

## Azure Cloud

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**Create the AKS cluster (2 nodes, smallest size VM) and deploy any two services on it. Services should be accessible from the Internet.\**

1. Sign in to the [Azure portal](#).
2. On the Azure portal menu or from the Home page, select Create a resource.
3. Select Containers > Kubernetes Service.
4. On the Basics page, configure the following options:
  - Project details:
    - Select an Azure Subscription.
    - Select or create an Azure Resource group, such as myResourceGroup.
  - Cluster details:
    - Ensure the Preset configuration is Standard (\$\$). For more details on preset configurations, Enter a Kubernetes cluster name, such as myAKSCluster.
  - Primary node pool:
    - Leave the default values selected.
1. Select Next: Node pools when complete.
2. Keep the default Node pools options. At the bottom of the screen, click Next: Access.
3. On the Access page, configure the following options:
  - The default value for Resource identity is System-assigned managed identity details about managed identities,
  - The Kubernetes role-based access control (RBAC) option is the default value to provide more fine-grained control over access to the Kubernetes resources deployed in your AKS cluster.
4. Select Next: Networking when complete.

5. Keep the default Networking options. At the bottom of the screen, click Next: Integrations.
6. On the Integrations page, select Enable recommended alert rules. You can see the list of alerts that are automatically enabled if you select this option.
7. Click Review + create. When you navigate to the Review + create tab, Azure runs validation on the settings that you have chosen. If validation passes, can proceed to create the AKS cluster by selecting Create. If validation fails, then it indicates which settings need to be modified.
8. It takes a few minutes to create the AKS cluster. When your deployment is complete, navigate to your resource by either:
  - Selecting Go to resource, or
  - Browsing to the AKS cluster resource group and selecting the AKS resource. for myResourceGroup and select the resource myAKSCluster.

## Snippet: 1

Home > Create a resource >

### Create Kubernetes cluster

Subscription \*

Resource group \*  [Create new](#)

**Cluster details**

Cluster preset configuration  To quickly customize your Kubernetes cluster, choose one of the preset configurations above. You can modify these configurations at any time. [Learn more and compare presets](#)

Kubernetes cluster name \*

Region \*

Availability zones  High availability is recommended for standard configuration.

AKS pricing tier

[Review + create](#) [< Previous](#) [Next: Node pools >](#) [Give feedback](#)

## Snippet: 2

Home > Create a resource >

### Create Kubernetes cluster

Name	Mode	OS type	Node count	Node size
agentpool	System	Linux	1-2	Standard_DS2_v2

**Enable virtual nodes**  
Virtual nodes allow burstable scaling backed by serverless Azure Container Instances. [Learn more about virtual nodes](#)

Enable virtual nodes ☐

**Node pool OS disk encryption**  
By default, all disks in AKS are encrypted at rest with Microsoft-managed keys. For additional control over encryption, you can supply your own keys using a disk encryption set backed by an Azure Key Vault. The disk encryption set will be used to encrypt the OS disks for all node pools in the cluster. [Learn more](#)

Encryption type

[Review + create](#) [< Previous](#) [Next: Access >](#) [Give feedback](#)

## Snippet: 3

Microsoft Azure Upgrade Search resources, services, and docs (G+)

Home > Create a resource >

### Create Kubernetes cluster

Basics Node pools **Access** Networking Integrations Advanced Tags Review + create

Resource Identity System-assigned managed identity  
By default, Azure uses a managed identity. To use a service principal, use the CLI.  
[Learn more](#)

Choose between local accounts or Azure AD for authentication and Azure RBAC or Kubernetes RBAC for your authorization needs.

Authentication and Authorization Local accounts with Kubernetes RBAC

Once the cluster is deployed, use the Kubernetes CLI to manage RBAC configurations. [Learn more](#)

**Review + create** < Previous Next: Networking > [Give feedback](#)

## Snippet: 4

Microsoft Azure Upgrade Search resources, services, and docs (G+)

Home > Create a resource >

### Create Kubernetes cluster

DNS name prefix myakskcluster-dns

Traffic routing

Load balancer Standard

Security

Enable private cluster ☐

Set authorized IP ranges ☐

Network policy ☒ None ☐ Calico ☐ Azure

The Azure network policy is not compatible with kubenet networking.

