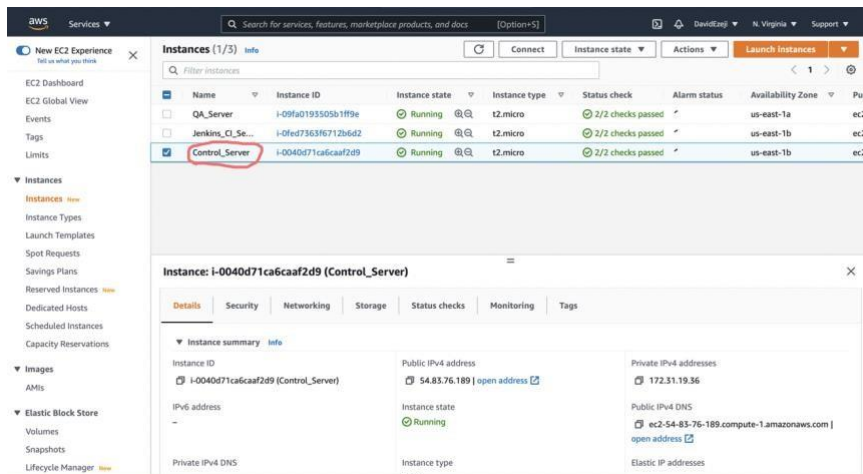


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11/10/2019

## Ansible Project

Overview: Used Ansible to automate the configuration and deployment steps of a web application.

1. Created 3 EC2 instances and one of them serves as the control node (node from which the YAML file will be deployed to other nodes)



2. Installed Python and Ansible onto my Jenkins instance

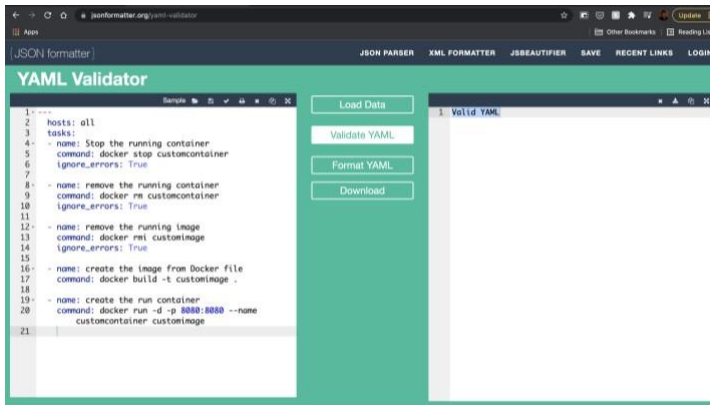
```
Amazon Linux 2 AMI

https://aws.amazon.com/amazon-linux-2/
3 package(s) needed for security, out of 15 available
Run "sudo yum update" to apply all updates.
[ec2-user@ip-172-31-19-36 ~]$ sudo su -
[root@ip-172-31-19-36 ~]# yum install python
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
package python-2.7.18-1.amzn2.0.4.x86_64 already installed and latest version
Nothing to do
[root@ip-172-31-19-36 ~]# yum install ansible
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
No package ansible available.
Error: Nothing to do

ansible is available in Amazon Linux Extra topic "ansible2"
To use, run
# sudo amazon-linux-extras install ansible2
Learn more at
https://aws.amazon.com/amazon-linux-2/faqs/#Amazon_Linux_Extras

[root@ip-172-31-19-36 ~]# amazon-linux-extras install ansible2
Installing ansible
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
Cleaning repos: amzn2-core amzn2extra-ansible2 amzn2extra-docker
12 metadata files removed
4 sqlite files removed
0 metadata files removed
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
amzn2-core | 3.7 kB 00:00:00
```

3. Created an Ansible playbook script that can automate a Docker deployment



4. Created an “hosts” file and a “firstplaybook.yml” file (this yaml file contains the playbook script)

```

ec2-user@ip-172-31-27-148:~$ cat firstplaybook.yml
---
- hosts: all
  tasks:
    - name: Stop the running container
      command: docker stop customcontainer
      ignore_errors: True
    - name: remove the running container
      command: docker rm customcontainer
      ignore_errors: True
    - name: remove the running image
      command: docker rmi customimage
      ignore_errors: True
    - name: create the image from Docker file
      command: docker build -t customimage .
    - name: create the run container
      command: docker run -d -p 8080:8080 --name customcontainer customimage

