UYUNI

Installation Guide

2021.05

May 17, 2021

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Installation Guide Overview

Updated: 2021-05-17

This book provides guidance on installing . It is split into three sections:

- Requirements: Describes the hardware, software, and networking requirements that you require before you begin.
- Installation: Describes the process to install components.
- Setting Up: Describes the initial steps you need to take after installation to make your environment ready to use.

It is possible to use a public cloud instance to install . For more information on using on a public cloud, see **[Quickstart-public-cloud › Qs-publiccloud-overview ›]**.

Requirements

The following table specifies the minimum requirements.

Table 1. Software and Hardware Requirements

Software and Hardware	Recommended
Operating System:	openSUSE Leap 15.2: Clean installation, up-to-date
CPU:	Minimum 4 dedicated 64-bit CPU cores (x86_64)
RAM:	*Test Server* Minimum 8 GB
	Base Installation Minimum 16 GB
	Production Server 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 .

Fully Qualified Domain Name (FQDN)

The 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-SP2/html/SLES-all/cha-network.html#sec-network-yast-change-host.

Hostname and IP Address

To ensure that the 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-SP2/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-SP2/html/SLES-all/cha-boot-parameters.html#sec-boot-parameters-advanced-proxy.

The hostname of must not contain uppercase letters as this may cause *jabberd* to fail. Choose the hostname of your server carefully. Although changing the server name is possible and supported, it is important to plan for this change before going ahead with it. When you change the hostname of the server, all clients attached to the server must be made aware of the change.

In a production environment, the 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.

Network Ports

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

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 :

[ports diagram] | *ports_diagram.png*

External Inbound Server Ports

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

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

Table 2. External Port Requirements for Server

Port number	Protocol	Used By	Notes
22			Required for ssh-push and ssh-push-tunnel contact methods.
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 WebUI.
443	TCP	HTTPS	WebUI, 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 Server to restrict what the server can access.

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

Table 3. External Port Requirements for Server

Port number	Protocol	Used By	Notes
80	TCP	HTTP	Required for SUSE Customer Center. Port 80 is not used to serve the WebUI.

Port number	Protocol	Used By	Notes
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 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 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.
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 Proxy to protect the proxy from unauthorized access.

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

Table 5. External Port Requirements for 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	WebUI, 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 Proxy to restrict what the proxy can access.

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

Table 6. External Port Requirements for 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 Server and its clients.

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

Table 7. External Port Requirements for 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.
9090	Outbound	TCP	Required for Prometheus user interface.
9093	Outbound	TCP	Required for Prometheus alert manager.
9100	Outbound	TCP	Required for Prometheus node exporter.
9117	Outbound	TCP	Required for Prometheus Apache exporter.
9187	Outbound	TCP	Required for Prometheus PostgreSQL.

Required URLs

There are some URLs that must be able to access to register clients and perform updates. In most cases, allowing access to these URLs is sufficient:

- scc.suse.com

- updates.suse.com

If you are using non-SUSE clients you might also need to allow access to other servers that provide specific packages for those operating systems. For example, if you have Ubuntu clients, you will need to be able to access the Ubuntu server.

For more information about troubleshooting firewall access for non-SUSE clients, see [**Administration › Tshoot-firewalls ›**].

Public Cloud Requirements

This section provides the requirements for installing on public cloud infrastructure. We have tested these instructions on Amazon EC2, Google Compute Engine, and Microsoft Azure, but they should work on other providers as well, with some variation.

Before you begin, here are some considerations:

- The setup procedure performs a forward-confirmed reverse DNS lookup. This must succeed in order for the setup procedure to complete and for to operate as expected. It is important to perform hostname and IP configuration before you set up .
- 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.

> If you are attempting to bootstrap traditional clients, check that you can resolve the host name of the server while you are logged in to the client. You might need to add the FQDN of the server to `/etc/hosts` local resolution file on the client. Check using the `hostname -f` command with the local IP address of the server.

Network requirements

When you use 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.

> When you run on public clouds, you must apply security measures to limit access to the instance. A world-accessible instance violates the terms of the EULA, and is not supported by SUSE.

To access the WebUI, allow HTTPS when configuring the network access controls. This allows you to access the WebUI.

