

Security KUBECONFIG



```
▶ curl https://my-kube-playground:6443/api/v1/pods \
  --key admin.key
  --cert admin.crt
  --cacert ca.crt

{
  "kind": "PodList",
  "apiVersion": "v1",
  "metadata": {
    "selfLink": "/api/v1/pods",
  },
  "items": []
}
```

```
▶ kubectl get pods
  --server my-kube-playground:6443
  --client-key admin.key
  --client-certificate admin.crt
  --certificate-authority ca.crt
```

No resources found.

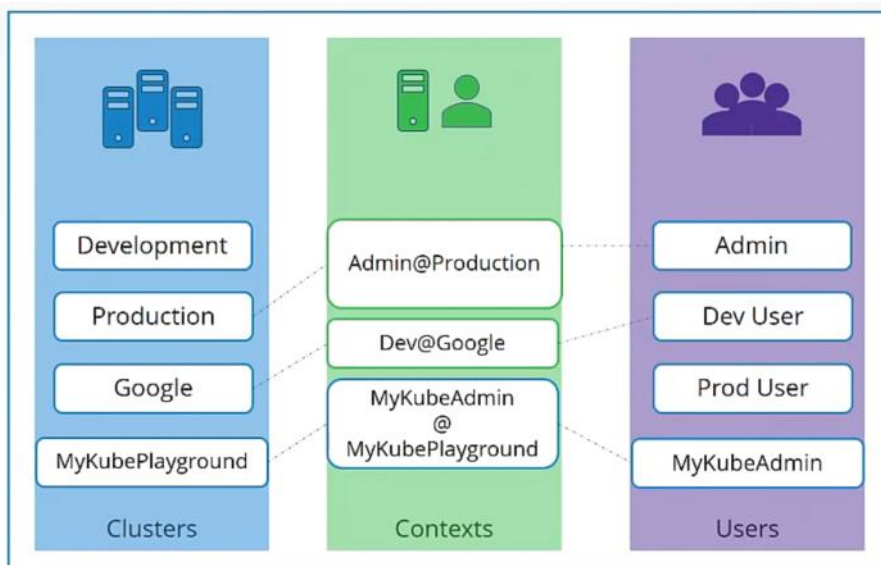
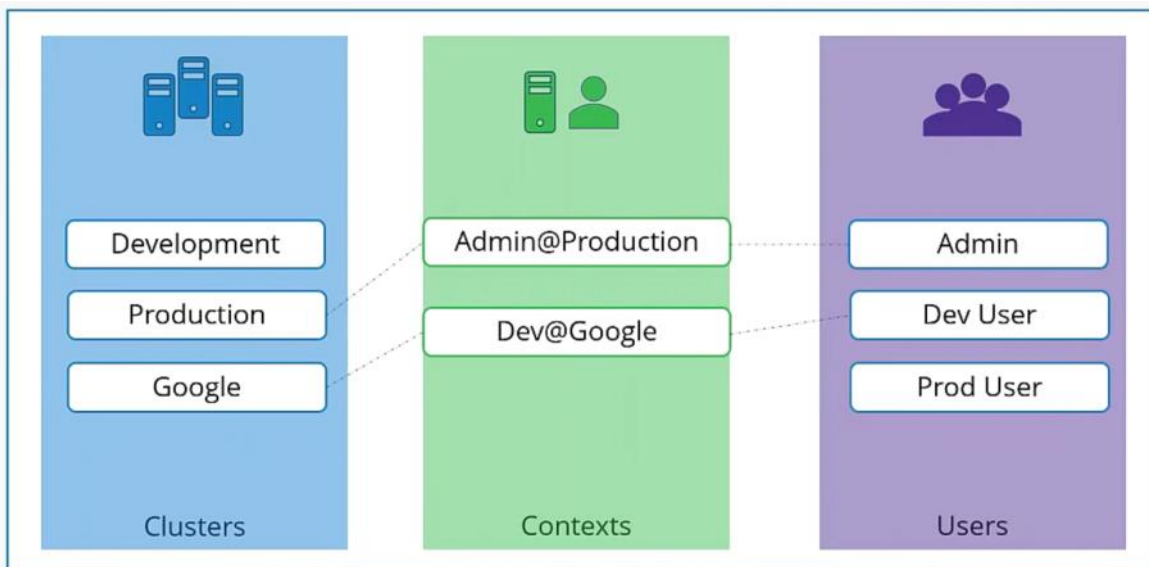
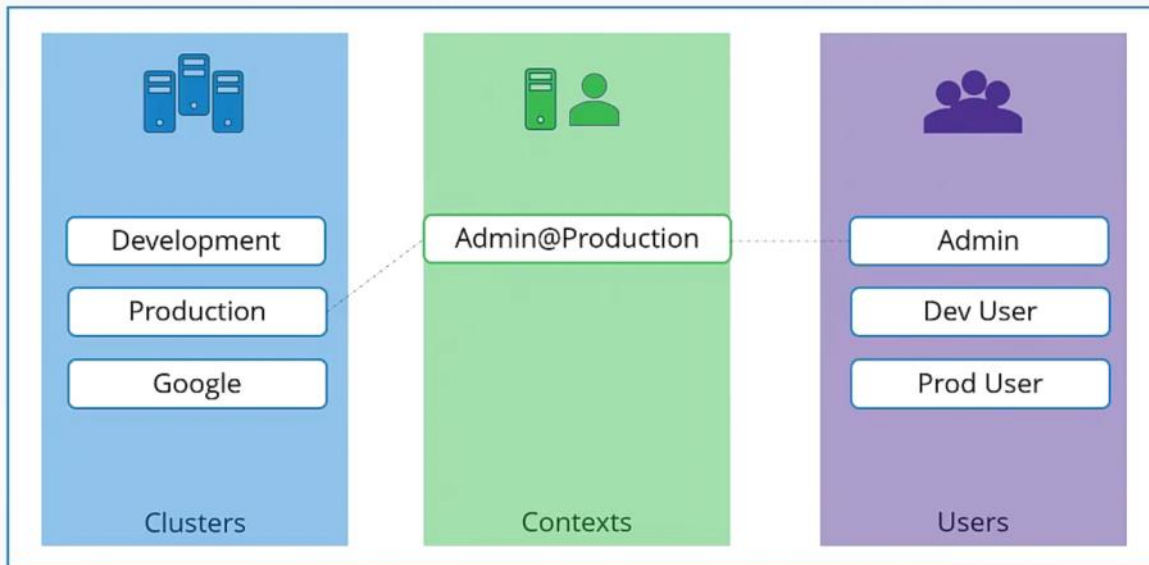
\$HOME/.kube/config

