Reference Guide

Uyuni 4.0

March 19, 2020

Table of Contents

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Introduction

Publication Date: 2020-03-19

This document contains two sections:

The `Web UI Reference` is organized to match the Uyuni Web UI. As you work with the Web UI, you can consult the `Web UI Reference` to find out more about the section you are working on. For help on setting up and using the Web UI, see **[Installation › Webui-setup ›]**.

The `spacecmd Reference` is intended to help you work with the `spacecmd` command line interface. It contains a complete list of `spacecmd` commands, organized alphabetically, and their correct usage.

WebUI Reference

Home Menu

The Home section is a dashboard that contains a summary of your current Uyuni status, including tasks, client information, and critical security updates.

For more information about setting up and using the Uyuni Web UI, see **[Installation › Webui-setup ›]**.

Home Overview

The **Home › Overview** section is a dashboard that contains a summary of your current Uyuni status, including tasks, client information, and critical security updates.

For more information about setting up and using the Uyuni Web UI, see **[Installation › Webui-setup ›]**.

Notification Messages

The **Home › Notification Messages** section shows all current messages produced by Uyuni. By default, messages will remain current for thirty days. After this period, messages are deleted whether or not they are marked as read.

To see unread messages, navigate to the `Unread Messages` tab. To see all messages, navigate to the `All Messages` tab.

Click `[Refresh]` to update the list.

Perform bulk actions by checking messages in the list. Click `[Delete selected messages]` to bulk delete messages. Click `[Mark selected as read]` to bulk read messages.

Table 1. Notification Message Severity Statuses

Icon	Description	Example
ⓘ	Information	Client onboarding has failed.
⚠	Warning	Channel synchronization has completed.
⊗	Error	Channel synchronization has failed.

The default lifetime of notification messages is 30 days, after which messages are deleted from the database, regardless of read status. To change this value, add or edit this line in `/etc/rhn/rhn.conf`:

```
java.notifications_lifetime = 30
```

All notification types are enabled by default. To disable a notification type, add or edit this line in `/etc/rhn/rhn.conf`:

```
java.notifications_type_disabled = OnboardingFailed,ChannelSyncFailed,ChannelSyncFinished
```

User Account Menu

The **Home › User Account** section allows you to change user account preferences.

My Account

The **Home › User Account › My Account** section allows you to change user account preferences.

Modify your personal information, such as name, password, and title from the **Home › User Account › My Account** page. To modify this information, make the changes in the appropriate text fields and click the **[Update]** button at the bottom.

If you forget your password or username, navigate to Web UI sign in page, click **[About]**, and click **[Lookup Login/Password]**. Enter the username or email address, and click **[Send Password]** or **[Send Login]** to have the missing information sent to you.

Addresses

The **Home › User Account › Addresses** section allows you set your mailing, billing, and shipping addresses, and associated phone numbers.

Click **[Fill in this address]** or **[Edit this address]** below the address to be modified or added, make your changes, and click **[Update]**.

Change Email

The **Home › User Account › Account Deactivation** section allows you to set the email Uyuni sends notifications to.

Enter your new email address and click the **[Update]** button. Invalid email addresses, including those ending in `@localhost` are filtered and rejected.

If you would like to receive email notifications about patch alerts or daily summaries for your systems, ensure you have checked the `Receive email notifications` option in **Home › My Preferences** section.

Account Deactivation

The **Home › User Account › Account Deactivation** section allows you to cancel your Uyuni user account.

When you click **[Deactivate Account]** your user account will be deleted, you will be signed out,

and you will not be able to sign back in.

If you do this by accident, you will need to contact your Uyuni Administrator to reactivate your user account.

> **!** If you are the only Uyuni Administrator for your organization, you can not deactivate your account.

My Preferences

The **Home › My Preferences** section allows you to configure Uyuni Web UI options.

Table 2. Home Preferences

Option	Description	Default
Email Notification	Receive email for client and Taskomatic notifications, including a daily summary email.	Checked
Uyuni List Page Size	Maximum number of items that can appear in a list on a single page.	25 entries
"Overview" Start Page	Select the information panes to display on the **Home › Overview** page.	All checked
Time Zone	Set your local timezone.	System timezone
CSV Files	Select whether to use comma or semi-colon delimiters when producing downloadable CSV files.	Comma

For more information about setting up and using the Uyuni Web UI, see **[Installation › Webui-setup ›]**.

My Organization

The **Home › My Organization** section allows you to configure your current organization.

For more information about organizations, see **[Administration › Organizations ›]**.

Organization Configuration

The **Home › My Organization › Configuration** section allows you to configure your current organization.

Table 3. Organization Configuration Options

Option	Description	Default
Enable staging contents	For clients in this organization, allow content staging by default.	Unchecked
Enable Errata E-mail Notifications	For users in this organization, send email notifications when errata (patches) are available.	Checked
Enable Software Crash Reporting	In case of a crash, a log of the crash is saved to file.	Checked
Enable Upload of Crash Files	Allow crash log files to be uploaded to SUSE.	Checked
Crash File Upload Size Limit	The maximum crash log file size (in MB) that can be uploaded to SUSE.	2048 MB
Enable Upload of Detailed SCAP Files	Allow detailed SCAP content files to be uploaded for auditing.	Unchecked
SCAP File Upload Size Limit	The maximum SCAP file size (in MB) that can be uploaded.	2048 MB
Allow Deletion of SCAP Results	Allow SCAP results to be deleted after the audit is complete.	Checked
Allow Deletion After	The number of days after an SCAP audit is complete, that results can be deleted.	90 days

- For more information about content staging, see **[Administration › Content-staging ›]**.

- For more information about OpenSCAP, see **[Administration › Openscap ›]**.

- For more information about organizations, see **[Administration › Organizations ›]**.

Organization Trusts

The **Home › My Organization › Organization Trusts** section shows the trusts that you have established within your organization. This section also shows the channels that are available to other users through trusts.

For more information about organization trusts, see **[Administration › Organizations ›]**.

Organization Configuration Channels

The **Home › My Organization › Configuration Channels** section shows the configuration channels available within your organization. Configuration channels can be created in the Uyuni Web UI by navigating to **Configuration › Channels**. Apply configuration channels to your organization using the

Uyuni Web UI.

For more information about organizations, see **[Administration › Organizations ›]**.

Systems Menu

Manage all your systems (including virtual guests) here.

Systems Overview

If you select **Main Menu › Systems › Overview**, an overview of all Systems appears. From this page you can select systems to perform actions on and may create system profiles.

Overview Conventions

The **Main Menu › Systems › Overview** page displays a list of all your registered systems. Several columns provide information about each system:

Select box

Systems without a system type cannot be selected. To select systems, mark the appropriate check boxes. Selected systems are added to the **System Set Manager**, where actions can be carried out simultaneously on all systems in the set. For more information, see **[Reference › Systems ›]**.

System

The name of the system specified during registration. The default name is the host name of the system. Clicking the name of a system displays its `System Details` page. For more information, see **[Reference › Systems ›]**.

- · — Virtual Host.

- · — Virtual Guest.

- · — Non-Virtual System.

- · — Unprovisioned System.

Updates

Shows which type of update action is applicable to the system or confirms that the system is up-to-date. Some icons are linked to related tasks. For example, the standard Updates icon is linked to the `Upgrade` subtab of the packages list, while the Critical Updates icon links directly to the `Software Patches` page.

- · — System is up-to-date.

- · — Critical patch (errata) available, update *strongly* recommended.

- · — Updates available and recommended.

- · — System not checking in properly (for 24 hours or more).

- · — System is locked; actions prohibited.

- · — System is being deployed using AutoYaST or Kickstart.

- ° — Updates have been scheduled.

- · — System not entitled to any update service.

Patches

Total number of patch alerts applicable to the system.

Packages

Total number of package updates for the system, including packages related to patch alerts and newer versions of packages not related to patch alerts. For example, if a client system that has an earlier version of a package installed gets subscribed to the appropriate base channel (such as SUSE Linux Enterprise 12 SP2), that channel may have an updated version of the package. If so, the package appears in the list of available package updates.

> *Package Conflict*
>
> If Uyuni identifies package updates for the system, but the package updater (such as Red Hat Update Agent or YaST) responds with a message such as "Your system is fully updated", a conflict likely exists in the system's package profile or in the `up2date` configuration file. To resolve the conflict, either schedule a package list update or remove the packages from the package exceptions list. For more information, see **[Reference › Systems ›]**.

Configs

Total number of configuration files applicable to the system.

Base Channel

The primary channel for the system based on its operating system. For more information, see **[Reference › Software ›]**.

System Type

Shows whether the system is managed and at what service level.

Links in the navigation bar below **Main Menu › Systems** enable you to select and view predefined sets of your systems. All of the options described above can be applied within these pages.

Overview

The **Main Menu › Systems › Overview** page provides a summary of your systems, including their status, number of associated patches (errata) and packages, and their so-called system type. Clicking the name of a system takes you to its `System Details` page. For more information, see **[Reference › Systems ›]**.

Clicking the **[View System Groups]** button at the top of the page takes you to a summary of your system groups. It identifies group status and displays the number of systems contained. Clicking the

number of systems in a group takes you to the **Main Menu › Systems › Systems Groups › Systems** tab. Selecting a group name takes you to the **Main Menu › Systems › System Groups › Group Details** tab for that system group. For more information, see **[Reference › Systems ›]**.

You can also click **[Use in SSM]** from the **Systems › Overview › View System Groups** page to go directly to the **Systems › System Set Manager**. For more information, see **[Reference › Systems ›]**.

System Details Overview

When systems are registered to Uyuni, they are displayed on the **Main Menu › Systems › Overview** page. Here and on any other page, clicking the name of a system takes you to the `System Details` page of the client, where various types of administrative tasks can be performed.

> ! The **Delete System** link in the upper right of this screen refers to the system profile only. Deleting a host system profile will not destroy or remove the registration of guest systems. Deleting a guest system profile does not remove it from the list of guests for its host, nor does it stop or pause the guest. It does, however, remove your ability to manage it via Uyuni.
>
> If you mistakenly deleted a system profile from Uyuni, you may re-register the system using the bootstrap script or `rhnreg_ks` manually.

The Details page has numerous subtabs that provide specific system information and other identifiers unique to the system. The following sections discuss these tabs and their subtabs in detail.

System Details

This page is not accessible from the left bar. However, clicking the name of a system anywhere in the Web interface displays such a System Details page. By default, the **Systems Details › Details › Overview** subtab is displayed. Other tabs are available, depending on the system type and add-on system type.

For example, Traditional systems and Salt systems details display different tabs.
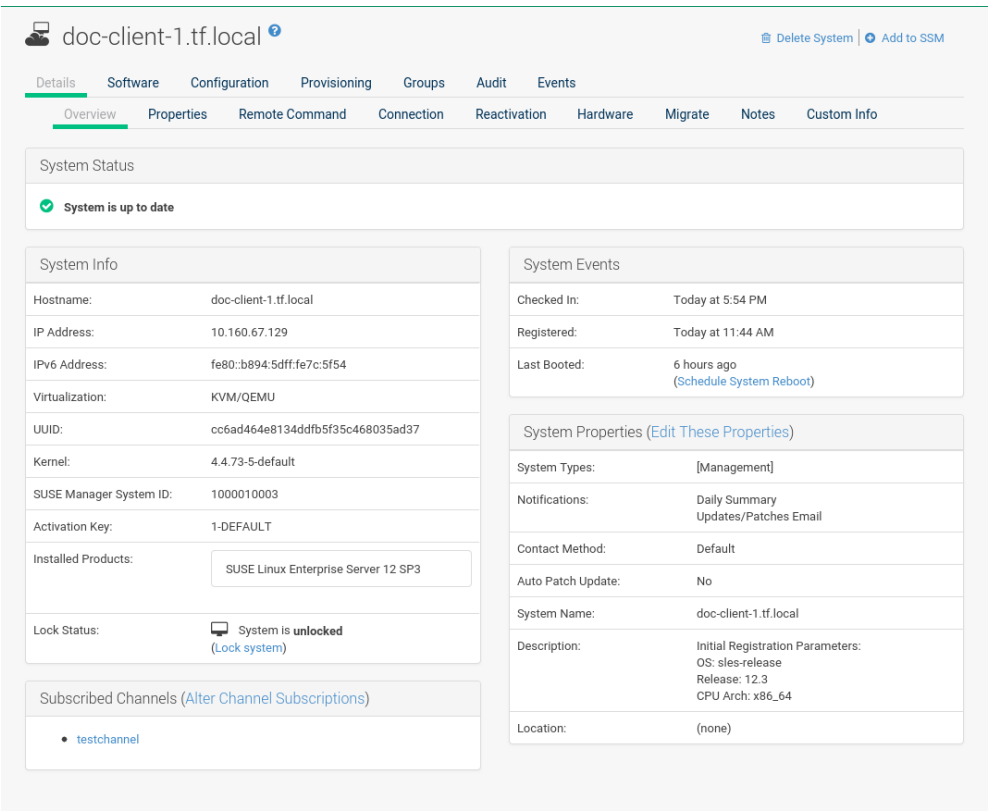
Figure 1. System Details (Traditional)
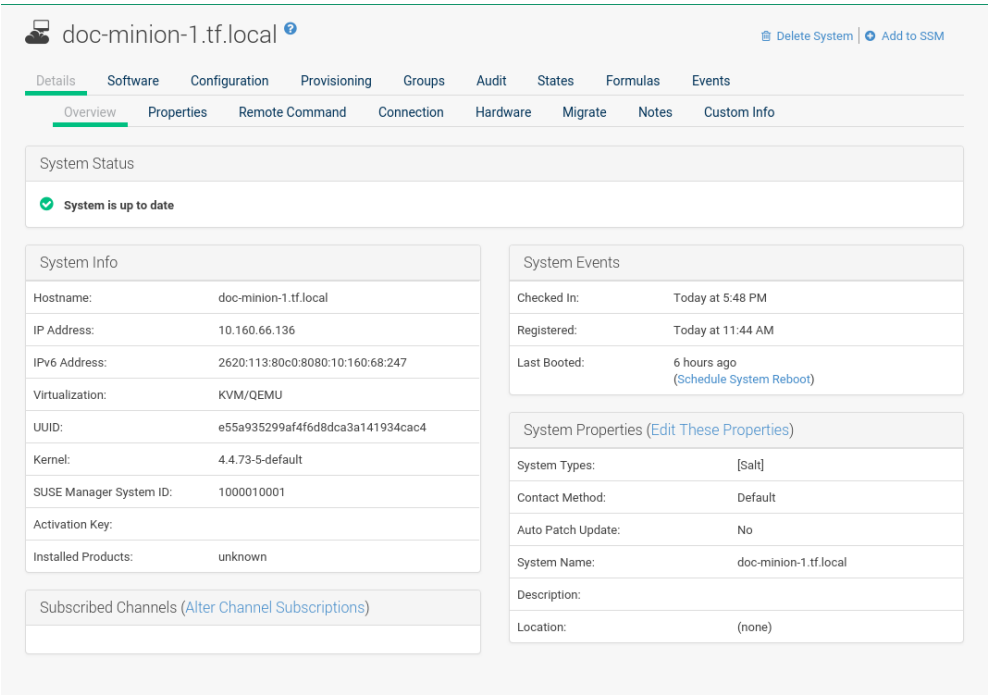
Figure 2. System Details (Salt)

Overview

This system summary page displays the system status message and the following key information about the system:

System Status

This message indicates the current state of your system in relation to Uyuni.

> If updates are available for any entitled system, the message `Software Updates Available` appears, displaying the number of critical and non-critical updates and the sum of affected packages. To apply these updates, click **System Details › Packages** then select some or all packages to update, then click `[Upgrade Packages]`.

System Info

Hostname

The host name as defined by the client system. A machine can have one and only one hostname.

FQDN

The FQDN(Names) listed here represents the host.domain that the machine answers to. A machine can have any number of FQDNs. Keep in mind that FQDN is not equal to hostname.

IP Address

The IP address of the client.

IPv6 Address

The IPv6 address of the client.

Minion Id

On salt clients only, shows the client identification value.

Virtualization

If the client is a virtual machine, the type of virtualization is listed.

UUID

Displays the universally unique identifier.

Kernel

The kernel installed and operating on the client system.

Uyuni System ID

A unique identifier generated each time a system registers with Uyuni.

The system ID can be used to eliminate duplicate profiles from Uyuni. Compare the system ID listed on this page with the information stored on the client system in the `/etc/sysconfig/rhn/systemid` file. In that file, the system's current ID is listed under `system_id`. The value starts after the characters `ID-`. If the value stored in the file does not match the value listed in the profile, the profile is not the most recent one and may be removed.

Activation Key

Displays the activation key used to register the system.

Installed Products

Lists the products installed on the system.

Lock Status

Indicates whether a system has been locked.

Actions cannot be scheduled for locked systems on the Web interface until the lock is removed manually. This does not include preventing automated patch updates scheduled via the Web interface. To prevent the application of automated patch updates, deselect **System Details › Properties › Auto Patch Update**. For more information, see **[Reference › Systems ›]**.

Locking a system can prevent you from accidentally changing a system. For example, the system may be a production system that should not receive updates or new packages until you decide to unlock it.

Locking a system in the Web interface *will not* prevent any actions that originate from the client system. For example, if a user logs in to the client directly and runs YaST Online Update (on SLE) or `pup` (on RHEL), the update tool will install available patches even if the system is locked in the Web interface.

Locking a system *does not* restrict the number of users who can access the system via the Web interface. If you want to restrict access to the system, associate that system with a System Group and assign a System Group Administrator to it. For more information about system groups, see **[Reference › Systems ›]**.

It is also possible to lock multiple systems via the System Set Manager. For instructions, see reference:systems/ssm-overview.pdf.

Subscribed Channels

List of subscribed channels. Clicking a channel name takes you to the `Basic Channel Details` page. To change subscriptions, click the `Alter Channel Subscriptions` link right beside the title to assign available base and child channels to this system. When finished making selections, click the `[Change Subscriptions]` button to change subscriptions and the base software channel. For more

information, see **[Reference › Systems ›]**.

Base Channel

The first line indicates the base channel to which this system is subscribed. The base channel should match the operating system of the client.

Child Channels

The subsequent lines of text, which depend on the base channel, list child channels. An example is the `SUSE Manager Tools` channel.

System Events

Checked In

The date and time at which the system last checked in with Uyuni.

Registered

The date and time at which the system registered with Uyuni and created this profile.

Last Booted

The date and time at which the system was last started or restarted.

> Systems with Salt or Management system type can be rebooted from this screen.
>
> 1. Select `Schedule system reboot`.
>
> 2. Provide the earliest date and time at which the reboot may take place.
>
> 3. Click the `[Schedule Reboot]` button in the lower right.
>
> When the client checks in after the scheduled start time, Uyuni will instruct the system to restart itself.

System Properties

System Types

Lists system types and add-on types currently applied to the system.

Notifications

Indicates the notification options for this system. You can activate whether you want to receive e-mail notifying you of available updates for this system. In addition, you may activate to include systems in the daily summary e-mail.

Contact Method

Available methods: Default (Pull), Push via SSH, and Push via SSH tunnel.

The so-called OSA status is also displayed for client systems registered with Uyuni that have the OSA

dispatcher (osad) configured.

Push enables Uyuni customers to immediately initiate tasks rather than wait for those systems to check in with Uyuni. Scheduling actions through push is identical to the process of scheduling any other action, except that the task can immediately be carried out instead of waiting the set interval for the system to check in.

In addition to the configuration of Uyuni, to receive pushed actions each client system must have the `mgr-osad` package installed and its service started.

Auto Patch Update

Indicates whether this system is configured to accept updates automatically.

System Name

By default, the host name of the client is displayed, but a different system name can be assigned.

Description

This information is automatically generated at registration. You can edit the description to include any information you want.

Location

This field displays the physical address of the system if specified.

Clicking the `Edit These Properties` link beside the `System Properties` title opens the **System Details** › **Details** › **Properties** subtab. From this page you can edit any text fields you choose, then click the `[Update Properties]` button to confirm.

SD Properties

The `Properties` subtab allows you to alter basic properties of the selected system.

System Details

System Name

By default, this is the host name of the system. You can however alter the profile name to anything that allows you to distinguish this system from others.

Base System Type

For information only.

Add-on System Types

Select one of the available system types such as `Container Build Host`.

Notifications

Select whether notifications about this system should be sent and whether to include this system in the daily summary. This setting keeps you aware of all advisories pertaining to the system. Anytime an update is released for the system, you receive an e-mail notification.

The daily summary reports system events that affect packages, such as scheduled patch updates, system reboots, or failures to check in. In addition to including the system here, you must activate to receive e-mail notification in **Main Menu › Home › Overview › My Preferences**.

Contact Method

Select one of the following contact methods:

- `Pull (Default)`
- `Push via SSH`
- `Push via SSH tunnel`

Auto Patch Update

If this box is checked, available patches are automatically applied to the system when it checks in (Pull) or immediately if you select either Push option. This action takes place without user intervention.

> *Conflicts With Third Party Packages*
>
> Enabling auto-update might lead to failures because of conflicts between system updates and third party packages. To avoid failures caused by those issues, it is better to leave this box unchecked.

Description

By default, this text box records the operating system, release, and architecture of the system when it first registers. Edit this information to include anything you like.

The remaining fields record the physical address at which the system is stored. To confirm any changes to these fields, click the **[Update Properties]** button.

> *Setting Properties for Multiple Systems*
>
> Many of these properties can be set for multiple systems in one go via the System Set Manager interface. For more information, see **[Reference › Systems ›]**.

SD Remote Command

This subtab allows you to run remote commands on the selected system. Before doing so, you must first configure the system to accept such commands.

1. On SLE clients, subscribe the system to the Uyuni Tools child channel. Then use Zypper to install the `rhncfg`, `rhncfg-client`, and `rhncfg-actions` packages, if not already installed:

```
zypper in rhncfg rhncfg-client rhncfg-actions
```

On RHEL clients, subscribe the system to the Tools child channel, and use `yum` to install the `rhncfg`, `rhncfg-client`, and `rhncfg-actions` packages, if not already installed:

```
yum install rhncfg rhncfg-client rhncfg-actions
```

2. Log in to the system as root and add the following file to the local Uyuni configuration directory: `allowed-actions/scripts/run`.

   ◦ Create the necessary directory on the target system:

   ```
   mkdir -p /etc/sysconfig/rhn/allowed-actions/script
   ```

   ◦ Create an empty `run` file in that directory to act as a flag to Uyuni, signaling permission to allow remote commands:

   ```
   touch /etc/sysconfig/rhn/allowed-actions/script/run
   ```

When the setup is complete, refresh the page to view the text boxes for remote commands. Identify a specific user, group, and timeout period, and the script to run. Select a date and time to execute the command, then click **[Schedule]** or add the remote command to an action chain. For more about action chains, see **[Reference › Schedule ›]**.

SD Reactivation

Reactivation keys include this system's ID, history, groups, and channels. This key can then be used only once with the `rhnreg_ks` command line utility to re-register this system and regain all Uyuni settings. Unlike typical activation keys, which are not associated with a specific system ID, keys created here do not show up within the **Systems › Activation Keys** page.
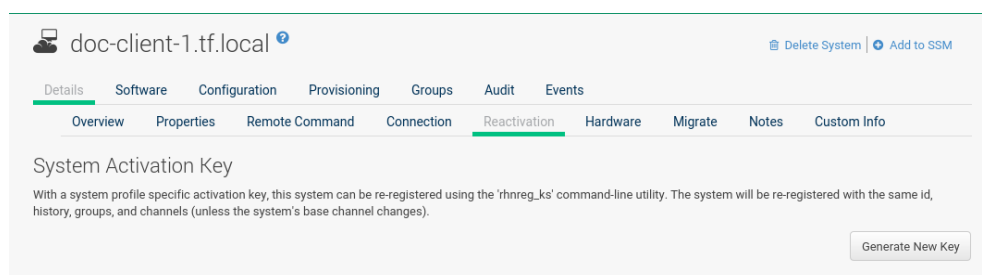
Reactivation keys can be combined with activation keys to aggregate the settings of multiple keys for a single system profile. For example:

```
rhnreg_ks --server=<server-url>/XMLRPC \
          --activationkey=<reactivation-key>,<activationkey> \
          --force
```

When autoinstalling a system with its existing Uyuni profile, the profile uses the system-specific activation key created here to re-register the system and return its other Uyuni settings. For this reason, you must not regenerate, delete, or use this key (with `rhnreg_ks`) while a profile-based autoinstallation is in progress. If you do, the autoinstallation will fail.

SD Hardware

This subtab provides information about the system, such as networking, BIOS, memory, and other devices.

This feature only works if you have included the hardware profile during registration.

If the hardware profile looks incomplete or outdated, click the `[Schedule Hardware Refresh]` button. The next time the system connects to Uyuni, it will update your system profile with the latest hardware information.

SD Migrate

This subtab provides the option to migrate systems between organizations. Select an organization form the dropdown `Migrate System Between Organizations` and click `[Migrate System]` to initiate the migration.

Defined system details such as channel assignments, system group membership, custom data value, configuration channels, reactivation keys, and snapshots will be dropped from the system configuration after the migration.

SD Notes

This subtab provides a place to create notes about the system.

Create Note

To add a new note, click the `Create Note` link, type a subject and write your note, then click the `[Create]` button.

Modify Note

> To modify a note, click its subject in the list of notes, make your changes, and click the `[Update]` button.

Remove Note

> To remove a note, click its subject in the list of notes then click the `Delete Note` link.
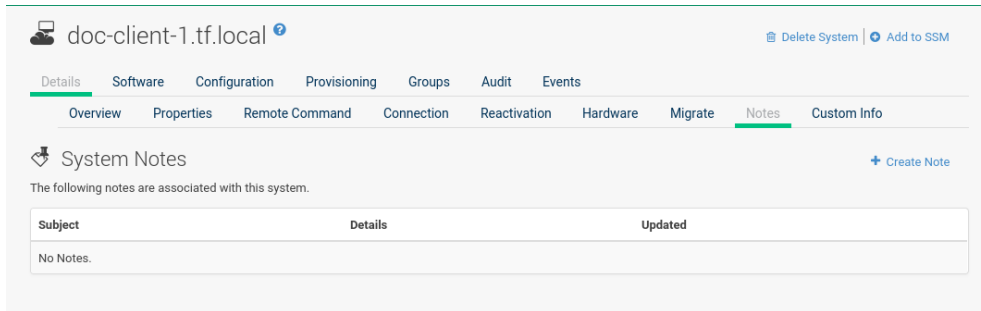
SD Custom Info

This subtab provides completely customizable information about the system. Unlike `Notes`, `Custom Info` is structured, formalized, and can be searched.

Before adding custom information about a system, you must create *Custom Information Keys* by selecting the `Custom System Information` link. Then, on the `Custom System Information` page, select the `Create Key` link.

Provide `Key Label` and `Description` and confirm with `[Create Key]`.
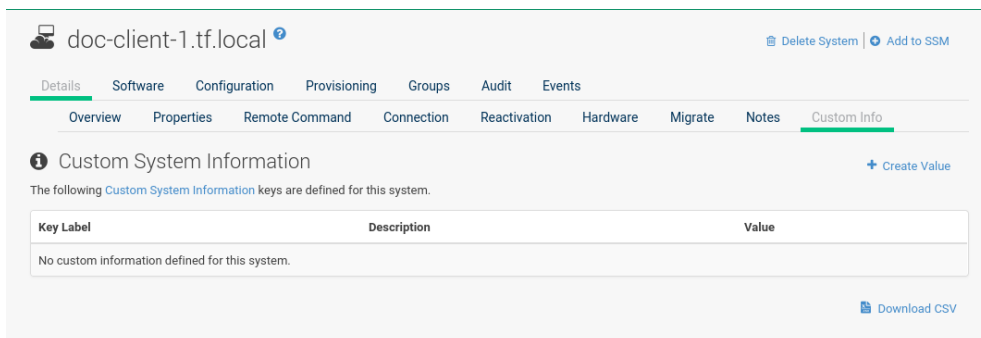
Once you have created one or more keys, you may assign values for this system by selecting the `Create Value link`. Click the name of the key in the resulting list and enter a value for it in the `Value` field, then click the `[Update Key]` button.

SD Proxy

This tab is only available for SUSE Manager Proxy systems. The tab lists all clients registered with the selected SUSE Manager Proxy server.

SD Software

This tab and its subtabs allow you to manage the software on the system: patches (errata), packages and package profiles, software channel memberships, and migrations.

SD Patches

This subtab contains a list of patch (errata) alerts applicable to the system. For the meanings of the icons used in this tab, see **[Installation › Webui-setup ›]**.
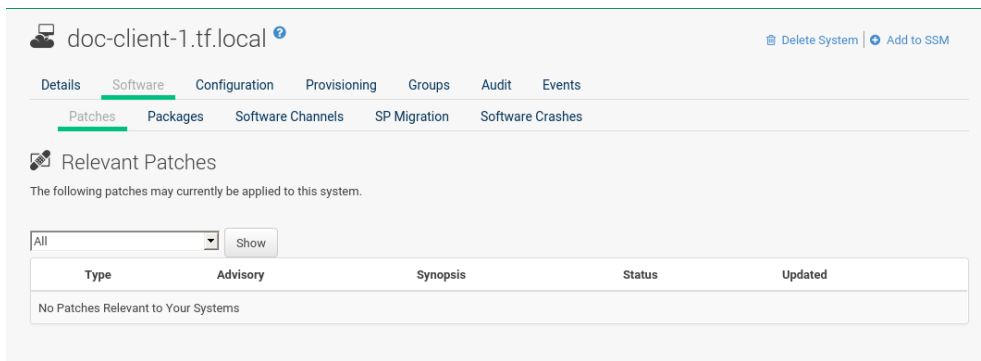
To apply updates, select them and click the `[Apply Patches]` button. Double-check the updates to be applied on the confirmation page, then click the `[Confirm]` button.

The action is added to the **Main Menu › Schedule › Pending Actions** list. Patches that have been scheduled cannot be selected for update. Instead of a check box there is a clock icon. Click the clock to see the `Action Details` page.

The `Status` column in the **System Details › Software › Patches** table shows whether an update has been scheduled. Possible values are:

- None

- Pending

- Picked Up

- Completed

- Failed

This column displays only the latest action related to a patch. For example, if an action fails and you reschedule it, this column shows the status of the patch as `Pending` with no mention of the previous failure. Clicking a status other than `None` takes you to the `Action Details` page.

SD Packages

Manage the software packages on the system. Most of the following actions can also be performed via action chains. For more about action chains, see **[Reference › Schedule ›]**.
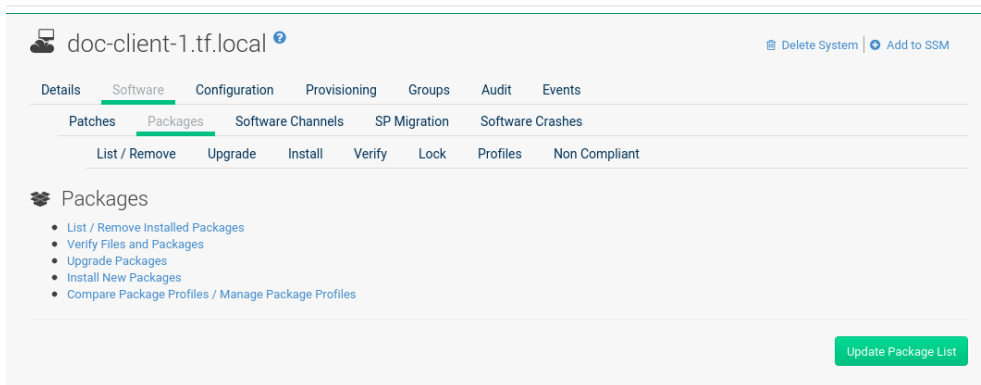
When new packages or updates are installed on the client via Uyuni, any licenses (EULAs) requiring agreement before installation are automatically accepted.

Packages

The default display of the `Packages` tab describes the options available and provides the means to update your package list. To update or complete a potentially outdated list, possibly because of the manual installation of packages, click the **[Update Package List]** button in the bottom right-hand corner of this page. The next time the system connects to Uyuni, it updates your system profile with the latest list of installed packages.

List / Remove

Lists installed packages and enables you to remove them. View and sort packages by name or the date they were installed on the system. Search for the desired packages by typing a name in the `Filter by Package Name` search field. You may also select the letter or number corresponding to the first character of the package name from the drop down selection menu. Click a package name to view its `Package Details` page. To delete packages from the system, select their check boxes and click the **[Remove Packages]** button on the bottom right-hand corner of the page. A confirmation page appears with the packages listed. Click the **[Confirm]** button to remove the packages.

Upgrade

Displays a list of packages with newer versions available in the subscribed channels. Click the latest package name to view its `Package Details` page. To upgrade packages immediately, select them and click the **[Upgrade Packages]** button. Any EULAs will be accepted automatically.

Install

Install new packages on the system from the available channels. Click the package name to view its `Package Details` page. To install packages, select them and click the **[Install Selected Packages]** button. EULAs are automatically accepted.

Verify

Validates the packages installed on the system against its RPM database. This is the equivalent of running `rpm -V`. The metadata of the system's packages are compared with information from the database, such as file checksum, file size, permissions, owner, group and type. To verify a package or packages, select them, click the **[Verify Selected Packages]** button, and confirm. When the check is finished, select this action in the `History` subtab under `Events` to see the results.

Lock

Locking a package prevents modifications like removal or update of the package. Since locking and unlocking happens via scheduling requests, locking might take effect with some delay. If an update happens before then, the lock will have no effect. Select the packages you want to lock. If locking should happen later, select the date and time above the `[Request Lock]` button, then click it. A small lock icon marks locked packages. To unlock, select the package and click `[Request Unlock]`, optionally specifying the date and time for unlocking to take effect.

> ℹ️ This feature only works if Zypper is used as the package manager. On the target machine the `zypp-plugin-spacewalk` package must be installed (version 0.9.x or higher).

Profiles

Compare installed packages with the package lists in stored profiles and other systems.

- Select a stored profile from the drop-down box and click the `[Compare]` button. To compare with packages installed on a different system, select the system from the associated drop-down box and click the `[Compare]` button.

- To create a stored profile based on the existing system, click the `[Create System Profile]` button, enter any additional information, and click the `[Create Profile]` button. These profiles are kept within the **Main menu › Systems › Stored Profiles** page.

  When installed packages have been compared with a profile, customers have the option to synchronize the selected system with the profile. All changes apply to the system not the profile. Packages might get deleted and additional packages installed on the system. To install only specific packages, click the respective check boxes in the profile. To remove specific packages installed on the system, select the check boxes of these packages showing a difference of `This System Only`.

  To completely synchronize the system's packages with the compared profile, select the master check box at the top of the column. Then click the `[Sync Packages to]` button. On the confirmation screen, review the changes, select a time frame for the action, and click the `[Schedule Sync]` button.

  You can use a stored profile as a template for the files to be installed on an autoinstalled system.

Non Compliant

Lists packages that are installed on this system and are not present in any of its channels.

SD Software Channels

Software channels provide a well-defined method to determine which packages should be available to a system for installation or upgrade based on its operating systems, installed packages, and functionality.

When a product moves out of the beta program to a released version, the repositories are updated with the new packages. However, the repository names do not change. When a beta program is released, you will need to refresh the software channels to get the updated packages. You can do this manually by running `mgr-sync refresh` and `spacewalk-repo-sync`. Alternatively, these will be run automatically by Taskomatic during the next regular refresh.

Click the chain icon right to a channel name to view its `Channel Details` page. To change the base software channel the system is subscribed to select a different base channel in the left selection box.

To modify the child channels associated with this system, in the right selection box use the check boxes left to the channel names. If you enable `include recommended`, recommended child channels are automatically selected for subscription. Starting with SUSE Linux Enterprise 15, child channels can depend on other channels—they are required. In the channel subscription you can see the dependencies by hovering with a mouse on a child channel name. Selecting a channel that depends on another channel will select this channel, too. Unselecting a channel on which some other channels depend will also unselect those channels.

When done click **[Next]** to schedule the Software Channel Change action. Then click **[Confirm]**.

Changing the Channels Is Now an Action

Since the 3.1 maintenance update (2018) changing the channels is an action that can be scheduled like any other action. Earlier channel changes were applied immediately.

For more information about channel management, see **[Reference › Software ›]**.

SD Service Pack Migration

Service Pack Migration (SP Migration) allows you to upgrade a system from one service pack to another.
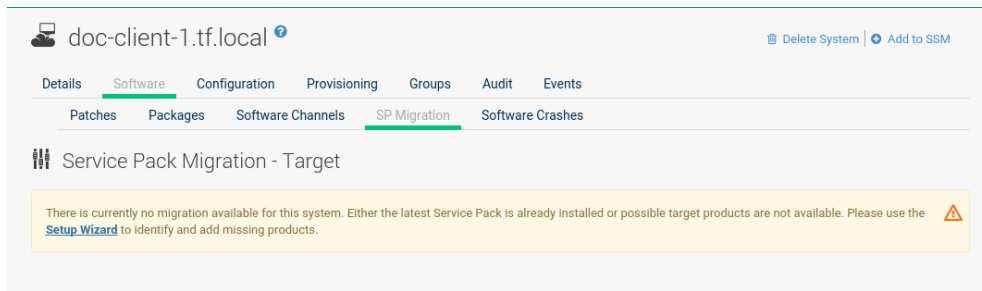
> ⚠️ During migration Uyuni automatically accepts any required licenses (EULAs) before installation.

Beginning with SLE 12 SUSE supports service pack skipping, it is now possible to migrate from for example, SLE 12 SP2 to SLE 12 SP4. Note that SLE 11 may only be migrated step by step and individual service packs should not be skipped. Supported migrations include any of the following:

- SLE 11 > SLE 11 SP1 > SLE 11 SP2 > SLE 11 SP3 > SLE 11 SP4

- SLE 12 > SLE 12 SP1 > SLE 12 SP2 > SLE 12 SP3 > SLE 12 SP4

- SLE 12 SP2 > SLE 12 SP4 (skipping SLE 12 SP3)

> ⚠️ *Migrating from an Earlier Version of SLES*
>
> It is not possible to migrate, for example, from SLE 11 to SLE 12 using this tool. You must use AutoYaST to perform a migration on this level.

> ⚠️ *Rollback Not Possible*
>
> The migration feature does not cover any rollback functionality. When the migration procedure is started, rolling back is not possible. Therefore it is recommended to have a working system backup available for an emergency.

Procedure: Performing a Migration

1. From the **Main Menu › Systems › Overview** page, select a client.

2. Select the **System Details › Software › SP Migration** tabs.

3. Select the target migration path and click `[Select Channels]`.

4. From the **System Details › Software › SP Migration › Service Pack Migration - Channels** view select the correct base channel, including `Mandatory Child Channels` and any additional `Optional Child Channels`. Select `[Schedule Migration]` when your channels have been configured properly.

SD Configuration

This tab and its subtabs assist in managing the configuration files associated with the system. On Salt based systems, these configuration files are distributed via a Configuration Channel. On traditionally managed systems, these configuration files may be managed solely for the current system or distributed widely via a Configuration Channel. The following sections describe these and other available options on the **System Details › Configuration** subtabs.

> *Required Packages (Management)*
>
> To manage the configuration of a system, it must have the latest rhncfg* packages installed. For instructions on enabling and disabling scheduled actions for a system, see **[Reference › Configuration ›]**.

This section is available to normal users with access to systems that have configuration management enabled. Like software channels, configuration channels store files to be installed on systems. While software updates are provided by SCC, configuration files are managed solely by you. Also unlike with software packages, various versions of configuration files may prove useful to a system at any time. Only the latest version can be deployed.

