Kubernetes Logging: Key Commands and Usage Guide

# Slide 1: Importance of Logging

Logs are critical for troubleshooting and auditing in Kubernetes.

Types of Logs:

* - Node logs
* - Pod logs
* - Control plane logs

# Slide 2: Viewing Pod Logs

View logs for a pod:

kubectl logs <pod-name>

View logs for a pod in a specific namespace:

kubectl logs -n <namespace> <pod-name>

View logs for a specific container in a multi-container pod:

kubectl logs <pod-name> -c <container-name>

kubectl logs -n <namespace> <pod-name> -c <container-name>

Stream (follow) logs in real time:

kubectl logs -f <pod-name>

kubectl logs -f -n <namespace> <pod-name>

kubectl logs -f <pod-name> -c <container-name>

Get logs from previous container instance (if crashed/restarted):

kubectl logs <pod-name> --previous

kubectl logs <pod-name> -c <container-name> --previous

# Slide 3: Cluster Component Logs

A. Control Plane Component Logs (self-hosted)

API Server Logs:

kubectl -n kube-system logs <kube-apiserver-pod-name>

journalctl -u kube-apiserver

etcd Logs:

kubectl -n kube-system logs <etcd-pod-name>

journalctl -u etcd

Controller Manager Logs:

kubectl -n kube-system logs <kube-controller-manager-pod-name>

journalctl -u kube-controller-manager

Scheduler Logs:

kubectl -n kube-system logs <kube-scheduler-pod-name>

journalctl -u kube-scheduler

B. Node Logs

Kubelet Logs:

journalctl -u kubelet

Container Runtime Logs:

# For containerd

journalctl -u containerd

# For Docker (if used)

journalctl -u docker

C. Managed Service Logs  
Refer to cloud provider documentation for log access:

* - EKS: AWS CloudWatch Logs
* - AKS: Azure Monitor Logs
* - GKE: Google Cloud Logging (Stackdriver)

# Slide 4: Event Logs and Audit Trails

Describe a resource for event logs:

kubectl describe pod <pod-name>

kubectl describe deployment <deployment-name>

kubectl describe node <node-name>

(Check the Events section at the bottom of the output)

View all events in a namespace:

kubectl get events -n <namespace>

kubectl get events --sort-by='.lastTimestamp'

View cluster-wide events:

kubectl get events --all-namespaces

Audit Logs (Self-hosted):

cat /var/log/kubernetes/audit.log

(Path depends on kube-apiserver configuration)

Audit Logs (Managed):

* - EKS: CloudWatch or AWS CloudTrail (if enabled)
* - AKS: Azure Monitor/Azure Log Analytics
* - GKE: Stackdriver Logging

## Summary Table: Key Logging Commands

|  |  |
| --- | --- |
| Task | Command Example |
| View pod logs | kubectl logs <pod-name> |
| View logs for a container | kubectl logs <pod-name> -c <container-name> |
| Stream (follow) pod logs | kubectl logs -f <pod-name> |
| Get logs from previous container instance | kubectl logs <pod-name> --previous |
| Describe a pod for events | kubectl describe pod <pod-name> |
| List all events in a namespace | kubectl get events -n <namespace> |
| List cluster-wide events | kubectl get events --all-namespaces |
| View control plane logs (self-hosted) | kubectl -n kube-system logs <component-pod> or journalctl -u <svc> |
| View kubelet logs on node | journalctl -u kubelet |
| View audit logs (if enabled) | cat /var/log/kubernetes/audit.log |

End of Document