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Abstract

Containerized Ansible Automation Platform Installation Guide
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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

If you have a suggestion to improve this documentation, or find an error, please contact technical support at https://access.redhat.com to create an issue on the Ansible Automation Platform Jira project using the docs-product component.
CHAPTER 1. ANSIBLE AUTOMATION PLATFORM CONTAINERIZED INSTALLATION

Ansible Automation Platform is a commercial offering that helps teams manage complex multi-tier deployments by adding control, knowledge, and delegation to Ansible-powered environments.

This guide helps you to understand the installation requirements and processes behind our new containerized version of Ansible Automation Platform. This initial version is based upon Ansible Automation Platform 2.4 and is being released as a Technical Preview. Please see Technology Preview Features Support Scope to understand what a technical preview entails.

Prerequisites

- A RHEL 9.2 based host. Minimal OS base install is recommended.
- A non-root user for the RHEL host, with sudo or other Ansible supported privilege escalation (sudo recommended). This user is responsible for the installation of containerized Ansible Automation Platform.
- It is recommended setting up an SSH public key authentication for the non-root user. For guidelines on setting up an SSH public key authentication for the non-root user, see How to configure SSH public key authentication for passwordless login.
- SSH keys are only required when installing on remote hosts. If doing a self contained local VM based installation, you can use ansible_connection: local as per the example which does not require SSH.
- Internet access from the RHEL host if using the default online installation method.

1.1. SYSTEM REQUIREMENTS

Your system must meet the following minimum system requirements to install and run Red Hat Containerized Ansible Automation Platform.

<table>
<thead>
<tr>
<th>Memory</th>
<th>16Gb RAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU</td>
<td>4 CPU</td>
</tr>
<tr>
<td>Disk space</td>
<td>40Gb</td>
</tr>
<tr>
<td>Disk IOPs</td>
<td>1500</td>
</tr>
</tbody>
</table>

1.2. PREPARING THE RHEL HOST FOR CONTAINERIZED INSTALLATION

Procedure

Containerized Ansible Automation Platform runs the component services as podman based containers on top of a RHEL host. The installer takes care of this once the underlying host has been prepared. Use the following instructions for this.
1. Log into your RHEL host as your non-root user.

2. Run `dnf repolist` to validate only the BaseOS and appstream repos are setup and enabled on the host:

   ```
   $ dnf repolist
   Updating Subscription Management repositories.
   repo id                                                    repo name
   rhel-9-for-x86_64-appstream-rpms                           Red Hat Enterprise Linux 9 for x86_64 - AppStream (RPMs)
   rhel-9-for-x86_64-baseos-rpms                              Red Hat Enterprise Linux 9 for x86_64 - BaseOS (RPMs)
   ```

3. Ensure that these repos and only these repos are available to the host OS. If you need to know how to do this use this guide: Chapter 10. Managing custom software repositories Red Hat Enterprise Linux

4. Ensure that the host has DNS configured and can resolve hostnames and IPs using a fully qualified domain name (FQDN). This is essential to ensure services can talk to one another.

**Using unbound DNS**

To configure unbound DNS refer to Chapter 2. Setting up an unbound DNS server Red Hat Enterprise Linux 9.

**Using BIND DNS**

To configure DNS using BIND refer to Chapter 1. Setting up and configuring a BIND DNS server Red Hat Enterprise Linux 9.

**Optional**

To have the installer automatically pick up and apply your Ansible Automation Platform subscription manifest license, use this guide to generate a manifest file which can be downloaded for the installer: Chapter 2. Obtaining a manifest file Red Hat Ansible Automation Platform 2.

### 1.3. INSTALLING ANSIBLE-CORE

**Procedure**

1. Install ansible-core and other tools:
   
   ```
   sudo dnf install -y ansible-core wget git rsync
   ```

2. Set a fully qualified hostname:

   ```
   sudo hostnamectl set-hostname your-FQDN-hostname
   ```

### 1.4. DOWNLOADING ANSIBLE AUTOMATION PLATFORM

**Procedure**
1. Download the latest installer tarball from access.redhat.com. This can be done directly within the RHEL host, which saves time.

