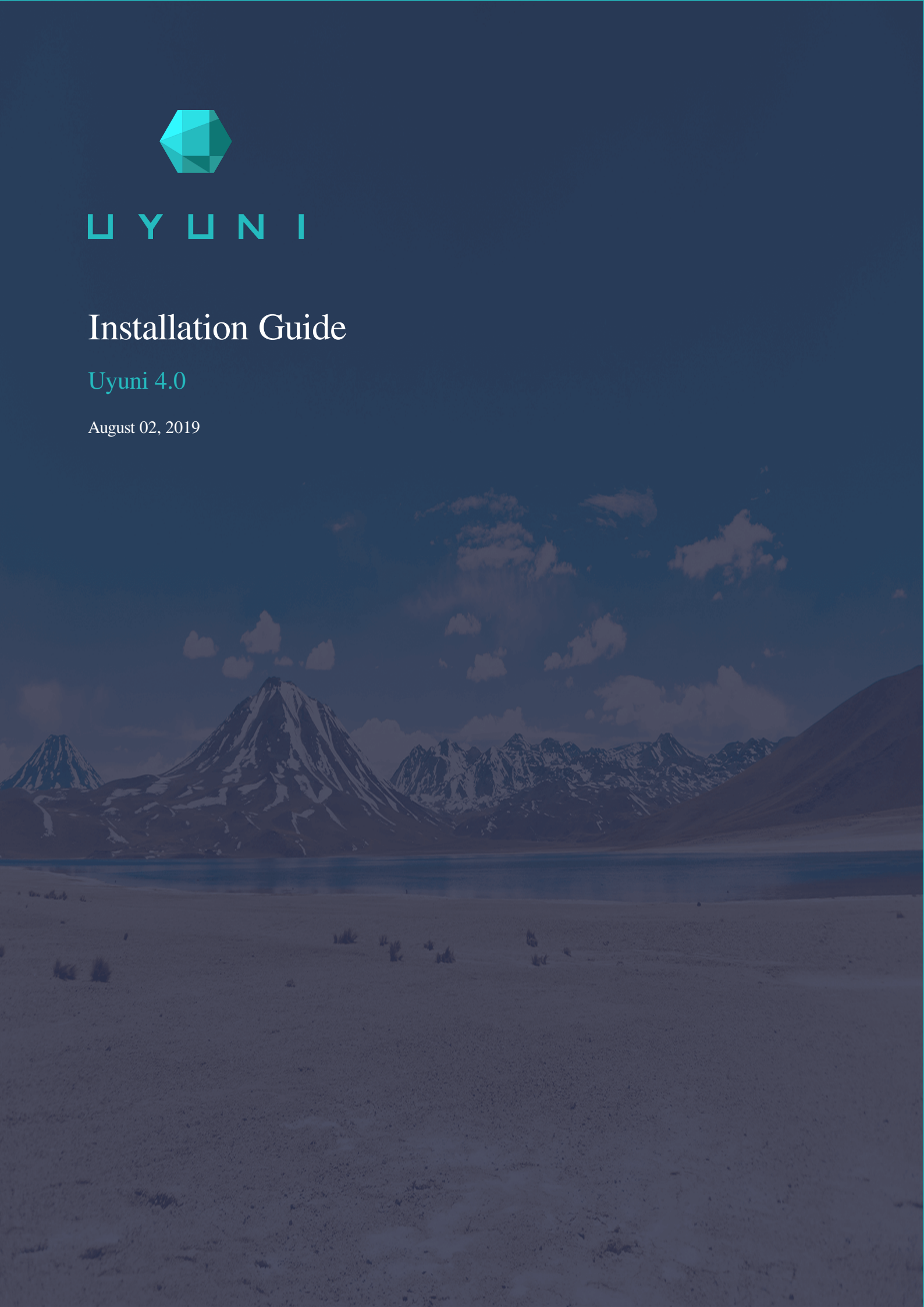

Installation Guide

Uyuni 4.0

August 02, 2019

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Introduction

Uyuni provides absolute control over your Linux environment. System administrators often have tens, hundreds, or even thousands of client machines they need to look after, all of which require ongoing maintenance, updates, and lifecycle management. Uyuni allows you to manage all your Linux clients in one place, with one easy-to-understand dashboard.

Uyuni can be integrated with your network infrastructure in multiple ways, and most tasks can be automated, with reports issued so you always know the status of your client machines. Because Uyuni allows you to manage large numbers of systems and automatically keep them up to date, it helps to improve overall security, and provides extensive asset management and provisioning capability.

Uyuni can be used in conjunction with Red Hat Satellite Server and offers seamless management of both SUSE Linux Enterprise and Red Hat Enterprise Linux client systems.

