



U Y U N I

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Common Workflows

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# Common workflows overview

**Updated:** 2023-02-23

The Uyuni Common Workflows Guide covers most commonly used workflows you need to install, manage, and configure your clients with Uyuni.

Each workflow in this book has a clear goal, and provides detailed steps to achieve that goal.

It is designed to help you better understand both routine and advanced tasks, by explaining what you are achieving in each step, and the various options available to you along the way.

Each routine will be described as Workflow.

# Chapter 1. Configuration Management

You can use configuration files and channels to manage configuration for your clients, rather than configuring each client manually. This workflow shows you how to use the Uyuni Web UI to create a centrally managed configuration file, assign it to a Salt client, and apply the configuration.

## 1.1. Use case

If you are managing a lot of clients, you probably do not want to manually apply configuration settings to each of them in turn. Configuration channels are used to organize configuration files. You can subscribe clients to configuration channels, and deploy configuration files as required.

## 1.2. Outcome

When you have completed this workflow, you will have a configuration channel containing a configuration file, have assigned clients to the channel, and applied the configuration successfully.

## 1.3. Preparation

Before you start, you should already have:

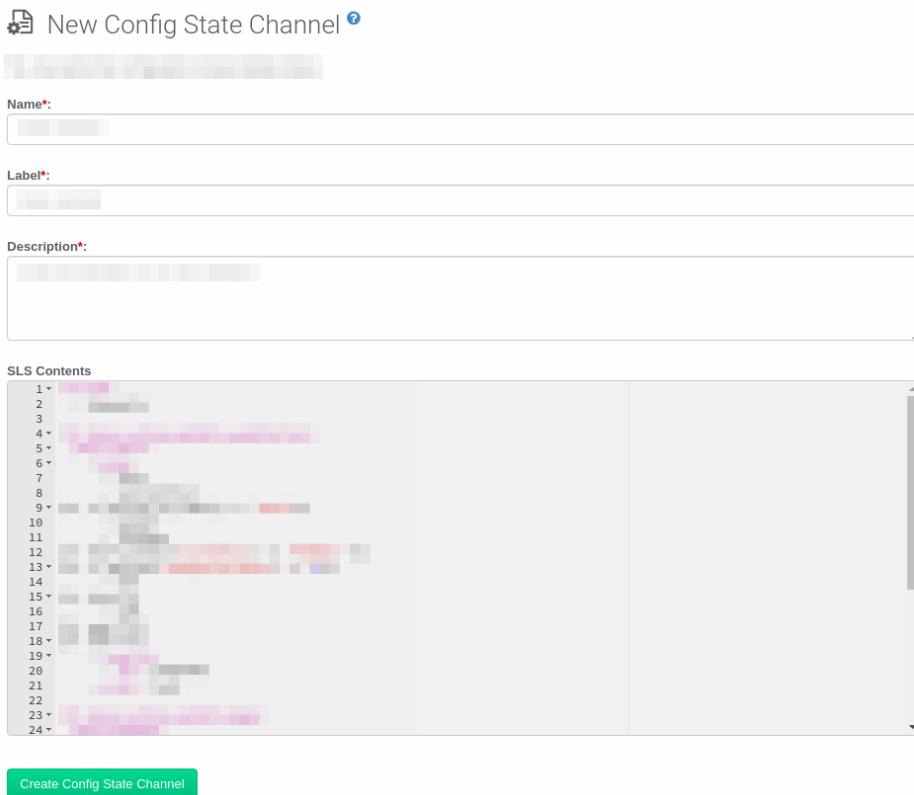
- Uyuni Server installed, that you can access using the Web UI.
- At least one Salt client registered to your server.
- Appropriate subscriptions from <http://scc.suse.com> for the products you are using.

This workflow uses a centrally managed configuration file and a Salt state. You can also use locally managed configuration files, traditional clients, and different methods, to get more flexibility in how you manage configuration in your environment. For more information about the different ways to manage configuration, see **Client-configuration > Configuration-management**.