2. If you have downloaded the tarball and optional manifest zip file onto your laptop, copy them onto your RHEL host.
   Decide where you would like the installer to reside on the filesystem. Installation related files will be created under this location and require at least 10Gb for the initial installation.

3. Unpack the installer tarball into your installation directory, and cd into the unpacked directory.
   a. online installer
      
      ```
      $ tar xfvz ansible-automation-platform-containerized-setup-2.4-1.tar.gz
      ```
   b. bundled installer
      
      ```
      $ tar xfvz ansible-automation-platform-containerized-setup-bundle-2.4-1-<arch name>.tar.gz
      ```

      Ansible collections will already be installed inside the directory called collections. You will have to set ANSIBLE_COLLECTIONS_PATH environment variable to the directory path to consume the ansible collections.

4. Set ANSIBLE_COLLECTIONS_PATH:

   ```
   $ export ANSIBLE_COLLECTIONS_PATH=/path/to/ansible-automation-platform-containerized-setup-2.4-1/collections
   ```

1.5. USING POSTINSTALL FEATURE OF CONTAINERIZED ANSIBLE AUTOMATION PLATFORM

Use the experimental postinstaller feature of containerized Ansible Automation Platform to define and load the configuration during the initial installation. This uses a configuration-as-code approach, where you simply define your configuration to be loaded as simple YAML files.

1. To use this optional feature, you need to uncomment the following vars in the inventory file:

   ```
   controller_postinstall=true
   ```

2. The default is false, so you need to enable this to activate the postinstaller. You need a Ansible Automation Platform license for this feature that must reside on the local filesystem so it can be automatically loaded:

   ```
   controller_license_file=/full_path_to/manifest_file.zip
   ```

3. You can pull your configuration-as-code from a Git based repository. To do this, set the following variables to dictate where you pull the content from and where to store it for upload to the Ansible Automation Platform controller:

   ```
   controller_postinstall_repo_url=https://your_cac_scm_repo
   controller_postinstall_dir=/full_path_to_where_you_want_the_pulled_content_to_reside
   ```

Definition files use the **infra certified collections**. The **controller_configuration** collection is preinstalled
as part of the installation and uses the installation controller credentials you supply in the inventory file for access into the Ansible Automation Platform controller. You simply need to give the YAML configuration files.

You can setup Ansible Automation Platform configuration attributes such as credentials, LDAP settings, users and teams, organizations, projects, inventories and hosts, job and workflow templates.

The following example shows a sample `your-config.yml` file defining and loading controller job templates. The example demonstrates a simple change to the preloaded demo example provided with an Ansible Automation Platform installation.

```
/full_path_to_your_configuration_as_code/
    controller
        job_templates.yml

controller_templates:
  - name: Demo Job Template
    execution_environment: Default execution environment
    instance_groups:
      - default
    inventory: Demo Inventory
```

1.6. INSTALLING CONTAINERIZED ANSIBLE AUTOMATION PLATFORM

Installation of Ansible Automation Platform is controlled with inventory files. Inventory files define the hosts and containers used and created, variables for components, and other information needed to customize the installation.

For convenience an example inventory file is provided, that you can copy and modify to quickly get started.

**NOTE**

There is no default database choice given in the inventory file. You must follow the instructions in the inventory file to make the appropriate choice between an internally provided postgres, or provide your own externally managed and supported database option.

- Edit the inventory file by replacing the `< >` placeholders with your specific variables, and uncommenting any lines specific to your needs.

```
# This is the AAP installer inventory file
# Please consult the docs if you’re unsure what to add
# For all optional variables please consult the included README.md

# This section is for your AAP Controller host(s)
# If one of these components is not being installed, comment out the <fqdn> line.
# -------------------------------------------------
[automationcontroller]
fqdn_of_your_rhel_host ansible_connection=local

# This section is for your AAP Automation Hub host(s)
# -----------------------------------------------------
[automationhub]
```
fqdn_of_your_rhel_host ansible_connection=local

# This section is for your AAPEDA Controller host(s)
# ----------------------------------------------
[automationeda]
fqdn_of_your_rhel_host ansible_connection=local

