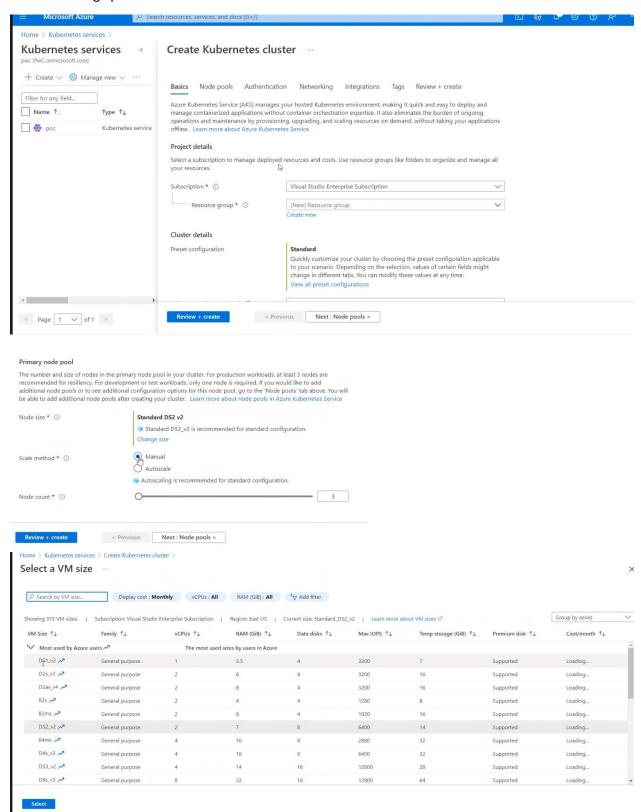
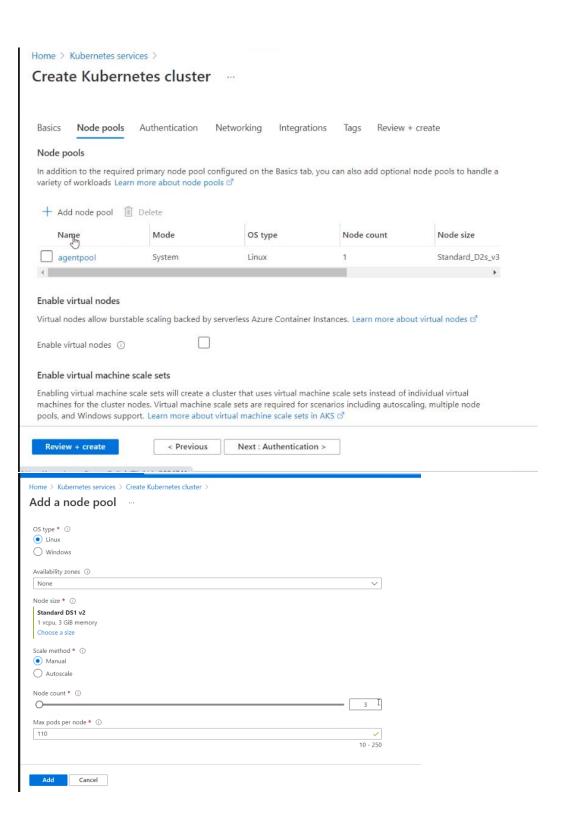
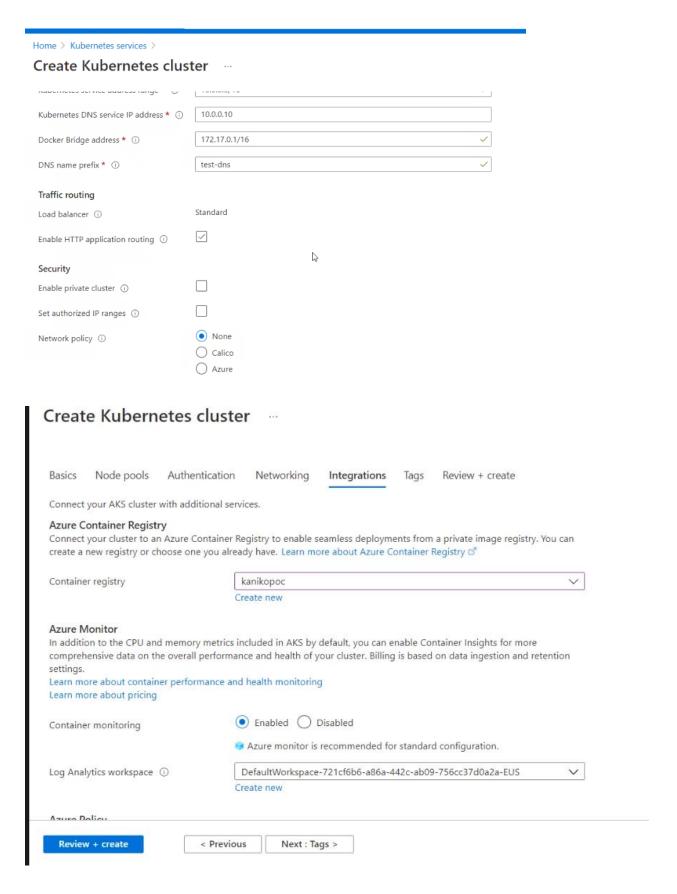
#Setup ADO agentpool with Autoscale mode under K8s cluster.