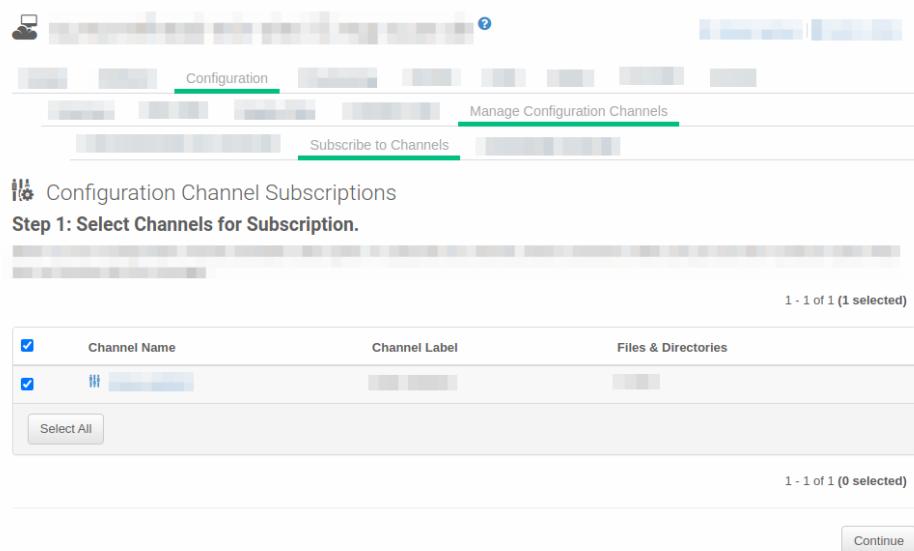
## 1.4. Step-by-step workflow instructions

*Procedure: Create a new configuration channel and file*

1. In the Uyuni Web UI, navigate to **Configuration > Channels** and click [**Create State Channel**].
2. Type a name, label, and description for your configuration file, and type the contents of your configuration file. An example that you can copy is at the end of this section. Click [**Create Config State Channel**]

A screenshot of the 'New Config State Channel' dialog box. It contains fields for 'Name\*', 'Label\*', and 'Description\*'. Below these is a large text area titled 'SLS Contents' containing a multi-line configuration script. At the bottom is a green 'Create Config State Channel' button.

3. Procedure: Assign clients to the configuration channel
4. In the Uyuni Web UI, navigate to **Systems > Systems List** and select the client you want to assign to your configuration channel.
5. Navigate to the **Configuration** tab. In the guimenu:**Configuration Overview** section, click **[Subscribe to channels]**.
6. Check the configuration channel you created earlier, and click **[Continue]**.

A screenshot of the 'Configuration Channel Subscriptions' dialog box. It shows a step 1: 'Select Channels for Subscription' with one channel selected. A table lists the selected channel with columns: Channel Name, Channel Label, and Files & Directories. Buttons include 'Select All', 'Continue', and a note '1 - 1 of 1 (0 selected)'.

7. If you have more than one configuration channel, you can rank them in order of importance, or click **[Update Channel Rankings]** to finish.

*Procedure: Apply the configuration to your client*

1. In the Uyuni Web UI, navigate to **Systems > Systems List** and select the client you want to assign to your configuration channel.
2. Navigate to the **Configuration** tab. In the guimenu:**Configuration Actions** section, click **[Deploy all managed config files]**.

## 1.5. Example

### 1.5.1. SLS State for Keeping Clients Updated

```
include:
  - channels

int_keep_system_up2date_updatestack:
  pkg.latest:
    - pkgs:
      - salt
      - salt-minion
  {%- if grains.os_family == 'Suse'%}
    - zypper
    - libzypp
  {%- elif grains['os_family'] == 'RedHat' %}
  {%- if grains['osmajorrelease'] >= 8 %}
    - dnf
  {%- else %}
    - yum
  {%- endif %}
  {%- endif %}
  - require:
    - sls: channels
    - order: last

int_keep_system_up2date_pkgs:
  pkg.uptodate:
    - require:
      - sls: channels
      - pkg: int_keep_system_up2date_updatestack
      - order: last

int_reboot_if_needed:
  cmd.run:
    - name: shutdown -r +5
  {%- if grains['os_family'] == 'RedHat' and grains['osmajorrelease'] >= 8 %}
    - onlyif: 'dnf -q needs-restarting -r; [ $? -eq 1 ]'
  {%- elif grains['os_family'] == 'RedHat' and grains['osmajorrelease'] <= 7 %}
    - onlyif: 'needs-restarting -r; [ $? -eq 1 ]'
  {%- elif grains['os_family'] == 'Debian' %}
    - onlyif:
      - test -e /var/run/reboot-required
  {%- else %}
    - onlyif: 'zypper ps -s; [ $? -eq 102 ]'
  {%- endif %}
```

## 1.6. Related topics

- For more information about configuration management, see **Client-configuration > Configuration-management**.

- For more information about SLS files, see: [https://docs.saltproject.io/en/latest/topics/tutorials/start\\_states.html](https://docs.saltproject.io/en/latest/topics/tutorials/start_states.html).

