

1 Kubect1 Kubernetes CheatSheet

KUBERNETES

- PDF Link: [cheatsheet-kubernetes-A4.pdf](#), Category: kubernetes
- Blog URL: <https://cheatsheet.dennyzhang.com/cheatsheet-kubernetes-A4>
- Related posts: [Kubernetes Yaml](#), [#denny-cheatsheets](#)

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1.1 Common Commands

Name	Command
Run curl test temporarily	<code>kubect1 run --rm mytest --image=yauritux/busybox-curl -it</code>
Run wget test temporarily	<code>kubect1 run --rm mytest --image=busybox -it</code>
List everything	<code>kubect1 get all --all-namespaces</code>
List pods with nodes info	<code>kubect1 get pod -o wide</code>
Show nodes with labels	<code>kubect1 get nodes --show-labels</code>
Validate yaml file with dry run	<code>kubect1 create --dry-run --validate -f pod-dummy.yaml</code>
Start a temporary pod for testing	<code>kubect1 run --rm -i -t --image=alpine test-\$RANDOM -- sh</code>
kubect1 run shell command	<code>kubect1 exec -it mytest -- ls -l /etc/hosts</code>
Get system conf via configmap	<code>kubect1 -n kube-system get cm kubeadm-config -o yaml</code>
kubect1 run instance with replicas	<code>kubect1 run my-nginx --image=nginx --replicas=2 --port=80</code>
Explain resource	<code>kubect1 explain pods, kubect1 explain svc</code>
Get all services	<code>kubect1 get service --all-namespaces</code>
Watch pods	<code>kubect1 get pods -n wordpress --watch</code>
Query healthcheck endpoint	<code>curl -L http://127.0.0.1:10250/healthz</code>
Open a bash terminal in a pod	<code>kubect1 exec -it storage sh</code>
Check pod environment variables	<code>kubect1 exec redis-master-ft9ex env</code>
Enable kubect1 shell autocompletion	<code>echo "source <(kubect1 completion bash)" > ~/.bashrc, and reload</code>
Use minikube dockerd in your laptop	<code>eval \$(minikube docker-env)</code> , No need to push docker hub any more
Get services sorted by name	<code>kubect1 get services --sort-by=.metadata.name</code>
Get pods sorted by restart count	<code>kubect1 get pods --sort-by='.status.containerStatuses[0].restartCount'</code>
Reference	<code>minikube cheatsheet, docker cheatsheet</code>

1.2 Check Performance

Name	Command
Get node resource usage	<code>kubect1 top node</code>
Get pod resource usage	<code>kubect1 top pod</code>
Get resource usage for a given pod	<code>kubect1 top <podname> --containers</code>
List resource utilization for all containers	<code>kubect1 top pod --all-namespaces --containers=true</code>

1.3 Resources Deletion

Name	Command
Delete pod	<code>kubect1 delete pod/<pod-name> -n <my-namespace></code>
Delete pod by force	<code>kubect1 delete pod/<pod-name> --grace-period=0 --force</code>
Delete pods by labels	<code>kubect1 delete pod -l env=test</code>
Delete deployments by labels	<code>kubect1 delete deployment -l app=wordpress</code>
Delete all resources filtered by labels	<code>kubect1 delete pods,services -l name=myLabel</code>
Delete resources under a namespace	<code>kubect1 -n my-ns delete po,svc --all</code>
Delete persist volumes by labels	<code>kubect1 delete pvc -l app=wordpress</code>
Delete statefulset only (not pods)	<code>kubect1 delete sts/<stateful_set_name> --cascade=false</code>

