



# Red Hat Enterprise Linux 8

## Configuring RHEL 8 for SAP HANA 2 installation



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## Abstract

This guide explains how to configure RHEL 8 for SAP Solutions for the installation of a SAP HANA 2 single-host system

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## Table of Contents

<b>MAKING OPEN SOURCE MORE INCLUSIVE</b> .....	<b>3</b>
<b>PROVIDING FEEDBACK ON RED HAT DOCUMENTATION</b> .....	<b>4</b>
<b>CHAPTER 1. INSTALLING RHEL 8</b> .....	<b>5</b>
<b>CHAPTER 2. REGISTERING YOUR HOST</b> .....	<b>12</b>
<b>CHAPTER 3. APPLYING THE RHEL RELEASE LOCK</b> .....	<b>14</b>
<b>CHAPTER 4. ENABLING REQUIRED REPOSITORIES</b> .....	<b>15</b>
<b>CHAPTER 5. RHEL SYSTEM ROLES FOR SAP</b> .....	<b>16</b>
5.1. INSTALLING ANSIBLE ENGINE .....	16
5.2. INSTALLING RHEL SYSTEM ROLES FOR SAP .....	16
5.3. SERVER CONFIGURATION WITH RHEL SYSTEM ROLES FOR SAP .....	16
5.3.1. Configuring a local managed node .....	17
5.3.2. Configuring a remote managed node .....	17
<b>CHAPTER 6. NEXT STEPS</b> .....	<b>19</b>



## MAKING OPEN SOURCE MORE INCLUSIVE

Red Hat is committed to replacing problematic language in our code, documentation, and web properties. We are beginning with these four terms: master, slave, blacklist, and whitelist. Because of the enormity of this endeavor, these changes will be implemented gradually over several upcoming releases. For more details, see [our CTO Chris Wright's message](#).

## PROVIDING FEEDBACK ON RED HAT DOCUMENTATION

We appreciate your input on our documentation. Please let us know how we could make it better. To do so:

- For simple comments on specific passages:
  1. Make sure you are viewing the documentation in the *Multi-page HTML* format. In addition, ensure you see the **Feedback** button in the upper right corner of the document.
  2. Use your mouse cursor to highlight the part of text that you want to comment on.
  3. Click the **Add Feedback** pop-up that appears below the highlighted text.
  4. Follow the displayed instructions.
- For submitting more complex feedback, create a Bugzilla ticket:
  1. Go to the [Bugzilla](#) website.
  2. As the Component, use **Documentation**.
  3. Fill in the **Description** field with your suggestion for improvement. Include a link to the relevant part(s) of documentation.
  4. Click **Submit Bug**.



## CHAPTER 1. INSTALLING RHEL 8

You can install RHEL 8 in [interactive mode](#) or you can perform an [unattended installation](#) using Kickstart. This document explains how to perform an interactive installation.

For Kickstart installation, use **Server** as your base environment and take into account the recommendations from the [SAP HANA Storage Requirements](#). For a test system, you can remove the default **/home** file system allocation and use a large root ( */* ) file system.

### Prerequisites

- You have downloaded the installation image for the desired and supported RHEL 8 minor release from the [Red Hat Customer Portal](#).



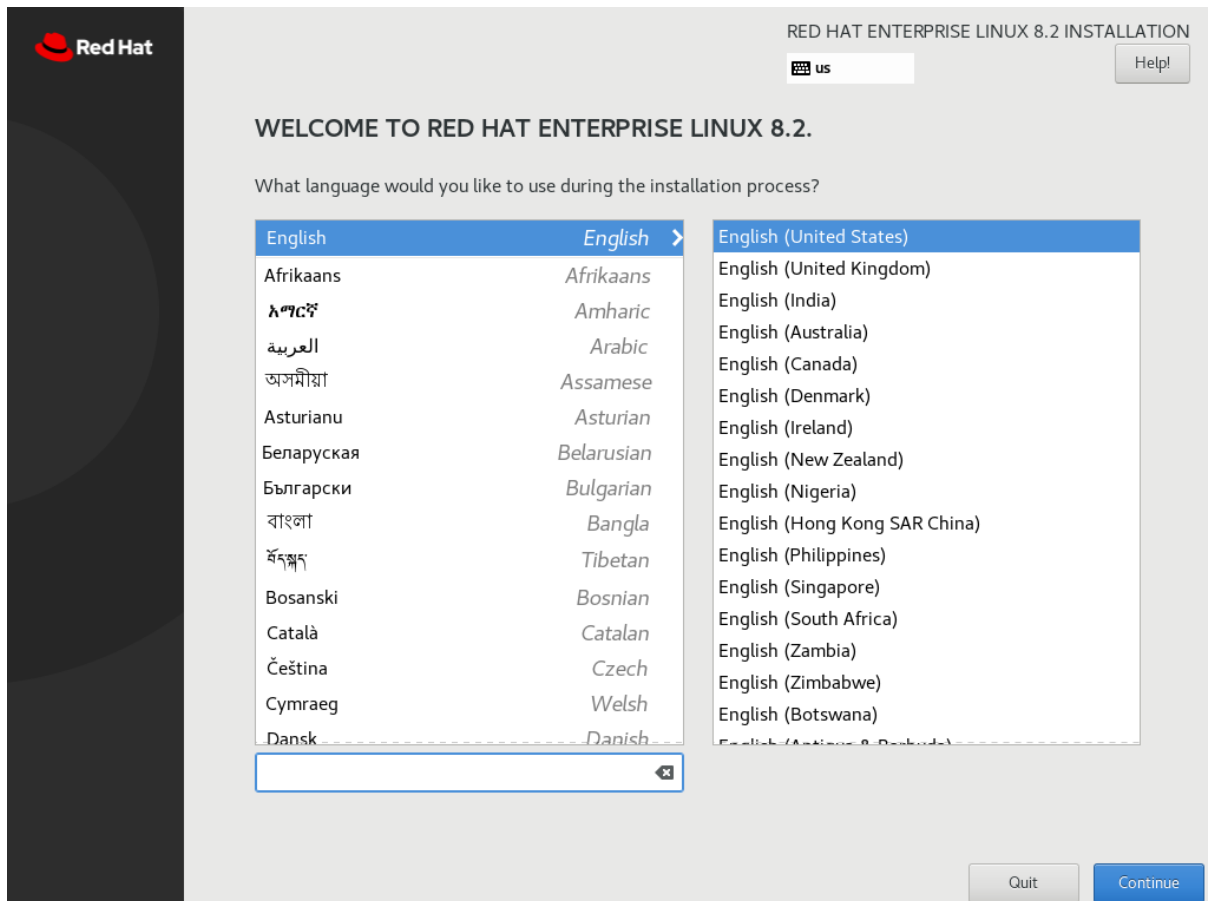
### IMPORTANT

SAP HANA is supported only on particular minor releases of RHEL 8 (for example RHEL 8.2). For more information on which minor RHEL 8 releases are supported by SAP, see the SAP note [2235581](#).