# Chapter 2. Content Lifecycle Management

If you are managing a lot of clients and you need to apply customized packages to them, you can use content lifecycle management (CLM) to manage your packages. CLM allows you to customize and test packages before updating production clients. It is also useful if you need to apply updates during a limited maintenance window.

## 2.1. Use case

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. You can use CLM to manage your software channels from development, through testing, and rolling the changes out to your clients.

## 2.2. Outcome

When you have completed this workflow, you will have a content lifecycle project set up. You will have created a basic CLM project, and promoted it through its lifecycle.

## 2.3. Preparations

Before you start, you should already have:

- Uyuni Server installed, which you can access using the Web UI.
- Client machine with an operating system installed, which you can access across the network that your Uyuni Server is on, using SSH.
- Appropriate subscriptions from <http://scc.suse.com> for the products you are using.

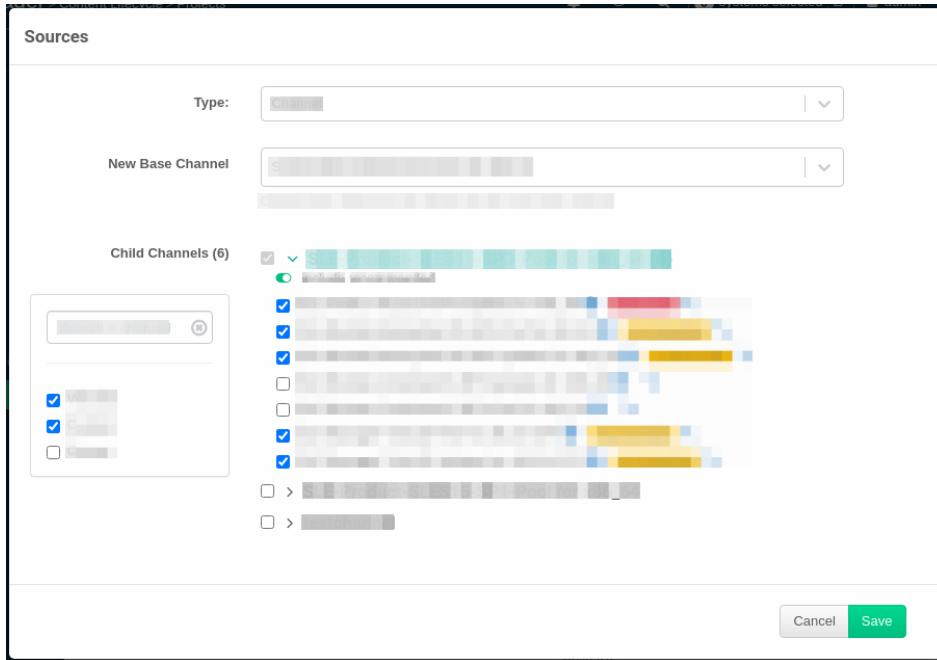
## 2.4. Step-by-step workflow instructions

*Procedure: Create a new CLM project*

1. In the Uyuni Web UI, navigate to **Content Lifecycle > Projects**, and click [**Create Project**]. Type a name, label, and description for your project, and click [**Create**].