**Review + create** < Previous Next: Integrations > [Give feedback](#)

## Snippet: 5

Microsoft Azure Upgrade Search resources, services, and docs (G+)

Home > Create a resource >

### Create Kubernetes cluster

Alerting

Enable recommended alert rules ☒

Alert rules

**Alert me if**

- CPU Usage Percentage is greater than 80%
- Memory Working Set Percentage is greater than 80%

**Notify me by**

- Email: sriharshini.j@nagarro.com

Azure Policy

Apply at-scale enforcements and safeguards for AKS clusters in a centralized, consistent manner through Azure Policy.  
[Learn more about Azure Policy for AKS](#)

Azure Policy ☐ Enabled ☒ Disabled

**Review + create** < Previous Next: Advanced > [Give feedback](#)

## Snippet: 6 & 7

Microsoft Azure | Upgrade | Search resources, services, and docs (G+/I)

Home > Create a resource >

### Create Kubernetes cluster

Basics Node pools Access Networking Integrations **Advanced** Tags Review + create

Enable secret store CSI driver ☐

Infrastructure resource group  [Edit](#)

[Review + create](#) [< Previous](#) [Next : Tags >](#) [Give feedback](#)

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Microsoft Azure | Upgrade | Search resources, services, and docs (G+/I)

Home > Create a resource >

### Create Kubernetes cluster

Basics Node pools Access Networking Integrations Advanced **Tags** Review + create

Tags are name/value pairs that enable you to categorize resources and view consolidated billing by applying the same tag to multiple resources and resource groups. [Learn more about tags](#)

Note that if you create tags and then change resource settings on other tabs, your tags will be automatically updated.

Name	Value	Resource
<input type="text"/>	<input type="text"/>	2 selected

[Review + create](#) [< Previous](#) [Next : Review + create >](#) [Give feedback](#)

## Snippet: 8

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Home > Create a resource >

### Create Kubernetes cluster

Basics Node pools Access Networking Integrations Advanced Tags **Review + create**

Validation passed

Basics

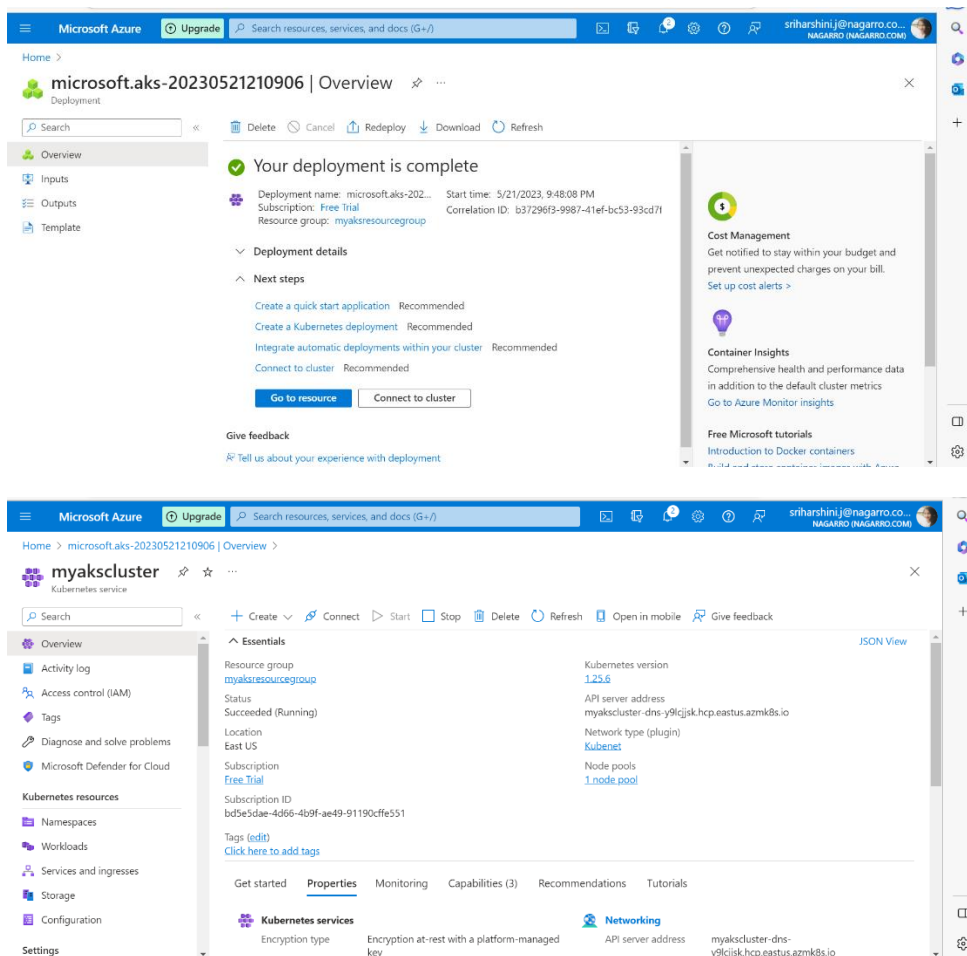
Subscription	Free Trial
Resource group	(new) myaksresourcegroup
Region	East US
Kubernetes cluster name	myakscluster
Kubernetes version	1.25.6
Automatic upgrade	Patch

