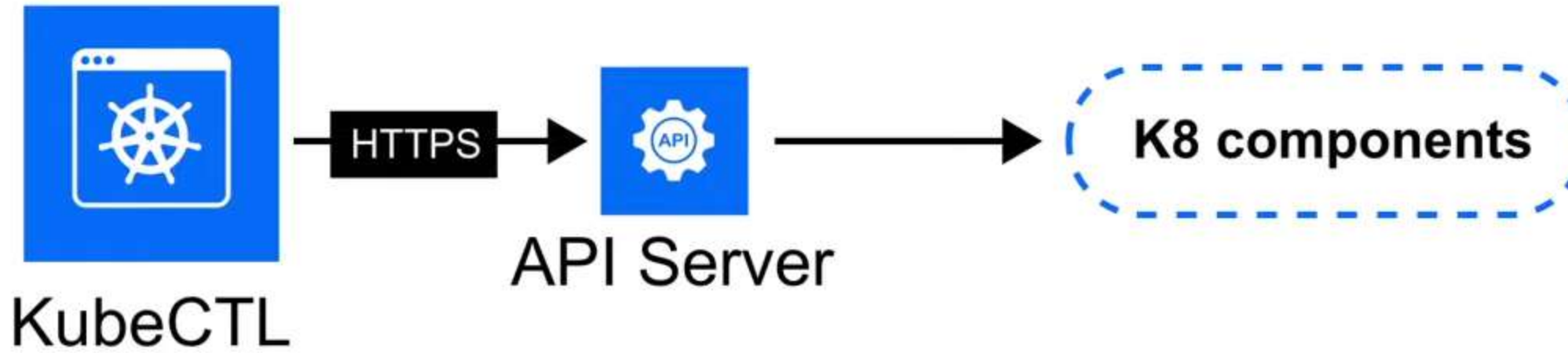


KubeCTL

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KubeCTL is a command line tool lets you control Kubernetes clusters



kubectl looks for a file named config in the \$HOME/.kube directory

KubeCTL has the following syntax:


- kubectl [COMMAND] [TYPE] [NAME] [FLAGS]

KubeCTL – Command

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kubectl **[COMMAND]** [TYPE] [NAME] [FLAGS]

COMMAND: The **operation** you want to perform



```
kubectl cp simple.txt nginx-6db489d4b7-qkd5d:.
```

Available commands:

annotation - key value data that can be applied to resources

apply - Executes manifest files to create, modify K8 resources

auth - Inspect if you are authorized to perform an action

autoscale - Create an autoscaler that automatically chooses and sets the number of pods that run in a kubernetes cluster

cp - Copy files and directories to and from containers

create — Create specific K8 cluster-level resources: ConfigMap, Deployment, Job, Namespace, Role, Secret

delete — Delete resources filenames, stdin, resources and names, or by resources and label select

describe — Show details of a specific resource or group of resources

diff — diffs the online configuration with local config

KubeCTL – Command

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- **edit** — Edit a resource from the default editor. Edit a deployed manifest file and apply the changes.
- **exec** — Execute a command within a container
- **expose** — Expose as resource as Kubernetes service
- **get** — generally used to get the status of an existing Kubernetes resource
- **kustomize** — Print a set of API resources generated from instructions in a kustomization.yaml file
- **label** — update labels on a resource
- **logs** — print the logs for a container in a pod or specific resource
- **patch** — Update fields of a resource using strategic merge patch, a JSON merge patch, or a JSON patch
- **port-forward** — Forward one or more local ports to a pod.
- **proxy** — Creates a proxy server between localhost and the Kubernetes API Server
- **run** — Create and run a container image in a pod
- **scale** — Set a new size for a Deployment, ReplicaSet, Replication Controller, or StatefulSet

KubeCTL – Type

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kubectl [COMMAND] [TYPE] [NAME] [FLAGS]

TYPE: The **resource type** you want to command

```
kubectl describe deployments
```

Resource types can have abbreviations:

- deployments → deploy
- persistentVolumes → pv
- pods → po

```
kubectl describe deploy
```

