1 Kubectl Kubernetes CheatSheet

CLOUD

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- PDF Link: cheatsheet-kubernetes-A4.pdf, Category: Cloud
- Blog URL: https://cheatsheet.dennyzhang.com/cheatsheet-kubernetes-A4
- Related posts: Kubectl CheatSheet, Kubernetes Yaml, #denny-cheatsheets

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1.1 Common Commands

Name	Command
Run curl test temporarily	kubectl runrm mytestimage=yauritux/busybox-curl -it
Run wget test temporarily	kubectl runrm mytestimage=busybox -it
Run nginx deployment with 2 replicas	kubectl run my-nginximage=nginxreplicas=2port=80
Set namespace preference	<pre>kubectl config set-context <context_name>namespace=<ns_name></ns_name></context_name></pre>
List pods with nodes info	kubectl get pod -o wide
List everything	kubectl get allall-namespaces
Get all services	kubectl get serviceall-namespaces
Show nodes with labels	kubectl get nodesshow-labels
Validate yaml file with dry run	kubectl createdry-runvalidate -f pod-dummy.yaml
Start a temporary pod for testing	kubectl runrm -i -timage=alpine test-\$RANDOM sh
kubectl run shell command	kubectl exec -it mytest ls -l /etc/hosts
Get system conf via configmap	kubectl -n kube-system get cm kubeadm-config -o yaml
Get deployment yaml	kubectl -n denny-websites get deployment mysql -o yaml
Explain resource	kubectl explain pods, kubectl explain svc
Watch pods	kubectl get pods -n wordpresswatch
Query healthcheck endpoint	curl -L http://127.0.0.1:10250/healthz
Open a bash terminal in a pod	kubectl exec -it storage sh
Check pod environment variables	kubectl exec redis-master-ft9ex env
Enable kubectl shell autocompletion	echo "source <(kubectl completion bash)" »~/.bashrc, and reload
Use minikube dockerd in your laptop	eval \$(minikube docker-env), No need to push docker hub any more
Kubectl apply a folder of yaml files	kubectl apply -R -f .
Get services sorted by name	kubectl get services –sort-by=.metadata.name
Get pods sorted by restart count	kubectl get pods -sort-by='.status.containerStatuses[0].restartCount'
List all container images	list-all-images.sh
kubeconfig skip tls verification	skip-tls-verify.md
Reference	GitHub: kubernetes releases
Reference	minikube cheatsheet, docker cheatsheet, OpenShift CheatSheet

1.2 Check Performance

Name	Command
Get node resource usage	kubectl top node
Get pod resource usage	kubectl top pod
Get resource usage for a given pod	kubectl top <podname>containers</podname>
List resource utilization for all containers	<pre>kubectl top podall-namespacescontainers=true</pre>

1.3 Resources Deletion

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

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
kubectl config file	~/.kube/config
Kubernets working dir	/var/lib/kubelet/
Docker working dir	/var/lib/docker/, /var/log/containers/
Etcd working dir	/var/lib/etcd/
Network cni	/etc/cni/net.d/
Log files	/var/log/pods/
log in worker node	/var/log/kubelet.log, kubelet-proxy.log
log in master node	kube-apiserver.log, kube-scheduler.log, kube-controller-manager.log
Env	/etc/systemd/system/kubelet.service.d/10-kubeadm.conf
Env	export KUBECONFIG=/etc/kubernetes/admin.conf

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</pod-name>
Get pod info	kubectl describe pod/srv-mysql-server
List all pods with labels	kubectl get podsshow-labels
List running pods	kubectl get pods –field-selector=status.phase=Running
Get Pod initContainer status	<pre>kubectl get podtemplate '{{.status.initContainerStatuses}}' <pod-name></pod-name></pre>
kubectl run command	kubectl exec -it -n "\$ns" "\$podname" - sh -c "echo \$msg \rangle /dev/err.log"
Watch pods	kubectl get pods -n wordpresswatch
Get pod by selector	kubectl get pods -selector="app=syslog" -o jsonpath='{.items[*].metadata.name}'
List pods and images	kubectl get pods -o='custom-columns=PODS:.metadata.name,Images:.spec.containers[*].image'
List pods and containers	-o='custom-columns=PODS:.metadata.name,CONTAINERS:.spec.containers[*].name'
Reference	Link: kubernetes yaml templates

1.6 Label & Annontation

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 annonation to a pod	kubectl annotate pods dummy-input my-url=https://dennyzhang.com

