

KUBERNETES FROM ZERO · FOUNDATIONS 10 OF 12 · LESSON 10 · LESSON KIT · CHEAT SHEET

Kubernetes from Zero, part 10: probes and graceful shutdown

The three probes, shutdown, and the commands from Lesson 10.

Ran every probe and shutdown example on kind v0.33.0, node v1.37.0, kubectl v1.37.2, 10 Nov 2026. Cluster: k8s-ep10.

THE ONE RULE

Readiness decides who gets traffic, liveness decides who gets restarted, and every container must exit cleanly on SIGTERM inside its grace period.

Three probes

what each one is allowed to do

PROBE	WHAT THE LESSON SAYS	WHEN IT FAILS
startupProbe	Covers start time. Allows `failureThreshold` times `periodSeconds` to start.	keeps liveness from killing a slow start
livenessProbe	Restarts a stuck container after `failureThreshold` failures in a row.	keep it about the process itself
readinessProbe	Decides whether the Pod gets Service traffic. No restart.	endpoint `ready` becomes false
httpGet	200 to 399 passes.	`path` and `port`
tcpSocket	Passes if the port accepts a connection.	`port`
exec	Exit 0 passes.	`command`
timing	`periodSeconds`, `timeoutSeconds`, `failureThreshold`.	defaults 10, 1 and 3

How a Pod is stopped

the clock starts before the hook

1	preStop	`lifecycle.preStop` can be `sleep`, `exec` or `httpGet`. It runs before SIGTERM.
2	SIGTERM	Then the kubelet sends SIGTERM. A process that ignores it waits out the grace period.
3	SIGKILL	When `terminationGracePeriodSeconds` ends, the container is killed. The default is 30 seconds and covers the hook plus the app's own shutdown.
4	exit 137	`lastState` exit 137 means SIGKILL. The hook and the shutdown share one budget.

Key commands

commands verbatim from the lesson

See what the probes did

```
kubectl describe pod <name>
```
look for Unhealthy and Killing

```
kubectl get pod <name> -o \
  jsonpath='{.status.containerStatuses[0].lastState}'
```
exit 137 means SIGKILL

```
kubectl explain pod.spec.containers.livenessProbe
```
defaults straight from the API

```
kubectl delete pod <name> --grace-period=0 --force
```
skips the wait; use with care

SCAN FOR THE LESSON

Lesson: **Kubernetes from Zero, part 10: probes and graceful shutdown**

https://aitamer.news/posts/k8s-from-zero-10-probes-and-graceful-shutdown/?utm_source=lessonkit&utm_medium=pdf&utm_campaign=k8s-10&utm_content=cheatsheet

NEXT IN THE SERIES **Next: Lesson 11, requests, limits and QoS.** Requests, limits and QoS, where you give each container a CPU and memory budget and watch what happens when it goes over. Lesson page

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