

Getting started with ansible-builder

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Introducing ansible-builder

- Execution environments, what are they?
- What do the execution environments contain?
- How do I create an execution environment?
- How do I customize my execution environment?



What is an execution environment anyways?





What are in those containers?

- Based on the RHEL 8 UBI (Universal Base Image)
- Ansible
- Ansible Runner
- Ansible Collections
- Python and/or system dependencies of:
 - modules/plugins in collections
 - content in ansible-base
 - custom user needs



Where did we come from?

Python Virtual environments

- Tedious to setup and not portable
- Had to be created on each Tower node if you are using more than one
- Some commands run inside the virtual environment some run outside

bubblewrap

 Issues with running with privileged escalation on OpenShift type deployments.



Installing ansible-builder



- At this time it can be installed fom PyPi or from source
 - With RHEL 8 you will need to install python3
 - *# yum module install python38
 - `\$ pip3 install ansible-builder`
- ansible-builder uses podman by default, you can use docker with the following flag when building the environments
 - `ansible-builder build --container-runtime docker`



What's next? How do I build my environment?

Definition File Contents

- Named execution-environment.yml
- Collection-level dependencies
- Base image source

requirements.yml

collections:

- name: awx.awx

Example execution-environment.yml

version: 1

dependencies:

galaxy: requirements.yml

additional_build_steps:

prepend: |

RUN whoami

RUN cat /etc/os-release

append:

- RUN echo This is a post-install command!
- RUN Is -la /etc



Running and testing the build

```
[root@agilley ~]# ansible-builder build --tag=awx-example
Running command:
   podman build -f context/Containerfile -t awx-example context
Running command:
   podman run --rm -v
/usr/local/lib/python3.8/site-packages/ansible_builder:/ansible_builder_mount:Z awx-example
   python3 /ansible_builder_mount/introspect.py
Running command:
   podman build -f context/Containerfile -t awx-example context
Complete! The build context can be found at: /root/context
```



```
[root@agilley ~]# ansible-runner playbook --container-image=awx-example test.yml
[WARNING]: You are running the development version of Ansible. You should only
run Ansible from "devel" if you are modifying the Ansible engine, or trying out
features under development. This is a rapidly changing source of code and can
become unstable at any point.
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run Ansible from "devel" if you are modifying the Ansible engine, or trying out
features under development. This is a rapidly changing source of code and can
become unstable at any point.
[WARNING]: No inventory was parsed, only implicit localhost is available
[WARNING]: provided hosts list is empty, only localhost is available. Note that
the implicit localhost does not match 'all'
ok: [localhost] => {
ok: [localhost] => {
     "Gateway: 10 88 0 1".
```

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Distributing execution environments

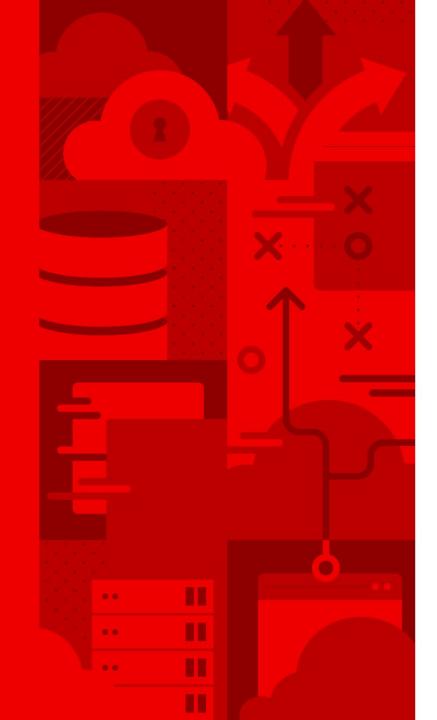
- Execution environment build contexts and the containers themselves can be shared on public or private registries such as quay.io
- This allows workflows that can automate the build/usage of execution environments.
- https://redhat.com/en/technologies/cloud-computing/quay



Caveats

- At the time of this presentation/demonstration these features are still upstream and not yet a part
 of Red Hat repositories and channels.
- Ansible-runner is at version 2.0.0-alpha2 for the execution environments to work and the current supported version is 1.4.7.
- The ansible-builder package is also upstream from PyPi





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