# Kubernetes Engine Course Exercises

## Exercise references

## *Exercise 1 - Create a simple default cluster via CLI, view, describe, resize and delete the cluster.*

## (Cloud Shell or use SDK)

**This exercise will walk thru the simple cluster creation process and validation that the cluster is online. The exercise assumes your SDK is setup properly for your environment. If your not sure then just use Cloud Shell.**

### 1. Set environment variables as needed. (Configure these as your wish)

1a. Set your project

***gcloud config set project myproject***

1b. Remember to set zone or region

gcloud config set compute/zone us-east1-b

### 2. Enable API for containers.

#Note: If the API is not enabled in the project for containers run the following command.( This will take 3 plus minutes to come back)

*gcloud services enable container.googleapis.com*

## 3. Create the default cluster

# by default, GKE deploys 3 standard nodes

***gcloud container clusters create gkecluster1 --zone us-east1-b***

*#(Note: If the API is not enabled in the project for containers run the following command. This will take 3 plus minutes to come back)*

***gcloud services enable container.googleapis.com***

## 4 Credentials need to be obtained so you can manage it locally through kubectl

# Note this should come back with a Kubeconfig entry generated for….

**gcloud container clusters get-credentials gkecluster1 --zone=us-east-b**

## 5. Validate your Cluster is created.

#Note: This command will list not only the cluster your created but also any other clusters available.

***gcloud container clusters list***

## 6. Describe the cluster variables.

#Note: This command will provide extensive output on the configuration of your cluster.

***gcloud container clusters describe gkecluster1 --zone us-east1-b***

## 7. View the context of the cluster

***kubectl config current-context***

## 8. Resize the cluster from 3 nodes to 4 nodes.

#cluster size should work unless you reach a quota limit (Compute or API)

***gcloud container clusters resize gkecluster1 --num-nodes 4 --zone us-east1-b***

**9. Validate the cluster has resized.**

# Note under “nodes” should be 4.

***gcloud container clusters list***

**10. Delete the cluster**

#Cluster should be deleted if not used to avoid additional charges.