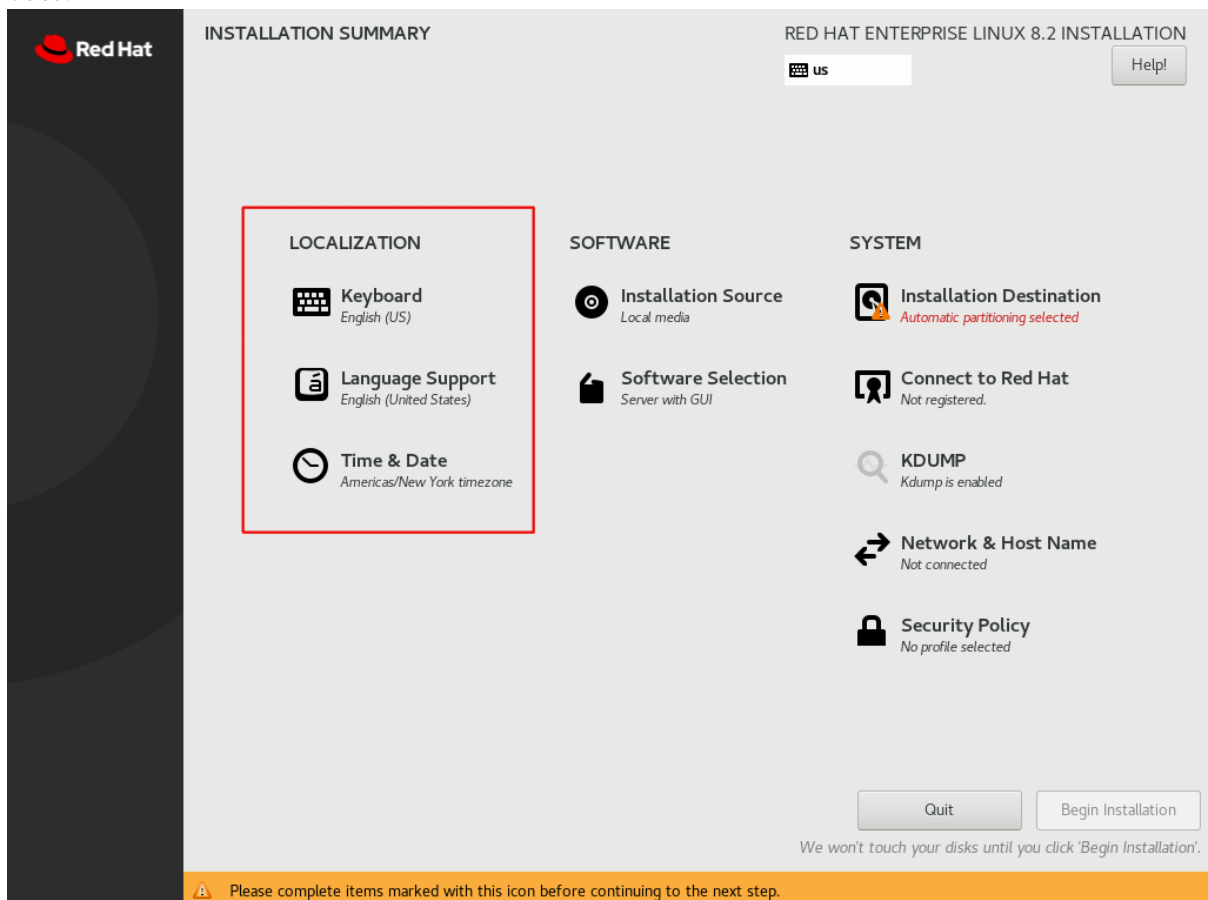
- You have downloaded the installation media for the desired and supported SAP HANA 2 SPS04 or SPS05 revision from the SAP [Software Downloads](#) Portal.

