


KUBERNETES FROM ZERO · FOUNDATIONS 1 OF 12 · LESSON 1 · LESSON KIT · HOMEWORK

# Kubernetes from Zero, part 1: what Kubernetes is and why it exists

Exercises drawn only from the lesson: recall, run this and explain, predict the outcome.

Ran every command on kind v0.33.0, Kubernetes v1.37.0 node, kubectl v1.37.2, 10 Nov 2026. Cluster: k8s-from-zero.

Use the kind cluster from the lesson, or create it again with `kind create cluster --name k8s-from-zero`. Pod name suffixes and the API port will differ on yours. Answers are in the separate answer key.

## Recall

Answer from memory, then check the lesson.

1. What is a container, and what is an image?

2. Name the operational questions the lesson says containers left open.

3. What is desired state? What do `spec` and `status` hold, and who writes each?

4. What is a controller? What everyday thing does the lesson compare it to?

SCAN FOR THE LESSON

Lesson: **Kubernetes from Zero, part 1: what Kubernetes is and why it exists**

https://aitamer.news/posts/k8s-from-zero-01-what-kubernetes-is/?utm_source=lessonkit&utm_medium=pdf&utm_campaign=k8s-01&utm_content=homework

NEXT IN THE SERIES **Next: Lesson 2, a tour of the control plane and the nodes**. A guided tour of the control plane and the nodes, following one kubectl apply until a container runs. Lesson page

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5 In one line each, what is a Pod, a Deployment, a ReplicaSet, and kubectl?

6 Name four things the lesson says Kubernetes does not do.

## Run this and explain

Run each command on your cluster, then answer.

7 Run `kind create cluster --name k8s-from-zero`, then `kubectl cluster-info` and `kubectl get nodes`. What context does kind set, and what STATUS and VERSION does the lesson show?

8 Run `kubectl create deployment hello --image=nginx:1.29-alpine --replicas=3` and `kubectl rollout status deployment/hello`. What did you declare, and when does rollout status return?

9 Delete one `hello` Pod, using a name from your own `kubectl get pods`, then list the Pods again. How many are there, and why?

10 Run `kubectl scale deployment hello --replicas=5` and `kubectl get deployment hello -o yaml`. What do `spec.replicas` and `status.readyReplicas` say in the lesson?

11 Run `kubectl get events --field-selector involvedObject.kind=ReplicaSet --sort-by=.lastTimestamp`. How many `SuccessfulCreate` events does the lesson show, and what are they?

12 Run `kubectl port-forward deployment/hello 8080:80` and, in a second terminal, `curl -s localhost:8080 | grep -i title`. What does the lesson print?



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## Predict the outcome

Write your prediction first. Then run it, or check the answer key.

13 You delete a Pod that a Deployment owns, and a new Pod appears. Is that a bug, and how do you remove the Pods for good?

14 A Pod stays in `ErrImagePull` or `ImagePullBackOff`. What does the lesson tell you to read, and what did the misspelt tag `nginx:1.29-alpinee` do?

15 The shell says `kind: command not found`. What does the lesson tell you to check?

16 kind says `Cannot connect to the Docker daemon`. What has to be true before `kind create cluster`?



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