

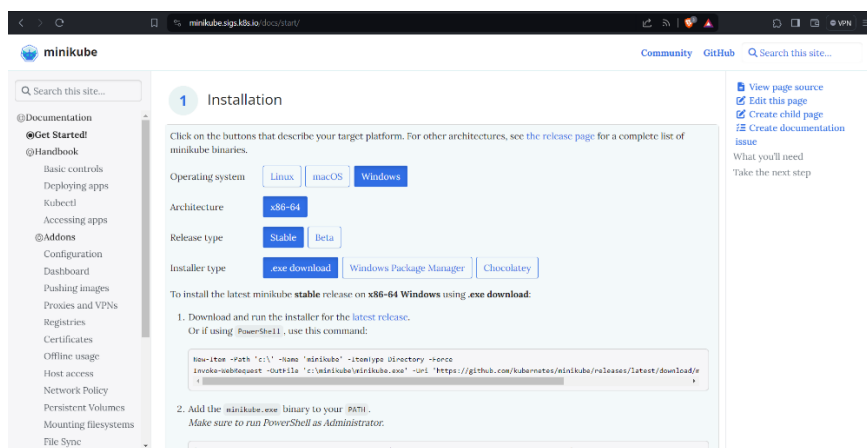
Tasks:

1. Install minikube on your local machine and run the few commands of kubectl.
2. Try to give alias to kubectl as "k".
3. Try out "kubectl get pods" and "kubectl get nodes" and check what are the information that console is giving back.
4. Optional - Try to create EKS configuration.(Note that this will cause you cost. Also remember to delete all services which you created for EKS)

Installing Minikube:

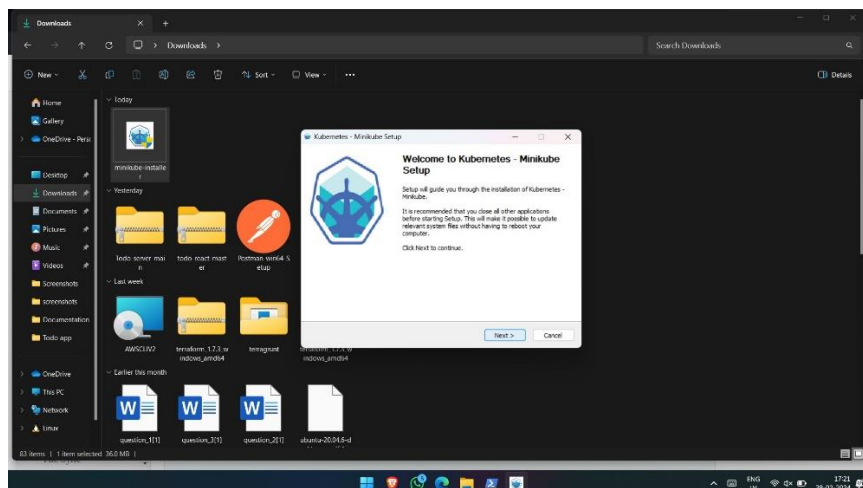
1. Install Minikube by following the official documentation for your operating system:

Go to [Minikube-Installation](#)

