Red Hat
Training and
Certification

# DO467

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Version 1.0

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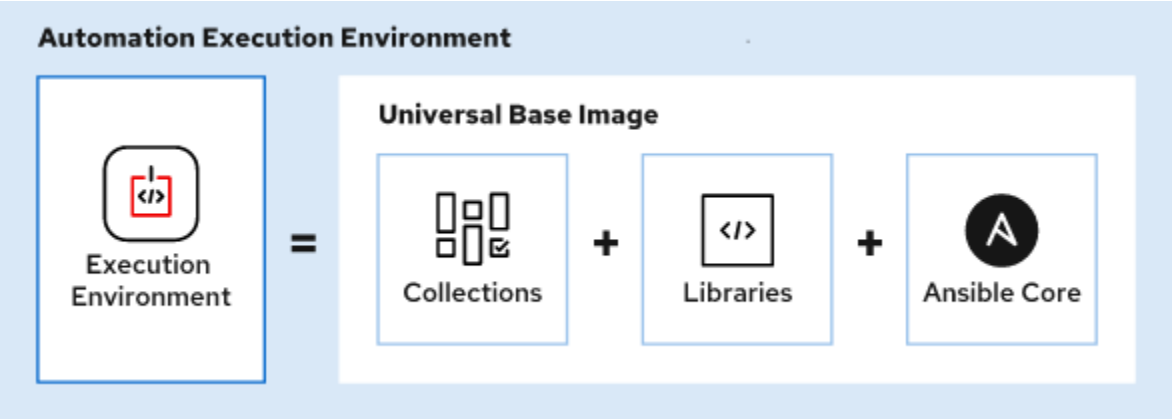



