SUSE Manager '5.0'

Common Workflows

2024年11月18日

SUSE

目次

Common workflows overview

Version: '5.0'

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

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 decribed as Workflow.

Chapter 1. Client Onboarding

SUSE Manager 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 SUSE Manager Server to manage a new client, set up the software channels you need, and bootstrap the client using an activation key.

1.1. Use Case

This workflow shows you how to onboard a client to your SUSE Manager 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 SUSE Manager for the first time, and you will probably have to do it many more times as you use the product.

1.2. Outcome

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

1.3. Preparation

Before you start, you should already have:

- SUSE Manager 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 SUSE Manager 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**.

1.4. 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
```

Open YaST and navigate to **Network Services › Hostnames**. Edit the hostname to match the one you just set, and click **[OK]**. In YaST, navigate to **System › Network Settings** and go to the `Hostname/DNS` tab. In the `Static hostname` field, type your new hostmame.

4. Check that the change was successful:

```
hostname -f
```

This command should return your new FQDN.

Procedure: Prepare Software Channels on the SUSE Manager Server

1. In the SUSE Manager 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:
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]**:
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 SUSE Manager Web UI, navigate to **Systems › Activation Keys**, and click **[Create Key]**. 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:
2. 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 SUSE Manager 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]**:
3. Navigate to **Systems › System List** to manage your new client.

1.5. 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**.

Chapter 2. Clients Update Using Recurring Actions

This workflow shows how to automate updating the clients registered at SUSE Manager using recurring actions.

2.1. Use Case / Situation

Automated update of clients is benefitial when:

- update of a large number of clients is wanted
- the workflow should not be re-done every execution
- a dedicated maintenance window exists.

2.2. Outcome / Resolution

Successful completion of this workflow results in consistent and supportable state.

2.3. Preparation

Before you start, you should have a number of clients onboarded. It may make sense to have them sorted into groups you want to update together. In this workflow we use a system group named `infra-services`.

2.4. Step-by-Step Workflow Instructions

To update a client two steps are required. A third step is optional but highly recommended to finalize the update process.

Procedure 1: Creating a Recurring Action to Update Salt Itself

1. As an example, we create the action to update Salt itself as a recurring action for all systems in the organization. In the SUSE Manager Web UI, navigate to **Home** › **My Organization** › **Recurring Actions** and click **[Create]**.
2. Select `Action Type` **Custom State** and enter a `Schedule Name` like `update-salt`.
3. Select a schedule. For example, **Weekly: Wednesday, 9:00 am** .
4. Assign the `update-salt` state by selecting the checkbox.
5. Click **[Save Changes]** to save the action.
6. You can edit the execution order of the states if needed. Click **[Confirm]** to confirm the order.
7. Click **[Create Schedule]** to save the action.

Procedure 2: Creating a Recurring Action to Apply All Available Updates to the Systems

1. As an example we create the action to apply all updates as a recurring action for a system group called **infra-services**. In the SUSE Manager Web UI go to **Systems › System Groups** and click on `infra-services`.
2. Now go to `Recurring Actions` and click **[Create]**.
3. Select `Action Type` **Custom State** and enter a `Schedule Name` like `full-system-update`.
4. Select a Schedule. For example, **Weekly: Wednesday, 9:30 am** . Keep enough time between this action and the `update-salt` action. The `update-salt` actions must be finished on all systems before this action should be executed.
5. Assign the states `util.syncall`, `certs`, `channels` and `uptodate` by selecting the checkboxes. To perform a reboot afterwards you can also add `reboot` or `rebootifneeded`.
6. Save the action by clicking **[Save Changes]**.
7. You can edit the execution order of the states. The order should be `util.syncall`, `certs`, `channels`, `uptodate` and finally `reboot` or `rebootifneeded` if chosen. Click **[Confirm]** to store the order.
8. Click **[Create Schedule]** to save the action.

Procedure 4: Creating a Recurring Action to Run a Highstate After the Update

1. As an example, we create the action to apply the highstate for the same group which was fully updated before. In the SUSE Manager Web UI, navigate to **Systems › System Groups** and click `infra-services`.
2. Go to `Recurring Actions` and click **[Create]**.
3. Select `Action Type` **Highstate** and enter a `Schedule Name` like `highstate`.
4. Select a Schedule. For example, **Weekly: Wednesday, 10:30 am** . Again, keep enough time between this action and the `full-system-update` action.
5. Click **[Create Schedule]** to save the action.

2.5. Related Topics

- For more information about recurring actions, see Recurring Actions.
- For more information about custom info values, see **Client-configuration › Custom-info**.

Chapter 3. 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 SUSE Manager Web UI to create a centrally managed configuration file, assign it to a client, and apply the configuration.

3.1. 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.

3.2. 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.

3.3. Preparation

Before you start, you should already have:

- SUSE Manager Server installed, that you can access using the Web UI.
- At least one 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 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**.

3.4. Step-by-step Workflow instructions

Procedure: Create a New Configuration Channel and file

1. In the SUSE Manager Web UI, navigate to **Configuration › Channels** and click **[Create State Channel]**. 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]**
2. Procedure: Assign Clients to the Configuration Channel
3. In the SUSE Manager Web UI, navigate to **Systems › Systems List** and select the client you want to assign to your configuration channel.
4. Navigate to the `Configuration` tab. In the guimenu:`Configuration Overview` section, click **[Subscribe to channels]**.
5. Check the configuration channel you created earlier, and click **[Continue]**.

6. 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 SUSE Manager 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]**.

3.5. Example

3.5.1. 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 %}
```

3.6. 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/starting_states.html.