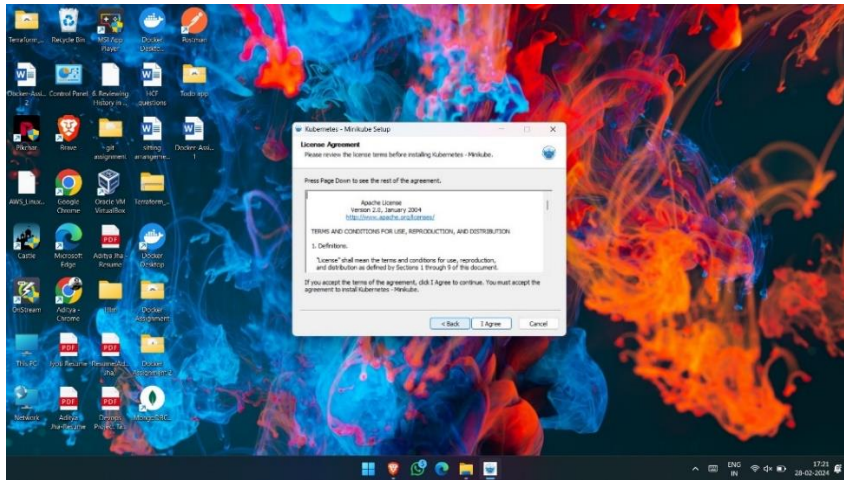


Download and run the installer for the [latest release](#). Then, Follow the onscreen instructions.

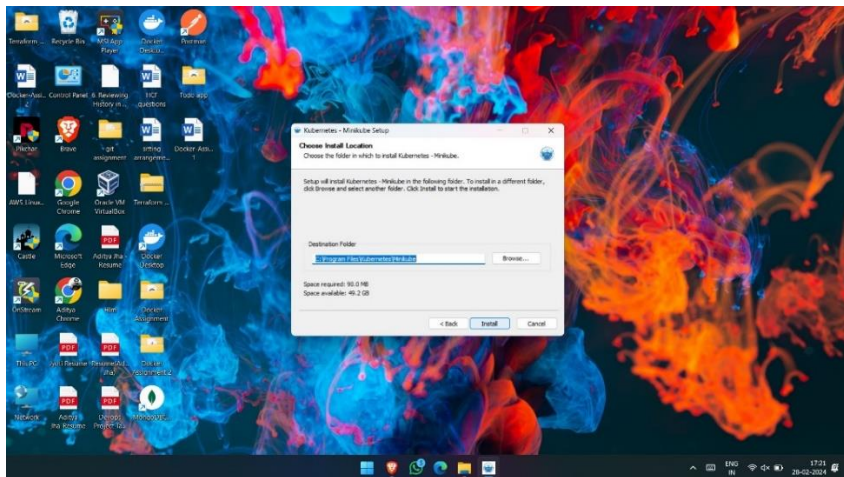
- i. Click "Next".



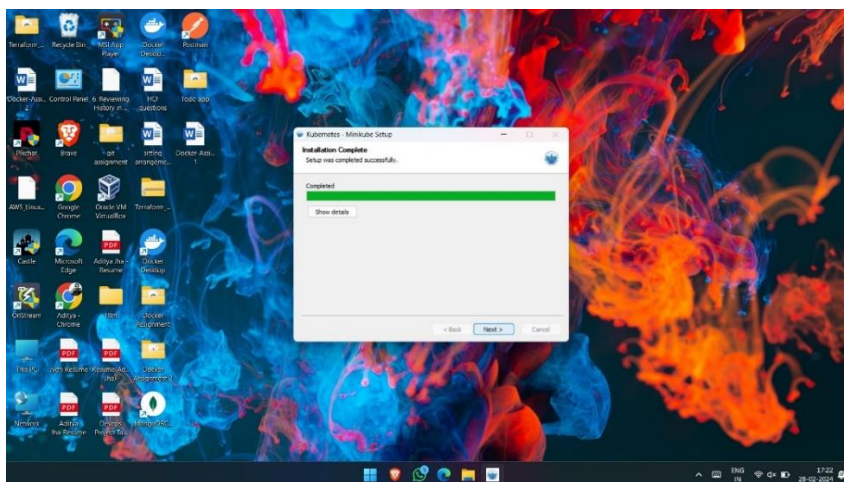
ii. Click “I Agree”.



