

KUBERNETES FROM ZERO · FOUNDATIONS 3 OF 12 · LESSON 3 · LESSON KIT · HOMEWORK

Kubernetes from Zero, part 3: your local lab with kind, kubectl and kubeconfig

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

Installed and checksummed kubectl v1.37.2 and kind v0.33.0; ran 1- and 3-node clusters, 10 Nov 2026. Cluster: first and lab.

Use Docker (or Podman) and the install steps from the lesson. Cluster names, ports and timings will differ. Answers are in the separate answer key.

Recall

Answer from memory, then check the lesson.

1. In one sentence each, how do kind, minikube, k3d and Docker Desktop run a learning cluster?

2. What does the version skew policy say about kubectl and the API server? Which servers does kubectl 1.37 work with?

3. Name the three lists and the one pointer in a kubeconfig file.

4. In what order does kubectl pick its configuration file?

5. Give the two safety notes the lesson gives for a kubeconfig file.

SCAN FOR THE LESSON

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Run this and explain

Run each command, then answer.

6. After the checksum commands, what does `kubectl: OK` mean, and what should you do if you see `FAILED`?

7. Create `first` and run `kubectl get nodes` at once. Why might STATUS be `NotReady`, and what is the context name?

8. Create `lab` from `kind-lab.yaml` and run `docker ps`. Which containers publish a port, and which port is it?

9. Run `kubectl config get-contexts`, then `kubectl config use-context kind-first`, then `kubectl get nodes --context kind-lab`. What does the star mean, and which command changes the file?

10. Run `kubectl config view --minify`. What does `--minify` leave out, and what would `--raw` add?

11. Point the current context at `kube-system`, list Pods, then set the namespace back to `default`. What changes?

12. Write each cluster's kubeconfig to its own file and run `KUBECONFIG=first.kubeconfig:lab.kubeconfig kubectl config get-contexts`. Which context is current, and why?

Predict the outcome

Write your prediction first. Then check the answer key.

13. You run `kubectl` against the saved `lab.kubeconfig` after `kind delete cluster --name lab`. The error names `127.0.0.1:46163`. What does the lesson say that means?

14. After both clusters are deleted, kubectl says `The connection to the server localhost:8080 was refused`. Why port 8080?

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15 A three-node create stops at `Preparing nodes` and mentions `could not find a log line that matches "Reached target .*Multi-User System.*|detected cgroup v1"`. What limit is too low, and which commands does the lesson show?

16 `kubectl version` shows a client more than one minor version away from the server. What does the lesson say to do?

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