Configuration Overview

This subtab provides access to the configuration files of your system and to the most common tasks used to manage configuration files.

Configuration Overview

From the **System Details › Configuration › Overview**, click the Add links to add files, directories, or symbolic links. Here you also find shortcuts to perform any of the common configuration management tasks listed on the right of the screen by clicking one of the links under **System Details › Configuration › Overview › Configuration Actions**.

View/Modify Files

This subtab lists all configuration files currently associated with the system. These are sorted via subtabs in centrally and locally managed files and a local sandbox for files under development.

Using the appropriate buttons on a subtab, you can copy from one to the other subtabs.

> ℹ️ `Modify Files` is not available on Salt based systems.

Centrally-Managed Files

Centrally-managed configuration files are provided by global configuration channels. Determine which channel provides which file by examining the `Provided By` column below. Some of these centrally-managed files may be overridden by locally-managed files. Check the `Overridden By` column to find out if any files are overridden, or click `[Override this file]` to provide such an overriding file.

Locally-Managed Files [Management]

Locally-managed configuration files are useful for overriding centrally-managed configuration profiles that cause problems on particular systems. Also, locally-managed configuration files are a method by which system group administrators who do not have configuration administration privileges can manage configuration files on the machines they can manage.

Local Sandbox [Management]

In the sandbox you can store configuration files under development. You can promote files from the sandbox to a centrally-managed configuration channel using `Copy Latest to Central Channel`. After files in this sandbox have been promoted to a centrally-managed configuration

channel, you can deploy them to other systems.

Use `Copy Latest to System Channel` to install a configuration on the local system only. When done, the file will end up on the `Locally-Managed Files` subtab.
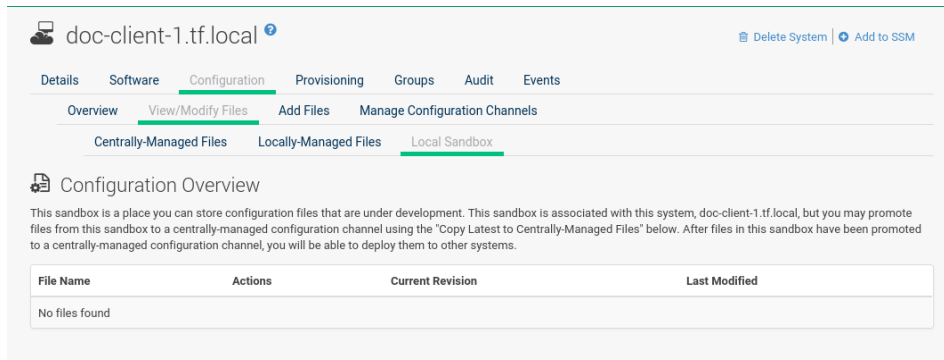
Add Files

To upload, import, or create new configuration files, open the `Add Files` subtab.

Upload File

To upload a configuration file from your local machine, browse for the upload file, specify whether it is a text or binary file, enter `Filename/Path` and user and group ownership. Specific file permissions can be set. When done, click **[Upload Configuration File]**.

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🗑 Delete System | ⊕ Add to SSM

Details   Software   Configuration   Provisioning   Groups   Audit   Events

Overview   View/Modify Files   Add Files   Manage Configuration Channels

Upload File   Create File

🖹 Upload Local File

You may upload a file from your machine below. The uploaded file will be placed in your system sandbox. If you wish to deploy this file or override config files in global channels, copy this file into your local override channel.

File to Upload *: [Choose File] No file selected

Tip: Please note that the maximum allowed size for configuration files is **128 KB**.

File Type: ⦿ Text file
⦾ Binary file

Filename/Path *: [   ]

Ownership: **User name** *: [root]

Group name *: [root]

Tip: If the user and/or group indicated here does not exist on system(s) to which this file is deployed, the deploy will fail.

File Permissions Mode *: [644]

Tip: '644' for text files and '755' for directories and executables will allow global access or execution (but not modification).

SELinux context: [   ]

Tip: Enter SELinux context like: user_u:role_r:type_t:s0-s15:c0.c1024 (Note: you don't have to enter all parts)

Macro Delimiters *: **Start Delimiter:** [{|]

End Delimiter: [|}]

Note: Macro delimiters will be ignored when deploying to systems managed via Salt.

[Upload Configuration File]

Import Files

Via the `Import Files` tab, you can add files from the system you have selected before and add it to the sandbox of this system. Files will be imported the next time `mgr_check` runs on the system. To deploy these files or override configuration files in global channels, copy this file into your local override channel after the import has occurred.

In the text box under `Import New Files` enter the full path of any files you want import into Uyuni or select deployable configuration files from the `Import Existing Files` list. When done, click `[Import Configuration Files]`.

⚠ Permission Error.

You do not have the appropriate permission set to access the requested page. You may have reached this error page in one of several ways:

1. Your login session has expired. For security reasons, SUSE Manager terminates your login session after 60 minutes of inactivity. To sign in again, click here.
2. You've found an error in our site. Please contact your Support representative with details of how you received this message.
3. Your browser does not have cookies enabled. The SUSE Manager requires cookies in order to function; if you have disabled them, please re-enable them to use the site.
4. You've done something naughty. Stop it.

Create File

Under `Create File`, you can directly create the configuration file from scratch. Select the file type, specify the path and file name, where to store the file, plus the symbolic link target file name and path. Ownership and permissions and macro delimiters need to be set. For more information on using macros, see reference:configuration/files-locally-managed.pdf.

In the `File Contents` text box, type the configuration file. Select the type of file you are creating from the drop-down box. Possible choices are Shell, Perl, Python, Ruby and XML. When done, click `[Create Configuration File]`.

Deploy Files

Under `Deploy Files` you find all files that can be deployed on the selected system.

⚠ **Permission Error.**

You do not have the appropriate permission set to access the requested page. You may have reached this error page in one of several ways:

1. Your login session has expired. For security reasons, SUSE Manager terminates your login session after 60 minutes of inactivity. To sign in again, click here.
2. You've found an error in our site. Please contact your Support representative with details of how you received this message.
3. Your browser does not have cookies enabled. The SUSE Manager requires cookies in order to function; if you have disabled them, please re-enable them to use the site.
4. You've done something naughty. Stop it.

Files from configuration channels with a higher priority take precedence over files from configuration channels with a lower priority.

Compare Files

This subtab compares a configuration file stored on the Uyuni with the file stored on the client. It does not compare versions of the same file stored in different channels.

⚠ **Permission Error.**

You do not have the appropriate permission set to access the requested page. You may have reached this error page in one of several ways:

1. Your login session has expired. For security reasons, SUSE Manager terminates your login session after 60 minutes of inactivity. To sign in again, click here.
2. You've found an error in our site. Please contact your Support representative with details of how you received this message.
3. Your browser does not have cookies enabled. The SUSE Manager requires cookies in order to function; if you have disabled them, please re-enable them to use the site.
4. You've done something naughty. Stop it.

Select the files to be compared, click the `[Compare Files]` button, select a time to perform the diff, and click the `[Schedule Compare]` button to confirm.

For more on how to watch progress, see **[Reference › Systems ›]**. After the diff has been performed, go to `Recent Events` in **[Reference › Systems ›]** to see the results.

Manage Configuration Channels

This subtab allows you to subscribe to and rank configuration channels associated with the system, lowest first.

🖥 doc-client-1.tf.local ⊘   🗑 Delete System | ⊕ Add to SSM

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

| Overview | View/Modify Files | Add Files | Manage Configuration Channels |

| List/Unsubscribe from Channels | Subscribe to Channels | View/Modify Rankings |

🎛 Configuration Channels

Below are all the centrally-managed configuration channels to which this system is subscribed. They are in priority order with the highest-ranked channels appearing first in the list.

No configuration channels. To subscribe this system to a configuration channel, please visit the Subscribe to Channels tab.   ⚠

* - **Note:** Deployable Files are files in a configuration channel that are not outranked by files in greater priority configuration channels nor overridden by files in the systems local configuration channel.

The `List/Unsubscribe from Channels` subtab contains a list of the system's configuration channel subscriptions. Click the check box next to the Channel and click `Unsubscribe` to remove the subscription to the channel.

The `Subscribe to Channels` subtab lists all available configuration channels. To subscribe to a channel, select the check box next to it and click `[Continue]`. To subscribe to all configuration channels, click `Select All` and click `[Continue]`. The `View/Modify Rankings` page automatically loads.

The `View/Modify Rankings` subtab allows users to set the priority with which files from a particular configuration channel are ranked. The higher the channel is on the list, the more its files take precedence over files on lower-ranked channels. For example, the higher-ranked channel may have an `httpd.conf` file that will take precedence over the same file in a lower-ranked channel.

SD Provisioning

Provisioning Overview

The `Provisioning` tab and its subtabs allow you to schedule and monitor AutoYaST or Kickstart installations and to restore a system to its previous state.

> *Available for Clients Using the "Traditional" Method*
>
> The note `Provisioning` tab will be available when adding a client using the "traditional" method (system type `management`). Using Salt the `Provisioning` tab will not be available (system type `salt`).

AutoYaST is a SUSE Linux Enterprise and Kickstart is a Red Hat utility-both allow you to automate the reinstallation of a system. Snapshot rollbacks provide the ability to revert certain changes on the system. You can roll back a set of RPM packages, but rolling back across multiple update levels is not supported. Both features are described in the sections that follow.

Autoinstallation

The `Schedule` subtab allows you to configure and schedule an autoinstallation for this system. For background information about autoinstallation, see **[Reference › Systems ›]**.

No profiles found that are compatible with this System. Either you haven't created any Autoinstallation Profiles or this system does not have a Base Channel.

🖥 doc-client-1.tf.local ❓   🗑 Delete System | ⊕ Add to SSM

Details   Software   Configuration   Provisioning   Groups   Audit   Events

Autoinstallation   Power Management   Snapshots   Snapshot Tags

Schedule

🚀 Schedule Autoinstallation

You can schedule this system for an autoinstallation action. This will re-install this system using the selected autoinstallation options.

Select Autoinstallation Profile

Please select the autoinstallation profile you'd like to use to autoinstall this system:

Autoinstallation Profile	Distribution	SUSE Manager-managed?*
No profiles currently available for autoinstallation. Please create a new kickstart profile.		

Tip: * - Profiles that are not SUSE Manager-managed are not guaranteed to register systems to SUSE Manager after autoinstallation. You may wish to review these autoinstallations (click on the profile name to do so) to confirm whether or not your system will reappear in the SUSE Manager system list after autoinstallation.

🌐 Select SUSE Manager Proxy

You may choose to use an SUSE Manager Proxy to access the files necessary for autoinstallation. This system will be registered to the SUSE Manager Proxy selected below after its autoinstallation has completed.

◉ **Do not use an SUSE Manager Proxy**
○ **doc-proxy2.tf.local (2018-06-05 14:37:23)**
○ **doc-proxy1.tf.local (2018-06-05 18:00:38)**

Tip: Date listed is last time proxy contacted SUSE Manager.

In the `Schedule` subtab, schedule the selected system for autoinstallation. Choose from the list of available profiles.

ℹ️ You must create a profile before it appears on this subtab. For more information about profiles, see **[Reference › Systems ›]**.

To alter autoinstallation settings, click the **[Advanced Configuration]** button. Configure the network connection and post-installation networking information. You can aggregate multiple network interfaces into a single logical "bonded" interface. In `Kernel Options` specify kernel options to be used during autoinstallation. `Post Kernel Options` are used after the installation is complete and the system is booting for the first time. Configure package profile synchronization.

Select a time for the autoinstallation to begin and click **[Schedule Autoinstall and Finish]** for all changes to take effect and to schedule the autoinstallation.

Alternatively, click `Create PXE Installation Configuration` to create a Cobbler system record. The selected autoinstallation profile will be used to automatically install the configured distribution next time that particular system boots from PXE. In this case Uyuni and its network must be properly configured to allow boot using PXE.

ℹ️ Any settings changed on the `Advanced Configuration` page will be ignored when creating a PXE installation configuration for Cobbler.

The `Variables` subtab can be used to create Kickstart variables, which substitute values in Kickstart files. To define a variable, create a name-value pair (`name/value`) in the text box.

For example, to Kickstart a system that joins the network of a specific organization (for example the

Engineering department) you can create a profile variable to set the IP address and the gateway server address to a variable that any system using that profile will use. Add the following line to the `Variables` text box:

```
IPADDR=192.168.0.28
GATEWAY=192.168.0.1
```

To use the system variable, use the name of the variable in the profile instead of the value. For example, the `network` portion of a Kickstart file could look like the following:

```
network --bootproto=static --device=eth0 --onboot=on --ip=$IPADDR \
  --gateway=$GATEWAY
```

The `$IPADDR` will be `192.168.0.28`, and the `$GATEWAY` will be `192.168.0.1`.

> There is a hierarchy when creating and using variables in Kickstart files. System Kickstart variables take precedence over profile variables, which in turn take precedence over distribution variables. Understanding this hierarchy can alleviate confusion when using variables in Kickstart.

Using variables are one part of the larger Cobbler infrastructure for creating templates that can be shared between multiple profiles and systems. For more information about Cobbler and Kickstart templates, see **[Client-configuration › Cobbler ›]**.

Power Management

Uyuni allows you to power on, off, and reboot systems via the IPMI protocol if the systems are IPMI-enabled.

You need a fully patched Uyuni installation. To use any power management functionality, IPMI configuration details must be added to Uyuni. First select the target system on the systems list, then select **Provisioning › Power Management**. On the displayed configuration page, edit all required fields (marked with a red asterisk) and click **[Save only]**.

Systems can be powered on, off, or rebooted from the configuration page via corresponding buttons. Note that any configuration change is also saved in the process. The **[Get Status]** button can be used to query for the system's power state. If configuration details are correct, a row is displayed with the current power status ("on" or "off"). If a power management operation succeeds on a system, it will also be noted in its **System Details › Events › History** subtab.

Power management functionalities can also be used from the system set manager to operate on multiple systems at the same time. Specifically, you can change power management configuration parameters or apply operations (power on, off, reboot) to multiple systems at once:

1. Add the respective systems to the system set manager. For more information, see **[Reference › Systems ›]**.

2. Select systems on the **Main Menu › Systems › Overview**, then **Main Menu › System Set Manager › Provisioning › Power Management Configuration** to change one or more configuration parameters for all systems in the set. Note that any field left blank will not alter the configuration parameter in selected systems.

3. When all configuration parameters are set correctly, click **Main Menu › Systems › System Set Manager › Provisioning › Power Management Operations** to power on, off or reboot systems from the set.

To check that a power operation was executed correctly, click **Main Menu › Systems › System Set Manager › Status**, then click the proper line in the list. This will display a new list with systems to which the operation was applied. If errors prevent correct execution, a brief message with an explanation will be displayed in the `Note` column.

This feature uses Cobbler power management, thus a Cobbler system record is automatically created at first use if it does not exist already. In that case, the automatically created system record will not be bootable from the network and will reference a dummy image. This is needed because Cobbler does not currently support system records without profiles or images. The current implementation of Cobbler power management uses the fence-agent tools to support multiple protocols besides IPMI. Those are not supported by Uyuni but can be used by adding the fence agent names as a comma-separated list to the `java.power_management.types` configuration parameter.

Snapshots Overview

Snapshots enable you to roll back the system's package profile, configuration files, and Uyuni settings.

Snapshots are always captured automatically after an action takes place. The `Snapshots` subtab lists all snapshots for the system, including the reason the snapshot was taken, the time it was taken, and the number of tags applied to each snapshot.

> *Technical Details*
>
> - A snapshot is always taken *after* a successful operation and not before, as you might expect. One consequence of taking snapshots after the action is that, to undo action number X, then you must roll back to the snapshot number X-1.
>
> - It is possible to disable snapshotting globally (in `rhn.conf` set `enable_snapshots = 0`), but it is enabled by default. No further fine tuning is possible.

To revert to a previous configuration, click the `Reason` for the snapshot and review the potential changes on the provided subtabs, starting with `Rollback`.

Unsupported Rollback Scenarios

Snapshot roll backs support the ability to revert *certain* changes to the system, but not in every scenario. For example, you can roll back a set of RPM packages, but rolling back across multiple update levels is not supported.

Rolling back an SP migration is also not supported.

Each subtab provides the specific changes that will be made to the system during the rollback:

- group memberships,
- channel subscriptions,
- installed packages,
- configuration channel subscriptions,
- configuration files,
- snapshot tags.

When satisfied with the reversion, return to the `Rollback` subtab and click the `[Rollback to Snapshot]` button. To see the list again, click `[Return to snapshot list]`.

Background Information About Snapshots

There is no maximum number of snapshots that Uyuni will keep, thus related database tables will grow with system count, package count, channel count, and the number of configuration changes over time. Installations with more than a thousand systems should consider setting up a recurring cleanup script via the API or disabling this feature altogether.

There is currently no integrated support for "rotated snapshots".

Snapshot rollback gets scheduled like any other action, this means the rollback usually does not happen immediately.

Snapshot Tags

Snapshot tags provide a means to add meaningful descriptions to your most recent system snapshot. This can be used to indicate milestones, such as a known working configuration or a successful upgrade.

To tag the most recent snapshot, click `Create System Tag`, enter a descriptive term in the `Tag name`, and click the `[Tag Current Snapshot]` button. You may then revert using this tag directly by clicking its name in the Snapshot Tags list. To delete tags, select their check boxes, click `Remove Tags`, and confirm the action.

SD Groups

The `Groups` tab and its subtabs allow you to manage the system's group memberships.

List/Leave

This subtab lists groups to which the system belongs and enables you to cancel membership.
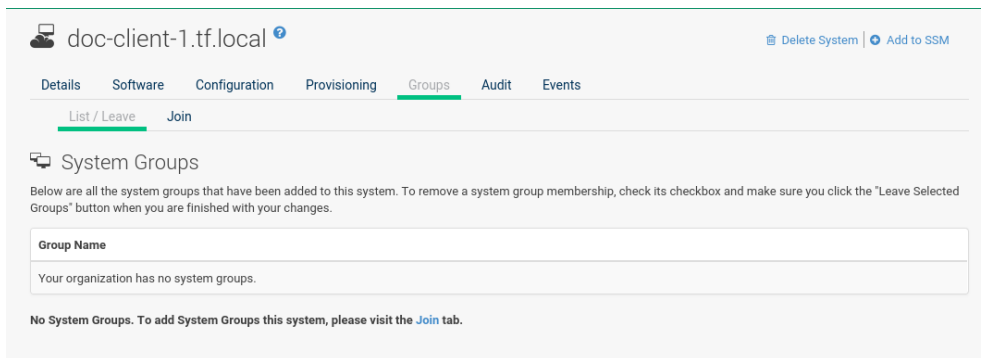
Only System Group Administrators and Uyuni Administrators can remove systems from groups. Non-admins see a `Review this system's group membership` page. To remove the system from one or more groups, select the respective check boxes of these groups and click the `[Leave Selected Groups]` button. To see the `System Group Details` page, click the group's name. For more about system groups, see **[Reference › Systems ›]**.

Join

Lists groups that the system can be subscribed to.
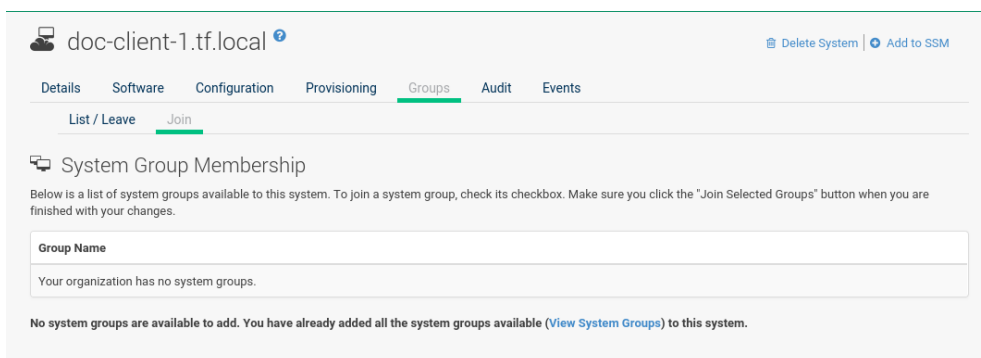
Only System Group Administrators and Uyuni Administrators can add a system to groups.

Non-admins see a `Review this system's group membership` page. To add the system to groups, select the groups' check boxes and click the `[Join Selected Groups]` button.

SD Virtualization

This tab allows you to create new virtual guests, apply images on a traditionally managed host system, or change the status of virtual guests. You can also list and manage the storage pools that are used for the virtual machines.

The `Virtualization` tab has one subtab, `Guests`. For traditional systems that have Virtualization entitlements, you will also see two additional subtabs for `Provisioning`, and `Deployment`. For Salt clients, you will also see a `Storage` subtab. These tabs appear only for systems having the Virtualization entitlement. It is not possible to create a guest system that runs on another guest system.

Guests

`Guests` is the default virtualization tab. It presents a table of the host system's virtual guests. For each guest system, the following information is provided:

`Status`

    This field indicates whether the virtual system is running, paused, stopped, or has crashed.

`Updates`

    This field indicates whether patches (errata) applicable to the guest have yet to be applied.

`Base Software Channel`

    This field indicates the Base Channel to which the guest is subscribed.

> If a guest system has not registered with Uyuni, this information appears as plain text in the table.

`Actions`

    This field contains the possible actions for the guest. These are depending on the virtual guest status, they may not refresh instantaneously when running a Start, Stop, Suspend, Resume action. The

[Edit] button allows changing virtual guest properties, including the amount of allocated memory and virtual CPUs.

The **[Graphical Console]** button opens the Spice or VNC display in a new tab.

If you have System Group Administrator responsibilities assigned for your guest systems, a user might see the message You do not have permission to access this system in the table. This is because it is possible to assign virtual guests on a single host to multiple System Group Administrators. Only users that have System Group Administrator privileges on the host system may create new virtual guests.

For Salt systems, the **[Create Guest]** button shows a dialog to configure and create a new virtual machine.

Editing a Virtual Machine

> Traditional systems can only edit CPU and memory allocation.

The fields in this dialog are grouped into several panels. The General panel contains the CPU and memory fields. The Disks and Network Interfaces panels list the fields corresponding to the matching devices of the virtal machine. The Graphics panel allows configuring the display of the virtual machine. The Schedule panel helps configuring when the edit should take place by choosing either an earliest time or an action chain to append to.

> If a guest contains one or more disks or network interfaces not recognized by SUSE Manager, you will not be able to edit the configuration. This prevents any possibility of SUSE Manager destroying the setup because of an unhandled type.

The order of the disks is important: the disk naming will be computed from it. This means that the first virtio disk will be named 'vda', the second will be named 'vdb' and so on.

When clicking the **[+]** in the Disks (or Network Interfaces) panel header, a new disk (or network interface) will be appended to the list. Likewise, clicking the **[-]** button next to a disk or interface will remove it. The default size for a new disk is 8[nbsp]GB. The Source image template URL field contains the URL to a disk image to be copied and used for the virtual machine.

Click the **[Update]** button to apply the changes.

Creating a virtual machine [Salt]

To create a new virtual machine, the process is similar to editing, but there are some additional fields:

The Name field defining the name of the virtual machine to create. The Hypervisor field to allow choosing among the available hypervisors of the host. The Virtual Machine Type to choose between fully virtualized and para-virtualized virtual machines if applicable. The Architecture to select the emulated CPU architecture, the default being the virtual host one.

By default a disk and a network interfaces are added. The only required value to set is the disk `Source template image URL` or the virtual machine will only have an empty disk.

The new virtual machine will start immediately after it has been defined.

Display a virtual machine graphical console [Salt]

The virtual machine graphical console might prompt you for a password. This password is the Spice or VNC one.

For the Spice display to be adjusted to the window, the Spice VD agent needs to be installed within the virtual machine.

Deployment [Management]

In the **System Details › Virtualization** tab of a traditionally registered bare-metal machine, there is a **System Details › Virtualization › Deployment** subtab. This form expects a URL to a `qcow2` type of image and some other parameters allowing the user to schedule the deployment of that image.

When the deploment scheduled it is listed as an action on the **Main Menu › Schedule › Pending Actions**.

Storage for Salt Clients

The `Storage` tab shows a tree list of the virtual storage pools and volumes that are defined on the virtual host. The first level of the tree is the list of storage pools and all items contained in them are volumes. Expand the pools to show the volumes.

[system details salt virtual pools] | *modules/reference/assets/images/system_details_salt_virtual_pools.png*

Each pool shows:

Status

The pool is either running or stopped.

Autostart

The pool starts automatically when the virtual host boots.

Persistent

The pool will be kept after being stopped.

Location

The target path of the storage pool. Note that some pool types don't have an associated path.

Usage

The disk usage of the pool. Shows Unknown if the pool is not running.

Each volume shows:

- The name of the virtual machines using the volume. Some pool types will not provide this list.

- The disk usage of the volume.

Refreshing a pool

The libvirt service does not automatically update the pool usage and contents statistics. Refresh the pool to see updated usage statistics, or to see a volume that has been created outside of Uyuni. Click the Refresh button to schedule a refresh of the pool.

Procedure: Creating a Pool

1. Click **[Create Pool]**

2. This opens a new page with a form to define the pool.

3. In the name field, type a name for the new pool.

4. In the type field, select the type of the pool. The list of available types depends on the virtual host setup.

5. Check the Start during virtual host boot field, to start the pool automatically when the virtual host boots.

6. OPTIONAL: In the Earliest field, you can set the earliest time the pool creation action should be scheduled.

7. OPTIONAL: In the Add to field, you can select a new or existing action chain to add the pool creation action to.

8. The `Source` section contains data about the device holding the pool.

9. The `Target` section contains data about where to find the pool on the virtual host.

Source Fields

Device path

Path to a device containing the pool data

Partition separator

Use `'p'` as a partition separator in the path name.

Format

Select the format of the pool source. The available values depend on the pool type.

Host name

IP or FQDN of the remote machine providing access to the pool.

Port

Port of the remote machine providing access to the pool.

iSCSI Qualified Name

Qualified name of the iSCSI target.

IQN Initiator

iSCSI qualified name of the initiator to connect to.

Username

Username to use to connect to remote storage.

Passphrase

Password to use to connect to remote storage. For RBD pools, this is the base64 encoded key.

Source name

Name of the storage pool source.

Directory

Path to the directory of the pool.

Subdirectory

Absolute path relative to the Gluster volume to use.

Adapter type

The controller type, either `fc_host` or `scsi_host`.

Adapter name

SCSI adapter name for `scsi_host` controller.

Adapter parent PCI address

PCI address of the SCSI host in `0000:00:00.0` format. List options with `lsscsi -v`.

Adapter parent address unique ID

Unique ID of the SCSI host as found in `/sys/class/scsi_host/host*/unique_id` file.

Adapter parent name

Name of the vport capable parent SCSI host of the virtual Host Bus Adapter (vHBA).

Adapter parent wwnn

World Wide Node Name used by the `fc_host` to identify the vHBA parent device.

Adapter parent wwpn

World Wide Port Name used by the `fc_host` to identify the vHBA parent device.

Adapter parent fabric wwn

Fabric WWN of the vHBA parent device.

Adapter wwnn

World Wide Node Name used by the `fc_host` to identify the vHBA device.

Adapter wwpn

World Wide Port Name used by the `fc_host` to identify the vHBA device.

Manage vHBA deletion

If checked the vHBA will be destroyed with the pool is destroyed. This property will be automatically activated if there is no existing vHBA.

Target fields

Path

Path to the storage pool mount or device on the virtual host.

Owner ID

ID of the user owning the path folder or file.

Group ID

ID of the group owning the path folder or file.

Permission mode

Octal representation of the permissions to set on the path folder or file.

SELinux label

SELinux label to set on the path folder or file.

Editing a pool

To edit the properties of a storage pool, locate the pool in the list and click `Edit pool`.

Deleting a Pool

To delete a storage pool, locate the pool in the list and click `Delete`. By default, deleting a pool only removes the storage pool definition. The pool data is kept on disk. To delete the pool data as well as the storage pool definition, check the `Delete the pool, including the contained volumes` box before you click `Delete`.

Some pool types will not allow you to delete the volumes or the pool.

Deleting a Volume

To delete a storage volume, locate the volume in the tree and click `Delete` on its row.

Some pool types will not allow you to delete volumes.

SD Audit [Management]

Via the `Audit` tab, view OpenSCAP scan results or schedule scans. For more information on auditing and OpenSCAP, see **[Reference › Audit ›]**.

SD States

Overview of `States` subtabs.

The following subtabs are only available for Salt minions.

Packages

`Search and install` packages then assign them with a pre-defined state for a selected machine.

Here you can search for a specific package, for example vim. Then with the drop-down box activate `Unmanaged`, `Installed`, or `Removed`. Select `Latest` or `Any` from the drop-down box. `Latest` applies the latest package version available while `Any` applies the package version required to fulfil dependencies. Click the `[Save]` button to save changes to the database, then click `[Apply]` to apply the new package state.

Custom

States which have been created on the `States Catalog` page located under **Main Menu › Salt** may be assigned to a system on the `Custom` page.

🖥 doc-test

🗑 Delete Group | ↩ Work With Group

Details   Systems   Target Systems   Patches   Admins   States   Formulas

Highstate   Configuration Channels

📦 Configuration Channels

Apply

Search   Changes   System

| Search in configuration channels | Search |

Channel Name	Channel Label	Assign
No states assigned. Use search to find and assign states.		

Search for the custom state you want to apply to the system then select the `Assign` check box.

Click `[Save]` to save the change to the database finally select `[Apply]` to apply the changes. States applied at the system level will only be applied to the selected system.

Highstate

From the `Highstate` page you can view and apply the highstate for a selected system.

Select the `[Test mode]` toggle to test the highstate before applying it.

Using Test mode

1. Select the toggle `[Test mode]`.

2. Select `[Apply Highstate]`.

3. You will see the message:

   ```
   Applying the highstate has been scheduled.
   ```

4. Select `scheduled` to see the results of the test.
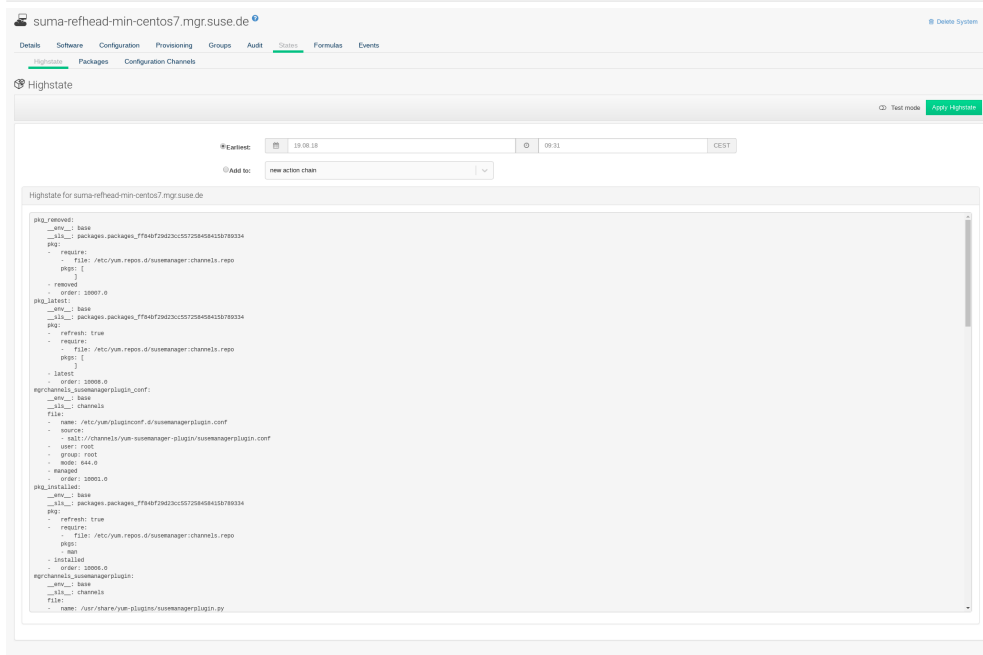
Select a date and time to apply the highstate. Then click **[Apply Highstate]**.

SD Formulas

This is a feature preview. On the Formualas page you can select Salt formulas for this system.

This allows you to automatically install and configure software.

Installed formulas are listed. Select from the listing by clicking the check box to the left. Then confirm with the **[Save]** button on the right. When done, additional subtabs appear where you can configure the formulas.

For more information about formulas, see **[Salt › Formulas-intro ›]**.

SD Events

The Events page displays past, current, and scheduled actions on the system. You may cancel pending events here. The following sections describe the Events subtabs and the features they offer.

Pending

Lists events that are scheduled but have not started.

A prerequisite action must complete successfully before the given action is attempted. If an action has a prerequisite, no check box is available to cancel that action. Instead, a check box appears next to the prerequisite action; canceling the prerequisite action causes the action in question to fail.

Actions can be chained so that action 'a' requires action 'b' which requires action 'c'. Action 'c' is performed first and has a check box next to it until it is completed successfully. If any action in the chain fails, the remaining actions also fail. To unschedule a pending event, select the event and click the `[Cancel Selected Events]` button. The following icons indicate the type of events:

- · — Package Event,
- ˊ — Patch Event,
- · — Preferences Event,
- · — System Event.

History

The default display of the `Events` tab lists the type and status of events that have failed, occurred or are occurring.
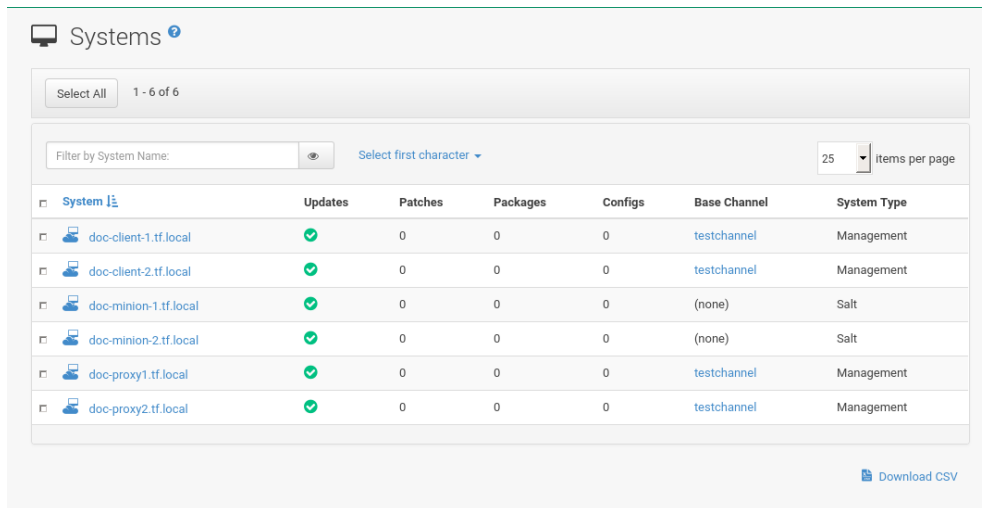
To view details of an event, click its summary in the `System History` list. To go back to the table again, click `[Return to history list]` at the bottom of the page.

Systems List

Pages with various lists of system groupings.

All

The **Systems › Systems › All** page contains the default set of your systems. It displays every system you have permission to manage. You have permission if you are the only user in your organization, if you are a Uyuni Administrator, or if the system belongs to a group for which you have admin rights.

Physical Systems

To reach this page, select **Systems › Systems › Physical Systems** from the left bar. This page lists each physical system of which Uyuni is aware.

Virtual Systems

To reach this page, select **Systems › Systems › Virtual Systems** from the left bar. This page lists each virtual host of which Uyuni is aware and the guest systems on those hosts.

	System	Updates	Status	Base Software Channel
☐	▪ Host: (Unknown Host)			
☐	⌐ doc-minion-1.tf.local	✅	Running	(none)
☐	▪ Host: (Unknown Host)			
☐	⌐ doc-client-1.tf.local	✅	Unknown	testchannel
☐	▪ Host: (Unknown Host)			
☐	⌐ doc-minion-2.tf.local	✅	Running	(none)
☐	▪ Host: (Unknown Host)			
☐	⌐ doc-proxy1.tf.local	✅	Unknown	testchannel
☐	▪ Host: (Unknown Host)			
☐	⌐ doc-proxy2.tf.local	✅	Unknown	testchannel
☐	▪ Host: (Unknown Host)			
☐	⌐ doc-client-2.tf.local	✅	Unknown	testchannel

Virtual Systems ❔

Select All   Add Selected to SSM   1 - 12 of 12

Filter by System Name: [   ] 👁   25 ▾ items per page

📄 Download CSV

System

> This column displays the name of each guest system.

Updates

> This column shows whether there are patches (errata updates) available for the guest systems that have not yet been applied.

Status

> This column indicates whether a guest is running, paused, or stopped.

Base Channel

> This column displays the base channel to which the guest is currently subscribed.

Only guests registered with Uyuni are displayed with blue text. Clicking the host name of such a guest system displays its `System Details` page.

Unprovisioned Systems

Here, all unprovisioned (bare-metal) systems with hardware details are listed. For more information, see [**Reference › Admin ›]**.

Unprovisioned Systems ❔

System	Detected on	Number of CPUs	Clock frequency	RAM	Number of disks	MAC Address(es)
No systems.						

📄 Download CSV

Out of Date

The **Systems › Systems › Out of Date** page displays all systems where applicable patch alerts have not been applied.

System	Updates	Patches	Packages	Configs	Base Channel	System Type

🖥 Out of Date Systems ❔

No systems.

📄 Download CSV

Requiring Reboot

The **Systems › Systems › Requiring Reboot** page displays all systems that need to be rebooted. Click a system name to go to the systems details page to schedule a reboot.

🖥 Systems Requiring Reboot ❔

System	Updates	Patches	Packages	Configs	Base Channel	System Type

No systems.

📄 Download CSV
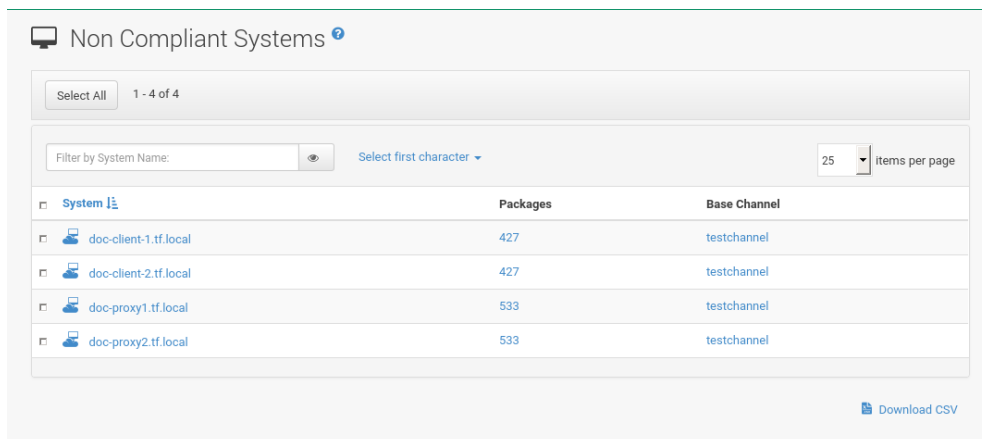
Non-compliant Systems

Non-compliant systems have packages installed which are not available from Uyuni. The `Packages` column shows how many installed packages are not available in the channels assigned to the system. A non-compliant system cannot be reinstalled.

