

KUBERNETES FROM ZERO · FOUNDATIONS 8 OF 12 · LESSON 8 · LESSON KIT · CHEAT SHEET

Kubernetes from Zero, part 8: Services

The five Service types, DNS, and the commands from Lesson 8.

Every command ran on a kind v0.33.0 cluster (node v1.37.0, kubectl v1.37.2) on 10 Nov 2026. Cluster: k8s-ep07.

THE ONE RULE

Pods come and go; a Service gives them one stable name and IP, and its label selector decides which Pods get the traffic.

Five ways a Service answers

as the cheat sheet states them

TYPE	WHAT THE LESSON SAYS	ON KIND
ClusterIP	The default. Inside the cluster only. One stable virtual IP and DNS name.	`type: ClusterIP`
NodePort	Opens the Service on every node. `nodePort` is in the range 30000-32767.	`nodePort: 30080`
LoadBalancer	Asks the cloud for a load balancer. The external IP stays pending on kind.	use NodePort or port-forward
ExternalName	A DNS alias to a name outside the cluster. CNAME only, no proxy.	`externalName: kubernetes.io`
Headless	`clusterIP: None`. DNS returns Pod IPs.	you create the Service yourself

How one request is delivered

from the lesson's recap

1	**Service**	A Service gives a changing set of Pods one stable virtual IP and DNS name. Its label selector picks the Pods.
2	**EndpointSlice**	EndpointSlices hold the backend Pod IPs with a ready condition on each, and kube-proxy sends each connection to a ready one.
3	**DNS**	Inside the namespace the short name `http://web` works. Across namespaces use `web.k8s-from-zero`. The full name ends in `.svc.cluster.local`.
4	**when it fails**	Check endpoints first when a Service does not answer. A selector typo leaves Endpoints empty. A wrong target port lists Pod IPs that refuse the connection.

Key commands

commands verbatim from the lesson

Look at a Service

`kubectl expose deployment web --port=80 --target-port=8080`
writes a ClusterIP Service

`kubectl get svc -o wide`
`-o wide` adds SELECTOR

`kubectl get endpointslices -l kubernetes.io/service-name=web`
backend Pod IPs; each has a ready condition

`kubectl describe service web`
Selector, TargetPort, Endpoints

`kubectl exec client -- wget -qO- -T 3 http://web`
a busybox client Pod

`kubectl port-forward service/web 8080:80`
one Pod, not load balanced

SCAN FOR THE LESSON

Lesson: **Kubernetes from Zero, part 8: Services**

https://aitamer.news/posts/k8s-from-zero-08-services/?utm_source=lessonkit&utm_medium=pdf&utm_campaign=k8s-08&utm_content=cheatsheet

NEXT IN THE SERIES **Next: Lesson 9, ConfigMaps and Secrets**. Kubernetes from Zero, part 9, ConfigMaps and Secrets. Series page

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