### Procedure

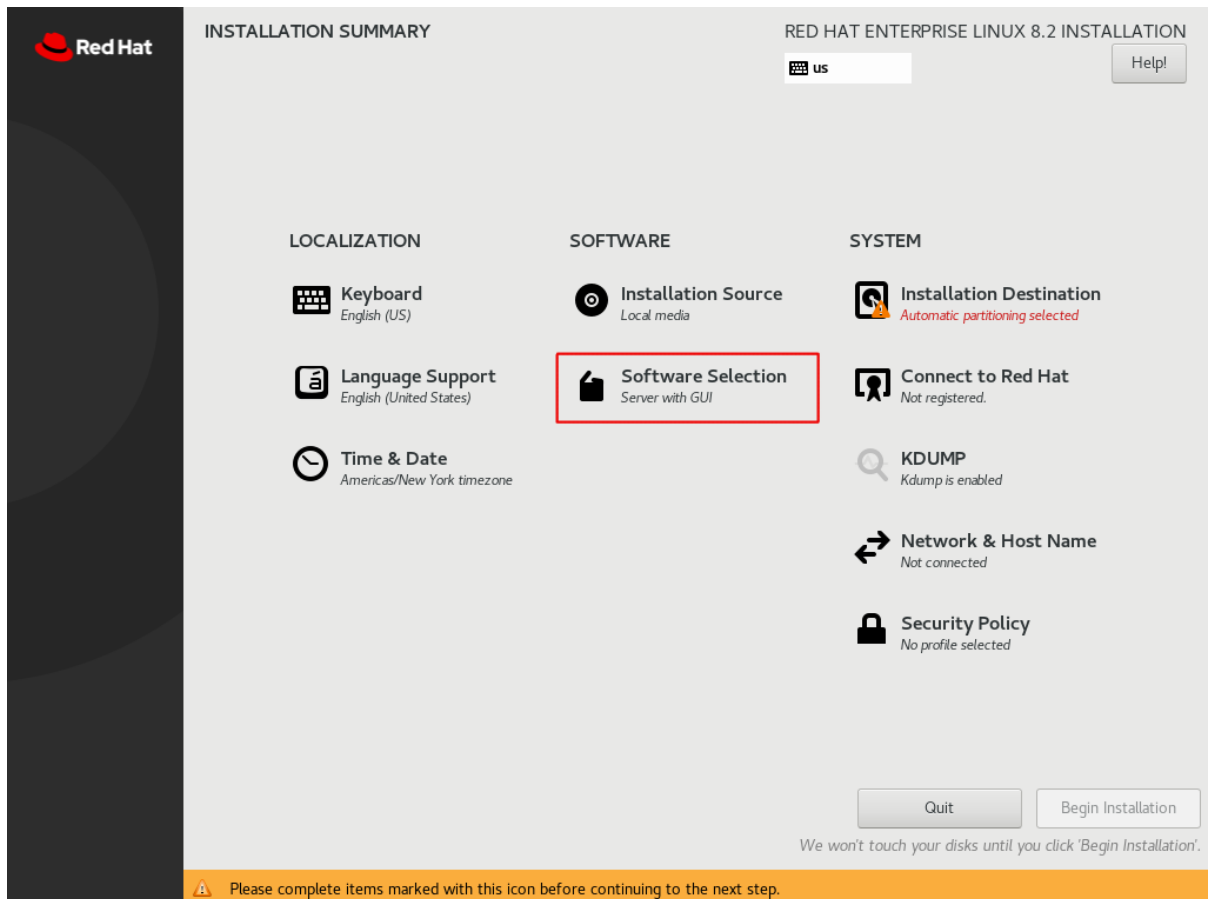
1. Boot your server from the RHEL 8 installation source.  
For more information on how to boot your server from the RHEL 8 image, refer to the instructions in the [Performing a standard RHEL installation](#) guide.
2. Select the language and click **Continue**.



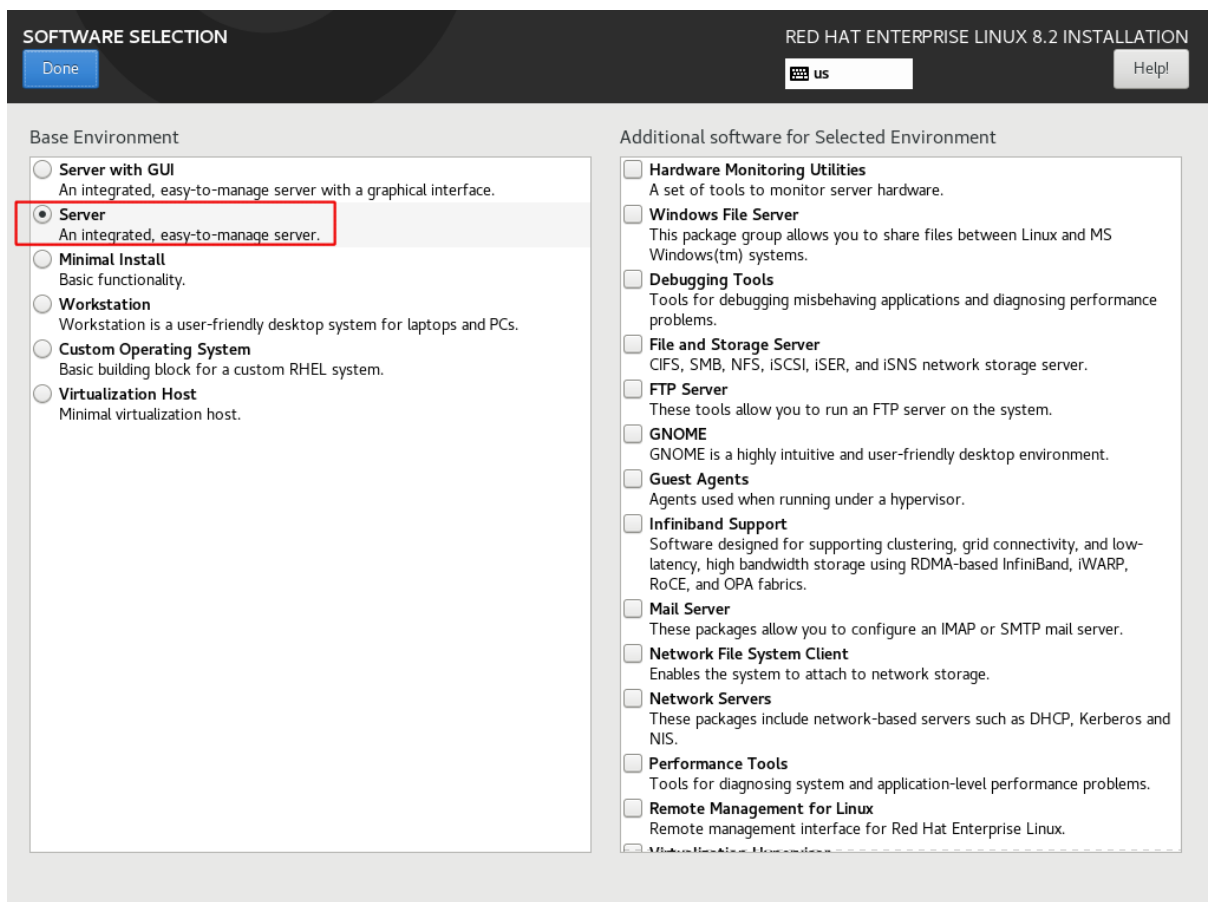
- Under **LOCALIZATION**, select the desired keyboard layout, supported languages, and time and date.