KubeConfig File

```
--server my-kube-playground:6443
--client-key admin.key
--client-certificate admin.crt
--certificate-authority ca.crt
```

KubeConfig File

\$HOME/.kube/config



```
--server my-kube-playground:6443
```

```
--certificate-authority ca.crt
```

```
--client-key admin.key
```

```
--client-certificate admin.crt
```

KubeConfig File

```
apiVersion: v1
kind: Config
```

```
clusters:
```

```
contexts:
```

```
users:
```

```
apiVersion: v1
kind: Config

clusters:
- name: my-kube-playground
  cluster:
    certificate-authority: ca.crt
    server: https://my-kube-playground:6443

contexts:
- name: my-kube-admin@my-kube-playground
  context:
    cluster: my-kube-playground
    user: my-kube-admin

users:
- name: my-kube-admin
  user:
    client-certificate: admin.crt
    client-key: admin.key
```

```
apiVersion: v1
kind: Config

clusters:
- name: my-kube-playground (values hidden...)
- name: development
- name: production
- name: google

contexts:
- name: my-kube-admin@my-kube-playground
- name: dev-user@google
- name: prod-user@production

users:
- name: my-kube-admin
- name: admin
- name: dev-user
- name: prod-user
```

```
apiVersion: v1
kind: Config
current-context: dev-user@google

clusters:
- name: my-kube-playground (values hidden...)
- name: development
- name: production
- name: google

contexts:
- name: my-kube-admin@my-kube-playground
- name: dev-user@google
- name: prod-user@production

users:
- name: my-kube-admin
- name: admin
- name: dev-user
- name: prod-user
```

```
kubectl config view
```

```
apiVersion: v1

kind: Config
current-context: kubernetes-admin@kubernetes

clusters:
- cluster:
    certificate-authority-data: REDACTED
    server: https://172.17.0.5:6443
    name: kubernetes

contexts:
- context:
    cluster: kubernetes
    user: kubernetes-admin
    name: kubernetes-admin@kubernetes

users:
- name: kubernetes-admin
  user:
    client-certificate-data: REDACTED
```

```
kubectl config view --kubeconfig=my-custom-config
```

```
apiVersion: v1

kind: Config
current-context: my-kube-admin@my-kube-playground

clusters:
- name: my-kube-playground
- name: development
- name: production

contexts:
- name: my-kube-admin@my-kube-playground
- Name: prod-user@production

users:
- name: my-kube-admin
- name: prod-user
```

```
kubectl config use-context prod-user@production
```

```
apiVersion: v1

kind: Config
current-context: prod-user@production

clusters:
- name: my-kube-playground
- name: development
- name: production

contexts:
- name: my-kube-admin@my-kube-playground
- Name: prod-user@production

users:
- name: my-kube-admin
- name: prod-user
```