🖥 Non Compliant Systems ❔

Select All   1 - 4 of 4

Filter by System Name: 👁   Select first character ▾   25 ▾ items per page

☐ System ⬇	Packages	Base Channel
☐ 🖥 doc-client-1.tf.local	427	testchannel
☐ 🖥 doc-client-2.tf.local	427	testchannel
☐ 🖥 doc-proxy1.tf.local	533	testchannel
☐ 🖥 doc-proxy2.tf.local	533	testchannel

📄 Download CSV

Without System Type

The **Systems › Systems › Without System Type** page displays systems without a System Type. System types are:

- Salt

- Management

- Foreign Host

🖥 Systems without System Type ❓

System	Updates	Patches	Packages	Configs	Base Channel	System Type
No systems.						

📄 Download CSV

Ungrouped

The **Systems › Systems › Ungrouped** page displays systems that have not yet been assigned to a system group.

🖥 Ungrouped Systems ❓

Select All   1 - 6 of 6

Filter by System Name: 👁   Select first character ⏷   25 ⏷ items per page

☐ System ↓≡	Updates	Patches	Packages	Configs	Base Channel	System Type
☐ 🖥 doc-client-1.tf.local	✅	0	0	0	testchannel	Management
☐ 🖥 doc-client-2.tf.local	✅	0	0	0	testchannel	Management
☐ 🖥 doc-minion-1.tf.local	✅	0	0	0	(none)	Salt
☐ 🖥 doc-minion-2.tf.local	✅	0	0	0	(none)	Salt
☐ 🖥 doc-proxy1.tf.local	✅	0	0	0	testchannel	Management
☐ 🖥 doc-proxy2.tf.local	✅	0	0	0	testchannel	Management

📄 Download CSV

Inactive

The **Systems › Systems › Inactive Systems** page displays systems that have not checked in with Uyuni for 24 hours or more.

🖥 Inactive Systems ❓

System	Updates	Patches	Packages	Configs	Last Checked in	Base Channel	System Type
No systems.							

📄 Download CSV

On traditional clients, checking in is performed periodically by client tools (specifically `mgr_check`) - client systems connect to Uyuni to see if there are any updates available or if any actions have been scheduled. For Salt systems, a Taskomatic job checks on the clients periodically by pinging them when otherwise inactive. If you see a message telling you that check-ins are not taking place, the system is not successfully connecting to Uyuni.
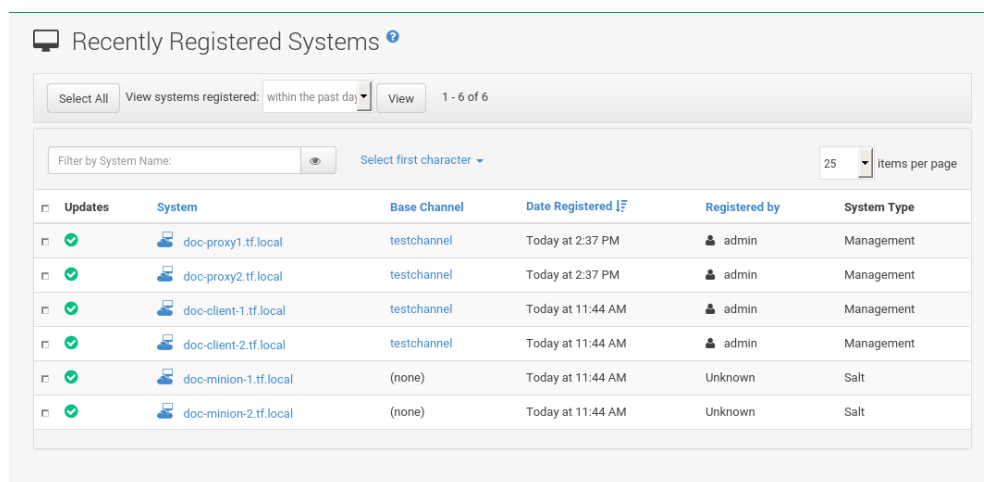
The reason may be one of the following:

- The system is not entitled to any Uyuni service. System profiles that remain unentitled for 180 days (6 months) are removed.

- The system is entitled, but `rhnsd` has been disabled on the traditional client. For more on restarting and troubleshooting, see **[Client-configuration › Contact-methods-intro ›]**.

- The system is behind a firewall that does not allow connections over `https` (port 443).

- The system is behind an HTTP proxy server that has not been properly configured.

- The system is connected to a Uyuni Proxy Server or Uyuni that has not been properly configured.

- The system itself has not been properly configured, perhaps pointing at the wrong Uyuni Server.

- The system is not in the network.

- Some other barrier exists between the system and the Uyuni Server.

- For Salt clients, Taskomatic might not be operational.

Recently Registered
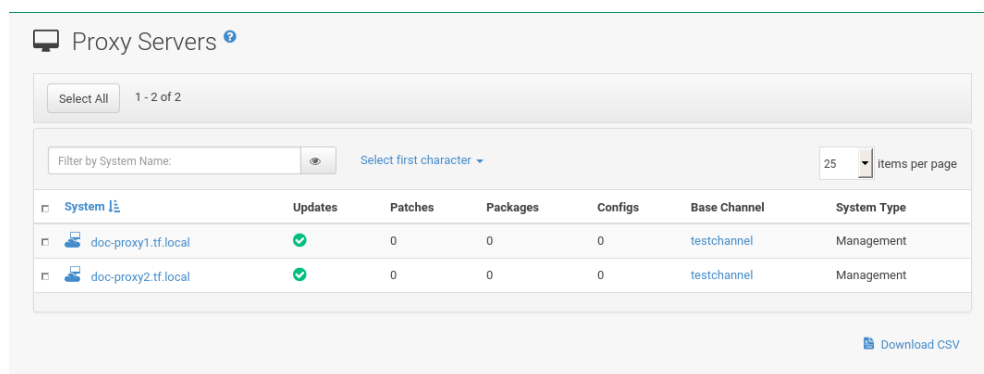
The **Systems › Systems › Recently Registered** page displays any systems that have been registered in a given period. Use the drop-down box to specify the period in days, weeks, 30- and 180-day increments, and years.

Proxy

The **Systems › Systems › Proxy** page displays the Uyuni Proxy Server systems registered with your Uyuni server.

Duplicate Systems

The **Systems › Systems › Duplicate Systems** page lists current systems and any active and inactive entitlements associated with them.

Active entitlements are in gray, while inactive entitlements are highlighted in yellow and their check boxes checked by default for you to delete them as needed by clicking the **[Delete Selected]** button. Entitlements are inactive if the system has not checked in with Uyuni in a time specified via the drop-down box **[A system profile is inactive if its system has not checked in for:]**.

You can filter duplicate entitlements by clicking the respective tab:

- **Duplicate Systems › IP Address**
- **Duplicate Systems › IPv6 Address**
- **Duplicate Systems › Hostname**
- **Duplicate Systems › MAC address**

You may filter further by inactive time or typing the system's host name, IP address, IPv6 address, or MAC address in the corresponding `Filter by` text box.

To compare up to three duplicate entitlements at one time, click the `Compare Systems` link in the `Last Checked In` column. Inactive components of the systems are highlighted in yellow.

You can determine which systems are inactive or duplicate and delete them by clicking the **[Delete System Profile]** button.

Click the **[Confirm Deletion]** button to confirm your choice.

System Currency

The System Currency Report displays an overview of severity scores of patches relevant to the system. The weighting is defined any systems, `System Details` page. The default weight awards critical security patches with the heaviest weight and enhancements with the lowest. The report can be used to prioritize maintenance actions on the systems registered to Uyuni.

System Currency Report [?]

1 - 6 of 6

| Filter by System Name: | 👁 | Select first character ▾ | | | | 25 ▾ | Items per page |

System	Security (Critical)	Security (Important)	Security (Moderate)	Security (Low)	Bug Fixes	Enhancements	Score ↓≡
🖥 doc-client-1.tf.local	0	0	0	0	0	0	0
🖥 doc-client-2.tf.local	0	0	0	0	0	0	0
🖥 doc-minion-1.tf.local	0	0	0	0	0	0	0
🖥 doc-minion-2.tf.local	0	0	0	0	0	0	0
🖥 doc-proxy1.tf.local	0	0	0	0	0	0	0
🖥 doc-proxy2.tf.local	0	0	0	0	0	0	0

📄 Download CSV

System Types

System Types define the set of functionalities available for each system in Uyuni such as the ability of installing software or creating guest virtual machines.

System Types [?]

System Types define the set of functionalities available for each system in SUSE Manager such as the ability of installing software or creating guest virtual machines.

A list of your profiled systems follows, with their base and add-on system types shown in the appropriate columns. To change system types, select the systems you wish to modify, and choose the appropriate action below.

1 - 6 of 6 (0 selected)

| Filter by System: | 👁 | | | |

	Updates	System	Base System Type	Add-On System Type	Base Channel
☐	✅	doc-client-1.tf.local	Management	*(none)*	testchannel
☐	✅	doc-client-2.tf.local	Management	*(none)*	testchannel
☐	✅	doc-minion-1.tf.local	Salt	*(none)*	(none)
☐	✅	doc-minion-2.tf.local	Salt	*(none)*	(none)
☐	✅	doc-proxy1.tf.local	Management	*(none)*	testchannel
☐	✅	doc-proxy2.tf.local	Management	*(none)*	testchannel

Select All

1 - 6 of 6 (0 selected)

| Add-On System Type | | Container Build Host ▾ | Add System Type | Remove System Type |

System Type Counts

Base System Types	
Salt:	2 system(s).
Management:	4 system(s).
Bootstrap:	0 system(s).
Foreign:	0 system(s).

Add-On System Type	
Virtualization Host:	0 system(s).
Container Build Host:	0 system(s).

A list of profiled systems follows, with their base and add-on system types shown in the appropriate columns. To change system types, select the systems you want to modify, and click either the `[Add System Type]` or `[Remove System Type]` button.

System Groups

The `System Groups` page allows Uyuni users to view the `System Groups` list.
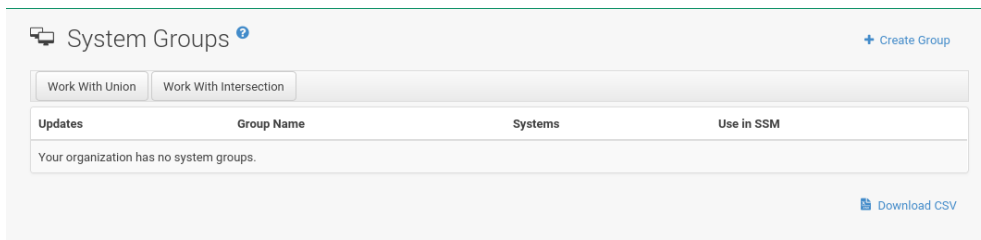
Only **System Group Administrators** and **Uyuni Administrators** have permission to perform these additional tasks:

- Create system groups

- Add systems to system groups

- Remove systems from system groups

- Assign system group permissions to users

For more information about system groups, see **[Reference › Systems ›]**. For more information about configuring system groups, see **[Reference › Users ›]**.

The `System Groups` list displays all system groups. The list contains several columns for each group:

- `Select` — Via the check boxes add all systems in the selected groups to the `System Set Manager` by clicking the `[Update]` button. All systems in the selected groups are added to the `System Set Manager`. You can then use the `System Set Manager` to perform actions on them simultaneously. It is possible to select only those systems that are members of all of the selected groups, excluding those systems that belong only to one or some of the selected groups. To do so, select the relevant groups and click the `[Work with Intersection]` button. To add all systems of all selected groups, click the `[Work with Union]` button. Each system will show up once, regardless of the number of groups to which it belongs.

- `Updates` — Shows which type of patch alerts are applicable to the group or confirms that all systems are up-to-date. Clicking a group's status icon takes you to the `Patch` tab of its `System Group Details` page.

  The status icons call for differing degrees of attention:

  - ∘ · — All systems in the group are up-to-date.

  - ∘ · — Critical patches available, update *strongly* recommended.

  - ∘ · — Updates available and recommended.

- `Health` Status of the systems in the group, reported by probes.

- `Group Name` — The name of the group as configured during its creation. The name should be
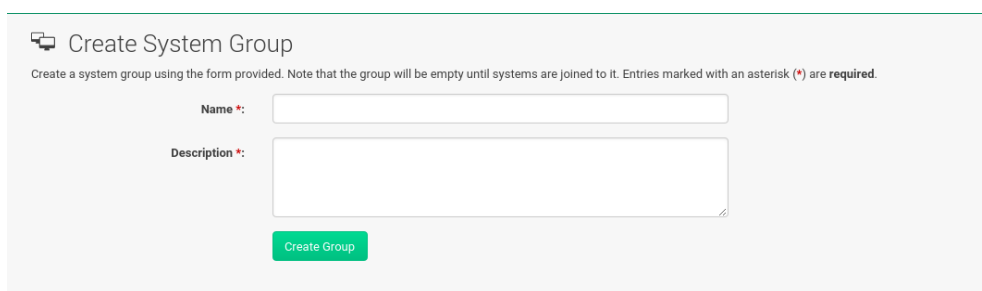
explicit enough to distinguish from other groups. Clicking the name of a group takes you to the `Details` tab of its `System Group Details` page.

- `Systems` — Total number of systems in the group. Clicking the number takes you to the `Systems` tab of the `System Group Details` page for the group.

- `Use in SSM` — Clicking the `Use in SSM` link in this column loads all and only the systems in the selected group and launches the `System Set Manager` immediately.

For more on system groups, see **[Reference › Systems ›]**. For more on the System Set Manager, see **[Reference › Systems ›]**.

Creating Groups

To add a new system group, click the `Create Group` link at the top-right corner of the page.

Create System Group

Create a system group using the form provided. Note that the group will be empty until systems are joined to it. Entries marked with an asterisk (*) are **required**.

Name *:

Description *:

Create Group

Type a name and description and click the **[Create Group]** button. Make sure you use a name that clearly sets this group apart from others. The new group will appear in the `System Groups` list.

Adding and Removing Systems in Groups

Systems can be added and removed from system groups. Clicking the group name takes you to the `Details` page. The `Systems` tab shows all systems in the group and allows you to select some or all systems for deletion. Click **[Remove Systems]** to remove the selected systems from the group. The `Target Systems` page shows you all systems that can be added to the group. Select the systems and click the **[Add Systems]** button.

System Group Details

At the top of each `System Group Details` page are two links: `Delete Group` and `Work With Group`. Clicking `Delete Group` deletes the System Group and should be used with caution. Clicking `Work With Group` loads the group's systems and launches the `System Set Manager` immediately like the `Use Group` button from the `System Groups` list. For more on the System Set Manager, see **[Reference › Systems ›]**.

The `System Group Details` page is split into the following tabs:

Group Details

Provides the group name and group description. To change this information, click `Edit These Properties`, make your changes in the appropriate fields, and click the `[Update Group]` button.

Systems

Lists all members of the system group. Clicking links within the table takes you to corresponding tabs within the `System Details` page for the associated system. To remove systems from the group, select the appropriate check boxes and click the `[Remove Systems]` button on the bottom of the page. Clicking it does not delete systems from Uyuni entirely. This is done through the `System Set Manager` or `System Details` pages.

For more on the System Set Manager, see [**Reference › Systems ›**]. For more on system details, see [**Reference › Systems ›**].

Target Systems

`Target Systems` — Lists all systems in your organization. To add systems to the specified system group, click the check boxes to their left and click the `[Add Systems]` button on the bottom right-hand corner of the page.

Patches

List of relevant patches for systems in the system group. Clicking the advisory takes you to the `Details` tab of the `Patch Details` page. For more on patches, see [**Reference › Patches ›**]. Clicking the Affected Systems number lists all of the systems affected by the patch. To apply the patch updates in this list, select the systems and click the `[Apply Patches]` button.

Admins

List of all organization users that have permission to manage the system group. Uyuni Administrators are clearly identified. System Group Administrators are marked with an asterisk ('*'). To change the system group's users, select and deselect the appropriate check boxes and click the `[Update]` button.

States

The `States` tab displays states which have been created and added using the **Salt › State Catalog**. From this page you can select which states should be applied across a group of systems. A state applied from this page will be applied to all clients within a group.

> **i** States are applied according to the following order of hierarchy within Uyuni:
>
> ```
> Organization > Group > Single System
> ```

Procedure: Applying States at the Group Level

1. Create a state using the **Salt › State Catalog** or via the command line.

2. Browse to **Main Menu › Systems › System Groups**. Select the group that a new state should be applied to. From a specific group page select the States tab.

3. Use the search feature to located a state by name or click the **[Search]** button to list all available states.

4. Select the check box for the state to be applied and click the **[Save]** button. The **[Save]** button will save the change to the database but will not apply the state.

5. Apply the state by clicking the **[Apply]** button. The state will be scheduled and applied to any systems included within a group.

System Set Manager

The following actions executed on individual systems from the System Details page may be performed for multiple systems via the System Set Manager. The System Set Manager can be used to schedule actions on both Salt and Traditional systems.

The following table provides information on what actions may be performed across both Salt and Traditional systems. These two methods have different actions which may be accessed with the System Set Manager:

Table 4. Available SSM Actions for Management Types

System Set Manager: Actions	Traditional SSM	Salt SSM
Systems	**Supported**	**Supported**
List Systems	Supported	Supported
Install Patches	**Supported**	**Supported**
Schedule Patch Updates	Supported	Supported
Install Packages	**Supported**	**Limited**
Upgrade	Supported	Supported
Install	Supported	Supported
Remove	Supported	Supported
Verify	Supported	Not Available
Groups	**Supported**	**Supported**
Create	Supported	Supported
Manage	Supported	Supported

System Set Manager: Actions	Traditional SSM	Salt SSM
Channels	**Supported**	**Limited**
Channel Memberships	Supported	Supported
Channel Subscriptions	Supported	Not Available
Deploy / Diff Channels	Supported	Not Available
Provisioning	**Supported**	**Not Available**
Autoinstall Systems	Supported	
Tag for Snapshot	Supported	
Remote Commands	Supported	
Power Management	Supported	
Power Management Operations	Supported	
Misc	**Supported**	**Supported**
Update System Preferences	Supported	Supported
Update Hardware Profiles	Supported	Supported
Update Package Profiles	Supported	Supported
Run Remote Commands	Supported	Supported
Set and Remove Custom Values for Selected Systems	Supported	Supported
Reboot Systems	Supported	Supported
Migrate Systems to another Organization	Supported	Supported
Delete Systems from SUSE Manager	Supported	Supported

Before performing actions on multiple systems, select the systems to work with. To select systems, click **Main Menu** › **Systems** › **Systems** › **All** and check the boxes to the left of the systems you want to work with.

Additionally, you can access the System Set Manager in three different ways:

1. Click the **Main Menu › System Set Manager**.

2. Click the `Use in SSM` link in the **Main Menu › Systems › System Groups**.

3. Click the `Work with Group` link on the `System Group Details` page.

System Set Manager Overview

This page contains links to most SSM option tabs with short explanations.

SSM Systems

List of selected systems.

SSM Patches

List of patch updates applicable to the current system set.

System Set Manager Overview

Overview   Systems   Patches   Packages   Groups   Channels   Configuration   Provisioning   Audit   Misc

Relevant Patches List

The patches below apply to one or more of your selected systems.

Apply Patches

| All | Show |

Type	Advisory	Synopsis	Status	Affected	Updated
No Patches Relevant to Your Systems					

Click the number in the Systems column to see to which systems in the System Set Manager a patch applies. To apply updates, select the patches and click the **[Apply Patches]** button.

SSM Packages

Click the number in the Systems column to see the systems in the System Set Manager to which a package applies. Modify packages on the system via the following subtabs.

System Set Manager Overview

Overview   Systems   Patches   Packages   Groups   Channels   Configuration   Provisioning   Audit   Misc

Upgrade   Install   Remove   Verify

Package Operations

You may perform the following actions upon the selected systems:

- Upgrade existing packages
- Install new packages
- Remove existing packages
- Verify existing packages

SSM Packages - Install

This list includes all channels to which systems in the set are subscribed. A package is only installed on a system if the system is subscribed to the channel providing the package.

System Set Manager Overview

Overview   Systems   Patches   Packages   Groups   Channels   Configuration   Provisioning   Audit   Misc

Upgrade   Install   Remove   Verify

Select Channel

First, select the channel containing the packages to be installed upon the selected systems.

Channel Name
No channels found.

Click the channel name and select the packages from the list. Then click the **[Install Packages]** button.

SSM Packages - Remove

A list of all the packages installed on the selected systems that might be removed.

Multiple versions appear if systems in the System Set Manager have more than one version installed. Select the packages to be deleted, then click the **[Remove Packages]** button.

SSM Packages - Upgrade

A list of all the packages installed on the selected systems that might be upgraded.

Systems must be subscribed to a channel providing the packages to be upgraded. If multiple versions of a package are available, note that your system will be upgraded to the latest version. Select the packages to be upgraded, then click the **[Upgrade Packages]** button.

SSM Packages - Verify

A list of all installed packages whose contents, file checksum, and other details may be verified.

At the next check in, the verify event issues the command `rpm --verify` for the specified package. If there are any discrepancies, they are displayed in the System Details page for each system.

Select the check box next to all packages to be verified, then click the **`[Verify Packages]`** button. On the next page, select a date and time for the verification, then click the **`[Schedule Verifications]`** button.

SSM Groups

Tools to create groups and manage system memberships.
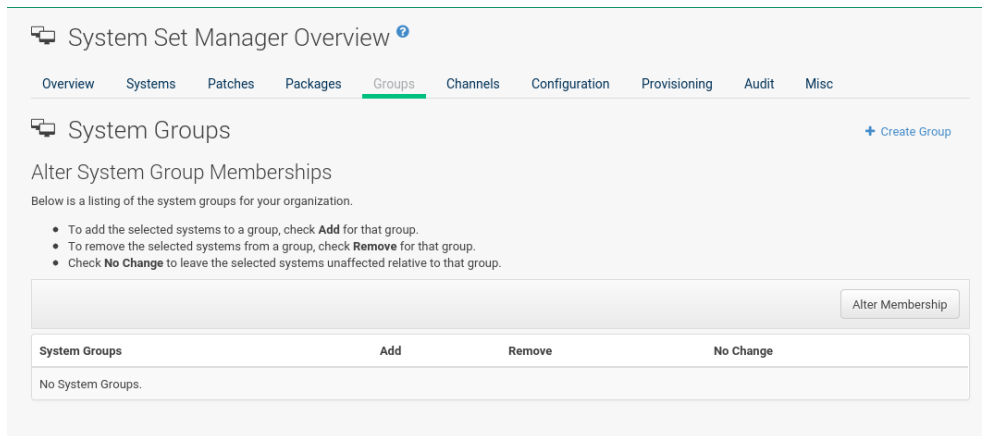
These functions are limited to Uyuni Administrators and System Group Administrators. To add a new group, click `Create Group` on the top-right corner. In the next page, type the group name and description in the respective fields and click the **`[Create Group]`** button. To add or remove selected systems in any of the system groups, toggle the appropriate radio buttons and click the **`[Alter Membership]`** button.

SSM Channels

As a Channel Administrator, you may change the base channels your systems are subscribed to.

> *Changing the Channels Is Now an Action*
>
> Since the 3.1 maintenance update (2018) changing the channels is an action that can be scheduled like any other action. Earlier channel changes were applied immediately.

Manage channel associations through the following wizard procedure:

Base Channel Alteration (Page 1)

Valid channels are either channels created by your organization, or the vendor's default base channel for your operating system version and processor type. Systems will be unsubscribed from all channels, and subscribed to their new base channels.

> *Changing Base Channel*
>
> This operation can have a dramatic effect on the packages and patches available to the systems. Use with caution.

To change the base channel, select the new one from the `Desired base Channel` and confirm the action.

On the this wizard page you see the `Current base Channel` and how many `Systems` are subscribed to it. Click the number link in the `Systems` column to see which systems are actually selected.

To change the base channel subscription select the `Desired base Channel` from the selection box. Then click **[Next]** in the lower left corner.

Child Channels (Page 2)

The `Child Channels` page allows you to subscribe and unsubscribe individual child channels related to its parent or base channel. Systems must subscribe to a base channel before subscribing to a child channel. If you enable **[with recommended]**, recommended child channels are automatically selected for subscription. The handling of required channels is currently not implemented for system set manager.

Change the child channel subscription on this page. Then click **[Next]** in the lower left corner.

Channel Changes Overview (Page 3)

Schedule when the channel changes should take place the earliest. Then click **[Confirm]** in the lower left corner.

Channel Changes Actions (Page 4)

See the scheduled change actions.

SSM Configuration

Like in the **System Details › Channels › Configuration** tab, the subtabs here can be used to subscribe the selected systems to configuration channels and deploy and compare the configuration files on the systems. The channels are created in the `Manage Config Channels` interface within the **Main Menu › Software** category. For channel creation instructions, see **[Reference › Configuration ›]**.

To manage the configuration of a system, install the latest `mgr-cfg*` packages. For instructions on enabling and disabling scheduled actions for a system, see Preparing Systems for Configuration Management.

SSM Configuration - Deploy Files

Use this subtab to distribute configuration files from your central repository on Uyuni to each of the selected systems.
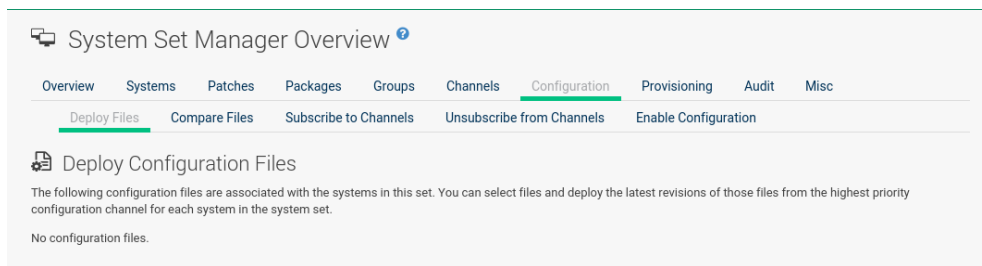
The table lists the configuration files associated with any of the selected systems. Clicking its system count displays the systems already subscribed to the file.

To subscribe the selected systems to the available configuration files, select the check box for each wanted file. When done, click **[Deploy Configuration]** and schedule the action. Note that the latest versions of the files, at the time of scheduling, are deployed. Newer versions created after scheduling are disregarded.

SSM Configuration - Compare Files

Use this subtab to validate configuration files on the selected systems against copies in your central repository on Uyuni.
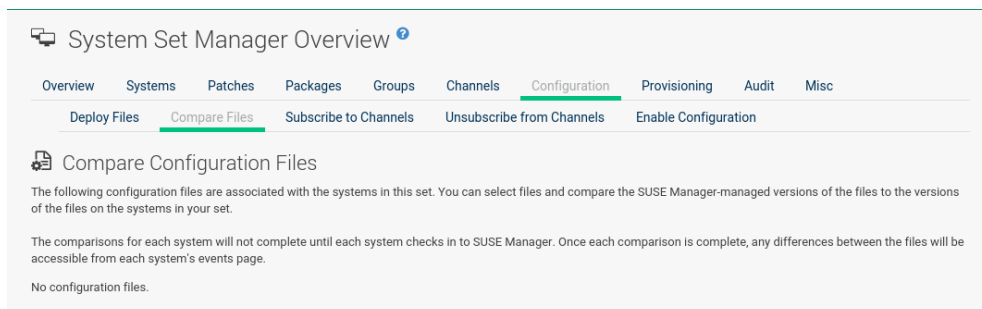
The table lists the configuration files associated with any of the selected systems. Clicking a file's system count displays the systems already subscribed to the file.

To compare the configuration files deployed on the systems with those in Uyuni, select the check box for each file to be validated. Then click **Analyze Differences › Schedule File Comparison**. The comparisons for each system will not complete until each system checks in to Uyuni. When each comparison is complete, any differences between the files will be accessible from each system's events page.

Note that the latest versions of the files, at the time of scheduling, are compared. Newer versions created after scheduling are disregarded. Find the results in the main **Main Menu › Schedule** category or within the **System Details › Events** tab.

SSM Configuration - Subscribe to Channels

Subscribe systems to configuration channels, and in a second step rank these channels according to the order of preference. This tab is available only to Uyuni Administrators and Configuration Administrators.
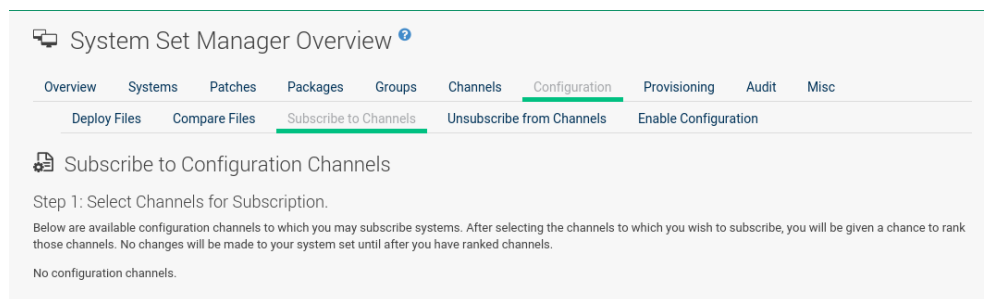
1. Select channels for subscription by activating the check box. When done, confirm with `[Continue]`.

2. In the second step, rank the channels with the arrow-up or arrow-down symbols.

   Then decide how the channels are applied to the selected systems. The three buttons below the channels reflect your options. Clicking `[Subscribe with Highest Priority]` places all the ranked channels before any other channels to which the selected systems are currently subscribed. Clicking `[Subscribe With Lowest Priority]` places the ranked channels after those channels to which the selected systems are currently subscribed. Clicking `[Replace Existing Subscriptions]` removes any existing association and creates new ones with the ranked channels, leaving every system with the same configuration channels in the same order.

   > *Confliction Ranks*
   >
   > In the first two cases, if any of the newly ranked configuration channels are already in a system's existing configuration channel list, the duplicate channel is removed and replaced according to the new rank, effectively reordering the system's existing channels. When such conflicts exist, you are presented with a confirmation page to ensure the intended action is correct. When the change has taken place, a message appears at the top of the page indicating the update was successful.

Then, click **[Apply Subscriptions]**.

Channels are accessed in the order of their rank. Your local configuration channel always overrides all other channels.

SSM Configuration - Unsubscribe from Channels

Administrators may unsubscribe systems from configuration channels by clicking the check box next to the channel name and clicking the **[Unsubscribe Systems]** button.

System Set Manager Overview

Overview   Systems   Patches   Packages   Groups   Channels   Configuration   Provisioning   Audit   Misc

Deploy Files   Compare Files   Subscribe to Channels   Unsubscribe from Channels   Enable Configuration

Unsubscribe Systems.

You can unsubscribe systems from the configuration channels below. The channels shown below are all of the global configuration channels to which at least one system in your system set is subscribed.

No configuration channels with subscribed systems in the current System Set!

SSM Configuration - Enable Configuration

Registered systems without configuration management preparation will appear here in a list.

System Set Manager Overview

Overview   Systems   Patches   Packages   Groups   Channels   Configuration   Provisioning   Audit   Misc

Deploy Files   Compare Files   Subscribe to Channels   Unsubscribe from Channels   Enable Configuration

Enable Configuration Management

The systems listed below do not have files managed via SUSE Manager configuration management. For systems to be capable of being managed by SUSE Manager configuration management, they will need to have particular rhncfg-* packages installed. You can enable configuration management on the systems listed below. **Note:** nothing will happen to already enabled systems.

No non-managed systems.

Administrators may enable configuration management by clicking the **[Enable SUSE Manager Configuration Management]** button. You can also schedule the action by adjusting the `Schedule no sooner than` date and time setting using the drop-down box, then clicking **[Enable SUSE Manager Configuration Management]**.

Then the systems will get subscribed to the required Uyuni tools channel and required mgr-cfg* packages will get installed.

SSM Provisioning

Set the options for provisioning systems via the following subtabs.

SSM Provisioning - Autoinstallation

Use this subtab to reinstall clients.

System Set Manager Overview ⍰

Overview   Systems   Patches   Packages   Groups   Channels   Configuration   Provisioning   Audit   Misc

Autoinstallation   Tag Systems   Rollback   Power Management Configuration   Power Management Operations

Autoinstallable Systems

Below are the systems in your selected systems list that are autoinstallable using SUSE Manager.

System	Base Channel
No systems.	

To schedule autoinstallations for these systems, select a distribution. The autoinstallation profile used for each system in the set is determined via the `Autoinstallable Type` radio buttons.

Choose `Select autoinstallation profile` to apply the same profile to all systems in the set. This is the default option. You will see a list of available profiles to select from when you click `[Continue]`.

Choose `Autoinstall by IP Address` to apply different autoinstallation profiles to different systems in the set, by IP address. To do so, at least two autoinstallation profiles must be configured with associated IP ranges.

If you use `Autoinstall by IP Address`, Uyuni will automatically pick a profile for each system so that the system's IP address will be in one of the IP ranges specified in the profile itself. If such a profile cannot be found, Uyuni will look for an organization default profile and apply that instead. If no matching IP ranges nor organization default profiles can be found, no autoinstallation will be performed on the system. You will be notified on the next page if that happens.

To use Cobbler system records for autoinstallation, select `Create PXE Installation Configuration`. With PXE boot, you cannot only reinstall clients, but automatically install machines that do not have an operating system installed yet. Uyuni and its network must be properly configured to enable boot using PXE. For more information on Cobbler and Kickstart templates, see **[Client-configuration › Cobbler ›]**.

> ℹ If a system set contains bare-metal systems and installed clients, only features working for systems without an operating system installed will be available. Full features will be enabled again when all bare-metal systems are removed from the set.

If any of the systems connect to Uyuni via a proxy server, choose either the `Preserve Existing Configuration` radio button or the `Use Proxy` radio button. If you choose to autoinstall through a proxy server, select from the available proxies listed in the drop-down box beside the `Use Proxy` radio button. All of the selected systems will autoinstall via the selected proxy. Click the `[Schedule Autoinstall]` button to confirm your selections. When the autoinstallations for the selected systems are successfully scheduled, you will return to the `System Set Manager` page.

SSM Provisioning - Tag Systems

Use this subtab to add meaningful descriptions to the most recent snapshots of your selected systems.

To tag the most recent system snapshots, enter a descriptive term in the `Tag name` field and click the `[Tag Current Snapshots]` button.

SSM Provisioning - Rollback

Use this subtab to rollback selected systems to previous snapshots marked with a tag.

Click the tag name, verify the systems to be reverted, and click the `[Rollback Systems]` button.

SSM Provisioning - Remote Command

Use this subtab to issue remote commands.

First create a `run` file on the client systems to allow this function to operate. For instructions, see **[Reference › Systems ›]**. Then identify a specific user, group, timeout period, and the script to run. Select a date and time to execute the command and click `[Schedule]`.

SSM Provisioning - Power Management Configuration

SSM Provisioning - Power Management Operation

SSM Audit

System sets can be scheduled for XCCDF scans; XCCDF stands for "The Extensible Configuration Checklist Description Format".

Enter the command and command line arguments, and the path to the XCCDF document. Then schedule the scan. All target systems are listed below with a flag whether they support OpenSCAP scans. For more details on OpenSCAP and audits, see **[Reference › Audit ›]**.

SSM - Misc

On the `Misc` page, you can modify `Custom System Information`. Click `Set a custom value for selected systems`, then the name of a key. Enter values for all selected systems, then click the `[Set Values]` button. To remove values for all selected systems, click `Remove a custom value from selected systems`, then the name of the key. Click the `[Remove Values]` button to delete.

Set `System Preferences` via the respective radio buttons.

SSM Misc - Hardware

Click the `Hardware` subtab to schedule a hardware profile refresh. Click `[Confirm Refresh]`.

SSM Misc - Software

Click the `Software` subtab, then the `[Confirm Refresh]` button to schedule a package profile update of the selected systems.

System Set Manager Overview ⊕

Overview   Systems   Patches   Packages   Groups   Channels   Configuration   Provisioning   Audit   Misc

Hardware   Software   Remote Command   Delete   Reboot   Migrate   Lock/Unlock

Confirm Package Profiles Refresh

No systems are selected.

Confirm refresh
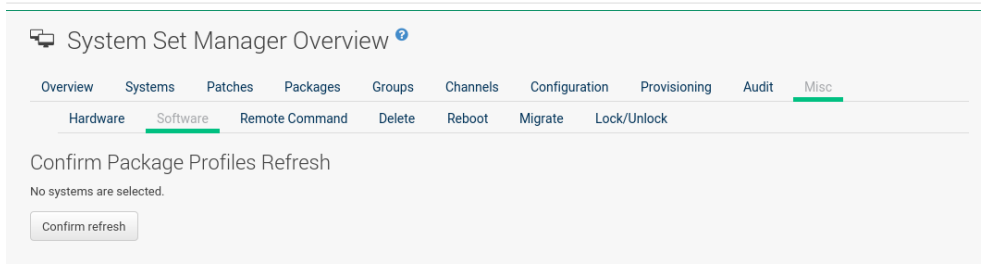
SSM Misc - Migrate

Click the `Migrate` subtab to move selected systems to a selected organization.

System Set Manager Overview ⊕

Overview   Systems   Patches   Packages   Groups   Channels   Configuration   Provisioning   Audit   Misc

Hardware   Software   Remote Command   Delete   Reboot   Migrate   Lock/Unlock

Migrate Systems

Migrate the selected systems to the selected organization. If the operation is successful, the systems will no longer be visible in this organization.

No trusted organizations

System	Updates	Configs	Last Checked in	Base Channel	System Type
No systems.					

📄 Download CSV

SSM Misc - Lock/Unlock

Select the `Lock/Unlock` subtab to select systems to be excluded from package updates.

System Set Manager Overview ⊕

Overview   Systems   Patches   Packages   Groups   Channels   Configuration   Provisioning   Audit   Misc

Hardware   Software   Remote Command   Delete   Reboot   Migrate   Lock/Unlock

Lock or Unlock the Systems

Select system to lock or unlock their profiles. No updates will occur to locked systems until they are unlocked.

Lock reason:

Lock   Unlock

System	Base Channel	System Type

Enter a `Lock reason` in the text box and click the `[Lock]` button. Already locked systems can be unlocked on this page. Select them and click `[Unlock]`.

SSM Misc - Delete

Click the `Delete` subtab, to remove systems by deleting their system profiles. Click the `[Confirm Deletion]` button to remove the selected profiles permanently.

System Set Manager Overview

Overview   Systems   Patches   Packages   Groups   Channels   Configuration   Provisioning   Audit   Misc

Hardware   Software   Remote Command   Delete   Reboot   Migrate   Lock/Unlock

Confirm System Profiles Deletion

This will delete the selected profiles permanently.

[Confirm Deletion]

System	Updates	Configs	Last Checked in	Base Channel	System Type
No systems.					

Download CSV

SSM Misc - Reboot

Select the appropriate systems, then click the `Reboot Systems` link to select these systems for reboot.

For information about how to cancel a reboot action, see **[Reference › Schedule ›]**.

SSM Task Log

The SSM Task Log lists all tasks performed against Uyuni servers when using SSM. Click on an task's description to see more details.

