

knd

knd (Kubernetes NGINX deployer) deploys NGINX on a Kubernetes cluster

System & Application Pre-Requisites

Setup a single or multi-node kubernetes cluster OR use minikube as your local kubernetes environment. I've used a multi-node cluster with below application versions. The application is configured to use the existing kube-config present in the controller node.

kubernetes server version: go1.12.12

Python 3.6.8

pip 9.0.3

docker version on host: 1.13.1

== pip modules ==

kubernetes

argparse

pytz

tqdm

Setup python

Installing python 3.6.8 - Follow this official guide on how to setup python based on your distribution. Use `pip3 install packagename` to install the pip modules listed above.

```
pip3 install kubernetes pytz argparse tqdm
```

Once the installation is done, download the knd tool as below.

```
$ curl -o /usr/local/bin/knd
```

```
https://raw.githubusercontent.com/vijaysundarv/knd/main/knd.py && sudo  
chmod +x /usr/local/bin/knd
```

If you're behind a corporate network, add proxy with curl as shown below.

```
$ curl -x https_proxy=https://proxyip:port -o /usr/local/bin/knd  
https://raw.githubusercontent.com/vijaysundarv/knd/main/knd.py && sudo chmod +x /usr/local/bin/knd  
% Total    % Received % Xferd  Average Speed   Time    Time     Time  Current  
           % Complete      %         Dload  Upload   Total   Spent    Left   Speed  
100  9979  100  9979    0     0  4501      0  0:00:02  0:00:02 --:--:--  4507  
  
$ knd --help  
usage: knd [-h] [-r REPLICASCOUNT] [-nv --nginx-version] -d --deployment-name  
          [-D --delete-deployment]  
  
knd (Kubernetes NGINX deployer) deploys NGINX on a Kubernetes cluster, and  
verifies that it has come up healthy.  
  
optional arguments:  
-h, --help            show this help message and exit  
-r REPLICASCOUNT, --replicasCount REPLICASCOUNT  
                        Input the desired number of replicasCount for your  
                        application. Default is 1  
-nv --nginx-version, --nginxVersion --nginx-version  
                        Enter the nginx version to deploy. Default is 1.20.1  
-d --deployment-name, --deploymentName --deployment-name  
                        Enter the deployment name. Example: nginx-deployment  
-D --delete-deployment, --deleteDeployment --delete-deployment  
                        Enter yes or no. Default is no
```

Expected Output:

kind (Kubernetes NGINX deployer) deploys NGINX on a Kubernetes cluster, and verifies that it has come up healthy.

```
-h, --help                show this help message and exit
-r REPLICASCOUNT, --replicasCount REPLICASCOUNT
                           Input the desired number of replicasCount for your
                           application. Default is 1
-nv --nginx-version, --nginxVersion --nginx-version
                           Enter the nginx version to deploy. Default is 1.20.1
-d --deployment-name, --deploymentName --deployment-name
                           Enter the deployment name. Example: nginx-deployment
-D --delete-deployment, --deleteDeployment --delete-deployment
                           Enter yes or no. Default is no
```

Create Deployment

Expected Output:

```
createDeploymentObject : 100%|███████████| 3/3  
[00:01<00:00, 1.99it/s]
```

NAMESPACE	NAME	REVISION	IMAGE
fni	nginx-deployment	1	nginx:1.21.3

```
NAMESPACE      NAME
fni            nginx-deployment
```

Update either nginx version or replicas.

Output below.

Expected Output:

```
Old Replica: 3
New Replica: 2

Old Image Version: 1.21.3
New Image Version: 1.20.1

Updating deploymentConfig

updateDeployment : 100%|████████████████████████████████████████| 2/2 [00:01<00:00, 1.99it/s]

[INFO] Deployment nginx-deployment updated.

NAMESPACE      NAME                REVISION    IMAGE
fni             nginx-deployment    4           nginx:1.20.1

[INFO] Service nginx-deployment updated.

NAMESPACE      NAME
fni            nginx-deployment
```

Delete Deployment

To delete the deployment, run the below commands.

```
$ knd -d nginx-deployment -D yes
```

Expected Output:

```
deleteDeployment : 100%|████████████████████████████████████████| 1/1 [00:00<00:00, 1.99it/s]

[INFO] Deployment & Service nginx-deployment deleted.
```

Extra Notes:

- A sample on creating nginx deployments via python kubernetes clientlibrary api is already available at [python examples deployment crud.py](#)
 - Some more extra arguments like kube-config, namespace, printing available stable nginx app versions, collecting resource metrics can be added for better insights. List of Supported APIs can be found at [documentation-for-api-endpoints](#).
 - A custom docker image which contains major application parameters should be used to reduce the user input. Such user parameters can be either read at the time installing or can be passed as arguments along with others.
 - Can try setting up **logger.debug** to collect json data of kubernetes objects.
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