Installing Uyuni

All versions of Uyuni can be installed from Uyuni installation media. Before you begin the installation, you will require an operating system installed on your hardware.

This book guides you through installing the JeOS operating system in a virtual machine, before performing the Uyuni Server and Proxy installations.

Requirements

General Requirements

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

- Current SUSE Customer Center organization credentials
- Access to installation media
- Your 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.

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. 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.

Obtaining Installation Media

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

Download SLES 15 SP1 or higher from SUSE Linux Enterprise Server - Media Download

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

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 › Install on IBM Z]**.

Table 1. Hardware Requirements for x86_64 Architecture

Hardware	Recommended
CPU	Minimum 4 dedicated 64-bit CPU cores
RAM:	*Test Server* Minimum 8 GB
	Base Installation Minimum 16 GB
	Production Server Minimum 32 GB
Disk Space:	`/` *(root) The default JeOS root partition size of 24 GB is sufficient for this guide*
	`/var/lib/pgsql` Minimum 50 GB
	`/var/spacewalk` 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:	*Test Server* Minimum 8 GB
	Base Installation Minimum 16 GB
	Production Server Minimum 32 GB
Disk Space:	`/` Minimum 100 GB
	`/var/lib/pgsql` Minimum 50 GB
	`/var/spacewalk` 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 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

Port	Protocol	Description
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:

- Disconnected Setup]
- **[Installation › Ports › 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	✔	✔

Operating System	Architecture	Traditional Clients	Salt Clients
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

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) 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 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 `/var/spacewalk`
VirtIO Disk 3	50 GB for `/var/lib/pgsql`
VirtIO Disk 4	4 GB for swap
Name:	test-setup
Network	Bridge *br0*

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. Log in as `root`.

1. Uninstall the `sles-release` package:

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

2. 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>
```

3. 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
```

4. 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
```

5. 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	`/var/spacewalk`	101 GB	XFS
VirtIO Disk 3	`/var/lib/pgsql`	50 GB	XFS
VirtIO Disk 4	`swap`	4 GB	swap

6. Exit the partitioner and install the Uyuni pattern (approximately 730 packages, consuming 1.4 GB when installed):