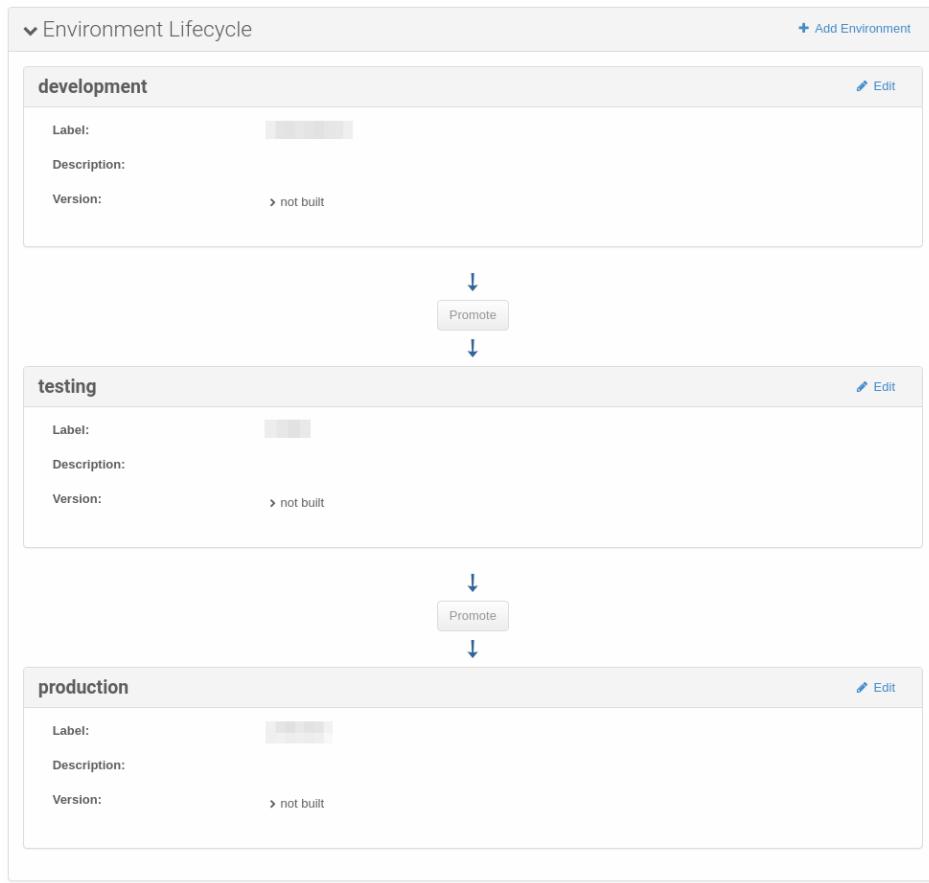
The screenshot shows the 'Content Lifecycle Project' page. At the top, there's a 'Project Properties' section with fields for Name, Label, and Description, and a 'Versions history' section. Below it are 'Sources' and 'Filters' sections. A downward arrow leads to the 'Environment Lifecycle' section, which currently says 'No environments created'.

- In the **Sources** section, click [**Attach/Detach Sources**]. Select the source type, and select a base channel for your project. The available child channels for the selected base channel are displayed, including information on whether the channel is mandatory or recommended. Check the child channels you require, and click [**Save**] to return to the project page.

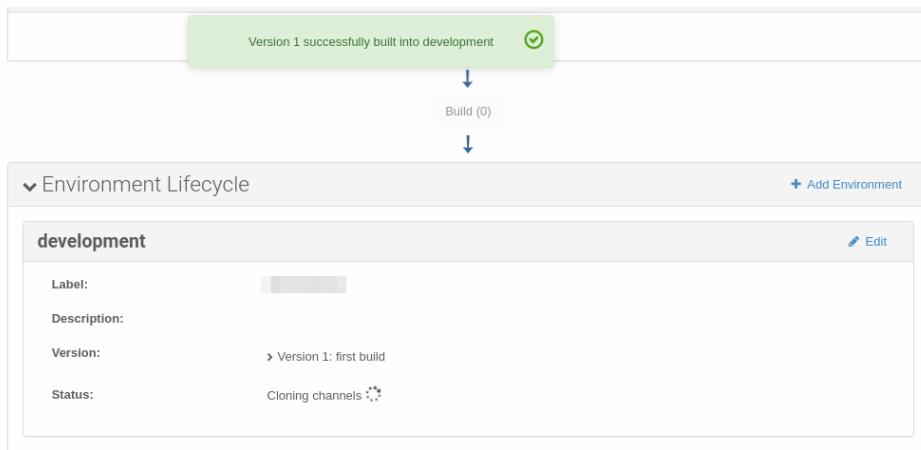


- Leave the **Filters** section blank for now, we will not be using them in this example. You can add filters later on if you need to.
- In the **Environment Lifecycle** section, create three environments: **production**, **testing**, and **development**. Click [**Add Environment**] and complete the name and label for each. For

the **production** environment, leave the **Insert before** field blank. For the **testing** environment, in the **Insert before** field, select **production**. For the **development** environment, in the **Insert before field, select testing``**.