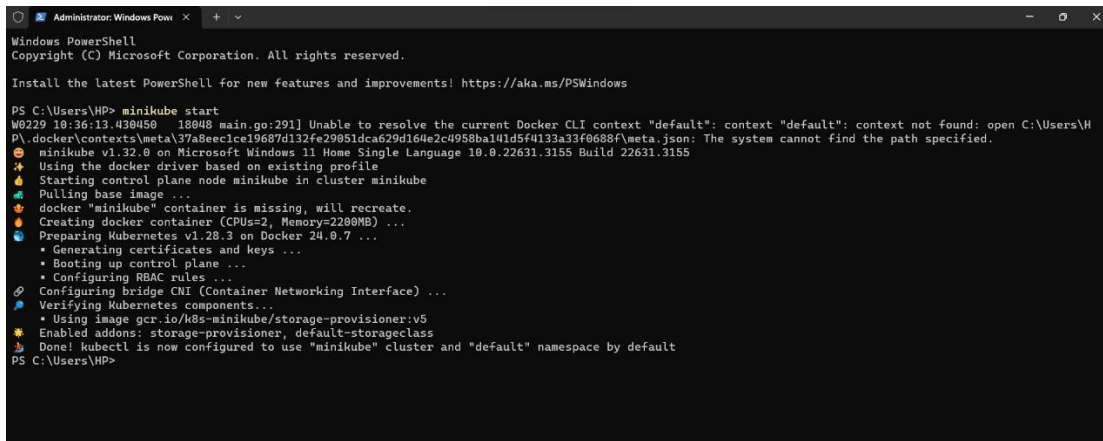
iii. Click “Install”



iv. Now, installation is complete. Click “Next”.



2. After installation, start Minikube by running the following command:
minikube start



```
Administrator: Windows PowerShell
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\HP> minikube start
W0229 10:36:13.430450 18048 main.go:291] Unable to resolve the current Docker CLI context "default": context "default": context not found: open C:\Users\H
P\.docker\contexts\meta\37a8ee1ce19687d132fe29051dca629d164e2c4958ba141d5f4133a33f0688f\meta.json: The system cannot find the path specified.
🔧 minikube v1.32.0 on Microsoft Windows 11 Home Single Language 10.0.22631.3155 Build 22631.3155
🔧 Using the docker driver based on existing profile
🔧 Starting control plane node minikube in cluster minikube
🔧 Pulling base image ...
🔧 docker "minikube" container is missing, will recreate.
🔧 Creating docker container (CPUs=2, Memory=2200MB) ...
🔧 Preparing Kubernetes v1.28.3 on Docker 24.0.7 ...
  * Generating certificates and keys ...
  * Booting up control plane ...
  * Configuring RBAC rules ...
  * Configuring bridge CNI (Container Networking Interface) ...
🔧 Verifying Kubernetes components...
  * Using image gcr.io/k8s-minikube/storage-provisioner:v5
🔧 Enabled addons: storage-provisioner, default-storageclass
🔧 Done! kubectl is now configured to use "minikube" cluster and "default" namespace by default
PS C:\Users\HP>
```

Using kubectl:

1. Few kubectl commands:

- (i) **kubectl get po -A** (This command is used to list all the pods in all namespaces in a Kubernetes cluster.)

```
PS C:\Users\HP\.kube> kubectl get po -A
NAMESPACE   NAME                                     READY   STATUS    RESTARTS   AGE
kube-system  coredns-5dd5756b68-zwpts               1/1     Running   1 (7m1s ago)  9m10s
kube-system  etcd-minikube                           1/1     Running   1 (7m6s ago)  9m23s
kube-system  kube-apiserver-minikube                 1/1     Running   1 (6m56s ago)  9m23s
kube-system  kube-controller-manager-minikube        1/1     Running   1 (7m6s ago)  9m23s
kube-system  kube-proxy-94p5t                        1/1     Running   1 (7m6s ago)  9m10s
kube-system  kube-scheduler-minikube                 1/1     Running   1 (7m6s ago)  9m23s
kube-system  storage-provisioner                     1/1     Running   2 (6m50s ago)  9m21s
```

