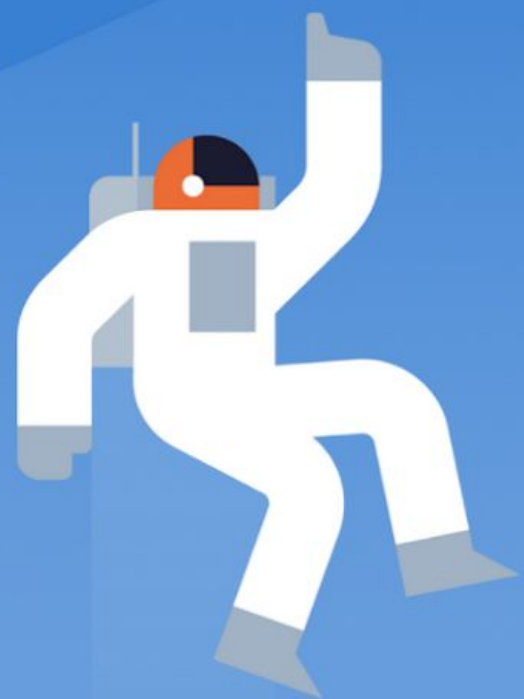


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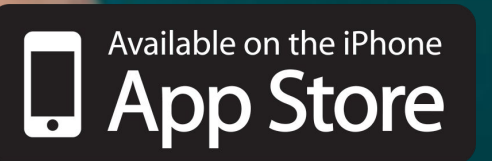
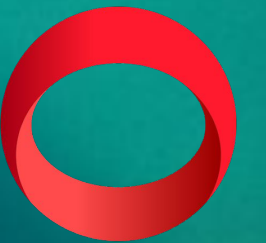
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2. Steps for certification
3. Practice exam questions
4. Resources



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2. Steps for certification
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- Data is next!!
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Insights

Settings

main

1 branch

0 tags

Go to file

Add file

Code

Gitpod

drchung5

Update PRACTICE.md

6484b65

2 hours ago

64 commits

images

Add files via upload

4 hours ago

PRACTICE-ADMIN.md

Create PRACTICE-ADMIN.md

yesterday

PRACTICE-DEV.md

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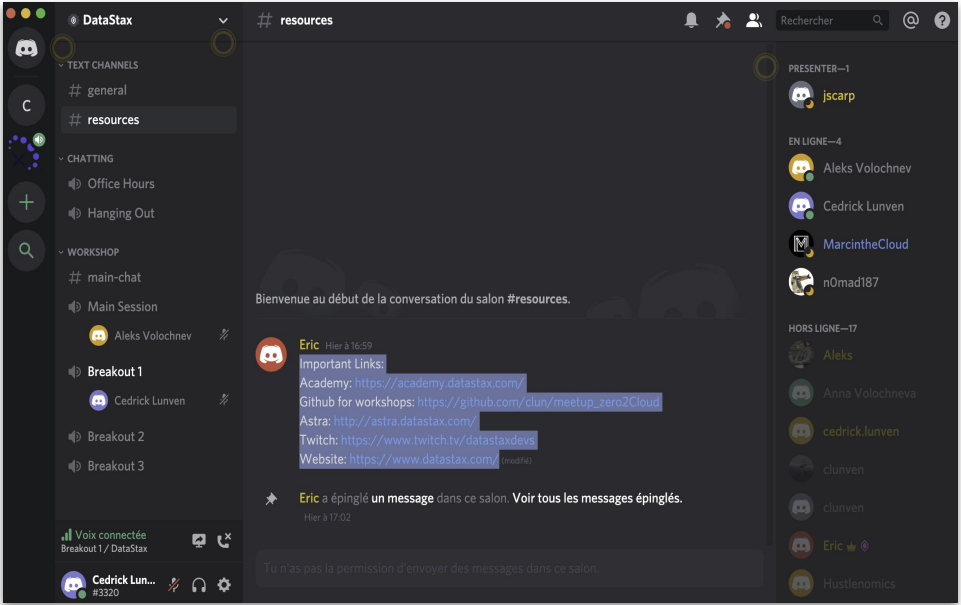
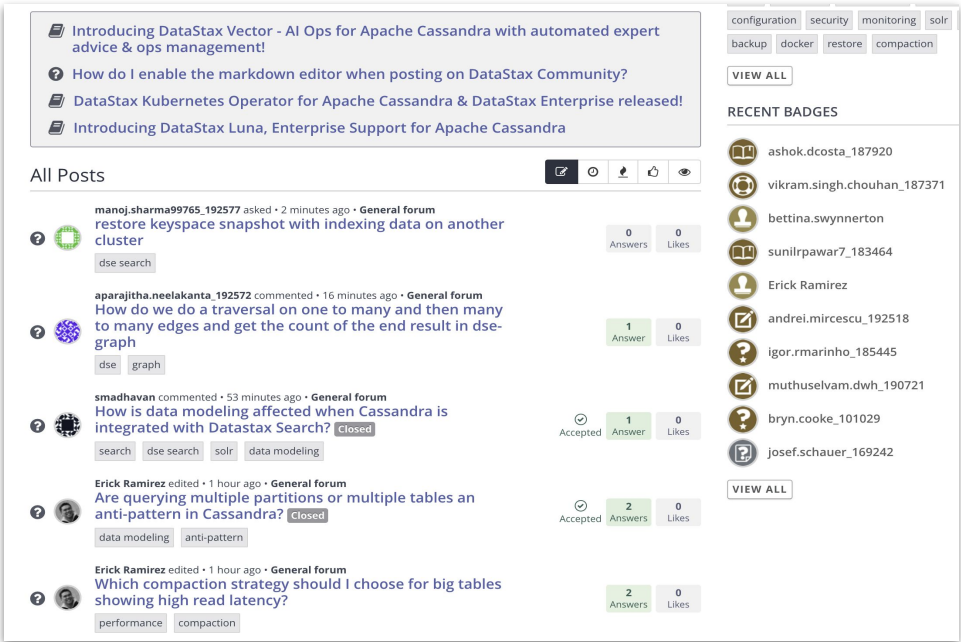
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Exams are proctored.