Kubectl config

```
kubectl config -h
```

Kubectl config

```
➤ kubectl config -h
```

Available Commands:

```
current-context  Displays the current-context
delete-cluster   Delete the specified cluster from the kubeconfig
delete-context   Delete the specified context from the kubeconfig
get-clusters     Display clusters defined in the kubeconfig
get-contexts     Describe one or many contexts
rename-context   Renames a context from the kubeconfig file.
set              Sets an individual value in a kubeconfig file
set-cluster      Sets a cluster entry in kubeconfig
set-context      Sets a context entry in kubeconfig
set-credentials  Sets a user entry in kubeconfig
unset            Unsets an individual value in a kubeconfig file
use-context      Sets the current-context in a kubeconfig file
view             Display merged kubeconfig settings or a specified kubeconfig file
```

Namespaces

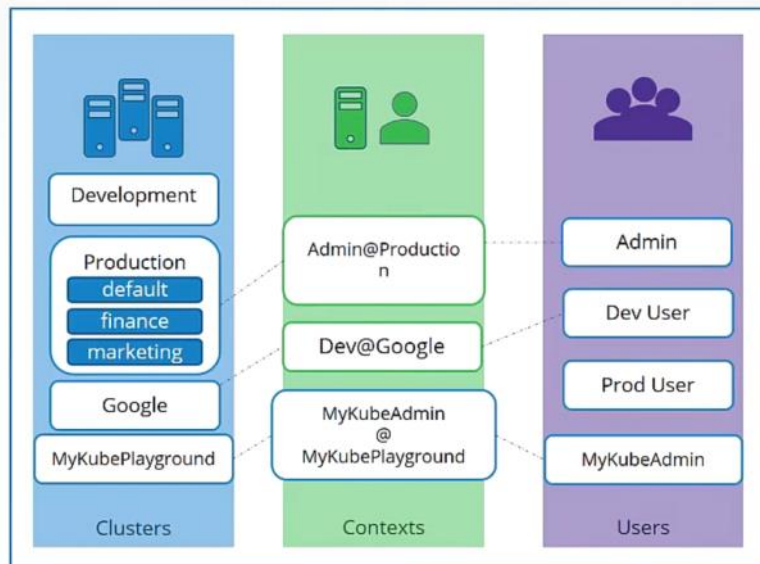
```
apiVersion: v1
kind: Config

clusters:
- name: production
  cluster:
    certificate-authority: ca.crt
    server: https://172.17.0.51:6443

contexts:
- name: admin@production
  context:
    cluster: production
    user: admin
    namespace: finance

users:
- name: admin
  user:
    client-certificate: admin.crt
    client-key: admin.key
```

\$HOME/.kube/config



| Certificates in KubeConfig

```
apiVersion: v1
kind: Config

clusters:
- name: production
  cluster:
    certificate-authority: ca.crt
    server: https://172.17.0.51:6443

contexts:
- name: admin@production
  context:
    cluster: production
    user: admin
    namespace: finance

users:
- name: admin
  user:
    client-certificate: admin.crt
    client-key: admin.key
```

| Certificates in KubeConfig

```
apiVersion: v1
kind: Config

clusters:
- name: production
  cluster:
    certificate-authority: /etc/kubernetes/pki/ca.crt
    server: https://172.17.0.51:6443

contexts:
- name: admin@production
  context:
    cluster: production
    user: admin
    namespace: finance

users:
- name: admin
  user:
    client-certificate: /etc/kubernetes/pki/users/admin.crt
    client-key: /etc/kubernetes/pki/users/admin.key
```