- (ii) **kubectl version --client** (This command provides information about the version of kubectl installed on my local machine.)

```
PS C:\Users\HP> kubectl version --client
Client Version: v1.29.1
Kustomize Version: v5.0.4-0.20230601165947-6ce0bf390ce3
```

- (iii) **kubectl cluster-info** (This command is used to display information about the Kubernetes cluster that my kubectl command-line tool is currently configured to interact with.)

```
PS C:\Users\HP\.kube> kubectl cluster-info
Kubernetes control plane is running at https://127.0.0.1:59923
CoreDNS is running at https://127.0.0.1:59923/api/v1/namespaces/kube-system/services/kube-dns:dns/proxy
To further debug and diagnose cluster problems, use 'kubectl cluster-info dump'.
```

Now, let's give alias to kubectl as "k" in order to give alias as "k" we will run **function k { minikube kubectl -- \$args }**

```
PS C:\Users\HP> function k { minikube kubectl -- $args }
PS C:\Users\HP> k
W0229 11:45:44.188414 19824 main.go:291] Unable to resolve the current Docker CLI context "default": context "default": context not found: open C:\Users\HP\
.docker\contexts\meta\37a8eec1ce19687d132fe29051dca629d164e2c4958ba141d5f4133a33f0688f\meta.json: The system cannot find the path specified.
kubectl controls the Kubernetes cluster manager.

Find more information at: https://kubernetes.io/docs/reference/kubectl/

Basic Commands (Beginner):
  create      Create a resource from a file or from stdin
  expose      Take a replication controller, service, deployment or pod and expose it as a new Kubernetes service
  run         Run a particular image on the cluster
  set         Set specific features on objects

Basic Commands (Intermediate):
  explain     Get documentation for a resource
  get         Display one or many resources
  edit        Edit a resource on the server
  delete      Delete resources by file names, stdin, resources and names, or by resources and label selector

Deploy Commands:
  rollout     Manage the rollout of a resource
  scale       Set a new size for a deployment, replica set, or replication controller
  autoscale   Auto-scale a deployment, replica set, stateful set, or replication controller

Cluster Management Commands:
  certificate Modify certificate resources
  cluster-info Display cluster information
  top          Display resource (CPU/memory) usage
  cordon       Mark node as unschedulable
  uncordon     Mark node as schedulable
  drain        Drain node in preparation for maintenance
  taint        Update the taints on one or more nodes

Troubleshooting and Debugging Commands:
  describe    Show details of a specific resource or group of resources
  logs        Print the logs for a container in a pod
  attach      Attach to a running container
  exec        Execute a command in a container
  port-forward Forward one or more local ports to a pod
  proxy       Run a proxy to the Kubernetes API server
```

So, now we can use "k" instead of "kubectl"

- (iv) **k get pods:** List pods in the default namespace. (This command shows the running pods in the default namespace. Pods are the smallest deployable units in Kubernetes.)

```
PS C:\Users\HP> k get pods
W0229 11:46:04.609580 12876 main.go:291] Unable to resolve the current Docker CLI context "default": context "default": context not found: open C:\Users\HP\
.docker\contexts\meta\37a8eec1ce19687d132fe29051dca629d164e2c4958ba141d5f4133a33f0688f\meta.json: The system cannot find the path specified.
No resources found in default namespace.
```

It is showing no resources found in default namespace because there is no resource created.

- (v) **k get nodes:** List nodes in the cluster. (Nodes are the worker machines in the Kubernetes cluster. This command provides information about the nodes in the cluster.)

```
PS C:\Users\HP> k get nodes
W0229 11:45:51.383478 8516 main.go:291] Unable to resolve the current Docker CLI context "default": context "default": context not found: open C:\Users\HP\
.docker\contexts\meta\37a8eec1ce19687d132fe29051dca629d164e2c4958ba141d5f4133a33f0688f\meta.json: The system cannot find the path specified.
NAME          STATUS    ROLES    AGE   VERSION
minikube      Ready     control-plane  57s   v1.28.3
```