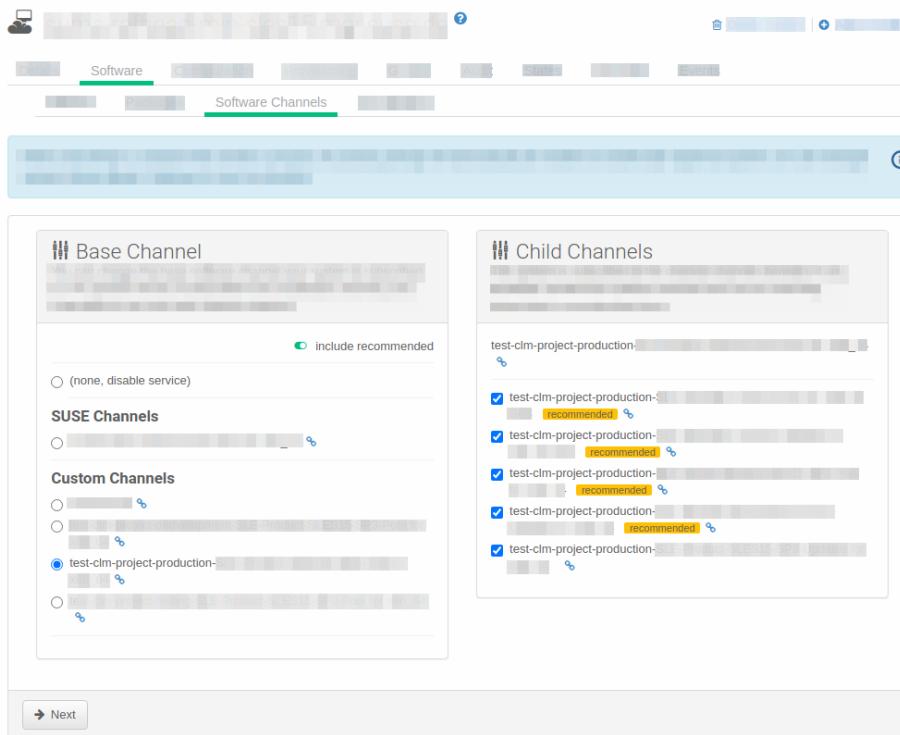
5. Click [**Build**] to build version 1 of your project:



#### *Procedure: Assign clients*

1. Navigate to **Systems** > **System List**, select the client to assign, and go to the **Software** > **Software Channels** tab.
2. In the **Base Channel** section, select the CLM project and environment you want to assign the client to. For example, if you want this client to receive updates from your CLM only when packages

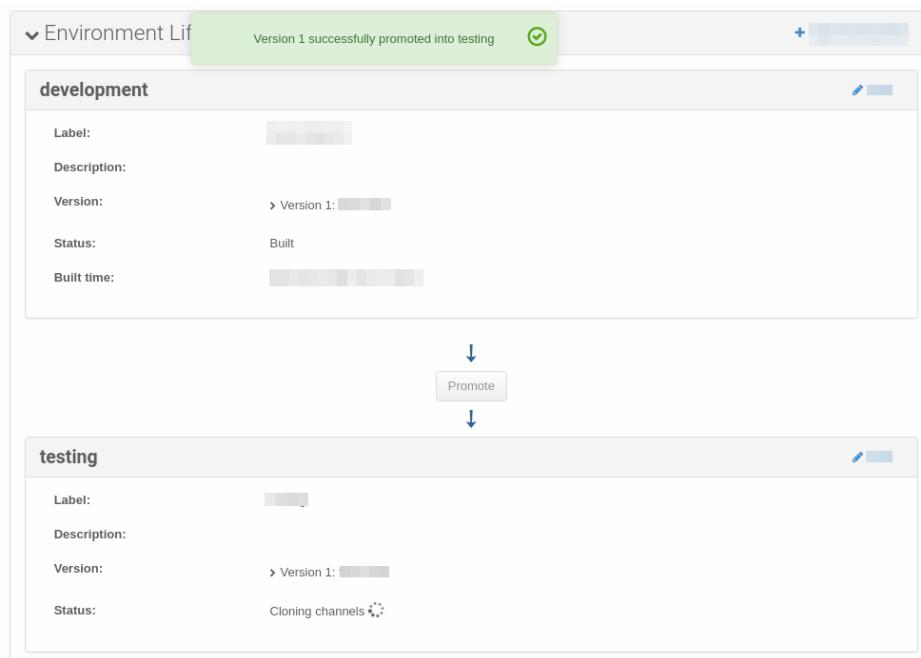
are in the **production** environment, assign the base channel **<CLM\_Project\_Name>-production-<Channel\_Name>**. Alternatively, you could use this client as a way to test if your CLM packages are working as expected before you promote them to **development**, so you assign the base channel **<CLM\_Project\_Name>-testing-<Channel\_Name>**.



- Click **[Next]** to assign the client.

#### *Procedure: Promote Environments*

- In the Uyuni Web UI, navigate to **Content Lifecycle > Projects**, and select the project you want to work with.
- In the **Environment Lifecycle** section, locate the environment to promote to its successor, and click **[Promote]**. You can monitor build progress in the **Environment Lifecycle** section.



