



U Y U N I

# Installation Guide

Uyuni 4.0

December 18, 2019



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# Introduction

**Publication Date:** 2019-12-18

This book provides guidance on installing Uyuni.

## Installing Uyuni

# Requirements

## Requirements

The following table specifies the minimum requirements.

*Table 1. Software and Hardware Requirements*

Software and Hardware	Recommended
Operating System:	openSUSE Leap 15.1: Clean installation, up-to-date
CPU:	Minimum 4 dedicated 64-bit CPU cores (x86_64)
RAM:	<i>Test Server</i> Minimum 8 GB  <i>Base Installation</i> Minimum 16 GB  <i>Production Server</i> Minimum 32 GB
Disk Space:	Disk space depends on your channel requirements, at least 100 GB  50 GB per SUSE or openSUSE product and 360 GB per Red Hat product
Swap space:	3 GB

## 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. If the FQDN cannot be resolved, it can cause serious problems in a number of different components.

For more information about configuring the hostname and DNS, see <https://documentation.suse.com/sles/15-SP1/html/SLES-all/cha-network.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. You also need to ensure that reverse lookups are correctly configured.

For more information about setting up a DNS server, see <https://documentation.suse.com/sles/15-SP1/html/SLES-all/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 <https://documentation.suse.com/sles/15-SP1/html/SLES-all/cha-boot-parameters.html#sec-boot-parameters-advanced-proxy>.



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, the Uyuni Server and clients should always use a firewall. For a comprehensive list of the required ports, see [ **Installation > Ports >** ].

For more information on disconnected setup and port configuration, see [administration:disconnected-setup.pdf](#).

## Required Network Ports

This section contains a comprehensive list of ports that are used for various communications within Uyuni.

You will not need to open all of these ports. Some ports only need to be opened if you are using the service that requires them.

This image shows the main ports used in Uyuni:

[ports diagram] | *ports\_diagram.png*

### External Inbound Server Ports

External inbound ports must be opened to configure a firewall on the Uyuni Server to protect the server from unauthorized access.

Opening these ports allows external network traffic to access the Uyuni Server.

*Table 2. External Port Requirements for Uyuni Server*

Port number	Protocol	Used By	Notes
67	TCP/UDP	DHCP	Required only if clients are requesting IP addresses from the server.
69	TCP/UDP	TFTP	Required if server is used as a PXE server for automated client installation.

Port number	Protocol	Used By	Notes
80	TCP	HTTP	Required temporarily for some bootstrap repositories and automated installations. Port 80 is not used to serve the Web UI.
443	TCP	HTTPS	Web UI, client, and proxy requests.
4505	TCP	salt	Required to accept communication requests from clients. The client initiates the connection, and it stays open to receive commands from the Salt master.
4506	TCP	salt	Required to accept communication requests from clients. The client initiates the connection, and it stays open to report results back to the Salt master.
5222	TCP	osad	Required to push OSAD actions to clients.
5269	TCP	jabberd	Required to push actions to and from a proxy.
25151	TCP	Cobbler	

### External Outbound Server Ports

External outbound ports must be opened to configure a firewall on the Uyuni Server to restrict what the server can access.

Opening these ports allows network traffic from the Uyuni Server to communicate with external services.

*Table 3. External Port Requirements for Uyuni Server*

Port number	Protocol	Used By	Notes <b>Port 80 is not used to serve the Web UI.</b>
80	TCP	HTTP	Required for SUSE Customer Center.

Port number	Protocol	Used By	Notes <b>Port 80 is not used to serve the Web UI.</b>
443	TCP	HTTPS	Required for SUSE Customer Center.
5269	TCP	jabberd	Required to push actions to and from a proxy.
25151	TCP	Cobbler	

## Internal Server Ports

Internal port are used internally by the Uyuni Server. Internal ports are only accessible from **localhost**.

In most cases, you will not need to adjust these ports.

*Table 4. Internal Port Requirements for Uyuni Server*

Port number	Notes
2828	Satellite-search API, used by the RHN application in Tomcat and Taskomatic.
2829	Taskomatic API, used by the RHN application in Tomcat.
6868	Auditlog-keeper to database.
6888	Auditlog-keeper API, used by the RHN application in Tomcat.
8005	Tomcat shutdown port.
8009	Tomcat to Apache HTTPD (AJP).
8080	Tomcat to Apache HTTPD (HTTP).
9080	Salt-API, used by the RHN application in Tomcat and Taskomatic.
32000	Port for a TCP connection to the Java Virtual Machine (JVM) that runs Taskomatic and satellite-search.