*Figure 1. Ansible Execution Environment*

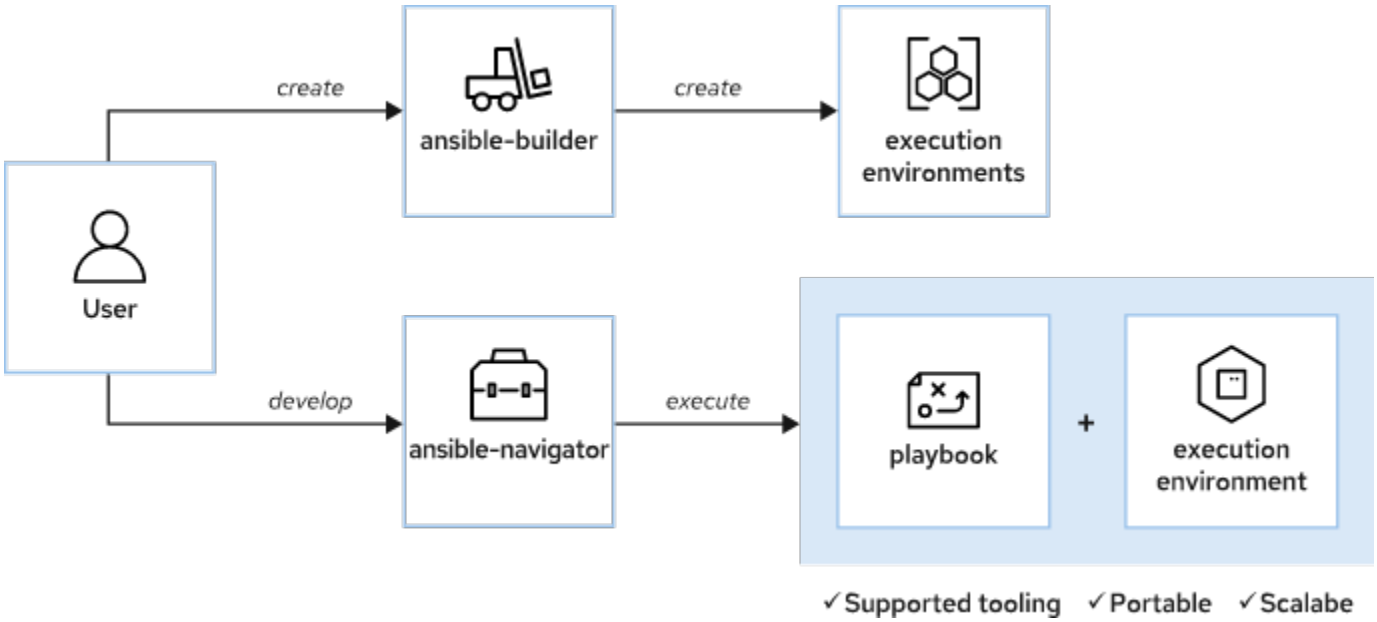
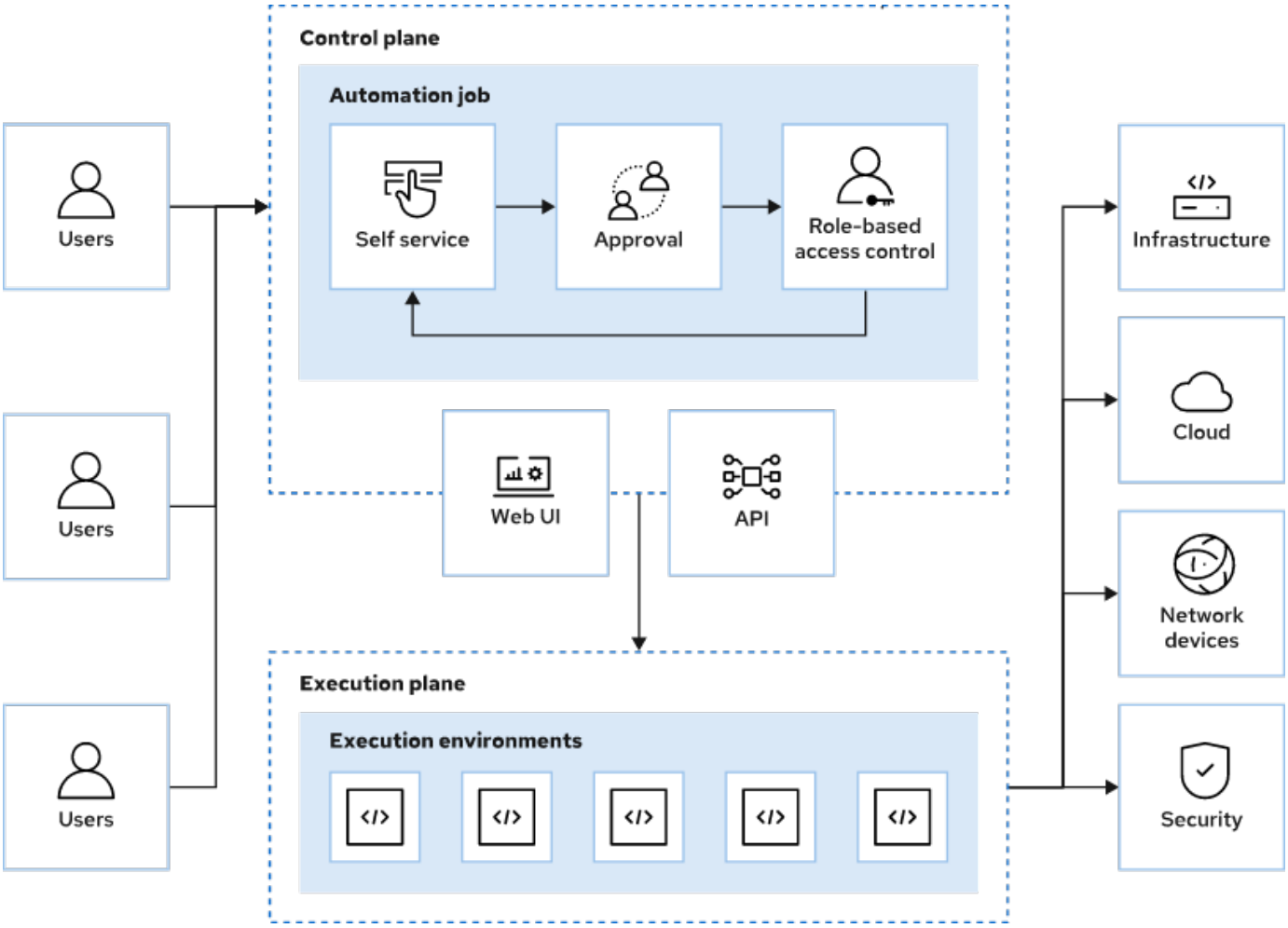



