**GKE Private Cluster setup with Authorized Networks enabled and configure ArgoCD**

**For this I used Google CLI (always run as an Adminstrator)**

**Step 1:**

1. **Install Kubectl in gcloud**
2. **gcloud components install kubectl**
3. **kubectl get nodes** *(to check kubectl has installed properly and if it installed then you get target machine actively refusing it error)*
4. **gcloud config list** (it will display the region, account it is linked to etc)
5. gcloud container clusters create argocd --create-subnetwork name=my-subnet-1 --enable-master-authorized-networks --enable-ip-alias --enable-private-nodes --master-ipv4-cidr 192.168.0.0/28 --num-nodes=3 (Minimum no of node is 3 and it takes max of 5 mins to create)

**If there is an error regarding the auth token, type the below command.**

**gcloud auth login**

1. now copy the link and paste it in your browser and follow the instruction. Now you will get a code, copy it and paste it in your Google CLI and it will display the current project etc. then rerun the **step 5**
2. to verify **kubectl get nodes** and you get timeout error to fix this,
3. Go to **Kubernetes Engine** and click the **cluster name** and get into that.
4. Look for control plane authorized networks and click edit and add your public IP (go to google and type what is my IP, just copy and paste it here xxx.xxx.xxx.xxx/32, otherwise the laptop will not communicate to the private cluster)

**Step 2:**

**Create NAT router (nat-router** is the name of the router**)**

gcloud compute routers create **nat-router** --network default

gcloud compute routers nats create nat-config --router nat-router --nat-all-subnet-ip-ranges --auto-allocate-nat-external-ips

**Step3:**

Go to this link <https://argo-cd.readthedocs.io/en/stable/getting_started/> and copy paste the below command (this command is from Argo CD site)

kubectl create namespace argocd

kubectl apply -n argocd -f https://raw.githubusercontent.com/argoproj/argo-cd/stable/manifests/install.yaml

1. Once done, go to the Kubernetes Engine and go to services & Ingress.
2. Now select **argocd-server** and click edit and bottom of the page change the service from **ClusterIP** to **NodePort (nodePort: this is a port in the range of 30000-32767)**
3. gcloud compute firewall-rules create allow-ingress-from-iap --direction=INGRESS --action=allow --rules=tcp:**30230** --source-ranges=35.235.240.0/20
4. gcloud compute start-iap-tunnel **gke-argocd-default-pool-fb68a15e-f5p0** **30230** --local-host-port=localhost:8085 --zone=us-east1-b
5. Note: (**gke-argocd-default-pool-fb68a15e-f5p0** is one of the node names in my cluster and you can use your node name here and you can mention any port number instead of 8085)
6. You will see the below messages on the display.

***Testing if tunnel connection works***

***Listening on Port [8085]***

to access Argo CD dashboard, open a browser and type **localhost:8085**

**To get the admin password**

1. **kubectl get secret argocd-initial-admin-secret -n argocd -o yaml** (it is an encoded)
2. then type **echo “Password” | base64 –decode** (it will generate the decrypted password)
3. if it is not working, then copy the password and paste it to <https://www.base64decode.org/> for decoding.

Then you can clone and link a git repo and try it (if not sure get help from google)

**To unistall ArgoCD**

kubectl delete -n argocd -f <https://raw.githubusercontent.com/argoproj/argo-cd/stable/manifests/install.yaml>

once you have practiced and make sure delete the clusters to save the money