Chapter 4. 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.

4.1. 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.

4.2. 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.

4.3. Preparations

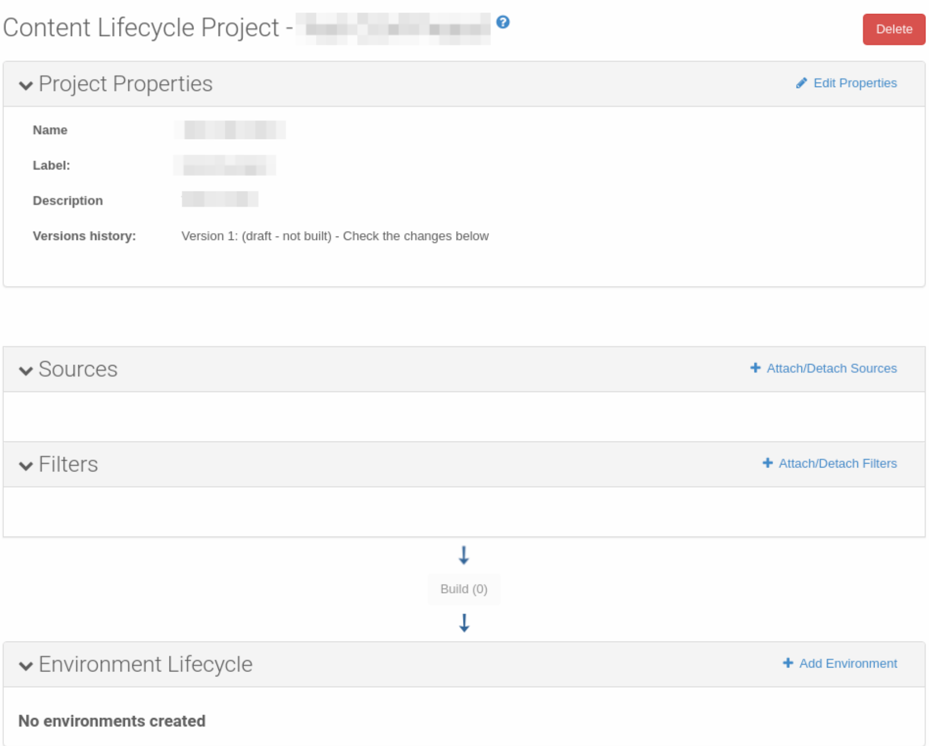
Before you start, you should already have:

- SUSE Manager 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 SUSE Manager Server is on, using SSH.
- Appropriate subscriptions from http://scc.suse.com for the products you are using.