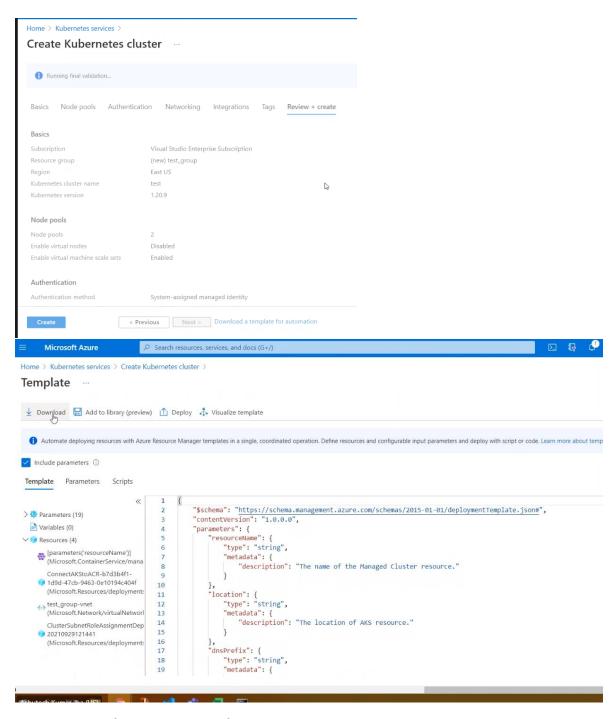
1. Setting up AKS





lome > Kubernetes services >					
Create Kubernetes	cluster	***			
Basics Node pools Author	entication Ne	tworking Integrati	ons Tags Review	+ create	
Cluster infrastructure					
The cluster infrastructure authentic the cluster. This can be either a se				oud resources attach	ned to
Authentication method	○ Ser	vice principal Syst	em-assigned managed id	entity	
		D ₂			
Kubernetes authentication and Authentication and authorization a user may do once authenticated. I	are used by the K			ister as well as what	the
Role-based access control (RBAC)	① Ena	abled O Disabled			
AKS-managed Azure Active Direct	ory ①				
Node pool OS disk encryption By default, all disks in AKS are enc supply your own keys using a disk encrypt the OS disks for all node p	encryption set be	acked by an Azure Key V			ou can
Encryption type	(Defau	ult) Encryption at-rest w	th a platform-managed k	еу	v
me > Kubernetes services > reate Kubernetes clu	uster				
Application pods are connected			ntegration with VNet feature	es.	
earn more about networking in Azure		•			
Network configuration ①	Kubenet Azure CN	Azure CNI			
	pod on a no value is set	ode, which can more quick for pods per node. Consid	ddress from the subnet belo ly exhaust available IP addre er modifying the default valu Node pools" tab. Learn more	sses if a high ues for pods	
∕irtual network * ①	(New) test_g Create new	(New) test_group-vnet Create new		~	
Cluster subnet * ①	(new) defaul	(new) default (10.240.0.0/16)		~	
ubernetes service address range * ①	10.0.0.0/16	10.0.0.0/16			
ubernetes DNS service IP address * (10.0.0.10	10.0.0.10			
ocker Bridge address * ①	172.17.0.1/16	172.17.0.1/16		~	
NS name prefix * ①	test-dns			~	
raffic routing					
Turne routing					