In EC2 and Azure, create a new security group, and add inbound and outbound rules for HTTPS. In GCE, check the `Allow HTTPS traffic` box under the `Firewall` section.

Prepare storage volumes

We recommend that the repositories and the database for are stored on separate storage devices to the root volume. This will help to avoid data loss. Do not use logical volume management (LVM) for public cloud installations.

You must set up the storage devices before you run the YaST setup procedure.

The size of the disk for repositories storage is dependent on the number of distributions and channels you intend to manage with . When you attach the virtual disks, they will appear in your instance as Unix device nodes. The names of the device nodes will vary depending on your provider, and the instance type selected.

Ensure the root volume of the Server is 100 GB or larger. Add an additional storage disk of 500 GB or more, and choose SSD storage if you can. The cloud images for Server use a script to assign this separate volume when your instance is launched.

When you launch your instance, you can log in to the Server and 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.

You can set up the external disk with the `suma-storage` command. This creates an XFS partition mounted at `/manager_storage` and uses it as the location for the database and repositories:

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

For more information about setting up storage volumes and partitions, including recommended minimum sizes, see [**Installation › Hardware-requirements ›**].

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.

> For SUSE operating systems, the version and SP level must be under general support (normal or LTSS) to be supported with . For details on supported product versions, see https://www.suse.com/lifecycle. For non-SUSE operating systems, including Red Hat Enterprise Linux, CentOS, and Oracle Linux, only the latest available version is under general support.

Table 8. Supported Client Systems

Operating System	Architecture	Traditional Clients	Salt Clients
SUSE Linux Enterprise 15	x86_64, ppc64le, IBM Z, ARM	✔	✔
SUSE Linux Enterprise 12	x86_64, ppc64le, IBM Z, ARM	✔	✔
SUSE Linux Enterprise 11	x86, x86_64, ppc64, IBM Z	✔	✔
SUSE Linux Enterprise Server-ES 8	x86_64	✔	✔
SUSE Linux Enterprise Server-ES 7	x86_64	✔	✔
SUSE Linux Enterprise Server-ES 6	x86, x86_64	✔	✔
SUSE Linux Enterprise Server for SAP	x86_64, ppc64le	✔	✔
Red Hat Enterprise Linux 8	x86_64	✖	✔
Red Hat Enterprise Linux 7	x86_64	✔	✔
Red Hat Enterprise Linux 6	x86, x86_64	✔	✔
CentOS 8	x86_64	✖	✔
CentOS 7	x86_64	✔	✔
CentOS 6	x86, x86_64	✔	✔
Oracle Linux 8	x86_64	✖	✔

Operating System	Architecture	Traditional Clients	Salt Clients
Oracle Linux 7	x86_64	✔	✔
Oracle Linux 6	x86, x86_64	✔	✔
openSUSE Leap 15	x86_64	✖	✔
Ubuntu 20.04	x86_64	✖	✔
Ubuntu 18.04	x86_64	✖	✔
Ubuntu 16.04	x86_64	✖	✔

When you are setting up your client hardware, you need to ensure you have enough for the operating system and for the workload you want to perform on the client, with these additions for :

Table 9. Client Additional Hardware Requirements

Hardware	Additional Size Required
RAM	512 MB
Disk Space:	200 MB

Installation

This section describes the process to install components.

It is possible to use a public cloud instance to install . For more information on using on a public cloud, see [**Quickstart-public-cloud** › **Qs-publiccloud-overview** ›].

Install Uyuni Server with openSUSE

Server can be installed on openSUSE.

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

For more information about the latest version and updates of openSUSE Leap, see https://doc.opensuse.org/release-notes/.

Install Uyuni on openSUSE Leap

Procedure: Installing openSUSE Leap with Uyuni

1. As the base system, install openSUSE Leap with all available service packs and package updates applied.
2. Configure a resolvable fully qualified domain name (FQDN) with **yast** › **System** › **Network Settings** › **Hostname/DNS**.
3. Set variables to use to create repository:

```
repo=repositories/systemsmanagement:/
repo=${repo}Uyuni:/Stable/images/repo/Uyuni-Server-POOL-x86_64-Media1/
```

4. Add the repository for installing the Server software as `root`:

```
zypper ar https://download.opensuse.org/$repo uyuni-server-stable
```

5. Refresh metadata from the repositories as `root`:

```
zypper ref
```

6. Install the pattern for the Server as `root`:

```
zypper in patterns-uyuni_server
```

7. Reboot.

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

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

Install Proxy with openSUSE Leap

Proxy can be installed on openSUSE Leap 15.2.

