

آبتین حسن نژاد  
شماره دانشجویی: ۹۹۲۳۰۲۰

```
[~]
abtinz kubectl get pods
```

NAME	READY	STATUS	RESTARTS	AGE
elasticsearch-6f69db6d59-h6rrd	0/1	ContainerCreating	0	2m40s
webapp-deployment-7f4bd8f49b-klvfv	1/1	Running	4 (26s ago)	11h
redis-deployment-d465564b9-dbqg4	1/1	Running	1 (26s ago)	23m
elasticsearch-deployment-f8cb4b894-gtpml	1/1	Running	84 (2m54s ago)	13h
elasticsearch-6f69db6d59-lwp9	1/1	Running	9 (21s ago)	33h
webapp-deployment-7f4bd8f49b-969st	1/1	Running	2 (21s ago)	8h
webapp-deployment-7f4bd8f49b-qhhgt	1/1	Running	2 (21s ago)	8h
kibana-deployment-86cddc4df4-2mcdt	1/1	Running	12 (21s ago)	2d14h
elasticsearch-6f69db6d59-4tfq2	0/1	ErrImagePull	0	33m
kibana-deployment-85dd55f969-8lw8h	0/1	ImagePullBackOff	0	2d13h

```
[~]
abtinz
```

## Difference between service and pod IP

```
[~]
abtinz kubectl get pods -o wide
```

NAME	READY	STATUS	RESTARTS	AGE	IP	NODE	NOMINATED NODE	READINESS GATES
redis-deployment-d465564b9-hdjp7	1/1	Running	3 (9m17s ago)	8h	10.42.2.127	k3d-searchmovie-server-0	<none>	<none>
webapp-deployment-7f4bd8f49b-klvfv	1/1	Running	3 (9m17s ago)	11h	10.42.2.128	k3d-searchmovie-server-0	<none>	<none>
elasticsearch-6f69db6d59-tpkv9	0/1	ImagePullBackOff	0	7h43m	10.42.1.123	k3d-searchmovie-agent-1	<none>	<none>
webapp-deployment-7f4bd8f49b-qhhgt	1/1	Running	1 (9m12s ago)	8h	10.42.1.122	k3d-searchmovie-agent-1	<none>	<none>
elasticsearch-6f69db6d59-lwp9	1/1	Running	8 (9m12s ago)	32h	10.42.0.90	k3d-searchmovie-agent-0	<none>	<none>
elasticsearch-6f69db6d59-62dtg	0/1	Terminating	0	8h	10.42.2.126	k3d-searchmovie-server-0	<none>	<none>
elasticsearch-6f69db6d59-4tfq2	0/1	ContainerCreating	0	7m52s	<none>	k3d-searchmovie-server-0	<none>	<none>
webapp-deployment-7f4bd8f49b-969st	1/1	Running	1 (9m12s ago)	8h	10.42.0.88	k3d-searchmovie-agent-0	<none>	<none>
kibana-deployment-86cddc4df4-2mcdt	1/1	Running	11 (9m12s ago)	2d14h	10.42.1.124	k3d-searchmovie-agent-1	<none>	<none>
kibana-deployment-85dd55f969-8lw8h	0/1	ImagePullBackOff	0	2d13h	10.42.0.89	k3d-searchmovie-agent-0	<none>	<none>
elasticsearch-deployment-f8cb4b894-gtpml	1/1	Running	79 (2m59s ago)	13h	10.42.0.91	k3d-searchmovie-agent-0	<none>	<none>

```
[~]
abtinz kubectl get svc -o wide
```

NAME	TYPE	CLUSTER-IP	EXTERNAL-IP	PORT(S)	AGE	SELECTOR
kubernetes	ClusterIP	10.43.0.1	<none>	443/TCP	3d14h	<none>
webapp-service	NodePort	10.43.113.137	<none>	8000:30100/TCP	3d12h	app=webapp
kibana	NodePort	10.43.19.152	<none>	5601:30102/TCP	2d15h	app=kibana
redis	ClusterIP	10.43.9.124	<none>	6379/TCP	2d21h	app=redis
elasticsearch	NodePort	10.43.83.93	<none>	9200:30000/TCP	2d21h	app=elasticsearch
redis-service	ClusterIP	10.43.226.223	<none>	6379/TCP	3d14h	app=redis
elasticsearch-service	ClusterIP	10.43.89.215	<none>	9200/TCP	3d14h	app=elasticsearch