Node pools

Node pools	1
------------	---

[Create](#) [< Previous](#) [Next >](#) [Download a template for automation](#) [Give feedback](#)

## Snippet: 9 &10



## Connect to the cluster

To manage a Kubernetes cluster, use the Kubernetes command-line client, [kubectl](#). kubectl is already installed if you use Azure Cloud Shell. If you're unfamiliar with the Cloud Shell,

1. Open Cloud Shell using the >\_ button on the top of the Azure portal

```
az aks get-credentials --resource-group myResourceGroup --name myAKSCluster
```

```
kubectl get nodes
```

NAME	STATUS	ROLES	AGE	VERSION
aks-agentpool-12345678-vmss000000	Ready	agent	23m	v1.19.11
aks-agentpool-12345678-vmss000001	Ready	agent	24m	v1.19.11

Two Kubernetes Services are also created:

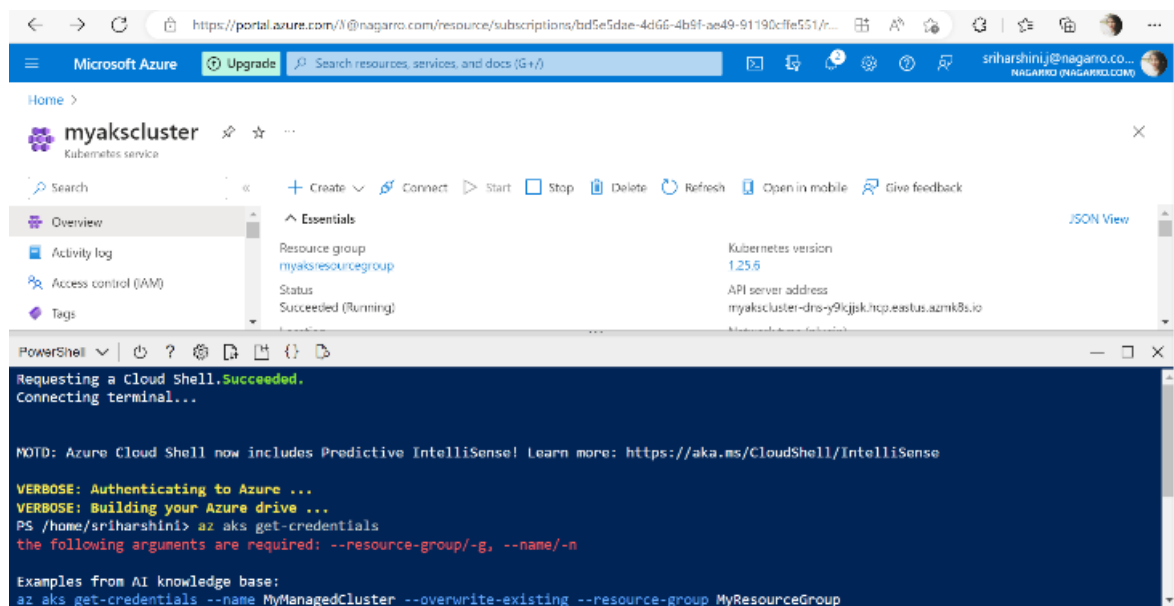
- An internal service for the Redis instance.
- An external service to access the Azure Vote application from the internet.