There are three tabs you may use to filter tasks by status:
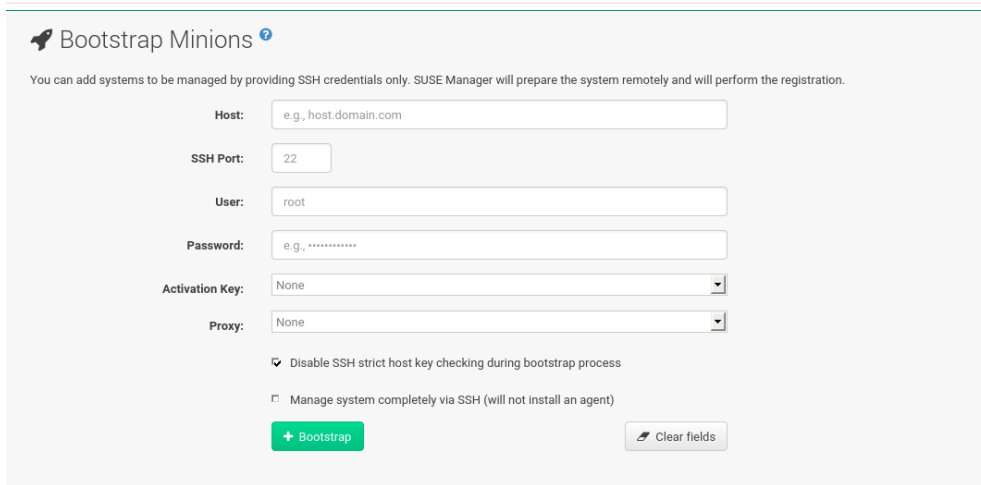
- **All** (List all tasks that have been performed)
- **In Progress** (List all tasks currently being performed)
- **Completed** (List all tasks which have been completed)

> Only child channel subscription changes and package install/remove/upgrade/verify tasks are listed.

Bootstrapping [Salt]

The `Bootstrapp Minions` page allows you to bootstrap Salt clients from the Web UI.

Figure 3. Bootstrapping

Bootstrapping Parameters

Host

Place the FQDN of the client to be bootstrapped within this field.

SSH Port

Place the SSH port that will be used to connect and bootstrap a machine. The default is 22.

User

Input the clients user login. The default is root.

Password

Input the clients login password.

Activation Key

Select the activation key (associated with a software source channel) that the client should use to bootstrap with.

Disable SSH Strict Key Host Checking

This check box is selected by default. This allows the script to auto-accept host keys without requiring a user to manually authenticate.

Manage System Completely via SSH (Will not Install an Agent)

> *Technology Preview*
>
> This feature is a Technology preview.

If selected a system will automatically be configured to use SSH. No other connection method will be configured.

Once your client's connection details have been filled in click the `[Bootstrap]` button. When the client has completed the bootstrap process, find your new client listed on the **Systems › Overview** page.

Visualization Menu

You can visualize your virtualized, proxy, and systems group topologies. Listed under **Systems ›
Visualization** you will find the `Virtualization Hierarchy`, `Proxy Hierarchy`, and `Systems
Grouping` subpages. This features allows you to search, filter, and partition systems by name, base
channel, check-in date, group, etc.

To visualize your systems select **Main Menu › Systems › Visualization**.

Click the `[Show Filters]` button in the upper right corner to open the filters panel. On the
`Filtering` tab, systems are filterable by name, base channel, installed products, or with special
properties such as security, bug fix, and product enhancement advisories, etc.

On the Partitioning tab, systems may also be partitioned by check-in time. Select the check-in date and time and click the **[Apply]** button. The **[Clear]** button will revert current partition configuration.

All elements of the network tree are selectable. Clicking any element in the tree opens a box containing information about the selected systems and will be displayed in the top-right of the visualization area.

galaxy.qa.testing

X

System details page

Type	system
Add/remove system from SSM	+ −
Base entitlement	enterprise_entitled
Base channel	SLES12-SP2-Pool for x86_64
Checkin time	4 months ago
Installed products	SUSE_SLES
Patch status	2 security advisories 5 product enhancement advisories

Systems shown in the visualization view may be added to System Set Manager (SSM) for futher management. This can be performed in two ways:

- Select single systems and click the **[Add system to SSM]** button in the top-right detail box.

- Add all visible child elements of any parent node in the view (visible means when filters have been applied) by clicking the **[Add Children to SSM]** button at the bottom of the selection details panel.

Virtualization Hierarchy

The following is an example graphical representation tree of the virtual network hierarchy of virtual systems registered with Uyuni.

Virtualization Hierarchy
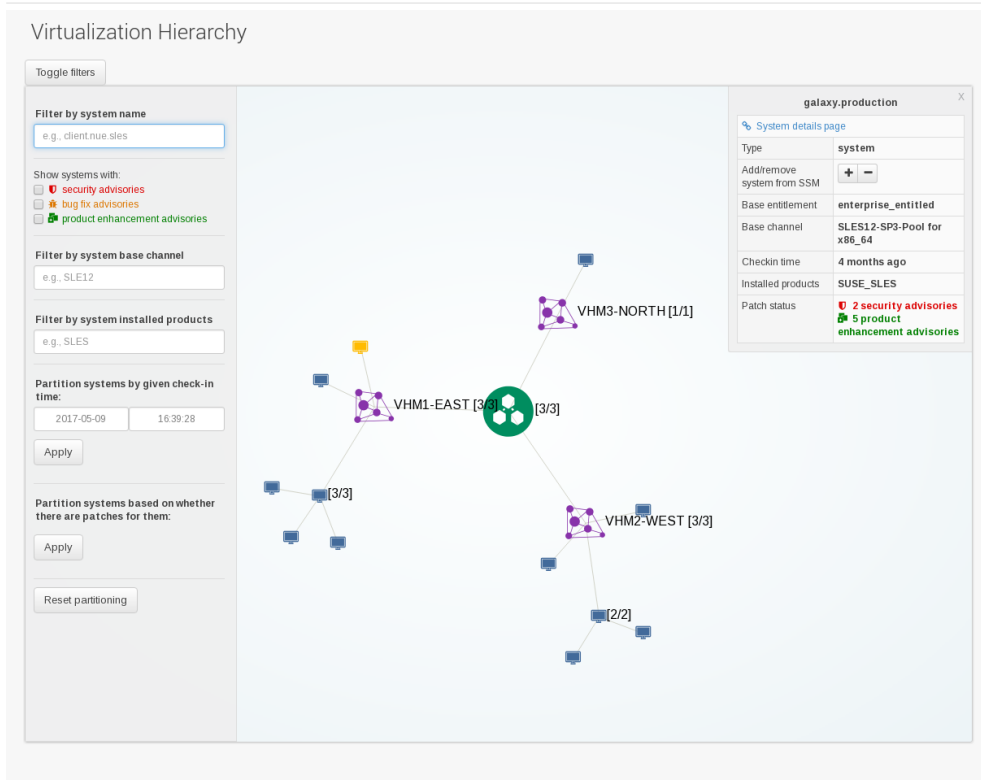
Proxy Hierarchy

The following is an example graphical representation tree of the proxy network hierarchy of proxy systems and their clients registered with Uyuni.
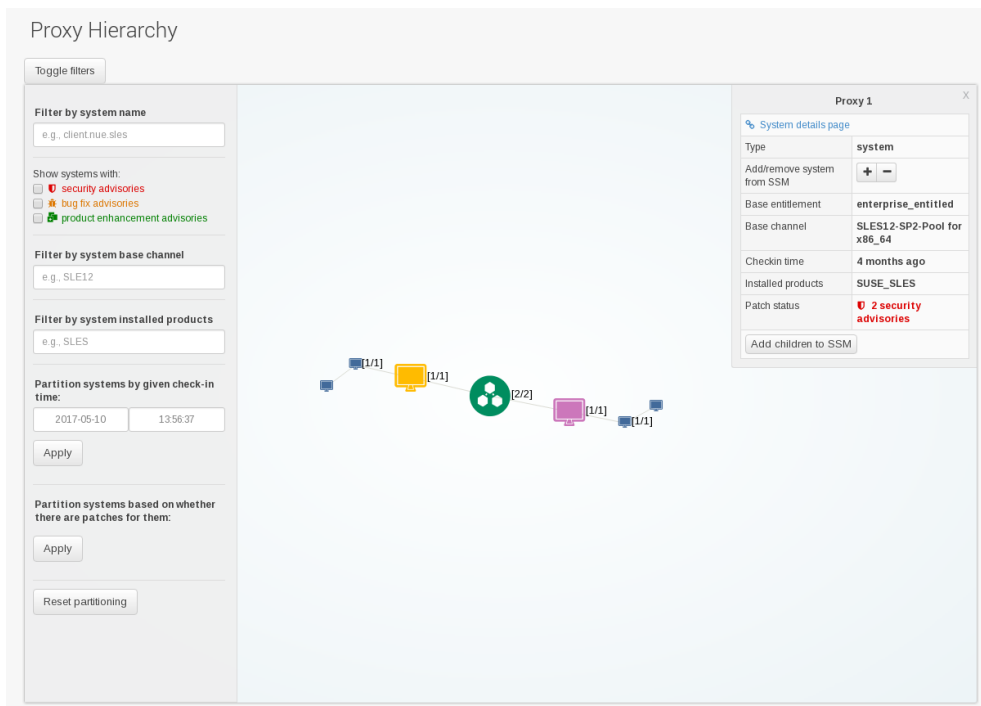
Systems Grouping

The following is a graphical representation tree of the all systems registered with Uyuni.
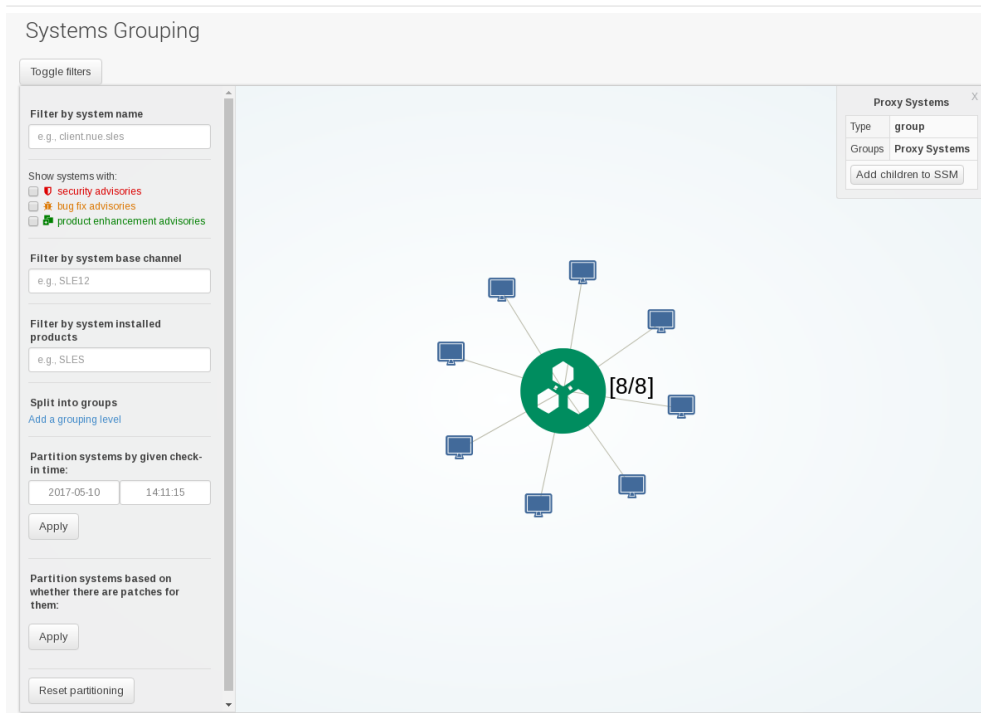
Systems are grouped according to preconfigured systems groups, and they may also be grouped into various group compositions by using the multi-select box.
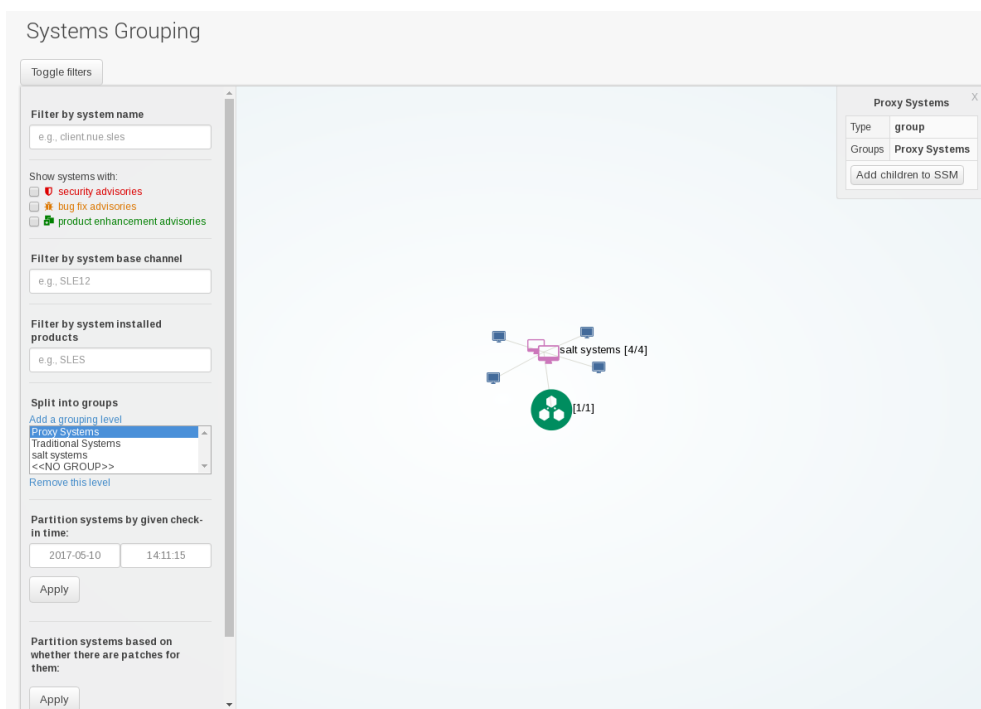
Advanced Search

Carry out an `Advanced Search` on your systems according to the following criteria: network info, hardware devices, location, activity, packages, details, DMI info, and hardware.

Advanced Search ?

Advanced Search will return results from all systems to which you have administrative access.

Specify your search criteria below.

Search For:	
Field to Search:	Name/Description
Where to Search:	⦿ Search all systems
	○ Search system set manager
Invert Result	☐ Invert search results
Fine Grained Search:	☐ Fine grained search results
	Search

Refine searches using the `Field to Search` drop-down box, which is set to `Name/Description` by default.

The Activity selections (`Days Since Last Check-in`, for example) are useful in finding and removing outdated system profiles.

Type the keyword, select the criterion to search by, use the radio buttons to specify whether you want to query all systems or only those in the `System Set Manager`, and click the `[Search]` button. To list all systems that do *not* match the criteria, select the `Invert Result` check box.

The results appear at the bottom of the page. For more on how to use the system list, see **[Reference › Systems ›]**.

> **i** If you add a distribution, newly synchronize channels, or register a system with a Uyuni server, it may take several minutes for it to be indexed and appear in search results. To force the rebuild of the search index, enter `rhn-search cleanindex` on the command line and wait until the rebuild is finished.

Activation Keys

Users with the Activation Key Administrator role (including Uyuni Administrators) can generate activation keys in the Uyuni Web UI. With such an activation key, register a SUSE Linux Enterprise or Red Hat Enterprise Linux system, entitle the system to a Uyuni service level and subscribe the system to specific channels and system groups through the `rhnreg_ks` command line utility.

> **i** System-specific activation keys created through the `Reactivation` subtab of the `System Details` page are not part of this list because they are not reusable across systems.

For more information about activation keys, see **[Client-configuration › Clients-and-activation-keys ›]**.

Managing Activation Keys

From the `Activation Key` page organize activation keys for channel management.

To create an activation key:

Procedure: Creating Activation Keys

1. Select **Main Menu › Systems › Activation Keys** from the left bar.

2. Click the `Create Key` link at the upper right corner.

3. `Description` — Enter a `Description` to identify the generated activation key.

4. `Key` — Either choose automatic generation by leaving this field blank or enter the key you want to generate in the `Key` field. This string of characters can then be used with `rhnreg_ks` to register client systems with Uyuni. For more details, see **[Reference › Systems ›]**.

   Allowed Characters

   Do not insert commas or double quotes in the key. All other characters are allowed, but `<>` `(){}` (this includes the space) will get removed automatically. If the string is empty, a random one is generated.

   Commas are problematic because they are used as separator when two or more activation keys are used at once.

5. `Usage` — The maximum number systems that can be registered with the activation key concurrently. Leave blank for unlimited use. Deleting a system profile reduces the usage count by one and registering a system profile with the key increases the usage count by one.

6. `Base Channels` — The primary channel for the key. This can be either the `Uyuni Default` channel, a SUSE provided channel, or a custom base channel.

Selecting `Uyuni Default` allows client systems to register with the SUSE-provided default channel that corresponds with their installed version of SUSE Linux Enterprise. You can also associate the key with a custom base channel. If a system using this key is not compatible with the selected channel, it will fall back to the Uyuni default channel.

7. `Child Channels` — When the base channel is selected the list of available child channels will get fetched and display in real time below the base channel. Select the child channels you need (for example, the Tools child channel).

8. `Add-on System Types` — The supplemental system types for the key, for example, Virtualization Host. All systems will receive these system types with the key.

9. `Contact Method` - Select how clients communicate with Uyuni. `Default` (Pull) waits for the client to check in. With `Push via SSH` and `Push via SSH tunnel` the server contacts the client via SSH (with or without tunnel) and pushes updates and actions, etc.

    For more information about contact methods, see **[Client-configuration › Contact-methods-intro ›]**.

10. `Universal Default` — Select whether this key should be considered the primary activation key for your organization.

> ⚠️ *Changing the Default Activation Key*
>
> Only one universal default activation key can be defined per organization. If a universal key already exists for this organization, you will unset the currently used universal key by activating the check box.

11. Click `[Create Activation Key]`.

To create more activation keys, repeat the steps above.

After creating the unique key, it appears in the list of activation keys along with the number of times it has been used. Only Activation Key Administrators can see this list. At this point, you can configure the key further. For example, associate the key with packages (for example, the mgr-cfg-actions package) and groups. Systems registered with the key get automatically subscribed to them.

To change the settings of a key, click the key's description in the list to display its `Details` page. Via additional tabs you can select packages, configuration channels, group membership, and view activated systems. Modify the appropriate tab then click the `[Update Activation Key]` button. To disassociate groups from a key, deselect them in the respective menus by `Ctrl`-clicking their highlighted names. To remove a key entirely, click the `Delete Key` link in the upper right corner of the `Details` page. In the upper right corner find also the `Clone Key` link.

Any (client tools) package installation requires that the Client Tools channel is available and the Provisioning check box is selected. The Client Tools channel should be selected in the Child Channels listing below the selected base channel.

After creating the activation key, you can see in the Details tab a check box named Configuration File Deployment. If you select it, all needed packages are automatically added to the Packages list. In case of Salt clients the Configuration File Deployment option also ensures that highstate will get applied automatically. By default, the following packages are added: mgr-cfg, mgr-cfg-client, and mgr-cfg-actions.

If you select Virtualization Host you automatically get the following package: mgr-virtualization-host.

Adding the mgr-osad package makes sense to execute scheduled actions immediately after the schedule time. When the activation key is created, you can add packages with selecting the key (**Main Menu › Systems › Activation Keys**), then on the activation key details page, go for the Packages tab and add mgr-osad.

To disable system activations with a key, uncheck the corresponding box in the Enabled column in the key list. The key can be re-enabled by selecting the check box. Click the **[Update Activation Keys]** button on the bottom right-hand corner of the page to apply your changes.

Using Multiple Activation Keys at Once

Multiple activation keys can be specified at the command line or in a single autoinstallation profile. This allows you to aggregate the aspects of various keys without re-creating a specific key for every system that you want to register, simplifying the registration and autoinstallation processes while slowing the growth of your key list. Separate keys with a comma at the command line with `rhnreg_ks` or in a Kickstart profile in the `Activation Keys` tab of the `Autoinstallation Details` page.

Registering with multiple activation keys requires some caution. Conflicts between some values cause registration to fail. Conflicts in the following values do not cause registration to fail, a combination of values is applied: software packages, software child channels, and configuration channels. Conflicts in the remaining properties are resolved in the following manner:

- Base software channels: registration fails.

- System types: registration fails.

- Enable configuration flag: configuration management is set.

Do not use system-specific activation keys along with other activation keys; registration fails in this event.

You are now ready to use multiple activation keys at once.

Stored Profiles

Uyuni Provisioning customers can create package profiles via the `System Details` page.
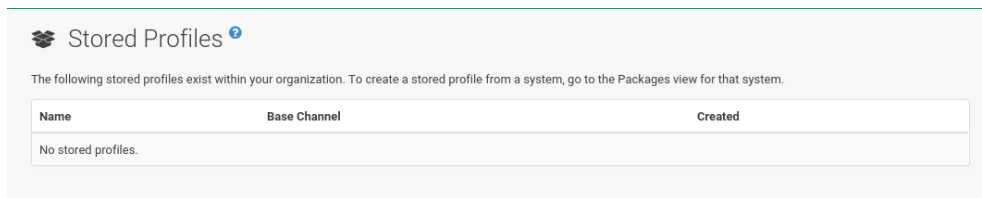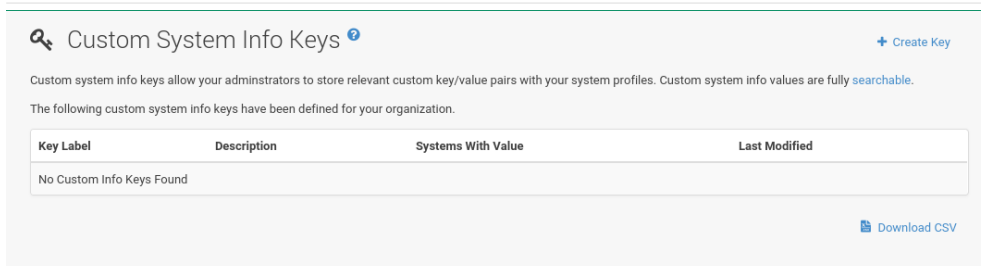
Under **System Details** › **Software** › **Packages** › **Profiles**, click `[Create System Profile]`. Enter a `Profile Name` and `Profile Description`, then click `[Create Profile]`. These profiles are displayed on the `Stored Profiles` page (left navigation bar), where they can be edited or deleted.

To edit a profile, click its name in the list, alter its name or description, and click the `[Update]` button. To view software associated with the profile, click the `Packages` subtab. To remove the profile entirely, click `Delete Profile` at the upper-right corner of the page.

Custom System Information

Uyuni customers may include completely customizable information about their systems.

Unlike with notes, the information here is more formal and can be searched. For example, you may decide to specify an asset tag for each system. To do so, select `Custom System Info` from the left navigation bar and create an `asset` key.

Click `Create Key` in the upper-right corner of the page. Enter a suitable label and description, such as `Asset` and `Precise location of each system`, then click `[Create Key]`. The key will show up in the custom info keys list.

When the key exists, you may assign a value to it through the `Custom Info` tab of the `System Details` page. For more on custom system information, see **[Reference › Systems ›]**.

Autoinstallation Menu

Manage and prepare your autoinstallation profiles from these pages.

Autoinstallation Overview

Autoinstallation Types: AutoYaST and Kickstart

In the following section, AutoYaST and AutoYaST features apply for SUSE Linux Enterprise client systems only. For RHEL systems, use Kickstart and Kickstart features.

AutoYaST and Kickstart configuration files allow administrators to create an environment for automating otherwise time-consuming system installations, such as multiple servers or workstations. AutoYaST files have to be uploaded to be managed with Uyuni. Kickstart files can be created, modified, and managed within the Uyuni Web interface.

Uyuni also features the Cobbler installation server. For more information, see **[Client-configuration › Cobbler ›]**.

Uyuni provides an interface for developing Kickstart and AutoYaST profiles that can be used to install Red Hat Enterprise Linux or SUSE Linux Enterprise on either new or already-registered systems automatically according to certain specifications.

🚀 Autoinstallation Overview ❓

Autoinstallation Summary

No autoinstallation profiles available

Systems Currently Autoinstalling

Autoinstalling Systems

There are no systems currently autoinstalling.

Systems Scheduled to be Autoinstalled

Autoinstalling Systems

To schedule an autoinstallation, go to the Systems tab above and select the the Schedule subtab.

Figure 4. Autoinstallation Overview

This overview page displays the status of automated installations (Kickstart and AutoYaST) on your client systems: the types and number of profiles you have created and the progress of systems that are scheduled to be installed using Kickstart or AutoYaST.

In the upper right area is the **Autoinstallation Actions** section, which contains a series of links to management actions for your Kickstart or AutoYaST profiles.

- For more on AutoYaST, see **[Client-configuration › Client-automating-installation ›]**.
- For more on Kickstart, see **[Client-configuration › Kickstart ›]**.

Profiles (Kickstart and AutoYaST)

This page lists all profiles for your organization, shows whether these profiles are active, and specifies the distribution tree with which each profile is associated.

🚀 Autoinstallation Overview ❓

Autoinstallation Summary

No autoinstallation profiles available

Systems Currently Autoinstalling

Autoinstalling Systems

There are no systems currently autoinstalling.

Systems Scheduled to be Autoinstalled

Autoinstalling Systems

To schedule an autoinstallation, go to the Systems tab above and select th
the Schedule subtab.

You can either create a Kickstart profile by clicking the `Create Kickstart Profile` link, upload or paste the contents of a new profile clicking the `Upload Kickstart/Autoyast File`, or edit an existing Kickstart profile by clicking the name of the profile. Note, you can only update AutoYaST profiles using the upload button. You can also view AutoYaST profiles in the edit box or change the virtualization type using the selection list.

Create a Kickstart Profile

Click on the `Create Kickstart Profile` link from the **Main Menu › Systems › Autoinstallation** page to start the wizard that populates the base values needed for a Kickstart profile.

🚀 Step 1: Create Kickstar

A kickstart file is a simple text file containing a list
Enterprise Linux. A kickstart profile includes a kick
installation files.

Label*:

Base Channel*: **No Autoinstallabl**

Autoinstall Tree*: **No trees were fou**

Virtualization Type: None

Procedure: Creating a Kickstart Profile

1. On the first line, enter a Kickstart profile label. This label cannot contain spaces, so use dashes (`-`) or underscores (`\_`) as separators.

2. Select a `Base Channel` for this profile, which consists of packages based on a specific architecture and Red Hat Enterprise Linux release.

   > *Creating Base Channel*
   >
   > Base channels are only available if a suitable distribution is created first. For creating distributions, see **[Reference › Systems ›]**

3. Select an `Kickstartable Tree` for this profile. The `Kickstartable Tree` drop-down menu is only populated if one or more distributions have been created for the selected base channel (see **[Reference › Systems ›]**).

4. Instead of selecting a specific tree, you can also check the box `Always use the newest Tree for this base channel`. This setting lets Uyuni automatically pick the latest tree that is associated with the specified base channels. If you add new trees later, Uyuni will always keep the most recently created or modified.

5. Select the `Virtualization Type` from the drop-down menu.

   > If you do not intend to use the Kickstart profile to create virtual guest systems, you can leave the drop-down at the default `None` choice.

6. On the second page, select (or enter) the location of the Kickstart tree.

7. On the third page, select a root password for the system.

Depending on your base channel, your newly created Kickstart profile might be subscribed to a channel that is missing required packages. For Kickstart to work properly, the following packages should be present in its base channel: `pyOpenSSL`, `rhnlib`, `libxml2-python`, and `spacewalk-koan` and associated packages.

To resolve this issue:

- Make sure that the Tools software channel for the Kickstart profile's base channel is available to your organization. If it is not, you must request entitlements for the Tools software channel from the Uyuni administrator.

- Make sure that the Tools software channel for this Kickstart profile's base channel is available to your Uyuni as a child channel.

- Make sure that `rhn-kickstart` and associated packages corresponding to this Kickstart are available in the Tools child channel.

The final stage of the wizard presents the **Autoinstallation Details › Details** tab. On this tab and the other subtabs, nearly every option for the new Kickstart profile can be customized.

Once created, you can access the Kickstart profile by downloading it from the `Autoinstallation Details` page by clicking the `Autoinstallation File` subtab and clicking the `Download Autoinstallation File` link.

If the Kickstart file is *not* managed by Uyuni, you can access it via the following URL:

```
http://`my.manager.server`/ks/dist/ks-rhel-`ARCH`-`VARIANT`-`VERSION`
```

In the above example, `ARCH` is the architecture of the Kickstart file, `VARIANT` is either `client` or `server`, and `VERSION` is the release of Red Hat Enterprise Linux associated with the Kickstart file.

Profile Details

On the **Autoinstallation Details › Details** page, you have the following options:

- Change the profile `Label`.

- Change the operating system by clicking `(Change)`.

- Change the `Virtualization Type`.

  > Changing the `Virtualization Type` may require changes to the Kickstart profile bootloader and partition options, potentially overwriting user customizations. Consult the `Partitioning` tab to verify any new or changed settings.

- Change the amount of `Virtual Memory` (in Megabytes of RAM) allocated to virtual guests autoinstalled with this profile.

- Change the number of `Virtual CPUs` for each virtual guest.

- Change the `Virtual Storage Path` from the default in `/var/lib/xen/`.

- Change the amount of `Virtual Disk Space` (in GB) allotted to each virtual guest.

- Change the `Virtual Bridge` for networking of the virtual guest.

- Deactivate the profile so that it cannot be used to schedule a Kickstart by removing the `Active` check mark.

- Check whether to enable logging for custom `%post` scripts to the `/root/ks-post.log` file.

- Decide whether to enable logging for custom `%pre` scripts to the `/root/ks-pre.log` file.

- Choose whether to preserve the `ks.cfg` file and all `%include` fragments to the `/root/` directory of all systems autoinstalled with this profile.

- Select whether this profile is the default for all of your organization's Kickstarts by checking or unchecking the box.

- Add any `Kernel Options` in the corresponding text box.

- Add any `Post Kernel Options` in the corresponding text box.

- Enter comments that are useful to you in distinguishing this profile from others.

Operating System

On this page, you can make the following changes to the operating system that the Kickstart profile installs:

Change the base channel

Select from the available base channels. Uyuni administrators see a list of all base channels that are currently synced to the Uyuni.

Child Channels

Subscribe to available child channels of the base channel, such as the Tools channel.

Available Trees

Use the drop-down menu to choose from available trees associated with the base channel.

Always use the newest Tree for this base channel.

Instead of selecting a specific tree, you can also check the box **Always use the newest Tree for this base channel.** This setting lets Uyuni automatically pick the latest tree that is associated with the specified base channels. If you add new trees later, Uyuni will always keep the most recently created or modified.

Software URL (File Location)

The exact location from which the Kickstart tree is mounted. This value is determined when the profile is created. You can view it on this page but you cannot change it.

Variables

Autoinstallation variables can substitute values in Kickstart and AutoYaST profiles. To define a variable, create a name-value pair (`name/value`) in the text box.

For example, if you want to autoinstall a system that joins the network of a specified organization (for example the Engineering department), you can create a profile variable to set the IP address and the gateway server address to a variable that any system using that profile will use. Add the following line to the `Variables` text box.

```
IPADDR=192.168.0.28
GATEWAY=192.168.0.1
```

Now you can use the name of the variable in the profile instead of a specific value. For example, the `network` part of a Kickstart file looks like the following:

```
network --bootproto=static --device=eth0 --onboot=on --ip=$IPADDR \
  --gateway=$GATEWAY
```

The $IPADDR will be resolved to 192.168.0.28, and the $GATEWAY to 192.168.0.1

> There is a hierarchy when creating and using variables in Kickstart files. System Kickstart variables take precedence over `Profile` variables, which in turn take precedence over `Distribution` variables. Understanding this hierarchy can alleviate confusion when using variables in Kickstarts.

Using variables are just one part of the larger Cobbler infrastructure for creating templates that can be shared between multiple profiles and systems. For more about Cobbler and templates, see **[Client-configuration › Cobbler ›]**.

Advanced Options

From this page, you can toggle several installation options on and off by checking and unchecking the boxes to the left of the option. For most installations, the default options are correct. Refer to Red Hat Enterprise Linux documentation for details.

Assigning Default Profiles to an Organization

You can specify an Organization Default Profile by clicking **Autoinstallation › Profiles › profile name › Details**, then checking the `Organization Default Profile` box and finally clicking `Update`.

Assigning IP Ranges to Profiles

You can associate an IP range to an autoinstallation profile by clicking on **Autoinstallation › Profiles › profile name › Bare Metal Autoinstallation**, adding an IPv4 range and finally clicking **Add IP Range**.

Bare Metal Autoinstallation

This subtab provides the information necessary to Kickstart systems that are not currently registered with Uyuni. Using the on-screen instructions, you may either autoinstall systems using boot media (CD-ROM) or by IP address.

Details

Displays subtabs that are available from the `System Details` tab.

On the **System Details › Details** page, you have the following options:

- Select between DHCP and static IP, depending on your network.

- Choose the level of SELinux that is configured on kickstarted systems.

- Enable configuration management or remote command execution on kickstarted systems.

- Change the root password associated with this profile.
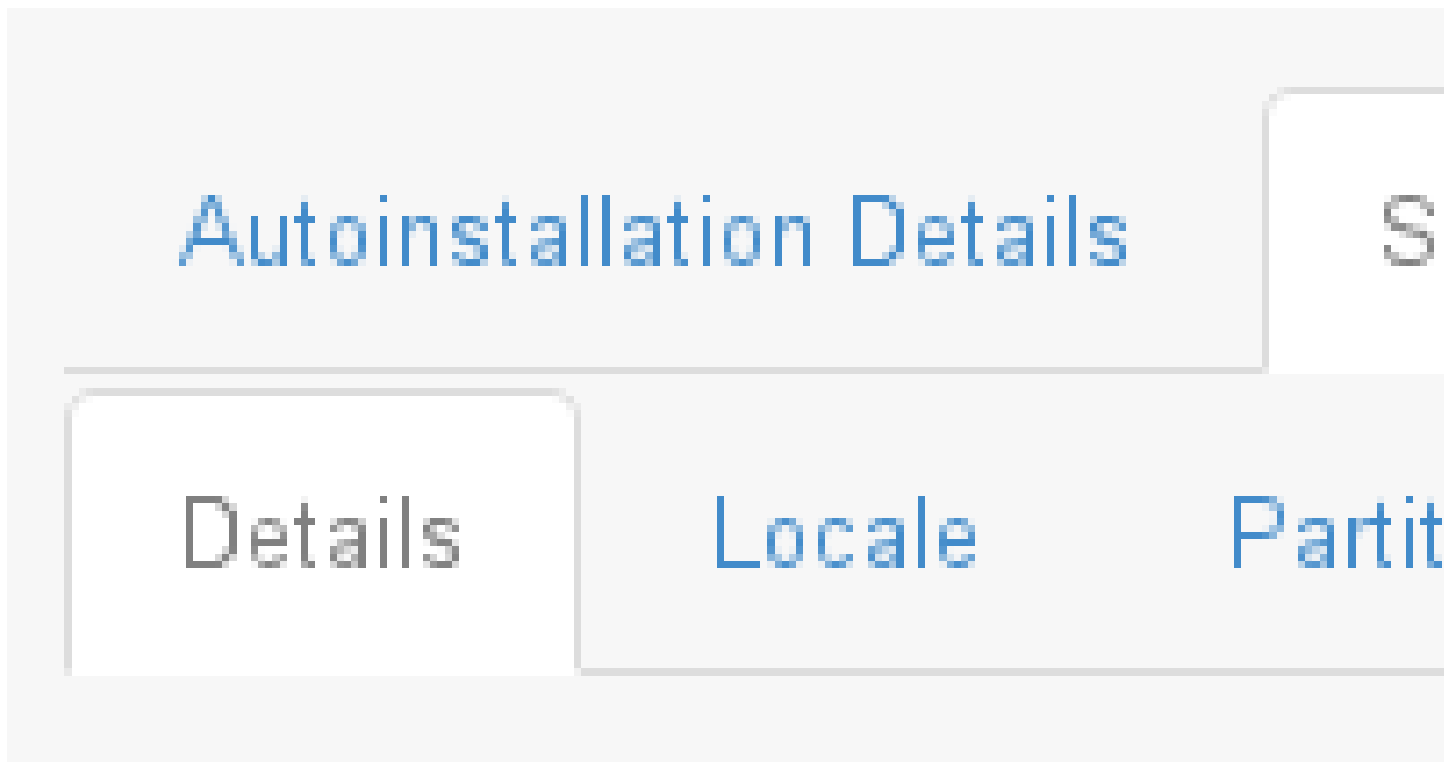
Locale

Change the timezone for kickstarted systems.

Partitioning

From this subtab, indicate the partitions that you wish to create during installation. For example:

```
partition /boot --fstype=ext3 --size=200
partition swap --size=2000
partition pv.01 --size=1000 --grow
volgroup myvg pv.01 logvol / --vgname=myvg --name=rootvol --size=1000 --grow
```

File Preservation

If you have previously created a file preservation list, include this list as part of the Kickstart. This will protect the listed files from being over-written during the installation process. For more on file preservation lists, see **[Reference › Systems ›]**.

GPG & SSL

From this subtab, select the GPG keys and/or SSL certificates to be exported to the kickstarted system during the %post section of the Kickstart. For Uyuni customers, this list includes the SSL Certificate used during the installation of Uyuni.

> ℹ️ Any GPG key you wish to export to the kickstarted system must be in ASCII rather than binary format.

Troubleshooting

From this subtab, change information that may help with troubleshooting hardware problems:

Bootloader

For some headless systems, it is better to select the non-graphic LILO bootloader.

Kernel Parameters

Enter kernel parameters here that may help to narrow down the source of hardware issues.

Package Groups
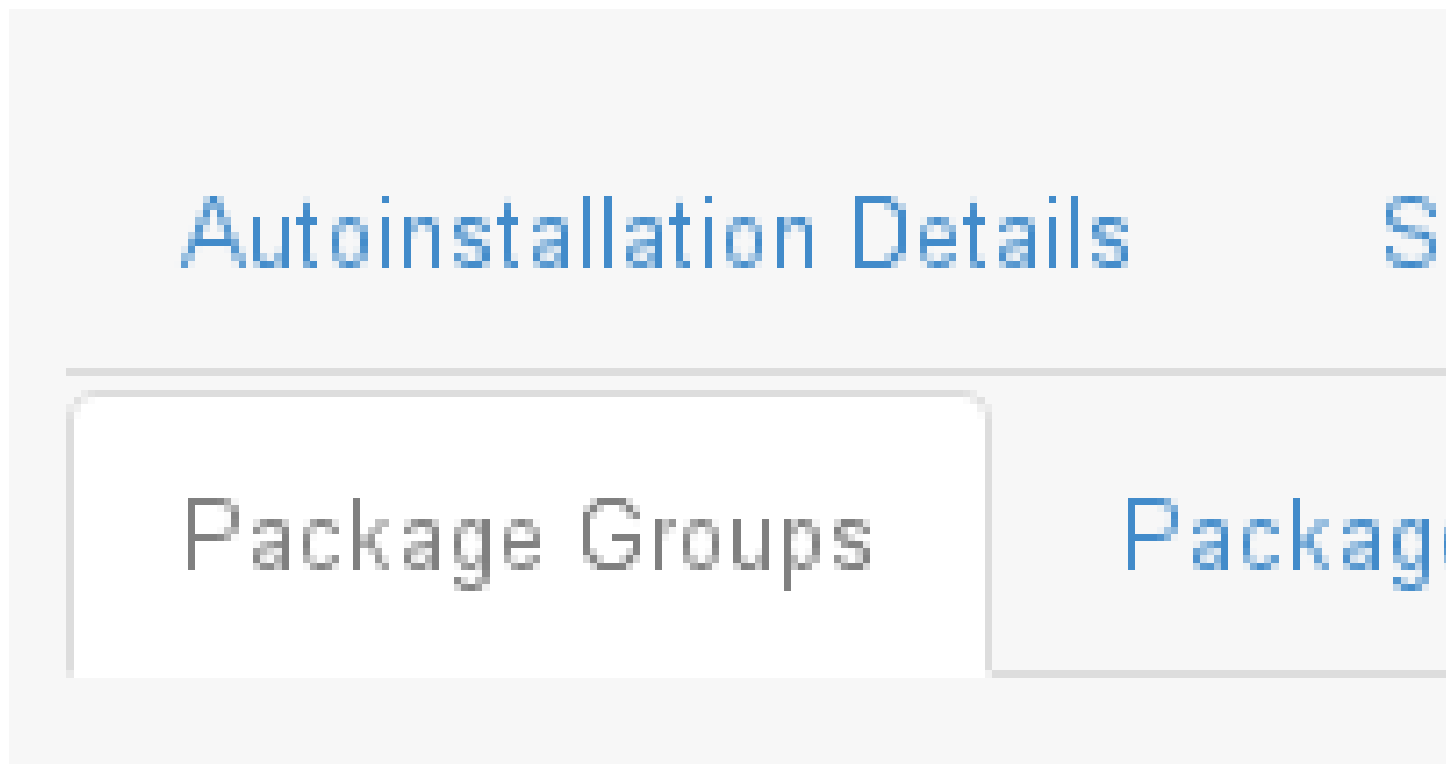
The image above shows subtabs that are available from the `Software` tab.