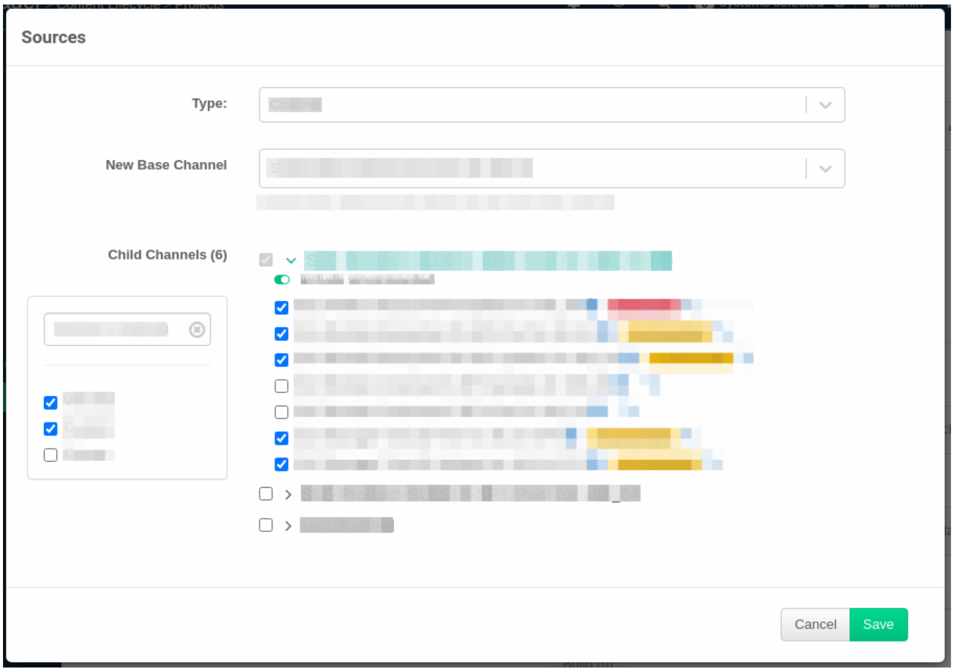
4.4. Step-by-step Workflow Instructions

Procedure: Create a new CLM Project

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



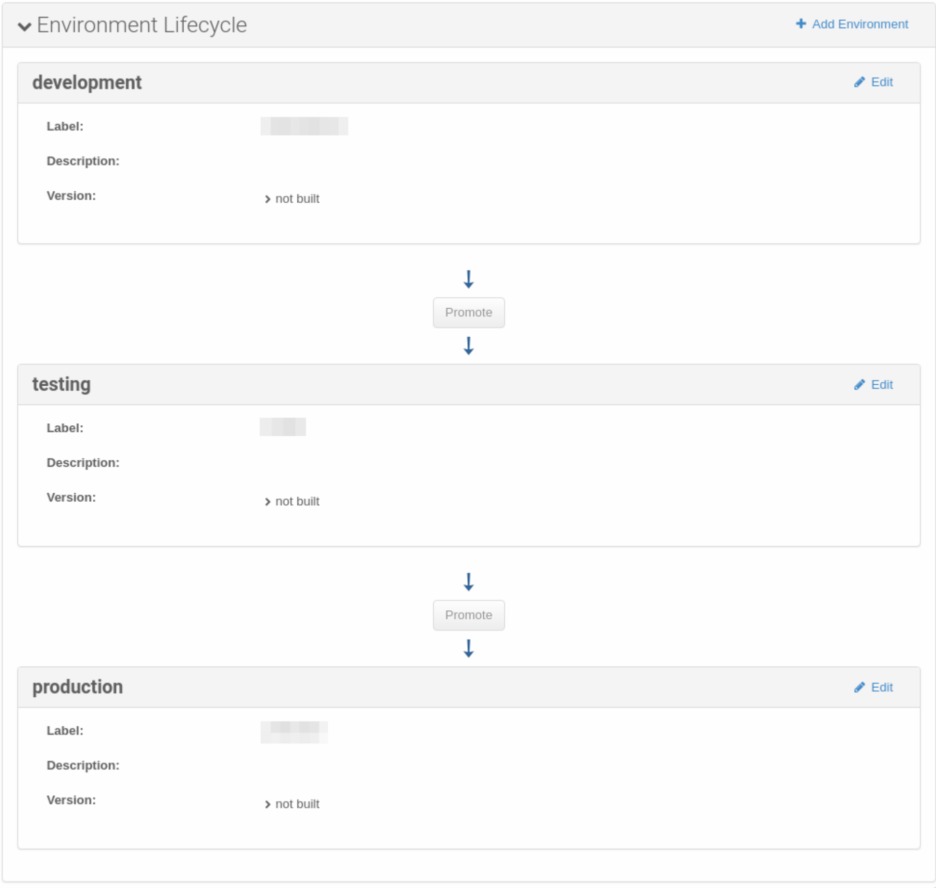
2. In the `Sources` section, click **[Attach/Detach Sources]**. Select the source type, and select a base channel for your project. The available child channels for the selected base channel are displayed, including information on whether the channel is mandatory or recommended. Check the child channels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



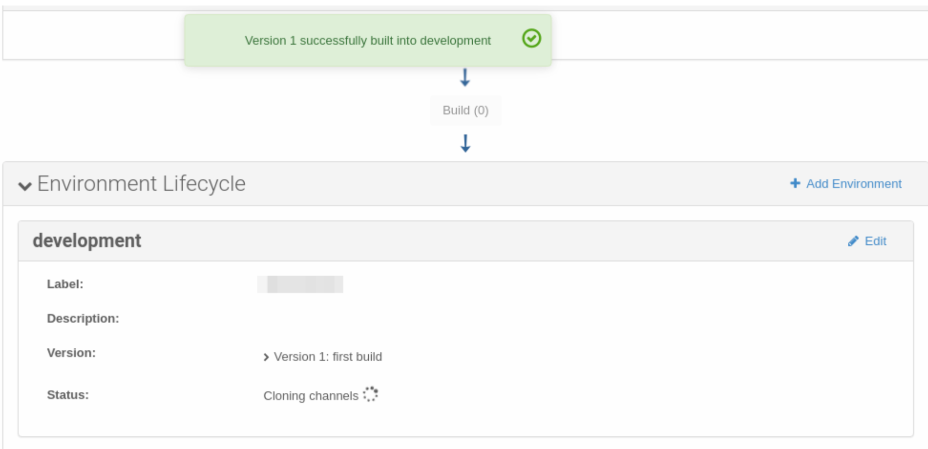
3. Leave the `Filters` section blank for now, we will not be using them in this example. You can add filters later on if you need to.

4. 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``.



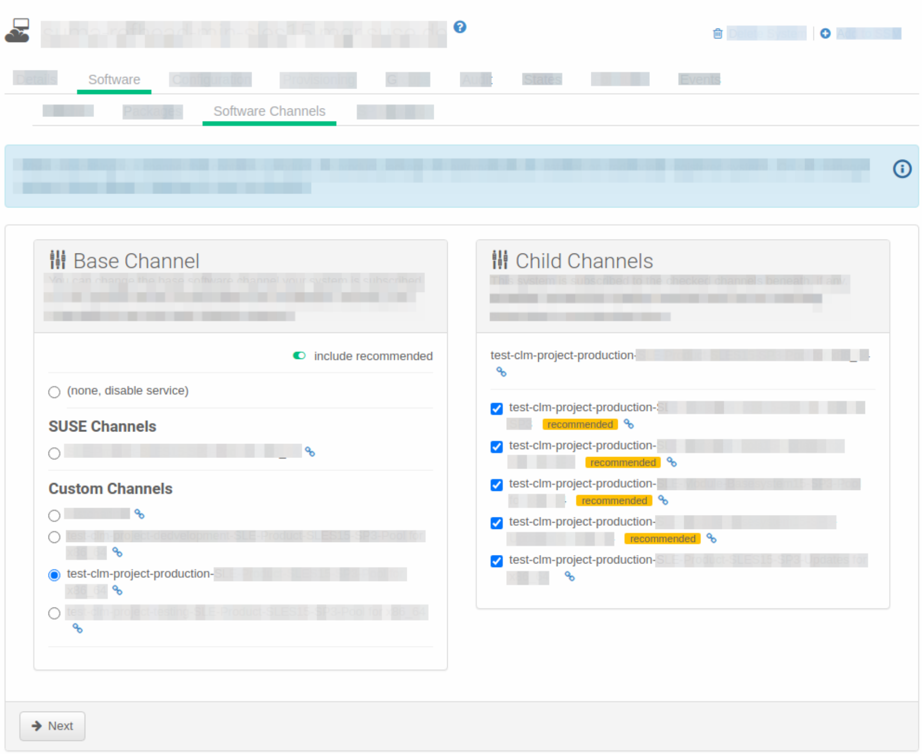
5. Click **[Build]** to build version 1 of your project:



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>`.