```
zypper in pattern-suma_server
```

7. 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.

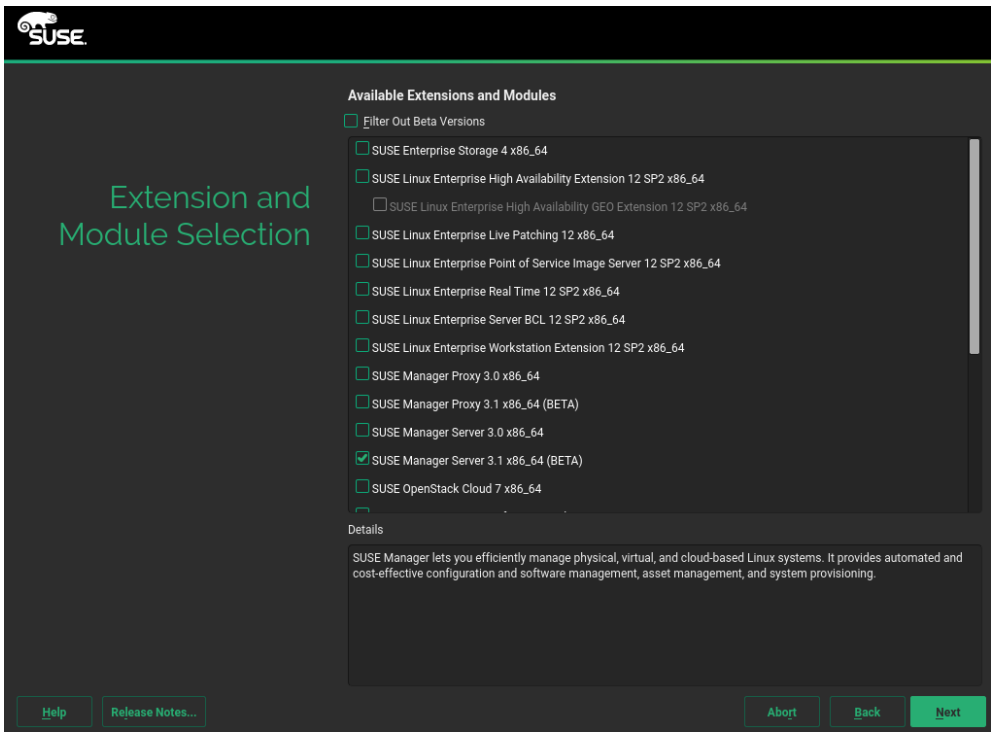
Installation of SUSE Linux Enterprise Server will begin. For more information on completing an installation of SUSE Linux Enterprise Server, see: SUSE Linux Enterprise Installation Quickstart.

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
	`/var/lib/pgsql`: Minimum 50 GB
	`/var/spacewalk`: 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 `HYPERPAV`. 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 Setup

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

- Start Uyuni setup via 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.

This section will guide you through Uyuni setup procedures.

Procedure: Uyuni Setup

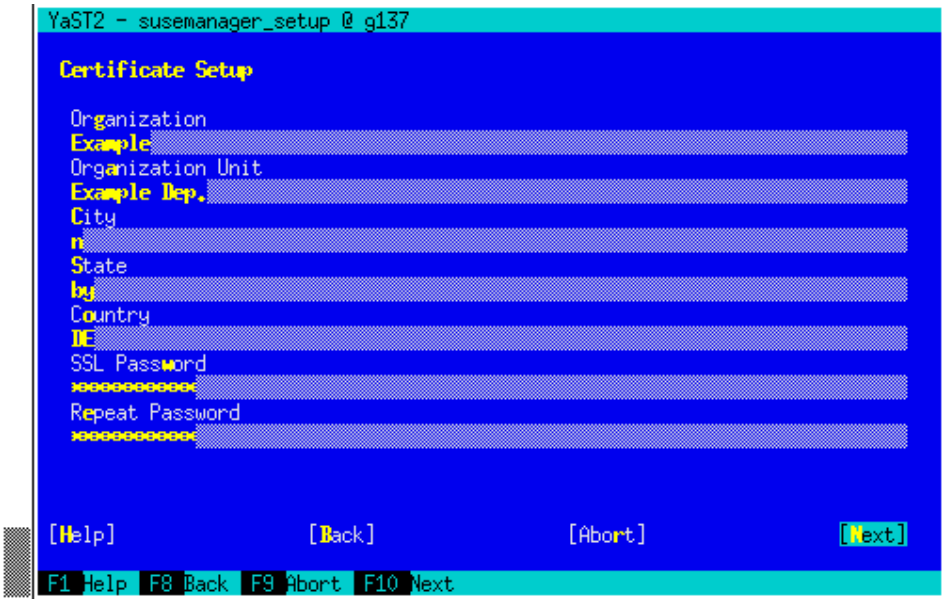