1.7 Deployment & Scale

Name	Command
Scale out	kubectl scalereplicas=3 deployment/nginx-app
online rolling upgrade	kubectl rollout app-v1 app-v2image=img:v2
Roll backup	kubectl rollout app-v1 app-v2rollback
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
Reference	Link: kubernetes yaml templates, Link: Pausing and Resuming a Deployment

1.8 Quota & Limits & Resource

Name	Command
List Resource Quota	kubectl get resourcequota
List Limit Range	kubectl get limitrange
Customize resource definition	kubectl set resources deployment nginx -c=nginxlimits=cpu=200m
Customize resource definition	kubectl set resources deployment nginx -c=nginxlimits=memory=512Mi
Reference	Link: kubernetes yaml templates

1.9 Service

Name	Command
List all services	kubectl get services
List service endpoints	kubectl get endpoints
Get service detail	kubectl get service nginx-service -o yaml
Get service cluster ip	kubectl get service nginx-service -o go-template='{{.spec.clusterIP}}'
Get service cluster port	kubectl get service nginx-service -o go-template='{{(index .spec.ports 0).port}}'
Expose deployment as lb service	kubectl expose deployment/my-apptype=LoadBalancername=my-service
Expose service as lb service	<pre>kubectl expose service/wordpress-1-svctype=LoadBalancername=ns1</pre>
Reference	Link: kubernetes yaml templates

1.10 Secrets

Name	Command
List secrets	kubectl get secretsall-namespaces
Generate secret	echo -n 'mypasswd', then redirect to base64 -decode
Create secret from cfg file	kubectl create secret generic db-user-pass -from-file=./username.txt
Reference	Link: kubernetes yaml templates, Link: Secrets

1.11 StatefulSet

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

1.12 Volumes & Volume Claims

Name	Command
List storage class	kubectl get storageclass
Check the mounted volumes	kubectl exec storage ls /data
Check persist volume	kubectl describe pv/pv0001
Copy local file to pod	<pre>kubectl cp /tmp/my <some-namespace>/<some-pod>:/tmp/server</some-pod></some-namespace></pre>
Copy pod file to local	<pre>kubectl cp <some-namespace>/<some-pod>:/tmp/server /tmp/my</some-pod></some-namespace></pre>
Reference	Link: kubernetes yaml templates

1.13 Events & Metrics

Name	Command
View all events	kubectl get eventsall-namespaces
List Events sorted by timestamp	kubectl get events -sort-by=.metadata.creationTimestamp

1.14 Node Maintenance

Name	Command
Mark node as unschedulable	kubectl cordon \$NDOE_NAME
Mark node as schedulable	kubectl uncordon \$NDOE_NAME
Drain node in preparation for maintenance	kubectl drain \$NODE_NAME

1.15 Namespace & Security

Name	Command
List authenticated contexts	kubectl config get-contexts, ~/.kube/config
Set namespace preference	<pre>kubectl config set-context <context_name>namespace=<ns_name></ns_name></context_name></pre>
Load context from config file	<pre>kubectl get cskubeconfig kube_config.yml</pre>
Switch context	<pre>kubectl config use-context <cluster-name></cluster-name></pre>
Delete the specified context	<pre>kubectl config delete-context <cluster-name></cluster-name></pre>
List all namespaces defined	kubectl get namespaces
List certificates	kubectl get csr
Reference	Link: kubernetes yaml templates

1.16 Network

Name	Command
Temporarily add a port-forwarding	kubectl port-forward redis-iz109 6379
Add port-forwaring for deployment	kubectl port-forward deployment/redis-master 6379:6379
Add port-forwaring for replicaset	kubectl port-forward rs/redis-master 6379:6379
Add port-forwaring for service	kubectl port-forward svc/redis-master 6379:6379
Get network policy	kubectl get NetworkPolicy

1.17 Patch

Name	Summary		
Patch service to loadbalancer	<pre>kubectl patch svc \$svc_name -p '{"spec":</pre>	{"type":	"LoadBalancer"}}'

1.18 Extensiions

Name	Summary
List api group	kubectl api-versions
List all CRD	kubectl get crd
List storageclass	kubectl get storageclass
List all supported resources	kubectl api-resources

1.19 Components & Services

1.19.1 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

1.19.2 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.

1.19.3 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

1.19.4 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

1.20 More Resources

License: Code is licensed under MIT License.

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

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