# This section is for the AAP database(s)
# ---------------------------------------
# Uncomment the lines below and amend appropriately if you want AAP to install and manage the
# postgres databases
# Leave commented out if you intend to use your own external database and just set appropriate
# _pg_hosts vars
# see mandatory sections under each AAP component
# [database]
# fqdn_of_your_rhel_host ansible_connection=local

[all:vars]

# Common variables needed for installation
# ----------------------------------------
postgresql_admin_username=postgres
postgresql_admin_password=<set your own>
# If using the online (non-bundled) installer, you need to set RHN registry credentials
registry_username=<your RHN username>
registry_password=<your RHN password>
# If using the bundled installer, you need to alter defaults by using:
#bundle_install=true
#bundle_dir=/path/to/ansible-automation-platform-containerized-setup-bundle-2.4-1-<arch
name>/bundle>

# AAP Controller - mandatory
# -------------------------
controller_admin_password=<set your own>
controller_pg_host=fqdn_of_your_rhel_host
controller_pg_password=<set your own>

# AAP Controller - optional
# ------------------------
# To use the postinstall feature you need to set these variables
#controller_postinstall=true
#controller_license_file=<full path to your manifest .zip file>
#controller_postinstall_dir=<full path to your config-as-code directory>
#controller_postinstall_repo_url=<git based config-as-code source URL>

# AAP Automation Hub - mandatory
# ------------------------------
hub_admin_password=<set your own>
hub_pg_host=fqdn_of_your_rhel_host
hub_pg_password=<set your own>

# AAP Automation Hub - optional
# -----------------------------

# AAP EDA Controller - mandatory
# -------------------------------
Use the following command to install containerized Ansible Automation Platform:

```bash
ansible-playbook -i inventory ansible.containerized_installer.install
```

**NOTE**
If your privilege escalation requires a password to be entered, append `-K` to the command line. You will then be prompted for the **BECOME** password.

You can use increasing verbosity, up to 4 v’s (`-vvvv`) to see the details of the installation process.

**NOTE**
This can significantly increase installation time, so it is recommended that you use it only as needed or requested by Red Hat support.

### 1.7. ACCESSING AUTOMATION CONTROLLER, AUTOMATION HUB, AND EVENT-DRIVEN ANSIBLE CONTROLLER

After the installation completes, these are the default protocol and ports used:

- https protocol
- Port 443 for automation controller
- Port 444 for automation hub
- Port 445 for Event-Driven Ansible controller

These can be changed. Consult the **README.md** for further details. It is recommended that you leave the defaults unless you need to change them due to port conflicts or other factors.

**NOTE**
Port 445 has been known to be blocked by some ISPs. If port 445 is blocked, refer to the **README.md** file for more information on changing port values.

**Accessing automation controller UI**

The automation controller UI is available by default at:

```text
https://<your_rhel_host>:443
```

Log in as the admin user with the password you created for `controller_admin_password`

If you supplied the license manifest as part of the installation, the Ansible Automation Platform
dashboard is displayed. If you did not supply a license file, the Subscription screen is displayed where you must supply your license details. This is documented here: Chapter 1. Activating Red Hat Ansible Automation Platform.

Accessing automation hub UI

The automation hub UI is available by default at:

```
https://<hub node>:444
```

Log in as the admin user with the password you created for `hub_admin_password`.

Accessing Event-Driven Ansible UI

The Event-Driven Ansible UI is available by default at:

```
https://<eda node>:445
```

Log in as the admin user with the password you created for `eda_admin_password`.

1.8. UNINSTALLING CONTAINERIZED ANSIBLE AUTOMATION PLATFORM

To uninstall a containerized deployment, execute the `uninstall.yml` playbook.

```
$ ansible-playbook -i inventory ansible.containerized_installer.uninstall
```

This will stop all systemd units and containers and then delete all resources used by the containerized installer such as:

- config and data directories/files
- systemd unit files
- podman containers and images
- RPM packages

To keep container images, you can set the `container_keep_images` variable to true.

```
$ ansible-playbook -i inventory ansible.containerized_installer.uninstall -e container_keep_images=true
```