Procedure: Installing openSUSE Leap with Uyuni Proxy

1. Install openSUSE Leap and apply all package updates available.
2. Configure a resolvable fully qualified domain name (FQDN) with **yast** › **System** › **Network Settings** › **Hostname/DNS**.
3. Add the repository with the Proxy software. As `root` enter:

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

4. Refresh metadata from the repositories. As `root` enter:

```
zypper ref
```

5. Install the pattern for the Proxy: As `root` enter:

```
zypper in patterns-uyuni_proxy
```

6. Reboot the Proxy.
  - For more information about the stable version of , see https://www.uyuni-project.org/pages/stable-version.html.
  - For more information about the development version of , see https://www.uyuni-project.org/pages/devel-version.html.

When the installation is complete, you can continue with setup. For more information, see [**Installation › Uyuni-proxy-registration** ›].

Installing on a Public Cloud

Public clouds provide under a Bring Your Own Subscription (BYOS) model. That means that they preinstall , so you do not need to perform any installation steps.

However, you will need to perform some additional setup steps before you can use . For public cloud setup instructions, see **[Installation › Pubcloud-setup ›]**.

Setting Up

This section describes the initial steps you need to take after installation to make your environment ready to use.

Uyuni Server Setup

This section covers Server setup, using these procedures:

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

Set up with YaST

This section will guide you through setup procedures.

Procedure: Setup

1. Log in to the 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. can sometimes send a large volume of notification emails. You can disable email notifications in the WebUI after setup, if you need to.
5. 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.

   You must have the certificate password to set up the Proxy.

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 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 WebUI.

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

Create the Main Administration Account

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

The main administration account has the highest authority within . 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 WebUI. This address was provided after you completed setup. For more information, see uyuni-server-setup.pdf.
2. Log in to the WebUI, 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 WebUI 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 WebUI 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 . The organization credentials give you access to the SUSE product downloads. You will find your organization credentials in https://scc.suse.com/organizations.

Enter your organization credentials in the WebUI:

Procedure: Entering Organization Credentials

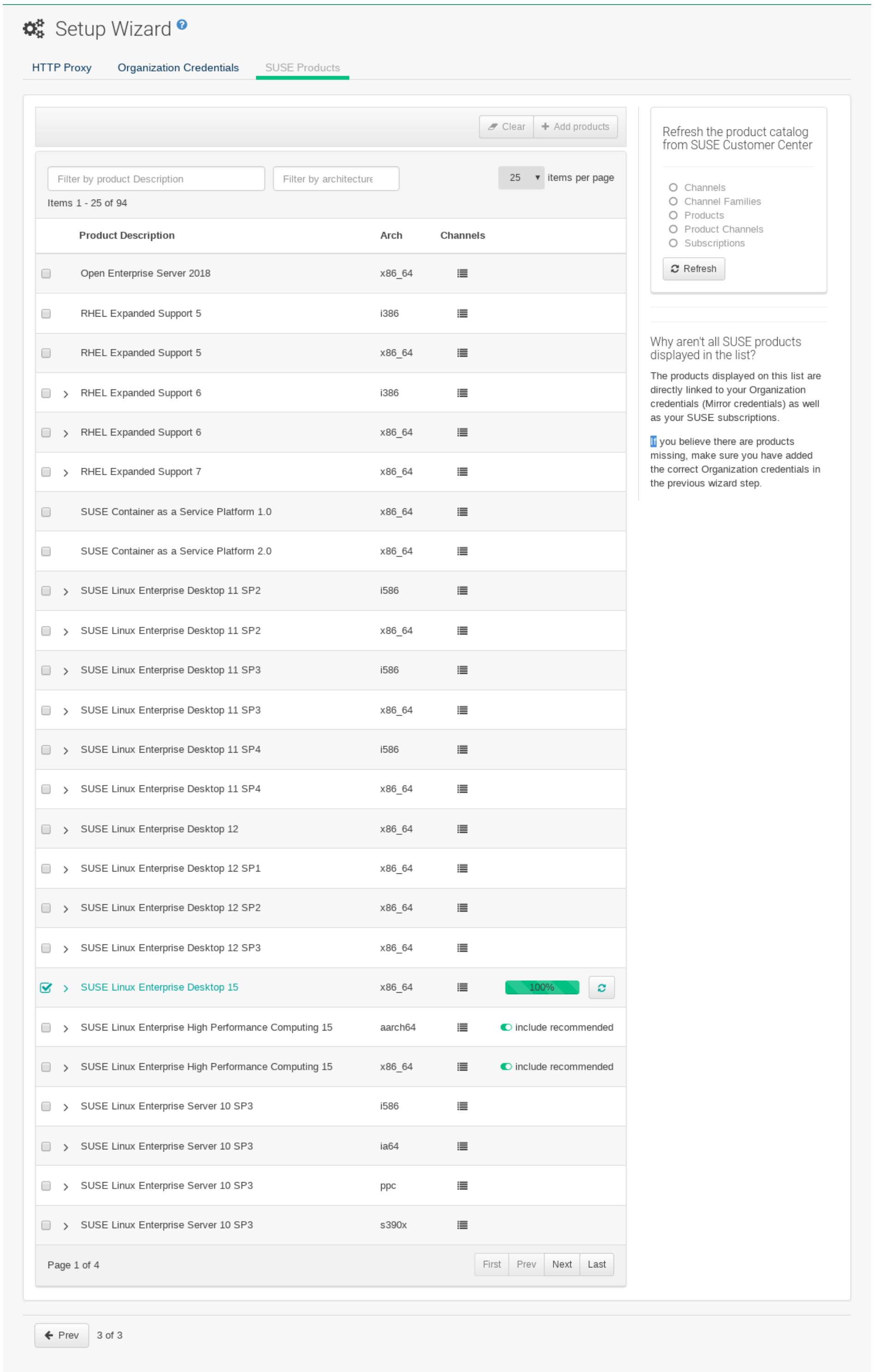
1. In the SUSE Manager WebUI, navigate to **Main Menu › Admin › Setup Wizard**.

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 WebUI, 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**].



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 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, will schedule the channel to be synchronized. This can take a long time as 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** ›].

Proxy Registration

Proxy systems are registered as Salt clients using a bootstrap script.

This procedure describes software channel setup and registering the installed proxy as the client, using an activation key.

Before you can select the correct child channels while creating the activation key, ensure you have properly synchronized the openSUSE Leap channel with all the needed child channels and the Proxy channel.

Procedure: Registering the Proxy

1. On the Server, create openSUSE Leap and the Proxy channels with the `spacewalk-common-channels` command. `spacewalk-common-channels` is part of the `spacewalk-utils` package:

```
spacewalk-common-channels \
opensuse_leap15_2 \
opensuse_leap15_2-non-oss \
opensuse_leap15_2-non-oss-updates \
opensuse_leap15_2-updates \
opensuse_leap15_2-uyuni-client \
uyuni-proxy-stable-leap-152
```

Instead of `uyuni-proxy-stable-leap-152` you can also try `uyuni-proxy-devel-leap` that is the current development version.

For more information, see [**Client-configuration** › **Clients-opensuse** ›].

2. Create an activation key with openSUSE Leap as a base channel and the other channels as child channels. For more information about activation keys, see [**Client-configuration** › **Activation-keys** ›].
3. Modify a bootstrap script for the proxy. Add the GPG key to the `ORG_GPG_KEY=` parameter. For more information, see [**Client-configuration** › **Clients-opensuse** ›]. For more information about bootstrap scripts, see [**Client-configuration** › **Registration-bootstrap** ›].
4. Bootstrap the client using the script. For more information, see [**Client-configuration** › **Registration-bootstrap** ›].
5. Navigate to **Salt** › **Keys** and accept the key. When the key is accepted, the new proxy will show in **Systems** › **Overview** in the `Recently Registered Systems` section.
6. Navigate to **System Details** › **Software** › **Software Channels**, and check that the proxy channel is selected.

For setting up a registered Proxy, see uyuni-proxy-setup.pdf.

Uyuni Proxy Setup

Proxy requires additional configuration.