*Figure 2. Creating an Ansible Execution Environment*

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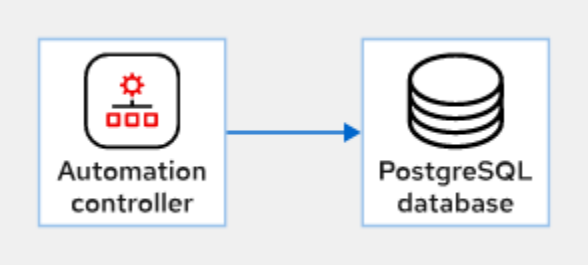


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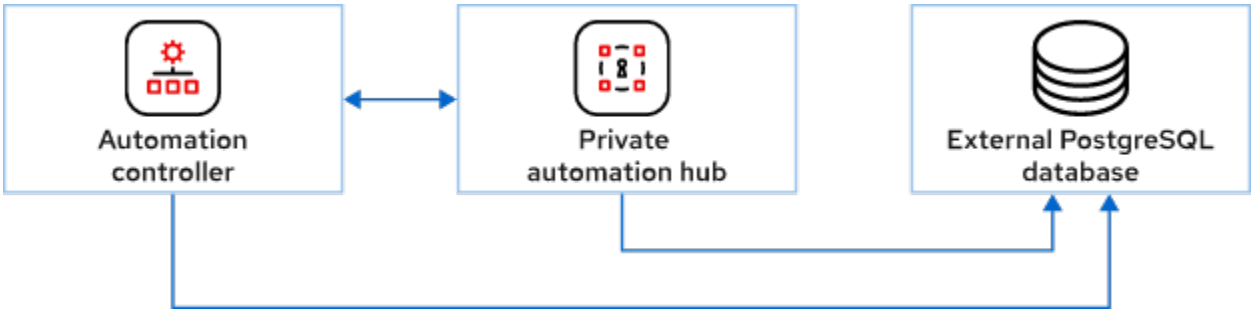


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Automation Controller and Private Automation Hub can both be installed from the **same** machine provided that they are both specified in the inventory file and that the installation user and installation machine has access to all systems specified in the **inventory** file and that the user has the ability to SSH/SUDO without passwords.

*Automation Hub and Controller Placement*

Ansible Controller and Ansible Private Automation Hub must be installed on separate systems and cannot be installed on the same system.

*Example 1.* **DEMO: Installing Automation Hub and Controller**

1. Obtain the bundled installer and untar the file

```
[student@workstation ~]$ tar xvf ansible-automation-platform-setup-bundle-2.2.0-
6.1.tar.gz

[student@workstation ~]$ mv ansible-automation-platform-setup-bundle-2.2.0-6.1
AAP2

[student@workstation ~]$ cd AAP2/
```