Port 32768 and higher are used as ephemeral ports. These are most often used to receive TCP connections. When a TCP connection request is received, the sender will choose one of these ephemeral port numbers to match the destination port. You can use this command to find out which ports are ephemeral ports:

```
cat /proc/sys/net/ipv4/ip_local_port_range
```

## External Inbound Proxy Ports

External inbound ports must be opened to configure a firewall on the Uyuni Proxy to protect the proxy from unauthorized access.

Opening these ports allows external network traffic to access the Uyuni proxy.

*Table 5. External Port Requirements for Uyuni Proxy*

Port number	Protocol	Used By	Notes
22			Required for ssh-push and ssh-push-tunnel contact methods. Clients connected to the proxy initiate check in on the server and hop through to clients.
67	TCP/UDP	DHCP	Required only if clients are requesting IP addresses from the server.
69	TCP/UDP	TFTP	Required if the server is used as a PXE server for automated client installation.
443	TCP	HTTPS	Web UI, client, and proxy requests.
4505	TCP	salt	Required to accept communication requests from clients. The client initiates the connection, and it stays open to receive commands from the Salt master.
4506	TCP	salt	Required to accept communication requests from clients. The client initiates the connection, and it stays open to report results back to the Salt master.
5222	TCP		Required to push OSAD actions to clients.
5269	TCP		Required to push actions to and from the server.

## External Outbound Proxy Ports

External outbound ports must be opened to configure a firewall on the Uyuni Proxy to restrict what the proxy can access.

Opening these ports allows network traffic from the Uyuni Proxy to communicate with external services.

*Table 6. External Port Requirements for Uyuni Proxy*

Port number	Protocol	Used By	Notes
80			Used to reach the server.
443	TCP	HTTPS	Required for SUSE Customer Center.
5269	TCP		Required to push actions to and from the server.

## External Client Ports

External client ports must be opened to configure a firewall between the Uyuni Server and its clients.

In most cases, you will not need to adjust these ports.

*Table 7. External Port Requirements for Uyuni Clients*

Port number	Direction	Protocol	Notes
22	Inbound	SSH	Required for ssh-push and ssh-push-tunnel contact methods.
80	Outbound		Used to reach the server or proxy.
5222	Outbound	TCP	Required to push OSAD actions to the server or proxy.

## 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 8. 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	✗	✓

## Public Cloud Requirements

You can run Uyuni Server on a public cloud instance from a third-party provider such as Amazon EC2, or Microsoft Azure.

This section details the requirements for using Uyuni on a public cloud instance.



Public clouds provide Uyuni under a Bring Your Own Subscription (BYOS) model. This means that you must register instances with the SUSE Customer Center. For more information about registering Uyuni with SUSE Customer Center, see [ [Installation > General-requirements](#) ].

Depending on the public cloud framework you are using, you can locate the Uyuni images by searching for the keywords **suse**, **manager**, **proxy**, or **BYOS**.

## Instance Requirements

Select a public cloud instance type that meets the hardware requirements in [ [Installation > Hardware-requirements](#) ].

Before you begin, here are some other considerations:

- The Uyuni setup procedure performs a forward-confirmed reverse DNS lookup. This must succeed in order for the setup procedure to complete and for Uyuni to operate as expected. It is important to perform hostname and IP configuration before you set up Uyuni.
- Uyuni Server and Proxy instances need to run in a network configuration that provides you control over DNS entries, but cannot be accessed from the internet at large.
- Within this network configuration DNS resolution must be provided: **hostname -f** must return the fully-qualified domain name (FQDN).
- DNS resolution is also important for connecting clients.
- DNS is dependent on the cloud framework you choose. Refer to the cloud provider documentation for detailed instructions.
- We recommend that you locate software repositories, the server database, and the proxy squid cache on an external virtual disk. This prevents data loss if the instance is unexpectedly terminated. This section includes instructions for setting up an external virtual disk.

## Network Requirements

When you use Uyuni on a public cloud, you must use a restricted network. We recommend using a VPC private subnet with an appropriate firewall setting. Only machines in your specified IP ranges must be able to access the instance.