## 2.5. Related topics

- For more information about CLM, including information about how to use filters, see [Administration > Content-lifecycle](#).
- For CLM examples, see [Administration > Content-lifecycle-examples](#).

# Chapter 3. Service Pack Upgrade via Web UI

If you want to migrate the registered SUSE Linux Enterprise client's service pack (SP) to a newer version, it can be done either on the command line or via Web UI.

This document describes and illustrates in detail the migration using the Web UI.



SP versions used are not reflective of the actual latest versions available. They are used for illustration purposes only.

## *Procedure: Migrating service pack to a newer version using Web UI*

1. Log in to Uyuni Web UI and navigate to **Admin > Products** and search for "SUSE Linux Enterprise Server 15 SP4 x86\_64 (BETA)"
2. Select the recommended channels.

A screenshot of the Uyuni Web UI interface. On the left, there is a sidebar with various configuration options like Schedule, Users, Admin, Setup Wizard, HTTP Proxy, Organization Credentials, and Products. The 'Products' option is selected and highlighted in green. To the right, a main content area shows a detailed view of the selected product. The title bar says 'SUSE Linux Enterprise Server 15 SP4 x86\_64 (BETA) x86\_64'. Below the title, it says 'Basesystem Module 15 SP4 x86\_64 (recommended)'. There is a list of several modules, each with a checkbox and a 'recommended' status indicator. The modules listed are: Transactional Server Module 15 SP4 x86\_64, Server Applications Module 15 SP4 x86\_64 (recommended), SUSE Package Hub 15 SP4 x86\_64, Desktop Applications Module 15 SP4 x86\_64, Containers Module 15 SP4 x86\_64, and SUSE Manager Client Tools for SLE 15 x86\_64 (recommended).

3. Click [**Add Products**].

A screenshot of the 'Add Products' wizard. At the top, there is a header with a gear icon and the text 'Setup Wizard'. Below the header, there are tabs: 'HTTP Proxy', 'Organization Credentials', and 'Products', with 'Products' being the active tab. In the main area, there is a search bar containing the text 'server 15 sp4'. Below the search bar, there is a message 'Items 1 - 1 of 1'. A table follows, with columns 'Product Description', 'Arch', and 'Channels'. One item is listed: 'SUSE Linux Enterprise Server 15 SP4 x86\_64 (BETA) x86\_64'. At the bottom right of the table, there are buttons for 'Clear' and 'Add products (1)'.

4. Navigate to **Systems > registered client > Software > SP Migration**. You will see two targets, SP3 and SP4.

Installed Products: SUSE Linux Enterprise Server 15 SP2 x86\_64  
   ↳ SUSE Manager Client Tools for SLE 15 x86\_64

Target Products:  SUSE Linux Enterprise Server 15 SP4 x86\_64 (BETA)  
   ↳ SUSE Manager Client Tools for SLE 15 x86\_64  
 SUSE Linux Enterprise Server 15 SP3 x86\_64  
   ↳ SUSE Manager Client Tools for SLE 15 x86\_64

**Select Channels**

5. Select **SUSE Linux Enterprise Server 15 SP4 x86\_64 (BETA)**. This will expand further as shown below.

Installed Products: SUSE Linux Enterprise Server 15 SP2 x86\_64  
   ↳ Server Applications Module 15 SP2 x86\_64  
   ↳ SUSE Manager Client Tools for SLE 15 x86\_64  
   ↳ Basesystem Module 15 SP2 x86\_64

Target Products: SUSE Linux Enterprise Server 15 SP4 x86\_64 (BETA)  
   ↳ Server Applications Module 15 SP4 x86\_64  
   ↳ SUSE Manager Client Tools for SLE 15 x86\_64  
   ↳ Basesystem Module 15 SP4 x86\_64

Target Base Channel: SLE-Product-SLES15-SP4-Pool for x86\_64

- Mandatory Child Channels:
  - SLE-Manager-Tools15-Pool for x86\_64 SP4
  - SLE-Manager-Tools15-Updated for x86\_64 SP4
  - SLE-Module-Basesystem15-SP4-Pool for x86\_64
  - SLE-Module-Basesystem15-SP4-Updates for x86\_64
  - SLE-Module-Server-Applications15-SP4-Pool for x86\_64
  - SLE-Module-Server-Applications15-SP4-Updates for x86\_64
  - SLE-Product-SLES15-SP4-Updates for x86\_64
- Optional Child Channels:
  - SLE15-SP4-Installer-Updates for x86\_64

Allow Vendor Change

**Schedule Migration**

6. Select **Target Base Channel** as **SLE-Product-SLES15-SP4-Pool for x86\_64** and keep **Allow Vendor Change** unchecked.
7. Click **[Schedule Migration]** and it will highlight message **It is better to do a dry run first so continuing with dry run first.**
8. Click **[Dry-run]** and check the status of the simulation in **Events > History**. You should see a return code **0** meaning successful.
9. Now you may click **[Schedule Migration]** to actually migrate the server. Following message will get highlighted on top of the screen in Uyuni Web UI.

