# Red Hat Ansible Automation Platform 2.1

## Deploying a high availability automation hub

Overview of the requirements and procedures for a high availability deployment of automation hub.

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## Abstract

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# Table of Contents

# PREFACE

This guide provides an overview of the requirements and procedures for a high availability deployment of your automation hub.

A high availability (HA) configuration increases reliability and scalablility for automation hub deployments.

HA deployments of automation hub have multiple nodes that concurrently run the same service with a load balancer distributing workload (an "active-active" configuration). This configuration eliminates single points of failure to minimize service downtime and allows you to easily add or remove nodes to meet workload demands.

This guide covers deployment of a HA automation hub application stack only. Other HA components, such as database and file system HA, or setting up DNS load balancing, are out of scope for this guide.

# 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.

# CHAPTER 1. REQUIREMENTS FOR A HIGH AVAILABILITY AUTOMATION HUB

Before deploying a high availability (HA) automation hub, ensure that you have a shared filesystem installed in your environment and that you have configured your network storage system, if applicable.

## 1.1. REQUIRED SHARED FILESYSTEM

A high availability automation hub requires you to have a shared file system, such as NFS, already installed in your environment. Before you run the Red Hat Ansible Automation Platform installer, verify that the **/var/lib/pulp** directory exists across your cluster as a result of your shared file system installation. The Red Hat Ansible Automation Platform installer will return an error if **/var/lib/pulp** is not detected in one of your nodes, causing your HA automation hub setup to fail.

## 1.2. NETWORK STORAGE INSTALLATION REQUIREMENTS

If you intend to install a HA automation hub using a network storage on the automation hub nodes itself, you must first install and use **firewalld** to open the necessary ports as required by your shared storage system before running the Ansible Automation Platform installer.

Install and configure **firewalld** by executing the following commands:

1. Install the **firewalld** daemon:

```
$ dnf install firewalld
```

2. Add your network storage under <service> using the following command:

```
$ firewall-cmd --permanent --add-service=<service>
```

NOTE

For a list of supported services, use the **$ firewall-cmd --get-services** command

3. Reload to apply the configuration:

```
$ firewall-cmd --reload
```

# CHAPTER 2. INSTALLING A HIGH AVAILABILITY AUTOMATION HUB

Configure the Ansible Automation Platform installer to install automation hub in a highly availble (HA) configuration. Install HA automation hub on SELinux by creating mount points and adding the appropriate SELinux contexts to your Ansible Automation Platform environment.

## 2.1. HIGHLY AVAILABLE AUTOMATION HUB INSTALLATION

Install a highly available automation hub by making the following changes to the **inventory** file in the Ansible Automation Platform installer, then running the **./setup.sh** script:

#### Specify database host IP

Specify the IP address for your database host, using the **automation_pg_host** and **automation_pg_port fields**. For example:

```
automationhub_pg_host='192.0.2.10'
automationhub_pg_port='5432'
```

also specify the IP address for your database host in the [database] section, using the value in the **automationhub_pg_port** field:

```
[database]
192.0.2.10
```

#### List all instances in a clustered setup

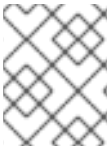
If installing a clustered setup, replace **localhost ansible_connection=local** in the [automationhub] section with the hostname or IP of all instances. For example:

```
[automationhub]
automationhub1.testing.ansible.com ansible_user=cloud-user ansible_host=192.0.2.18
automationhub2.testing.ansible.com ansible_user=cloud-user ansible_host=192.0.2.20
automationhub3.testing.ansible.com ansible_user=cloud-user ansible_host=192.0.2.22
```

#### Red Hat Single Sign-On requirements

If you are implementing Red Hat Single Sign-On on your automation hub environment, specify the main automation hub URL that clients will connect to, using the **automationhub_main_url** field. For example:

```
automationhub_main_url = 'https://automationhub.ansible.com'
```



NOTE

If **automationhub_main_url** is not specified, the first node in the [automationhub] group will be used as default.

## 2.2. INSTALL A HIGH AVAILABILITY (HA) DEPLOYMENT OF AUTOMATION HUB ON SELINUX

To set up a high availability (HA) deployment of automation hub on SELinux, create two mount points for **/var/lib/pulp** and **/var/lib/pulp/pulpcore_static**, then assign the appropriate SELinux contexts to each. You must add the context for **/var/lib/pulp/pulpcore_static** and run the Ansible Automation Platform installer before adding the context for **/var/lib/pulp**.

### Prerequisites

- You have already configured a NFS export on your server.

### Pre-installation procedure

1. Create a mount point at **/var/lib/pulp**:

```
$ mkdir /var/lib/pulp/
```

2. Open **/etc/fstab** using a text editor, then add the following values:

```
srv_rhel8:/data /var/lib/pulp nfs defaults,_netdev,nosharecache 0 0
srv_rhel8:/data/pulpcore_static /var/lib/pulp/pulpcore_static nfs
defaults,_netdev,nosharecache,context="system_u:object_r:httpd_sys_content_rw_t:s0" 0 0
```

3. Run the mount command for **/var/lib/pulp**:

```
$ mount /var/lib/pulp
```

4. Create a mount point at **/var/lib/pulp/pulpcore_static**:

```
$ mkdir /var/lib/pulp/pulpcore_static
```

5. Run the mount command:

```
$ mount -a
```

6. With the mount points set up, run the Ansible Automation Platform installer:

```
$ setup.sh -- -b --become-user root
```

Once the installation is complete, unmount the **/var/lib/pulp/** mount point then apply the appropriate SELinux context:

### Post-installation procedure

1. Shut down the Pulp service:

```
$ systemctl stop pulpcore.service
```

2. Unmount **/var/lib/pulp/pulpcore_static**:

```
$ umount /var/lib/pulp/pulpcore_static
```

3. Unmount **/var/lib/pulp/**:

```
$ umount /var/lib/pulp/
```

4. Open /**etc**/**fstab** using a text editor, then replace the existing value for /**var**/**lib**/**pulp** with the following:

```
srv_rhel8:/data /var/lib/pulp nfs
defaults,_netdev,nosharecache,context="system_u:object_r:pulpcore_var_lib_t:s0" 0 0
```

5. Run the mount command:

```
$ mount -a
```

**Configure pulpcore.service:**

1. With the two mount points set up, shut down the Pulp service to configure **pulpcore.service**:

```
$ systemctl stop pulpcore.service
```

2. Edit **pulpcore.service** using **systemctl**:

```
$ systemctl edit pulpcore.service
```

3. Add the following entry to **pulpcore.service** to ensure that automation hub services starts only after starting the network and mounting the remote mount points:

```
[Unit]
After=network.target var-lib-pulp.mount
```

4. Enable **remote-fs.target**:

```
$ systemctl enable remote-fs.target
```

5. Reboot the system:

```
$ systemctl reboot
```

**Troubleshooting**

A bug in the pulpcore SELinux policies can cause the token authentication public/private keys in **etc**/**pulp**/**certs**/ to not have the proper SELinux labels, causing the pulp process to fail. When this occurs, run the following command to temporarily attach the proper labels:

```
$ chcon system_u:object_r:pulpcore_etc_t:s0 /etc/pulp/certs/token_{private,public}_key.pem
```

NOTE

You must repeat this command to reattach the proper SELinux labels whenever you relabel your system.

**Additional Resources**

- See the SELinux Requirements on the Pulp Project documentation for a list of SELinux contexts.