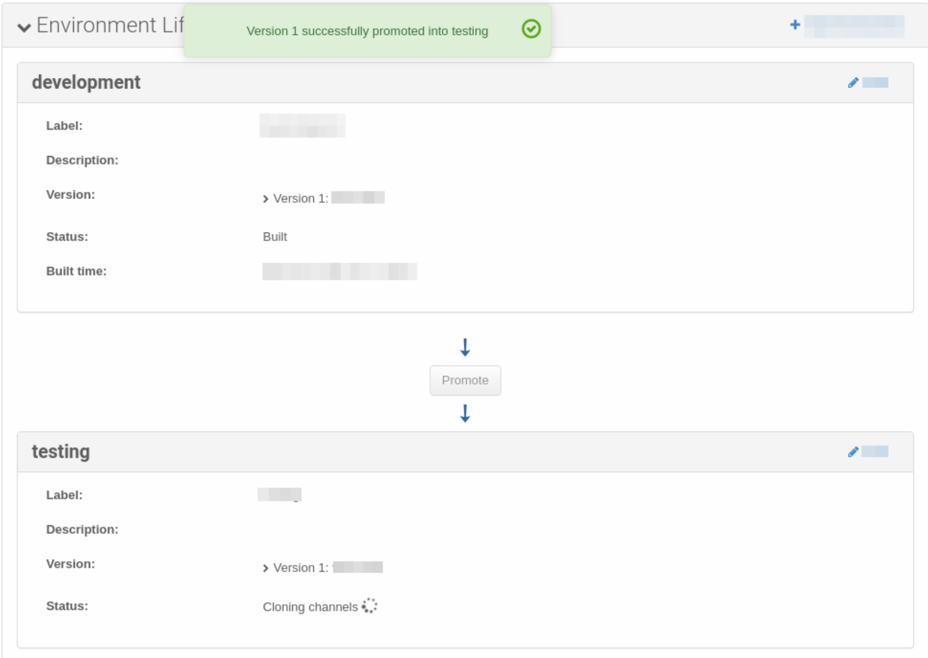
Alternatively, you could use this client as a way to test if your CLM packages are working as expected before you promote them to `development`, so you assign the base channel `<CLM_Project_Name>-testing-<Channel_Name>`.



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

Procedure: Promote Environments

1. In the SUSE Manager Web UI, navigate to **Content Lifecycle › Projects**, and select the project you want to work with.
2. 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.



4.5. 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 5. In-place Upgrade of SUSE Linux Enterprise Server with SUSE Manager

This workflow shows how to automatically complete the task of in-place SUSE Linux Enterprise Server instances upgrade with SUSE Manager Server.

5.1. Use Case

In-place migration is beneficial when:

- migrating large number of the older SUSE Linux Enterprise Server is time-consuming
- you are looking for a way to automate migrations

5.2. Outcome

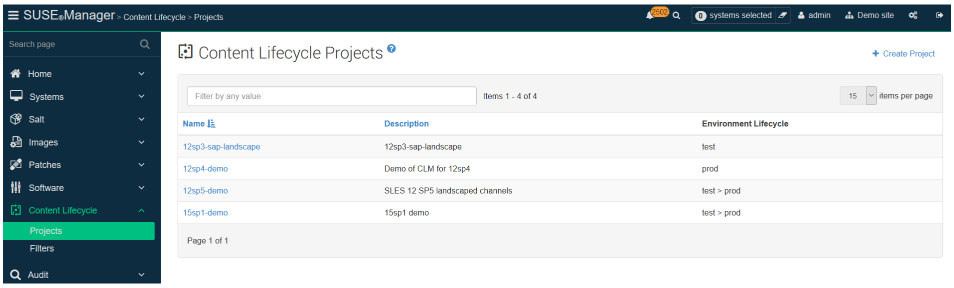
Successful completion of this workflow results in consistent, supportable outcomes.

5.3. Step-by-step Preparation Instructions

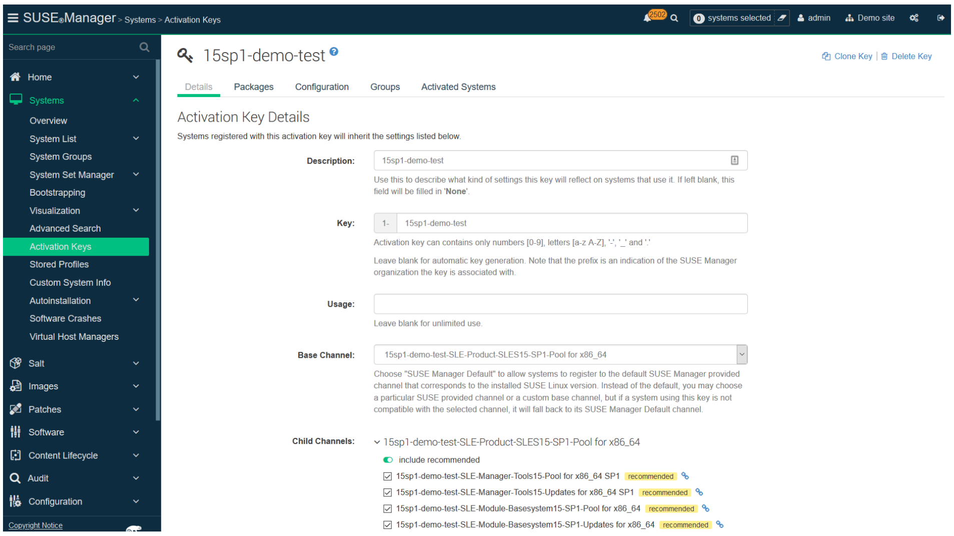
This workflow is complex and time-consuming. Make sure that adequate testing is done before deploying the procedure in live environment.

