Pod

Pod erőforás dokumentáció megjelenítése

```
# kubectl explain pod
```

Egyszerű pod létrehozása egy konténerrel parancssorból

```
# kubectl run nginx-pod --image=registry.r-l.hu/library/nginx:latest --
restart=Never
```

Egyszerű pod létrehozása egy konténerrel yaml fájlból

```
# cat > egyszeru-pod-egy-kontenerrel.yaml <<EOF
apiVersion: v1
kind: Pod
metadata:
  name: nginx-pod
spec:
  containers:
    - name: nginx
      image: registry.r-l.hu/library/nginx:latest
EOF
```

Konténer indítása

```
# kubectl apply -f egyszeru-pod-egy-kontenerrel.yaml
pod/nginx-pod created

# kubectl wait --for=condition=Ready pod/nginx-pod --timeout=90s
pod/nginx-pod condition met
```

Konténer ellenőrzése

```
# kubectl get pod/nginx-pod -o yaml
```

```
# kubectl describe pod/nginx-pod
Name:             nginx-pod
Namespace:        default
Priority:         0
Service Account:  default
Node:             worker01.r-logic.eu/185.207.251.233
Start Time:       Tue, 16 Sep 2025 04:33:07 +0200
Labels:           run=nginx-pod
Annotations:      <none>
Status:           Running
IP:               10.244.1.14
IPs:
```

```
  IP:  10.244.1.14
Containers:
  nginx-pod:
    Container ID:
containerd://406b1f5856e2bfaa9e91d391078458c56e64c2f9d068f9b65dbab4d3c0b44e8
b
    Image:          registry.r-l.hu/library/nginx:latest
    Image ID:       registry.r-
l.hu/library/nginx@sha256:d5f28ef21aabddd098f3dbc21fe5b7a7d7a184720bc07da0b6
c9b9820e97f25e
    Port:           <none>
    Host Port:      <none>
    State:          Running
      Started:      Tue, 16 Sep 2025 04:33:14 +0200
    Ready:          True
    Restart Count:  0
    Environment:    <none>
    Mounts:
      /var/run/secrets/kubernetes.io/serviceaccount from kube-api-access-
f79p9 (ro)
Conditions:
  Type                        Status
  PodReadyToStartContainers   True
  Initialized                 True
  Ready                       True
  ContainersReady             True
  PodScheduled                True
Volumes:
  kube-api-access-f79p9:
    Type:                    Projected (a volume that contains injected data
from multiple sources)
    TokenExpirationSeconds:  3607
    ConfigMapName:           kube-root-ca.crt
    Optional:                false
    DownwardAPI:             true
QoS Class:                   BestEffort
Node-Selectors:              <none>
Tolerations:                 node.kubernetes.io/not-ready:NoExecute
op=Exists for 300s
                             node.kubernetes.io/unreachable:NoExecute
op=Exists for 300s
Events:
  Type    Reason     Age   From               Message
  ----    ------     ----  ----               -------
  Normal  Scheduled  53s   default-scheduler  Successfully assigned
default/nginx-pod to worker01.r-logic.eu
  Normal  Pulling    52s   kubelet            Pulling image "registry.r-
l.hu/library/nginx:latest"
  Normal  Pulled     46s   kubelet            Successfully pulled image
"registry.r-l.hu/library/nginx:latest" in 5.622s (5.622s including waiting).
Image size: 72319182 bytes.
```

```
  Normal  Created    46s   kubelet            Created container: nginx-pod
  Normal  Started    46s   kubelet            Started container nginx-pod
```

Konténer nevének kiolvasása

```
# kubectl get pod/nginx-pod -o jsonpath='{.spec.containers[*].name}'
```

Utasítások futtatása a konténerben

```
# kubectl exec -it pod/nginx-pod -c nginx -- sh
```

Naplók megtekintése

```
# kubectl logs pod/nginx-pod

# kubectl logs pod/nginx-pod -c nginx
```

Port tesztelése

```
# kubectl port-forward pod/nginx-pod 8080:80
```

Bővített pod definíció

```
# cat > bovitett-pod-egy-kontenerrel.yaml <<'EOF'
apiVersion: v1
kind: Pod
metadata:
  name: nginx-pod-advanced
  labels:
    app: nginx
spec:
  containers:
    - name: nginx
      image: registry.r-l.hu/library/nginx:1.25
      ports:
        - containerPort: 80
      resources:
        requests:
          cpu: "100m"
          memory: "128Mi"
        limits:
          cpu: "500m"
          memory: "256Mi"
      env:
        - name: NGINX_HOST
          value: "rl-hu"
        - name: NGINX_PORT
          value: "80"
      volumeMounts:
```

```
        - name: nginx-html
          mountPath: /usr/share/nginx/html
  volumes:
    - name: nginx-html
      emptyDir: {}
  nodeSelector:
    kubernetes.io/hostname: worker01.r-logic.eu
  restartPolicy: Always
EOF
```

Bővitett tartalom elemei

- **labels** → címkék, amelyekre később service-ek vagy deploymentek hivatkozhatnak
- **ports** → a konténeren belüli port meghatározása(TCP/80, HTTP)
- **resources** → CPU és memória foglalás minimum és maximum értékek
- **env** → környezeti változók beállítása
- **volumeMounts + volumes** → átmeneti tároló (emptyDir) csatolása a HTML tartalomnak
- **nodeSelector** → pod csak a worker01 gépen futhat
- **restartPolicy** → amennyiben megáll, újraindul

