Manage Multiple Linux Flavors with SUSE Manager Custom Channels

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Introduction
When it comes to managing Linux systems scattered around your data center and the public cloud, it can be challenging to act on all your various distributions without getting tangled up in a bunch of different tools. SUSE Manager eases that pain by allowing you to see and act on everything in one place—even if you’re not just working with SUSE®-based systems.

SUSE Manager is a best-in-class open source infrastructure management tool with broad capabilities for managing your software-defined infrastructure. It's designed and built to help IT operations teams like yours automate, configure and audit systems consistently so you can spend less time on the mundane stuff and better protect your environment. For many organizations, that starts with patch management. This SUSE Guide explains how to add SUSE, Ubuntu and CentOS repositories and use SUSE Manager to centrally manage them all.

Adding SUSE Product Channels
Get familiar with the process of adding channels and repositories by setting up your existing SUSE products using the SUSE Manager web interface or WebUI.

The process works like this:

- Add or create a channel
• Add a repository
• Sync the repository
• Create an Activation Key for the product
• Use the Activation Key to add systems for SUSE Manager to manage

To gain access to channels and repositories for your licensed SUSE products, simply add your SUSE Customer Center (scc.suse.com) credentials to SUSE Manager. These are the same credentials you’d use for setting up SMT and RMT servers. Log into the SUSE Customer Center, navigate to your organization and copy the credentials:

Figure 2: Get your SUSE Customer Center Organization Credentials

Add those credentials to SUSE Manager by navigating to Admin → Setup Wizard → Organization Credentials. Click “Add a new credential” and wait for the green checkbox that confirms a successful link between SUSE Manager and SUSE Customer Center.

Figure 3: Enter your SUSE Customer Center credentials to SUSE Manager

While still in the Setup Wizard, click on the SUSE Products tab. You’ll see the inventory refreshing, pulling down information about all your active SUSE product subscriptions. If you have a lot, this will take a few minutes to
complete. Once it’s done, you can search or browse for specific products, in this example SUSE Enterprise Linux Server 15 for x86_64.

Figure 4: View and select products

Add and Sync SUSE Repositories
Click the chevron next to any product to see additional sub-products available for mirroring. When you click Add Products, repositories for those products will be added to SUSE Manager and will become ready to sync. Sync the repositories, keeping in mind that this can take some time. If you plan to manage many distributions, be sure that you have enough storage on your SUSE Manager or SUSE Proxy.

You can monitor the syncing progress by running this bash script from the shell of your SUSE Manager server:

https://raw.githubusercontent.com/SUSE/demos/master/suma-watch-channel-sync.sh

Create One or More Activation Keys
In order to enroll systems to take advantage of the repositories you downloaded, you now need to create an Activation Key. The key will inherit the settings you provide, including the proper Linux distribution channels (and their children). In this way, the key becomes the trigger for SUSE Manager to apply those channels and make their repositories available to any system. You’ll use this key when adding systems either through the WebUI or bootstrap scripts.
The following example sets up an Activation Key for SLES 15 SP1 and includes appropriate child channels. You can select whatever you want from the channel list, enabling you to truly customize the scope and types of systems you want to manage.

Add Custom Linux Channels and Repositories

The process for adding other distributions to SUSE Manager is similar, but you’ll need to create channels and repositories instead of just flagging them in the SUSE Manager Setup Wizard. This will require access to the SUSE Manager server via the shell, primarily to accept any certificate authorizations you may need to confirm.

Add Ubuntu 18.04

To add the latest LTS version of Ubuntu, you’ll need to create two channels and two repositories, one for main and one for updates.

In the SUSE Manager WebUI, navigate to Software → Manage → Channels and click “Create Channel.” The name, label and summary are arbitrary, but we’ll use the same entry for each:

- **Channel Name**: ubuntu-18.04-main-updates-amd64
- **Channel Label**: ubuntu-18.04-main-updates-amd6
- **Parent Channel (optional)**: ubuntu-18.04-pool for AMD64 (if you added this from the SUSE products Setup Wizard)
• **Channel Summary:** ubuntu-18.04-main-updates-amd64

• **Organization Sharing:** Select "This channel is public and may be accessed by any of the trusted organizations trusted by this organization."

• Ensure that the architecture matches the system type, in this example “AMD64 Debian.”

Figure 6: Create a custom Ubuntu 18.04 main channel

Click the Create Channel button and then repeat the steps to create a channel for the Ubuntu 18.04 updates. Give it a name, label and summary, such as **ubuntu-18.04-main-updates-amd64**.