Procedure: Prepare the SUSE Manager Server for Provisioning

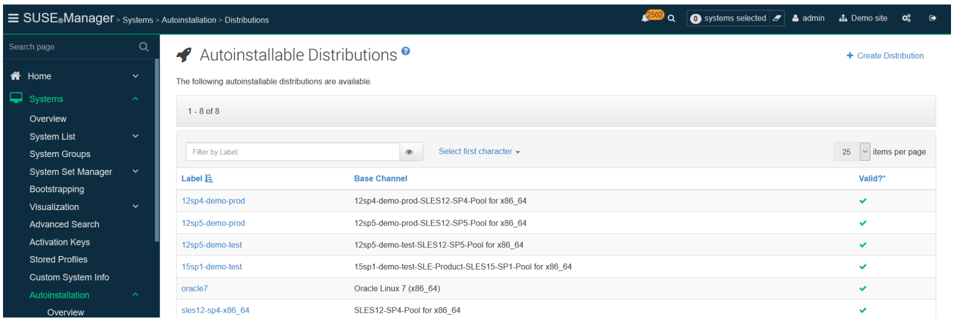
1. Create a SUSE Manager Content Lifecycle Management project for your distribution. Choose a short-but-descriptive prefix in the name, including all source channel modules. Add Filters as needed. Add at least one Environment.



2. Create an Activation Key that includes the filtered project channels.



3. (Optional) Create a bootstrap script. The profile will not need it, because it is managed in the AutoYaST.
4. Create a `/var/spacewalk/iso` directory, and for SLES 15 SP2 and following, copy the `Full iso` (>10 GB) there. Create a mount point for it, such as `/opt/install/15sp3` and mount the ISO there. Ensure this path gets re-mounted at boot time.
5. Create an Autoinstallation Distribution in SUSE Manager for each base channel to which you will migrate.
   a. In the `Distribution`, reference the specific Base Channel to match the base to which you might migrate, for example the base channel of your CLM project Environment Lifecycle.
   b. Label `the Distribution` something that references your specific Base Channel.
   c. Set the `Installer Generation` to match your specific version of SUSE Linux Enterprise Server (12, 15, etc.).
   d. The kernel options will be automatically populated when you click `Create Autoinstallable Distribution`.
6. You may create more `Distributions` depending on the Base Channel you need to assign, and you can re-use the same `Tree Path` for the boot media if required.



7. Click on `Profiles`, and upload Kickstart/AutoYaST file for each target SUSE Linux Enterprise Server distribution, service pack and channels you wish to migrate to.
   a. This profile will be associated with the activation key and autoinstallation distribution created above.

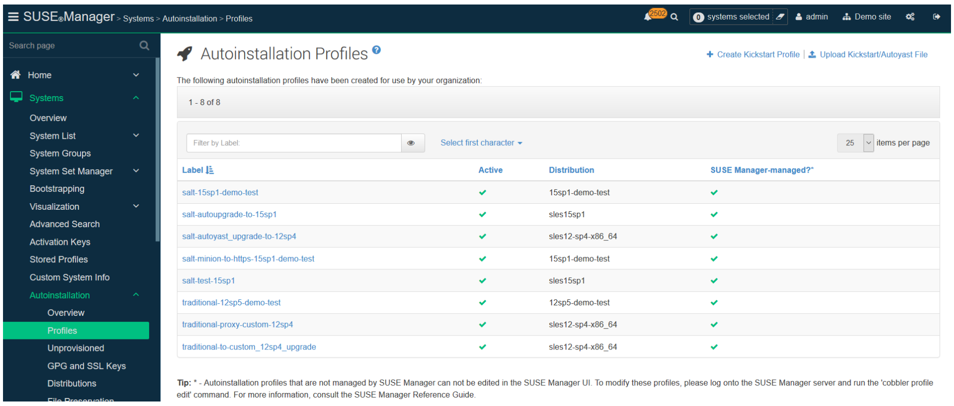
b. Cut-and-paste a `Profile` template as the basis for what you upload, assign it the `Autoinstall tree` you created as a `Distribution` above.

c. Do not put anything in the `Virtualizaton Type` box, and click **[Create]**.

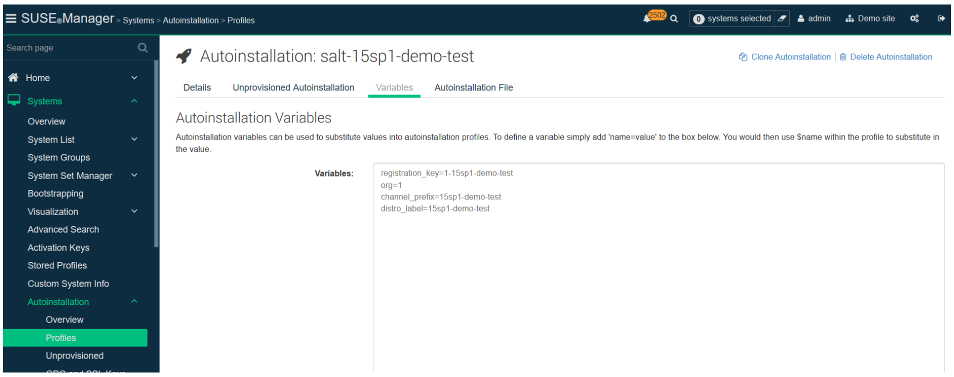
8. Once created, your profile will now have some new fields on this `Details` page. In the `Kernel Options` line on this `Details` page, put in

```
autoupgrade=1 insecure=1 useonlinerepo
```

9. This will tell your profile to treat its install as an upgrade, and allow http access to the SUSE Manager Server to obtain installer updates without needing to go to SUSE Customer Center.