A world-accessible Uyuni instance violates the terms of the Uyuni EULA, and is not supported by SUSE.

To access the Uyuni Web UI, allow HTTPS when configuring the network access controls.

## Separate Storage Volumes

We recommend that the repositories and the database for Uyuni are stored on a separate storage device. This will help to avoid data loss in cases when the Uyuni instance is terminated. You must set up the

storage device before you run the YaST Uyuni setup procedure.

Provision a disk device in the public cloud environment, according the cloud provider's documentation. The size of the disk is dependent on the number of distributions and channels you intend to manage with Uyuni. We recommend at least 25 GB for each distribution, and each channel. For more information on disk sizes, see [SUSE Manager sizing examples](#).

When you attached the virtual disk, it will appear in your instance as a Unix device node. The name of the device node will vary depending on your provider, and the instance type selected.

On your Uyuni Server, use this command to find all available storage devices:

```
hwinfo --disk | grep -E "Device File:"
```

If you are not sure which device to choose, use the **lsblk** command to see the name and size of each device. Choose the name that matches with the size of the virtual disk you are looking for.

Use the **suma-storage** command with the device name to set up the external disk as the location for the database and repositories:

```
/usr/bin/suma-storage <devicename>
```

The external storage will be set up as an XFS partition mounted at **/manager\_storage**.

If you are installing a proxy, the **suma-storage** command will also move the Squid cache to the external storage location.

# Installation

## Install Uyuni Server with openSUSE

Uyuni Server can be installed on openSUSE.

For requirements, see [ **Installation** > **Uyuni-install-requirements** > ].

### Install Uyuni on openSUSE Leap 15.1

*Procedure: Installing openSUSE Leap 15.1 with Uyuni*

1. As the base system, install openSUSE Leap 15.1 with all available package updates applied.
2. Configure a resolvable fully qualified domain name (FQDN) with **yast** > **System** > **Network Settings** > **Hostname/DNS**.
3. Add the repository for installing the Uyuni Server software as **root**:

```
repo=repositories/systemsmanagement:/  
repo=${repo}Uyuni:/Stable/images/repo/Uyuni-Server-4.0-POOL-x86_64-Media1/  
zypper ar https://download.opensuse.org/$repo uyuni-server-stable
```

4. Refresh metadata from the repositories as **root**:

```
zypper ref
```

5. Install the pattern for the Uyuni Server as **root**:

```
zypper in patterns-uyuni_server
```

6. Reboot.

- For more information about the stable version of Uyuni, see <https://www.uyuni-project.org/pages/stable-version.html>.
- For more information about the development version of Uyuni, see <https://www.uyuni-project.org/pages/devel-version.html>.

When this installation is complete, you can continue with Uyuni setup. For more information, see [ **Installation** > **Uyuni-server-setup** > ].

## 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 9. 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 susemanager_setup`. 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 and must not contain any upper case letters.