```

```

localhost:~$ cat hosts
localhost ansible_host=172.31.27.148

```

```

ec2-user@ip-172-31-27-148:~$ ls -la
total 16
drwxr-xr-x 3 ec2-user ec2-user 4096 Oct 10 18:52 .
drwxr-xr-x 3 ec2-user ec2-user 4096 Oct 10 18:52 ..
-rw-r--r-- 1 ec2-user ec2-user  114 Oct 10 18:52 firstplaybook.yml
-rw-r--r-- 1 ec2-user ec2-user   39 Oct 10 18:52 hosts
-rw-r--r-- 1 ec2-user ec2-user  114 Oct 10 18:52 ssh
-rw-r--r-- 1 ec2-user ec2-user  114 Oct 10 18:52 viminfo
-rw-r--r-- 1 ec2-user ec2-user  114 Oct 10 18:52 webapp.war

```

```

hosts: all
tasks:
  - name: Stop the running container
    command: docker stop customcontainer
    ignore_errors: True
  - name: remove the running container
    command: docker rm customcontainer
    ignore_errors: True
  - name: remove the running image
    command: docker rmi customimage
    ignore_errors: True
  - name: create the image from Docker file
    command: docker build -t customimage .
  - name: create the run container
    command: docker run -d -p 8080:8080 --name customcontainer customimage

```

"firstplaybook.yml" [New] 20L, 996C written

5. Webapp is now available through the execution of the ansible playbook script

```

hosts: all
tasks:
  - name: Stop the running container
    command: docker stop customcontainer
    ignore_errors: True
  - name: remove the running container
    command: docker rm customcontainer
    ignore_errors: True
  - name: remove the running image
    command: docker rmi customimage
    ignore_errors: True
  - name: create the image from Docker file
    command: docker build -t customimage .
  - name: create the run container
    command: docker run -d -p 8080:8080 --name customcontainer customimage

```

"firstplaybook.yml" [New] 20L, 996C written  
[ec2-user@ip-172-31-23-236 ~]\$ ansible-playbook -i hosts firstplaybook.yml

Q 62.201.231.58:8080/webapp

6. In order to execute the Ansible Script on the QA\_Server instance, I first established an ssh connection between the two linux machines and then added the ssh credentials of the QA\_Server instance to my hosts file (within the created Jenkins instance).

```

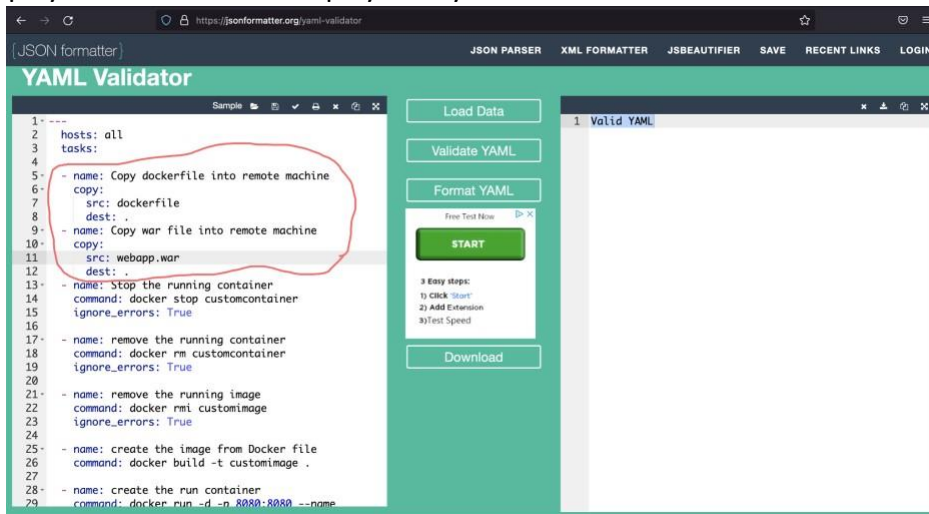
localhost
ec2-user@3.91.183.35

