



SUSE

# Quick Start - SAP

SUSE Manager 4.1

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# Quick Start: SAP Overview

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This guide shows you how to use SUSE Manager to install and configure an SAP cluster. It guides you through setting up a single SUSE Manager Server, preparing your client systems, and configuring the cluster using formulas.

- For more information about SAP, see the SAP documentation at <https://documentation.suse.com/sles-sap>.
- For more information about SUSE Manager, see the SUSE Manager documentation at <https://documentation.suse.com/suma>.

# Prepare Server

Before you start you need to install the SUSE Manager Server. The method for installing the SUSE Manager Server varies depending on your hardware and environment.

SUSE Manager is installed using the SUSE Linux Enterprise Server 15 unified installer. During the installation process, when you are prompted for which product to install, select SUSE Manager Server. The server does not need to have the SUSE Linux Enterprise Server 15 with SAP product installed. For more information about installing the SUSE Manager Server, see [ [Installation > Install-server-unified >](#)  ].

When the SUSE Manager Server is installed, set it up by running the `yast2 susemanager_setup` command from the command prompt. The setup script prompts you to complete additional details about your server, and give you the URL to use to access the WebUI. For more information about setup, see [ [Installation > Server-setup >](#)  ].

You need to do some configuration to set up the SUSE Manager WebUI. In your browser, navigate to the URL of the server, and configure your administration access to the WebUI. For more information about setting up the WebUI, see [ [Installation > Webui-setup >](#)  ].

Now you can use the WebUI to prepare software channels and activation keys for your clients.

On the SUSE Manager Server, add the appropriate SAP channels: From the WebUI, add **SUSE Linux Enterprise Server 15 for SAP**.

Synchronize the SUSE Manager Server with the SUSE Customer Center. You can do this using the WebUI. Add the new channel to your activation key.

To check if a channel has finished synchronizing navigate to **Admin > Setup Wizard** and select the **Products** tab. This dialog displays a completion bar for each product when they are being synchronized.



Software channels can be very large. The initial channel synchronization can sometimes take up to several hours.

When the initial synchronization is complete, we recommended you clone the channel before you work with it. This gives you a backup of the original synchronization data.

## Preparing Clients

Your SAP cluster requires several client systems. Prepare your clients on physical or virtual hardware, and ensure you have SUSE Linux Enterprise Server 15 for SAP installation media ready. You cannot create an SAP cluster without the SUSE Linux Enterprise Server SAP extension, as it provides tooling specific to SAP.

One of the key features of SAP is high availability of the cluster. Every component within an SAP cluster has redundancy and failover protection. When you are preparing your clients, ensure you have enough hardware and infrastructure to allow for this. For more information about hardware requirements, see <https://documentation.suse.com/sles-sap/15-SP2/html/SLES-SAP-quick/cha-plan.html#sec-hardware>.

For more information about the clients you need to set up for an SAP cluster, see <https://documentation.suse.com/sbp/all>.

## Register Clients to the SUSE Customer Center

Register each client with SUSE Customer Center, using this command as root, specifying the registration number and the email address associated with it:

```
SUSEConnect -r <Registration_Number> -e <registered_email_address>
```

You can get your registration number by logging in to SUSE Customer Center from your browser.

For more information about registering SUSE Manager with SUSE Customer Center, see [ [Installation](#) › [General-requirements](#) › ].

## Configure the Clients for Clustering

Every client system must have all the other client systems listed in their `/etc/hosts` file. Open the `/etc/hosts` file on each client, and add the hostname for each of the other clients.

## Create a Shared Storage Device

Each of the clients needs to be able to access a shared disk. The shared disk can be physical hardware connected by ethernet, or you can set up a virtual disk and access it with iSCSI.

If you use a virtual disk, consider hosting it on a separate system. Do not use a client machine to host the shared storage disk.

## Download the SAP Installation Software

Download the SAP installation media and save a copy on each client. The software that you require differs depending on your environment. For example, if you are using HANA, you need the SAP HANA platform. If you are using Netweaver, you need different packages. These software packages are provided by SAP, not by SUSE.

Ensure you have saved the installation software in the same file system location on each client. Alternatively, save it to a shared NFS drive.

## Configure Clients to Use Latest `module.run`

Each client needs to be configured to use the latest version of `module.run`. On each of the client machines, open the `/etc/salt/minion` configuration file and add or edit this line:

```
use_superseded:  
- module.run
```

Restart the `salt-minion` process to enable the changes:

```
systemctl restart salt-minion
```

## Install Additional Disks for HANA

For the clients that are going to run the HANA database, you require an additional storage device. This device is used to store files required by HANA, which are located in the `/hana/` directory.

We recommend that this storage device be at least 20 GB. For some installations, you might require more, and it is possible to use multiple disks to provide this storage. For comprehensive hardware requirements, see <https://documentation.suse.com/sbp/all>.

## Register Clients to the Server

First of all, make sure you have an activation key that is associated with the `SLE-Product-SLES_SAP15` base channel. For more information about activation keys, see [ [Client-configuration › Activation-keys ›](#) ].

In the SUSE Manager WebUI, navigate to **Systems › Bootstrapping**. Fill in the appropriate details, and make sure you check the `Manage System Completely via SSH` checkbox. In the `Activation Key` field, select the SLES for SAP activation key.

For more information about registering, see [ [Client-configuration › Registration-webui ›](#) ].