This system is scheduled to be migrated to SUSE Linux Enterprise Server 15 SP4 x86\_64 (BETA).

 sles15sp2a.example.com 

Details Software Configuration Provisioning Groups Audit States Formulas Events  
Overview Properties Remote Command Connection Reactivation Hardware Migrate Notes Custom Info

10. When the migration is complete, check the status in **Events > History**.

11. On the client side also you can verify it by running:

```
cat /etc/os-release
```

12. The output will look similar to:

```
NAME="SLES"
VERSION="15-SP4"
VERSION_ID="15.4"
PRETTY_NAME="SUSE Linux Enterprise Server 15 SP4"
ID="sles"
ID_LIKE="suse"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:15:sp4"
DOCUMENTATION_URL="https://documentation.suse.com/"
```

13. On the Uyuni Web UI side, you can verify the successfully completed migration by going to **Systems > registered client > Detail**.

 sles15sp4a.example.com 

Details Software Configuration Provisioning Groups Audit States Formulas Events  
Overview Properties Remote Command Connection Reactivation Hardware Migrate Notes Custom Info

**System Status**  
 System is up to date

**System Info**

Hostname:	sles15sp2a.example.com
IP Address:	192.168.254.140
IPv6 Address:	fe80::20c:2fffea%eth0
Minion Id:	sles15sp2a.example.com
Virtualization:	Vmware
UUID:	83264d569f6789543dcce24f28c3fc6
Kernel:	5.3.18-24.56-default
SUSE Manager System ID:	1000010016
Activation Key:	1-sles15sp2
Installed Products:	SUSE Linux Enterprise Server 15 SP4 x86_64 (BETA) Basesystem Module 15 SP4 x86_64 Server Applications Module 15 SP4 x86_64 SUSE Manager Client Tools for SLE 15 x86_64

**System Events**

Checked in:	Today at 1:27 AM
Registered:	Today at 1:08 AM
Last Booted:	39 minutes ago (Schedule System Reboot)

**System Properties (Edit These Properties)**

System Type:	[Salt]
Contact Method:	Default
Auto Patch Update:	No
Maintenance Schedule:	(none)
System Name:	sles15sp4a.example.com
Description:	
Location:	(none)

**Subscribed Channels (Alter Channel Subscriptions)**

**Base Channel**

- SLE-Product-SLES15-SP4-Pool for x86\_64

**Child Channels**

- SLE-Manager-Tools15-Pool for x86\_64 SP4
- SLE-Manager-Tools15-Updates for x86\_64 SP4
- SLE-Module-Basesystem15-SP4-Pool for x86\_64
- SLE-Module-Basesystem15-SP4-Updates for x86\_64
- SLE-Module-ServerApplications15-SP4-Pool for x86\_64

# Chapter 4. Onboarding

Uyuni is all about managing client systems. So one of the first things you need to do is onboard some clients. This workflow shows you how to set up your Uyuni Server to manage a new client, set up the software channels you need, and bootstrap the client using an activation key.

## 4.1. Use case

This workflow shows you how to onboard a client to your Uyuni Server.

The client must be running a supported Linux operating system. For a list of supported client systems, see [Installation-and-upgrade > Client-requirements](#).

This is one of the first tasks you need to do when you set up Uyuni for the first time, and you will probably have to do it many more times as you use the product.

## 4.2. Outcome

When you have completed this workflow, your client is onboarded, and it can be seen in the systems list of the Uyuni Web UI. You can then use Uyuni to manage the client.

## 4.3. Preparation

Before you start, you should already have:

- Uyuni Server installed, that you can access using the Web UI.
- Client machine with an operating system installed, which you can access across the network that your Uyuni Server is on, using SSH.
- Appropriate subscriptions from <http://scc.suse.com> for the products you are using.

This workflow uses a SUSE Linux Enterprise Server 15 SP2 operating system. You can use other Linux operating systems, but some of the steps might be different. For more information on onboarding other clients, see [Client-configuration > Registration-methods](#).