## After killing the redis pod

```
[~]
abtinz kubectl get pods -o wide
```

NAME	READY	STATUS	RESTARTS	AGE	IP
webapp-deployment-7f4bd8f49b-klvfv	1/1	Running	3 (11m ago)	11h	10.42.2.128
elasticsearch-6f69db6d59-tpkv9	0/1	ImagePullBackOff	0	7h45m	10.42.1.123
webapp-deployment-7f4bd8f49b-qhhgt	1/1	Running	1 (11m ago)	8h	10.42.1.122
elasticsearch-6f69db6d59-lwp9	1/1	Running	8 (11m ago)	32h	10.42.0.90
elasticsearch-6f69db6d59-62dtg	0/1	Terminating	0	8h	10.42.2.126
elasticsearch-6f69db6d59-4tfq2	0/1	ContainerCreating	0	10m	<none>
webapp-deployment-7f4bd8f49b-969st	1/1	Running	1 (11m ago)	8h	10.42.0.88
kibana-deployment-86cddc4df4-2mcdt	1/1	Running	11 (11m ago)	2d14h	10.42.1.124
kibana-deployment-85dd55f969-8lw8h	0/1	ImagePullBackOff	0	2d13h	10.42.0.89
elasticsearch-deployment-f8cb4b894-gtpml	0/1	CrashLoopBackOff	79 (2m21s ago)	13h	10.42.0.91
redis-deployment-d465564b9-dbqg4	1/1	Running	0	5s	10.42.2.130

```
abtin@ ~$ kubectl get svc -o wide
```

NAME	TYPE	CLUSTER-IP	EXTERNAL-IP	PORT(S)	AGE	SELECTOR
kubernetes	ClusterIP	10.43.0.1	<none>	443/TCP	3d14h	<none>
webapp-service	NodePort	10.43.113.137	<none>	8000:30100/TCP	3d12h	app=webapp
kibana	NodePort	10.43.19.152	<none>	5601:30102/TCP	2d15h	app=kibana
redis	ClusterIP	10.43.9.124	<none>	6379/TCP	2d21h	app=redis
elasticsearch	NodePort	10.43.83.93	<none>	9200:30000/TCP	2d21h	app=elasticsearch
redis-service	ClusterIP	10.43.226.223	<none>	6379/TCP	3d14h	app=redis
elasticsearch-service	ClusterIP	10.43.89.215	<none>	9200/TCP	3d14h	app=elasticsearch

همانطور که از عکس ها مشخص است. IP پاد ردیس بعد از کیل شدن تغییر داشته اما آی پی سرویس آن تغییری نکرده است.

برای برقراری ارتباط بین دو پاد لازم است که از تایپ Cluster IP استفاده کرد این نوع تایپ برای ارتباط داخلی کلاستر مناسب است و پادها از طریق سرویس خود میتوانند با بقیه ی پادها ارتباط برقرار کنند. اهمیتی هم ندارد برای این منظور تایپ تعریف شود چون bydefault تایپ سرویس از نوع cluster IP است.

عکس پورت و تارگت پورت به شرح زیر است:

```
---
#service
apiVersion: v1
kind: Service
metadata:
  name: webapp-service
spec:
  type: NodePort
  selector:
    app: webapp
  ports:
    - protocol: TCP
      port: 8000
      targetPort: 8000
      nodePort: 30100
```

نود پورت نیز تعریف شده برای دسترسی خارج از کلاستر در بروزر.