```

-- INSERT --

3/1 All

- Added steps in my original playbook to copy “dockerfile” and “webapp.war” files from the Jenkins Instance to the QA\_Server instance. I created a new file for this updated playbook called “remoteplaybook.yml”.



```
hosts: all
tasks:
  - name: Copy dockerfile into remote machine
    copy:
      src: dockerfile
      dest: .
  - name: Copy war file into remote machine
    copy:
      src: webapp.war
      dest: .
  - name: Stop the running container
    command: docker stop customcontainer
    ignore_errors: True
  - name: remove the running container
    command: docker rm customcontainer
    ignore_errors: True
  - name: remove the running image
    command: docker rmi customimage
    ignore_errors: True
  - name: create the image from Docker file
    command: docker build -t customimage .
  - name: create the run container
    command: docker run -d -p 8080:8080 --name customcontainer customimage

remoteplaybook.yml" (New) 30L, 2742C written
```

- Downloaded Docker onto my QA\_Server instance so that the dockerfile could be eventually turned into a container

```

Transaction Summary
-----
Install 1 Package (+4 Dependent packages)

Total download size: 69 M
Installed size: 285 M
Is this ok [y/d/N]: y
Downloading packages:
(1/5): libcgrou-0.41-21.amzn2.x86_64.rpm | 66 kB 00:00:00
(2/5): pigz-2.3.4-1.amzn2.0.1.x86_64.rpm | 81 kB 00:00:00
(3/5): containerd-1.4.6-3.amzn2.x86_64.rpm | 24 MB 00:00:01
(4/5): docker-20.10.7-3.amzn2.x86_64.rpm | 42 MB 00:00:01
(5/5): runc-1.0.0-2.amzn2.x86_64.rpm | 3.3 MB 00:00:00
-----
Total | 37 MB/s | 69 MB 00:00:01
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Installing : runc-1.0.0-2.amzn2.x86_64 1/5
  Installing : containerd-1.4.6-3.amzn2.x86_64 2/5
  Installing : libcgrou-0.41-21.amzn2.x86_64 3/5
  Installing : pigz-2.3.4-1.amzn2.0.1.x86_64 4/5
  Installing : docker-20.10.7-3.amzn2.x86_64 5/5
  Verifying : docker-20.10.7-3.amzn2.x86_64 1/5
  Verifying : containerd-1.4.6-3.amzn2.x86_64 2/5
  Verifying : pigz-2.3.4-1.amzn2.0.1.x86_64 3/5
  Verifying : runc-1.0.0-2.amzn2.x86_64 4/5
  Verifying : libcgrou-0.41-21.amzn2.x86_64 5/5

Installed:
  docker.x86_64 0:20.10.7-3.amzn2

Dependency Installed:
  containerd.x86_64 0:1.4.6-3.amzn2 libcgrou.x86_64 0:0.41-21.amzn2 pigz.x86_64 0:2.3.4-1.amzn2.0.1 runc.x86_64 0:1.0.0-2.amzn2

Complete!

```

9. Copied and transferred deployment files from Jenkins instance to the QA\_Server instance

```

- name: Copy dockerfile into remote machine
  copy:
    src: dockerfile
    dest: .
  - name: Copy war file into remote machine
    copy:
      src: webapp.war
      dest: .
  - name: Stop the running container
    command: docker stop customcontainer
    ignore_errors: True
  - name: remove the running container
    command: docker rm customcontainer
    ignore_errors: True
  - name: remove the running image
    command: docker rmi customimage
    ignore_errors: True
  - name: create the image from Docker file
    command: docker build -t customimage .
  - name: create the run container
    command: docker run -d -p 8080

:8080 --name customcontainer customimage

~
~
~
~

[ec2-user@ip-172-31-23-236 ~]$ cat hosts
localhost
ec2-user@3.91.183.35

[ec2-user@ip-172-31-23-236 ~]$ ansible-playbook -i hosts remoteplaybook.yml limit ec2-user@3.91.183.35

```