

#**ANSIBLE**FEST2019

Ansible and Buildah can create your container images

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ANSIBLE

/who Tomáš Tomeček

- Principal Software Engineer @ Red Hat
- Team lead
- RHEL, Fedora, Containers, Automation and Integration
- I ❤️ free & open source software
- Ansible manages all my laptops, servers and container images

What's Ansible?

What's Ansible?

- Oh, wait. This is AnsibleFest.

What's Buildah?

- A tool to build container images.



buildah

Buildah

- Can build container images from dockerfiles.

```
$ buildah bud .  
STEP 1: FROM busybox  
STEP 2: RUN ls  
total 16K  
bin dev etc home proc root sys tmp usr var  
STEP 3: COPY ./README.md /  
STEP 4: CMD /entrypoint.sh
```

Buildah (cont'd)

- Or you can script the build process yourself.

```
# buildah from fedora:30  
fedora-working-container
```

```
# export CONTAINER_FS=$(buildah mount)  
# cp $FILES $CONTAINER_FS/my-path/
```

```
# buildah run fedora-working-container dnf install httpd
```

Buildah (cont'd)

- Or from scratch.

```
# buildah from scratch
```

```
# export CONTAINER_FS=$(buildah mount)
```

```
# ls -lha $CONTAINER_FS
```

```
total 0
```

```
drwx-----. 2 root root  6 Sep 16 09:08 .
```

```
drwx-----. 6 root root 69 Sep 16 09:08 ..
```

```
# dnf install --installroot=$CONTAINER_FS systemd bash
```




playbook

+

=

your app

base image



Why should you care?

- Ansible can take care of your container images, not just infra.
- Using Ansible to define an image instead of a bash script.
- You can recycle your playbooks and roles.
- Ansible playbooks are YAML.
- Build the way you want.

How Ansible and Buildah work together?

- Ansible connection plugins.

```
$ ansible-playbook -vvvvvv -c buildah ...
TASK [Gathering Facts] *****
<buildah-container> RUN [b'buildah', b'mount', b'--',
b'buildah-container']
MOUNTPOINT b'/var/lib/cont.../89e0b96a0fa4651a87e7931...
<buildah-container> RUN [b'buildah', b'run', b'--',
b'buildah-container', ...
```

Let's give it a shot

```
$ buildah pull $BASE_IMAGE

$ buildah from --name $CONT_NAME $BASE_IMAGE

$ printf "$CONT_NAME \
    ansible_connection=buildah \
    ansible_python_interpreter=/usr/bin/python3" >inventory-container

$ ansible-playbook -i inventory-container -c buildah ./recipe.yaml

$ buildah commit --cmd '/entrypoint.sh' $CONT_NAME my-fancy-image
$ buildah rm $(CONT_NAME)
```

Someone could automate that

ansible-bender

- github.com/ansible-community/ansible-bender
- Bends containers. And it's shiny.

ansible-bender (cont'd)

- Ansible playbooks define the container image content.
- Image metadata as Ansible vars.
- Builds as first-class citizens.
- Can move images to registry, file, dockerd...
- Configurable layering and caching.

Future plans

- Add support for podman and docker.
- Builds from scratch.
- Add gating system - Zuul.
- Contributors!


```
- name: Demonstration of ansible-bender's functionality
hosts: all
vars:
  ansible_bender:
    base_image: python:3-alpine
    working_container:
      volumes: ['{{ playbook_dir }}:/src:Z']
    target_image:
      name: my-image
      labels:
        built-by: '{{ ansible_user }}'
      environment:
        VARIABLE: value
tasks:
- command: 'ls -lha /src'
- stat:
    path: "{{ lookup('env', 'FILE_TO_PROCESS') }}"
```

```
$ ansible-bender build playbook.yaml
PLAY [Demonstration of ansible-bender's functionality] *****
TASK [Gathering Facts] *****
ok: [my-image-20190916-121252774136-cont]
TASK [Run a sample command] *****
changed: [my-image-20190916-121252774136-cont]
TASK [Stat a file] *****
ok: [my-image-20190916-121252774136-cont]
```

```
PLAY RECAP *****
my-image-20190916-121252774136-cont : ok=3      changed=1
unreachable=0      failed=0
```

Getting image source signatures

Copying blob sha256:1bfeebd...

Copying config sha256:f3608dfe38bcd1e1d...

Image 'my-image' was built successfully \o/

CONTENT SLIDE

First things first!

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Section Break

Contact

- github.com/TomasTomecek/speaks
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