linux Enterprise Server 10 SP3. The 'SUSE Linux Enterprise Desktop 15' row has a checked checkbox and a green progress bar at 100%. On the right, a sidebar provides instructions for refreshing the catalog and notes why not all products are listed.

3. If 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.
 - Click **[Add Products]** to start product synchronization.

After adding the channel, Uyuni will schedule the channel to be synchronized. 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 *Transparant 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 the channel synchronization process in real-time by viewing channel log files located in the directory `/var/log/rhn/reposync`:

```
tail -f /var/log/rhn/reposync/<CHANNEL_NAME>.log
```

When the channel synchronization process is complete, you can continue with client registration. For more instructions, see [**Client-configuration > Manual-registration-overview >**].

SUSE Manager Proxy Registration

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.

The following procedure describe software channel setup and registering the installed Uyuni Proxy with an activation key as a Uyuni client.



Downloading Channels

Before you can select the correct child channels while creating the activation key, ensure you have completely downloaded the Uyuni Proxy 4 channel and all the recommended and mandatory SUSE Linux Enterprise 15 channels.

Procedure: Registering the Proxy

1. Create an activation key based on the `SLE-Product-SUSE-Manager-Proxy-4.0-Pool` base channel. For more information about activation keys, see [**Client-configuration > Clients-and-activation-keys > Creating Activation Key**].

Create Activation Key

Activation Key Details

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

Description:

SUSE Manager 4.0 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- suse_manager_4.0_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:

SLE-Product-SUSE-Manager-Proxy-4.0-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.

Child Channels:

✓ SLE-Product-SUSE-Manager-Proxy-4.0-Pool for x86_64

 include recommended

  SLE-Module-Basesystem15-SP1-Pool for x86_64 Proxy 4.0

  SLE-Module-Basesystem15-SP1-Updates for x86_64 Proxy 4.0

  SLE-Module-Server-Applications15-SP1-Pool for x86_64 Proxy 4.0

Figure 1. Proxy Activation Key

2. From the **Child Channels** listing select the recommended channels by clicking the **include recommended** icon:
 - SLE-Module-Basesystem15-SP1-Pool
 - SLE-Module-Basesystem15-SP1-Updates
 - SLE-Module-Server-Applications15-SP1-Pool
 - SLE-Module-Server-Applications15-SP1-Updates
 - SLE-Module-SUSE-Manager-Proxy-4.0-Pool
 - SLE-Module-SUSE-Manager-Proxy-4.0-Updates

The **SLE-Product-SUSE-Manager-Proxy-4.0-Updates** channel is mandatory.

Base Channel:

SLE-Product-SUSE-Manager-Proxy-4.0-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.

Child Channels:

✓ SLE-Product-SUSE-Manager-Proxy-4.0-Pool for x86_64

include recommended

SLE-Module-Basesystem15-SP1-Pool for x86_64 Proxy 4.0 ⓘ recommended

SLE-Module-Basesystem15-SP1-Updates for x86_64 Proxy 4.0 ⓘ recommended

SLE-Module-Server-Applications15-SP1-Pool for x86_64 Proxy 4.0 ⓘ recommended

SLE-Module-Server-Applications15-SP1-Updates for x86_64 Proxy 4.0 ⓘ recommended

SLE-Module-SUSE-Manager-Proxy-4.0-Pool for x86_64 ⓘ recommended

SLE-Module-SUSE-Manager-Proxy-4.0-Updates for x86_64 ⓘ recommended

SLE-Product-SUSE-Manager-Proxy-4.0-Updates for x86_64 ⓘ mandatory

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

Add-On System Types:

Container Build Host

OS Image Build Host

Virtualization Host

Contact Method:

Default

Universal Default:

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 the default. For more information about bootstrap scripts, see [**Client-configuration > Registration-bootstrap >**].

i 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 use 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 SUSE M /srv/www/htdocs/pub/bootstrap

[General](#) [Bootstrap Script](#) [Organizations](#) [Restart](#) [Cobbler](#) [Bare-metal systems](#)

Client Bootstrap Script Configuration

SUSE Manager server hostname*	suma-refhead-srv.mgr.suse.de
SSL cert location*	/srv/www/htdocs/pub/rhn-org-trusted-ssl-cert-1.0-1.noarch.rpm
Bootstrap using Salt	<input checked="" type="checkbox"/>
Enable SSL	<input checked="" type="checkbox"/>
Enable Client GPG checking	<input checked="" type="checkbox"/>
Enable Remote Configuration	<input type="checkbox"/>
Enable Remote Commands	<input checked="" type="checkbox"/>
Client HTTP Proxy	
Client HTTP Proxy username	
Client HTTP Proxy password	