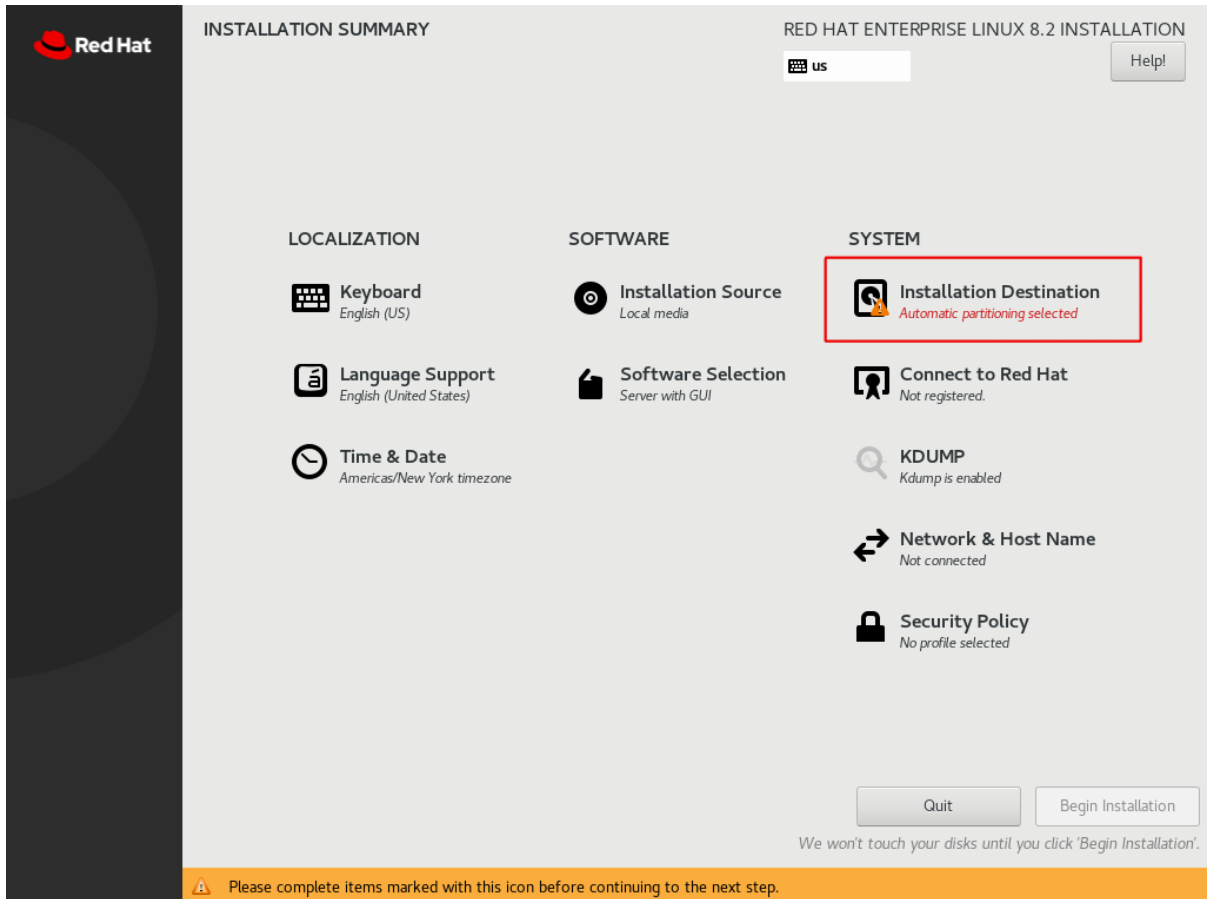
- Under **SOFTWARE**, click **Software Selection**



5. Select **Server** as your **Base Environment** and click **Done**. Do not select any additional software.



6. Under **SYSTEM**, click **Installation Destination**.



**INSTALLATION SUMMARY** RED HAT ENTERPRISE LINUX 8.2 INSTALLATION

us Help!

**LOCALIZATION**

- Keyboard: English (US)
- Language Support: English (United States)
- Time & Date: Americas/New York timezone

**SOFTWARE**

- Installation Source: Local media
- Software Selection: Server with GUI

**SYSTEM**

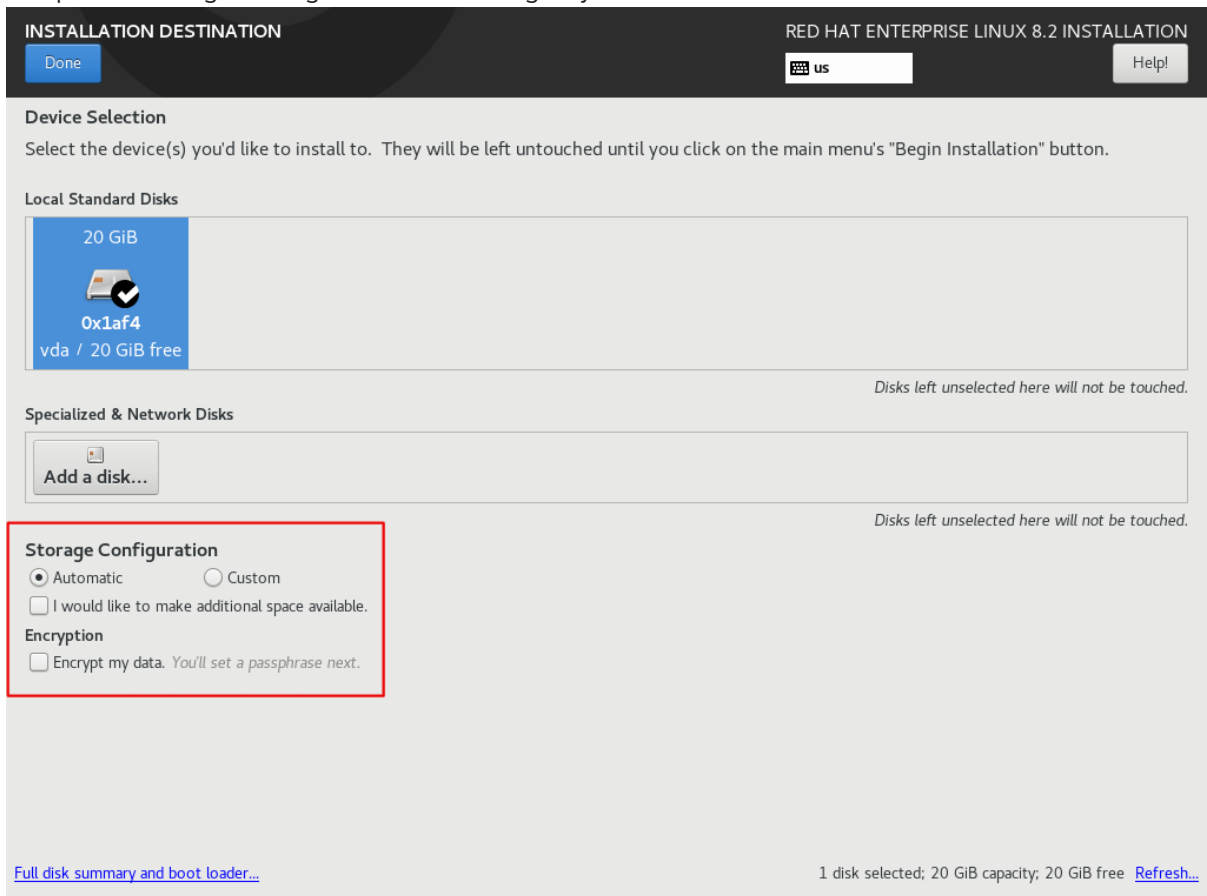
- Installation Destination: Automatic partitioning selected
- Connect to Red Hat: Not registered.
- KDUMP: Kdump is enabled
- Network & Host Name: Not connected
- Security Policy: No profile selected