Egyszer használatos pod teszteléshez

```
# kubectl run debug-pod --rm -it --image=registry.r-
l.hu/library/busybox:1.36 --restart=Never -- sh
```

Deployment

Létrehozás

Deployment létrehozása parancssorból

```
# kubectl create deployment nginx-deployment --image=registry.r-
l.hu/library/nginx:latest && kubectl wait --for=condition=Available
deployment/nginx-deployment --timeout=90s
deployment.apps/nginx-deployment created
deployment.apps/nginx-deployment condition met
```

Deployment példányok módosítása

Frissítés és visszaállás

Deployment definíció

```
cat > nginx-deployment.yaml <<'EOF'
apiVersion: apps/v1
```

```
kind: Deployment
metadata:
  name: nginx-deployment
  annotations:
    kubernetes.io/change-cause: "Initial deploy: nginx 1.25"
spec:
  replicas: 3
  strategy:
    type: RollingUpdate
    rollingUpdate:
      maxSurge: 1
      maxUnavailable: 0
  selector:
    matchLabels:
      app: nginx
  template:
    metadata:
      labels:
        app: nginx
    spec:
      containers:
        - name: nginx
          image: registry.r-l.hu/library/nginx:1.25
          ports:
            - containerPort: 80
EOF

kubectl apply -f nginx-deployment.yaml
deployment.apps/nginx-deployment created
```

Frissítés 1.26-ra

```
# kubectl annotate deployment/nginx-deployment kubernetes.io/change-
cause="Upgrade to nginx 1.26" --overwrite
deployment.apps/nginx-deployment annotated

# kubectl set image deployment/nginx-deployment nginx=registry.r-
l.hu/library/nginx:1.26
deployment.apps/nginx-deployment image updated

# kubectl rollout status deployment/nginx-deployment
Waiting for deployment "nginx-deployment" rollout to finish: 1 old replicas
are pending termination...
Waiting for deployment "nginx-deployment" rollout to finish: 1 old replicas
are pending termination...
deployment "nginx-deployment" successfully rolled out

# kubectl rollout history deployment/nginx-deployment
deployment.apps/nginx-deployment
REVISION  CHANGE-CAUSE
1         Upgrade to nginx 1.26
```

```
2         Upgrade to nginx 1.26
```

Frissítés 1.27-re

```
# kubectl rollout pause deployment/nginx-deployment

# kubectl annotate deployment/nginx-deployment kubernetes.io/change-
cause="Upgrade to nginx 1.27" --overwrite
deployment.apps/nginx-deployment annotated

# kubectl set image deployment/nginx-deployment nginx=registry.r-
l.hu/library/nginx:1.27
deployment.apps/nginx-deployment image updated

# kubectl rollout resume deployment/nginx-deployment

# kubectl rollout status deployment/nginx-deployment
Waiting for deployment "nginx-deployment" rollout to finish: 1 out of 3 new
replicas have been updated...
Waiting for deployment "nginx-deployment" rollout to finish: 1 out of 3 new
replicas have been updated...
Waiting for deployment "nginx-deployment" rollout to finish: 1 out of 3 new
replicas have been updated...
Waiting for deployment "nginx-deployment" rollout to finish: 2 out of 3 new
replicas have been updated...
Waiting for deployment "nginx-deployment" rollout to finish: 2 out of 3 new
replicas have been updated...
Waiting for deployment "nginx-deployment" rollout to finish: 2 out of 3 new
replicas have been updated...
Waiting for deployment "nginx-deployment" rollout to finish: 1 old replicas
are pending termination...
Waiting for deployment "nginx-deployment" rollout to finish: 1 old replicas
are pending termination...
deployment "nginx-deployment" successfully rolled out

kubectl rollout history deployment/nginx-deployment
deployment.apps/nginx-deployment
REVISION  CHANGE-CAUSE
1         Upgrade to nginx 1.26
2         Upgrade to nginx 1.27
3         Upgrade to nginx 1.27

kubectl get replicasets -o wide
NAME                          DESIRED   CURRENT   READY   AGE     CONTAINERS
IMAGES                               SELECTOR
nginx-deployment-6585597c84   0         0         0       6m35s   nginx
registry.r-l.hu/library/nginx:1.26   app=nginx,pod-template-hash=6585597c84
nginx-deployment-6ccb84987c   3         3         3       2m58s   nginx
registry.r-l.hu/library/nginx:1.27   app=nginx,pod-template-hash=6ccb84987c
nginx-deployment-7bdc5996d7   0         0         0       7m27s   nginx
registry.r-l.hu/library/nginx:1.25   app=nginx,pod-template-hash=7bdc5996d7
```

Visszaállás korábbi verzióra

```
# kubectl rollout undo deployment/nginx-deployment
deployment.apps/nginx-deployment rolled back

# kubectl get replicasets -o wide
NAME                          DESIRED   CURRENT   READY   AGE     CONTAINERS
IMAGES                               SELECTOR
nginx-deployment-6585597c84   3         3         3       12m     nginx
registry.r-l.hu/library/nginx:1.26   app=nginx,pod-template-hash=6585597c84
nginx-deployment-6ccb84987c   0         1         1       8m33s   nginx
registry.r-l.hu/library/nginx:1.27   app=nginx,pod-template-hash=6ccb84987c
nginx-deployment-7bdc5996d7   0         0         0       13m     nginx
registry.r-l.hu/library/nginx:1.25   app=nginx,pod-template-hash=7bdc5996d7
```

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