[Update](#)

Figure 3. Modifying Bootstrap Script

4. Create the SUSE Manager Tools Repository for bootstrapping, see [[Client-configuration > Creating-a-tools-repository > Create Tools Repository](#)].
5. Bootstrap the client with the bootstrap script. For more information, see [[Client-configuration > Registration-bootstrap >](#)].
6. For Salt clients, accept the key on the [Salt > Keys](#) page by checking the appropriate checkbox. When accepted, it will appear in the [Systems > Overview](#).
7. Navigate to [System Details > Software > Software Channels](#), and check that the four proxy channels ([Pool](#) and [Updates](#) for [SLE-PRODUCT](#) and [SLE-MODULE](#)) plus the recommended channels are selected. [SLE-PRODUCT-Pool](#) must be the base channel and the others are child channels.

When subscribing to a channel that contains a product, the product package will automatically be installed on traditionally registered systems or added to the package states on Salt managed systems.

Base Channel

You can change the base software channel your system is subscribed to. The system will be unsubscribed from all software channels, and subscribed to the new base software channel.

(none, disable service)

SUSE Channels

SLE-Product-SUSE-Manager-Proxy-4.0-Pool for x86_64

SLE-Module-Basesystem15-SP1-Pool for x86_64 Proxy 4.0 recommended

SLE-Module-Basesystem15-SP1-Updates for x86_64 Proxy 4.0 recommended

SLE-Module-Server-Applications15-SP1-Pool for x86_64 Proxy 4.0 recommended

SLE-Module-Server-Applications15-SP1-Updates for x86_64 Proxy 4.0 recommended

SLE-Module-SUSE-Manager-Proxy-4.0-Pool for x86_64 recommended

SLE-Module-SUSE-Manager-Proxy-4.0-Updates for x86_64 recommended

SLE-Product-SUSE-Manager-Proxy-4.0-Updates for x86_64

Figure 4. Proxy Channels

SUSE Manager Proxy Setup

Uyuni Proxy requires additional configuration.



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 TCP ports **4505** and **4506** are open on the proxy. The proxy must be able to reach the Uyuni Server or a parent proxy on these ports.

Copy Server Certificate and Key

The proxy will share some SSL information with the Uyuni Server. Copy the certificate and its key from the Uyuni 4 Server or the parent proxy.

As root, enter the following commands on the proxy using your Uyuni 4 Server or parent Proxy 4 (named **PARENT**):

```
mkdir -m 700 /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 .
```



To keep the security chain intact, the SUSE Manager Proxy functionality requires the SSL certificate to be signed by the same CA as the Uyuni Server certificate. Using certificates signed by different CAs for proxies and server is not supported.

Run `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 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, 3.2, or 4.0) 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

In the **country code** field, enter the country code set during the Uyuni installation. For example, if your proxy is in the US and your Uyuni is in DE, enter **DE** for the proxy.

Cname Aliases (Separated by Space)

Use this if your proxy 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 Proxied SSH-Push Salt Minion?

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

Create and Populate Configuration Channel rhn_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, run **configure-proxy.sh** again. If you receive an HTTP error during script execution, run the script again.

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 (**Systems > Proxy**, then the system name). **Connection** and **Proxy** subtabs display various status information.

Enable PXE Boot

Synchronize Profiles and System Information

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

1. On the Uyuni Server install susemanager-tftpsync:

```
zypper in susemanager-tftpsync
```

2. On the SUSE Manager Proxy 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.

1. On the Uyuni Server, run **configure-tftpsync.sh** to configure the upload to the SUSE Manager Proxy:

```
configure-tftpsync.sh FQDN_of_Proxy
```

2. To start an initial synchronization on the Uyuni Server run:

```
cobbler sync
```

It can also be done after a change within Cobbler that needs to be synchronized immediately. Otherwise Cobbler synchronization will run automatically when needed. For more information about Cobbler, see [[Client-configuration > Cobbler > Cobbler](#)].

Configure DHCP for PXE through 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 add the following to the DHCP configuration for the zone containing the systems to be provisioned:

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

Replace a SUSE Manager Proxy

A SUSE Manager Proxy is dumb in that it does not contain any information about the clients that 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 proxy.
2. Shut down the proxy.
3. Install a new SUSE Manager Proxy 4.0, following [Proxy Installation](#).
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 [[Reference > Systems > Reactivation Keys](#)].
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 some hours.