***gcloud container clusters delete gkecluster1 --zone=us-east1-b***

**11. Validate Cluster is now removed for GKE**

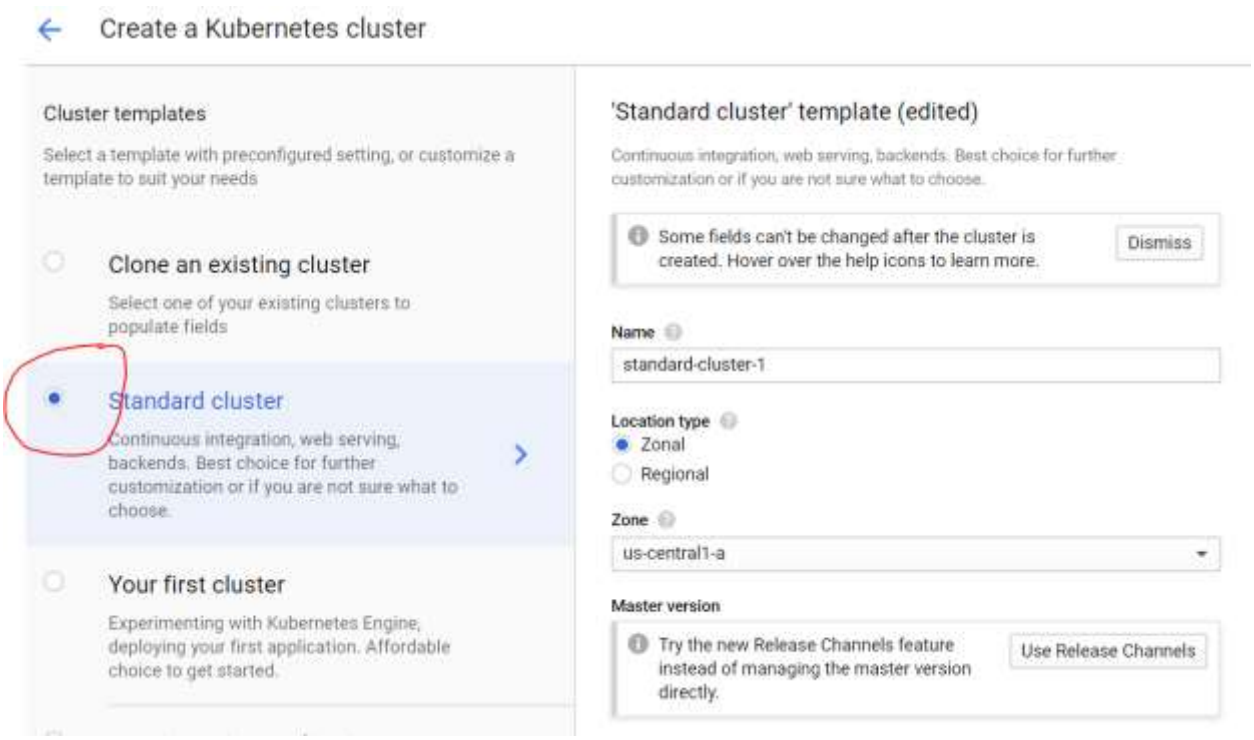
***gcloud container clusters list***

***END of Exercise 1***

## *Exercise 2 - Create a Standard autoscaled cluster via Console and enable Stackdriver Monitoring*.

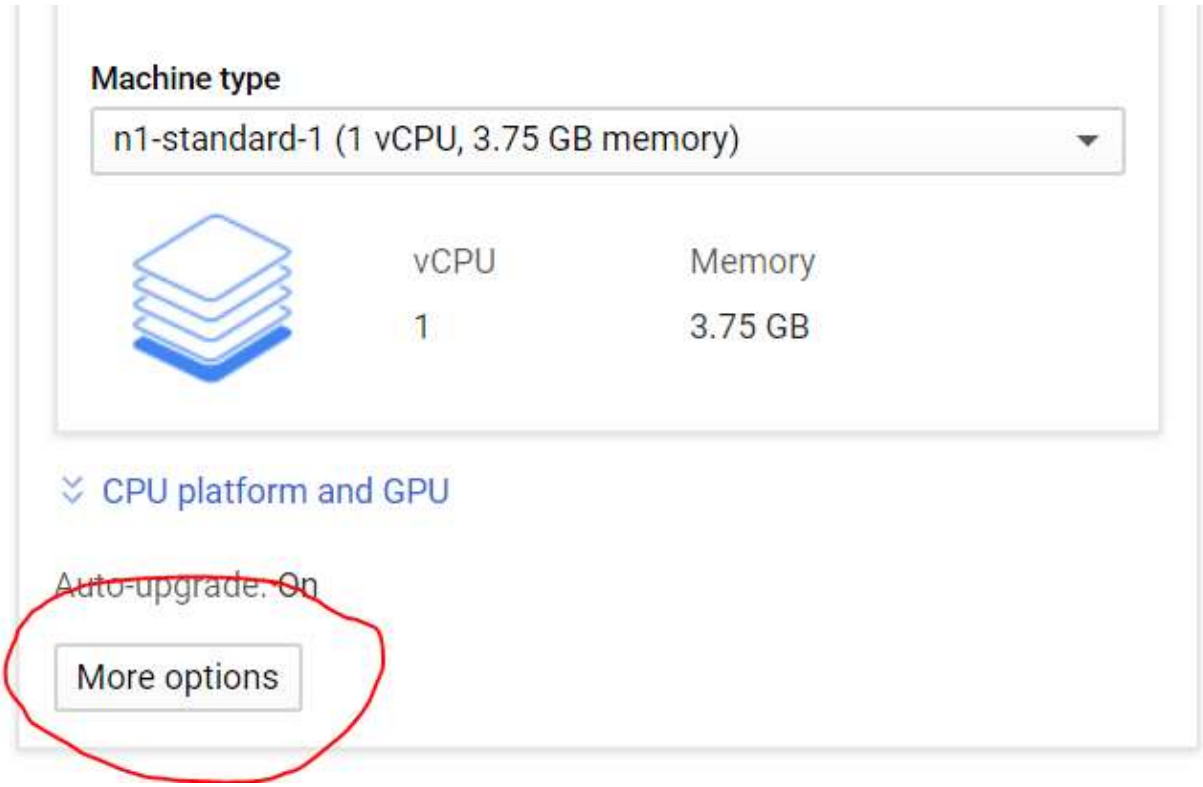
In this exercise we want to create a new cluster that will be autoscaled with a minimum of 3 nodes and a maximum of 5 nodes. We also want to enable Stackdriver Monitoring.

