

K8s & EC2 Connection

Connect to the Server

1. Generate EC2 Key

- a. If you has EC2 key, you can skip this step.
- b. In the EC2 VM, generate key by using

```
ssh-keygen
```

- c. Hence, we get id_rsa (private key) & id_rsa.pub (public key)
- d. Store into the folder in home/accountnumber/.ssh => /home/username/.ssh/filename

```
mv id_rsa.pub authorized_keys
```

- e. Move the private key into ubuntu
- f. Download id_rsa from local

```
scp root@1.1.1.1:/pwd ./
```

2. Connect to EC2:

- a. `ssh -i <private.key> -L 6445:localhost:6443 username@ssh.diaper-project.com`

- i. -L mean to forward server's port to local, because Kubernetes exposes port 6445, we would like to forward it to localhost:6443.
- ii. Username is your NetID. An admin account holder should be able to create the linux account for you.

- b. If permission error

```
sudo chmod 600 private.key
```

- c. You should see a pop-up looks like this, which means that you have already connected to the server.

```
* Documentation:  https://help.ubuntu.com
* Management:    https://landscape.canonical.com
* Support:        https://ubuntu.com/pro

System information as of Fri Feb 23 20:24:19 UTC 2024

System load:  0.12060546875   Users logged in:      0
Usage of /:   49.9% of 28.89GB IPv4 address for cni0: 10.42.0.1
Memory usage: 20%           IPv4 address for docker0: 172.17.0.1
Swap usage:   0%            IPv4 address for eth0:  172.31.31.154
Processes:    227

* Ubuntu Pro delivers the most comprehensive open source security and
  compliance features.

https://ubuntu.com/aws/pro

Expanded Security Maintenance for Applications is not enabled.

13 updates can be applied immediately.
To see these additional updates run: apt list --upgradable

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

*** System restart required ***
Last login: Fri Feb 23 20:24:20 2024 from 47.157.220.140
zw738@ip-172-31-31-154: $
```

- d.

Connect to Kubernetes

Reminder, before connecting to the server. **You need to ask the admin for a server token.**

1. Install Kubernetes by Docker (you might want to use Docker to build images), check out [Install and turn on Kubernetes](#)
2. There are various UI explorers for Kubernetes. Such as k9s, check out [Install \(k9scli.io\)](#).
3. Add the server cluster credentials in the Kubernetes config file. (In Mac, config file is located in ~/.kube). The configuration is as follows:

```

a. apiVersion: v1
clusters:
- cluster:
    certificate-authority-data:
LS0tLS1CRUdJTTIbDRVJUSUZJQ0FURSB0tLS0tCk1JSUJlRENDQViyZ0F3SUJBZ0lCQURBS0JnZ3Foa2pPUFFRREFqQWpNU0V3SHd
ZRFZRUUREQmhyTTNndGMyVnkKZG1WeUxXTmhrREUzTURjeE56SxpNRF13SGhjTk1qUXdNakExTWpJek1UUTJXaGNOTXpRd01qQX
lNak16TVRRMgpXakFqTVNFd0h3WURWUWFEREJock0zTXRjMlZ5ZG1WeUxXTmhrREUzTURjeE56SxpNRF13V1RBVEJnY3Foa2pPC
lBR5UJC2Z2dxaGtqT1BRTUJCd05DQUFSeG5lcFhxd1oxSUNGcXBrcmNqNkNldD1xK3daSUV6N093ajM5VXJmRnoKTHBBS2tpUzhp
S2NIRGNHMTZiazFjaEhzbVdTLzZjV0ptZm5ueEs3cTg2WDNVME13UURBT0JnTlZiUThCQWY4RQpCQU1DQXFRd0R3WURWUjBUQVF
lL0JBVXdBd0VCL3pBEZJnTlZiUThCQWY4RQpCQU1DQXFRd0R3WURWUjBUQVF
dSZ0loQUxkelRCZTQyZm5ueEs3cTg2WDNVME13UURBT0JnTlZiUThCQWY4RQpCQU1DQXFRd0R3WURWUjBUQVF
Uxrdk1YV3Uwb1MwMmJCv2UzdFJvY2c9Ci0tLS0tRU5EIENFUlRJRklDQVRFLS0tLS0K
    server: https://127.0.0.1:6445
    name: diaper-server
contexts:
- context:
    cluster: diaper-server
    user: <Kubernetes service account name>
    name: diaper-server
current-context: diaper-server
kind: Config
preferences: {}
users:
- name: <Kubernetes service account name>
  user:
    token: <Kubernetes service account token>

```

4. Connect to the Kubernetes cluster using the command

```
a. k9s
```

5. then you have

```

Context: diaper-server
Cluster: diaper-server
User: zw738
K9s Rev: v0.26.3
K8s Rev: v1.28.5+k3s1
CPU: 3%
MEM: 34%

<0> all      <a> Attach  <1>
<1> argo     <ctrl-d> Delete <p>
<2> nexus   <d> Describe <shift-f>
<3> default <e> Edit    <s>
               <?> Help   <n>
               <ctrl-k> Kill <f>

- Pods (all) [21] -
NAMESPACE NAME                                PF READY RESTARTS STATUS CPU MEM %CPU/R %CPU/L R
argocd    argocd-application-controller-0         ● 1/1 1 Running 1 72 n/a n/a a
argocd    argocd-applicationset-controller-8478f5d679-ng92j ● 1/1 1 Running 1 39 n/a n/a a
argocd    argocd-dex-server-5b76f5bbb6-h145q      ● 1/1 1 Running 1 94 n/a n/a a
argocd    argocd-notifications-controller-5dfb54dc99-8fcdv ● 1/1 1 Running 1 41 n/a n/a a
argocd    argocd-repo-server-96fb99b69-blzt9      ● 1/1 1 Running 2 102 n/a n/a a
argocd    argocd-server-d6f878fbd-7bndr           ● 1/1 1 Running 1 22 n/a n/a a
coredns   coredns-6799fbc5-chnk                   ● 1/1 6 Running 2 59 2 n/a 5
kube-system local-path-provisioner-84db5d44d9-hzh52 ● 1/1 6 Running 1 33 n/a n/a a
kube-system metrics-server-67c658944b-hsb24         ● 1/1 6 Running 5 59 5 n/a 4
kube-system svclb-nexus-427bc072-zsd7f      ● 1/1 0 Running 0 0 n/a n/a a
kube-system svclb-traefik-59387152-4h22r  ● 2/2 2 Running 0 0 n/a n/a a
kube-system traefik-75874fcf48-nkbk7      ● 1/1 0 Running 2 41 n/a n/a a

```

- a. `<pod>`
- b. If you don't see all pods running, it is probably because you're viewing a specific namespace. You can simply press 'O' to view pods in all namespaces.
- c. To navigate between Services, Deployments, or Pods, you can type

```
:services or :deployments or :pods
```

- d. To port-forward a pod, type `shift+F`. To view the log, type `l`. To kill a pod, type `ctrl+k`.... You can always view these commands by typing ? (question mark).

More k9s Tutorial: [derailed/k9s: Kubernetes CLI To Manage Your Clusters In Style!](https://derailed.com/k9s: Kubernetes CLI To Manage Your Clusters In Style!) (github.com)