All of the above commands using k:

```
PS C:\Users\HP> k cluster-info
W0229 11:46:15.799506 2488 main.go:291] Unable to resolve the current Docker CLI context "default": context "default": context not found: open C:\Users\H
P\.docker\contexts\meta\37a8ee1ce19687d132fe29051dca629d164e2c4958ba141d5f4133a33f0688f\meta.json: The system cannot find the path specified.
Kubernetes control plane is running at https://127.0.0.1:61663
CoreDNS is running at https://127.0.0.1:61663/api/v1/namespaces/kube-system/services/kube-dns:dns/proxy

To further debug and diagnose cluster problems, use 'kubectl cluster-info dump'.
PS C:\Users\HP> k get po -A
W0229 11:46:38.348931 8388 main.go:291] Unable to resolve the current Docker CLI context "default": context "default": context not found: open C:\Users\H
P\.docker\contexts\meta\37a8ee1ce19687d132fe29051dca629d164e2c4958ba141d5f4133a33f0688f\meta.json: The system cannot find the path specified.
NAMESPACE NAME READY STATUS RESTARTS AGE
kube-system coredns-5dd5756b68-2lrtp 1/1 Running 0 88s
kube-system etcd-minikube 1/1 Running 0 103s
kube-system kube-apiserver-minikube 1/1 Running 0 100s
kube-system kube-controller-manager-minikube 1/1 Running 0 100s
kube-system kube-proxy-vk2pf 1/1 Running 0 88s
kube-system kube-scheduler-minikube 1/1 Running 0 100s
kube-system storage-provisioner 1/1 Running 1 (87s ago) 98s
PS C:\Users\HP> k version --client
W0229 11:47:07.863016 20180 main.go:291] Unable to resolve the current Docker CLI context "default": context "default": context not found: open C:\Users\H
P\.docker\contexts\meta\37a8ee1ce19687d132fe29051dca629d164e2c4958ba141d5f4133a33f0688f\meta.json: The system cannot find the path specified.
Client Version: v1.28.3
Kustomize Version: v5.0.4-0.20230601165947-6c0ebf398ce3
```

(vi) k api-resources (listing the api-resources)

```
PS C:\Users\HP> k api-resources
W0229 17:34:04.697807 8464 main.go:291] Unable to resolve the current Docker CLI context "default": context "default": context not found: open C:\Users\H
P\.docker\contexts\meta\37a8ee1ce19687d132fe29051dca629d164e2c4958ba141d5f4133a33f0688f\meta.json: The system cannot find the path specified.
NAME SHORTNAMES APIVERSION NAMESPACED KIND
bindings cs v1 true Binding
componentstatuses cs v1 false ComponentStatus
configmaps cm v1 true ConfigMap
endpoints ep v1 true Endpoints
events ev v1 true Event
limitslimits ns v1 true LimitRange
namespaces ns v1 false Namespace
nodes no v1 false Node
persistentvolumeclaims pvc v1 true PersistentVolumeClaim
persistentvolumes pv v1 false PersistentVolume
pods po v1 true Pod
podtemplates po v1 true PodTemplate
replicationcontrollers rc v1 true ReplicationController
resourcequotas quota v1 true ResourceQuota
secrets sa v1 true Secret
serviceaccounts sa v1 true ServiceAccount
services svc v1 true Service
mutatingwebhookconfigurations admissionregistration.k8s.io/v1 false MutatingWebhookConfiguration
validatingwebhookconfigurations admissionregistration.k8s.io/v1 false ValidatingWebhookConfiguration
customresourcedefinitions crd,crds apiextensions.k8s.io/v1 false CustomResourceDefinition
apiservices apiregistration.k8s.io/v1 false APIService
controllerrevisions apps/v1 true ControllerRevision
daemonsets ds apps/v1 true DaemonSet
deployments deploy apps/v1 true Deployment
replicasets rs apps/v1 true ReplicaSet
statefulsets sts apps/v1 true StatefulSet
selfsubjectreviews authentication.k8s.io/v1 false SelfSubjectReview
tokenreviews authentication.k8s.io/v1 false TokenReview
localsubjectaccessreviews authorization.k8s.io/v1 true LocalSubjectAccessReview
selfsubjectaccessreviews authorization.k8s.io/v1 false SelfSubjectAccessReview
selfsubjectrulesreviews authorization.k8s.io/v1 false SelfSubjectRulesReview
subjectaccessreviews authorization.k8s.io/v1 false SubjectAccessReview
horizontalpodautoscalers hpa autoscaling/v2 true HorizontalPodAutoscaler
cronjobs cj batch/v1 true CronJob
jobs batch/v1 true Job
certificatesigningrequests csr certificates.k8s.io/v1 false CertificateSigningRequest
leases coordination.k8s.io/v1 true Lease
```