Figure 7: Create a custom Ubuntu 18.04 main-updates channel

Save this second channel, navigate to the Repositories tab and click "Create Repository." You’ll create two repositories in this step, one for **main** and one for **main-updates**. You can give each repository the same name as the
channel (with a -repo suffix or any other arbitrary name) and set each Repository URL to the real path to the Ubuntu 18.04 repo for AMD64. In this example:


**Figure 8: Create the main Ubuntu 18.04 repository**

Leave the “Has Signed Metadata?” unchecked and the SSL entries to “None.” Save the repository and create a second one for the **main-updates**.

**Figure 9: Create the main-updates Ubuntu 18.04 repository**

Return to the custom channels you created earlier, Software → Manage → Channels → ubuntu-18.04-main-AMD64 and ubuntu-18.04-main-updates-AMD64, and click the Repositories tab. Put a check by the repository you want to associate with the channel.
Figure 10: Add the repository to the channel

Click the Update Repository button to save the selection and repeat the process for the main-updates channel and repository. As you may have noticed, you could add both repositories to a single channel, but best practice is to add each repository to its own channel, which in this case are children of the ubuntu-18.04-pool for amd64 channel.

If you click on the Sync tab in this view and attempt to sync the repository contents, it will fail because you must confirm a certificate trust request when initially accessing the Ubuntu repository. So, don’t click Sync here. Instead, open a shell to your SUSE Manager server and run the following command to sync the channel (using the channel label, not the repository label):

```
suma:~ # spacewalk-repo-sync -c ubuntu-18.04-main-amd64
```

When prompted to accept the certificate, type “a” for always. Repeat the step for the main-updates channel:

```
suma:~ # spacewalk-repo-sync -c ubuntu-18.04-main-updates-amd64
```

```
suma:~ # spacewalk-repo-sync -c ubuntu-18.04-main-updates-amd64
15:53:52 Sync of channel started.
15:53:54 Packages in repo: 5966
15:54:09 Packages already synced: 5927
15:54:09 Packages to sync: 39
15:54:09 New packages to download: 0
15:54:09 Downloading packages:
15:54:09 Importing packages to DB:
15:54:09 Linking packages to the channel.
15:54:10 39 packages linked
15:54:10 Patches in repo: 0.
15:54:10 Sync completed.
15:54:10 Total time: 0:00:17
```

Figure 11: Run the spacewalk-repo-sync command on the SUSE Manager server
Note that the total time shown here is just 17 seconds; your initial sync will take much longer than that. The best way to watch the progress is to open a second shell to your SUSE Manager server and run the "suma-watch-channel-sync.sh" script.

```
suma:~ # wget https://raw.githubusercontent.com/SUSE/demos/master/suma-watch-channel-sync.sh
suma:~ # chmod +x suma-watch-channel-sync.sh
suma:~ # ./suma-watch-channel-sync.sh
```

Wait for the synching of both channels before creating an Activation Key under Systems → Activation Keys. Give the key a name and leave the Key value blank if you want SUSE Manager to generate one for you. In this case, set the Base Channel to ubuntu-18.04-pool for amd64 and select all three child channels that appear.

![Create Activation Key](image)

**Figure 12:** Create an Activation Key for your Ubuntu 18.04 channels

**Add a System with a Bootstrap Script**

In the WebUI, navigate to Admin → Manager Configuration → Bootstrap Script and ensure that the basics are present, including the DNS name or IP address of your SUSE Manager server and the SSL location, which defaults to /srv/www/htdocs/pub/rhn-org-trusted-ssl-cert-1.0-1.noarch.rpm.
When you shell into your SUSE Manager server and change to `/srv/www/htdocs/pub/bootstrap/`, you should see a `bootstrap.sh` file. Copy that to something like `bootstrap-ubuntu18.04.sh`:

```
suma~: # cd /srv/www/htdocs/pub/bootstrap/
suma~: # cp bootstrap.sh bootstrap-ubuntu18.04.sh
```

Edit the new file, inserting the Ubuntu 18.04 Activation Key you created (ensure that it has the 1- or prefix appropriate to your SUSE Manager organization). Confirm that the `HOSTNAME` points to your SUSE Manager host and the `ORG_CA_CERT` points to the bootstrap cert. I’ve also added a command to fix a quirk in Ubuntu 18.04 DNS resolution (in bold):

```
... ln -sf /run/systemd/resolve/resolv.conf /etc/resolv.conf
```

# can be edited, but probably correct (unless created during initial install):

# NOTE: ACTIVATION_KEYS *must* be used to bootstrap a client machine.

ACTIVATION_KEYS=1-50e9b00abad0e1838c1cf6c548c537fc

ORG_GPG_KEY=

# can be edited, but probably correct:
CLIENT_OVERRIDES=client-config-overrides.txt

HOSTNAME=suma.example.com

ORG_CA_CERT=rhn-org-trusted-ssl-cert-1.0-1.noarch.rpm

ORG_CA_CERT_IS_RPM_YN=1

...

