**Azure Kubernetes Services - Module -1**

**Create AKS Cluster**

**Step-01: Introduction**

* Understand about AKS Cluster
* Discuss about Kubernetes Architecture from AKS Cluster perspective

**Step-02: Create AKS Cluster**

* Create Kubernetes Cluster
* **Basics**
  + **Subscription:** Free Trial
  + **Resource Group:** Creat New: aks-rg1
  + **Kubernetes Cluster Name:** aksdemo1
  + **Region:** (US) Central US
  + **Kubernetes Version:** Select what ever is latest stable version
  + **Node Size:** Standard DS2 v2 (Default one)
  + **Node Count:** 1
* **Node Pools**
  + leave to defaults
* **Authentication**
  + Authentication method: System-assigned managed identity
  + Rest all leave to defaults
* **Networking**
  + **Network Configuration:** Advanced
  + **Network Policy:** Azure
  + Rest all leave to defaults
* **Integrations**
  + Azure Container Registry: None
  + leave to defaults
* **Tags**
  + leave to defaults
* **Review + Create**
  + Click on **Create**

**Step-03: Cloud Shell - Configure kubectl to connect to AKS Cluster**

* Go to [https://shell.azure.com](https://shell.azure.com/)

# Template

az aks get-credentials --resource-group <Resource-Group-Name> --name <Cluster-Name>

# Replace Resource Group & Cluster Name

az aks get-credentials --resource-group aks-rg1 --name aksdemo1

# List Kubernetes Worker Nodes

kubectl get nodes

kubectl get nodes -o wide

**Step-04: Explore Cluster Control Plane and Workload inside that**

# List Namespaces

kubectl get namespaces

kubectl get ns

# List Pods from all namespaces

kubectl get pods --all-namespaces

# List all k8s objects from Cluster Control plane

kubectl get all --all-namespaces

**Step-05: Explore the AKS cluster on Azure Management Console**

* Explore the following features on high-level
* **Overview**
  + Activity Log
  + Access Control (IAM)
  + Security
  + Diagnose and solver problems
* **Settings**
  + Node Pools
  + Upgrade
  + Scale
  + Networking
  + DevSpaces
  + Deployment Center
  + Policies
* **Monitoring**
  + Insights
  + Alerts
  + Metrics
  + and many more
* **VM Scale Sets**
  + Verify Azure VM Instances
  + Verify if **Enhanced Networking is enabled or not**

**Step-06: Local Desktop - Install Azure CLI and Azure AKS CLI**

# Install Azure CLI (MAC)

brew update && brew install azure-cli

# Login to Azure

az login

# Install Azure AKS CLI

az aks install-cli

# Configure Cluster Creds (kube config)

az aks get-credentials --resource-group aks-rg1 --name aksdemo1

# List AKS Nodes

kubectl get nodes

kubectl get nodes -o wide

* **Reference Documentation Links**
* <https://docs.microsoft.com/en-us/cli/azure/?view=azure-cli-latest>
* <https://docs.microsoft.com/en-us/cli/azure/aks?view=azure-cli-latest>

**Step-07: Deploy Sample Application and Test**

* Don't worry about what is present in these two files for now.
* By the time we complete **Kubernetes Fundamentals** sections, you will be an expert in writing Kubernetes manifest in YAML.
* For now just focus on result.

# Deploy Application

kubectl apply -f kube-manifests/

# Verify Pods

kubectl get pods

# Verify Deployment

kubectl get deployment

# Verify Service (Make a note of external ip)

kubectl get service

# Access Application

http://<External-IP-from-get-service-output>

**Step-07: Clean-Up**

# Delete Applications

kubectl delete -f kube-manifests/