Install the `uyuni_proxy` pattern

Check that the Proxy pattern is installed correctly. This step is part of [**Installation** › **Install-proxy-uyuni** ›]. To verify a successful installation, on the server select the `pattern_uyuni_proxy` package for installation.

The salt-broker service will be automatically started after installation is complete. This service forwards the Salt interactions to the server.

Proxy Chains

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

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

Copy Server Certificate and Key

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

As root, enter the following commands on the proxy using your Server or parent Proxy (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 Proxy functionality requires the SSL certificate to be signed by the same CA as the Server certificate. Using certificates signed by different CAs for proxies and server is not supported.

Run `configure-proxy.sh`

The `configure-proxy.sh` script finalizes the setup of your Proxy.

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:

Parent

The parent can be either another proxy or the Server.

HTTP Proxy

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

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 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 installation. For example, if your proxy is in the US and your 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 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 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 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 WebUI (**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 Proxy and the Server.

1. On the Proxy, install the `susemanager-tftpsync-recv` package:

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

2. On the Proxy, run the `configure-tftpsync.sh` setup script and enter the requested information:

```
configure-tftpsync.sh
```

You need to provide the hostname and IP address of the Server and the proxy. You also need to enter the path to the tftpboot directory on the proxy.

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

```
zypper in susemanager-tftpsync
```

1. On the Server, run `configure-tftpsync.sh`. This creates the configuration, and uploads it to the Proxy:

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

2. Start an initial synchronization on the Server:

```
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 PXE booting, see **[Client-configuration › Autoinst-pxeboot › Install via the Network]**.

Configure DHCP for PXE through Proxy

uses Cobbler for client provisioning. PXE (tftp) is installed and activated by default. Clients must be able to find the PXE boot on the Proxy using DHCP. Use this DHCP configuration for the zone which contains the clients to be provisioned:

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

Replace the Proxy

A proxy does not contain any information about the clients that are connected to it. Therefore, a proxy can be replaced by a new one at any time. The replacement proxy must have the same name and IP address as its predecessor.

Shut down the old proxy, and leave it installed while you prepare the replacement. 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.

> The reactivation key is only needed if you do not want to lose the history of the machine. If you do not use a reactivation key, the replacement proxy will become a "new" one with a new ID.

Procedure: Replacing a 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 or manually created data to a central place that can also be accessed by the new proxy.
2. Shut down the proxy.
3. Install a new Proxy. For installation instructions, see Proxy Installation.
4. In the WebUI, select the newly installed Proxy, and delete it from the systems list.
5. In the WebUI, create a reactivation key for the old proxy system: On the System Details tab of the old proxy click `Reactivation`. Click `Generate New Key`, and make a note of the new key, as you will need it later. For more information about reactivation keys, see [**Reference › Systems › Reactivation Keys**].
6. OPTIONAL: After the installation of the new proxy, you might also need to:
   - Copy the centrally saved data to the new proxy system
   - Install any other needed software
   - Set up TFTP synchronization if the proxy is used for autoinstallation

> During the installation of the proxy, clients will not be able to reach the Server. After you have deleted a proxy, the systems list can be temporarily incorrect. All clients that were previously connected to the proxy will show as being directly connected to the server instead. 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

Server needs to be registered with SUSE Customer Center to receive updates before you can sign in.

You must have set up the storage devices before you run the YaST setup procedure. For more information, see **[Installation › Pubcloud-requirements ›]**.

Follow the cloud providers instructions to SSH into the instance, and run this command to start set up:

```
yast2 susemanager_setup
```

Follow the prompts, and wait for the setup to finish.

For detailed instructions on setting up with YaST, see **[Installation › Server-setup ›]**.

Activate the public cloud module

To use on a public cloud instance, you need to activate the public cloud module.

Procedure: Activating the public cloud module

1. On the 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/15.2/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 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

Complete setup in the WebUI

Open the WebUI with a web browser, using an address like this:

```
https://<public_IP>
```

Sign in to the WebUI with the administrator account. 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 --compute --name
```

When you sign in to the administrator account for the first time, you are given an automatically generated organization name. Change this by navigating to **Admin** › **Organizations**, and editing the organization name.

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

For more information about setting up your Server, see **[Installation › Server-setup ›]**.

Use the WebUI to add the required software products, and schedule a repository synchronization. The best way to do this is to navigate to **Admin › Setup Wizard** and follow the prompts.

