

Kubernetes Config Cheatsheet (CKA) - Detailed

Static Pod Manifests

/etc/kubernetes/manifests/

- etcd.yaml: Database chính của cluster, backup/restore.
- kube-apiserver.yaml: API endpoint, chứa cert, endpoint, admission plugins.
- kube-controller-manager.yaml: Controllers (replica, job, node...).
- kube-scheduler.yaml: Quyết định pod chạy node nào.

Usecase: Debug control plane, bật/tắt admission plugin.

Certificates & Keys

/etc/kubernetes/pki/

- ca.crt: Root CA.
- apiserver.crt/key: API Server TLS.
- apiserver-kubelet-client.crt: API Server ↔ kubelet.
- etcd/*.crt,key: TLS cho etcd.
- sa.pub/key: ServiceAccount token signing.

Usecase: etcdctl access, TLS error fix, exam: tìm cert API Server.

Kubeconfig Files

/etc/kubernetes/

- admin.conf: kubeconfig cho kubectl.
- controller-manager.conf, scheduler.conf: components ↔ API server.
- kubelet.conf: kubelet join cluster.

Usecase: Switch context, debug scheduler/controller connection.

Kubelet Config

- /var/lib/kubelet/config.yaml: clusterDNS, eviction, rotate cert.
- /etc/systemd/system/kubelet.service.d/10-kubeadm.conf: bootstrap.

Usecase: Node không join, DNS không chạy, exam hay bắt check kubelet config.

etcd Data & Backup

- Data: /var/lib/etcd/
- Backup: etcdctl snapshot save snapshot.db
- Restore: etcdctl snapshot restore

Usecase: Mất state, rollback cluster.

Logs & Debugging

- journalctl -u kubelet
- docker/crictl logs <id>

Usecase: Pod không schedule, kubelet không register node.

CNI / Networking

- /etc/cni/net.d/: CNI config
- /opt/cni/bin/: plugin binaries
- Pods trong kube-system: calico, flannel, cilium.

Usecase: Pod không ping nhau, exam: sửa networkpolicy.

Container Runtime

- containerd: /run/containerd/containerd.sock
- docker shim: /var/run/dockerhim.sock

Usecase: Pod không start, runtime error.

API Server Flags

/etc/kubernetes/manifests/kube-apiserver.yaml:

--authorization-mode, --enable-admission-plugins, --service-cluster-ip-range, --etcd-servers.

Usecase: Bật admission plugin, đổi Service CIDR.

RBAC & Security

- kubectl get clusterrole,rolebinding
- kubectl get role,rolebinding -n <ns>
- SA tokens trong secret.

Usecase: tạo role chỉ được get/list pod, exam hay có.

Storage

- kubectl get sc
- kubectl get pv,pvc

Usecase: PVC pending, tạo PV, tạo StorageClass.

Useful Shortcuts

kubectl config view --minify | grep name:

kubectl config use-context <name>

kubectl get secret mysecret -o jsonpath='{.data.pass}' | base64 -d

kubectl api-resources | grep <keyword>

kubectl describe pod <pod>

Usecase: Đề thi decode secret, switch context, tìm resource API.