Enter the package groups, such as `@office` or `@admin-tools` you would like to install on the kickstarted system in the large text box. If you would like to know what package groups are available, and what packages they contain, refer to the `RedHat/base/` file of your Kickstart tree.

Package Profiles

If you have previously created a Package Profile from one of your registered systems, you can use that profile as a template for the files to be installed on a kickstarted system. For more about package profiles, see reference:systems/system-details/sd-packages.pdf.

Activation Keys

Figure 5. Activation Keys

The `Activation Keys` tab allows you to select Activation Keys to include as part of the Kickstart profile. These keys, which must be created before the Kickstart profile, will be used when re-registering kickstarted systems.

Scripts

Figure 6. Scripts

The `Scripts` tab is where `%pre` and `%post` scripts are created. This page lists any scripts that have already been created for this Kickstart profile. To create a Kickstart script, perform the following procedure:

1. Click the `add new kickstart script` link in the upper right corner.

2. Enter the path to the scripting language used to create the script, such as `/usr/bin/perl`.

3. Enter the full script in the large text box.

4. Indicate whether this script is to be executed in the `%pre` or `%post` section of the Kickstart process.

5. Indicate whether this script is to run outside of the chroot environment. Refer to the *Post-installation Script* section of the *Red Hat Enterprise Linux System Administration Guide* for further explanation of the `nochroot` option.

Uyuni supports the inclusion of separate files within the Partition Details section of the Kickstart profile. For instance, you may dynamically generate a partition file based on the machine type and number of disks at Kickstart time. This file can be created via `%pre` script and placed on the system, such as `/tmp/part-include`. Then you can call for that file by entering the following line in the Partition Details field of the **System Details › Partitioning** tab:

```
%include /tmp/part-include
```

Autoinstallation File

Figure 7. Autoinstallation File

The `Autoinstallation File` tab allows you to view or download the profile that has been generated from the options chosen in the previous tabs.

Upload Kickstart/AutoYaST File

Click the `Upload Kickstart/Autoyast File` link from the **Systems › Autoinstallation** page to upload an externally prepared AutoYaST or Kickstart profile.

1. In the first line, enter a profile `Label` for the automated installation. This label[] drop-down menu is only populated if one or more distributions have been created for the selected base channel (see **[Reference › Systems ›]**).

2. Instead of selecting a specific tree, you can also check the box `Always use the newest Tree` for this base channel. This setting lets Uyuni automatically pick the latest tree that is associated with the specified base channels. If you add new trees later, Uyuni will always keep the most recently created or modified.

3. Select the `Virtualization Type` from the drop-down menu. For more information about virtualization with **traditional clients**, see **[Client-configuration › Virtualization ›]**.

> **ℹ** If you do not intend to use the autoinstall profile to create virtual guest systems, you can leave the drop-down set to the default choice `KVM Virtualized Guest`.

4. Either cut-and-paste the file contents, or update the file from the local storage medium:

    ○ Paste it into the `File Contents` box and click `Create`, or

    ○ enter the file name in the `File to Upload` field and click **[Upload File]**.

Four subtabs are now available:

- `Details`
- `Bare Metal`
- `Variables`
- `Autoinstallable File`

Unprovisioned (Bare Metal)

Lists the IP addresses that have been associated with the profiles created by your organization. Click either the range or the profile name to access different tabs of the `Autoinstallation Details` page.

GPG and SSL Keys

Lists keys and certificates available for inclusion in Kickstart profiles and provides a means to create new ones.

This is especially important for customers of Uyuni or the Proxy Server because systems kickstarted by them must have the server key imported into Uyuni and associated with the relevant Kickstart profiles.

Import a profile by creating a new key on this page and then make the profile association in the `GPG and SSL keys` subtab of the `Autoinstallation Details` page.

To create a key or certificate, click the `Create Stored Key/Cert` link in the upper-right corner of the page. Enter a description, select the type, upload the file, and click the **[Update Key]** button. A unique description is required.

> **!** The GPG key you upload to Uyuni must be in ASCII format. Using a GPG key in binary format causes anaconda, and therefore the Kickstart process, to fail.

Distributions

The `Distributions` page enables you to find and create custom installation trees that may be used for automated installations.

> The `Distributions` page does not display distributions already provided. They can be found within the `Distribution` drop-down menu of the `Autoinstallation Details` page.

For more information about installing SUSE distributions, see https://documentation.suse.com/sles/15-SP1/html/SLES-all/book-sle-deployment.html.

For more information about installing Red Hat distributions, see https://access.redhat.com/documentation/en-us/red_hat_enterprise_linux/7/html/installation_guide/chap-kickstart-installations.

The installation tree must be located in a local directory on the Uyuni Server.

Procedure: Creating a Distribution for Autoinstallation

1. To create a distribution, on the `Autoinstallable Distributions` page click `Create Distribution` in the upper right corner.

2. On the `Create Autoinstallable Distribution` page, provide the following data:

    ◦ Enter a label (without spaces) in the `Distribution Label` field, such as `my-orgs-sles-15-sp1` or `my-orgs-rhel-as-7`.

    ◦ In the **Tree Path** field, paste the path to the base of the installation tree.

    ◦ Select the matching distribution from the `Base Channel` and `Installer Generation` drop-down menus, such as `SUSE Linux` for SUSE Linux Enterprise, or `Red Hat Enterprise Linux 7` for Red Hat Enterprise Linux 7 client systems.

3. When finished, click the `[Create Autoinstallable Distribution]` button.

Variables

Autoinstallation variables can be used to substitute values into Kickstart and AutoYaST profiles. To define a variable, create a name-value pair (`name/value`) in the text box.

For example, if you want to autoinstall a system that joins the network of a specified organization (for example the Engineering department) you can create a profile variable to set the IP address and the gateway server address to a variable that any system using that profile will use. Add the following line to the `Variables` text box.

```
IPADDR=192.168.0.28
GATEWAY=192.168.0.1
```

To use the distribution variable, use the name of the variable in the profile to substitute the value. For example, the `network` part of a Kickstart file looks like the following:

```
network --bootproto=static --device=eth0 --onboot=on --ip=$IPADDR \
  --gateway=$GATEWAY
```

The `$IPADDR` will be resolved to `192.168.0.28`, and the `$GATEWAY` to `192.168.0.1`.

There is a hierarchy when creating and using variables in Kickstart files. System Kickstart variables take precedence over Profile variables, which in turn take precedence over Distribution variables. Understanding this hierarchy can alleviate confusion when using variables in Kickstarts.

In AutoYaST profiles you can use such variables as well.

Using variables are just one part of the larger Cobbler infrastructure for creating templates that can be shared between multiple profiles and systems.

For more information about Cobbler and templates, see **[Client-configuration › Cobbler ›]**.

File Preservation

Collects lists of files to be protected and re-deployed on systems during Kickstart. For instance, if you have many custom configuration files located on a system to be kickstarted, enter them here as a list and associate that list with the Kickstart profile to be used.

To use this feature, click the `Create File Preservation List` link at the top. Enter a suitable label and all files and directories to be preserved. Enter absolute paths to all files and directories. Then click `[Create List]`.

Although file preservation is useful, it does have limitations. Each list is limited to a total size of 1 MB. Special devices like `/dev/hda1` and `/dev/sda1` are not supported. Only file and directory names may be entered. No regular expression wildcards can be used.

When finished, you may include the file preservation list in the Kickstart profile to be used on systems containing those files.

For more information, see reference:systems/autoinst-profiles.pdf.

Autoinstallation Snippets

Use snippets to store common blocks of code that can be shared across multiple Kickstart or AutoYaST profiles in Uyuni.

Default Snippets

Default snippets coming with Uyuni are not editable. You can use a snippet, if you add the `Snippet Macro` statement such as `$SNIPPET('spacewalk/sles_register_script')` to your autoinstallation profile. This is an AutoYaST profile example:

```
<init-scripts config:type="list">
  $SNIPPET('spacewalk/sles_register_script')
</init-scripts>
```

When you create a snippet with the `Create Snippet` link, all profiles including that snippet will be updated accordingly.

Custom Snippets

This is the tab with custom snippets. Click a name of a snippet to view, edit, or delete it.

All Snippets

The `All Snippets` tab lists default and custom snippets together.

Virtual Host Managers

Virtual Host Managers (VHMs) are used to gather information from a range of client types.

VHMs can be used to collect private or public cloud instances and organize them into virtualization groups. With your virtualized clients organized this way, Taskomatic collects data on the clients for display in the Uyuni Web UI. VHMs also allow you to use subscription matching on your virtualized clients.

You can create a VHM on your Uyuni Server, and use it to inventory available public cloud instances. You can also use a VHM to manage clusters created with Kubernetes and SUSE CaaS Platform.

After your VHM has been created and configured, Taskomatic will run data collection automatically. You can also begin data collection manually through the Web UI, by navigating to **Systems › Virtual Host Managers**, selecting the appropriate VHM, and clicking `[Refresh Data]`.

For more information on VHMs, see **[Client-configuration › Vhm ›]**.
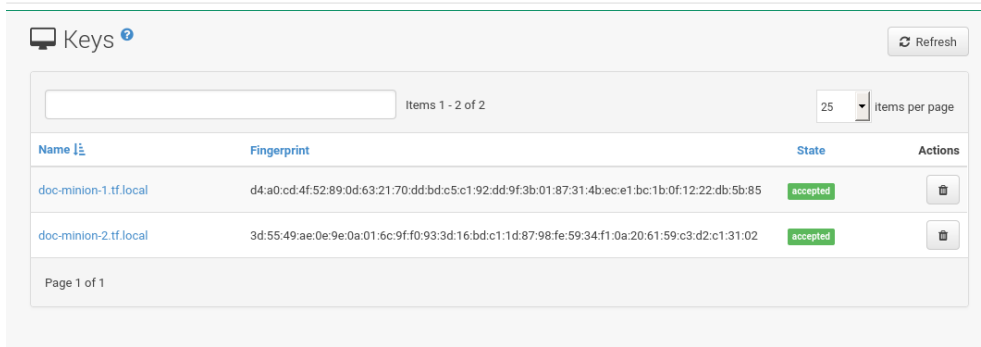
Salt Menu

Open **Main Menu › Salt** from the left navigation sidebar. **Main Menu › Salt › Keys** provides an overview of your Salt clients (minions). Use `Remote Commands` to execute remote commands on your Salt clients. You can also define a `State Catalog` for creating a collection of salt system states.

Keys

The `Keys` page provides a summary of your clients, including their names, fingerprints, state, and actions you may perform on them.

Once you have pointed a client to the Uyuni server as its master within `/etc/salt/minion`, you can choose to accept or reject a client from this page. Toggle the check mark or cross in the `actions` column.

Figure 8. Keys Overview

For more information about key handling and onboarding, see:

[Client-configuration › Clients-and-activation-keys › Activation Keys]

Remote Commands

The remote commands page allows you to execute and run commands from the Uyuni server on several clients.
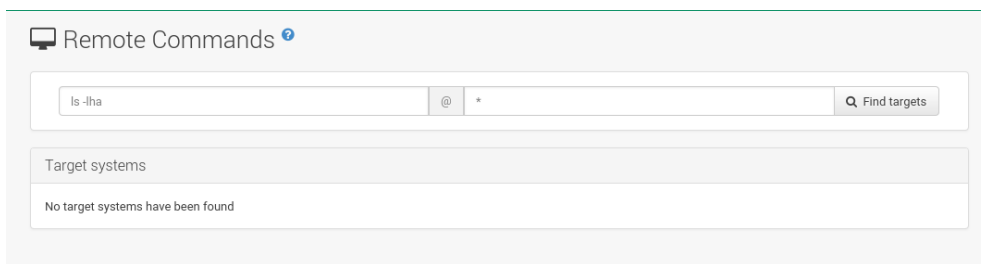
Figure 9. Remote Commands

Salt runs remote commands from `/tmp` of the client's filesystem. Therefore you must not mount `/tmp` with the `noexec` option.

> ⚠️ *Remote Commands Security*
>
> All commands run from the `Remote Commands` page are executed as root on clients. Wildcards can be used to run commands across any number of systems, so always take extra precaution as this may have drastic consequences for your systems.

On the **Salt › Remote Commands** page you will see two text boxes. The first box is for entering commands. The second box is for targeting clients by the `minion_id` value (name), or by a partial match using wildcards.

Enter the command you want to execute. Add a target client to execute the command on, or use wildcard matching to target a group of clients. Click **[Find Targets]** to verify which clients will be targeted. Click **[Run Command]** to execute the command on the target systems.

Formula Catalog

The `Formula Catalog` is a feature preview: The formula catalog page enables viewing of currently installed Salt formulas. Apply these formulas to individual systems or server groups. Formulas allow automatic installation and configuration of software and may be installed via RPM packages. We would be glad to receive your feedback in the SUSE Manager Forum.
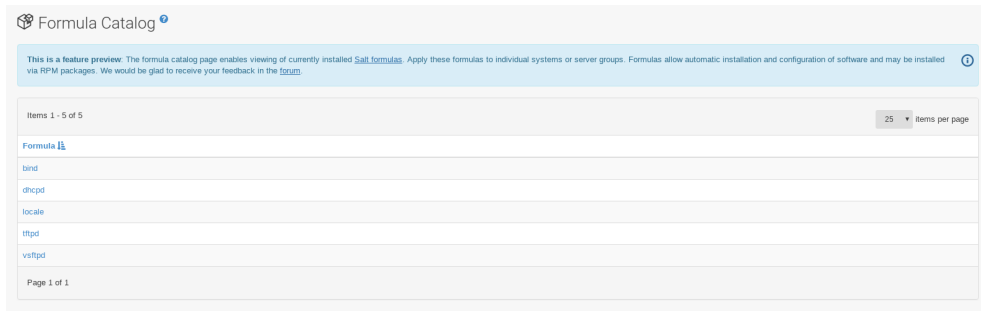
Images Menu

The **Images › Image List** section displays your current operating system images.

For more information about images, see **[Administration › Image-management ›]**.

Image List

The **Images › Image List** section displays your current operating system images.

Click **[Import]** to import a new Docker image. You can only import new images created from a Docker image using this mechanism. To import images based on Kiwi instead, see **[Administration › Image-management ›]**.

Click **[Refresh]** to update the list.

Perform bulk actions by checking images in the list. Click **[Delete]** to bulk delete images.

Table 5. Image List Columns

Column	Description
Name	Name of the image.
Version and Revision	Version and revision of the image.
Updates	Any updates that are currently available for the image.
Patches and Packages	Any patches or packages that are currently available for the image.

Column	Description
Build	The current status of the build: `Built`, `Scheduled`, `Building` or `Failed`.
Last Modified	The time and date the image was last modified.

For more information about images, see **[Administration › Image-management ›]**.

Images Build

The **Images › Build** section allows you to build operating system images for installing on clients.

Table 6. Image Build Options

Option	Description	Default
Image Profile	Select the image profile to use. Manage image profiles at **Images › Profiles**.	Blank.
Build Host	Select the build host for the new image.	Blank.
Earliest	Schedule the time and date for the build to begin.	Current system time and date.
Add to	Select which action chain to add the build task to.	New action chain.

Built images are listed in **Images › Image List**.

For more information about images, see **[Administration › Image-management ›]**.

Images Profiles

The **Images › Profiles** section displays your current image profiles.

Click **[Create]** to create a new image profile. Click **[Refresh]** to update the list.

Perform bulk actions by checking profiles in the list. Click **[Delete]** to bulk delete profiles.

For more information about images, see **[Administration › Image-management ›]**.

Images Stores

The **Images › Stores** section displays your current image stores.

Click **[Create]** to create a new image store. Click **[Refresh]** to update the list.

Perform bulk actions by checking images in the list. Click `[Delete]` to bulk delete image stores.

For more information about images, see **[Administration › Image-management ›]**.

Patches Menu

The **Main Menu › Patches** menu from the left bar helps tracking the availability and application of patches to your managed systems.

The **Main Menu › Patches › Patches** page displays all or relevant patches for at least one of your managed systems that have not been applied yet.

> *Receiving Patches for Your System*
>
> To receive an e-mail when patches are issued for your system, go to **Main Menu › Home › My Preferences** and select `Receive email notifications`.

SUSE distinguishes three types of patches: security updates, bug fix updates, and enhancement updates. Each patch consists of a summary of the problem and solution, including the RPM packages fixing the problem.

Icons are used to identify the three types:

- · — Security Updates available, *strongly* recommended
- · — Bug Fix Updates available, recommended
- [Enhancement Alert] — Enhancement Updates available, optional

A summary of each patch is provided in list form displaying its type, advisory ID, synopsis (with the severity as a textual prefix in case of security updates, such as "critical", "important", "moderate", or "low"), number of affected systems in your network, and date updated.

In addition, you may view patches by product line at the following location: http://download.suse.com/patch/psdb/. For more information on security updates, see https://www.suse.com/support/security/.

Applying Patches

Patches include a list of updated packages. To apply patches to a system, the system must be entitled.

Apply all applicable patches to a system by clicking **Main Menu › Systems › Systems**. Click the name of an entitled system. Then open the **System Details › Software › Patches** subtab. When the relevant patch list appears, click `[Select All]` then `[Apply Patches]`. Only patches not scheduled, scheduled but failed, or canceled patches are listed. Pending updates are excluded.

In addition, users with appropriate roles can apply patches using two other methods:

- To apply a specific patch to one or more systems, locate it in the patch list and click the number of systems affected, which takes you to the `Affected Systems` page of the `Patch Details` page.

Select the individual systems to be updated and click the **[Apply Patches]** button. Double-check the systems to be updated on the confirmation page, then click the **[Confirm]** button.

- To apply more than one patch to one or more systems, select the systems from the **Main Menu › Systems › Systems** list. Click the **Main Menu › Systems › System Set Manager › Overview**, then click the `Systems` tab. After ensuring the appropriate systems are selected, click the `Patches` tab, select the patches to apply, and click the **[Apply Patches]** button. Schedule a date and time for the patch to be applied. Default is the current date. Click the **[Confirm]** button. You can follow the progress of the patch application via the `Pending Actions` list. Refer to **[Reference › Schedule › Schedule]** for more details.

> ! If you use scheduled package installation, the packages or patches are installed via the configured contact method. For more information, see **[Client-configuration › Contact-methods-intro ›]**.

The following rules apply to patches:

- Each package is a member of one or more channels. If a selected system is not subscribed to a channel containing the package, the update will not be installed on that system.

- If a newer version of the package is already installed on the system, the update will not be installed.

- If an older version of the package is installed, the package will be upgraded.

Patch Details

If you click the advisory of a patch in the `Relevant` or `All` pages, its `Patch Details` page appears. This page is further divided into the following tabs:

Details

This subtab displays the patch report issued by SUSE. It provides a synopsis of the patch first (with the severity as a textual prefix in case of security updates, such as "critical", "important", "moderate", or "low"), issue date, and any update dates. This is followed by a description of the patch and the steps required to resolve the issue.

Below the `Affected Channels` label, all channels that contain the affected package are listed. Clicking a channel name displays the `Packages` subtab of the `Channel Details` page for that channel. Refer to **[Reference › Patches › Patch Details]** for more information.

Security updates list the specific vulnerability as tracked by http://cve.mitre.org. This information is listed below the `CVEs` label.

OVAL is an open vulnerability and assessment language promoted by Mitre, http://oval.mitre.org. Clicking the link below the `Oval` label downloads this information to your system.

More useful are the SUSE Update Advisories at https://www.suse.com/support/update/.

Packages

This page provides links to each of the updated RPMs by channel. Clicking the name of a package displays its `Package Details` page.

Affected Systems
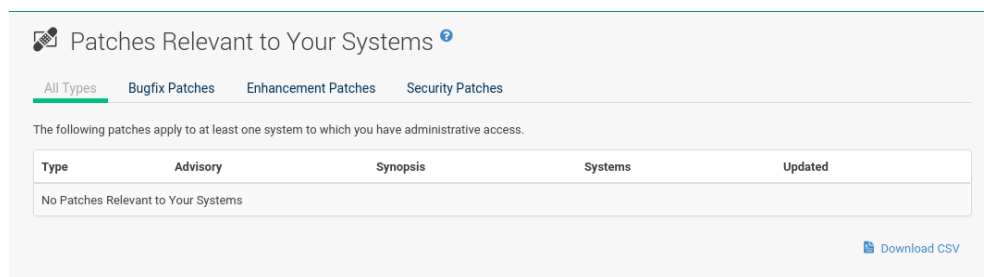
This page lists systems affected by the patches. You can apply updates here. (See **[Reference › Patches › Applying Patches]**.) Clicking the name of a system takes you to its `System Details` page. Refer to **[Reference › Systems › System Details]** for more information.

To determine whether an update has been scheduled, refer to the `Status` column in the affected systems table. Possible values are: N/A, Pending, Picked Up, Completed, and Failed. This column identifies only the last action related to a patch. For example, if an action fails and you reschedule it, this column shows the status of the patch as pending with no mention of the previous failure. Clicking a status other than `N/A` takes you to the `Action Details` page. This column corresponds to one on the `Patch` tab of the `System Details` page.

Patch List

Relevant Patches

The `Relevant` patches page displays a customized list of patches applying to your registered systems.

Clicking an `Advisory` ID of a patch takes you to the `Details` page of the `Patch Details` page.

Clicking the number of associated systems takes you to the `Affected Systems` page of the `Patch Details` page. Refer to **[Reference › Patches › Patch Details]** for more information.

All Patches

The `All` patches page displays a list of all patches released by SUSE, irrelevant of whether they apply to your registered systems or not.

Like in the `Relevant Patches` page, clicking either `Advisory` or the number of systems affected takes you to related tabs of the `Patch Details` page. Refer to **[Reference › Patches › Patch Details]** for more information.

Advanced Search for Patches

The **Main Menu › Patches › Advanced Search** page allows you to search through patches by specific criteria.

- `All Fields` — Search patches by synopsis, description, topic, or solution.

- `Patch Advisory` — The name or the label of the patch.

- `Package Name` — Search particular packages by name:

```
kernel
```

Results will be grouped by advisory. For example, searching for 'kernel' returns all package names containing the string `kernel`, grouped by advisory.

- `CVE` — The name assigned to the security advisory by the Common Vulnerabilities and Exposures (CVE) project at http://cve.mitre.org. For example:

```
CVE-2006-4535
```

To filter patch search results, check or uncheck the boxes next to the type of advisory:

- Bug Fix Advisory — Patches that fix issues reported by users or discovered during development or testing.

- Security Advisory — Patches fixing a security issue found during development, testing, or reported by users or a software security clearing house. A security advisory usually has one or more CVE names associated with each vulnerability found in each package.

- Product Enhancement Advisory — Patches providing new features, improving functionality, or enhancing performance of a package.

Manage Patches

Custom patches enable organizations to issue patch alerts for the packages in their custom channels, schedule deployment and manage patches across organizations.
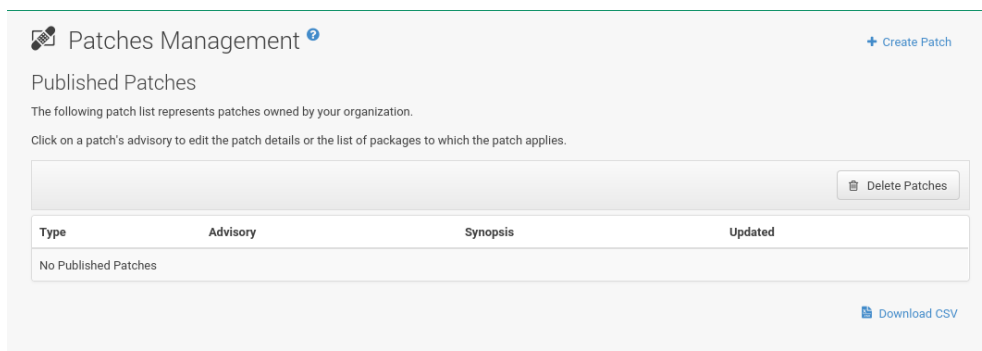
If the organization is using both Uyuni and Uyuni Proxy server, then manage patches only on the Uyuni server since the proxy servers receive updates directly from it. Managing patches on a proxy in this combined configuration risks putting your servers out of synchronization.

Create and Edit Patches

To create a custom patch alert, proceed as follows:

1. Click **Main Menu** › **Patches** › **Manage Patches** › **Published**. Then on the `Patches Management` page, click `Create Patch`.

2. Enter a label for the patch in the `Advisory` field, ideally following a naming convention adopted by your organization.

3. Complete all remaining required fields, then click the `[Create Patch]` button. View standard SUSE Alerts for examples of properly completed fields.

Patch management distinguishes between published and unpublished patches.

- `Published` : this page displays the patch alerts the organization has created and disseminated. To edit an existing published patch, follow the steps described in Assigning Packages to Patches. To distribute the patch, click `[Send Notification]` in the `Send Patch Mail` section on the top of the `Patch Details` page. The patch alert is sent to the administrators of all affected systems.

- **Unublished** : this page displays the patch alerts your organization has created but not yet distributed. To edit an existing unpublished patch, follow the steps described in Assigning Packages to Patches. To publish the patch, click **[Publish Patch]** on the top-right corner of the **Patch Details** page. Confirm the channels associated with the patch and click the **[Publish Patch]** button, now in the lower-right corner. The patch alert is moved to the **Published** page awaiting distribution.

Uyuni administrators can also create patches by cloning an existing one. Cloning preserves package associations and simplifies issuing patches. See **[Reference › Patches › Clone Patches]** for instructions.

To edit an existing patch alert's details, click its advisory on the **Patches Management** page, make the changes in the appropriate fields of the **Details** tab, and click the **[Update Patch]** button. Click the **Channels** tab to alter the patch's channel association. Click the **Packages** tab to view and modify its packages.

To delete patches, select their check boxes on the **Patches Management** page, click the **[Delete Patches]** button, and confirm the action. Deleting published patches might take a few minutes.

Assigning Packages to Patches

To assign packages to patches, proceed as follows:

1. Select a patch, click the **Packages** tab, then the **Add** subtab.

2. To associate packages with the patch being edited, select the channel from the **View** drop-down box that contains the packages and click **[View]**. Packages already associated with the patch being edited are not displayed. Selecting **All managed packages** presents all available packages.

3. After clicking **[View]**, the package list for the selected option appears. Note that the page header still lists the patch being edited.

4. In the list, select the check boxes of the packages to be assigned to the edited patch and click **[Add Packages]**.

5. A confirmation page appears with the packages listed. Click **[Confirm]** to associate the packages with the patch. The **List/Remove** subtab of the **Managed Patch Details** page appears with the new packages listed.

When packages are assigned to a patch, the patch cache is updated to reflect the changes. This update is delayed briefly so that users may finish editing a patch before all the changes are made available. To initiate the changes to the cache manually, follow the directions to **[Commit the Changes Immediately]** at the top of the page.

Publishing Patches

After adding packages to the patch, the patch needs to be published to be disseminated to affected systems. Follow this procedure to publish patches:

1. On the top navigation bar, click **Main Menu › Patches › Manage Patches › Unpublished** to see all

the unpublished patches listed.

2. Click the patch `Advisory` name to open the patch details pages.

3. On the patch details page, click **[Publish Patch]**. A confirmation page appears that will ask you to select which channels you want to make the patch available in. Choose the relevant channels.

4. At the bottom of the page, click **[Publish Patch]**. The patch published will now appear on the `Published` page of `Manage Patches`.

Published Patches

Here all published patches are listed. It is possible to perform the following actions:

- To create a patch, click **[Create Patch]**.

- To delete patches, select them first and then click **[Delete Patches]**.

- Click an Advisory name to open the patch details page.

Unpublished Patches

Here all published patches are listed. It is possible to perform the same actions as with published patches. For more information, see **[Reference › Patches › Published Patches]**. Additionally, on a patch details page, you can click **[Publish Patch]** for publishing.

Clone Patches

Patches can be cloned for easy replication and distribution as part of Uyuni.

Only patches potentially applicable to one of your channels can be cloned. Patches can be applicable to a channel if that channel was cloned from a channel to which the patch applies. To access this functionality, click **Main Menu › Patches › Clone Patches**.

On the `Clone Patches` page, select the channel containing the patch from the `View` drop-down box and click **[View]**. When the patch list appears, select the check box of the patch to be cloned and click **[Clone Patch]**. A confirmation page appears with the patch listed. Click **[Confirm]** to finish

cloning.

The cloned patch appears in the `Unpublished` patch list. Verify the patch text and the packages associated with that patch, then publish the patch so it is available to users in your organization.

Software Menu

The pages in the **Main Menu › Software** category enable you to view and manage software channels and packages associated with your systems.

Channel Details

General information about the channel and its parent if applicable. This summary, description, and architecture is also displayed when clicking a channel.

In addition, `Per-User Subscription Restrictions` can be set globally by Uyuni administrators and channel administrators. By default, any user can subscribe channels to a system. To manage user permissions, select `Only selected users within your organization may subscribe to this channel` and click `[Update]`. The `Subscribers` tab appears. Click it to grant specific users subscription permissions to a channel. Uyuni administrators and channel administrators can always

subscribe any channels to a system.

Only customers with custom base channels can change their systems' base channel assignments via the Uyuni Web interface in two ways:

- Assign the system to a custom base channel.

- Revert subscriptions from a custom base channel to the appropriate distribution-based base channel.

> The assigned base channel must match the installed system. For example, a system running SUSE Linux Enterprise 11 for `x86_64` cannot be registered to a SUSE Linux Enterprise 12 for `s390x` base channel. Use the files `/etc/os-release` or `/etc/SuSE-release` to check your product, architecture (try `uname -a`), version, and patch level.

Managers

On the `Managers` page, you can check which users are authorized to manage the selected channel.

Real name and e-mail address are listed with the user names. Organization and Channel administrators can manage any channel. As a Uyuni administrator you can change roles for specific users by clicking the name. For more information on user management and the `User Details` page, see: **[Reference › Users › Users]**.

Patches

The `Patches` page lists patches to be applied to packages provided in the channel.

The list displays advisory types, names, summaries, and issue dates. Clicking an advisory name takes you

to its `Patch Details` page. for more information, see: [**Reference › Patches › Patch Details**].

Packages

This page lists packages in the channel. Clicking a package name takes you to the `Package Details` page.
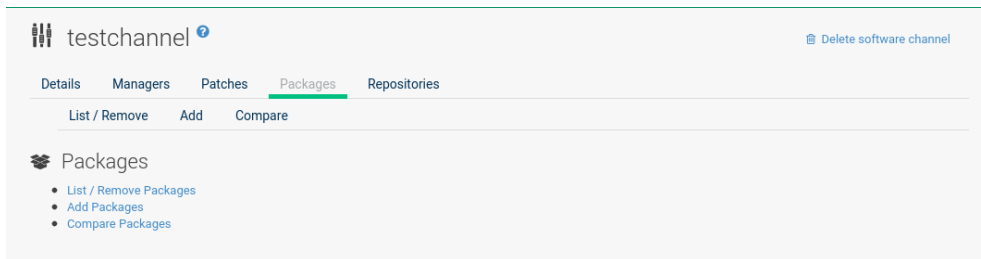
This page displays a set of tabs with information about the package, including architectures on which it runs, the package size, build date, package dependencies, change log, list of files in the package, newer versions, and which systems have the package installed. Download the packages as RPMs.

To search for a specific package or a subset of packages, use the package filter at the top of the list. Enter a substring to search for package names containing the string. For example, typing `dd` in the filter might return: `dd_rescue`, `ddclient`, and `uuidd`. The filter is case-insensitive.

Subscribed Systems

The list displays system names and their system type. Clicking a system name takes you to its `System Details` page. For more information, see: [**Reference › Systems › System Details**].

Target Systems

List of systems eligible for subscription to the channel. This tab appears only for child channels. Use the check boxes to select the systems, then click the `Confirm` and `[Subscribe]` button on the bottom right-hand corner. You will receive a success message or be notified of any errors. This can also be accomplished through the `Channels` tab of the `System Details` page. For more information, see: [**Reference › Systems › System Details**].

Channel List Menu

Channels Overview

The **Main Menu › Software › Channels List** menu item is the first to appear. A software channel provides packages grouped by products or applications to simplify the selection of packages to be installed on a system.

There are two types of software channels: base channels and child channels.

Base Channels

A base channel consists of packages built for a specific architecture and release. For example, all of the packages in SUSE Linux Enterprise Server 12 for the `x86_64` architecture make up a base channel. The list of packages in SUSE Linux Enterprise Server 12 for the `s390x` architecture make up a different base channel.

A system must be subscribed to only one base channel assigned automatically during registration based on the SUSE Linux Enterprise release and system architecture. For paid base channels, an associated subscription must exist.

Child Channels

A child channel is associated with a base channel and provides extra packages. For example, an organization can create a child channel associated with SUSE Linux Enterprise Server on `x86_64` architecture that contains extra packages for a custom application.

Especially important are the Uyuni Tools channels that are available for every base channel. These tools channels provide the tools needed to connect the clients with the Uyuni server.

A system can be subscribed to multiple child channels of its base channel. Only packages provided by a subscribed channel can be installed or updated. Uyuni Administrators and Channel Administrators have channel management authority. This authority gives them the ability to create and manage their own custom channels.

> **i** Do not create child channels containing packages that are not compatible with the client system.

Channels can be further distinguished by relevance: `All`, `SUSE`, `Channels`, `My Channels`, `Shared`, and `Retired`.

Channel List

All

Under **Main Menu › Software › Channels** select `All`. All channels available to your organization are listed.

Links within this list go to different tabs of the `Software Channel Details` page. Clicking a channel name takes you to the `Details` tab. Clicking the number of packages takes you to the `Packages` tab.

Clicking the number of systems takes you to the `Subscribed Systems` tab. Refer to: **[Reference › Software › Channel Details]** for details.

> *Package Count Update Change*
>
> During a channel synchronization all package are now downloaded before they are incremented and displayed within the Web UI. When packages have completed the initial download, packages will begin to increment in your channel as they are imported to the database.

SUSE

The `SUSE` page displays all SUSE channels and any available child channels.

SUSE ❓
All   SUSE   Popular   My Channels   Shared   Retired
The software channels listed below are SUSE channels or child channels of SUSE Channels.
No channels found.
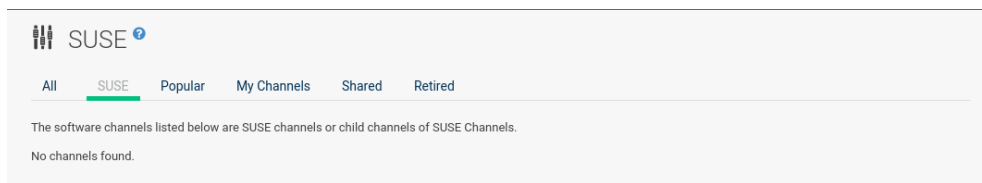
> *SUSEChannels Cannot be Deleted*
>
> When imported, SUSE channels cannot be deleted. Only custom software channels can be deleted.

Popular

The `Popular` page displays the software channels most subscribed by systems registered to your organization.

Popular ❓
All   SUSE   Popular   My Channels   Shared   Retired
The software channels listed below are considered popular (defined as having a certain number of systems subscribed).
Display channels with at least 10 ▾ systems subscribed below.
Update
No channels found.
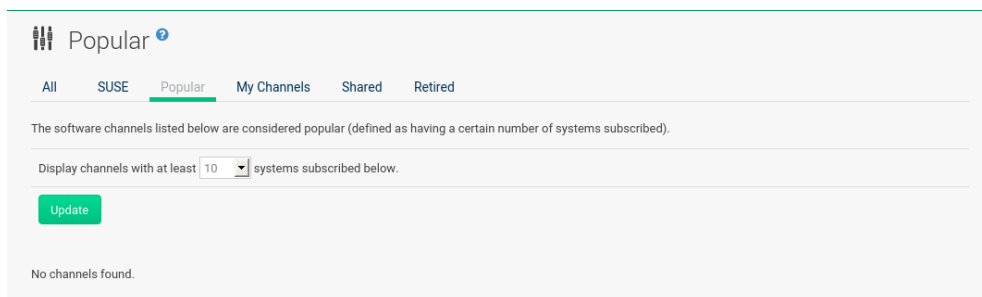
You can refine the search by using the drop-down box to list only the channels with at least a certain number of systems subscribed.

My Channels

The `My Channels` page displays all software channels that belong to your organization, including both SUSE and custom channels. Use the text box to filter by channel name.

My Channels ❓

All   SUSE   Popular   My Channels   Shared   Retired

The software channels listed below belong to your organization.

| Filter by Channel Name: | 👁 | Show All Child Channels | Hide All Child Channels |

Channel Name	Packages	Systems
☐ testchannel	0	4

Shared

The `Shared` page displays the channels shared with others in the organizational trust.

Shared ❓

All   SUSE   Popular   My Channels   Shared   Retired

The software channels listed below may be shared by your organization.

No channels found.

Retired

The `Retired` page displays available channels that have reached their end-of-life dates and do not receive updates.

Retired Software Channel List ❓

All   SUSE   Popular   My Channels   Shared   Retired

The software channels listed below are **retired channels** that your organization is entitled to but are no longer supported by SUSE because they have reached their 'end-of-life' date.

No channels found.

Package Search

The `Package Search` page allows you to search through packages using various criteria provided by the `What to search for` selection list:

- `Free Form` — a general keyword search useful when the details of a particular package and its contents are unknown.

- `Name Only` — Targeted search to find a specific package known by name.

- `Name and Summary` — Search for a package or program which might not show up in the respective package name but in its one-line summary.

- `Name and Description` — Search package names and their descriptions.

The `Free Form` field additionally allows you to search using field names that you prepend to search queries and filter results by that field keyword.

For example, if you wanted to search all of the SUSE Linux Enterprise packages for the word `java` in the description and summary, type the following in the `Free Form` field:

```
summary:java and description:java
```

Other supported field names include:

- `name`: search package names for a particular keyword,

- `version`: search for a particular package version,

- `filename`: search the package file names for a particular keyword,

- `description`: search the packages' detailed descriptions for a particular keyword,

- `summary`: search the packages' brief summary for a particular keyword,

- `arch`: search the packages by their architecture (such as `x86_64`, `ppc64le`, or `s390`).

You can also limit searches to `Channels relevant to your systems` by clicking the check box. Additionally, you can restrict your search by platform (`Specific channel you have access to`) or architecture (`Packages of a specific architecture`).

Manage Menu

This menu allows administrators to create, clone, and delete custom channels. These channels may contain altered versions of distribution-based channels or custom packages.