**Login to Cloud Console > Kubernetes Engine >> Select Standard Cluster**

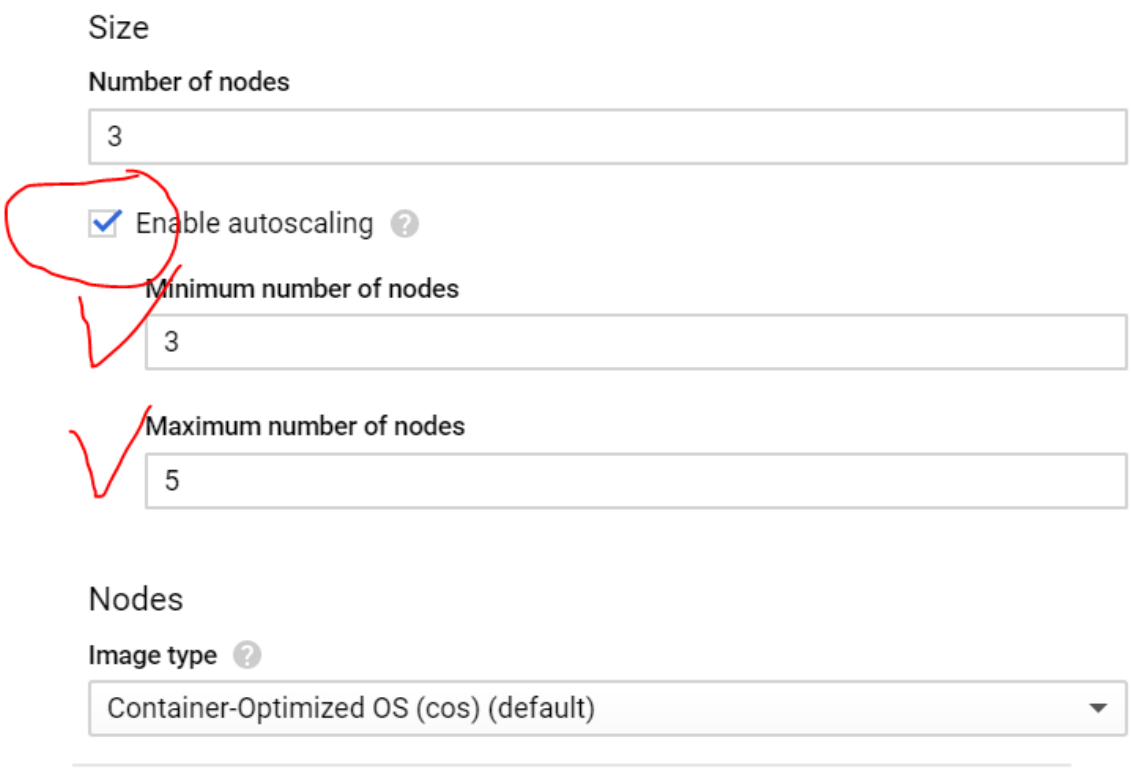



**Select “More Options”**

We will need to scroll down under Machine Configuration to find the “More Options” selection