(vii) k api-versions (listing the api-versions)

```
PS C:\Users\HP> k api-versions
W0229 17:38:03.437412 12524 main.go:291] Unable to resolve the current Docker CLI context "default": context "default": context not found: open C:\Users\H
P\.docker\contexts\meta\37a8ee1ce19687d132fe29051dca629d164e2c4958ba141d5f4133a33f0688f\meta.json: The system cannot find the path specified.
admissionregistration.k8s.io/v1
apiextensions.k8s.io/v1
apiregistration.k8s.io/v1
apps/v1
authentication.k8s.io/v1
authorization.k8s.io/v1
autoscaling/v1
autoscaling/v2
batch/v1
certificates.k8s.io/v1
coordination.k8s.io/v1
discovery.k8s.io/v1
events.k8s.io/v1
flowcontrol.apiserver.k8s.io/v1beta2
flowcontrol.apiserver.k8s.io/v1beta3
networking.k8s.io/v1
node.k8s.io/v1
policy/v1
rbac.authorization.k8s.io/v1
scheduling.k8s.io/v1
storage.k8s.io/v1
v1
```

(viii) **kubectl get pods and kubectl get nodes:**

```
PS C:\Users\HP\Desktop\K8s-Assignment-2> kubectl apply -f app-deployment-cip.yaml
>>
deployment.apps/app-deployment-cip created
PS C:\Users\HP\Desktop\K8s-Assignment-2> kubectl get pods
>>
NAME                                READY   STATUS    RESTARTS   AGE
app-deployment-cip-5bdfb8c6f5-5j4l9  1/1     Running   0           4s
app-deployment-cip-5bdfb8c6f5-7jm8m  1/1     Running   0           4s
app-deployment-cip-5bdfb8c6f5-jrzwk  1/1     Running   0           4s
PS C:\Users\HP\Desktop\K8s-Assignment-2> kubectl get nodes
NAME      STATUS   ROLES    AGE   VERSION
minikube  Ready    control-plane  2d8h  v1.28.3
```

“**kubectl get pods**” is listing the pods and “**kubectl get nodes**” is listing the nodes.

(ix) **kubectl delete all --all**

```
Normal ScalingReplicaSet 2s (x7 over 12m) deployment-controller
PS C:\Users\HP\Desktop\K8s-Assignment-2> kubectl delete all --all
pod "app-deployment-74756865b8-kvqtg" deleted
pod "app-deployment-74756865b8-nlj2r" deleted
pod "app-deployment-74756865b8-qgpkp" deleted
pod "app-deployment-lb-778bdfd5c8-2kgq5" deleted
pod "app-deployment-lb-778bdfd5c8-dh4ds" deleted
pod "app-deployment-lb-778bdfd5c8-l4djj" deleted
service "kubernetes" deleted
service "my-loadbalancer-service02" deleted
deployment.apps "app-deployment" deleted
deployment.apps "app-deployment-lb" deleted
PS C:\Users\HP\Desktop\K8s-Assignment-2>
```

This command deletes all the resources.