Overview

The `Overview` page of the `Manage Software Channels` menu lists all available channels including custom, distribution-based, and child channels.

To clone an existing channel, click the `Clone Channel` link. Select the channel to be cloned from the drop-down box, select whether to clone the current state (including patches) or the original state (without patches). You can also select specific patches to use for cloning. Then click the `[Create Channel]` button. In the next screen select options for the new channel, including base architecture and GPG, then click `Create Channel`.

> *GPG Key URL*
>
> The GPG key URL may be either an internal file location such as `file:///` or you may use an external URL.

To create a new channel, click the `Create Channel` link. Select the appropriate options for the new channel, including base architecture and GPG options, then click `[Create Channel]`. Note that a channel created in this manner is blank, containing no packages. You must either upload software packages or add packages from other repositories. You may also choose to include patches in your custom channel.

> *Enable GPG Check*
>
> `Enable GPG Check` is automatically selected when creating a new channel. If you would like to add custom packages and applications to your channel, make sure you deselect this box or you cannot install/add unsigned packages. Keep in mind this is a security risk for packages from an untrusted source.

Channel Details

This page lists the settings made during channel creation.

Channel Permissions

Uyuni administrators and channel administrators may alter or delete any channel.

> If you delete a channel that has been assigned to a set of clients, it will trigger an immediate update of the channel state for any clients associated with the deleted channel. This is to ensure that the changes are reflected accurately in the repository file.

To grant other users rights to alter or delete this channel, check the box next to the user's name and click `[Update]`.

To allow all users to manage the channel, click the `[Select All]` button at the bottom of the list then click `[Update]`. To remove a user's right to manage the channel, uncheck the box next to their name and click `[Update]`.

Manage Channels

The `Overview` page of the `Manage Software Channels` menu lists all available channels including custom, distribution-based, and child channels.

To clone an existing channel, click the `Clone Channel` link. Select the channel to be cloned from the drop-down box, select whether to clone the current state (including patches) or the original state (without patches). You can also select specific patches to use for cloning. Then click the `[Create Channel]` button. In the next screen select options for the new channel, including base architecture and GPG, then click `Create Channel`.

> *GPG Key URL*
>
> The GPG key URL may be either an internal file location such as `file:///` or you may use an external URL.

To create a new channel, click the `Create Channel` link. Select the appropriate options for the new channel, including base architecture and GPG options, then click `[Create Channel]`. Note that a channel created in this manner is blank, containing no packages. You must either upload software packages or add packages from other repositories. You may also choose to include patches in your custom channel.

> *Enable GPG Check*
>
> `Enable GPG Check` is automatically selected when creating a new channel. If you would like to add custom packages and applications to your channel, make sure you deselect this box or you cannot install/add unsigned packages. Keep in mind this is a security risk for packages from an untrusted source.

Channel Details

This page lists the settings made during channel creation.

Managers

Uyuni administrators and channel administrators may alter or delete any channel.

> If you delete a channel that has been assigned to a set of clients, it will trigger an immediate update of the channel state for any clients associated with the deleted channel. This is to ensure that the changes are reflected accurately in the repository file.

To grant other users rights to alter or delete this channel, check the box next to the user's name and click `[Update]`.

To allow all users to manage the channel, click the `[Select All]` button at the bottom of the list then click `[Update]`. To remove a user's right to manage the channel, uncheck the box next to their name and click `[Update]`.

Patches

Channel managers can list, remove, clone, and add patches to their custom channel. Custom channels not cloned from a distribution may not contain patches until packages are available. Only patches that match the base architecture and apply to a package in that channel may be added. Finally, only cloned or custom patches may be added to custom channels. Patches may be included in a cloned channel if they are selected during channel creation.

The Sync tab lists patches that were updated since they were originally cloned in the selected cloned channel. More specifically, a patch is listed here if and only if:

- it is a cloned patch,

- it belongs to the selected cloned channel,

- it has already been published in the selected cloned channel,

- it does not contain a package that the original patch has, or it has at least one package with a different version with regard to the corresponding one in the original patch, or both.

- Clicking the **[Sync Patches]** button opens a confirmation page in which a subset of those patches can be selected for synchronization.

- Clicking the **[Confirm]** button in the confirmation page results in such patches being copied over from the original channel to the cloned channel, thus updating corresponding packages.

Packages

As with patches, administrators can list, remove, compare, and add packages to a custom channel.

To list all packages in the channel, click the List / Remove Packages link. Check the box to the left of any package you want to remove, then click **[Remove Packages]**.

To add packages, click the Add Packages link. From the drop-down box activate a channel from which to add packages and click **[View]** to continue. Check the box to the left of any package you want to add to the custom channel, then click **[Add Packages]**.

To compare packages in the current channel with those in another, select a channel from the drop-down box and click **[Compare]**. Packages in both channels are compared, including architecture and the latest version of packages. The results are displayed on the next screen.

To make the two channels identical, click the **[Merge Differences]** button. In the next dialog, resolve any conflicts. **[Preview Merge]** allows you to review the changes before applying them to the channels. Select those packages that you want to merge. Click **[Merge Packages]** then **[Confirm]** to perform the merge.

Repositories

On the Repositories page, assign software repositories to the channel and synchronize repository content:

- **Add/Remove** lists configured repositories, which can be added and removed by selecting the check box next to the repository name and clicking **[Update Repositories]**.

- **Sync** lists configured repositories. The synchronization schedule can be set using the drop-down boxes, or an immediate synchronization can be performed by clicking **[Sync Now]**.

The **Manage Repositories** tab to the left shows all assigned repositories. Click a name to see details and possibly delete a repository.

> **Channel with multiple repositories and comps files**
>
> Some repositories have a comps file associated with them. Comps files are used to define how packages are grouped within the repository. If you are synchronizing multiple repositories within the same channel, the comps file of the most recently synchronized repository will be used for the entire channel. If you want to access all your repository comps files, you will need to map each repository to a different channel.

Manage Packages

This page allows managing custom software packages, listing all software or viewing only packages in a custom channel. Select the respective channel from the drop-down box and click **[View Packages]**.

Manage Repositories

Repositories

Add or manage custom or third-party package repositories and link the repositories to an existing channel. The repositories feature currently supports repomd repositories.

To create a new repository click the **Create Repository** link at the top right of the **Manage Repositories** page. The **Create Repository** screen prompts you to enter a **Repository Label** such as **sles-12-x86_64** and a **Repository URL**. You may enter URLs pointing to mirror lists or direct download repositories, then click **[Create Repository]**. Select the desired SSL certificate of authority, client certificate and key from the drop down list. SSL keys should be placed in **http://EXAMPLE-FQDN.com/pub**.

To link the new repository to an existing software channel, select **Manage Software Channels** from the left menu, then click the channel you want to link. In the channel's detail page, click the **Repositories** subtab, then check the box next to the repository you want to link to the channel. Click **[Update Repositories]**.

To synchronize packages from a custom repository to your channel, click the **Sync** link from the channel's **Repositories** subtab, and confirm by clicking the **[Sync]** button.

You can also perform a synchronization via command line by using the **spacewalk-repo-sync** command, which additionally allows you to accept keys.

`spacewalk-repo-sync` creates log files in the `/var/log/rhn/reposync` directory. Uyuni uses one log file per channel and reuses it with the next synchronization run.

Distribution Channel Mapping

The `Distribution Channel Mapping` page displays a list of all your defined default base channels that clients will pick up according to their operating system and architecture at registration time. These mappings can be overriden, but cannot be deleted. To create such a mapping click `Create Distribution Channel Mapping` in the upper-right corner. Several columns provide information for each mapping.

> *Using Distribution Channel Mapping*
>
> For SUSE Linux Enterprise or Red Hat Enterprise Linux SUSE does not use the `Distribution Channel Mapping` feature. It can be used for other products (for example, for free products such as openSUSE, Fedora, Oracle Linux, etc.). It can help when letting clients pick up base channels automatically.

Content Lifecycle Managment

In the `Content Lifecycle` section, you can customize and test packages before updating production clients.

Content lifecycle management allows you to select software channels as sources, adjust them as required for your environment, and thoroughly test them before installing onto your production clients.

For more information about content lifecycle management, see **[Administration › Content-lifecycle ›]**.

Projects

In the **Content Lifecycle › Projects** section, you can create new content lifecycle management projects, and edit existing projects.

For more information about content lifecycle management, see **[Administration › Content-lifecycle ›]**.

Filters

In the **Content Lifecycle › Filters** section, you can create various types of filters. With the filters you control the content that is used when a content lifecycle project is built.

For more information about content lifecycle management, see **[Administration › Content-lifecycle ›]**.

Audit Menu

The `Audit` menu provides access to features for managing security updates on your clients. Audit tasks include finding and updating clients with the latest CVE patches, subscription matching, and managing

OpenSCAP scans.

CVE Audit

The **Audit › CVE Audit** section shows you which CVEs have been applied to your clients. A CVE (common vulnerabilities and exposures) is a fix for a publicly known security vulnerability. It is important that you apply CVEs to your clients as soon as they become available.

Each CVE contains an identification number, a description of the vulnerability, and links to further information. CVE identification numbers use the form `CVE-YEAR-XXXX`.

Clients are listed with a patch status icon.

Table 7. Patch Status Icons

Icon	Description	Action Required
!	Affected, patches are available in channels that are not assigned	The client is affected by a vulnerability and Uyuni has patches for it, but the channels offering the patches are not assigned to the client.
⚠	Affected, at least one patch is available in an assigned channel	The client is affected by the vulnerability and Uyuni has patches available in a channel that is directly assigned to the client.
○	Not affected	There are no available CVE patches for this client.
⊘	Patched	A patch has been successfully installed on the client.

For more information about CVE auditing, see **[Administration › Auditing ›]**.

Subscription Matching

The **Audit › Subscription Matching** section provides reports that match your currently installed clients to your existing product subscriptions. Subscription matching reports provide information about clients that do not have a subscription, and subscription start and end dates.

Table 8. Subscription Matching Options

Column	Description
Part Number	Identifier of the matched product
Description	Description of the matched product

Column	Description
Policy	The type of subscription matched to the product
Matched/Total	The number of clients currently using the subscription, of the total available. If the subscription is fully matched, the quantity column value is highlighted.
Start Date	Start date of the subscription
End Date	End date of the subscription

Table entries are highlighted if they are due to expire within three months. Table entries that have already expired are shown in grayscale.

For messages relating to subscription matching, navigate to the `Messages` tab.

Table 9. Subscription Matching Statuses

Status	Description	Action
Unsupported Part Number	The detected part number is unknown or unsupported.	Call SUSE support and open a Service Request ticket to have the part number added to the product.
Physical Guest	A client is reporting as virtual, but could be a physical client.	Check the client hardware data.
Guest with Unknown Host	A virtual client has an unknown host.	Check the virtual host manager (VHM) configuration to ensure it is reporting correctly. For Linux-based hosts using `libvirt`, check that the host is registered, and that the virtual host system type is set correctly.
Unknown CPU Count	Unable to determine how many CPUs a client has. Uyuni will default to 16 CPUs.	Schedule a hardware refresh on this client.

To pin clients to a particular subscription, navigate to the `Pins` tab.

Table 10. Pin Statuses

Status	Description
Satisfied	The client and subscription were matched correctly.

Status	Description
Not satisfied	The client was not successfully matched with a subscription.
Pending next run	Waiting for the next matcher run.

For more information about subscription matching, see **[Administration › Subscription-matching ›]**.

OpenSCAP Menu

The **Audit › OpenSCAP** section displays the results of OpenSCAP scans that you have performed on your clients.

The Security Certification and Authorization Package (SCAP) is a standardized compliance checking solution for enterprise-level Linux infrastructures. Uyuni uses OpenSCAP to implement the SCAP specifications.

For more information about OpenSCAP, see **[Administration › Openscap ›]**.

OpenSCAP

The **Audit › OpenSCAP** section displays the results of OpenSCAP scans that you have performed on your clients.

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For more information about OpenSCAP, see **[Administration › Openscap ›]**.

All Scans

The **Audit › OpenSCAP** section displays the results of OpenSCAP scans that you have performed on your clients.

The Security Certification and Authorization Package (SCAP) is a standardized compliance checking solution for enterprise-level Linux infrastructures.

Table 11. Bootstrap Script Options

Name	Description	Evaluation Results
System	The name of the scanned client.	
XCCDF Profile	The evaluated profile.	
Completed	The time that the scan was completed.	

Name	Description	Evaluation Results
Satisfied	The total number of rules that have been satisfied.	A rule is satisfied if the result of the evaluation is `Pass` or `Fixed`.
Dissatisfied	The total number of rules that are not satisfied.	A rule is dissatisfied if the result of the evaluation is `Fail`.
Unknown	The total number of rules that were not able to be evaluated.	A rule is unknown if the result of the evaluation is `Error`, `Unknown` or `Not checked`.

[IMPORTANT

Rules can also return other results, including `Informational`, `Not Applicable`, or `Not Selected`. Rules that return these results are not shown in the scan results.

For more information about OpenSCAP, see **[Administration › Openscap ›]**.

XCCDF Diff

The **Audit › OpenSCAP › XCCDF Diff** section allows you to compare two OpenSCAP XCCDF scans.

For more information about OpenSCAP, see **[Administration › Openscap ›]**.

Advanced Search

The **Audit › OpenSCAP › Advanced Search** section allows you to search through OpenSCAP scans and results.

For more information about OpenSCAP, see **[Administration › Openscap ›]**.

Configuration Menu

Only Configuration Administrators or Uyuni Administrators see the **Main Menu › Configuration** pages.

Within the configuration pages, you can manage systems using configuration files, and configure channels offering configuration files, and configuration files themselves. Centrally-managed files are available to multiple systems, while locally-managed files are available to individual systems only.

Differences of System Types

Configuration Management is available for both traditionally and Salt clients. Some traditional features are not suitable for Salt clients, and thus not available and excluded from the Web UI.

Configuration Management for Salt

This matrix shows supported and unsupported configuration management features.

> **!** *Missing Web UI Options*
>
> Several Web UI tabs will be missing for Salt Configuration Management. These features are not suitable for Salt clients.

Table 12. Salt Configuration Management

Configuration Management Features	Salt Support Status
Global Configuration Channels	Supported
Deploying Files	Supported
Comparing Files	Supported (but the logic is currently inverted)
Locally Managed Files	Unsupported
Sandbox Files	Unsupported
Applying the Highstate	Apply the highstate and configuration channels will be deployed to all subscribed systems.
File Import from a Client	Unsupported
Configuration Macros	Unsupported

Preparing Systems for Configuration Management [Management]

To manage traditional client configuration with Uyuni, the client must have the appropriate tools and the `config-enable` file installed. These tools will be available if you installed the system with the configuration management functionality using AutoYaST or Kickstart. If not, they can be found in the Tools child channel for your distribution. Download and install the latest `mgr-cfg*` packages:

- `mgr-cfg` — the base libraries and functions needed by all `mgr-cfg-*` packages,

- `mgr-cfg-actions` — the RPM package required to run configuration actions scheduled via Uyuni,

- `mgr-cfg-client` — the RPM package with a command line interface to the client features of the Configuration Management system,

- `mgr-cfg-management` — the RPM package with a command line interface used to manage Uyuni configuration.

Installation of these packages can also be accomplished during bootstrapping if you enable `Configuration File Deployment` on the `Details` page of the activation key after creating that activation key. For more information about activation keys, see: Managing Activation Keys

Configuration Overview

The `Configuration Overview` page shows all of the configuration files that are managed by your organization in Uyuni.

This list includes files that are managed centrally in configuration channels, and files that are managed locally with individual system profiles.

Configuration Summary

Provides quick information about your configuration files. Click the blue text to the right to display relevant systems, channel details, or configuration files.

Configuration Actions

`Configuration Actions` offers direct access to the most common configuration management tasks. Deploy, compare, or create files on your systems.

Recently Modified Configuration Files

The list shows which files have changed when and to which channel they belong. If no files have been changed, no list appears. Click the name of a file to see its `Details` page. Click the channel name to see its `Channel Details` page.

File types that can appear here: * · — Centrally-managed configuration file provided by a global configuration channel. * · — [Management] Locally-managed configuration file, maybe overriding a centrally-managed file. * · — [Management] Sandbox configuration file.

Recently Scheduled Configuration File Deployments

> Each scheduled action is listed along with the status of the action. Any scheduled configuration task, from enabling configuration management on a system to deploying a specific configuration file, is displayed. Here you can quickly assess if all tasks have been successfully carried out or fix any problems. Clicking the blue text displays the **System Details › Schedule** page for the specified system.

Configuration Channels

Uyuni manages both central and local configuration channels and files. Central configuration management allows you to deploy configuration files to multiple systems, and is available for both traditional and salt clients. For traditional clients, use local configuration management. For salt clients, use state channels. For traditional clients, local configuration management is also available. Local configuration management allows you to specify overrides, and select configuration files that are not changed when the system is subscribed to a central channel.

A state channel is a type of a configuration channel used only for Salt clients. In state channels, the `init.sls` file is not automatically generated, you must manually create and edit it. State channels can contain arbitrary configuration files that you can reference from within the `init.sls` file.

> *Referencing Configuration Files with Organization ID*
>
> You must reference configuration files with the `salt://` prefix, the organization ID, and the channel name. For example, to reference `/etc/motd` use:
>
> ```
> file.managed:  - source: salt://manager_org_1/`channel_name`/etc/motd
> ```

Central configuration or state channels must be created via the links on this page.

Click the name of the configuration channel to see the details page for that channel. If you click the number of files in the channel, you are taken to the `List/Remove Files` page of that channel. If you click the number of systems subscribed to the configuration channel, you are taken to the **Configuration Channel Details › Systems › Subscribed Systems** page for that channel.

To create a new central configuration channel:

Procedure: Creating Central Configuration Channel

1. In the Uyuni Web UI, navigate to **Content Lifecycle Management › Projects**, and click **[Create Config Channel]**.

2. Enter a name for the channel.

3. Enter a label for the channel. This field must contain only letters, numbers, hyphens (`-`) and underscores (`_`).

4. Enter a mandatory description for the channel that allows you to distinguish it from other channels.

5. Click the **[Create Config Channel]** button to create the new channel.

6. The following page is a subset of the `Channel Details` page and has three tabs: `Overview`, `Add Files`, and `Systems`. The `Channel Details` page is discussed in Configuration Channel Details.

To create a new state channel with an `init.sls` file:

Procedure: Creating State Channel [Salt]

1. In the Uyuni Web UI, navigate to **Content Lifecycle Management › Projects**, and click `[Create State Channel]`.

2. Enter a name for the channel.

3. Enter a label for the channel. This field must contain only letters, numbers, hyphens (`-`) and underscores (`_`).

4. Enter a mandatory description for the channel that allows you to distinguish it from other channels.

5. Enter the `SLS Contents` for the `init.sls` file.

6. Click the `[Create Config Channel]` button to create the new channel.

7. The following page is a subset of the `Channel Details` page and has four tabs: `Overview`, `List/Remove Files`, `Add Files`, and `Systems`. The `Channel Details` page is discussed in Configuration Channel Details.

Configuration Channel Details

Overview

The `Overview` page of the `Configuration Channel Details` page is divided into several panels.

Channel Information

Provides status information for the contents of the channel.

Configuration Actions

Provides access to the most common configuration tasks. For Salt clients, there is a link to edit the `init.sls` file.

Channel Properties [Management]

Edit the name, label, and description of the channel by clicking the `[Edit Properties]` button.

List/Remove Files

This page only appears if there are files in the configuration channel. You can remove files or copy the latest versions into a set of local overrides or into other central configuration channels. Check the box next to files you want to manipulate and click the respective action button.

Add Files

The `Add Files` page has three subtabs of its own, which allow you to `Upload`, `Import`, or `Create` configuration files to be included in the channel.

Upload File

To upload a file into the configuration channel, browse for the file on your local system, populate all fields, and click the **[Upload Configuration File]** button. The `Filename/Path` field is the absolute path where the file will be deployed.

You can set the `Ownership` via the `user name` and `group name` and the `Permissions` of the file when it is deployed.

If the client has SELinux enabled, you can configure `SELinux contexts` to enable the required file attributes (such as user, role, and file type).

If the configuration file includes a macro (a variable in a configuration file), enter the symbol that marks the beginning and end of the macro. For more information on using macros, see: Including Macros in your Configuration Files

Import Files

To import files from other configuration channels, including any locally-managed channels, check the box to the left of any file you want to import. Then click the **[Import Configuration File(s)]** button.

> A sandbox icon (·) indicates that the listed file is currently located in a local sandbox. Files in a system's sandbox are considered experimental and could be unstable. Use caution when selecting them for a central configuration channel.

Create File

Create a configuration file, directory, or symbolic link to be included in the configuration channel.

Procedure: Creating a Configuration File, Directory, or Symbolic Link

i. Choose whether you want to create a text file, directory, or symbolic link in the `File Type` section.

ii. In the `Filename/Path` text box, set the absolute path to where the file should be deployed.

iii. If you are creating a symbolic link, indicate the target file and path in the `Symbolic Link Target Filename/Path` text box.

iv. Enter the `User name` and `Group name` for the file in the `Ownership` section, and the `File Permissions Mode`.

v. If the client has SELinux enabled, you can configure `SELinux contexts` to enable the required file attributes (such as user, role, and file type).

vi. If the configuration file includes a macro, enter the symbol that marks the beginning and end of the macro.

vii. Then enter the configuration file content in the `File Contents` field, using the script drop-down box to choose the appropriate scripting language.

viii. Click the `[Create Configuration File]` button to create the new file.

Deploy Files

This page only appears when there are files in the channel and a system is subscribed to the channel. Deploy all files by clicking the `[Deploy All Files]` button or check selected files and click the `[Deploy Selected Files]` button. Select to which systems the file(s) should be applied. All systems subscribed to this channel are listed. If you want to apply the file to a different system, subscribe it to the channel first. To deploy the files, click `[Confirm & Deploy to Selected Systems]`.

Systems

Manage systems subscribed to the configuration channel via two subtabs:

Subscribed Systems

All systems subscribed to the current channel are displayed. Click the name of a system to see the `System Details` page.

Target Systems

This subtab displays a list of systems enabled for configuration management but not yet subscribed to the channel. To add a system to the configuration channel, check the box to the left of the system's name and click the `[Subscribe System]` button.

Files Menu

This page allows you to manage your configuration files independently. Both centrally-managed and locally-managed files can be reached from sub-pages.

> *Maximum Size for Configuration Files*
>
> By default, the maximum file size for configuration files is 128 KB (131072 bytes). SUSE supports a configuration file size up to 1 MB; larger values are not guaranteed to work.

The default maximum file size is set on the Uyuni Server in these files:

```
# /usr/share/rhn/config-defaults/rhn_web.conf
web.maximum_config_file_size = 131072

# /usr/share/rhn/config-defaults/rhn_server.conf
maximum_config_file_size = 131072
```

Copy these variables to `/etc/rhn/rhn.conf` and edit them. Values are specified in bytes, for example:

```
# /etc/rhn/rhn.conf
web.maximum_config_file_size = 262144
server.maximum_config_file_size = 262144
```

Then restart `spacewalk`:

```
spacewalk-service restart
```

Centrally Managed Configuration Files

Centrally-managed files are available to multiple systems. Changing a file within a centrally-managed channel may result in changes to several systems. Locally-managed files supersede centrally-managed files. For more information about locally-managed files, see: **[Reference › Configuration › Locally Managed Configuration Files]**

This page lists all files currently stored in your central configuration channel. Click the `Path` of a file to see its `Details` tab. Click the name of the `Configuration Channel` to see the channel's `Overview` tab. Clicking `Systems Subscribed` shows you all systems currently subscribed to the channel containing that file. Click `Systems Overriding` to see all systems that have a local (or override) version of the configuration file. The centrally-managed file will not be deployed to those systems.

Locally Managed Configuration Files

Locally-managed configuration files apply to only one system. They may be files in the system's sandbox or files that can be deployed to the system at any time. Local files have higher priority than centrally-managed files. If a system is subscribed to a configuration channel with a given file and additionally has a locally-managed version of that file, the locally-managed version will be deployed.

The list of all local (override) configuration files for your systems includes the local configuration channels and the sandbox channel for each Provisioning-entitled system.

Click the `Path` of the file to see its `Config File Details`. Click the name of the system to which it belongs to see its **System Details › Configuration › Overview** page.

Including Macros in your Configuration Files

Being able to store one file and share identical configurations is useful, but in some cases you might need many variations of the same configuration file, or configuration files that differ only in system-specific details, such as host name and MAC address. In this case, you can use macros, or variables, within the configuration files. This allows you to upload and distribute a single file, with hundreds or even thousands of variations. In addition to variables for custom system information, the following standard macros are supported:

```
rhn.system.sid
rhn.system.profile_name
rhn.system.description
rhn.system.hostname
rhn.system.ip_address
rhn.system.custom_info(key_name)
rhn.system.net_interface.ip_address(eth_device)
rhn.system.net_interface.netmask(eth_device)
rhn.system.net_interface.broadcast(eth_device)
rhn.system.net_interface.hardware_address(eth_device)
rhn.system.net_interface.driver_module(eth_device)
```

To use this powerful feature, either upload or create a configuration file via the `Configuration Channel Details` page. Then open its `Configuration File Details` page and include the supported macros of your choice. Ensure that the delimiters used to offset your variables match those set in the `Macro Start Delimiter` and `Macro End Delimiter` fields and do not conflict with other characters in the file. We recommend that the delimiters be two characters in length and do not contain the percent (`%`) symbol.

For example, you may have a file applicable to all of your servers that differs only in IP address and host name. Rather than manage a separate configuration file for each server, you can create a single file, such as `server.conf`, with the IP address and host name macros included.

```
hostname={| rhn.system.hostname |}
ip_address={| rhn.system.net_interface.ip_address(eth0) |}
```

When the file is delivered to individual systems, whether through a scheduled action in the Uyuni Web UI or at the command line with the Uyuni Configuration Client (`mgrcfg-client`), the variables will be replaced with the host name and IP address of the system as recorded in Uyuni's system profile. In this example, the deployed version will look similar to this:

```
hostname=test.example.domain.com
ip_address=177.18.54.7
```

To capture custom system information, insert the key label into the custom information macro (`rhn.system.custom_info`). For example, if you developed a key labeled "asset" you can add it to the custom information macro in a configuration file to have the value substituted on any system containing it. The macro would look like this:

```
asset={@ rhn.system.custom_info(asset) @}
```

When the file is deployed to a system containing a value for that key, the macro gets translated, resulting in a string similar to this:

```
asset=Example#456
```

To include a default value (for example, if one is required to prevent errors), you can append it to the custom information macro, like this:

```
asset={@ rhn.system.custom_info(asset) = 'Asset #' @}
```

This default is overridden by the value on any system containing it.

The Uyuni Configuration Manager (`mgrcfg-manager`) is available on Uyuni client machines to assist with system management. It will not translate or alter files, as the tool is system agnostic. The `mgrcfg-manager` command does not depend on system settings. Binary files cannot be interpolated.

Configuration Systems Menu

Displays status information about your system in relation to configuration. There are two sub-pages: `Managed Systems` and `Target Systems`.

Managed Systems

By default the `Managed Systems` page is displayed. The listed systems have been fully prepared for configuration file deployment. The number of locally-managed and centrally-managed files is displayed.

Click the name of a system to show the relevant **System Details › Configuration › Overview** page.

Click the number of local files to show the **System Details › Configuration › View/Modify Files › Locally-Managed Files** page, where you can manage which local (override) files apply to the system.

Click the number of centrally-managed files to show the **System Details › Configuration › Manage Configuration Channels › List/Unsubscribe from Channels** page. On this page, you can unsubscribe from channels.

Target Systems

This page shows the systems that are not prepared for configuration file deployment, or are not yet subscribed to a configuration channel.

The table has three columns:

- The system name
- If the system is prepared for configuration file deployment
- The steps necessary to prepare the system.

To prepare a system, check the box to the left of the profile name then click the `[Enable SUSE Manager Configuration Management]` button. All of the preparatory steps that can be automatically performed are scheduled by Uyuni.

You will need to perform some manual tasks to enable configuration file deployment. Follow the on-screen instructions provided to assist with each step.

Schedule Menu

Main Menu › Schedule helps with managing actions and combining actions into action chains.

Main Menu › Schedule features pages that enable you to manage the actions carried out on your systems. An action is a scheduled task to be performed on one or more client systems. For example, an action can be scheduled to apply all patches to a system. Actions can also be grouped into action chains to schedule them at the same time in a particular order, for example to reboot a system after deploying patches.

Uyuni keeps track of the following action types:

- package alteration (installation, upgrade, and removal),
- rollback package actions,
- system reboots,
- patch application,
- configuration file alteration (deploy, upload, and diff),
- hardware profile updates,
- package list profile updates,
- automated installation initiation,
- service pack migrations,
- remote commands.

Each page in the **Main Menu › Schedule** category represents an action status.

Pending Actions

The **Pending Actions** page appears when clicking **Main Menu › Schedule › Pending Actions**. It displays actions not yet started or still in progress.

To cancel an action, select the action, and click `Cancel Actions`, then `[Confirm]`.

Recurring Actions

The **Schedule › Recurring Actions** section shows all recurring actions that you have permissions for.

Recurring Action Details

View the details about an action from the action list. In the `Actions` column, click the `[Details]` icon for the action you are interested in.

Disabling Recurring Actions

Disabling an action stops the action recurring, but does not delete it. To disable a recurring action toggle the `Active` switch off. Enable them again by toggling the `Active` switch on. Disabled recurring actions remain in the list, but are not executed.

Edit Recurring Actions

Edit an existing recurring action. In the `Actions` column, click the `[Edit]` icon for the action you want to change. On the `Schedule Recurring Highstate` page, the existing properties are pre-filled. Make your changes, and click `[Update Schedule]`.

Delete Recurring Actions

Deleting an action permanently removes it. To start using the action again, you will need to create a new action. In the `Actions` column, click the `[Delete]` icon for the action you want to delete, and confirm the deletion.

For more information about recurring actions, see [**Administration › Recurring-actions › **].

Completed Actions

List of actions successfully carried out.

Archived Actions

If you selected actions to store for review, they are displayed here and can be deleted.

🕐 Archived Actions ❓

The following actions have been archived.

Note: For multi-system scheduled actions, the ability to cancel individual systems means that the number of clients mentioned in the Action column may not match the number in Total.

Delete Actions

Action	Scheduled Time	Succeeded	Failed	Pending	Total
No archived actions.					

Action Chains

You can create action chains-or grouped actions-for example, in the **Main Menu › Software › Packages** or **Software › Packages** subtabs on a system details page (see: **[Reference › Systems › SD Patches]** or: **[Reference › Systems › SD Packages]**) or in the **Configuration › Deploy Files** subtab on a system details page (see Deploy Files).

The following list of actions may be added to an action chain. These actions are supported on both traditional clients and Salt clients. Schedulable actions are located under a systems, `System Details` page on the following subtabs.

Chainable Actions

- **System Details › Remote Command**

- **System Details › Schedule System Reboot**

- **System Details › States › Highstate**

- **System Details › Software › Packages › List/Remove**

- **System Details › Software › Packages › Install**

- **System Details › Software › Packages › Upgrade**

- **System Details › Software › Patches**

- **System Details › Software › Software Channels**

- **System Details › Configuration**

- **Main Menu › Images › Build**

🔗 Action Chain List ❓

Below is a list of all Action Chains available to the current user. Click on a label to view or edit it.

You can create a new Action Chain by scheduling any supported operation, such as installing or upgrading a package, running a remote command or deploying a configuration file. Both System Set Manager and single system actions are supported.

Label	Last modified	Total Action Count
No Action Chains found.		

In the `Action Chain List` you can click the label to view or edit an `Action Chain`. In the top right

corner is the `delete action chain` link. To add actions to an existing chain, pick up a "chainable" action (such as running a remote command) from a system details page (see: [**Reference › Systems › System Details**]).

Then check `Add to Action Chain` and select an action chain from the drop-down box. Confirm with `[Schedule]`.

To create a new action chain, configure the first action, then select `Add to Action Chain` instead of `Schedule no sooner than`. Click the drop-down box, enter a name, and click `[Schedule]` to save the chain. Then proceed to the next action and add it to the new chain.

Action chains can be edited via the **Main Menu › Schedule › Action Chains** page. Click a chain name to see the actions in the order they will be performed. The following tasks can be carried out here:

- Change the order of actions by dragging the respective action to the right position and dropping it.

- Delete actions from the chain by clicking the `delete action` link.

- Inspect the list of systems on which an action is run by clicking the `+` sign.

- Delete a single system from an action chain by clicking the `delete system` link.

- Delete the complete action chain with the `delete action chain` link in the top-left corner.

- Change an action chain label by clicking it.

- Schedule an action chain for execution on a certain date by clicking the `[Save and Schedule]` button.

> *Unsaved Changes*
>
> If you leave the page without clicking either `[Save]` or `[Save and Schedule]` all unsaved changes will be discarded. In this case, a confirmation dialog will pop up.

Currently you cannot add an action to an action chain from the `Edit` section of the action chain details page. When a Chain is scheduled, the actions it contains will be displayed under `Schedule` on the appropriate pages: `Pending Actions`, `Failed Actions`, or `Completed Actions` depending on the status. If one action fails on a system no other actions from the same chain will be executed on that systems. Because of technical limitations it is not possible to reuse Action Chains.

Actions List

On each action page, each row in the list represents a single scheduled event or action that might affect multiple systems and involve various packages. The list contains several columns of information:

- `Filter by Action` — Enter a term to filter the listed actions or use the check boxes in this column to select actions. Then either add them to your selection list or archive them by clicking **Archive Actions** . If you archive a pending action, it is not canceled, but the action item moves from the `Pending Actions` list to the `Archived Actions` list.

- `Action` — Type of action to perform such as Patches or Package Install. Clicking an action name shows its `Action Details` page. Refer to Action Details for more information.

- `Scheduled Time` — The earliest day and time the action will be performed.

- `Succeeded` — Number of systems on which this action was successfully carried out.

- `Failed` — Number of systems on which this action has been tried and failed.

- `In Progress` — Number of systems on which this action is taking place.

- `Total` — Total number of systems on which this action has been scheduled.

Action Details

If you click the name of an action, the `Action Details` page appears. This page is split into the following tabs.

Details

General information about the action. This is the first tab you see when you click an action. It displays the action type, scheduling administrator, earliest execution, and notes.

> *Patch Advisory*
>
> Clicking the Patch Advisory takes you to the `Patch Details` page. The Patch Advisory appears only if the action is a patch. Refer to: **[Reference › Patches › Patch Details]** for more information.

Completed Systems

List of systems on which the action has been successfully performed. Clicking a system name displays its `System Details` page. Refer to: **[Reference › Systems › System Details]** for more information.

In Progress Systems

List of systems on which the action is now being carried out. To cancel an action, select the system by marking the appropriate check box and click the `[Unschedule Action]` button. Clicking a system name shows its `System Details` page. Refer to: **[Reference › Systems › System Details]** for more information.

Failed Systems

List of systems on which the action has failed. It can be rescheduled here. Clicking a system name takes you to its `System Details` page. Refer to: **[Reference › Systems › System Details]** for more information.

Package List

List of packages are associated with this action. The tab appears only if the action is package related

(installation, removal, etc.).

Users Menu

Only Uyuni administrators can see **Main Menu › Users**. With Users you can grant and edit permissions for those who administer your system groups. Click a user name in the **Main Menu › Users › User List › Active** to modify the user.
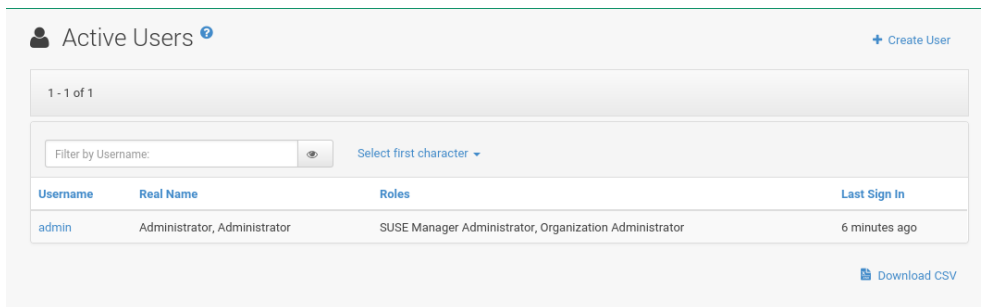
To add new users to your organization, click the Create User link on the top right corner of the page. On the Create User page, fill in the required values for the new user.

Once all fields are completed, click the `[Create Login]` button. Uyuni now sends an e-mail to the specified address and takes you back to the **Main Menu › Users › User List › Active** page. If you want to set permissions and options for the new user, click the name in the list. The User Details page for this user provides several tabs of options.

For detailed descriptions of each tab, see **[Reference › Users ›]**.

User Details

Clicking a user name on a **Main Menu › Users › User List** listing displays the User Details page.

Here Uyuni administrators manage the permissions and activity of all the users. Here you can also delete or deactivate users.

Users can be deactivated directly in the Uyuni Web interface. Uyuni administrators can deactivate or delete users of their organization. Users can deactivate their own accounts.

> **ℹ** *Users with Uyuni Administrator Role*
>
> Users with the Uyuni administrator role cannot be deactivated until that role is removed from their account.

Deactivated users cannot log in to the Uyuni Web UI or schedule any actions. Actions scheduled by a user prior to their deactivation remain in the action queue. Deactivated users can be reactivated by Uyuni administrators.

> ⚠️ *Irreversible Deletion*
>
> User deletion is irreversible; exercise it with caution. Consider deactivating the user first to assess the effect deletion will have on your infrastructure.

To deactivate a user:

1. Click a user name to navigate to the `User Details` tab.

2. Verify that the user is not a Uyuni administrator. If they are, uncheck the box to the left of that role and click the **`[Submit]`** button.

3. Click the `Deactivate User` link in the upper right corner of the dialog.

4. Click the **`[Deactivate User]`** button to confirm.

To delete a user:

1. Click a user name to navigate to the `User Details` tab.

2. Verify that the user is not a Uyuni administrator. Uncheck the box to remove the role if necessary.

3. Click the `Delete User` link in the upper right corner of the dialog.

4. Click the **`[Delete User]`** button to permanently delete the user.

For instructions to deactivate your own account, see **[Reference › Home ›]**.

> ℹ️ If you delete a user account, any recurring actions that user created will also be deleted.

Details

The `Details` tab, displays the user name, first name, last name, e-mail address, roles of a user, and other details about the user. The **Details** tab, displays the user name, first name, last name, e-mail address, roles of a user, and other details about the user.

Edit this information as needed and then confirm with **[Update]**. When changing a user's password, you will only see asterisks as you type.

To delegate responsibilities within your organization, Uyuni provides several roles with varying degrees of access. This list describes the permissions of each role and the differences between them:

- **User (normal user)** — Also known as a *System Group User*, this is the standard role associated with any newly created user. This person may be granted access to manage system groups and software channels, if the Uyuni administrator sets the roles accordingly. The systems must be in system groups for which the user has permissions to manage them. However, all globally subscribable channels may be used by anyone.

- **SUSE Manager Administrator** — This role allows a user to perform any function available in Uyuni.

As the master account for your organization, the person holding this role can alter the privileges of all other accounts of this organization, and conduct any of the tasks available to the other roles. Like with other roles, there can be multiple Uyuni administrators. Go to **Main Menu › Admin › Users** and click the check box in the **SUSE Manager Admin** row. For more information, see **[Reference › Admin ›]**.