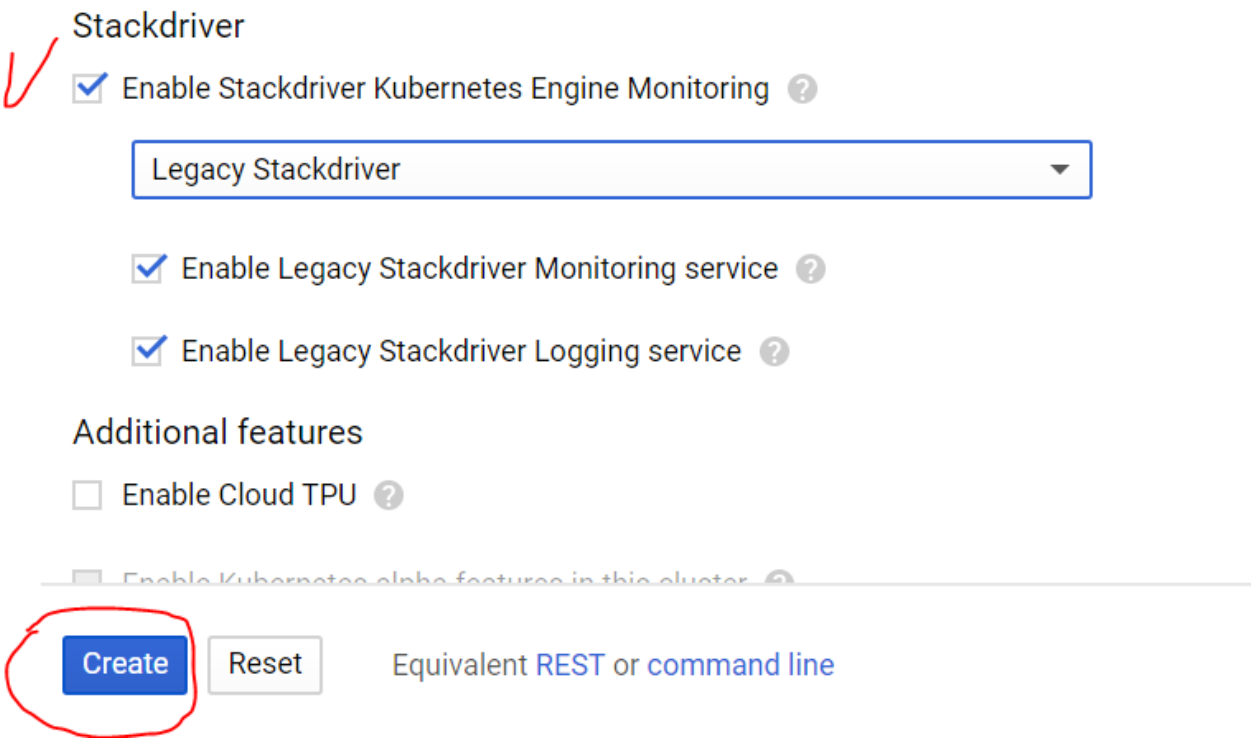



**Select Autoscaling and specify  Minimum and Maximum nodes**



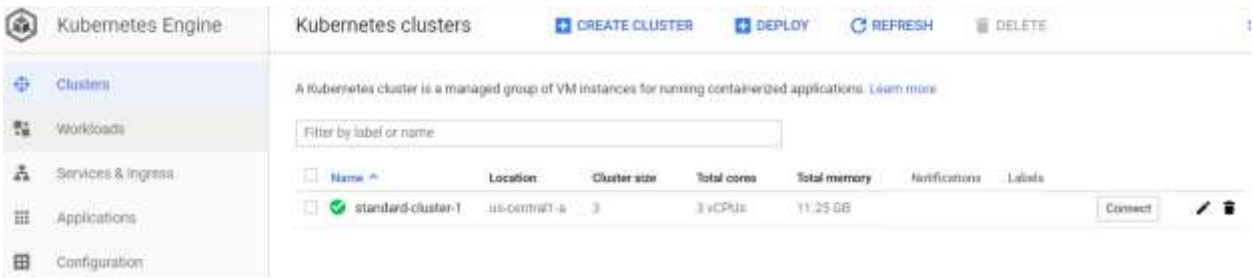

***Select Stackdriver Monitoring Legacy and then Select Create.***

Legacy Stackdriver should be enabled so you can view in Stackdriver quickly.