Certificates in KubeConfig

```
apiVersion: v1
kind: Config

clusters:
- name: production
  cluster:
    certificate-authority: /etc/kubernetes/pki/ca.crt

    certificate-authority-data:
```

```
-----BEGIN CERTIFICATE-----
MIICWDCCAUAQAwEzERMA8GA1UEAwIbmV3LXVzZXIwggEiMA0GC
AQUAA4IBDwAwggEKAAoIBAQD00WJW+DXsAJSirjpNo5vRIBp1n
zG+6Lfc27t+1eEnON5Muq99NevmMEOnrDUO/thyVqP2w2XNIDRX
jYyF40FbY3BihhB93MJ7Oq13UTvZ8TELqyaDknR1/jv/SxgXkok
0ABUTpWmx4IF5nxAttMVkDPQ7NbeZRG43b+Qw1VGR/z6DwOfJnb
fezOtaAydGLTIEcCXAwwChjBlkz2BHPRAJ89D6Xb8k39pu6jpyng
V6uP0tIb0zpqNj2qEL+hZEWkKFz801NNTyT5LxMqENDCnIgwC4G
ZiRgbrAgMBAAGG9w0BAQsFAAOCAQEAS9iS6C1uxTuf5B8YSU7QF
QHUza1NxAdYsaORFhOK4a2zyNy14400ijyaD6tUw8DSxkr8BLK8K
g3srREtJq15rLZy9UP9NL+aDRSxROVSqBaB2nWeYpM5cJ5TF53
1esNSNMLQ2++RMnjDQJ7Wr2EUM6UawzykrdHImwTv2m1MY0R+D
NtV1Yie+0H9/YE1t+FSGjh5413E/y3qL71WfAcuH30sVpUUNQIS
MdQs0qWcsbE56CC5DhPGZIpUvwQ07jG+hpknxmuFAeXgUwodAL
A77ju/TD1cw==
-----END CERTIFICATE-----
```

cat ca.crt | base64

```
LS0tLS1CRUdJTiBDRVJUSUZJQ0FURSBzRVFVRVNU
tLS0KTU1JQ1dEQ0NBVUFdQVFBd0V6RVJNQThHQTFV
F3d01ibVYzTFhWelpYSXdnZ0VpTUEwR0NTcUdTS
FFFQgpBUVVBQTRJQkR3QXdnZ0VLQW9JQkFRRE8w
K0RYc0FKU01yanB0bzV2Uk1CcGxuemcrNnhjOSTv
rS2kwCkxmQzI3dCsxZUVuT041TXVxOT10ZXZtTU
VpbnJ
```

Certificates in KubeConfig

```
apiVersion: v1
kind: Config

clusters:
- name: production
  cluster:
    certificate-authority: /etc/kubernetes/pki/ca.crt

    certificate-authority-data: LS0tLS1CRUdJTiBDRVJU
SUZJQ0FURSBzRVFVRVNUtLS0KTU1J
Q1dEQ0NBVUFdQVFBd0V6RVJNQThHQTFV
RUF3d01ibVYzTFhWelpYSXdnZ0VpTUEw
R0NTcUdTSWIZRFFFQgpBUVVBQTRJQkR3
QXdnZ0VLQW9JQkFRRE8wV0pXK0RYc0FK
U01yanB0bzV2Uk1CcGxuemcrNnhjOSTv
VndrS2kwCkxmQzI3dCsxZUVuT041TXVx
OT10ZXZtTUVpbnJ
```

echo "LS0tbnJ" | base64 --decode

```
-----BEGIN CERTIFICATE-----
MIICWDCCAUAQAwEzERMA8GA1UEAwIbmV3LXVzZXIwggEiMA0GC
AQUAA4IBDwAwggEKAAoIBAQD00WJW+DXsAJSirjpNo5vRIBp1n
zG+6Lfc27t+1eEnON5Muq99NevmMEOnrDUO/thyVqP2w2XNIDRX
jYyF40FbY3BihhB93MJ7Oq13UTvZ8TELqyaDknR1/jv/SxgXkok
0ABUTpWmx4IF5nxAttMVkDPQ7NbeZRG43b+Qw1VGR/z6DwOfJnb
fezOtaAydGLTIEcCXAwwChjBlkz2BHPRAJ89D6Xb8k39pu6jpyng
V6uP0tIb0zpqNj2qEL+hZEWkKFz801NNTyT5LxMqENDCnIgwC4G
ZiRgbrAgMBAAGG9w0BAQsFAAOCAQEAS9iS6C1uxTuf5B8YSU7QF
QHUza1NxAdYsaORFhOK4a2zyNy14400ijyaD6tUw8DSxkr8BLK8K
g3srREtJq15rLZy9UP9NL+aDRSxROVSqBaB2nWeYpM5cJ5TF53
1esNSNMLQ2++RMnjDQJ7Wr2EUM6UawzykrdHImwTv2m1MY0R+D
NtV1Yie+0H9/YE1t+FSGjh5413E/y3qL71WfAcuH30sVpUUNQIS
MdQs0qWcsbE56CC5DhPGZIpUvwQ07jG+hpknxmuFAeXgUwodAL
A77ju/TD1cw==
-----END CERTIFICATE-----
```