- A `SUSE Manager Administrator` can create foreign organizations, but a `SUSE Manager Administrator` can only create users for an organization if they have organization administrator privileges for this organization.

- `Organization Administrator` — This role provides a user with all the permissions other administrators have, namely the activation key, configuration, channel, and system group administrator. A `Organization Administrator` is not entitled to perform actions that belong to the **Main Menu › Admin** features. For more information, see **[Reference › Admin ›]**.

- `Activation Key Administrator` — This role is designed to manage your collection of activation keys. A user assigned to this role can modify and delete any key within your organization.

- `Image Administrator` — This role is designed to manage Image building. Modifiable content includes Image Profiles, Image Builds and Image Stores. A user assigned with this role can modify and delete all content located under the **Main Menu › Images**. These changes will be applied across the organization.

- `Configuration Administrator` — This role enables a user to manage the configuration of systems within the organization, using either the Uyuni Web UI or tool from the mgr-cfg-management package.

- `Channel Administrator` — This role provides a user with full access to all software channels within your organization. This requires the Uyuni synchronization tool (`mgr-sync` from the susemanager-tools package). The channel administrator may change the base channels of systems, make channels globally subscribable, and create entirely new channels.

- `System Group Administrator` — This role limits authority to systems or system groups to which access is granted. The System Group Administrator can create new system groups, delete any assigned systems from groups, add systems to groups, and manage user access to groups.

Being a Uyuni administrator enables you to remove administrator rights from other users. It is possible to remove your own privileges as long as you are not the only Uyuni administrator.

To assign a new role to a user, check the respective box. Uyuni administrators are automatically granted administration access to all other roles, signified by grayed-out check boxes. Click `[Update]` to submit your changes.

System Groups

This tab displays a list of system groups the user may administer. For more information about system groups, see **[Reference › Systems ›]**.

Uyuni administrators can set this user's access permissions to each system group. Check or uncheck the box to the left of the system group and click the **[Update Permissions]** button to save the changes.

Uyuni administrators may select one or more default system groups for a user. When the user registers a system, it gets assigned to the selected group or groups. This allows the user to access the newly-registered system immediately. System groups to which this user has access are preceded by an (*).

Systems

This tab lists all systems a user can access according to the system groups assigned to the user.

To carry out tasks on some of these systems, select the set of systems by checking the boxes to the left and click the **[Update List]** button. Use the `System Set Manager` page to execute actions on those systems. Clicking the name of a system takes you to its `System Details` page. For more information, see **[Reference › Systems ›]**.

Channel Permissions

This tab lists all channels available to your organization.

[users details channel permissions] | *users_details_channel_permissions.png*

Grant explicit channel subscription permission to a user for each of the channels listed by checking the box to the left of the channel, then click the `[Update Permissions]` button. Permissions granted by a Uyuni administrator or channel administrator have no check box but a check icon like globally subscribable channels.

Channel Permissions > Subscription

Identifies channels to which the user may subscribe systems.

To change these, select or deselect the appropriate check boxes and click the `[Update Permissions]` button. Note that channels subscribable because of the user's administrator status or the channel's global settings cannot be altered. They are identified with a check icon.

Channel Permissions > Management

Identifies channels the user may manage. To change these, select or deselect the appropriate check boxes and click the `[Update Permissions]` button. The permission to manage channels does not enable the user to create new channels. Note that channels automatically manageable through the user's admin status cannot be altered. These channels are identified with a check icon. Remember, Uyuni administrators and channel administrators can subscribe to or manage any channel.

Preferences

Configure the following preference settings for a user.

- **Email Notifications**: Determine whether this user should receive e-mail every time a patch alert is applicable to one or more systems in their Uyuni account, and daily summaries of system events.

- **SUSE Manager List Page Size**: Maximum number of items that appear in a list on a single page. If the list contains more items than can be displayed on one page, click the **[Next]** button to see the next page. This preference applies to the user's view of system lists, patch lists, package lists, and so on.

- **Overview Start Page**: Configure which information to be displayed on the "Overview" page at login.

- **Time Zone**: Select the time zone from the drop-down box. Dates and times, like system check-in times, will be displayed according to the selected time zone.

- **CSV Files**: Select whether to use the default comma or a semicolon as separator in downloadable CSV files.

Change these options to fit your needs, then click the **[Save Preferences]** button.

Addresses

This tab lists mailing addresses associated with the user's account.

If there is no address specified yet, click **[Fill in this address]** and fill out the form. When finished, click **[Update]**. To modify this information, click the **[Edit this address]** button, change the relevant information, and click the **[Update]** button.

User List

The `User List` provides three views:

- Active user list

- Deactivated user list

- List all users

Active Users

The active user list shows all active users on your Uyuni and displays basic information about each user: user name, real name, roles, and date of their last sign in.

The active user list shows all active users on your Uyuni and displays basic information about each user: user name, real name, roles, and date of their last sign in.

Each row in the `User List` represents a user within your organization. There are four columns of information for each user:

- `Username` — The login name of the user. Clicking a user name displays the `User Details` page for the user. For more information, see **[Reference › Users ›]**.

- `Real Name` — The full name of the user (last name, first name).

- `Roles` — List of the user's privileges, such as organization administrator, channel administrator and normal user. Users can have multiple roles.

- `Last Sign In` — Shows when the user last logged in to Uyuni.

Active Users ❓   ✚ Create User

1 - 1 of 1

Filter by Username:	👁	Select first character ▾		
Username	**Real Name**	**Roles**		**Last Sign In**
admin	Administrator, Administrator	SUSE Manager Administrator, Organization Administrator		6 minutes ago

📄 Download CSV

Deactivated Users

The deactivated user list shows all deactivated users. You may also reactivate any user listed here.

Deactivated Users ❓   ✚ Create User

Username	Real Name	Roles	Last Sign In	Deactivated By	Deactivated Date
No deactivated users.					

Reactivate   📄 Download CSV

Click the check box to the left of their name and click the `[Reactivate]` button then the `[Confirm]` button. Reactivated users retain the permissions and system group associations they had when they were deactivated. Clicking a user name shows the `User Details` page.

All Users

The `All` page lists all users that belong to your organization.

Users Overview ❓   ✚ Create User

1 - 1 of 1

Filter by Username:	👁	Select first character ▾		
Username	**Real Name**	**Roles**	**Last Sign In**	**Status**
admin	Administrator, Administrator	SUSE Manager Administrator, Organization Administrator	6/5/18 6:02:06 PM CEST	Active

In addition to the fields listed in the previous two screens, the table of users includes a `Status` field. This field indicates whether the user is `Active` or `Deactivated`. Click a user name to see the `User Details` page.
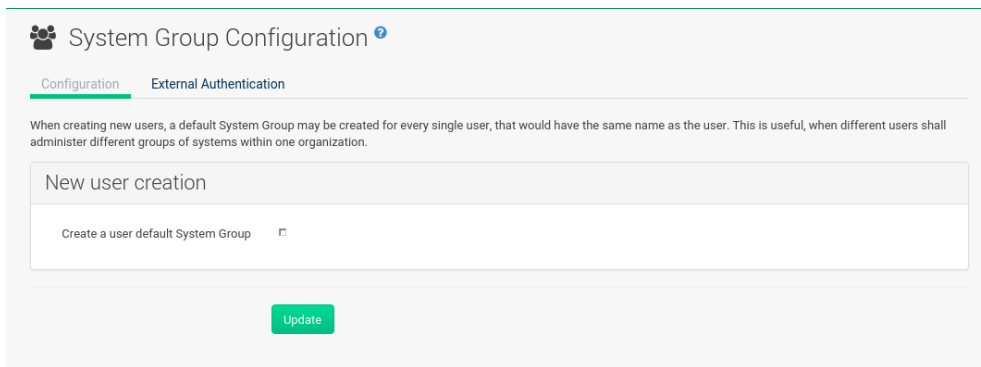
System Group Configuration

System Groups help when different users shall administer different groups of systems within one organization.

Group Configuration

Enable `Create a user default System Group` and confirm with `[Update]`.

Assign such a group to systems via the **System Details › Groups › Join** subtab. For more information, see: **[Reference › Systems ›]**.

System Group Configuration

Configuration   External Authentication

When creating new users, a default System Group may be created for every single user, that would have the same name as the user. This is useful, when different users shall administer different groups of systems within one organization.

New user creation
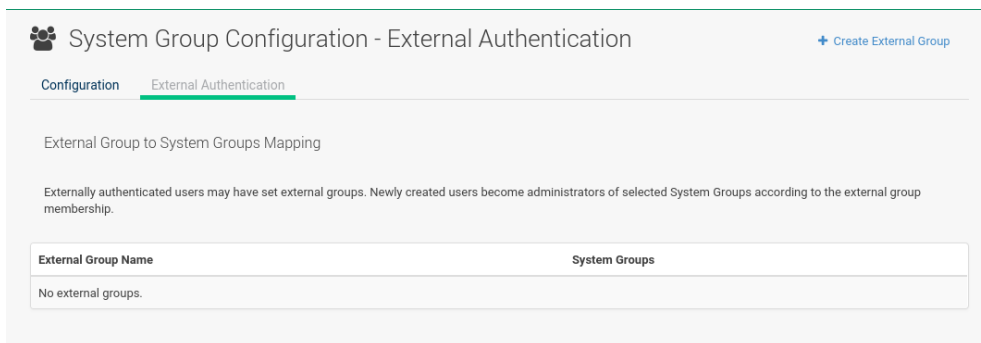
Create a user default System Group

Update

External Authentication

Allows to create an external group with the `Create External Group` link.

Users can join such groups via the `System Groups` of the user details page, then check the wanted `Group`, and confirm with `[Update Permissions]`.

System Group Configuration - External Authentication

+ Create External Group

Configuration   External Authentication

External Group to System Groups Mapping

Externally authenticated users may have set external groups. Newly created users become administrators of selected System Groups according to the external group membership.

External Group Name	System Groups
No external groups.	

For more information, see **[Reference › Users ›]**.

Admin Menu

The `Admin` menu provides access to features for managing Uyuni configuration. Configuration tasks include creating and managing organizations, users, and tasks. You can also use the setup wizard to help configure Uyuni.

> The `Admin` menu is only available if you are logged in with a Uyuni administrator account.

Setup Wizard

The **Admin › Setup Wizard** section helps you configure Uyuni. It is the default page when you use the Uyuni Web UI for the first time.

Table 13. Setup Wizard Options

Option	Description
HTTP Proxy	Configure an HTTP proxy connection.
Organization Credentials	Configure an organization for accessing SUSE Customer Center.
Products	View product entitlements and subscribe to product channels.

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

Organizations

The **Admin › Organizations** section allows you to create and manage your Uyuni organizations. Click an organization in the list to see details.

For more information about organizations, see **[Administration › Organizations ›]**.

Users

The **Admin › Users** section allows you to view and manage all users of the organization you are logged in to. Every user shows the username, real name, the organization they are associated with, and whether the user is an organization or Uyuni administrator.

Click a username to modify the user account details, and adjust administrator privileges.

For more information, see **[Reference › Users ›]**.

Manager Configuration

The **Admin › Manager Configuration** section contains tabs to allow you to configure Uyuni.

Table 14. Configuration Options

Option	Description
General	Configure your Uyuni installation.
Bootstrap Script	Generate a custom bootstrap script.
Organizations	Create and configure organizations and users.
Restart	Restart Uyuni. You will need to do this after making configuration changes.
Cobbler	Run a Cobbler synchronization.
Bare-metal systems	Allow bare metal clients to be provisioned in preparation for autoinstallation.

Option	Description
Monitoring	Enable server monitoring.

General

On the **Admin › Manager Configuration › General** page you can configure your Uyuni installation.

Table 15. Bootstrap Script Options

Option	Description	Default
Administrator Email Address	Email address of the Uyuni administrator.	Pre-populated
SUSE Manager Hostname	Hostname of the Uyuni Server.	Pre-populated
HTTP Proxy	The hostname and port of the proxy, if you are using one. Use syntax `<hostname>:<port>`, for example: `<example.com>:8080`.	None
HTTP Proxy username	The username to use on the proxy server, if you are using one.	None
HTTP Proxy password	The password to use on the proxy server, if you are using one.	None
Confirm HTTP Proxy password	The directory where RPM packages are mirrored.	`/var/spacewalk/`
RPM repository mount point	The hostname of the proxy server, if you are using one.	None
Default to SSL	Check to use SSL as the default value for communications.	Checked

Bootstrap Script

In the **Admin › Manager Configuration › Bootstrap Script** section you can generate a custom bootstrap script. Bootstrap scripts are used to register clients with Uyuni. The generated script will be placed in `/srv/www/htdocs/pub/bootstrap/` on your Uyuni Server.

Table 16. Bootstrap Script Options

Option	Description	Default
Uyuni Server hostname	The hostname for the Uyuni Server to register the client to	Pre-populated

Option	Description	Default
SSL cert location	Location and name of the SSL certificate	Pre-populated
Bootstrap using Salt	Check to bootstrap Salt clients, uncheck to bootstrap traditional clients.	Checked
Enable SSL	Check to use the corporate public CA certificate on the client, uncheck to use self-managed CA certificates.	Checked
Enable Client GPG checking	Check to use GPG, uncheck to disable GPG checking	Checked
Enable Remote Configuration	Check to allow configuration from a remote server.	Unchecked
Enable Remote Commands	Check to allow commands from a remote server.	Unchecked
Client HTTP Proxy	The hostname of the proxy server, if you are using one.	Unpopulated
Client HTTP Proxy Username	The username to use on the proxy server, if you are using one.	Unpopulated
Client HTTP Proxy Password	The password to use on the proxy server, if you are using one.	Unpopulated

Do not disable SSL in your bootstrap script. Ensure that `Enable SSL` is checked in the Web UI, or that the setting `USING_SSL=1` exists in the bootstrap script. If you disable SSL, the registration process requires custom SSL certificates. For more about custom certificates, see **[Administration › Ssl-certs ›]**.

Organizations

The **Admin › Manager Configuration › Organizations** section contains details about organizations in Uyuni, and provides links to create and configure organizations and users.

For more information about organizations, see **[Installation › Server-setup ›]**.

Restart

The **Admin › Manager Configuration › Restart** section allows you to restart Uyuni. You will need to do this after making configuration changes. It will take some time for Uyuni to become available again after

a restart.

Cobbler

The **Admin › Manager Configuration › Cobbler** page allows you to run a Cobbler synchronization. You can repair or rebuild the contents of the `/srv/tftpboot/` and `/srv/www/cobbler/` directories after a manual modification of the Cobbler setup.

For more information about Cobbler, see **[Client-configuration › Cobbler ›]**.

Bare Metal Systems

In the **Admin › Manager Configuration › Bare-metal systems** section, you can turn on the bare metal feature. This allows you to provision bare metal clients in preparation for autoinstallation.

For more information about bare metal provisioning, see **[Client-configuration › Client-automating-installation ›]**.

ISS Configuration

The **Admin › ISS Configuration** section is used to configure inter-server synchronization (ISS). ISS allows you to connect two or more Uyuni Servers and keep them up-to-date.

To set up ISS, you need to define one Uyuni Server as a master, with the other as a slave. If conflicting configurations exist, the system will prioritize the master configuration.

For more information about ISS, see **[Administration › Iss ›]**.

ISS Master Setup

The **Admin › ISS Configuration › Master Setup** section is used to configure an inter-server synchronization (ISS) master.

If you are logged in to an ISS master, this page lists all slaves that can receive content from this master.

To add new slaves to the master, click **`[Add new slave]`**. You will need the slave's Fully Qualified Domain Name (FQDN).

Check the `Allow Slave to Sync?` checkbox to enable the slave to synchronize with the master.

Check the `Sync All Orgs to Slave?` checkbox to synchronize all organizations to this slave.

For more information about ISS, see **[Administration › Iss ›]**.

ISS Slave Setup

The **Admin › ISS Configuration › Slave Setup** section is used to configure an inter-server synchronization (ISS) slave.

If you are logged in to an ISS slave, this page lists all masters that the slave has previously synchronized with.

To add a new master, click **[Add new master]**. You will need the master's Fully Qualified Domain Name (FQDN), and the full path to the CA Certificate. For example:

```
/etc/pki/trust/anchors
```

For more information about ISS, see **[Administration › Iss ›]**.

Task Schedules

The **Admin › Task Schedules** section lists all predefined task bunches. Tasks can be grouped together in bunches to simplify managing them.

This page shows the schedule for each bunch of tasks. Every schedule shows how frequently it runs using `cron` notation, the time it became active, and the bunch that it belongs to.

Click a schedule to change its frequency, disable, or delete it.

> ⚠️ Do not disable or delete a schedule if you are not certain what it does. Some schedules are essential for Uyuni to work properly.

For more information about task schedules, see **[Administration › Task-schedules ›]**.

Task Engine Status

The **Admin › Task Engine Status** section shows all running tasks by the Uyuni task engine.

Navigate to the `Last Execution Times` tab to see the task list. Each task shows the time it was last run, and the current status of the task.

Navigate to the `Runtime Status` tab to see all tasks that have run in the past five minutes. Each task shows the start and end time, the amount of time the task ran for, and the current status. Some tasks will also provide further data, if available.

Show Tomcat Logs

The **Admin › Show Tomcat Logs** section shows the Apache Tomcat log file. You can also view the Tomcat log from the command prompt at `/var/log/rhn/rhn_web_ui.log`.

> ℹ️ The **Admin › Show Tomcat Logs** section is only available if you are signed in with a Uyuni administrator account.

Help Menu

The `Help` section opens the current version of the Uyuni documentation in a new browser tab. This is the documentation installed locally on your Uyuni Server.

For all versions and formats of the Uyuni documentation, see https://documentation.suse.com/suma/.

Documentation

The **Help › Documentation 4.0** section opens the current version of the Uyuni documentation in a new browser tab. This is the documentation installed locally on your Uyuni Server.

For all versions and formats of the Uyuni documentation, see https://documentation.suse.com/suma/.

Release Notes

The **Help › Release Notes}** section opens the current version of the Uyuni Release Notes in a new browser tab.

API Menu

The **Help › API** section contains links to the available API calls, and includes an API FAQ and sample scripts.

API Overview

The **Help › API › Overview** section provides a list of available API calls. Click the name of an API call to see the relevant documentation.

For the full API documentation, see https://documentation.suse.com/suma/.

API FAQ

The **Help › API › FAQ** section contains frequently asked questions related to Uyuni APIs.

API Sample Scripts

The **Help: › API › Sample Scripts** section contains example API calls for you to copy. The scripts are written in Ruby, Perl, and Python.

spacecmd Reference

The following section will help you become more familiar with the `spacecmd` command-line interface. This interface is available for Uyuni, Satellite and Spacewalk servers. spacecmd is written in Python and uses the XML-RPC API provided by the server.

What can spacecmd do for me?

- Manage almost all aspects of SUSE Manager from the command line with spacecmd

- Tab completion is available for all commands

- Single commands can be passed to spacecmd without entering the interactive shell (excellent for shell scripts)

- May also be accessed and used as an interactive shell

- Advanced search methods are available for finding specific systems, thus removing the need to create system groups (nevertheless groups are still recommended)

- Complete functionality through the Spacewalk API. Almost all commands that can be executed from the Web UI can be performed via the spacecmd command-line

Configuring spacecmd

The following section provides configuration tips for spacecmd.

Setup spacecmd Credentials

Normally spacecmd prompts you for a username and password each time you attempt to login to the interactive shell. Alternatively you can configure spacecmd with a credentials file to avoid this requirement.

Procedure: Creating a spacecmd Credentials File

1. Create a hidden spacecmd directory in your home directory and set permissions:

   ```
   mkdir ~/.spacecmd
   chmod 700 ~/.spacecmd
   ```

2. Create a `config` file in `~/.spacecmd/` and provide proper permissions:

   ```
   touch ~/.spacecmd/config
   chmod 600 ~/.spacecmd/config
   ```

3. Edit the `config` file and add the following configuration lines. (You can use either localhost or the FQDN of your Uyuni server):

```
[spacecmd]

server=FQDN-here

username=username-here
password=password-here
```

4. Check connectivity by entering `spacecmd` as root:

```
# spacecmd
```

spacecmd Quiet Mode

By default spacecmd prints server status messages during connection attempts. These messages can cause a lot of clutter when parsing system lists. The following alias will force spacecmd to use quiet mode thus preventing this behavior. Add the following line to your `~/.bashrc` file:

```
alias spacecmd='spacecmd -q'
```

spacecmd Help

spacecmd help can be access by typing spacecmd `-h --help`

```
Usage: spacecmd [options] [command]

Options:
  -c CONFIG, --config CONFIG
                        config file to use [default: ~/.spacecmd/config]
  -u USERNAME, --username=USERNAME
                        use this username to connect to the server
  -p PASSWORD, --password=PASSWORD
                        use this password to connect to the server
  -s SERVER, --server=SERVER
                        connect to this server [default: local hostname]
  --nossl               use HTTP instead of HTTPS
  --nohistory           do not store command history
  -y, --yes             answer yes for all questions
  -q, --quiet           print only error messages
  -d, --debug           print debug messages (can be passed multiple times)
  -h, --help            show this help message and exit
```

As root you can access available functions without entering the spacecmd shell:

```
# spacecmd -- help

        Documented commands (type help <topic>):
========================================
activationkey_addchildchannels          org_trustdetails
activationkey_addconfigchannels         package_details
activationkey_addentitlements           package_listdependencies
activationkey_addgroups                 package_listerrata
activationkey_addpackages               package_listinstalledsystems
activationkey_clone                     package_listorphans
activationkey_create                    package_remove
activationkey_delete                    package_removeorphans
activationkey_details                   package_search
activationkey_diff                      repo_addfilters
activationkey_disable                   repo_clearfilters
activationkey_disableconfigdeployment   repo_create


...
```

help

List all available spacecmd commands with the help function.

Check for additional help on a specific function by calling for example:

```
user_create --help
```

Listing 1. Full List of Available Help Commands

```
Documented commands (type help <topic>):
========================================
activationkey_addchildchannels          org_trustdetails
activationkey_addconfigchannels         package_details
activationkey_addentitlements           package_listdependencies
activationkey_addgroups                 package_listerrata
activationkey_addpackages               package_listinstalledsystems
activationkey_clone                     package_listorphans
activationkey_create                    package_remove
activationkey_delete                    package_removeorphans
activationkey_details                   package_search
activationkey_diff                      repo_addfilters
activationkey_disable                   repo_clearfilters
activationkey_disableconfigdeployment   repo_create
activationkey_enable                    repo_delete
activationkey_enableconfigdeployment    repo_details
activationkey_export                    repo_list
activationkey_import                    repo_listfilters
activationkey_list                      repo_removefilters
activationkey_listbasechannel           repo_rename
activationkey_listchildchannels         repo_setfilters
activationkey_listconfigchannels        repo_updatessl
activationkey_listentitlements          repo_updateurl
activationkey_listgroups                report_duplicates
activationkey_listpackages              report_errata
activationkey_listsystems               report_inactivesystems
activationkey_removechildchannels       report_ipaddresses
activationkey_removeconfigchannels      report_kernels
activationkey_removeentitlements        report_outofdatesystems
activationkey_removegroups              report_ungroupedsystems
activationkey_removepackages            scap_getxccdfscandetails
```

activationkey_setbasechannel	scap_getxccdfscanruleresults
activationkey_setconfigchannelorder	scap_listxccdfscans
activationkey_setcontactmethod	scap_schedulexccdfscan
activationkey_setdescription	schedule_cancel
activationkey_setuniversaldefault	schedule_details
activationkey_setusagelimit	schedule_getoutput
api	schedule_list
clear	schedule_listarchived
clear_caches	schedule_listcompleted
configchannel_addfile	schedule_listfailed
configchannel_backup	schedule_listpending
configchannel_clone	schedule_reschedule
configchannel_create	snippet_create
configchannel_delete	snippet_delete
configchannel_details	snippet_details
configchannel_diff	snippet_list
configchannel_export	snippet_update
configchannel_filedetails	softwarechannel_adderrata
configchannel_forcedeploy	softwarechannel_adderratabydate
configchannel_import	softwarechannel_addpackages
configchannel_list	softwarechannel_addrepo
configchannel_listfiles	softwarechannel_clone
configchannel_listsystems	softwarechannel_clonetree
configchannel_removefiles	softwarechannel_create
configchannel_sync	softwarechannel_delete
configchannel_updatefile	softwarechannel_details
configchannel_verifyfile	softwarechannel_diff
cryptokey_create	softwarechannel_errata_diff
cryptokey_delete	softwarechannel_errata_sync
cryptokey_details	softwarechannel_getorgaccess
cryptokey_list	softwarechannel_list
custominfo_createkey	softwarechannel_listallpackages
custominfo_deletekey	softwarechannel_listbasechannels
custominfo_details	softwarechannel_listchildchannels
custominfo_listkeys	softwarechannel_listerrata
custominfo_updatekey	softwarechannel_listerratabydate
distribution_create	softwarechannel_listlatestpackages
distribution_delete	softwarechannel_listpackages
distribution_details	softwarechannel_listrepos
distribution_list	softwarechannel_listsyncschedule
distribution_rename	softwarechannel_listsystems
distribution_update	softwarechannel_mirrorpackages
errata_apply	softwarechannel_regenerateneededcache
errata_delete	softwarechannel_regenerateyumcache
errata_details	softwarechannel_removeerrata
errata_findbycve	softwarechannel_removepackages
errata_list	softwarechannel_removerepo
errata_listaffectedsystems	softwarechannel_removesyncschedule
errata_listcves	softwarechannel_setorgaccess
errata_publish	softwarechannel_setsyncschedule
errata_search	softwarechannel_sync
errata_summary	softwarechannel_syncrepos
filepreservation_create	ssm_add
filepreservation_delete	ssm_clear
filepreservation_details	ssm_intersect
filepreservation_list	ssm_list
get_apiversion	ssm_remove
get_certificateexpiration	system_addchildchannels
get_serverversion	system_addconfigchannels
get_session	system_addconfigfile
group_addsystems	system_addcustomvalue
group_backup	system_addentitlements
group_create	system_addnote
group_delete	system_applyerrata
group_details	system_comparepackageprofile
group_list	system_comparepackages
group_listsystems	system_comparewithchannel
group_removesystems	system_createpackageprofile

group_restore	system_delete
help	system_deletecrashes
history	system_deletenotes
kickstart_addactivationkeys	system_deletepackageprofile
kickstart_addchildchannels	system_deployconfigfiles
kickstart_addcryptokeys	system_details
kickstart_addfilepreservations	system_getcrashfiles
kickstart_addoption	system_installpackage
kickstart_addpackages	system_list
kickstart_addscript	system_listbasechannel
kickstart_addvariable	system_listchildchannels
kickstart_clone	system_listconfigchannels
kickstart_create	system_listconfigfiles
kickstart_delete	system_listcrashedsystems
kickstart_details	system_listcrashesbysystem
kickstart_diff	system_listcustomvalues
kickstart_disableconfigmanagement	system_listentitlements
kickstart_disableremotecommands	system_listerrata
kickstart_enableconfigmanagement	system_listevents
kickstart_enablelogging	system_listhardware
kickstart_enableremotecommands	system_listinstalledpackages
kickstart_export	system_listnotes
kickstart_getcontents	system_listpackageprofiles
kickstart_getsoftwaredetails	system_listupgrades
kickstart_getupdatetype	system_lock
kickstart_import	system_reboot
kickstart_import_raw	system_removechildchannels
kickstart_importjson	system_removeconfigchannels
kickstart_list	system_removecustomvalues
kickstart_listactivationkeys	system_removeentitlement
kickstart_listchildchannels	system_removepackage
kickstart_listcryptokeys	system_rename
kickstart_listcustomoptions	system_runscript
kickstart_listoptions	system_schedulehardwarerefresh
kickstart_listpackages	system_schedulepackagerefresh
kickstart_listscripts	system_search
kickstart_listvariables	system_setbasechannel
kickstart_removeactivationkeys	system_setconfigchannelorder
kickstart_removechildchannels	system_setcontactmethod
kickstart_removecryptokeys	system_show_packageversion
kickstart_removefilepreservations	system_syncpackages
kickstart_removeoptions	system_unlock
kickstart_removepackages	system_updatecustomvalue
kickstart_removescript	system_upgradepackage
kickstart_removevariables	toggle_confirmations
kickstart_rename	user_adddefaultgroup
kickstart_setcustomoptions	user_addgroup
kickstart_setdistribution	user_addrole
kickstart_setlocale	user_create
kickstart_setpartitions	user_delete
kickstart_setselinux	user_details
kickstartsetupdatetype	user_disable
kickstart_updatevariable	user_enable
list_proxies	user_list
login	user_listavailableroles
logout	user_removedefaultgroup
org_addtrust	user_removegroup
org_create	user_removerole
org_delete	user_setemail
org_details	user_setfirstname
org_list	user_setlastname
org_listtrusts	user_setpassword
org_listusers	user_setprefix
org_removetrust	whoami
org_rename	whoamitalkingto

Miscellaneous help topics:

```
==========================
time  systems  ssm
```

history

List recent commands using the `history` command.

```
spacecmd {SSM:0}> history
    1  help
    2  api
    3  exit
    4  help
    5  time --help
    6  quit
    7  clear
spacecmd {SSM:0}>
```

Troubleshooting spacecmd

This section provides troubleshooting solutions when working with spacecmd

Creating a Distribution With spacecmd Sets Localhost Instead of FQDN

The support article associated with this issue may be located at https://www.suse.com/support/kb/doc/?id=7018627

Situation

> When creating a distribution with spacecmd it will automatically set localhost as the server name instead of the FQDN of SUSE Manager. This will result in the following kernel option being written:

```
install=http://localhost/ks/dist/<distributionname>
```

Resolution

> Set the FQDN in `$HOME/.spacecmd/config` like the following:

```
test:~/.spacecmd # cat config

[spacecmd]
server=test.mytest.env
username=admin
password=password
nossl=0
```

Cause

> This problem may be experienced if `$HOME/.spacecmd/config` has been created and the server name option was set to localhost.

Spacecmd not Accepting Commands or Options

When running `spacecmd` non-interactively, you must escape arguments passed to the command. Always put `--` before arguments, to avoid them being treated as global arguments. Additionally, make sure you escape any quotes that you pass to the functions so that they are not interpreted. An example of a well-formed `spacecmd` command:

```
spacecmd -s server1 -- softwarechannel_create -n \'My Channel\' -l channel1 -a x86_64
```

Spacecmd caching problems

The `spacecmd` command keeps a cache of the various systems and packages that you have installed. Sometimes, this can result in a mismatch between the system name and the system ID. To clear the `spacecmd` cache, use this command:

```
spacecmd clear_caches
```

spacecmd Functions

The following sections provide descriptions for all documented spacecmd commands. Each command is grouped by the function prefix. Keep in mind that all commands may also be called using scripts and passed to spacecmd as stand-alone commands.

activationkey_

The following spacecmd commands are available for use with activation keys.

activationkey_addchildchannels

Add child channels to an activation key.

```
usage: activationkey_addchildchannels KEY <CHANNEL ...>
```

activationkey_addconfigchannels

Add configuration channels to an activation key.

```
usage: activationkey_addconfigchannels KEY <CHANNEL ...> [options]

options:
  -t add channels to the top of the list
  -b add channels to the bottom of the list
```

activationkey_addentitlements

Add available entitlements to an activation key.

> **WebUI Name Change**
>
> In the WebUI entitlements are known as System Types. Nevertheless the spacecmd backend still utilizes the entitlements term. Therefore any scripts you may be using can remain unchanged.

```
usage: activationkey_addentitlements KEY <ENTITLEMENT ...>
```

activationkey_addgroups

Add existing groups to an activation key.

```
usage: activationkey_addgroups KEY <GROUP ...>
```

activationkey_addpackages

Add packages to an activation key.

```
usage: activationkey_addpackages KEY <PACKAGE ...>
```

activationkey_clone

Clone an existing activation key.

```
usage examples:
                activationkey_clone foo_key -c bar_key
                activationkey_clone foo_key1 foo_key2 -c prefix
                activationkey_clone foo_key -x "s/foo/bar"
                activationkey_clone foo_key1 foo_key2 -x "s/foo/bar"

options:
   -c CLONE_NAME  : Name of the resulting key, treated as a prefix for multiple
                    keys
   -x "s/foo/bar" : Optional regex replacement, replaces foo with bar in the
                    clone description, base-channel label, child-channel
                    labels, config-channel names
```

activationkey_create

Create a new activation key.

```
usage: activationkey_create [options]

options:
  -n NAME
  -d DESCRIPTION
  -b BASE_CHANNEL
  -u set key as universal default
  -e [enterprise_entitled,virtualization_host]
```

activationkey_delete

Delete an existing activation key.

```
usage: activationkey_delete KEY
```

activationkey_details

Show details of an existing activation key.

```
usage: activationkey_details KEY ...
```

activationkey_diff

Check the difference between two activation keys.

```
usage: activationkey_diff SOURCE_ACTIVATIONKEY TARGET_ACTIVATIONKEY
```

activationkey_disable

Disable an existing activation key.

```
usage: activationkey_disable KEY [KEY ...]
```

activationkey_disableconfigdeployment

Disable configuration channel deployment for an existing activation key.

```
usage: activationkey_disableconfigdeployment KEY
```

activationkey_enable

Enable an existing activation key.

```
usage: activationkey_enable KEY [KEY ...]
```

activationkey_enableconfigdeployment

Enable configuration channel deployment for an existing activation key.

```
usage: activationkey_enableconfigdeployment KEY
```

activationkey_export

Export activation key(s) to a JSON formatted file.

```
usage: activationkey_export [options] [<KEY> ...]

options:
    -f outfile.json : specify an output filename, defaults to <KEY>.json
                      if exporting a single key, akeys.json for multiple keys,
                      or akey_all.json if no KEY specified (export ALL)

Note : KEY list is optional, default is to export ALL keys
```

activationkey_import

Import activation key(s) from JSON file(s)

```
usage: activationkey_import <JSONFILE ...>
```

activationkey_list

List all existing activation keys.

```
usage: activationkey_list
```

activationkey_listbasechannel

List the base channel associated with an activation key.

```
usage: activationkey_listbasechannel KEY
```

activationkey_listchildchannels

List child channels associated with an activation key.

```
usage: activationkey_listchildchannels KEY
```

activationkey_listconfigchannels

List configuration channels associated with an activation key.

```
usage: activationkey_listconfigchannels KEY
```

activationkey_listentitlements

List entitlements associated with an activation key.

```
usage: activationkey_listentitlements KEY
```

activationkey_listgroups

List groups associated with an activation key

```
usage: activationkey_listgroups KEY
```

activationkey_listpackages

List packages associated with an activation key.

```
usage: activationkey_listpackages KEY
```

activationkey_listsystems

List systems registered with an activation key.

```
usage: activationkey_listsystems KEY
```

activationkey_removechildchannels

Remove child channels from an activation key.

```
usage: activationkey_removechildchannels KEY <CHANNEL ...>
```

activationkey_removeconfigchannels

Remove configuration channels from an activation key.

```
usage: activationkey_removeconfigchannels KEY <CHANNEL ...>
```

activationkey_removeentitlements

Remove entitlements from an activation key.

```
usage: activationkey_removeentitlements KEY <ENTITLEMENT ...>
```

activationkey_removegroups

Remove groups from an activation key.

```
usage: activationkey_removegroups KEY <GROUP ...>
```

activationkey_removepackages

Remove packages from an activation key.

```
usage: activationkey_removepackages KEY <PACKAGE ...>
```

activationkey_setbasechannel

Set the base channel for an activation key.

```
usage: activationkey_setbasechannel KEY CHANNEL
```

activationkey_setconfigchannelorder

Set the ranked order of configuration channels.

```
usage: activationkey_setconfigchannelorder KEY
```

activationkey_setcontactmethod

Set the contact method to use for systems registered with a specific key. (Use the XML-RPC API to access the latest contact methods.) The following contact methods are available for use with traditional spacecmd: ['default', 'ssh-push', 'ssh-push-tunnel']

```
usage: activationkey_setcontactmethod KEY CONTACT_METHOD
```

activationkey_setdescription

Add a description for an activation key.

```
usage: activationkey_setdescription KEY DESCRIPTION
```

activationkey_setuniversaldefault

Set a specific key as the universal default.

```
usage: activationkey_setuniversaldefault KEY
```

> **⚠ Universal Default Key**
>
> Using a universal default key is not a Best Practice recommendation.

activationkey_setusagelimit

Set the usage limit of an activation key, can be a number or "unlimited".

```
usage: activationkey_setbasechannel KEY <usage limit>
usage: activationkey_setbasechannel KEY unlimited
```

> **💡 Usage Limits**
>
> Usage limits are only applicable to traditionally managed systems. Currently usage limits do not apply to Salt or foreign managed systems.

api

The following API command and its options are available for calling the XML-RPC API directly. Calling the API directly allows you to use the latest features in SUSE Manager from the command-line using spacecmd as a wrapper for stand-alone commands or used from within scripts.