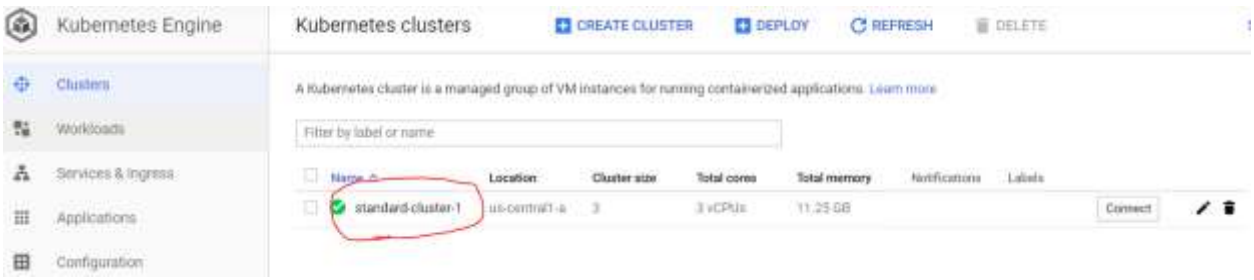



The creation process will bring you back to the Kubernetes Engine Dashboard and will show you the state of the cluster.

When the cluster is formed it will bring you show a green checkmark.