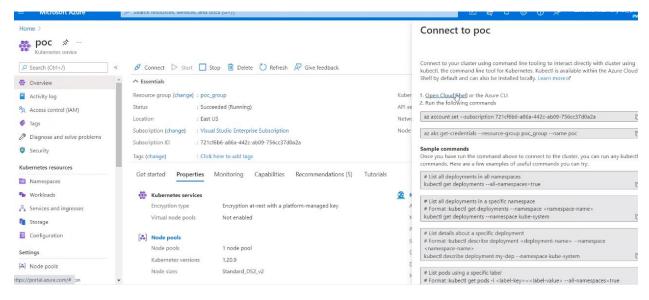




ARM_template for this claster config.



aks_arm_template.zip



Log in to Cluster with cloud shell:

```
v | 0 ? @ □ □ () □
Requesting a Cloud Shell.Succeeded. Connecting terminal...
Welcome to Azure Cloud Shell
Type "az" to use Azure CLI
Type "help" to learn about Cloud Shell
      __h@Azure:~$ kubectl get all
                                                           STATUS
                                                                       RESTARTS
pod/azdevops-deployment-79b9c8695-141st
pod/vault-agent-injector-686797ccd5-pxtfm
                                        TYPE
ClusterIP
                                                      CLUSTER-IP
10.0.142.169
                                                                                       PORT(S)
8200/TCP
                                                                       EXTERNAL-IP
service/external-vault
service/kubernetes ClusterIP
service/vault-agent-injector-svc ClusterIP
                                                      10.0.0.1
10.0.135.53
                                                                                        443/TCP
443/TCP
                                                                       (none)
                                             READY
                                                      UP-TO-DATE
                                                                     AVAILABLE
                                                                                   AGE
deployment.apps/azdevops-deployment
deployment.apps/vault-agent-injector
                                                                                   14d
                                                          DESIRED CURRENT
                                                                                READY
replicaset.apps/azdevops-deployment-79b9c8695
replicaset.apps/vault-agent-injector-686797ccd5
                                                                                          7d21h
                                                                                       REFERENCE
Deployment/azdevops-deployment
                                                                                                                              TARGETS
                                                                                                                                            MINPODS MAXPODS REPLICAS
horizontalpodautoscaler.autoscaling/keda-hpa-azure-pipelines-scaledobject
                                                                                                                              0/1 (avg)
clouddrive helm3 sample-app
    .___ '@Azure:~$
____ '@Azure:~$ cd sample-app/
a:
           '@Azure:~/sample-app$ ls
                      deployment2.yaml
                                                   dockeragent
                                                                        get_helm.sh
                                                                                            kaniko
                                                                                                                 keda.yaml
                                                                                                                                   pod3.yaml
                                                                                                                                                     working_jfrog.json
 config.json deployment.yaml
                                                                        jobs.yaml
                                                                                             keda2.yaml pod2.yaml
                                                                                                                                   pod.yaml
```

[Code{manifest file for pod-deployment & autoscore, Dockerfile} for ADO setup on K8s & docker image & ADO build pipeline]