1. Log in to the Uyuni server and type `yast2 susemanager_setup` to begin the setup.

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 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.

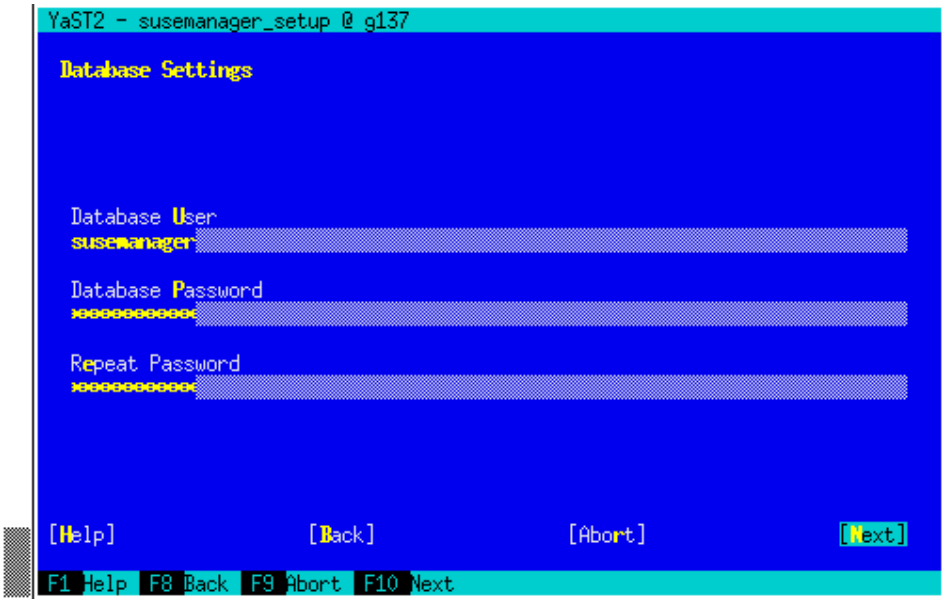
Certificate Password

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

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



5. From the **SUSE Manager Setup › Database Settings** screen, enter a database user and password and click **[Next]** to continue. Passwords must be at 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.



6. Click **[Next]** to continue.
7. Click **[Yes]** to run setup when prompted.
8. Once setup has completed, click **[Next]** to continue. You will see the address of the Uyuni Web UI.
9. 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.