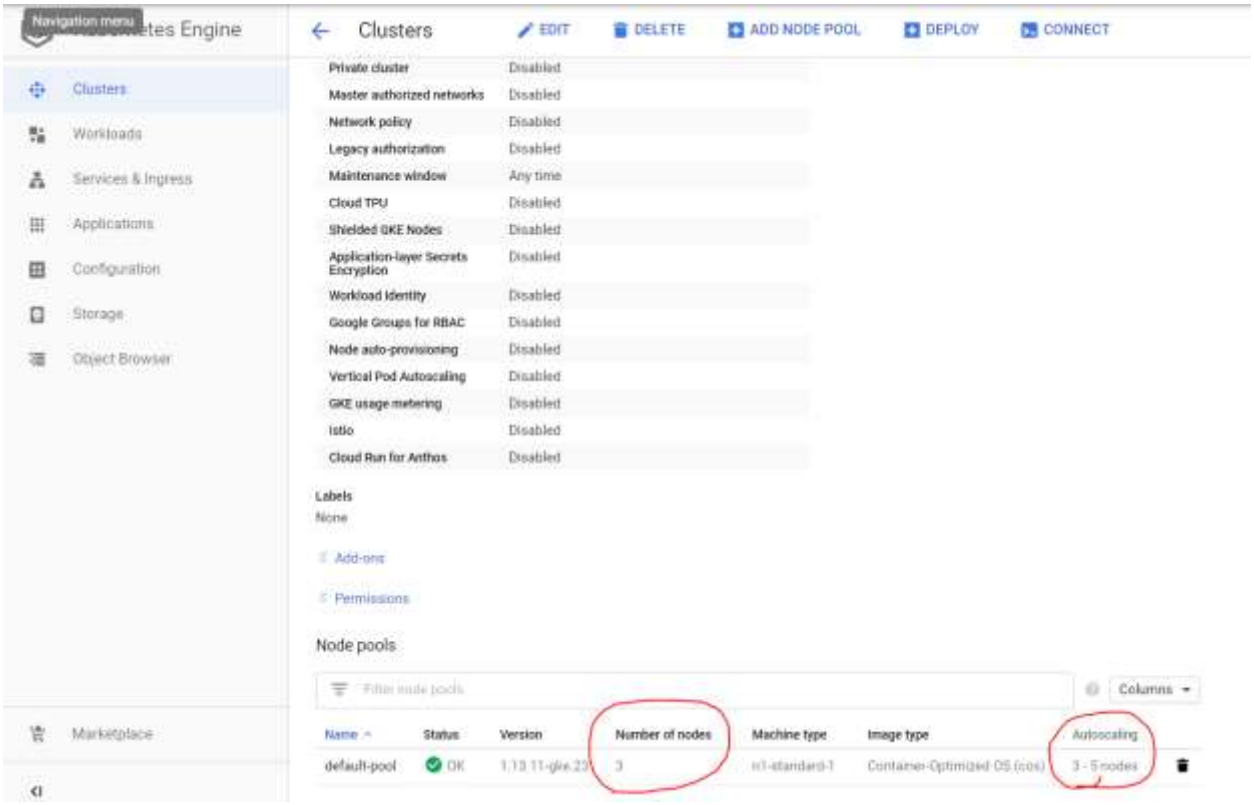



**Select the cluster that was just created by clicking the link.**

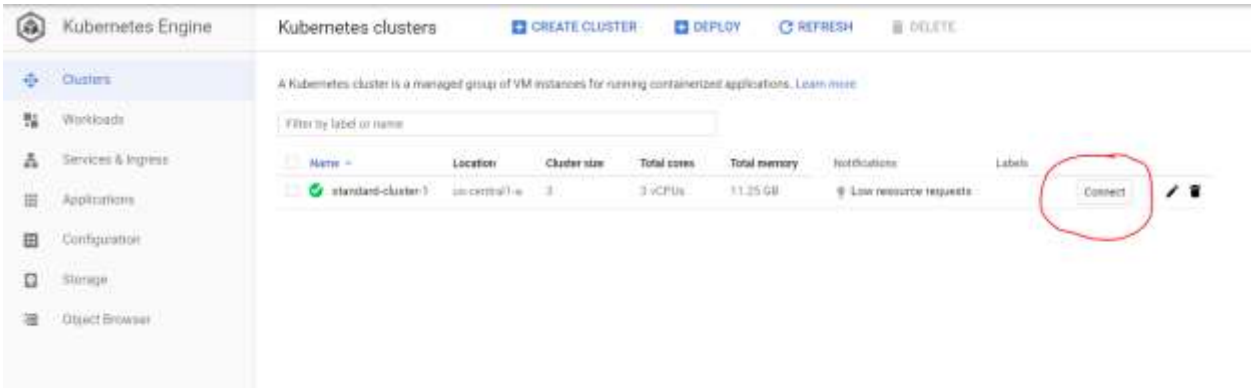



***Next we need to verify the number nodes and review the configuration.***

***Validate Number of nodes and the autoscaling policy is set to 3-5 nodes.***

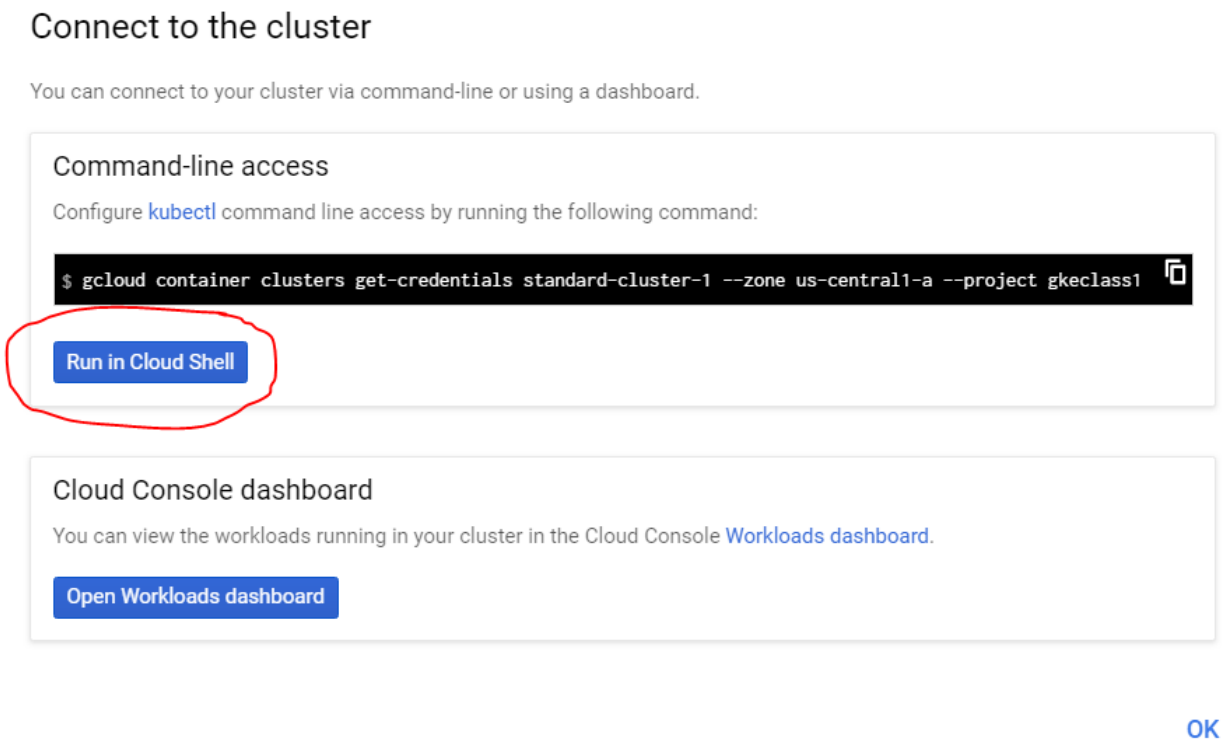



**Next, go back to previous menu by clicking the back arrow next to Clusters. We Will now connect to the cluster by selecting "Connect"**