2. Update the inventory file with the system FQDNs or IP Addresses

*Listing 1. Update the Inventory File*

```
[student@workstation AAP2]$ vim inventory
```

```
[automationcontroller] ①
controller.lab.example.com


[execution_nodes]

[automationhub] ②
hub.lab.example.com

[automationcatalog]

[database] ③
db.lab.example.com


[all:vars]
admin_password='redhat' ④

pg_host='db.lab.example.com' ⑤
pg_port=5432 ⑥

pg_database='awx'
pg_username='awx'
pg_password='redhat' ⑦


registry_url='hub.lab.example.com' ⑧
```

```
registry_username='admin' ⑨
registry_password='redhat' ⑩



# Automation Hub Configuration ⑪
#

automationhub_admin_password='redhat'

automationhub_pg_host='db.lab.example.com'
automationhub_pg_port=5432

automationhub_pg_database='automationhub'
automationhub_pg_username='automationhub'
automationhub_pg_password='redhat'
automationhub_pg_sslmode='prefer'

# SSL Settings ⑫

custom_ca_cert=/home/student/certs/classroom-ca.pem
web_server_ssl_cert=/home/student/certs/controller.lab.example.com.crt
web_server_ssl_key=/home/student/certs/controller.lab.example.com.key
automationhub_ssl_cert=/home/student/certs/hub.lab.example.com.crt
automationhub_ssl_key=/home/student/certs/hub.lab.example.com.key
postgres_use_ssl=True
postgres_ssl_cert=/home/student/certs/db.lab.example.com.crt
postgres_ssl_key=/home/student/certs/db.lab.example.com.key
```

① Specify the Controller Node

② Specify the Private Automation Hub Node

③ Specify the Database Node

④ Specify the **admin** password for Controller

⑤ Specify the Database FQDN

⑥ Specify the Database Port

⑦ Specify the Database Password

⑧ URL and Registry for Container Images/Execution Environments

⑨ Username for Registry

⑩ Password for Registry

⑪ Ansible Automation Hub Configuration Settings

⑫ SSL Settings

*Database*

If you are running the database locally and not as a separate installation, you can leave the database section blank and the **pg_host** and **pg_port** blank. This will cause the installer to setup the database locally with the deployed AAP application.

*Registry*

Setting the registry for **hub.example.com** will allow the installer to link and configure Ansible Automation Hub to Ansible Controller. It will also ensure that the execution environments container in the bundled installer will be loaded properly into Ansible Automation Hub.

*SSL*

The classroom and lab environment has been configured to run with SSL enabled. In order for the certificates to work properly, the SSL certificates have been supplied in the **/home/student/certs** directory. These certificates must be specified in the **inventory** file. In the default inventory file, the certificates and SSL settings are generally commented out, so it is possible to just place the certificate information at the bottom of the inventory file to prevent searching for each line.

*Listing 2. Default SSL Certificate*

```
# SSL-related variables

# If set, this will install a custom CA certificate to the system
trust store.
# custom_ca_cert=/home/student/certs/classroom-ca.pem

# Certificate and key to install in nginx for the web UI and API
# web_server_ssl_cert=/path/to/tower.cert
# web_server_ssl_key=/path/to/tower.key
```

3. View final inventory file

```
[student@workstation AAP2]$ grep -Ev "^#|^$" inventory
[automationcontroller]
controller.lab.example.com
[automationcontroller:vars]
peers=execution_nodes
[execution_nodes]
[automationhub]
hub.lab.example.com
[automationcatalog]
[database]
db.lab.example.com
[sso]
[all:vars]
admin_password='redhat'
pg_host='db.lab.example.com'
pg_port=5432
pg_database='awx'
pg_username='awx'
pg_password='redhat'
pg_sslmode='prefer'  # set to 'verify-full' for client-side enforced SSL
registry_url='hub.lab.example.com'
registry_username='admin'
registry_password='redhat'
receptor_listener_port=27199
automationhub_admin_password='redhat'
automationhub_pg_host='db.lab.example.com'
automationhub_pg_port=5432
automationhub_pg_database='automationhub'
automationhub_pg_username='automationhub'
automationhub_pg_password='redhat'
automationhub_pg_sslmode='prefer'
automationcatalog_pg_host=''
automationcatalog_pg_port=5432
automationcatalog_pg_database='automationservicescatalog'
automationcatalog_pg_username='automationservicescatalog'
automationcatalog_pg_password=''
sso_keystore_password=''
sso_console_admin_password=''
custom_ca_cert=/home/student/certs/classroom-ca.pem
web_server_ssl_cert=/home/student/certs/controller.lab.example.com.crt
web_server_ssl_key=/home/student/certs/controller.lab.example.com.key
automationhub_ssl_cert=/home/student/certs/hub.lab.example.com.crt
automationhub_ssl_key=/home/student/certs/hub.lab.example.com.key
postgres_use_ssl=True
postgres_ssl_cert=/home/student/certs/db.lab.example.com.crt
postgres_ssl_key=/home/student/certs/db.lab.example.com.key
```