بخش دوم

## (پاک شدن اطلاعات کش ردیس بعد از کیل کردن اپیکش)

```
abtinz ➤ kubectl delete pod redis-deployment-6c6f6b67d-b6ww7
pod "redis-deployment-6c6f6b67d-b6ww7" deleted

[-]
abtinz ➤ kubectl get pods
NAME                                READY   STATUS    RESTARTS   AGE
elasticsearch-6f69db6d59-1wpx9      1/1     Running   5 (91m ago)  20h
kibana-deployment-86cddc4df4-2mcdt  1/1     Running   8 (91m ago)  2d2h
webapp-deployment-5655d7c446-1kvk5  1/1     Running   0           13m
kibana-deployment-85dd55f969-8lw8h  0/1     ImagePullBackOff  0           2d1h
elasticsearch-deployment-f8cb4b894-gtpml 0/1     Error     20 (5m45s ago)  87m
redis-deployment-6c6f6b67d-w26hr    1/1     Running   0           3s

[-]
abtinz ➤ kubectl logs webapp-deployment-5655d7c446-1kvk5
INFO: Will watch for changes in these directories: ['/app']
INFO: Uvicorn running on http://0.0.0.0:8000 (Press CTRL+C to quit)
INFO: Started reloader process [1] using WatchFiles
INFO: Started server process [8]
INFO: Waiting for application startup.
INFO: Application startup complete.
10.43.226.223
http://10.43.89.215:9200
INFO: 10.42.2.1:48193 - "GET /docs HTTP/1.1" 200 OK
INFO: 10.42.2.1:48193 - "GET /openapi.json HTTP/1.1" 200 OK
suits
None
We don't find any matching film name in redis!
<Elasticsearch(['http://10.43.89.215:9200'])>
INFO: 10.42.2.1:59326 - "POST /search/ HTTP/1.1" 200 OK
suits
None
We don't find any matching film name in redis!
<Elasticsearch(['http://10.43.89.215:9200'])>
No documents found matching the search criteria.
We don't find any matching film name in elasticsearch!
2011
We successfully set this film name and its released year from api: 2011
INFO: 10.42.2.1:42559 - "POST /search/ HTTP/1.1" 200 OK
inception
None
INFO: Application startup complete.
10.43.226.223
http://10.43.89.215:9200
INFO: 10.42.2.1:48193 - "GET /docs HTTP/1.1" 200 OK
INFO: 10.42.2.1:48193 - "GET /openapi.json HTTP/1.1" 200 OK
suits
None
We don't find any matching film name in redis!
<Elasticsearch(['http://10.43.89.215:9200'])>
INFO: 10.42.2.1:59326 - "POST /search/ HTTP/1.1" 200 OK
suits
None
We don't find any matching film name in redis!
<Elasticsearch(['http://10.43.89.215:9200'])>
No documents found matching the search criteria.
We don't find any matching film name in elasticsearch!
2011
We successfully set this film name and its released year from api: 2011
INFO: 10.42.2.1:42559 - "POST /search/ HTTP/1.1" 200 OK
inception
None
We don't find any matching film name in redis!
<Elasticsearch(['http://10.43.89.215:9200'])>
Poster Link: 2010
We successfully set these film name from elastic with its released year: 2010
INFO: 10.42.2.1:48230 - "POST /search/ HTTP/1.1" 200 OK
inception
2010
Response body found in Redis: 2010
INFO: 10.42.2.1:58487 - "POST /search/ HTTP/1.1" 200 OK
INFO: 10.42.2.1:58487 - "GET /docs HTTP/1.1" 200 OK
INFO: 10.42.2.1:58487 - "GET /openapi.json HTTP/1.1" 200 OK
inception
None
We don't find any matching film name in redis!
<Elasticsearch(['http://10.43.89.215:9200'])>
Poster Link: 2010
We successfully set these film name from elastic with its released year: 2010
INFO: 10.42.2.1:17912 - "POST /search/ HTTP/1.1" 200 OK

[-]
```

```
[~]
abtinz ➤ kubectl get pv
NAME          CAPACITY  ACCESS MODES  RECLAIM POLICY  STATUS    CLAIM          STORAGECLASS  REASON  AGE
pv            300Gi     RWO           Retain          Available default/redis-pvc  local-path             6m19s
pvc-087f700f-b083-44b0-a45d-fec9848521e8  100Mi     RWO           Delete          Bound     default/redis-pvc  local-path             4m47s

[~]
abtinz ➤ kubectl get pvc
NAME          STATUS  VOLUME          CAPACITY  ACCESS MODES  STORAGECLASS  AGE
redis-pvc     Bound   pvc-087f700f-b083-44b0-a45d-fec9848521e8  100Mi     RWO           local-path    6m29s

[~]
abtinz ➤
```

صحت اطلاعات بعد از اعمال pv , pvc

```
[~]
abtinz ➤ kubectl logs webapp-deployment-7f4bd8f49b-klvfv
INFO: Will watch for changes in these directories: ['/app']
INFO: Uvicorn running on http://0.0.0.0:8000 (Press CTRL+C to quit)
INFO: Started reloader process [1] using WatchFiles
INFO: Started server process [8]
INFO: Waiting for application startup.
INFO: Application startup complete.
10.43.89.215
9200
10.43.226.223
6379
suits
2011
Response body found in Redis: 2011
INFO: 10.42.2.1:34695 - "POST /search/ HTTP/1.1" 200 OK

[~]
abtinz ➤ kubectl delete pod webapp-deployment-7f4bd8f49b-klvfv
pod "webapp-deployment-7f4bd8f49b-klvfv" deleted

[~]
abtinz ➤ kubectl get pods
NAME                                READY  STATUS                    RESTARTS  AGE
elasticsearch-6f69db6d59-h6rrd     0/1   ContainerCreating        0          6m30s
redis-deployment-d465564b9-dbqg4    1/1   Running                  1 (4m16s ago)  26m
elasticsearch-6f69db6d59-4tfq2      0/1   ImagePullBackOff         0          37m
webapp-deployment-7f4bd8f49b-qhhgt  1/1   Running                  2 (4m11s ago)  8h
webapp-deployment-7f4bd8f49b-969st  1/1   Running                  2 (4m11s ago)  8h
kibana-deployment-86cddc4df4-2mcdt  1/1   Running                  12 (4m11s ago)  2d14h
elasticsearch-6f69db6d59-lwp9x      1/1   Running                  9 (4m11s ago)  33h
kibana-deployment-85dd55f969-8lw8h  0/1   ErrImagePull             0          2d13h
elasticsearch-deployment-f8cb4b894-gtpm1 0/1   Error                    87 (83s ago)  13h
webapp-deployment-7f4bd8f49b-vf7xt  1/1   Running                  0          11s

[~]
```

```
[~]  
abtinz ➤ kubectl logs webapp-deployment-7f4bd8f49b-bh6l9  
INFO: Will watch for changes in these directories: ['/app']  
INFO: Uvicorn running on http://0.0.0.0:8000 (Press CTRL+C to quit)  
INFO: Started reloader process [1] using WatchFiles  
INFO: Started server process [9]  
INFO: Waiting for application startup.  
INFO: Application startup complete.  
10.43.89.215  
9200  
10.43.226.223  
6379  
INFO: 10.42.2.1:60218 - "GET /docs HTTP/1.1" 200 OK  
INFO: 10.42.2.1:60218 - "GET /openapi.json HTTP/1.1" 200 OK  
suits  
2011  
Response body found in Redis: 2011  
INFO: 10.42.2.1:7340 - "POST /search/ HTTP/1.1" 200 OK
```

```
[~]
```