There are over **50+ resource types**

- | | | | |
|--|---|---|---|
| <ul style="list-style-type: none">• Bindings• Componentstatuses (cs)• Configmaps (cm)• Endpoints (ep)• Events (ev)• Limitranges (limits)• Namespaces (ns)• Nodes (no)• Persistentvolumeclaims (pvc)• Persistentvolumes (pv)• Pods (po)• Podtemplates• Replicationcontrollers (rc)• Resourcequotas (quota) | <ul style="list-style-type: none">• Secrets• Serviceaccounts (sa)• Services (svc)• Mutatingwebhookconfigurations• Validatingwebhookconfigurations• Customresourcedefinitions (crd)• Apiservices• Controllerrevisions• Daemonsets (ds)• Deployments (deploy)• Replicasets (rs)• Statefulsets (sts)• Tokenreviews• Localsubjectaccessreviews | <ul style="list-style-type: none">• Selfsubjectaccessreviews• Selfsubjectrulesreviews• Subjectaccessreviews• Horizontalpodautoscalers• Cronjobs (cj)• Jobs• Certificatesigningrequests (csr)• Leases• Endpointslices• Events (ev)• Ingresses (ing)• Flowschemas• Prioritylevelconfigurations• Ingressclasses | <ul style="list-style-type: none">• Networkpolicies (netpol)• Runtimeclasses• Poddisruptionbudgets (pdb)• Podsecuritypolicies (psp)• Clusterrolebindings• Clusterroles• Rolebindings• Roles• Priorityclasses (pc)• Csidrivers• Csinodes• Storageclasses (sc)• volumeattachments |
|--|---|---|---|

KubeCTL – Name

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kubectl [COMMAND] [TYPE] [NAME] [FLAGS]

NAME: Specifies the **name of the resource**




```
kubectl get pod example-pod1 example-pod2
```



Names are case-sensitive

If the name is **omitted**, details for all resources are displayed



```
kubectl get pods
```


KubeCTL – Flags

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kubectl [COMMAND] [TYPE] [NAME] [FLAGS]

FLAGS: Specifies optional flags



```
kubectl create role my-role --verb=get,list,watch --resource=rs.extensions
```

- Flags generally start with two hyphens. eg. -server
- Sometimes flags have abbreviations with single hyphen eg. -s
- Available flags will vary based on command
- Sometimes flags can be assigned values or do not expect a value.

KubeCTL Documentation

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KubeCTL documentation shows example of how to use all the KubeCTL commands.

<https://kubernetes.io/docs/reference/generated/kubectl/kubectl-commands>

The screenshot displays the 'Kubectl Reference Docs' website. The left sidebar lists various commands under categories like 'APP MANAGEMENT' and 'WORKING WITH APPS'. The main content area is titled 'run' and includes a description, usage, flags, and a table of flags. The right sidebar shows several example commands for running different pods.

run

Create and run a particular image in a pod.

Usage

```
$ kubectl run NAME --image=image [--env="key=value"] [--port=port] [--dry-run=server|client] [--overrides=inline-json] [--command] -- [COMMAND] [args...]
```

Flags

| Name | Shorthand | Default | Usage |
|-----------------------------|-----------|------------|---|
| allow-missing-template-keys | | true | If true, ignore any errors in templates when a field or map key is missing in the template. Only applies to goyaml and jsonpath output formats. |
| annotations | | [] | Annotations to apply to the pod. |
| attach | | false | If true, wait for the Pod to start running, and then attach to the Pod as if 'kubectl attach ...' were called. Default false, unless '-i/--stdin' is set, in which case the default is true. With '--restart=Never' the exit code of the container process is returned. |
| cascade | | background | Must be "background", "orphan", or "foreground". Selects the deletion cascading strategy for the dependents. |

example

- Start a nginx pod
`kubectl run nginx --image=nginx`
- Start a hazelcast pod and let the container expose port 5701
`kubectl run hazelcast --image=hazelcast/hazelcast --port=5701`
- Start a hazelcast pod and set environment variables "DNS_DOMAIN=cluster" and "POD_NAMESPACE=default" in the container
`kubectl run hazelcast --image=hazelcast/hazelcast --env="DNS_DOMAIN=cluster" --env="POD_NAMESPACE=default"`
- Start a hazelcast pod and set labels "app=hazelcast" and "env=prod" in the container
`kubectl run hazelcast --image=hazelcast/hazelcast --labels="app=hazelcast,env=prod"`
- Dry run; print the corresponding API objects without creating them
`kubectl run nginx --image=nginx --dry-run=client`
- Start a nginx pod, but overload the spec with a partial set of values parsed from JSON
`kubectl run nginx --image=nginx --overrides='{ "apiVersion": "v1", "spec": { "containers": [{ "name": "nginx", "image": "nginx" }] } }'`
- Start a busybox pod and keep it in the foreground, don't restart it if it exits
`kubectl run -i -t busybox --image=busybox --restart=Never`