Quit Begin Installation

We won't touch your disks until you click 'Begin Installation'.

Please complete items marked with this icon before continuing to the next step.

7. Adapt the storage configuration according to your needs and click **Done**.



**INSTALLATION DESTINATION** RED HAT ENTERPRISE LINUX 8.2 INSTALLATION

Done us Help!

**Device Selection**

Select the device(s) you'd like to install to. They will be left untouched until you click on the main menu's "Begin Installation" button.

**Local Standard Disks**

- 20 GiB
- Ox1af4
- vda / 20 GiB free

Disks left unselected here will not be touched.

**Specialized & Network Disks**

Add a disk...

Disks left unselected here will not be touched.

**Storage Configuration**

- Automatic  Custom
- I would like to make additional space available.

**Encryption**

- Encrypt my data. You'll set a passphrase next.

[Full disk summary and boot loader...](#)

1 disk selected; 20 GiB capacity; 20 GiB free [Refresh..](#)



## NOTE

Take into account the recommendations from the [SAP HANA Storage Requirements](#). For a test system, you can remove the default `/home` file system allocation and use a large root (`/`) file system.

- Under **SYSTEM**, click **Network & Host Name**

Red Hat

INSTALLATION SUMMARY

RED HAT ENTERPRISE LINUX 8.2 INSTALLATION

us Help!

**LOCALIZATION**

- Keyboard  
English (US)
- Language Support  
English (United States)
- Time & Date  
Americas/New York timezone

**SOFTWARE**

- Installation Source  
Local media
- Software Selection  
Server with GUI

**SYSTEM**

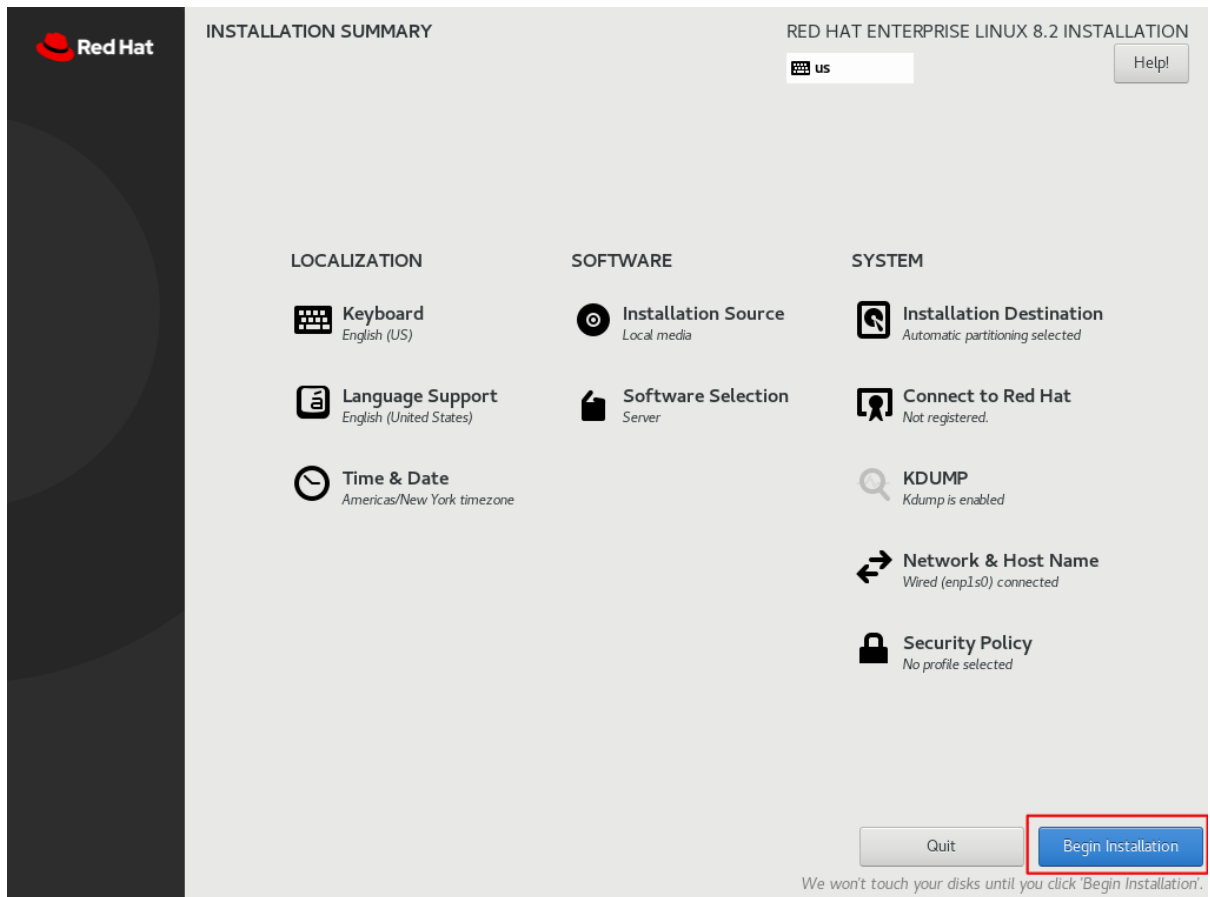
- Installation Destination  
Automatic partitioning selected
- Connect to Red Hat  
Not registered.
- KDUMP  
Kdump is enabled
- Network & Host Name**  
Not connected
- Security Policy  
No profile selected