For more information about the setup wizard, see **[Installation › Setup-wizard ›]**.

If you are intending to register Ubuntu or Red Hat Enterprise Linux clients, you need to set up custom repositories and channels. For more information, see the relevant section in **[Client-configuration › Registration-overview ›]**.

To synchronize your channels, navigate to **Software › Manage › Channels**. Click each channel you created, navigate to the **Repositories › Sync** tab, and click `[Sync Now]`. You can also schedule synchronization from this screen.

> Before bootstrapping a client, make sure all the selected channels for that product are synchronized.
>
> Synchronization can sometimes take several hours, in particular for openSUSE, SLES ES, and RHEL channels.

When you have your Server set up, you are ready to start registering clients. For more information about registering clients on a public cloud, see **[Client-configuration › Clients-pubcloud ›]**.

Web Interface Setup

To use the WebUI, navigate to your URL in a browser. Sign in to the WebUI using your Administration account.

While you are using the WebUI, click the ? icon to access the documentation for that section.

The first time you sign in to the WebUI, complete the setup wizard to set your user preferences. You can access the setup wizard at any time by navigating to **Admin › Setup Wizard**.

After the initial setup is complete, signing in will take you the **Home › Overview** section. This section contains summary panes that provide important information about your systems.

The `Tasks` pane provides shortcuts to the most common WebUI tasks.

The `Inactive Systems` pane shows any clients that have stopped checking in to the Server. You will need to check these clients.

The `Most Critical Systems` pane shows any clients that require software updates. Click the name of a client in the list to be taken to the **Systems › System Details** section for that client. From this page, you can apply any required updates.

The `Recently Scheduled Actions` pane shows all recent actions that have been run, and their status. Click the label of an action to see more detail.

The `Relevant Security Patches` pane shows all available security patches that need to be applied to your clients. It is critical that you apply security patches as soon as possible to keep your clients secure.

The `System Groups` pane shows any system groups you have created, and if the clients in those groups are fully updated.

The `Recently Registered Systems` pane shows all clients registered in the past thirty days. Click the name of a client in the list to be taken to the **Systems** › **System Details** section for that client.

Web Interface Navigation

The WebUI uses some standard elements to help you navigate. While you are using the WebUI, click the ⓘ icon to access the documentation for that section.

Top Navigation Bar

The top navigation bar gives access to system-wide functions.

Notifications

The notification bell icon displays the number of unread notification messages in a circle. Click the notification icon to go to **Home** › **Notification Messages**.

Overview Legend

Click the eye icon to see commonly used icons for the currently active section of the WebUI.

Search

Click the search magnifying glass icon to open the search box. You can search for systems (clients), packages, patches, or documentation. Click **[Search]** to go to the relevant `Advanced Search` page, and see your search results.

Systems Selected

The systems selected icon displays the number of currently selected systems in a circle. Click the systems selected icon to go to **Systems** › **System Set Manager** › **Overview**. Click the eraser icon to unselect all systems. For more information about the system set manager, see **[Client-configuration** › **System-set-manager** ›].

User Account

The user account icon is displayed with the name of the currently signed-in user. Click the user account icon to go to **Home** › **User Account** › **My Account**.

Organization

The organization icon is displayed with the name of the currently active organization. Click the organization icon to go to **Home** › **My Organization** › **Configuration**.

Preferences

Click the cogs icon to go to **Home** › **My Preferences**.

Sign Out

Click the exit icon to sign out the current user and return to the sign in screen.

If you add a distribution, newly synchronize channels, or register a system to the Server, it can take several minutes for it to be indexed and appear in search results. If you need to force a rebuild of the search index, use this command at the command prompt:

```
rhn-search cleanindex
```

Left Navigation Bar

The left navigation bar is the main menu to the WebUI.

Expand

If you click the icon or the down-arrow of a menu entry, it expands this part of the menu tree without actually loading a page.

Collapse

To collapse an open part of the menu system, click the up-arrow of a menu entry.

Autoload

If you click the name of a menu entry, the first available page of that menu entry will get loaded and displayed automatically.

Search

Enter a search string in the `Search page` field to find an entry of the menu tree. Available menu entries depend on the roles of the user.