1. In the Cloud Shell, open an editor and create a file named azure-vote.yaml.
2. Paste in the following YAML definition:

Deploy the application using the `kubectl apply` command and specify the name of your YAML manifest:

- `kubectl apply -f azure-vote.yaml`
- deployment "azure-vote-back" created
- service "azure-vote-back" created
- deployment "azure-vote-front" created
- service "azure-vote-front" created
- azure-vote-front LoadBalancer 10.0.37.27 52.179.23.131 80:30572/TCP

## CODE



```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: azure-vote-back
spec:
  replicas: 1
  selector:
    matchLabels:
      app: azure-vote-back
  template:
    metadata:
      labels:
        app: azure-vote-back
    spec:
      nodeSelector:
        "kubernetes.io/os": linux
      containers:
        - name: azure-vote-back
          image: mcr.microsoft.com/oss/bitnami/redis:6.0.8
          env:
            - name: ALLOW_EMPTY_PASSWORD
              value: "yes"
      resources:
        requests:
          cpu: 100m
          memory: 128Mi
        limits:
          cpu: 250m
```

memory: 256Mi

ports:

- containerPort: 6379

name: redis

---

apiVersion: v1

kind: Service

metadata:

name: azure-vote-back

spec:

ports:

- port: 6379

selector:

app: azure-vote-back

---

apiVersion: apps/v1

kind: Deployment

metadata:

name: azure-vote-front

spec:

replicas: 1

selector:

matchLabels:

app: azure-vote-front

template:

metadata:

labels:

app: azure-vote-front



```
spec:
  nodeSelector:
    "kubernetes.io/os": linux
  containers:
    - name: azure-vote-front
      image: mcr.microsoft.com/azuredocs/azure-vote-front:v1
  resources:
    requests:
      cpu: 100m
      memory: 128Mi
    limits:
      cpu: 250m
      memory: 256Mi
  ports:
    - containerPort: 80
  env:
    - name: REDIS
      value: "azure-vote-back"
  ---
  apiVersion: v1
  kind: Service
  metadata:
    name: azure-vote-front
  spec:
    type: LoadBalancer
    ports:
      - port: 80
    selector:
```

app: azure-vote-front

## RESULT

The image displays two screenshots. The top screenshot is a terminal window showing the output of several Kubernetes commands. The bottom screenshot is a browser window showing the Azure Voting App interface.

**Terminal Output:**

```
ack    TYPE      CLUSTER-IP    EXTERNAL-IP    PORT(S)      AGE
ont    LoadBalancer 10.0.75.186    20.81.67.186   80:31394/TCP 30s
      ClusterIP    10.0.0.1      <none>         443/TCP      9m2s
eel> kubectl get rs
      DESIRED  CURRENT  READY  AGE
ack-59cb7dc555 1        1        1      58s
ont-5f4d7db9c8 1        1        1      57s
eel> kubectl get pods
```

**Browser Screenshot:**

The browser window shows the Azure Voting App interface. It has a title "Azure Voting App" and three buttons: "Cats", "Dogs", and "Reset". Below the buttons, it displays the current vote count: "Cats - 1 | Dogs - 0".