1.4 Log & Conf Files

Name	Comment
Config folder	/etc/kubernetes/
Certificate files	/etc/kubernetes/pki/
Credentials to API server	/etc/kubernetes/kubelet.conf
Superuser credentials	/etc/kubernetes/admin.conf
Kubernetes working dir	/var/lib/kubelet/
Docker working dir	/var/lib/docker/, /var/log/containers/
Etd working dir	/var/lib/etcd/
Network cni	/etc/cni/net.d/
Log files	/var/log/pods/
Env	/etc/systemd/system/kubelet.service.d/10-kubeadm.conf
Env	export KUBECONFIG=/etc/kubernetes/admin.conf
log in master node	/var/log/kube-apiserver.log, kube-scheduler.log, kube-controller-manager.log
log in worker node	/var/log/kubelet.log, kubelet-proxy.log

1.5 Pod

Name	Command
List all pods	kubectl get pods
List pods for all namespace	kubectl get pods -all-namespaces
List all critical pods	kubectl get -n kube-system pods -a
List pods with more info	kubectl get pod -o wide, kubectl get pod/<pod-name> -o yaml
Get pod info	kubectl describe pod/srv-mysql-server
List all pods with labels	kubectl get pods --show-labels
Get Pod initContainer status	kubectl get pod --template '{{.status.initContainerStatuses}}' <pod-name>
kubectl run command	kubectl exec -it -n "\$ns" "\$podname" - sh -c "echo \$msg »/dev/err.log"
Watch pods	kubectl get pods -n wordpress --watch
Get pod by selector	podname=\$(kubectl get pods -n \$namespace --selector="app=syslog" -o jsonpath='{.items[*]')
List pods and containers	kubectl get pods -o='custom-columns=PODS:.metadata.name,CONTAINERS:.spec.container'
List pods, containers and images	kubectl get pods -o='custom-columns=PODS:.metadata.name,CONTAINERS:.spec.container'
Kubernetes Yaml Examples	Link: kubernetes yaml templates

1.6 Label & Annotatation

Name	Command
Filter pods by label	kubectl get pods -l owner=denny
Manually add label to a pod	kubectl label pods dummy-input owner=denny
Remove label	kubectl label pods dummy-input owner-
Manually add annotation to a pod	kubectl annotate pods dummy-input my-url=https://www.dennyzhang.com

1.7 Deployment & Scale

Name	Command
Scale out	kubectl scale --replicas=3 deployment/nginx-app
online rolling upgrade	kubectl rollout app-v1 app-v2 --image=img:v2
Roll backup	kubectl rollout app-v1 app-v2 --rollback
List rollout	kubectl get rs
Check update status	kubectl rollout status deployment/nginx-app
Check update history	kubectl rollout history deployment/nginx-app
Pause/Resume	kubectl rollout pause deployment/nginx-deployment, resume
Rollback to previous version	kubectl rollout undo deployment/nginx-deployment
Kubernetes Yaml Examples	Link: kubernetes yaml templates , Link: Pausing and Resuming a Deployment

1.8 Quota & Limits & Resource

Name	Command
Customize resource definition	<code>kubectl set resources deployment nginx -c=nginx --limits=cpu=200m,memory=512Mi</code>
List Resource Quota	<code>kubectl get resourcequota</code>
List Limit Range	<code>kubectl get limitrange</code>
Customize resource definition	<code>kubectl set resources deployment nginx -c=nginx --limits=cpu=200m,memory=512Mi</code>
Kubernetes Yaml Examples	Link: kubernetes yaml templates

1.9 Service

Name	Command
List all services	<code>kubectl get services</code>
List service endpoints	<code>kubectl get endpoints</code>
Get service detail	<code>kubectl get service nginx-service -o yaml</code>
Get service cluster ip	<code>kubectl get service nginx-service -o go-template='{{.spec.clusterIP}}'</code>
Get service cluster port	<code>kubectl get service nginx-service -o go-template='{{(index .spec.ports 0).port}}'</code>
Expose deployment as lb service	<code>kubectl expose deployment/my-app --type=LoadBalancer --name=my-service</code>
Expose service as lb service	<code>kubectl expose service/wordpress-1-svc --type=LoadBalancer --name=wordpress-lb</code>
Kubernetes Yaml Examples	Link: kubernetes yaml templates