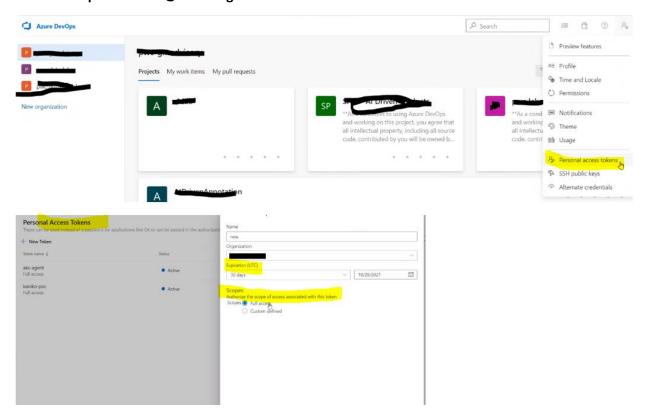


AzureADOAgentCreation-with-k8s.zip

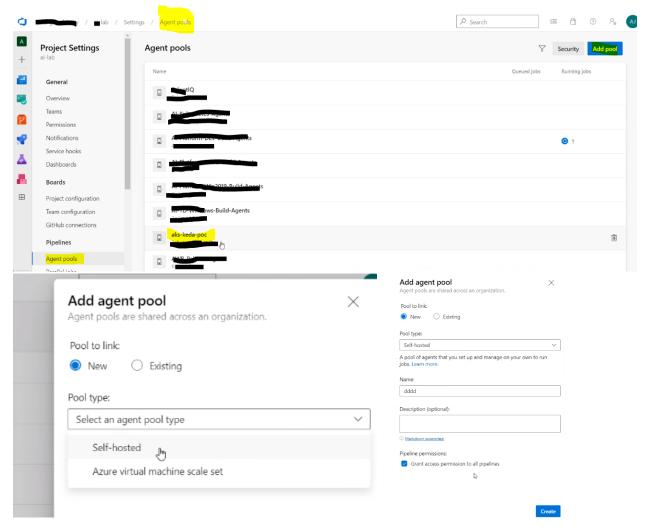
2. ADO agent deployment >>>

```
Bash ∨ (0 ? (2) (3 (3 (1) (3
                                                                                                                                                                                             443/TCP 7d21h
service/vault-agent-injector-svc ClusterIP 10.0.135.53 <none>
                                                                                                  READY
                                                                                                                   UP-TO-DATE AVAILABLE
                                                                                                1/1
 deployment.apps/vault-agent-injector
                                                                                                                                                  CURRENT
                                                                                                                                                                                                  AGE
7d21h
                                                                                                                            DESIRED
                                                                                                                                                                              READY
 replicaset.apps/vault-agent-injector-686797ccd5
                                                                                                                                                                                            REFERENCE TARGETS
Deployment/azdevops-deployment 0/1 (avg)
                                                                                                                                                                                                                                                                                                              MINPODS MAXPODS REPLICAS
NAME
  norizontalpodautoscaler.autoscaling/keda-hpa-azure-pipelines-scaledobject
                  @Azure:-$
h@Azure:-$
                  h@Azure:~$ kubectl get hpa
                                                                                                   REFERENCE
                                                                                                                                                                                       TARGETS
                                                                                                                                                                                                                    MINPODS MAXPODS REPLICAS
  MEFERENCE | IARGETS | MEFERENCE | MEFERENCE | MERCH | MEFERENCE | MERCH | MER
 NAME READY STATUS pod/vault-agent-injector-686797ccd5-pxtfm 1/1 Running
                                                                                                                                                          RESTARTS AGE
0 7d21h
                                                                                                                                                                                            PORT(S)
8200/TCP
443/TCP
443/TCP
                                                                                                                                                           EXTERNAL-IP
                                                                                                                                                                                                                         AGE
7d20h
28d
7d21h
                                                                                      ClusterIP 10.0.142.169
ClusterIP 10.0.0.1
service/external-vault service/kubernetes
                                                                                                                                                          <none>
 service/kubernetes ClusterIP
service/vault-agent-injector-svc ClusterIP
                                                                                                                     10.0.135.53
                                                                                                                                                           (none)
                                                                                                                    UP-TO-DATE
                                                                                                 READY
                                                                                                                                                  AVAILABLE
  deployment.apps/vault-agent-injector
                                                                                                                                                                             READY
1
                                                                                                                                                   CURRENT
 wwnc
replicaset.apps/vault-agent-injector-686797ccd5
as __h@Azure:~$
          ------h@Azure:~$ ls
   clouddrive helm3 sample-app
                     -- h@Azure:~$
              '@Azure:~$ cd sample-app/
                       -h@Azure:~/sample-app$ ls
                                                 deployment2.yaml
                                                                                                                 dockeragent
                                                                                                                                                                get_helm.sh
                                                                                                                                                                                                              kaniko
                                                                                                                                                                                                                                                         keda.yaml
                                                                                                                                                                                                                                                                                               pod3.yaml
                                                                                                                                                                                                                                                                                                                                       test.sh
      config.json
                                                                                                                                                                                                                                                                                                                                      working_jfrog.json
                                                 deployment.yaml
                                                                                                                 eks-tf
                                                                                                                                                                jobs.yaml
                                                                                                                                                                                                              keda2.yaml
                                                                                                                                                                                                                                                        pod2.yaml
                                                                                                                                                                                                                                                                                                pod.yaml
```