Quit Begin Installation

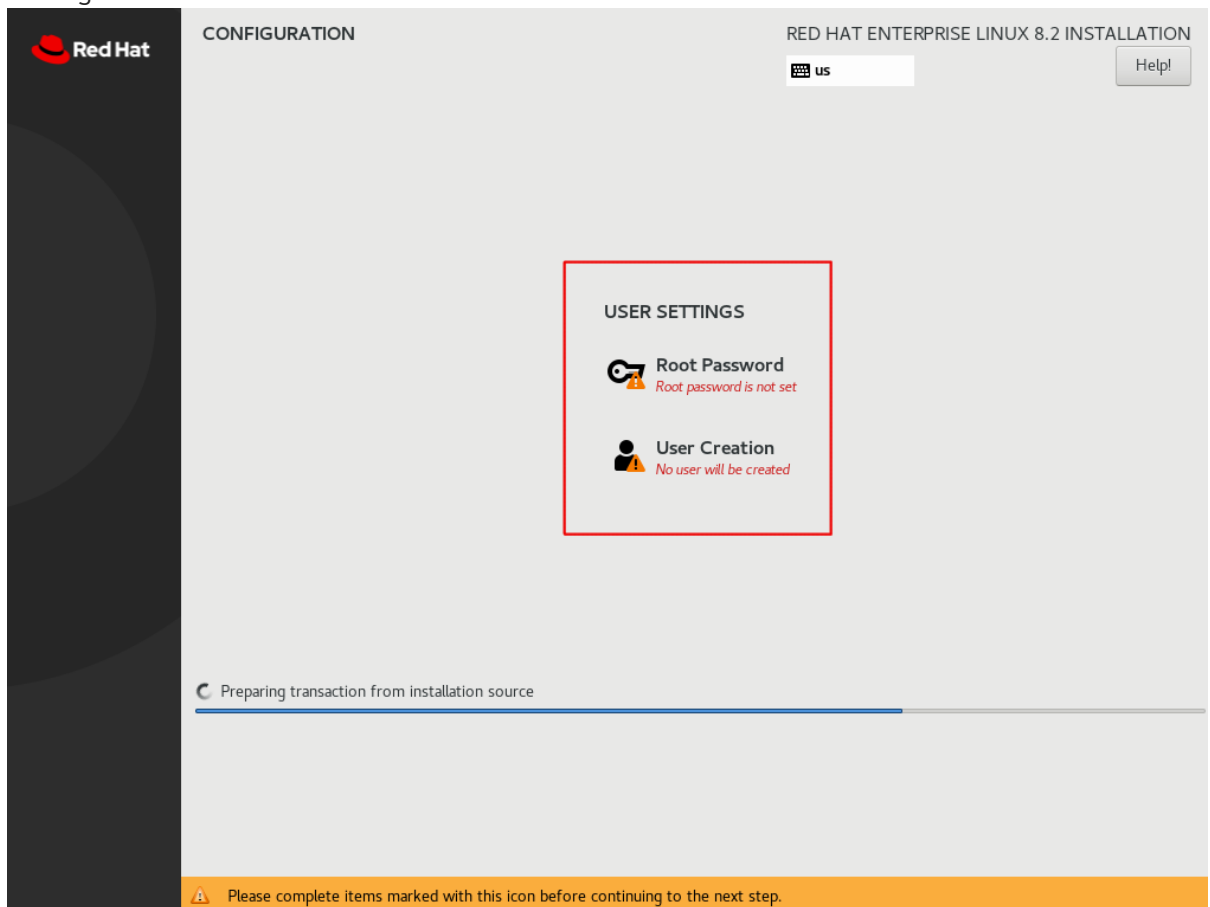
We won't touch your disks until you click 'Begin Installation'.

Please complete items marked with this icon before continuing to the next step.

- Configure your network connection and click **Done**.
- Click **Begin Installation**.