#### *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://documentation.suse.com/sles/15-SP1/html/SLES-all/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 susemanager_setup
```

# Setting Up

## Uyuni Server Setup

This section covers Uyuni Server setup, using these 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

### 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 start YaST.
2. In YaST, navigate to **Network Services** > **Uyuni Setup** to begin the setup.
3. From the introduction screen select **Uyuni Setup** > **Set up Uyuni from scratch** and click [**Next**] to continue.
4. 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.
5. 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.  
 You must have the certificate password to set up a Uyuni Proxy Server.
6. Click [**Next**] to continue.
7. From the **Uyuni 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.
8. Click [**Next**] to continue.
9. Click [**Yes**] to run setup when prompted.
10. When setup is complete, click [**Next**] to continue. You will see the address of the Uyuni Web UI.
11. Click [**Finish**] to complete Uyuni setup.

## Create the Main Administration Account

This section covers how to create your organization's main administration account for Uyuni.



The main administration account has the highest authority within Uyuni. Ensure you keep access information for this account secure.

We recommend that you create lower level administration accounts for organizations and groups. Do not share the main administration access details.

### *Procedure: Setting Up the Main Administration Account*

1. In your web browser, enter the address for the Uyuni Web UI. This address was provided after you completed setup. For more information, see [uyuni-server-setup.pdf](#).
2. Log in to 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.

When you have completed the Uyuni Web UI setup, you are taken to the **Home > Overview** page.

## Optional: 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 can receive updates, 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.



For Uyuni, synchronizing products from SUSE Customer Center is optional.

Before you can synchronize software repositories with SCC, you will need to enter organization credentials in Uyuni. 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 Uyuni Web UI:

### *Procedure: Entering Organization Credentials*

1. In the SUSE Manager Web UI, navigate to **Main Menu > Admin > Setup Wizard**.
2. In the **Setup Wizard** page, navigate to the **[Organization Credentials]** tab.

- 
3. Click [**Add a new credential**].
  4. Enter a username and password, and click [**Save**].

A check mark icon is shown when the credentials are confirmed. When you have successfully entered the new credentials, you can synchronize with SUSE Customer Center.

*Procedure: Synchronizing with SUSE Customer Center*

1. In the Uyuni 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 Uyuni Server Setup. The current step is 'SUSE Products'. The main area displays a table of products with columns for 'Product Description', 'Arch', and 'Channels'. A note on the right explains that products are listed if they are directly linked to organization credentials or SUSE subscriptions. A progress bar indicates the synchronization process is complete (100%).

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

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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.



In some environments, transparent huge pages provided by the kernel can slow down PostgreSQL workloads significantly.

To disable transparent huge pages, set the `transparent_hugepage` kernel parameter to `never`. You will also need to open the `/etc/default/grub` file and add or edit 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`.

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 > 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.

This procedure describes 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 SP1 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

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

[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.

The screenshot shows the 'Software Channels' tab of the SUSE Manager Proxy Setup interface. It includes sections for 'Base Channel' and 'Child Channels'. In the 'Base Channel' section, there's an 'include recommended' checkbox and a radio button for 'SLE-Product-SUSE-Manager-Proxy-4.0-Pool for x86\_64'. In the 'Child Channels' section, several checkboxes are checked for various proxy pools, all labeled as 'recommended'. A 'Next' button is at the bottom.

*Figure 4. Proxy Channels*

Continue with setting up the registered Uyuni: [proxy-setup.pdf](#).

## 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.

## State

Further information attached to the proxy's certificate.

## 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.



The country code must be two upper case letters. For a complete list of country codes, see <https://www.iso.org/obp/ui/#search>.

## 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 Proxifying 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.

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 SUSE Manager Proxy and the Uyuni Server.

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

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

2. On the Uyuni Proxy, 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.

3. On the Uyuni Server, install `susemanager-tftpsync`:

```
zypper in susemanager-tftpsync
```

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-register 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.

## Public Cloud Setup

Public Cloud providers pre-install Uyuni, so you do not need to perform any installation steps. However, Uyuni Server needs to be registered with SUSE Customer Center to receive updates before you can log in.

For detailed instructions on registering Uyuni to SUSE Customer Center, see [ [Installation > Server-setup >](#) ].

When you have registered, all SUSE Linux Enterprise modules will be activated. You will also need to activate the public cloud module.

#### *Procedure: Activating the Public Cloud Module*

1. On the Uyuni Server, open the YaST management tool, and navigate to **Software > Software Repositories**.
2. Click **[Add]** and select **Extensions and Modules from Registration Server**.
3. In the **Available extensions** field, select **Public Cloud Module**.

If you prefer to use the command line, you can add the module with this command:

```
SUSEConnect -p sle-module-public-cloud/15.1/x86_64
```

When the installation procedure has finished, you can check that you have all the required modules. At the command prompt, enter:

```
SUSEConnect --status-text
```

For Uyuni Server on a public cloud, the expected modules are:

- SUSE Linux Enterprise Server Basesystem Module
- Python 2 Module
- Server Applications Module
- Web and Scripting Module
- SUSE Manager Server Module
- Public Cloud Module

## Account Credentials

An administrator account is created by default. The username and password varies depending on your provider.

*Table 10. Default Administrator Account Details*

Provider	Default Username	Default Password
Amazon EC2	admin	<instance-ID>
Google Compute Engine	admin	<instance-ID>
Microsoft Azure	admin	<instance-name>-suma

You can retrieve the instance name or ID from the public cloud instance web console, or from the command prompt:

Amazon EC2:

```
ec2metadata --instance-id
```

Google Compute Engine:

```
gcemetadata --query instance --id
```

Microsoft Azure:

```
azuremetadata --instance-name
```



When you have logged in to the administrator account for the first time, change the default password to protect your account.