1.10 StatefulSet

Name	Command
List statefulset	<code>kubectl get sts</code>
Delete statefulset only (not pods)	<code>kubectl delete sts/<stateful_set_name> --cascade=false</code>
Scale statefulset	<code>kubectl scale sts/<stateful_set_name> --replicas=5</code>
Kubernetes Yaml Examples	Link: kubernetes yaml templates

1.11 Volumes & Volume Claims

Name	Command
Check the mounted volumes	<code>kubectl exec storage ls /data</code>
Check persist volume	<code>kubectl describe pv/pv0001</code>
List storage class	<code>kubectl get storageclass</code>
Copy files	<code>kubectl cp /tmp/foo <namespace1>/<pod1>:/tmp/bar</code>
Kubernetes Yaml Examples	Link: kubernetes yaml templates

1.12 Events & Metrics

Name	Command
View all events	<code>kubectl get events --all-namespaces</code>

1.13 Node Maintenance

Name	Command
Mark node as unschedulable	<code>kubectl cordon \$NODE_NAME</code>
Mark node as schedulable	<code>kubectl uncordon \$NODE_NAME</code>
Drain node in preparation for maintenance	<code>kubectl drain \$NODE_NAME</code>

1.14 Namespace & Security

Name	Command
List authenticated contexts	<code>kubectl config get-contexts</code>
Load context from config file	<code>kubectl get cs --kubeconfig kube_config.yml</code>
Switch context	<code>kubectl config use-context <cluster-name></code>
Delete the specified context	<code>kubectl config delete-context <cluster-name></code>
List all namespaces defined	<code>kubectl get namespaces</code>
kubectl config file	<code>~/.kube/config</code>
List certificates	<code>kubectl get csr</code>
Kubernetes Yaml Examples	Link: kubernetes yaml templates

1.15 Network

Name	Command
Temporarily add a port-forwarding	<code>kubectl port-forward redis-izl09 6379</code>
Add port-forwarding for deployment	<code>kubectl port-forward deployment/redis-master 6379:6379</code>
Add port-forwarding for replicaset	<code>kubectl port-forward rs/redis-master 6379:6379</code>
Add port-forwarding for service	<code>kubectl port-forward svc/redis-master 6379:6379</code>
Get network policy	<code>kubectl get NetworkPolicy</code>

1.16 Extensions

Name	Summary
List api group	<code>kubectl api-versions</code>
List all CRD	<code>kubectl get crd</code>
List storageclass	<code>kubectl get storageclass</code>

1.17 Components & Services

1.17.1 Services on Master Nodes

Name	Summary
kube-apiserver	exposes the Kubernetes API from master nodes
etcd	reliable data store for all k8s cluster data
kube-scheduler	schedule pods to run on selected nodes
kube-controller-manager	node controller, replication controller, endpoints controller, and service account & token controllers

1.17.2 Services on Worker Nodes

Name	Summary
kubelet	makes sure that containers are running in a pod
kube-proxy	perform connection forwarding
Container Runtime	Kubernetes supported runtimes: Docker, rkt, runc and any OCI runtime-spec implementation.

1.17.3 Addons: pods and services that implement cluster features

Name	Summary
DNS	serves DNS records for Kubernetes services
Web UI	a general purpose, web-based UI for Kubernetes clusters
Container Resource Monitoring	collect, store and serve container metrics
Cluster-level Logging	save container logs to a central log store with search/browsing interface

1.17.4 Tools

Name	Summary
kubectl	the command line util to talk to k8s cluster
kubeadm	the command to bootstrap the cluster
kubefed	the command line to control a Kubernetes Cluster Federation
Kubernetes Components	Link: Kubernetes Components

1.18 More Resources

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<https://kubernetes.io/docs/reference/kubectl/cheatsheet/>

<https://codefresh.io/kubernetes-guides/kubernetes-cheat-sheet/>