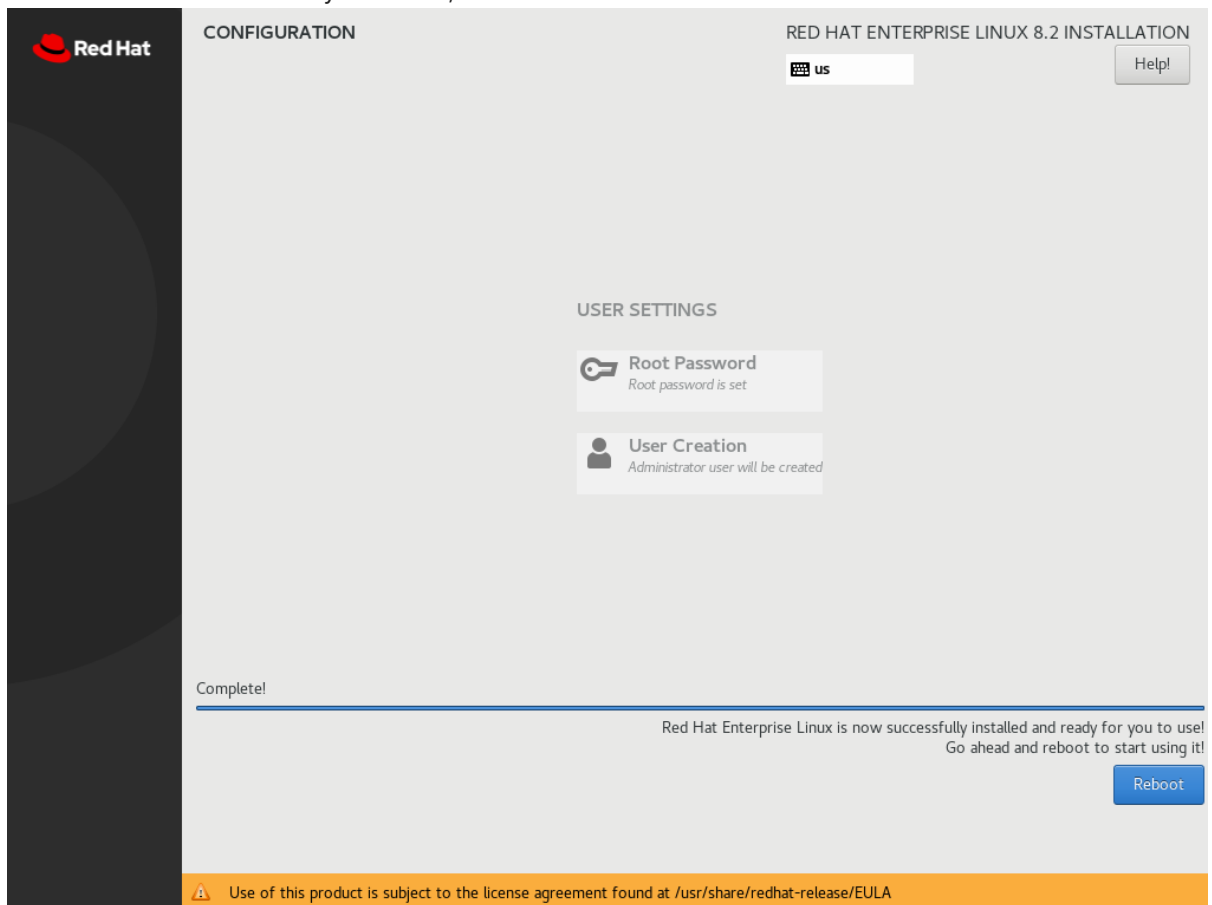
#### 11. Configure **USER SETTINGS**.



12. Click **Root Password**.

13. Set the root password and click **Done**.

14. Click **User Creation**.
15. Set the name of the user, user name, and password, then click **Done**.
16. Once RHEL is successfully installed, click **Reboot**.



### Additional resources

- [Performing a standard RHEL installation](#)
- [Performing an advanced RHEL installation](#)
- [SAP note 2772999 - RHEL 8.x: Installation and Configuration](#)
- [SAP note 2777782 - Recommended OS Settings for RHEL 8](#)
- [SAP HANA Server Installation and Update Guide](#)
- [SAP HANA Storage Requirements](#)

## CHAPTER 2. REGISTERING YOUR HOST

This section explains how to register your RHEL server to Red Hat Satellite.



### NOTE

Different steps apply if your system is registered to the Red Hat Customer Portal or your Cloud provider.

### Prerequisites

- You have a valid [Red Hat Enterprise Linux for SAP Solutions](#) subscription. You must have a valid RHEL for SAP Solutions subscription so your server has access to required packages via a Red Hat Satellite server, the Red Hat Customer Portal, or your Cloud provider.

For more information, see [Red Hat Satellite > 6.8 > Quick Start Guide](#) .

- You have the following information provided to you by your Satellite administrator:
  - An activation key.
  - A string representing the name of the organization.
  - A URL for the Katello client package. This is required for attaching your server to a Satellite server. For more information, see [Red Hat Satellite > 6.8 > Quick Start Guide](#).
- Your server meets the hardware requirements or Infrastructure as a Service (IaaS) configurations. For bare metal deployment, verify that your server type is mentioned in the [SAP Certified and Supported SAP HANA Hardware Directory](#) and that it matches the minimum hardware requirements in the [SAP HANA Server Installation and Update Guide](#) .

For certified IaaS Platforms, see [Certified and Supported SAP HANA Hardware](#) .

- **root** access.

### Procedure

1. Download the Katello client rpm package:

```
# wget https://sat.int.example.com/pub/katello-ca-consumer-latest.noarch.rpm
```

Replace the URL with the URL provided by your Satellite administrator.

2. Install the Katello client rpm package:

```
# yum install -y katello-ca-consumer-latest.noarch.rpm
```

Replace the package name with the name of the package you downloaded.

3. Register your system:



```
# subscription-manager register --org="your-organization-name" \  
--activationkey="your-activation-key"
```

Replace *your-organization-name* with the string representing the name of the organization and replace *your-activation-key* with the activation key. Both are provided by your Satellite administrator.



#### NOTE

If you are using an external Ansible control node to register and subscribe your RHEL server to RHEL for SAP Solutions repositories, you can utilize **redhat\_sap.sap\_rhsm** ansible role instead of registering your system manually.

For more information, see [sap\\_rhsm section](#) on the Ansible Galaxy portal.

## CHAPTER 3. APPLYING THE RHEL RELEASE LOCK

SAP supports SAP HANA with certain minor RHEL releases, for example RHEL 8.2. You need to apply a release lock to make sure your RHEL system is set to a certain minor release.

For more information on which minor RHEL 8 releases are supported by SAP, see the SAP note [2235581](#).



### IMPORTANT

Updating your RHEL system before applying a release lock will result in dependency errors and a possible upgrade to a RHEL 8 minor version that is not supported by SAP HANA. It is advised you run yum installations and updates only after the release lock is applied.

Note that if you used `redhat_sap.sap_rhsm` ansible role to register and subscribe your RHEL server to RHEL for SAP Solutions repositories you can skip this step and proceed to [Installing RHEL System Roles for SAP](#). For more information, see [sap\\_rhsm section](#) on the Ansible Galaxy portal.