10. Click the variables tab in your Autoinstallation Profile to specify CLM prefix, Activation Key, Distribution tree, and Organization:



Sample Variables:

- `registration_key=1-15sp1-demo-test`
- `org=1`
- `channel_prefix=15sp1-demo-test`
- `distrotree=15sp1-demo-test`

Edit the AutoYaST profile itself in a tool where you can use cut-and-paste for the channels in your profile. Use variables in your profiles where possible.

Published profiles can be used as a starting point.

For profile files, see https://github.com/SUSE/manager-build-profiles.

The profiles follow AutoYaST XML guidelines, and for an in-place upgrade there are several important sections:

Add-ons - the repositories used in the upgrade

```
<listentry>
<ask_on_error config:type="boolean">true</ask_on_error>
#if $channel_prefix != ""
<media_url>https://$redhat_management_server/ks/dist/child/$channel_prefix-sle-manager-tools15-pool-$arch-sp3/$distrotree</media_url>
#else
<media_url>https://$redhat_management_server/ks/dist/child/sle-manager-tools15-pool-$arch-sp3/$distrotree</media_url>
#end if
<name>$channel_prefix SLE-15-Manager-Tools Pool</name>
<product>sle-manager-tools</product>
</listentry>
```

Be sure to include all (and only) the relevant modules (both Pool and Updates) to be used in the migration. In migration, it is recommended to add all available modules, as the location of certain packages changes with new major versions.

After finishing the preparation, proceed with the actual migration.

5.4. Migration of Clients

Procedure: Migrating Clients

Prior to migration, be sure to check `Software → Non-Compliant`. This will show any orphaned packages on your system - those SUSE Manager does not find in any assigned channel. Make sure this list is very small or empty, and that you can account for all the packages there. Delete any that are unnecessary.

+ . Before provisioning, issue the following Remote Command to the systems you wish to upgrade to remove the existing SUSE Manager channels during the upgrade process:

+

```
rm -rf /etc/zypp/repos.d/susemanager*
```

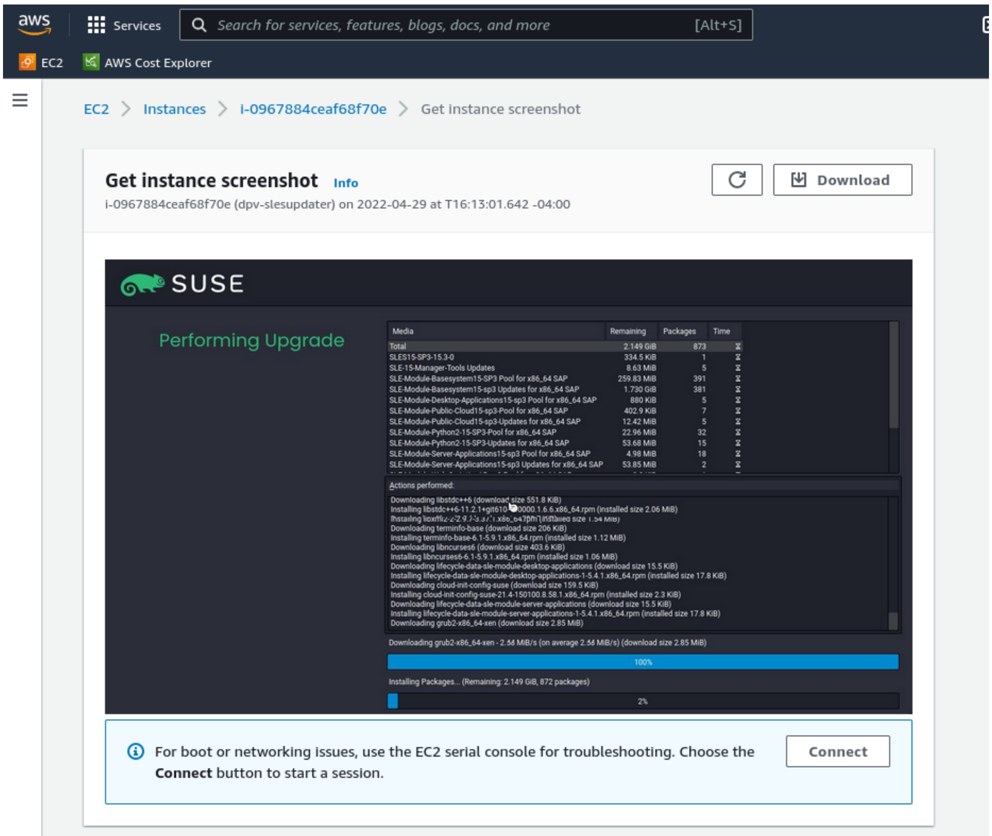
+ . Assign your Autoinstallation Profile in `System Details → Provisioning` for one system, or in the `Provisioning` tab in SSM for as many systems as you need. SUSE Manager provisioning then auto-assigns a Reactivation Key to this system, that is referenced in the provisioning process. If you need to perform the upgrade through a particular SUSE Manager Proxy you will need to group just those systems together in SSM.