بخش سوم:

خروجی نیز به شکل زیر شد.

```
INFO:      10.42.2.1:59326 - "POST /search/ HTTP/1.1" 200 OK

[~]
abtinz ➤ kubectl logs webapp-deployment-5655d7c446-lkvk5
INFO:      Will watch for changes in these directories: ['/app']
INFO:      Uvicorn running on http://0.0.0.0:8000 (Press CTRL+C to quit)
INFO:      Started reloader process [1] using WatchFiles
INFO:      Started server process [8]
INFO:      Waiting for application startup.
INFO:      Application startup complete.
10.43.226.223
http://10.43.89.215:9200
INFO:      10.42.2.1:48193 - "GET /docs HTTP/1.1" 200 OK
INFO:      10.42.2.1:48193 - "GET /openapi.json HTTP/1.1" 200 OK
suits
None
We don't find any matching film name in redis!
<Elasticsearch(['http://10.43.89.215:9200'])>
INFO:      10.42.2.1:59326 - "POST /search/ HTTP/1.1" 200 OK
suits
None
We don't find any matching film name in redis!
<Elasticsearch(['http://10.43.89.215:9200'])>
No documents found matching the search criteria.
We don't find any matching film name in elasticsearch!
2011
We successfully set this film name and its released year from api: 2011
INFO:      10.42.2.1:42559 - "POST /search/ HTTP/1.1" 200 OK

[~]
```

```
[~]
abtinz ➤ kubectl logs webapp-deployment-5655d7c446-lkvk5
INFO: Will watch for changes in these directories: ['/app']
INFO: Uvicorn running on http://0.0.0.0:8000 (Press CTRL+C to quit)
INFO: Started reloader process [1] using WatchFiles
INFO: Started server process [8]
INFO: Waiting for application startup.
INFO: Application startup complete.
10.43.226.223
http://10.43.89.215:9200
INFO: 10.42.2.1:48193 - "GET /docs HTTP/1.1" 200 OK
INFO: 10.42.2.1:48193 - "GET /openapi.json HTTP/1.1" 200 OK
suits
None
We don't find any matching film name in redis!
<Elasticsearch(['http://10.43.89.215:9200'])>
INFO: 10.42.2.1:59326 - "POST /search/ HTTP/1.1" 200 OK
suits
None
We don't find any matching film name in redis!
<Elasticsearch(['http://10.43.89.215:9200'])>
No documents found matching the search criteria.
We don't find any matching film name in elasticsearch!
2011
We successfully set this film name and its released year from api: 2011
INFO: 10.42.2.1:42559 - "POST /search/ HTTP/1.1" 200 OK
inception
None
We don't find any matching film name in redis!
<Elasticsearch(['http://10.43.89.215:9200'])>
Poster Link: 2010
We successfully set these film name from elastic with its released year: 2010
INFO: 10.42.2.1:48230 - "POST /search/ HTTP/1.1" 200 OK
inception
2010
Response body found in Redis: 2010
INFO: 10.42.2.1:58487 - "POST /search/ HTTP/1.1" 200 OK
INFO: 10.42.2.1:58487 - "GET /docs HTTP/1.1" 200 OK
INFO: 10.42.2.1:58487 - "GET /openapi.json HTTP/1.1" 200 OK
```