3. Setup PAT token @ADO Organization



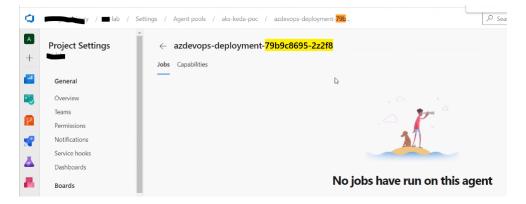
Take AZP_TOKEN: {{}}



```
| linux-agents > deployments > ! agent-deployments | apiVersion: v1 | 2 | kind: Namespace | 3 | metadata: | 4 | name: kaniko | 5 | --- | 6 | apiVersion: v1 | 7 | kind: Secret | 8 | metadata: | 9 | name: kanikoazdosecret | 10 | namespace: kaniko | 11 | data: | 2 | AZP_TOKEN: __azp-token__ | 13 | --- | 14 | apiVersion: apps/v1 | 15 | kind: Deployment | 16 | metadata: | 17 | name: agent-deployment | 18 | name: agent-deployment | 18 | name: agent-deployment | 19 | labels: | 20 | name: agent-deployment | 21 | spec: | replicas: 1 | 23 | selector: | app: agent-deployment | 26 | template: | metadata: | labels: | app: agent-deployment | 27 | metadata: | labels: | app: agent-deployment | 28 | app: agent-deployment | 29 | app: agent-deployment | 20 | app: agent-deploymen
```

```
∨ | ○ ? ◎ □ □ () □
    app: azdevops-agent
   name: azdevops-deployment
spec:
  replicas: 1
  selector:
    matchLabels:
      app: azdevops-agent
  template:
    metadata:
      labels:
        app: azdevops-agent
    spec:
      containers:
      - name: azdevops-agent
        image: kanikopoc.azurecr.io/samplekaniko:11544
          - name: AZP_URL
           value: "https://dev.azure.com/; -g ad __ory"
          - name: AZP_POOL
            value: "aks-keda-poc"
          - name: AZP_TOKEN
            valueFrom:
              secretKeyRef:
                name: azdevops
                key: AZP_TOKEN
        volumeMounts:
        - mountPath: /var/run/docker.sock
          name: docker-volume
        volumes:
- name: docker-volume
        path: /var/run/docker.sock
sh@Azure:~/sample-app$ kubectl apply I-f deployment.yaml
```

```
path: /var/run/docker.sock
ashutosh@Azure:~/sample-app$ kubectl apply -f deployment.yaml
secret/azdevops unchanged
deployment.apps/azdevops-deployment created
ashutosh@Azure:~/sample-app$ kubectl get all
                                             READY
                                                     STATUS
                                                               RESTARTS
                                                                          AGE
                                                     Running
pod/azdevops-deployment-79b9c8695-2z2f8
                                            1/1
                                                                          75
                                                     Running
pod/vault-agent-injector-686797ccd5-pxtfm
                                                               0
                                                                          7d21h
                                            1/1
                                                               EXTERNAL-IP
                                                                             PORT(S)
                                   TYPE
                                                CLUSTER-IP
                                                                                         AGE
                                                                             8200/TCP
                                                10.0.142.169
                                                                                         7d21h
service/external-vault
                                   ClusterIP
                                                               <none>
service/kubernetes
                                   ClusterIP
                                                10.0.0.1
                                                                             443/TCP
                                                                                         28d
                                                               <none>
                                                                             443/TCP
service/vault-agent-injector-svc
                                   ClusterIP
                                                10.0.135.53
                                                                                         7d21h
                                                               <none>
                                       READY
                                                UP-TO-DATE
                                                             AVAILABLE
                                                                         AGE
deployment.apps/azdevops-deployment
                                       1/1
                                                                         7s
                                                1
                                                                         7d21h
deployment.apps/vault-agent-injector
                                       1/1
                                                                               AGE
                                                  DESTRED
                                                             CURRENT
                                                                       READY
replicaset.apps/azdevops-deployment-79b9c8695
replicaset.apps/vault-agent-injector-686797ccd5
                                                                               7d21h
ashutosh@Azure:~/sample-app$
```