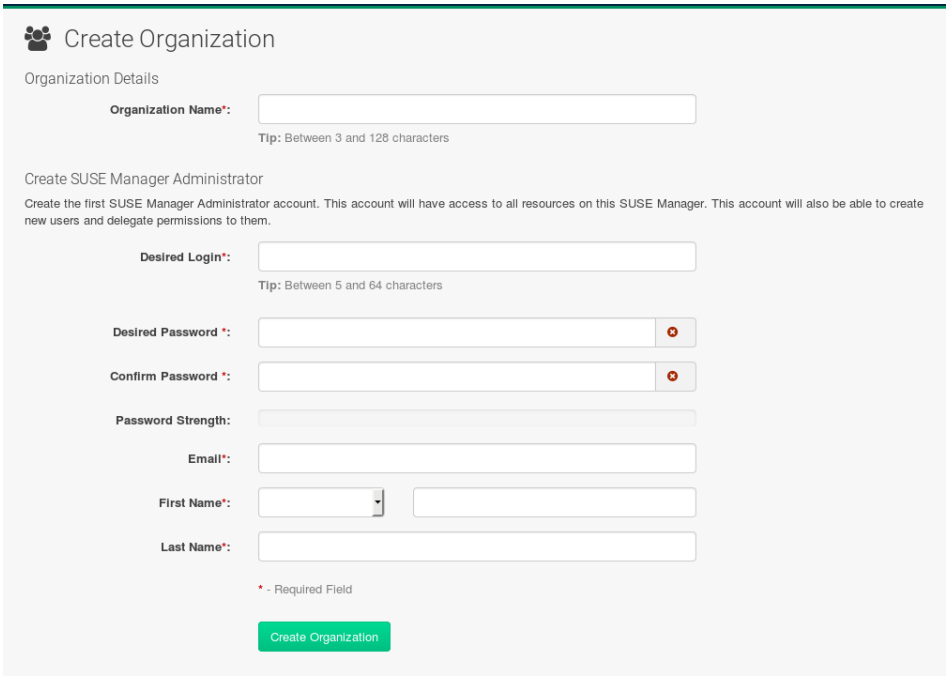
Admin and User Accounts

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: Setting Up 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. Click **[Create Organization]** to finish creating your administration account.



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 enter Organization Credentials in SUSE Manager. These organization credentials (previously called mirror 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:

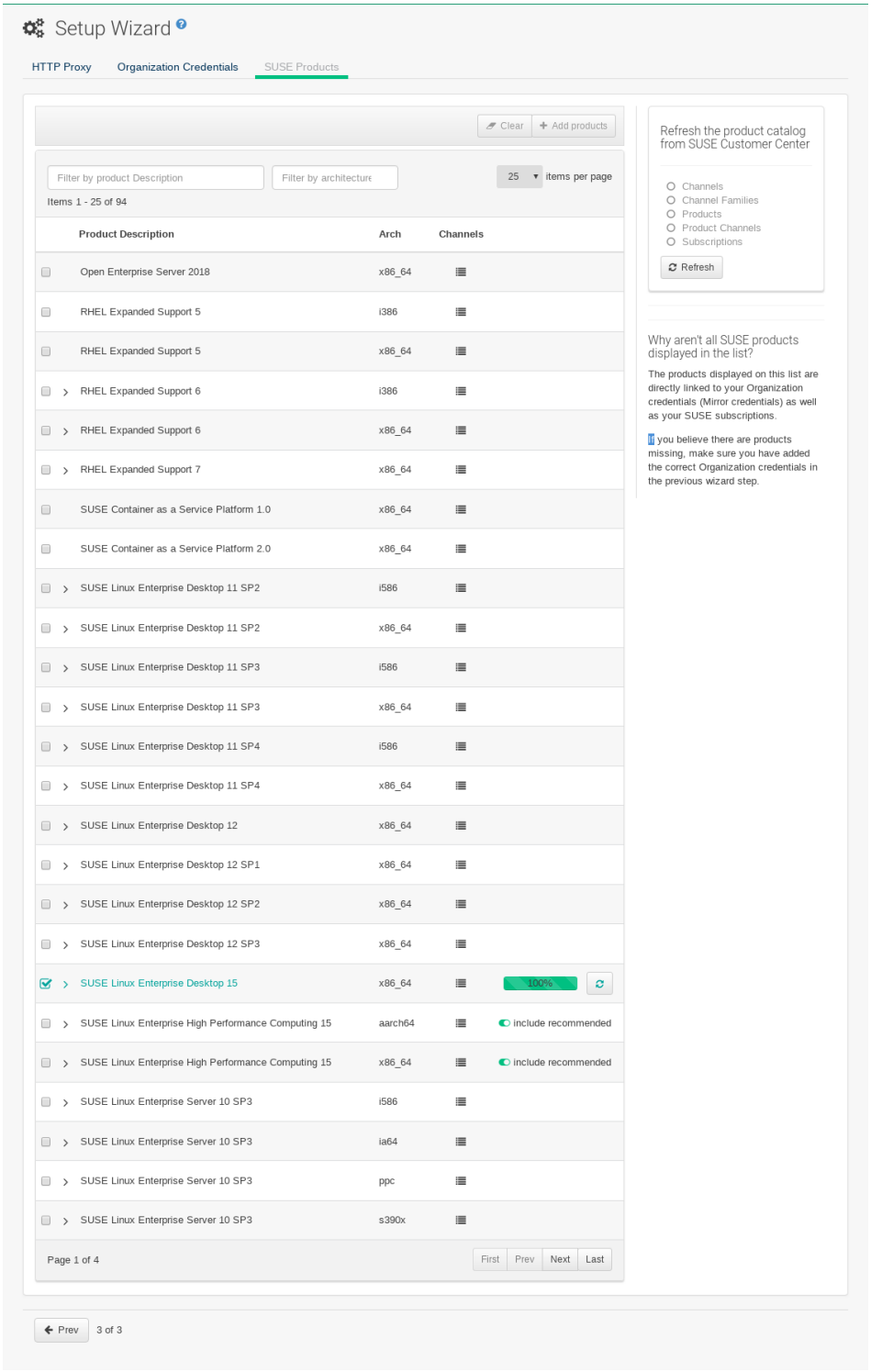
Procedure: Entering Organization Credentials

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, select **Main Menu › 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]**.



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.
