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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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](https://bugzilla.redhat.com/) 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, see Performing a standard RHEL installation.

2. Select the language and click Continue.

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

4. Under SOFTWARE, click Software Selection.

5. In the Software Selection window, select Server as your Base Environment and click Done.

**NOTE**

Do not select any additional software.

6. Under SYSTEM, click Installation Destination.

7. In the Installation Destination window, select the storage configuration according to your needs and click Done.

**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.
8. Under SYSTEM, click Network & Host Name, and configure your network connection.

9. Click Begin Installation.

10. Configure USER SETTINGS:
    a. To set the root password, click Root Password.
    b. To set user, user name, and password, click User Creation.

11. 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:
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.
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:

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

2. Set the release lock:

   ```bash
   # 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:

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

2. Enable the following repositories:

   ```bash
   # 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:

```yaml
---
- 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 tabs is essential for YAML files.

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

```bash
# 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.
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:

   ```yaml
   - 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:

   ```bash
   # ansible-playbook -l 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.