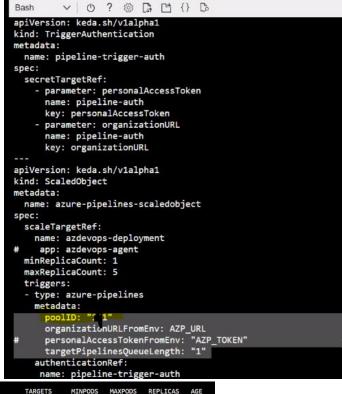
GET_POOL_ID: https://dev.azure.com/{{ado_org_name}}/_apis/distributedtask/pools?poolname={pool_name}

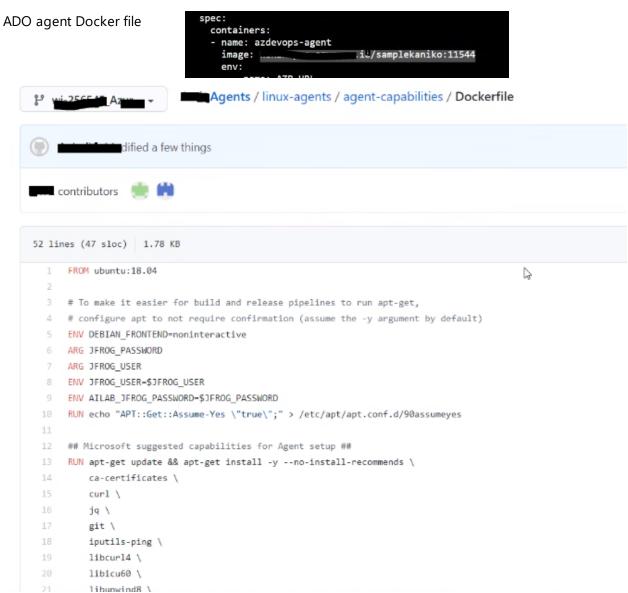


```
Bash ∨ ∅ ? ۞ ♣ ₾ {} ₺
ashutosh@Azure:~/sample-app$ cat keda.yaml apiVersion: v1
kind: Secret
metadata:
  name: pipeline-auth
data:
personalAccessToken:
# organizationURL: &
                                  70+1 3B3Vv1ncc*
apiVersion: keda.sh/v1alpha1 kind: TriggerAuthentication
metadata:
name: pipeline-trigger-auth
 spec:
  secretTargetRef:

    parameter: personalAccessToken
name: pipeline-auth

     key: personalAccessToken
- parameter: organizationURL
name: pipeline-auth
key: organizationURL
apiVersion: keda.sh/v1alpha1
kind: ScaledObject
metadata:
  name: azure-pipelines-scaledobject
 spec:
   scaleTargetRef:
  name: azdevops-deploy
app: azdevops-agent
minReplicaCount: 1
maxReplicaCount: 5
   triggers:
```





Delete Auto scaled offline agents from agents' pool:

update PAT token @agents_delete.py:

```
def api_connection():
   authorization = str(base64.b64encode(bytes(':'+pat, 'ascii')), 'ascii')
```

azure-pipelines.yml >>> update task in pipeline

```
inputs:
          kubectl apply -f ./linux-agents/deployments/scaling.yaml
= task: tsuyoshiushio.shell-exec.shellexec.shellexec@0
       displayName: 'cleanup offline agent'
inputs:
code: |
                                                                        agents_delete.py
          python3 ./agents delete.py
```