    - 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 *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 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 **[Client-configuration › Manual-registration-overview › Client Registration]**.

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]**.

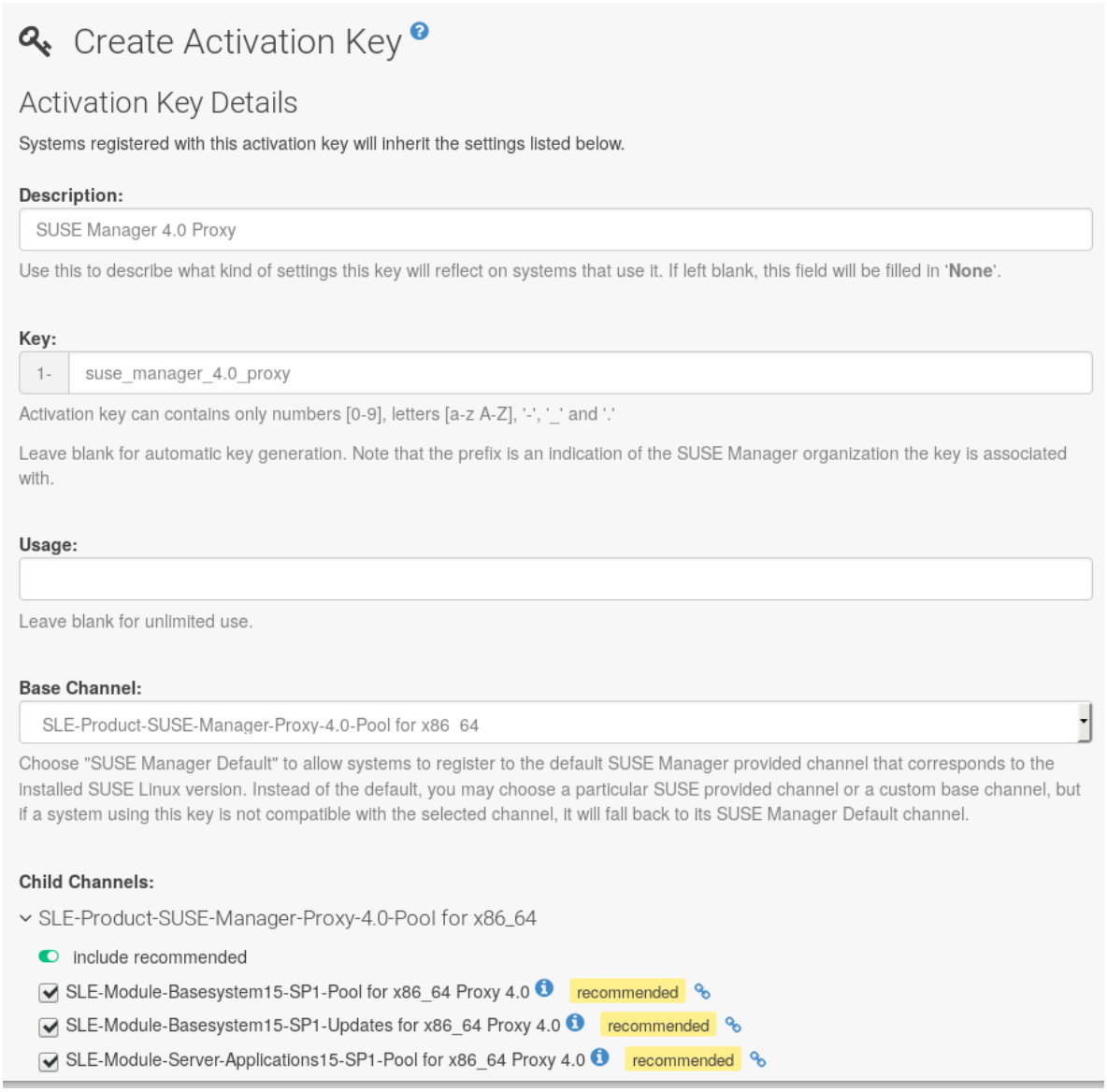


Figure 1. Proxy Activation Key

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.

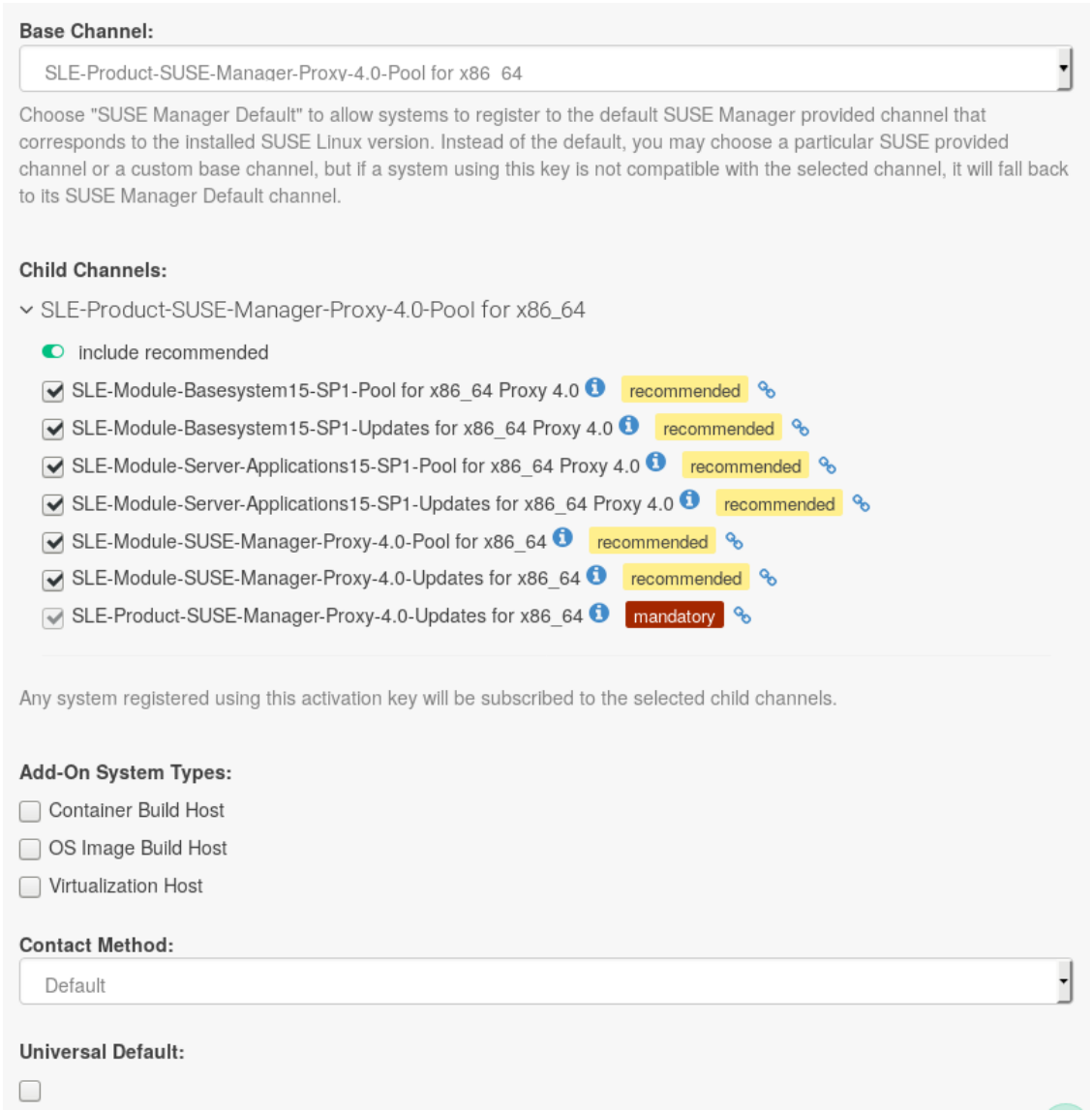


Figure 2. Base and Child Proxy Channel

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 ›]**.

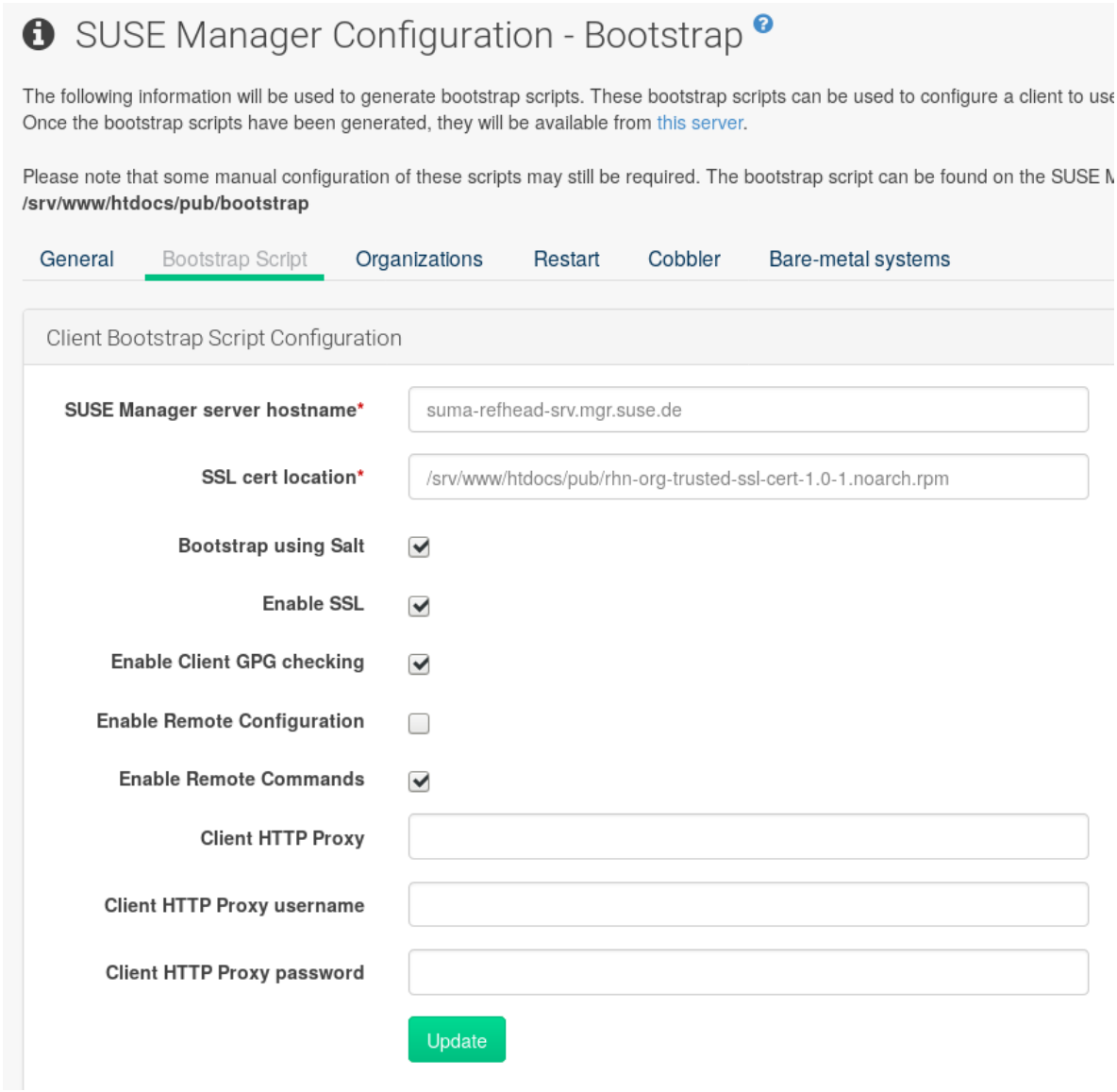


Figure 3. Modifying Bootstrap Script

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/pages/registration-bootstrap.pdf.
6. In case of a Salt client, accept the key on the **Main Menu › Salt › Keys** page by clicking the check mark. It then will appear in the **Main Menu › Systems › Overview**.