> **ℹ Use the api Command for Access to Latest Features**
>
> spacecmd is the traditional tool for spacewalk. It functions out of the box with SUSE Manager but you should know that latest features (for example, Salt) are often excluded from traditional spacecmd command-line tool. To gain access to the latest feature additions call `api api.getApiCallList` from within spacecmd to list all currently available API commands formatted in json. You can then call these commands directly.

api_

Call XML-RPC API with arguments directly.

```
usage: api [options] API_STRING

options:
  -A, --args  Arguments for the API other than session id in comma separated
              strings or JSON expression
  -F, --format   Output format
  -o, --output   Output file

examples:
  api api.getApiCallList
  api --args "sysgroup_A" systemgroup.listSystems
  api -A "rhel-i386-server-5,2011-04-01,2011-05-01" -F "%(name)s" \
      channel.software.listAllPackages
```

clear

Clears the terminal screen

clear_caches

Clear the internal caches kept for systems and packages

```
usage: clear_caches
```

configchannel_

The following spacecmd commands are available for use with configuration channels.

configchannel_addfile

Creates a configuration file.

```
usage: configchannel_addfile [CHANNEL] [options]

options:
  -c CHANNEL
  -p PATH
  -r REVISION
  -o OWNER [default: root]
  -g GROUP [default: root]
  -m MODE [defualt: 0644]
  -x SELINUX_CONTEXT
  -d path is a directory
  -s path is a symlink
  -b path is a binary (or other file which needs base64 encoding)
  -t SYMLINK_TARGET
  -f local path to file contents

  Note re binary/base64: Some text files, notably those containing trailing
  newlines, those containing ASCII escape characters (or other charaters not
  allowed in XML) need to be sent as binary (-b).  Some effort is made to auto-
  detect files which require this, but you may need to explicitly specify.
```

configchannel_backup

Backup a configuration channel.

```
usage: configchannel_backup CHANNEL [OUTDIR]

OUTDIR defaults to $HOME/spacecmd-backup/configchannel/YYYY-MM-DD/CHANNEL
```

configchannel_clone

Clone configuration channel(s).

```
usage examples:
                configchannel_clone foo_label -c bar_label
                configchannel_clone foo_label1 foo_label2 -c prefix
                configchannel_clone foo_label -x "s/foo/bar"
                configchannel_clone foo_label1 foo_label2 -x "s/foo/bar"

options:
  -c CLONE_LABEL : name/label of the resulting cc (note does not update
                   description, see -x option), treated as a prefix if
                   multiple keys are passed
  -x "s/foo/bar" : Optional regex replacement, replaces foo with bar in the
                   clone name, label and description
  Note : If no -c or -x option is specified, interactive is assumed
```

configchannel_create

Create a configuration channel.

```
usage: configchannel_create [options]

options:
  -n NAME
  -l LABEL
  -d DESCRIPTION
```

configchannel_delete

Delete a configuration channel.

```
usage: configchannel_delete CHANNEL ...
```

configchannel_details

Show the details of a configuration channel.

```
usage: configchannel_details CHANNEL ...
```

configchannel_diff

Find differences between configuration channels.

```
usage: configchannel_diff SOURCE_CHANNEL TARGET_CHANNEL
```

configchannel_export

Export configuration channel(s) to a json formatted file.

```
usage: configchannel_export <CHANNEL>... [options]
options:
    -f outfile.json : specify an output filename, defaults to <CHANNEL>.json
                      if exporting a single channel, ccs.json for multiple
                      channels, or cc_all.json if no CHANNEL specified
                      e.g (export ALL)

Note : CHANNEL list is optional, default is to export ALL
```

configchannel_filedetails

Show the details of a file in a configuration channel.

```
usage: configchannel_filedetails CHANNEL FILE [REVISION]
```

configchannel_forcedeploy

Forces a redeployment of files within a channel on all subscribed systems.

```
usage: configchannel_forcedeploy CHANNEL
```

configchannel_import

Import configuration channel(s) from a json file.

```
usage: configchannel_import <JSONFILES...>
```

configchannel_list

List all configuration channels.

```
usage: configchannel_list
```

configchannel_listfiles

List all files in a configuration channel.

```
usage: configchannel_listfiles CHANNEL ...
```

configchannel_listsystems

List all systems subscribed to a configuration channel.

```
usage: configchannel_listsystems CHANNEL
```

configchannel_removefiles

Remove configuration files.

```
usage: configchannel_removefile CHANNEL <FILE ...>
```

configchannel_sync

Sync configuration files between two configuration channels.

```
usage: configchannel_sync SOURCE_CHANNEL TARGET_CHANNEL
```

configchannel_updatefile

Update a configuration file.

```
usage: configchannel_updatefile CHANNEL FILE
```

configchannel_verifyfile

Verify a configuration file.

```
usage: configchannel_verifyfile CHANNEL FILE <SYSTEMS>

<SYSTEMS> may be substituted with any of the following targets:
name
ssm (see 'help ssm')
search:QUERY (see 'help system_search')
group:GROUP
channel:CHANNEL
```

cryptokey_

The following spacecmd commands are available for use with cryptographic keys.

cryptokey_create

Create a cryptographic key.

```
usage: cryptokey_create [options]

options:
  -t GPG or SSL
  -d DESCRIPTION
  -f KEY_FILE
```

cryptokey_delete

Delete a cryptographic key.

```
usage: cryptokey_delete NAME
```

cryptokey_details

Show the contents of a cryptographic key.

```
usage: cryptokey_details KEY ...
```

cryptokey_list

List all cryptographic keys (SSL, GPG).

```
usage: cryptokey_list
```

custominfo_

The following spacecmd commands are available for working with custom keys.

custominfo_createkey

Create a custom key.

```
usage: custominfo_createkey [NAME] [DESCRIPTION]
```

custominfo_deletekey

Delete a custom key.

```
usage: custominfo_deletekey KEY ...
```

custominfo_details

Show the details of a custom key.

```
usage: custominfo_details KEY ...
```

custominfo_listkeys

List all custom keys.

```
usage: custominfo_listkeys
```

custominfo_updatekey

Update a custom key.

```
usage: custominfo_updatekey [NAME] [DESCRIPTION]
```

distribution_

The following spacecmd commands are available for working with kickstart distributions.

distribution_create

Create a Kickstart tree.

```
usage: distribution_create [options]

options:
  -n NAME
  -p path to tree
  -b base channel to associate with
  -t install type [fedora|rhel_4/5/6|suse|generic_rpm]
```

distribution_delete

Delete a Kickstart tree.

```
usage: distribution_delete LABEL
```

distribution_details

Show the details of a Kickstart tree.

```
usage: distribution_details LABEL
```

distribution_list

List the available autoinstall trees.

```
usage: distribution_list
```

distribution_rename

Rename a Kickstart tree.

```
usage: distribution_rename OLDNAME NEWNAME
```

distribution_update

Update the path of a Kickstart tree.

```
usage: distribution_update NAME [options]

options:
  -p path to tree
  -b base channel to associate with
  -t install type [fedora|rhel_4/5/6|suse|generic_rpm]
```

errata_

The following spacecmd commands are available for use with errata data.

errata_apply

Apply an patch to all affected systems.

```
usage: errata_apply ERRATA|search:XXX ...
```

errata_delete

Delete an patch.

```
usage: errata_delete ERRATA|search:XXX ...
```

errata_details

Show the details of an patch.

```
usage: errata_details ERRATA|search:XXX ...
```

errata_findbycve

List errata addressing a CVE.

```
usage: errata_findbycve CVE-YYYY-NNNN ...
```

errata_list

List all patches.

```
usage: errata_list
```

errata_listaffectedsystems

List of systems affected by an patch.

```
usage: errata_listaffectedsystems ERRATA|search:XXX ...
```

errata_listcves

List of CVEs addressed by an patch.

```
usage: errata_listcves ERRATA|search:XXX ...
```

errata_publish

Publish an patch to a channel.

```
usage: errata_publish ERRATA|search:XXX <CHANNEL ...>
```

errata_search

List patches that meet user provided criteria

```
usage: errata_search CVE|RHSA|RHBA|RHEA|CLA ...

Example:
> errata_search CVE-2009:1674
> errata_search RHSA-2009:1674
```

errata_summary

Print a summary of all errata.

```
usage: errata_summary
```

filepreservation_

The following spacecmd commands are available for working with kickstart file preservation lists.

filepreservation_create

Create a file preservation list.

```
usage: filepreservation_create [NAME] [FILE ...]
```

filepreservation_delete

Delete a file preservation list.

```
filepreservation_delete NAME
```

filepreservation_details

Show the details of a file preservation list.

```
usage: filepreservation_details NAME
```

filepreservation_list

List all file preservations.

```
usage: filepreservation_list
```

get_

The following spacecmd commands are available for use with get.

get_apiversion

Display the API version of the server.

```
usage: get_apiversion
```

get_certificateexpiration

Print the expiration date of the server's entitlement certificate.

```
usage: get_certificateexpiration
```

get_serverversion

Display SUSE Manager server version.

```
usage: get_serverversion
```

get_session

Show the current session string.

```
usage: get_session
```

group_

group_addsystems

Add systems to a group.

```
usage: group_addsystems GROUP <SYSTEMS>

<SYSTEMS> can be any of the following:
name
ssm (see 'help ssm')
search:QUERY (see 'help system_search')
group:GROUP
channel:CHANNEL
```

group_backup

Backup a system group.

```
usage: group_backup NAME [OUTDIR]

OUTDIR defaults to $HOME/spacecmd-backup/group/YYYY-MM-DD/NAME
```

group_create

Create a system group.

```
usage: group_create [NAME] [DESCRIPTION]
```

group_delete

Delete a system group.

```
usage: group_delete NAME ...
```

group_details

Show the details of a system group.

```
usage: group_details GROUP ...
```

group_list

List available system groups.

```
usage: group_list
```

group_listsystems

List the members of a group.

```
usage: group_listsystems GROUP
```

group_removesystems

Remove systems from a group.

```
usage: group_removesystems GROUP <SYSTEMS>

<SYSTEMS> can be any of the following:
name
ssm (see 'help ssm')
search:QUERY (see 'help system_search')
group:GROUP
channel:CHANNEL
```

group_restore

Restore a system group.

```
usage: group_backup INPUTDIR [NAME] ...
```

kickstart_

The following spacecmd functions are available for use with kickstart.

kickstart_addactivationkeys

Add activation keys to a Kickstart profile.

```
usage: kickstart_addactivationkeys PROFILE <KEY ...>
```

kickstart_addchildchannels

Add a child channels to a Kickstart profile.

```
usage: kickstart_addchildchannels PROFILE <CHANNEL ...>
```

kickstart_addcryptokeys

Add cryptography keys to a Kickstart profile.

```
usage: kickstart_addcryptokeys PROFILE <KEY ...>
```

kickstart_addfilepreservations

Add file preservations to a Kickstart profile.

```
usage: kickstart_addfilepreservations PROFILE <FILELIST ...>
```

kickstart_addoption

Set an option for a Kickstart profile.

```
usage: kickstart_addoption PROFILE KEY [VALUE]
```

kickstart_addpackages

Add packages to a Kickstart profile.

```
usage: kickstart_addpackages PROFILE <PACKAGE ...>
```

kickstart_addscript

Add a script to a Kickstart profile.

```
usage: kickstart_addscript PROFILE [options]

options:
  -p PROFILE
  -e EXECUTION_TIME ['pre', 'post']
  -i INTERPRETER
  -f FILE
  -c execute in a chroot environment
  -t ENABLING_TEMPLATING
```

kickstart_addvariable

Add a variable to a Kickstart profile.

```
usage: kickstart_addvariable PROFILE KEY VALUE
```

kickstart_clone

Clone a Kickstart profile.

```
usage: kickstart_clone [options]

options:
  -n NAME
  -c CLONE_NAME
```

kickstart_create

Create a Kickstart profile.

```
usage: kickstart_create [options]

options:
  -n NAME
  -d DISTRIBUTION
  -p ROOT_PASSWORD
  -v VIRT_TYPE ['none', 'para_host', 'qemu', 'xenfv', 'xenpv']
```

kickstart_delete

Delete kickstart profile(s).

```
usage: kickstart_delete PROFILE
usage: kickstart_delete PROFILE1 PROFILE2
usage: kickstart_delete "PROF*"
```

kickstart_details

Show the details of a Kickstart profile.

```
usage: kickstart_details PROFILE
```

kickstart_diff

List differences between two kickstart files.

```
usage: kickstart_diff SOURCE_CHANNEL TARGET_CHANNEL
```

kickstart_disableconfigmanagement

Disable configuration management on a Kickstart profile.

```
usage: kickstart_disableconfigmanagement PROFILE
```

kickstart_disableremotecommands

Disable remote commands on a Kickstart profile.

```
usage: kickstart_disableremotecommands PROFILE
```

kickstart_enableconfigmanagement

Enable configuration management on a Kickstart profile.

```
usage: kickstart_enableconfigmanagement PROFILE
```

kickstart_enablelogging

Enable logging for a Kickstart profile.

```
usage: kickstart_enablelogging PROFILE
```

kickstart_enableremotecommands

Enable remote commands on a Kickstart profile.

```
usage: kickstart_enableremotecommands PROFILE
```

kickstart_export

Export kickstart profile(s) to json formatted file.

```
usage: kickstart_export <KSPROFILE>... [options]
options:
    -f outfile.json : specify an output filename, defaults to <KSPROFILE>.json
                      if exporting a single kickstart, profiles.json for multiple
                      kickstarts, or ks_all.json if no KSPROFILE specified
                      e.g (export ALL)

Note : KSPROFILE list is optional, default is to export ALL
```

kickstart_getcontents

Show the contents of a Kickstart profile as they would be presented to a client.

```
usage: kickstart_getcontents LABEL
```

kickstart_getsoftwaredetails

Gets kickstart profile software details.

```
usage: kickstart_getsoftwaredetails KS_LABEL
usage: kickstart_getsoftwaredetails KS_LABEL KS_LABEL2 ...
```

kickstart_getupdatetype

Get the update type for a kickstart profile(s).

```
usage: kickstart_getupdatetype PROFILE
usage: kickstart_getupdatetype PROFILE1 PROFILE2
usage: kickstart_getupdatetype "PROF*"
```

kickstart_import

Import a Kickstart profile from a file.

```
usage: kickstart_import [options]

options:
  -f FILE
  -n NAME
  -d DISTRIBUTION
  -v VIRT_TYPE ['none', 'para_host', 'qemu', 'xenfv', 'xenpv']
```

kickstart_import_raw

Import a raw Kickstart or autoyast profile from a file.

```
usage: kickstart_import_raw [options]

options:
  -f FILE
  -n NAME
  -d DISTRIBUTION
  -v VIRT_TYPE ['none', 'para_host', 'qemu', 'xenfv', 'xenpv']
```

kickstart_importjson

Import kickstart profile(s) from json file.

```
usage: kickstart_import <JSONFILES...>
```

kickstart_list

List the available Kickstart profiles.

```
usage: kickstart_list
```

kickstart_listactivationkeys

List the activation keys associated with a Kickstart profile.

```
usage: kickstart_listactivationkeys PROFILE
```

kickstart_listchildchannels

List the child channels of a Kickstart profile.

```
usage: kickstart_listchildchannels PROFILE
```

kickstart_listcryptokeys

List the crypto keys associated with a Kickstart profile.

```
usage: kickstart_listcryptokeys PROFILE
```

kickstart_listcustomoptions

List the custom options of a Kickstart profile.

```
usage: kickstart_listcustomoptions PROFILE
```

kickstart_listoptions

List the options of a Kickstart profile.

```
usage: kickstart_listoptions PROFILE
```

kickstart_listpackages

List the packages for a Kickstart profile.

```
usage: kickstart_listpackages PROFILE
```

kickstart_listscripts

List the scripts for a Kickstart profile.

```
usage: kickstart_listscripts PROFILE
```

kickstart_listvariables

List the variables of a Kickstart profile.

```
usage: kickstart_listvariables PROFILE
```

kickstart_removeactivationkeys

Remove activation keys from a Kickstart profile.

```
usage: kickstart_removeactivationkeys PROFILE <KEY ...>
```

kickstart_removechildchannels

Remove child channels from a Kickstart profile.

```
usage: kickstart_removechildchannels PROFILE <CHANNEL ...>
```

kickstart_removecryptokeys

Remove crypto keys from a Kickstart profile.

```
usage: kickstart_removecryptokeys PROFILE <KEY ...>
```

kickstart_removefilepreservations

Remove file preservations from a Kickstart profile.

```
usage: kickstart_removefilepreservations PROFILE <FILE ...>
```

kickstart_removeoptions

Remove options from a Kickstart profile.

```
usage: kickstart_removeoptions PROFILE <OPTION ...>
```

kickstart_removepackages

Remove packages from a Kickstart profile.

```
usage: kickstart_removepackages PROFILE <PACKAGE ...>
```

kickstart_removescript

Add a script to a Kickstart profile.

```
usage: kickstart_removescript PROFILE [ID]
```

kickstart_removevariables

Remove variables from a Kickstart profile.

```
usage: kickstart_removevariables PROFILE <KEY ...>
```

kickstart_rename

Rename a Kickstart profile

```
usage: kickstart_rename OLDNAME NEWNAME
```

kickstart_setcustomoptions

Set custom options for a Kickstart profile.

```
usage: kickstart_setcustomoptions PROFILE
```

kickstart_setdistribution

Set the distribution for a Kickstart profile.

```
usage: kickstart_setdistribution PROFILE DISTRIBUTION
```

kickstart_setlocale

Set the locale for a Kickstart profile.

```
usage: kickstart_setlocale PROFILE LOCALE
```

kickstart_setpartitions

Set the partitioning scheme for a Kickstart profile.

```
usage: kickstart_setpartitions PROFILE
```

kickstart_setselinux

Set the SELinux mode for a Kickstart profile.

```
usage: kickstart_setselinux PROFILE MODE
```

kickstartsetupdatetype

Set the update type for a kickstart profile(s).

```
usage: kickstartsetupdatetype [options] KS_LABEL

options:
    -u UPDATE_TYPE ['red_hat', 'all', 'none']
```

kickstart_updatevariable

Update a variable in a Kickstart profile.

```
usage: kickstart_updatevariable PROFILE KEY VALUE
```

list_proxies

The following spacecmd function is available for listing proxies.

list_proxies

List the proxies within the user's organization.

```
usage: list_proxies
```

login

Connect as a specific user to the SUSE manager server.

```
# spacecmd -- login <USERNAME>
```

logout

Logout from server as the current user.

```
# spacecmd -- logout
```

org_

The following spacecmd functions are available for use with organizations.

org_addtrust

Add a trust between two organizations

```
usage: org_addtrust YOUR_ORG ORG_TO_TRUST
```

org_create

Create an organization.

```
usage: org_create [options]

options:
  -n ORG_NAME
  -u USERNAME
  -P PREFIX (Dr., Mr., Miss, Mrs., Ms.)
  -f FIRST_NAME
  -l LAST_NAME
  -e EMAIL
  -p PASSWORD
  --pam enable PAM authentication
```

org_delete

Delete an organization.

```
usage: org_delete NAME
```

org_details

Show the details of an organization.

```
usage: org_details NAME
```

org_list

List all organizations.

```
usage: org_list
```

org_listtrusts

List an organization's trusts.

```
org_listtrusts NAME
```

org_listusers

List an organization's users.

```
org_listusers NAME
```

org_removetrust

Remove a trust between two organizations.

```
usage: org_removetrust YOUR_ORG TRUSTED_ORG
```

org_rename

Rename an organization.

```
usage: org_rename OLDNAME NEWNAME
```

org_trustdetails

Show the details of an organizational trust.

```
usage: org_trustdetails TRUSTED_ORG
```

package_

The following spacecmd functions are available for working with packages.

package_details

Show the details of a software package.

```
usage: package_details PACKAGE ...
```

package_listdependencies

List the dependencies for a package.

```
usage: package_listdependencies PACKAGE
```

package_listerrata

List the errata that provide this package.

```
usage: package_listerrata PACKAGE ...
```

package_listinstalledsystems

List the systems with a package installed.

```
usage: package_listinstalledsystems PACKAGE ...
```

package_listorphans

List packages that are not in a channel.

```
usage: package_listorphans
```

package_remove

Remove a package from SUSE Manager/Satellite

```
usage: package_remove PACKAGE ...
```

package_removeorphans

Remove packages that are not in a channel.

```
usage: package_removeorphans
```

package_search

Find packages that meet the given criteria.

```
usage: package_search NAME|QUERY
```

```
Example: package_search kernel
```

Advanced Search

Available Fields: name, epoch, version, release, arch, description, summary

Example: name:kernel AND version:2.6.18 AND -description:devel

SUSE Manager Command Line Tools

This section explains some command line tools such as mgrcfg-client, mgrcfg-manager, mgr-actions-control, or mgr-sync.

Command Line Tools on Traditional Clients

In addition to the SUSE Manager Web interface, SUSE Manager offers two command line tools for managing configuration files on *traditional* clients:

- The Configuration Client (**mgrcfg-client**, part of the `mgr-cfg-client` package)

- The Configuration Manager (**mgrcfg-manager**, part of the `mgr-cfg-management` package)

You can use the **mgr-actions-control** tool (part of the `mgr-cfg-actions` package) to *enable* and *disable* configuration management on client systems.

To work with these tools install them with the Web UI. Select the client's details page, then check whether these packages are already installed; click **System Details › Software › Packages › List/Remove** and, for example, enter `mgr-` as a search term. If the packages are not listed here, click the `Install` sub-tab and select the packages for installation.

> *Configuration File Backups*
>
> When a configuration file is deployed via SUSE Manager, a backup of the previous file including its full path is stored in the `/var/lib/rhncfg/backups/`. The backup retains its filename but has a *.rhn-cfg-backup* extension appended.

Actions Control (mgr-actions-control)

The Actions Control (**mgr-actions-control**) application is used to enable and disable configuration management on a system. Client systems cannot be managed in this fashion by default. This tool allows SUSE Manager administrators to enable or disable specific modes of allowable actions such as:

- Deploying a configuration file on the system

- Uploading a file from the system

- Using the diff command to find out what is currently managed on a system with what is available

- Running remote commands

These various modes are enabled or disabled by placing or removing files and directories in the `/etc/sysconfig/rhn/allowed-actions/` directory. Because of to the default permissions of the `/etc/sysconfig/rhn/` directory, Actions Control has to be run by someone with root access.

General command line options

There is a manpage available, as for most command line tools. First, decide which scheduled actions should be enabled for use by system administrators. The following options enable the various scheduled action modes:

--enable-deploy

Allow mgrcfg-client to deploy files.

--enable-diff

Allow mgrcfg-client to diff files.

--enable-upload

Allow mgrcfg-client to upload files.

--enable-mtime-upload

Allow mgrcfg-client to upload mtime (file modification time).

--enable-all

Allow mgrcfg-client to do everything.

--enable-run

Enable running scripts.

--disable-deploy

Disable deployment.

--disable-diff

Prohibit diff use.

--disable-upload

No file uploads allowed.

--disable-mtime-upload

Disable mtime upload.

--disable-all

Disable all options.

--disable-run

No scripts allowed to run.

--report

Report whether modes are enabled or disabled.

-f, --force

Force the operation without asking first.

-h, --help

Show help message and exit.

Once a mode is set, your system is ready for configuration management through SUSE Manager. A common option is `mgr-actions-control --enable-all`.

Configuration Client (mgrcfg-client)

The Configuration Client (mgrcfg-client) is installed on and run from an individual client system to gain knowledge about how SUSE Manager deploys configuration files to the client.

The Configuration Client offers these primary modes:

- list

- get

- channels

- diff

- verify

Listing Configuration Files

To list the configuration files for the machine and the labels of the config channels containing them, issue the command:

```
mgrcfg-client list
```

The output resembles the following list ("DoFoS" is a shortcut for "D or F or S", which means "Directory", "File", or "Something else"(?)):

```
DoFoS   Config Channel      File
F       config-channel-17   /etc/example-config.txt
F       config-channel-17   /var/spool/aalib.rpm
F       config-channel-14   /etc/rhn/rhn.conf
```

These configuration files apply to your system. However, there may be duplicate files present in other channels. For example, issue the following command:

```
mgrcfg-manager list config-channel-14
```

and observe the following output:

```
Files in config channel 'config-channel-14'
/etc/example-config.txt /etc/rhn/rhn.conf
```

You may wonder why the second version of `/etc/example-config.txt` in **config-channel-14** does not apply to the client system. The rank of the `/etc/example-config.txt` file in **config-channel-17** was higher than that of the same file in **config-channel-14**. As a result, the version of the configuration file in config-channel-14 is not deployed for this system, therefore mgrcfg-client command does not list the file.

Downloading a Config File

To download the most relevant configuration file for the machine, issue the command:

```
mgrcfg-client get /etc/example-config.txt
```

You should see output resembling:

```
Deploying /etc/example-config.txt
```

View the contents of the file with less or another pager. Note that the file is selected as the most relevant based on the rank of the config channel containing it. This is accomplished within the Configuration tab of the System Details page.

Refer to Section "System Details" (Chapter 4, Systems, User Guide) for instructions.

Viewing Config Channels

To view the labels and names of the config channels that apply to the system, issue the command:

```
mgrcfg-client channels
```

You should see output resembling:

```
Config channels:
Label                Name
-----                ----
config-channel-17    config chan 2
config-channel-14    config chan 1
```

The list of options available for `mgrcfg-client get`:

--topdir=TOPDIR

Make all file operations relative to this string.

--exclude=EXCLUDE

>   Exclude a file from being deployed with get. May be used multiple times.

-h, --help

>   Show help message and exit.

Differentiating between Config Files

To view the differences between the config files deployed on the system and those stored by SUSE Manager, issue the command:

```
mgrcfg-client diff
```

The output resembles the following:

```
rhncfg-client diff
--- /etc/test
+++ /etc/test 2013-08-28 00:14:49.405152824 +1000
@@ -1 +1,2 @@
This is the first line
+This is the second line added
```

In addition, you can include the `--topdir` option to compare config files with those located in an arbitrary (and unused) location on the client system, like this:

```
# mgrcfg-client diff --topdir /home/test/blah/
/usr/bin/diff: /home/test/blah/etc/example-config.txt: No such file or directory
/usr/bin/diff: /home/test/blah/var/spool/aalib.rpm: No such file or directory
```

Verifying Config Files

To quickly determine if client configuration files are different from those associated with it via SUSE Manager, issue the command:

```
mgrcfg-client verify
```

The output resembles the following:

```
modified /etc/example-config.txt /var/spool/aalib.rpm
```

The file `example-config.txt` is locally modified, while `aalib.rpm` is not.

The list of the options available for mgrcfg-client verify:

-v, --verbose

Increase the amount of output detail. Display differences in the mode, owner, and group permissions for the specified config file.

-o, --only

Only show differing files.

-h, --help

Show help message and exit.

Configuration Manager (mgrcfg-manager)

The Configuration Manager (**mgrcfg-manager**) is designed to maintain SUSE Manager's central repository of config files and channels, not those located on client systems. This tool offers a command line alternative to the configuration management features in the SUSE Manager Web interface. Additionally, some or all of the related maintenance tasks can be scripted.

To use the command line interface, configuration administrators require a SUSE Manager account (username and password) with the appropriate permission set. The username may be specified in `/etc/sysconfig/rhn/rhncfg-manager.conf` or in the `[rhncfg-manager]` section of `~/.rhncfgrc`.

When the Configuration Manager is run as **root**, it attempts to pull in needed configuration values from the Red Hat Update Agent. When run as a user other than root, you may have to change the `~/.rhncfgrc` configuration file. The session file is cached in `~/.rhncfg-manager-session` to avoid having to log in for every command.

The default timeout for the Configuration Manager is 30 minutes. To adjust this, add the `server.session_lifetime` option and a new value to the `/etc/rhn/rhn.conf` file on the server running the manager. For example set the time out to **120 minutes**:

```
server.session_lifetime = 120
```

The Configuration Manager offers the following primary **modes**:

- add
- create-channel
- diff
- diff-revisions
- download-channel
- get
- list

- list-channels

- remove

- remove-channel

- revisions

- update

- upload-channel

Each mode offers its own set of options, which can be displayed by issuing the following command:

```
mgrcfg-manager mode --help
```

Replace mode with the name of the mode whose options you want to see:

```
mgrcfg-manager diff-revisions --help
```

Creating a Config Channel

To create a config channel for your organization, issue the command:

```
mgrcfg-manager create-channel channel-label
```

If prompted for your SUSE Manager username and password, provide them. Once you have created a config channel, use the remaining modes listed above to populate and maintain that channel.

Adding Files to a Config Channel

To add a file to a config channel, specify the channel label and the local file to be uploaded:

```
mgrcfg-manager add --channel=channel-label /path/to/file
```

In addition to the required channel label and the path to the file, you can use the available options for modifying the file during its addition. For instance, you can alter the path and file name by including the `--dest-file` option in the command:

```
mgrcfg-manager add --channel=channel-label \
   --dest-file=/new/path/to/file.txt/path/to/file
```

The output resembles the following:

```
Pushing to channel example-channel
Local file >/path/to/file -> remote file /new/path/to/file.txt
```

The list of options available for mgrcfg-manager add:

-c CHANNEL --channel=CHANNEL

Upload files in this config channel.

-d DEST_FILE --dest-file=DEST_FILE

Upload the file as this path.

--delim-start=DELIM_START

Start delimiter for variable interpolation.

--delim-end=DELIM_END

End delimiter for variable interpolation.

-i, --ignore-missing

Ignore missing local files.

-h, --help

Show help message and exit.

> *Maximum File Size*
>
> By default, the maximum file size for configuration files is 128 KB. For information on changing the maximum file size value, see **[Reference › Configuration ›]**.

Differentiating between Latest Config Files

To view the differences between the config files on disk and the latest revisions in a channel, issue the command:

```
mgrcfg-manager diff --channel=channel-label --dest-file=/path/to/file.txt \
/local/path/to/file
```

You should see output resembling:

```
--- /tmp/dest_path/example-config.txt config_channel: example-channel revision: 1
+++ /home/test/blah/hello_world.txt 2003-12-14 19:08:59.000000000 -0500
@@ -1 +1 @@
-foo
+hello, world
```

The list of options available for `mgrcfg-manager diff`:

-c CHANNEL, --channel=CHANNEL

Get file(s) from this config channel.

-r REVISION, --revision=REVISION

Use this revision.

-d DEST_FILE, --dest-file=DEST_FILE

Upload the file at this path.

-t TOPDIR, --topdir=TOPDIR

Make all files relative to this string.

-h, --help

Show help message and exit.

Differentiating between Various Versions

To compare different versions of a file across channels and revisions, use the **-r** flag to indicate which revision of the file should be compared and the **-n** flag to identify the two channels to be checked. Specify only one file name here since you are comparing the file against another version of itself. For example:

```
mgrcfg-manager diff-revisions -n=channel-label1 -r=1 \
  -n=channel-label2 -r=1 \
  /path/to/file.txt
```

The output resembles the following:

```
--- /tmp/dest_path/example-config.txt 2004-01-13 14:36:41 \
config channel: example-channel2 revision: 1
--- /tmp/dest_path/example-config.txt 2004-01-13 14:42:42 \
config channel: example-channel3 revision: 1
@@ -1 +1,20 @@
-foo
+blah
+-----BEGIN PGP SIGNATURE-----
+Version: GnuPG v1.0.6 (GNU/Linux)
+Comment: For info see http://www.gnupg.org
+
+iD8DBQA9ZY6vse4XmfJPGwgRAsHcAJ9ud9dabUcdscdcqB8AZP7e0Fua0NmKsdhQCeOWHX
+VsDTfen2NWdwwPaTM+S+Cow=
+=Ltp2
+-----END PGP SIGNATURE-----
```

The list of options available for `mgrcfg-manager diff-revisions`:

-c CHANNEL, --channel=CHANNEL

Use this config channel.

-r REVISION, --revision=REVISION

Use this revision.

-h, --help

Show help message and exit.

Downloading All Files in a Channel

To download all the files in a channel to disk, create a directory and issue the following command:

```
mgrcfg-manager download-channel channel-label --topdir .
```

The output resembles the following:

```
Copying /tmp/dest_path/example-config.txt -> \
blah2/tmp/dest_path/example-config.txt
```

The list of options available for mgrcfg-manager download-channel:

-t TOPDIR, --topdir=TOPDIR

Directory to which all the file paths are relative. This option must be set.

-h, --help

Show help message and exit.

Getting the Contents of a File

To direct the contents of a particular file to stdout, issue the command:

```
mgrcfg-manager get --channel=channel-label \
/tmp/dest_path/example-config.txt
```

You should see the contents of the file as the output.

Listing All Files in a Channel

To list all the files in a channel, issue the command:

```
mgrcfg-manager list channel-label
```

You should see output resembling:

```
Files in config channel `example-channel3':
/tmp/dest_path/example-config.txt
```

The list of the options available for mgrcfg-manager get:

-c CHANNEL, --channel=CHANNEL

Get file(s) from this config channel.

-t TOPDIR, --topdir=TOPDIR

Directory to which all files are relative.

-r REVISION, --revision=REVISION

Get this file revision.

-h, --help

Show help message and exit.

Listing All Config Channels

To list all of your organization's configuration channels, issue the command:

```
mgrcfg-manager list-channels
```

The output resembles the following:

```
Available config channels:
example-channel example-channel2 example-channel3 config-channel-14 config-channel-17
```

> ℹ️ This does not list **local_override** or **server_import** channels.

Removing a File from a Channel

To remove a file from a channel, issue the command:

```
mgrcfg-manager remove --channel=channel-label /tmp/dest_path/example-config.txt
```

If prompted for your SUSE Manager username and password, provide them.

The list of the options available for mgrcfg-manager remove:

-c CHANNEL, --channel=CHANNEL

Remove files from this config channel.

-t TOPDIR, --topdir=TOPDIR

Directory to which all files are relative.

-h, --help

Show help message and exit.

Deleting a Config Channel

To remove a config channel in your organization, issue the command:

```
mgrcfg-manager remove-channel channel-label
```

The output resembles the following:

```
Removing config channel example-channel
Config channel example-channel removed
```

Determining the Number of File Revisions

To find out how many revisions (from **1 to N** where N is an integer greater than 0) of a file/path are in a channel, issue the following command:

```
mgrcfg-manager revisions channel-label /tmp/dest_path/example-config.txt
```

The output resembles the following:

```
Analyzing files in config channel example-channel \
/tmp/dest_path/example-config.txt: 1
```

Updating a File in a Channel

To create a new revision of a file in a channel (or to add the first revision to that channel if none existed before for the given path), issue the following command:

```
mgrcfg-manager update --channel=channel-label \
--dest-file=/path/to/file.txt /local/path/to/file
```

The output resembles the following:

```
Pushing to channel example-channel:
Local file example-channel /tmp/local/example-config.txt -> \
remote file /tmp/dest_path/example-config.txt
```

The list of the options available for mgrcfg-manager update:

-c CHANNEL, --channel=CHANNEL

Upload files in this config channel.

-d DEST_FILE, --dest-file=DEST_FILE

Upload the file to this path.

-t TOPDIR, --topdir=TOPDIR

Directory to which all files are relative.

--delim-start=DELIM_START

Start delimiter for variable interpolation.

--delim-end=DELIM_END

End delimiter for variable interpolation.

-h, --help

Show help message and exit.

Uploading Multiple Files at Once

To upload multiple files to a config channel from a local disk at once, issue the command:

```
mgrcfg-manager upload-channel --topdir=topdir channel-label
```

The output resembles the following:

```
Using config channel example-channel4
Uploading /tmp/ola_world.txt from blah4/tmp/ola_world.txt
```

The list of the options available for mgrcfg-manager upload-channel:

-t TOPDIR, --topdir=TOPDIR

Directory all the file paths are relative to.

-c CHANNEL, --channel=CHANNEL

List of channels the config info will be uploaded into channels delimited by ','. Example: --channel=foo,bar,baz.

-h, --help

Show help message and exit.

Synchronize Repositories with spacewalk-repo-sync

The `spacewalk-repo-sync` tool synchronizes software repositories into Uyuni channels. This usually happens automatically, but you can run it manually if required. This can be useful for debugging or for solving some synchronization problems.

Normal Channel Synchronization

Basic operation:

`spacewalk-repo-sync --list`

> List all custom channels and the repositories assigned to them.

`spacewalk-repo-sync --channel <custom-channel>`

> Synchronize a single channel `<custom-channel>` to all repositories assigned to it with the Web UI or the API.

Solve Checksum Problems

Use the `--deep-verify` option to ignore cached package checksums. This can help with solving checksum problems.

Force Re-import Patches

Use the `--force-all-errata` option to force re-importing all the patches. To make this command run faster, you can use the `--no-packages` option. This option excludes packages from the operation.

To find the root cause of synchronization problems you can look at the HTTP log as `spacewalk-repo-sync` is running.

1. Set and export `ZYPP_MEDIA_CURL_DEBUG`. This setting will allow downloading the metadata output by Zypper. Thus the following command will log the HTTP conversation into `/var/log/zypper.log`:

   ```
   ZYPP_MEDIA_CURL_DEBUG=2 spacewalk-repo-sync --channel <channel-label>
   ```

2. Set and export `URLGRABBER_DEBUG` for the RPM downloading part:

   ```
   export URLGRABBER_DEBUG=DEBUG
   ```

3. Start the synchronization:

   ```
   /usr/bin/spacewalk-repo-sync --channel <channel-label> --type yum
   ```

To increase the debug level, add the `-vvv` option.

When debugging is finished, disable debug mode:

```
unset URLGRABBER_DEBUG
```

For More Information

For a complete list of command line options, see the `spacewalk-repo-sync` manpage:

```
man spacewalk-repo-sync
```

Synchronize SUSE Manager Repositories from SCC (mgr-sync)

`mgr-sync` should be used if SUSE Manager is connected to SUSE Customer Center (SCC). With `mgr-sync` you may add or synchronize products and channels. The `mgr-sync` command also enables and refreshes SCC data.

By default, `mgr-sync` writes basic debug information to `/var/log/rhn/mgr-sync.log`. Get more debugging information with `--debug` or by adding `mgrsync.debug = <DEBUGLEVEL>` to `/etc/rhn/rhn.conf`. Settings in `~/.mgr-sync` will supersede values from `rhn.conf`. For example, if you set

```
mgrsync.debug = ""
```

in `~/.mgr-sync`, the value in `rhn.conf` will have no effect.

> **!** *Admin credentials*
>
> `mgr-sync` requires username and password of a **SUSE Manager administrator**. Most functions are available as part of the public API.

mgr-sync provides a command structure with sub-commands similar to git or osc. For a complete list of command line option, see the mgr-sync manpage (man mgr-sync). Basic actions are:

```
mgr-sync list channel(s)|product(s)|credentials
mgr-sync add  channel(s)|product(s)|credentials
mgr-sync delete  credentials

mgr-sync refresh [--refresh-channels] [--from-mirror MIRROR]
```

See the following examples.

List channels

```
mgr-sync list channels
```

Add a channel

```
mgr-sync add channel LABEL
```

List products

```
mgr-sync list products
```

Add a product

```
mgr-sync add product
```

Refresh the data

```
mgr-sync refresh
```

Refresh data and schedule a reposync for all installed vendor channels

```
mgr-sync refresh --refresh-channels
```

List SCC credentials

```
mgr-sync list credentials
```

Add new SCC credentials

```
mgr-sync add credentials
```

Credentials

There can be one primary credential only. This is username/password used first when retrieving the list of available channels and packages.

Add SCC primary credentials

```
mgr-sync add credentials --primary
```

Delete SCC credentials

```
mgr-sync delete credentials
```

Configuring SUSE Manager's Database (smdba)

SUSE Manager provides the smdba command for managing the installed database. It is the successor of `db-control`, which is now **unsupported**.

The smdba command works on local databases only, not remote. This utility allows you to do several administrative tasks like backing up and restoring the database. It also allows you to create, verify, restore backups, obtaining database status, and restart the database if necessary. The smdba command supports **PostgreSQL**.

Find basic information about **smdba** in the **smdba manpage**.

Restart Spacewalk Services When Connection is Lost

If you have stopped or restarted the database, Spacewalk services can lose their connections. In such a case, run the following command:

```
spacewalk-service restart
```

Control Options

Depending on the database installed, smdba provides several subcommands:

```
backup-hot      Enable continuous archiving backup
backup-restore  Restore the SUSE Manager Database from backup.
backup-status   Show backup status.
db-start        Start the SUSE Manager Database.
db-status       Show database status.
db-stop         Stop the SUSE Manager Database.
space-overview  Show database space report.
space-reclaim   Free disk space from unused object in tables and indexes.
space-tables    Show space report for each table.
system-check    Common backend healthcheck.
```

For a list of available commands on your particular appliance, call smdba help. To display the help message for a specific subcommand, call `smdba COMMAND help`.

Starting and Stopping the Database

There are three commands to start, stop, or get the status of the database. Use the following commands:

```
# smdba db-status
Checking database core...        online
# smdba db-stop
Stopping the SUSE Manager database...
Stopping listener:     done
Stopping core:         done
# smdba db-status
Checking database core...        offline
# smdba db-start
Starting listener:     done
Starting core...       done
```

Creating a Bootstrap Repository (mgr-create-bootstrap-repo)

The `mgr-create-bootstrap-repo` command is used on the Uyuni Server to create a new bootstrap repository.

Use the `-l` option to list all available repositories:

```
# mgr-create-bootstrap-repo -l
```

You can then invoke the command with the appropriate repository name to create the bootstrap repository you require, for example:

```
# mgr-create-bootstrap-repo SLE-version-x86_64
```

```
[[at.clitools.createbootstraprepo.customchannels]]
=== Creating a Bootstrap Repository with Custom Channels
```

```
Custom channels are channels that have been created to manage any custom packages that an
organization might require.
To create a new bootstrap repository from a custom channel, use the [code]``mgr-create-
bootstrap-repo`` command with the [code]``with-custom-channels`` option:
```

```
# mgr-create-bootstrap-repo --with-custom-channels
```

Flushing a Bootstrap Repository to Remove Custom Channels

If you create a bootstrap repository that contains custom channels, and later attempt to rebuild with the `mgr-create-bootstrap-repo` command, the custom channel information will remain in the bootstrap repository. If you want to remove custom channel information from your bootstrap repository, you will need to use the `flush` option when you rebuild:

```
# mgr-create-bootstrap-repo --flush
```