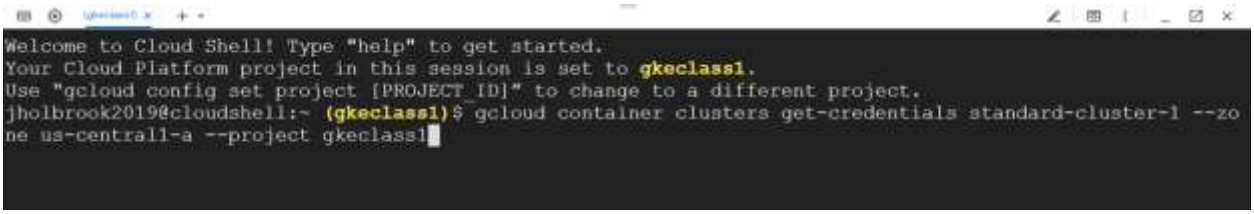



**Select the "Run in Cloud Shell" button highlighted below to copy the command for use in Cloud Shell.**

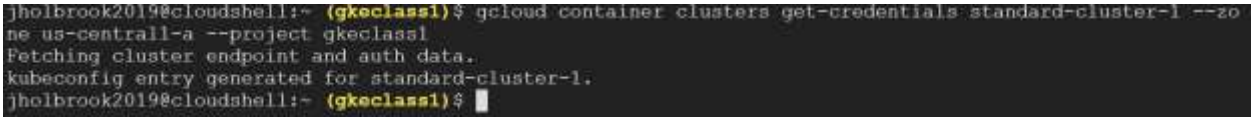
***This will copy the command and bring up Cloud Shell at the same time***