*Using* **grep** *to remove comments and blank lines*

*Listing 3. Source Description*

```
grep -Ev "^#|^$" <FILENAME>
```

4. Run the installation **setup.sh** script as the root user with **ignore_preflight_errors=true** as the systems in this course don't meet the minimum hardware requirements.

```
[student@workstation AAP2]$ sudo -i
[sudo] password for student:

[root@workstation ~]# cd ~student/AAP2/

[root@workstation AAP2]# ./setup.sh -e ignore_preflight_errors=true
```

*Bundled Software Installer*

It is important to at least save the bundled software installer archive **TGZ** file or to save the entire bundled installation directory. In addition, you will also want to save the **Inventory** file that was created so that adding additional components later, performing system backups/restores, and other administrative and maintenance tasks can be performed easily.

5. Install the licenses for Controller by providing the **manifest.zip** file to controller in the WebUI.

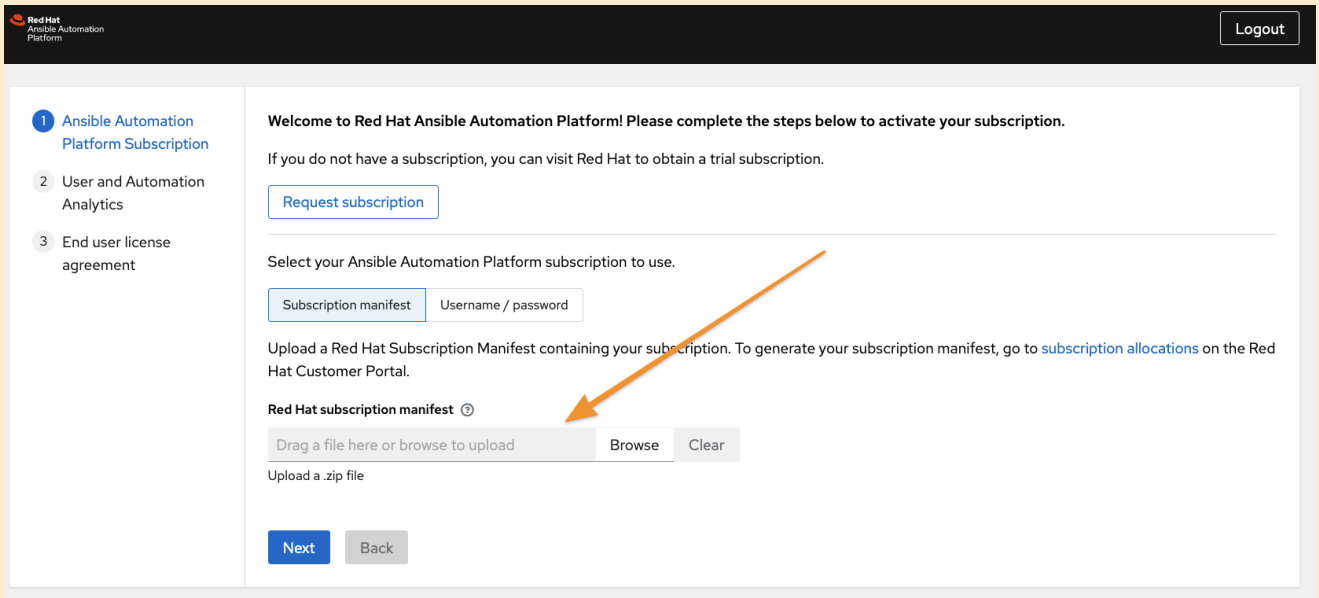


*Figure 6. Ansible Controller License*

1. Verify **Automation Hub** is installed

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## 1.3.5. DEMO: Initial Configuration of Automation Controller and Private Automation Hub

*Example 2.* **DEMO: Initial Configuration of Automation Controller and Private Automation Hub**

*Working with Execution Environments*

Manually uploading and adding container images (EEs) to Ansible Private Automation Hub.