7. Check via **System Details › Software › Software Channels** that the four proxy channels (`Pool` and `Updates` for `SLE-PRODUCT` and `SLE-MODULE`) plus the recommended channels are selected; `SLE-PRODUCT-Pool` as the base channel and the others as child channels.

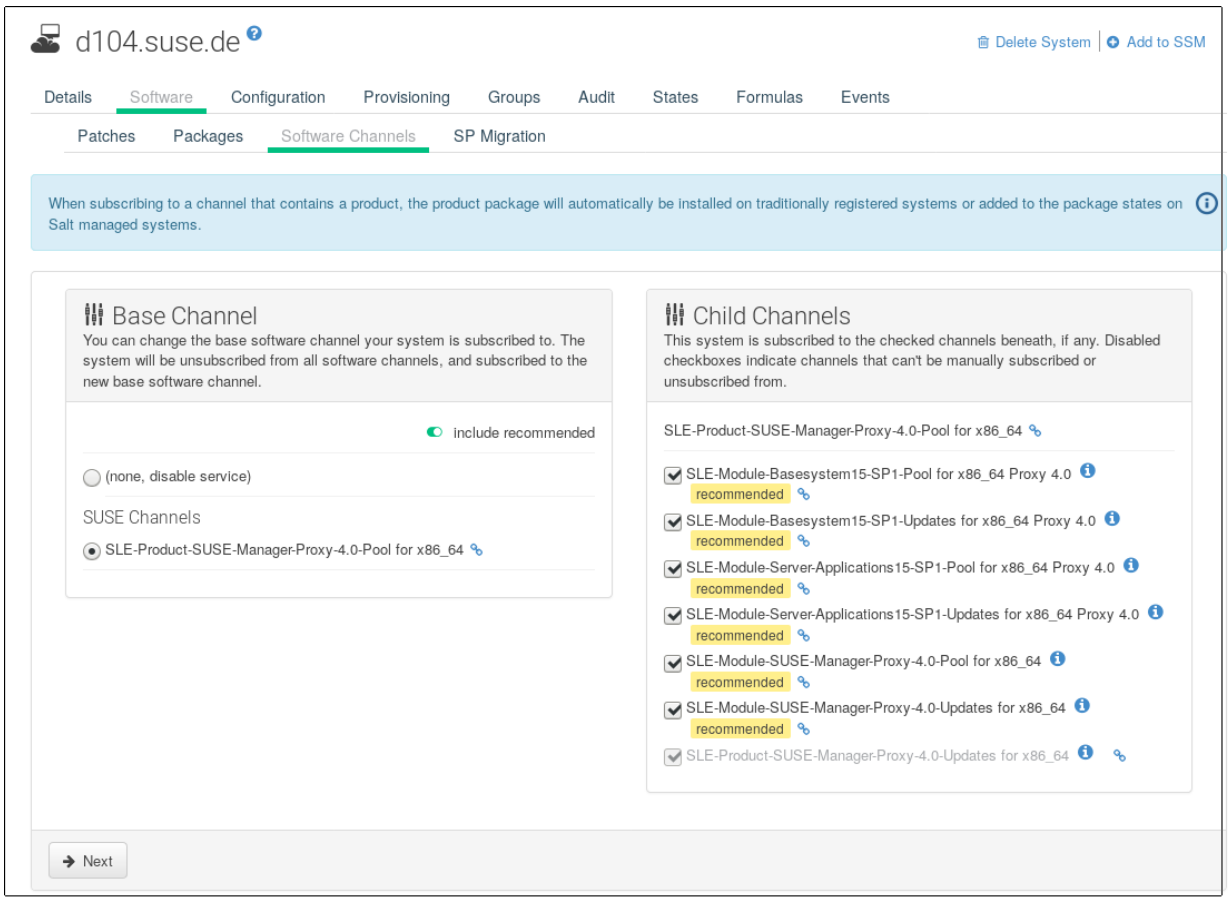


Figure 4. Proxy Channels

SUSE Manager Proxy Setup

Uyuni Proxy requires additional configuration in order to make it useful.

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 proxie’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. Copy the certificate and its key from the Uyuni 4 server or the upstream proxy.

As root, enter the following commands on the proxy using your Uyuni 4 server or chained 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.cf .
```

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, 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

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 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, 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.

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 start an initial synchronization on the Uyuni 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 **[Client-configuration › Cobbler › 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"
```

Replacing a SUSE Manager Proxy

A SUSE Manager Proxy is `dumb` in the sense 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 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 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 a few hours.