Only Administrators can access these sections:

- `Images`
- `Users`
- `Admin`\`

Tables

Many sections present information in tables. You can navigate through most tables by clicking the back and next arrows above and below the right side of the table. Change the default number of items shown on each page by navigating to **Home** › **My Preferences**.

You can filter the content in most tables using the search bar at the top of the table. Sort table entries by clicking on the column header you want to sort by. Click the column header again to reverse the sort.

Patch Alert Icons

Patches are represented by three main icons, depending on the type of patch. Icons are coloured either green, yellow, or red, depending on the severity.

The shield icon is a security alert. A red shield is the highest priority security alert.

The bug icon is a bug fix alert.

· The squares icon is an enhancement alert.

Some additional icons are used to give extra information:

The circling arrows icon indicates that applying a patch will require a reboot.

The archive box icon indicates that a patch will have an effect on package management.

Interface Customization

By default, the WebUI uses the theme appropriate to the product you have installed. You can change the theme to reflect the Uyuni or SUSE Manager colors. The SUSE Manager theme also has a dark option available. To change the theme using the WebUI, navigate to **Home › My Preferences** and locate the `Style Theme` section.

For information about changing the default theme, see **[Administration › Users ›]**.

Request Timeout Value

As you are using the WebUI, you are sending requests to the Server. In some cases, these requests can take a long time, or fail completely. By default, requests will time out after 30 seconds, and a message is displayed in the WebUI with a link to try sending the request again.

You can configure the default timeout value in the `etc/rhn/rhn.conf` configuration file, by adjusting the `web.spa.timeout` parameter. Restart the tomcat service after you change this parameter. Changing this setting to a higher number could be useful if you have a slow internet connection, or regularly perform actions on many clients at once.

Setup Wizard

When you have completed your installation, you can use the setup wizard to complete the last few steps. The setup wizard allows you to configure the HTTP proxy, organization credentials, and SUSE products.

The setup wizard is displayed by default when you log in the WebUI for the first time. You can access the setup wizard directly by navigating to **Admin › Setup Wizard**.

Configure the HTTP Proxy

can connect to the SUSE Customer Center (SCC) or other remote servers using a proxy. Navigate to the `HTTP Proxy` tab to configure the proxy.

You will need to provide the hostname of the proxy. Use the syntax `<hostname>:<port>`. For example: `<example.com>:8080`.

You can disable use of the proxy by clearing the fields.

When choosing a username or password for your Proxy, ensure it does not contain an `@` or `:` character. These characters are reserved.

Configure Organization Credentials

Your SUSE Customer Center account is associated with the administration account of your organization. You can share your SUSE Customer Center access with other users within your organization. Navigate to the `Organization Credentials` tab to grant users within your organization access to your SUSE Customer Center account.

Click **[Add a new credential]**, enter the username and password of the user to grant access to, and click **[Save]**. A new credential card is shown for the user you have granted access to. Use these buttons on the card to edit or revoke access:

- Check credential validation status (green tick or red cross icon). To re-check the credential with SCC, click the icon.
- Set the primary credentials for inter-server synchronization (yellow star icon).
- List the subscriptions related to a certain credential (list icon).
- Edit the credential (pencil icon).
- Delete the credential (trash can icon).

Configure Products

Your SUSE subscription entitles you to access a range of products. Navigate to the `Products` tab to browse the products available to you and synchronize with SUSE Customer Center.

Filters help you search for products by description or architecture.

The list is organized by product name. For each product, you can see the architecture it can be used on. Click the arrow next to the product name to see associated channels and extensions. Click the **[Channels]** icon to see the complete list of channels associated with each product.

For products based on SUSE Linux Enterprise 15 and above, you can choose to only synchronize required packages, or to also include recommended products. Toggle the **[include recommended]** switch on to synchronize all products, and toggle the switch off to synchronize only required products.

You can further refine which products you want to synchronize by selecting or deselecting individual product.

When you have completed your selection, click **`[Add products]`**, and click **`[Refresh]`** to schedule the synchronization.

Synchronization progress for each product is shown in a progress bar next to the product name. Depending on the products you have chosen, synchronization can take up to several hours. New products will be available for you to use in when synchronization is complete.

If your synchronization fails, it could be because of a third party GPG key. For more information about troubleshooting product synchronization, see **[Administration › Tshoot-sync ›]**.

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