1. Login to Registries to both Push/Pull and Copy container images

```
[student@workstation Add_EEs]$ skopeo login hub.lab.example.com
```

2. Inspect available containers and tags

```
[student@workstation Add_EEs]$ skopeo inspect docker://hub.lab.example.com/ee-29-
rhel8
```

*Grabbing Tags and Release Information from the CLI*

*Listing 4.* **skopeo inspect** *to get release and* **skopeo tags** *to get tags*

```
[student@workstation Add_EEs]$ skopeo inspect
docker://hub.lab.example.com/ee-29-rhel8 --format "{{
.Labels.version }}-{{ .Labels.release }}"
1.0.0-119

[student@workstation Add_EEs]$ skopeo list-tags
docker://hub.lab.example.com/ee-29-rhel8
```

It is also possible to use **podman** to search and list tags, but that is generally considered less reliable. It should also be noted that only **skopeo** has the ability to inspect and act with images remotely. As such, this course will leverage **skopeo** over Podman for many of the exercises.

*Listing 5.* **podman** *Tag Listing*

```
[student@workstation Add_EEs]$ podman search --list-tags
docker://hub.lab.example.com/ee-29-rhel8
```

*The* **skopeo** *Command*

Skopeo is another command that can be used with containers and was introduced as part of the **container-tools** suite with RHEL8. The **container-tools** suite installs the RHEL 8 toolchain to work with containers which includes: **podman**, **buildah**, and **skopeo**.

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#### 11.3.2.2. Configure a Job Template to Use Instance Groups

#### 11.3.2.3. Running a Job Template with Instance Groups

### 11.3.3. Testing the Resilience of Automation Mesh

#### 11.3.3.1. Testing Control Plane Resilience

#### 11.3.3.2. Testing Execution Plane Resilience

### 11.3.4. Monitoring Automation Mesh from the Web UI

### 11.3.5. Monitoring Automation Mesh from the Command Line

#### 11.3.5.1. Listing Nodes and Instance Groups

#### 11.3.5.2. Monitoring Automation Mesh Using the receptorctl Command

# Appendix A: References and Additional Information

*Ansible Docs/Tips and Tricks*

- **Installing Software and other Packages**: https://ansible-tips-and-tricks.readthedocs.io/en/latest/os-dependent-tasks/installing_packages/
- **Ansible Tips and Tricks (Examples)**: https://github.com/nfaction/ansible-tips-and-tricks/wiki
- **Ansible Product Demos**: https://github.com/ansible/product-demos
- **Ansible Workshops**: https://github.com/ansible/workshops/tree/devel/provisioner
- **Red Hat CoP - Automation Good Practices**:
  - https://redhat-cop.github.io/automation-good-practices/
  - https://github.com/redhat-cop/automation-good-practices/
- **Ansible Controller Collection**: https://console.redhat.com/ansible/automation-hub/repo/published/ansible/controller/docs?keywords=

*Ansible KB Articles and Solutions*

- **How Do I Perform Security Patching / OS Package Upgrades On Ansible Tower/Automation Controller Nodes Without Breaking Any Ansible Tower/Automation Controller Functionality ?**: https://access.redhat.com/solutions/4566711

*Ansible Filters and Collections*

- **Using filters to manipulate data (Jinja2 Templating)**: https://docs.ansible.com/ansible/latest/user_guide/playbooks_filters.html
- **Community General**: https://docs.ansible.com/ansible/latest/collections/community/general/index.html

*Ansible Blogs and Articles*

- **When localhost isn't what it seems in Red Hat Ansible Automation Platform 2**: https://www.ansible.com/blog/when-localhost-isnt-what-it-seems-in-red-hat-ansible-automation-platform-2

*Ansible Execution Environments*

- **Execution Environments**: https://docs.ansible.com/automation-controller/4.2.0/html/userguide/execution_environments.html#ee-mount-options