Save the file and then deploy it, targeting the host you want to bootstrap, ubuntu1.example.com in this example:

```bash
suma~: # cat bootstrap-ubuntu18.04.sh | ssh username@ubuntu1.example.com sudo /bin/bash
```

Or via a host with just an IP address:

```bash
suma~: # cat bootstrap-ubuntu18.04.sh | ssh username@192.168.0.200 sudo /bin/bash
```

SUSE Manager will reach out to the target system, install the salt-minion (if you’re using Salt) and add the system to your inventory. You might have to manually accept the Salt key in the SUSE Manager WebUI at Salt → Keys. Once added, the new system will have access to all the packages in your `ubuntu-main` and `ubuntu-main-updates` channels and you can patch, reboot and otherwise manage the system.

**Add a System with the WebUI**

The bootstrap script process is pretty bullet-proof, but you can also use the WebUI to add new systems using your custom channels. In the WebUI, navigate to Systems and click “Add Systems.” Enter the IP address or DNS name of the Ubuntu 18.04 server you want to target. Again, provide the IP or DNS name of the target and provide a username with sudo authority, not root.

Select the appropriate Activation Key that you associated with your Ubuntu 18.04 channels and click the Bootstrap button to start the process.

![Figure 14: Add a target system using the SUSE Manager WebUI](image)
Because of the quirk in how DNS resolution is handled in Bionic, you might get an error message from the Ubuntu 18.04 target that your SUSE Manager /pub directory isn’t available. If that happens, manually add your SUSE Manager IP and hostname to the target’s /etc/hosts file or make a symbolic link from /run/systemd/resolve/resolv.conf to /etc/resolv.conf on the target system.

```
ubuntu1~: # ln -sf /run/systemd/resolve/resolv.conf /etc/resolv.conf
```

**Add CentOS 8**

Repeat the steps above for creating custom channels, this time creating repositories that point to the CentOS 8 packages. If you’re installing x86_64, the Repository URL is [http://mirror.centos.org/centos-8/8/BaseOS/x86_64/os/](http://mirror.centos.org/centos-8/8/BaseOS/x86_64/os/) and the Repository Type is “yum.”

![Repository Details](image)

***Figure 15: Create a custom SUSE Manager repository for CentOS 8***

If you’re using Salt, you’ll also need to add a repository for Salt Stack, which will enable installation of the salt-minion. The Repository URL is [http://repo.saltstack.com/py3/redhad/8/x86_64/latest/](http://repo.saltstack.com/py3/redhad/8/x86_64/latest/) and the Repository Type is “yum.” If you’re using ssh and not Salt, you can skip this step.

![Repository Details](image)

***Figure 16: Add a custom repository to enable installation of the salt-minion on CentOS 8***

Add both of these repositories to a new custom CentOS channel. Then sync these repos from the SUSE Manager command line:

```
suma~: # spacewalk-repo-sync -c your-new-centos8-channel-name
```
Again, you can use the watch script to monitor the download activity. When it completes, create an Activation Key. Either create a new bootstrap-centos8.sh script by copying the /srv/www/htdocs/pub/bootstrap/bootstrap.sh or add the system via the WebUI.

**Review System List**

With your new systems added, you can now view them in the Systems → System List view of the SUSE Manager WebUI. In this example, you can see SUSE Linux Enterprise Server 12 and 15 alongside Ubuntu 18.04 and CentOS.

![Figure 18: A view of SUSE Manager managing SUSE Linux Enterprise 12 and 15, Ubuntu 18.04 and CentOS 8](image)

From this point, you can manage updates, patches, packages and configurations all in one place. As you add more systems, you can create groups and use SUSE Manager to manage many systems of the same type all at once.

**Learn More**

See what else SUSE Manager can do by downloading a free 60-day license and trying it today. Check out these resources:

- SUSE Manager 4.0 documentation: [https://documentation.suse.com/suma/4.0/](https://documentation.suse.com/suma/4.0/)
- Download SUSE Manager: [https://download.suse.com/](https://download.suse.com/)