**The Command has been pasted in the Cloud Shell. You will need to hit your enter button to proceed.**




**The following output should be displayed about a kubeconfig being generated.**

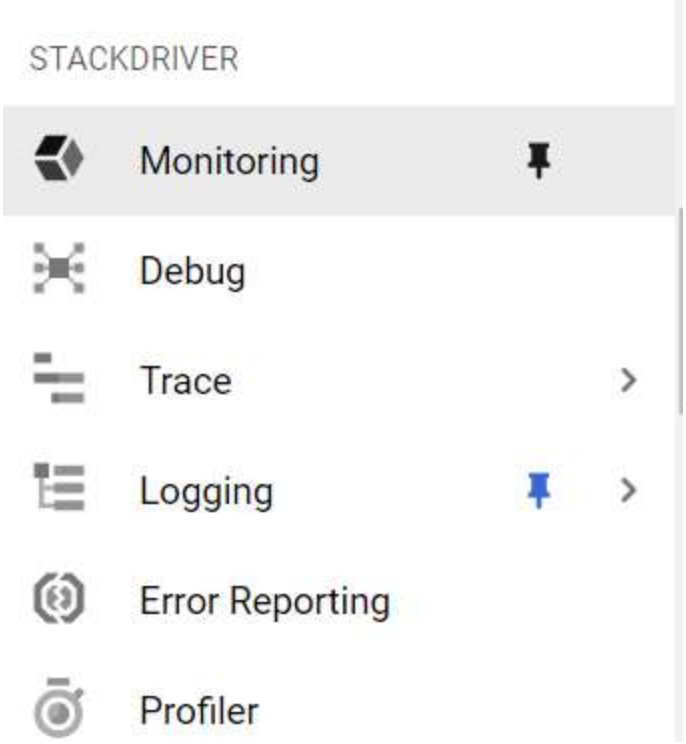



**Feel free to run any of the previous exercise commands such as listing or describing clusters.**

**End of this Exercise.**

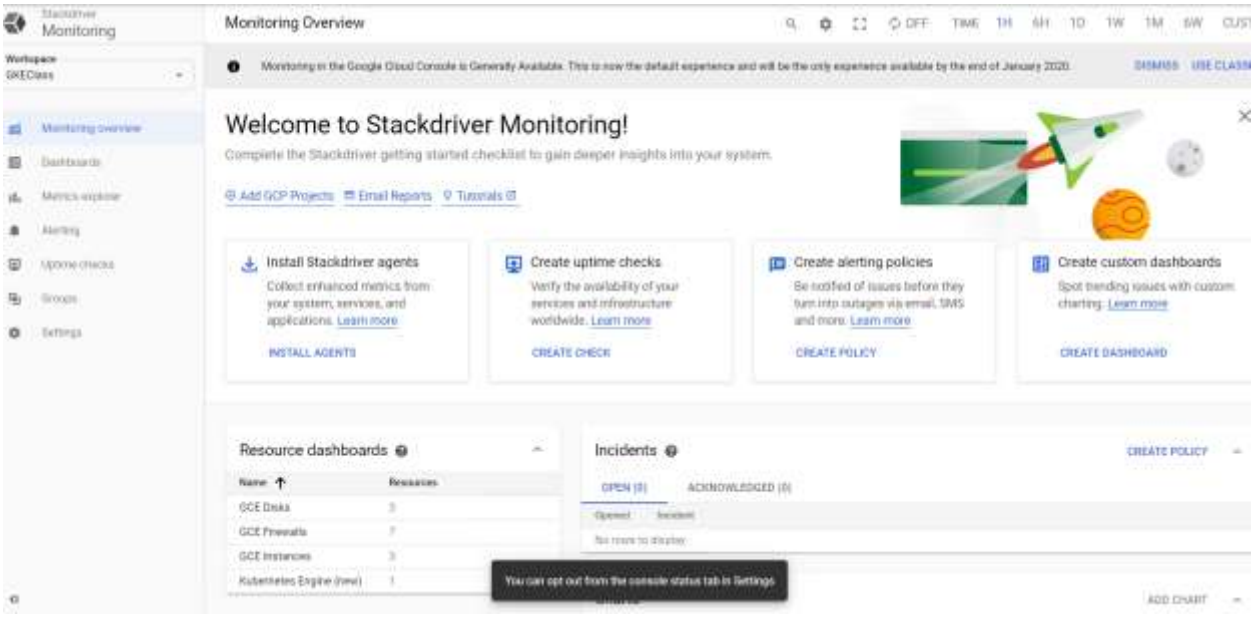
## *Exercise Three - Stackdriver Monitoring*

*We want to validate the cluster we created shows up in Stackdriver and view the nodes in the cluster.*

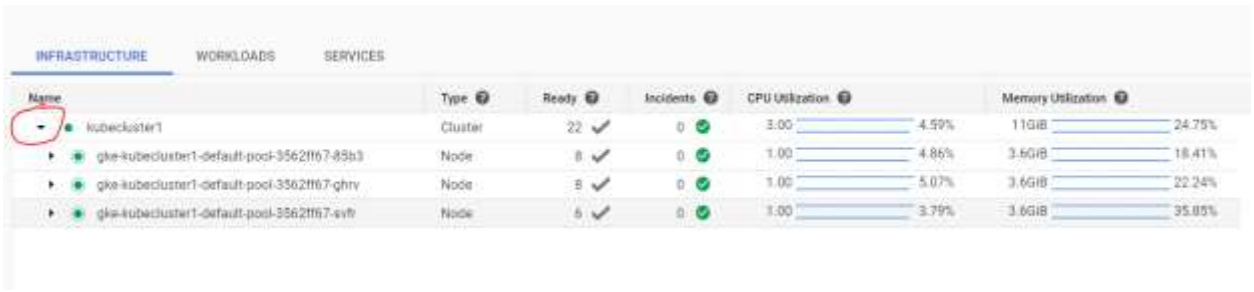



**The first time you login to Stackdriver you will receive the following notice and will close once Stackdriver ready.**


**Next we want to proceed to the following menu once available.**




**You can view the cluster below by selecting the drop down arrow.**




**You can view additional information by selecting the additional node arrows.**

**For the purpose of this short course we end this exercise.**