## 4.4. Step-by-step workflow instructions

*Procedure: Configure a fully qualified domain name (FQDN) on your client*

1. On the client, at the command prompt, show the current hostname:

```
hostname -f
```

This command will probably return an error, or show something like **localhost**.

2. Set a new hostname. Your new hostname should have a subdomain name and thus include at least

two periods. In this example, we are using `client1.suma.example`

```
hostnamectl set-hostname client1.suma.example
```

3. Check that your change was successful:

```
hostnamectl
```

4. Open YaST and navigate to **Network Services > Hostnames**. Edit the hostname to match the one you just set, and click **[OK]**.
5. In YaST, navigate to **System > Network Settings** and go to the **Hostname/DNS** tab. In the **Static hostname** field, type your new hostname.
6. Check that the change was successful:

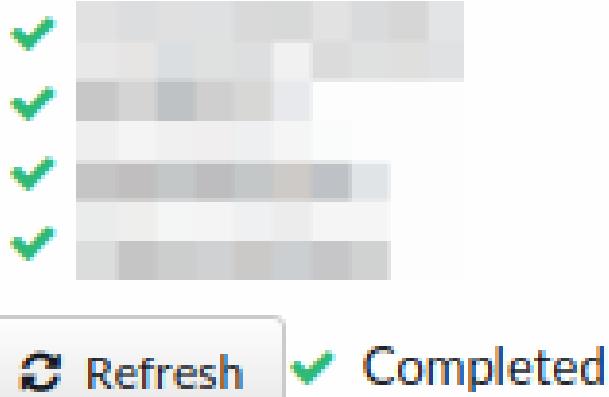
```
hostname -f
```

This command should return your new FQDN.

*Procedure: Prepare software channels on the Uyuni Server*

1. In the Uyuni Web UI, navigate to **Admin > Setup Wizard**.
2. In the **Organization Credentials** tab, ensure you have entered your SUSE Customer Center credentials, and are correctly authenticated.
3. In the **Products** tab, ensure that the product catalog is fully updated:

## Refresh the product catalog from SUSE Customer Center



4. Use the product search bar to find the channels you need for your client operating system. Check the channels you want to install, and click [Add products]:

The screenshot shows a product management interface. At the top, there are buttons for 'Clear' and '+ Add products'. Below that is a search bar and a 'Filter by architecture' dropdown. To the right is a '25 items per page' dropdown. The main area displays a table with the following columns: 'Product Description', 'Arch', and 'Channels'. Each row has a checkbox in the first column. Some rows have yellow bars indicating specific channel status. A 'include recommended' checkbox is located at the top of the 'Channels' column.

5. Wait for the product channels to fully synchronize. Depending on the products you have chosen, this could take a long time.

*Procedure: Create an activation key*

1. In the Uyuni Web UI, navigate to **Systems > Activation Keys**, and click [**Create Key**].
2. Give your activation key a name, and select the base channel that matches the client you want to onboard. This should be the product you just enabled:

The screenshot shows the 'Create Activation Key' form. It has several input fields: 'Description' (with a placeholder), 'Key' (containing '1-'), 'Usage' (empty), and 'Base Channel' (with a dropdown menu). Each field has a redacted value displayed below it.

3. Check the child channels to include, and any add-on system types you want clients registered with this key to have. Click [**Create Activation Key**].

*Procedure: Bootstrap the client*

1. In the Uyuni Web UI, navigate to **Systems > Bootstrapping**.
2. Type the hostname and provide authentication credentials for the client you want to onboard, and select the activation key. Click **[Bootstrap]**:

The screenshot shows the 'Bootstrap Minions' configuration page. The 'Host' field contains 'client1.suma.example'. The 'SSH Port' field contains '22'. The 'User' field contains 'root'. The 'Authentication Method' section has a radio button selected for 'Password'. The 'Password' field contains several masked asterisks. The 'Activation Key' dropdown menu shows '1-sled15-sp2'. The 'Proxy' dropdown menu shows 'None'. Below the form, there are two checkboxes: one checked for 'Disable SSH strict host key checking during bootstrap process' and one unchecked for 'Manage system completely via SSH (will not install an agent)'. At the bottom are two buttons: a green '+ Bootstrap' button and a 'Clear fields' button.

3. Navigate to **Systems > System List** to manage your new client.

## 4.5. Related topics

- For more information about supported clients and client features, see **Client-configuration > Supported-features**.
- For more information about different onboarding methods, and instructions for clients running various operating systems, see **Client-configuration > Registration-methods**.
- For more information about general client concepts, see **Client-configuration > Channels**.

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