## Configure Clients

SUSE Manager uses formulas with forms to configure your SAP clients. There are two formulas that you need to use:

- **Hana** to configure the HANA database
- **Cluster** to configure the clients into a cluster

The formulas are provided by packages that you can download with your package manager. You need to install the formulas on the SUSE Manager Server. When you have installed the package, you can use the SUSE Manager WebUI to enable and configure the formulas. As you go through the formula configuration process, provide details of the clients that contain your SAP cluster, to set them up appropriately.

To install the formulas on the SUSE Manager Server, use your package manager to install these packages:

- **saphanabootstrap-formula**
- **sapnwbootstrap-formula**
- **drbd-formula**
- **habootstrap-formula**
- **salt-shaptools**



The order that you enable and configure the formulas is important. You must enable, configure, and apply the HANA formula first. Then you can enable, configure, and apply the cluster formula. If you perform these steps in the wrong order, your SAP installation fails.

## Enable and Configure the HANA Formula

In the SUSE Manager WebUI, navigate to **Systems > System List** and click the client to use as the primary client in the cluster.

Navigate to the **Formulas** tab, locate the **Sap Hana Deployment** heading, and check the **Saphanabootstrap** formula in the list. Click **[Save]** and apply the highstate to activate the formula.

When the formula is activated, navigate to the **Formulas > Hana** tab, and complete the details in the form.

Make sure you check **Install required packages** to install everything you need on the client. In the **Nodes** sections, type the hostname of the client to install the HANA database, and provide details for the installation.

Complete the remaining details according to your environment, click **[Save]**, and apply the highstate. When the highstate is complete, you can go on to apply the cluster formula.

The screenshot shows the 'test-client' configuration page in the SUSE Manager WebUI. The 'Formulas' tab is active, displaying the 'Saphanabootstrap Formula' configuration. The page includes a navigation bar with tabs: Details, Software, Configuration, Provisioning, Groups, Audit, States, Formulas, and Events. Below the navigation bar, there are buttons for 'Save Formula' and 'Clear values'. The main configuration area is titled 'Saphanabootstrap Formula' and contains the following sections:

- HANA**: A section with a checkbox for 'Install required packages:' which is checked.
- Nodes**: A section with a plus sign icon, containing a list of nodes. The first node is expanded, showing the following fields:
  - Hostname to install HANA: [Text input]
  - HANA system identifier (SID): [Text input]
  - HANA instance number: [Text input]
  - SAP user password: [Text input with search and eye icons]
  - HANA scenario type: [Dropdown menu with 'performance-optimized' selected]
  - Install HANA: [Checked checkbox]
- Install new HANA instance**: A section with a plus sign icon, containing the following fields:
  - Downloaded HANA software path: [Text input]
  - Machine root user: [Text input]
  - Machine root password: [Text input with search and eye icons]

## Enable and Configure the Cluster Formula

In the SUSE Manager WebUI, navigate to **Systems > System List** and click the client to use as the primary client in the cluster.

Navigate to the **Formulas** tab, locate the **Cluster** heading, and check the **Habootstrap** formula in the list. Click **[Save]** and apply the highstate to activate the formula.



**Formulas**

Choose formulas:

<input type="checkbox"/>	General System Configuration	
<input type="checkbox"/>	Bind	i
<input type="checkbox"/>	Dhcpd	i
<input type="checkbox"/>	Locale	i
<input type="checkbox"/>	System Lock	i
<input type="checkbox"/>	Tftpd	i
<input type="checkbox"/>	Vsftpd	i
<input type="checkbox"/>	<b>Clustering</b>	
<input type="checkbox"/>	Caasp Management Node	i
<input type="checkbox"/>	Caasp Management Settings	i
<input type="checkbox"/>	<b>Security Configuration</b>	
<input type="checkbox"/>	Cpu Mitigations	i
<input type="checkbox"/>	<b>Drbd Deployment</b>	
<input type="checkbox"/>	Drbd Formula	i
<input type="checkbox"/>	<b>Monitoring</b>	
<input type="checkbox"/>	Grafana	i
<input type="checkbox"/>	Prometheus	i
<input type="checkbox"/>	Prometheus Exporters	i
<input checked="" type="checkbox"/>	<b>Cluster</b>	
<input checked="" type="checkbox"/>	Habootstrap Formula	i
<input checked="" type="checkbox"/>	<b>Sap Hana Deployment</b>	
<input checked="" type="checkbox"/>	Saphanabootstrap Formula	i
<input type="checkbox"/>	<b>Virtualization</b>	
<input type="checkbox"/>	Virtualization Host	i

When the formula is activated, navigate to the **Formulas** > **Cluster** tab, and complete the details in the form.

Make sure you check **Install required packages** to install everything you need on the client. Give your cluster a name, and specify the hostname of the primary client in the cluster.

Complete the remaining details according to your environment, click **[Save]**, and apply the highstate.

test-client
Delete System

Details
Software
Configuration
Provisioning
Groups
Audit
States
Formulas
Events

Configuration
Hbootstrap Formula
Saphanbootstrap Formula

On this page you can configure Salt Formulas to automatically install and configure software.

Prev
Next
Save Formula
Clear values

### Saphanbootstrap Formula

SAP HANA deployment formula

^ HANA  
HANA

Install required packages: ☒

^ Nodes  
Nodes

^

Hostname to install HANA:

HANA system identifier (SID):

HANA instance number:

SAP user password:

HANA scenario type: performance-optimized

Install HANA: ☒

^ Install new HANA instance  
Install new HANA instance

Downloaded HANA software path:

Machine root user:

Machine root password:

Use configuration file: ☐

SAP admin password (<sid>adm):

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