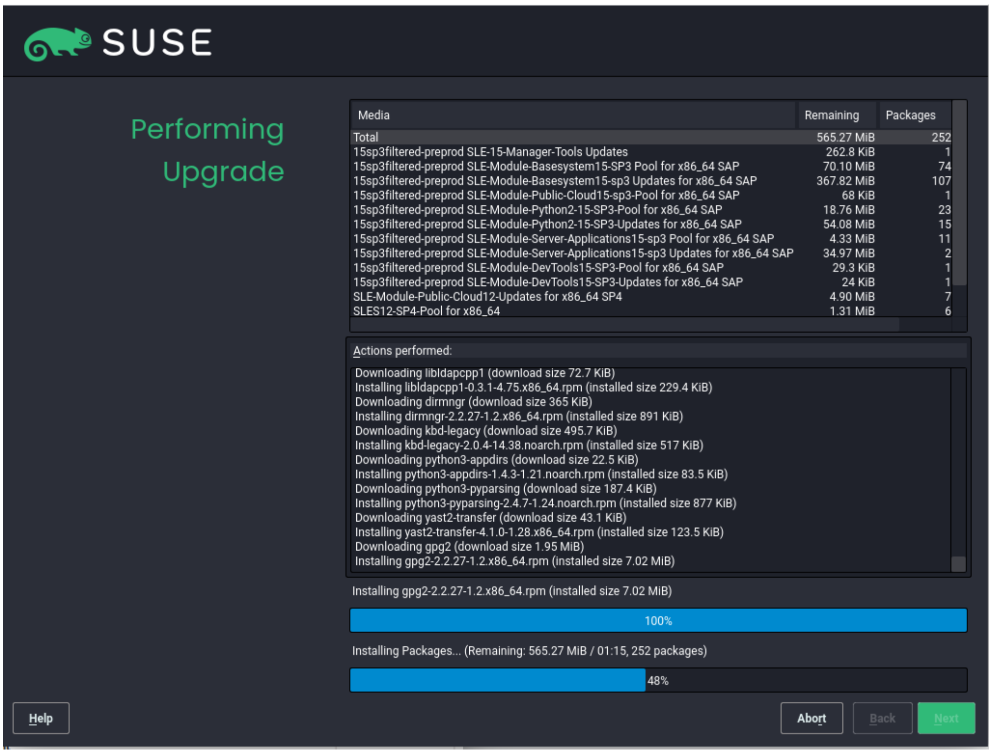
+ image::wf-inplaceMigration-06.png[scaledwidth=80%]

+ image::wf-inplaceMigration-07.png[scaledwidth=80%]

SUSE Manager creates the proper entry in `/etc/grub.d/` for the reinstallation, and boots the selected systems to that entry. The Profile you created above will be used to drive automated upgrade, following which your system will use the reactivation key (one time), associating the upgraded system with the previous SUSE Manager profile.

The Session Status screen in SUSE Manager will not be updated real-time. Instead, watch the target system console to track progress. If you are updating an instance on a hyperscaler like AWS you may be able to get screenshots of the console.




SUSE
Performing Upgrade
Media
Remaining
Packages
Total 565.27 MiB 252
15sp3filtered-preprod SLE-15-Manager-Tools Updates 262.8 KiB 1
15sp3filtered-preprod SLE-Module-Basesystem15-SP3 Pool for x86_64 SAP 70.10 MiB 74
15sp3filtered-preprod SLE-Module-Basesystem15-sp3 Updates for x86_64 SAP 367.82 MiB 107
15sp3filtered-preprod SLE-Module-Public-Cloud15-sp3-Pool for x86_64 SAP 68 KiB 1
15sp3filtered-preprod SLE-Module-Python2-15-SP3-Pool for x86_64 SAP 18.76 MiB 23
15sp3filtered-preprod SLE-Module-Python2-15-SP3-Updates for x86_64 SAP 54.08 MiB 15
15sp3filtered-preprod SLE-Module-Server-Applications15-sp3 Pool for x86_64 SAP 4.33 MiB 11
15sp3filtered-preprod SLE-Module-Server-Applications15-sp3 Updates for x86_64 SAP 34.97 MiB 2
15sp3filtered-preprod SLE-Module-DevTools15-SP3-Pool for x86_64 SAP 29.3 KiB 1
15sp3filtered-preprod SLE-Module-DevTools15-SP3-Updates for x86_64 SAP 24 KiB 1
SLE-Module-Public-Cloud12-Updates for x86_64 SP4 4.90 MiB 7
SLES12-SP4-Pool for x86_64 1.31 MiB 6
Actions performed:
Downloading libldapcpp1 (download size 72.7 KiB)
Installing libldapcpp1-0.3.1-4.75.x86_64.rpm (installed size 229.4 KiB)
Downloading dirmngr (download size 365 KiB)
Installing dirmngr-2.2.27-1.2.x86_64.rpm (installed size 891 KiB)
Downloading kbd-legacy (download size 495.7 KiB)
Installing kbd-legacy-2.0.4-14.38.noarch.rpm (installed size 517 KiB)
Downloading python3-appdirs (download size 22.5 KiB)
Installing python3-appdirs-1.4.3-1.21.noarch.rpm (installed size 83.5 KiB)
Downloading python3-pyparsing (download size 187.4 KiB)
Installing python3-pyparsing-2.4.7-1.24.noarch.rpm (installed size 877 KiB)
Downloading yast2-transfer (download size 43.1 KiB)
Installing yast2-transfer-4.1.0-1.28.x86_64.rpm (installed size 123.5 KiB)
Downloading gpg2 (download size 1.95 MiB)
Installing gpg2-2.2.27-1.2.x86_64.rpm (installed size 7.02 MiB)
Installing gpg2-2.2.27-1.2.x86_64.rpm (installed size 7.02 MiB)
100%
Installing Packages... (Remaining: 565.27 MiB / 01:15, 252 packages)
48%
Help
Abort
Back
Next