### Prerequisites

- **root** access

### Procedure

1. Clear the **dnf** cache:

```
# rm -rf /var/cache/dnf
```

2. Set the release lock:

```
# subscription-manager release --set=8.x
```

Replace `8.x` with the supported minor release of RHEL 8 (for example 8.2).

### Additional resources

- [How to tie a system to a specific update of RHEL](#)

## CHAPTER 4. ENABLING REQUIRED REPOSITORIES

You need to enable certain RHEL repositories to have access to packages required for the SAP HANA installation. For more information on what repositories to enable based on your version of SAP HANA, architecture of your host, and your RHEL minor version, see [RHEL for SAP Configurator](#).

Note that if you used `redhat_sap.sap_rhsm` ansible role to register and subscribe your RHEL server to RHEL for SAP Solutions repositories you can skip this step and proceed to [Installing RHEL System Roles for SAP](#). For more information, see [sap\\_rhsm section](#) on the Ansible Galaxy portal.

### Prerequisites

- **root** access.

### Procedure

1. Disable all the repositories:

```
# subscription-manager repos --disable="*"
```

2. Enable the following repositories:

```
# subscription-manager repos \
--enable="rhel-8-for-$(uname -m)-baseos-e4s-rpms" \
--enable="rhel-8-for-$(uname -m)-appstream-e4s-rpms" \
--enable="rhel-8-for-$(uname -m)-sap-solutions-e4s-rpms" \
--enable="rhel-8-for-$(uname -m)-sap-netweaver-e4s-rpms"
```



### NOTE

If you intend to use the server for the SAP HANA database only, enabling the **sap-netweaver-e4s-rpms** repository is not required.

### Additional resources

- [How to subscribe to Update Services for SAP Solutions on RHEL 8](#)

## CHAPTER 5. RHEL SYSTEM ROLES FOR SAP

RHEL System Roles for SAP is a set of roles executable by Ansible that can assist you with configuring your local or remote hosts (managed nodes) for the installation of SAP HANA.

### 5.1. INSTALLING ANSIBLE ENGINE

RHEL subscriptions provide support for RHEL System Roles with Ansible Engine, which is available in the Ansible Engine repository.

Note that if you already have an Ansible Tower or Ansible Engine, you can skip this step and proceed to [Installing RHEL System Roles for SAP](#).

#### Prerequisites

- **root** access

#### Procedure

1. Enable the Ansible repository:

```
# subscription-manager repos \
--enable=ansible-2.9-for-rhel-8-$(uname -m)-rpms
```

2. Install the Ansible Engine:

```
# yum install ansible
```

### 5.2. INSTALLING RHEL SYSTEM ROLES FOR SAP

RHEL System Roles for SAP include **sap-preconfigure**, **sap-netweaver-preconfigure**, and **sap-hana-preconfigure**. These roles can be used to configure the local or remote managed nodes.

#### Prerequisites

- **root** access
- You have installed Ansible Engine or Ansible Tower  
For more information on how to Install Ansible Engine, see [Installing Ansible Engine](#).

#### Procedure

- Install RHEL System Roles for SAP:

```
# yum install rhel-system-roles-sap
```

### 5.3. SERVER CONFIGURATION WITH RHEL SYSTEM ROLES FOR SAP

The RHEL System Roles for SAP provide a quick, easy and consistent method for performing the configuration of your server according to applicable SAP notes for SAP HANA.

- To configure a local managed node, refer to the [Configuring a local managed node](#) section.

- To configure a remote managed node, refer to the [Configuring a remote managed node](#) section.

### 5.3.1. Configuring a local managed node

If the Ansible Engine is installed on the same host on which you want to install SAP HANA, perform the steps outlined in this procedure to configure your local managed node.

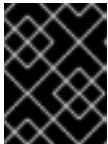
#### Prerequisites

- **root** access

#### Procedure

1. Create a file named **sap-hana.yml** with the following content:

```
---
- hosts: localhost
  vars:
    ansible_connection: local
    sap_preconfigure_fail_if_reboot_required: no
    sap_hana_preconfigure_fail_if_reboot_required: no
    sap_hana_preconfigure_update: yes
  roles:
    - role: sap-preconfigure
    - role: sap-hana-preconfigure
```



#### IMPORTANT

The indentation and the use of spaces instead of not tabs is essential for YAML files.

2. Run the **sap-hana.yml** ansible playbook:

```
# ansible-playbook sap-hana.yml
```

This will configure the local managed node according to the applicable SAP notes for SAP HANA.

3. Reboot the server.

#### Additional resources

- [RHEL System Roles for SAP](#)

### 5.3.2. Configuring a remote managed node

If you have a separate Ansible Engine Control Node, perform the steps outlined in this procedure to automatically configure one or more managed nodes.

#### Prerequisites

- Configured SSH connection to the managed hosts

For more information, see [Connection methods and details](#).

- **root** access

## Procedure

1. Create or modify the file `/etc/ansible/hosts` with new host names to be configured:

```
host01
host02
```

Replace **host01** and **host02** with the names of your managed nodes. Each managed node name must be on a separate line.

2. Create a file named **sap-hana.yml** with the following content:

```
- hosts: all
  vars:
    sap_preconfigure_fail_if_reboot_required: no
    sap_hana_preconfigure_fail_if_reboot_required: no
    sap_hana_preconfigure_update: yes
  roles:
    - role: sap-preconfigure
    - role: sap-hana-preconfigure
```



### IMPORTANT

The indentation and the use of spaces instead of tabs is essential for YAML files.

3. Run the **sap-hana.yml** ansible playbook:

```
# ansible-playbook -I host01,host02 sap-hana.yml
```

Replace *host01* and *host02* with the names of your managed nodes.

This will configure the remote *host01* and *host02* according to the applicable SAP notes for SAP HANA.

4. Reboot the servers *host01* and *host02*.

## Additional resources

- [RHEL System Roles for SAP](#)

## CHAPTER 6. NEXT STEPS

After configuring your RHEL 8 for SAP Solutions system(s), you can install SAP HANA. For more information on the installation process, see the [SAP HANA Server Installation and Update Guide](#).