Chapter 6. Product Upgrade via Web UI

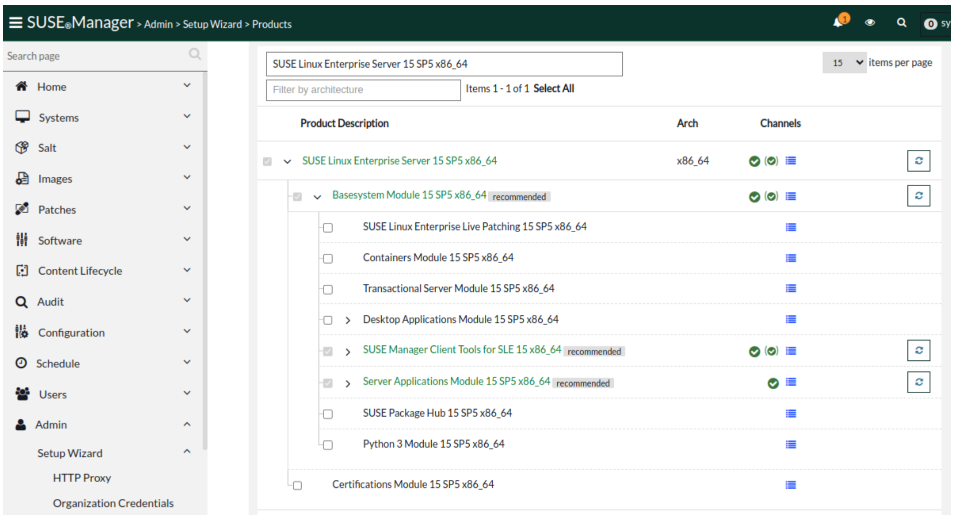
If you want to upgrade the registered SUSE Linux Enterprise client pack to a newer product version, it can be done either on the command line or via Web UI.

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

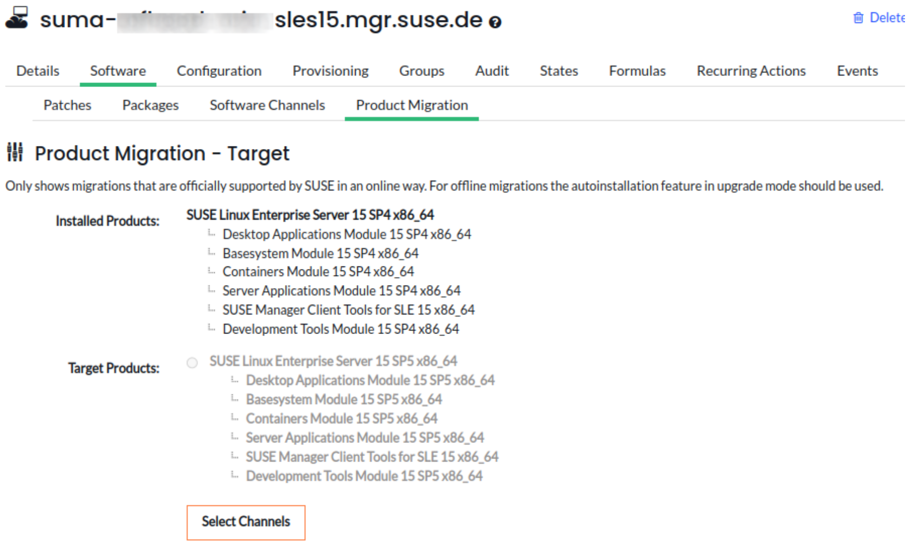
> Product versions used are not reflective of the actual latest versions available. They are used for illustration purposes only. As an example, the following procedure describes the upgrade to version 15 SP5 from and older version 15. If you are targeting a different version, select the corresponding channels and versions.

Procedure: Upgrading Product to a Newer Version Using Web UI

1. Log in to SUSE Manager Web UI and navigate to **Admin › Setup Wizard › Products** and search for `SUSE Linux Enterprise Server 15 SP5 x86_64`.
2. Select the recommended channels.



3. Click **[Add Products]**.
4. Navigate to **Systems › Registered client › Software › Product Migration**. You will see the targets available for that registered client.



5. Select `SUSE Linux Enterprise Server 15 SP5 x86_64`. This will expand further.
6. Select `Target Base Channel` as `SLE-Product-SLES15-SP5-Pool for x86_64`. Keep `Allow Vendor Change` unchecked.
7. Click **[Schedule Migration]**. The message will be highlighted `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` indicating a successful dry run.
9. Click **[Schedule Migration]** to perform the actual product migration. The message will be highlighted on top of the screen indicating the scheduling of the action.
10. When the upgrade is complete, check the status in **Events › History**.
11. On the SUSE Manager Web UI side, verify the succesfully completed product upgrade by going to **Systems › Registered client › Details**.
12. On the client side you can verify it by running:

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

13. The output will look similar to:

```
NAME="SLES"
VERSION="15-SP5"
VERSION_ID="15.5"
PRETTY_NAME="SUSE Linux Enterprise Server 15 SP5"
ID="sles"
ID_LIKE="suse"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:15:sp5"
DOCUMENTATION_URL="https://documentation.suse.com/"
```

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