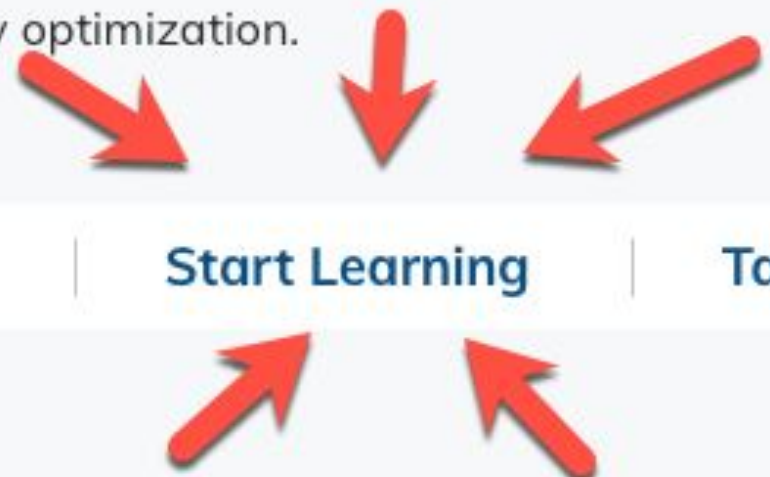
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In preparation for taking the certification exam, we have created a set of lessons in this Learning Series which contains all the information required to pass the exam. Each lesson comes complete with Kubernetes and Docker fundamentals workshop videos, DataStax product documentation, and hands-on exercises to reinforce course content. These courses assume you have a basic knowledge of CQL, Data Modeling, and Query optimization.

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The Apache Operations in Kubernetes Learning Series consists of 9 interactive Katacoda scenarios.


There are also two recorded workshops if you need an introduction to Kubernetes or Cassandra on Kubernetes.

Kubernetes Background

This course assumes you have some familiarity with containers and container orchestration technologies like Docker and Kubernetes. If you don't have that background, use these recommended resources to get up to speed.












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Kubernetes Background

This course assumes you have some familiarity with containers and container orchestration technologies like Docker and Kubernetes. If you don't have that background, use these recommended resources to get up to speed.












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Question 1

Which is a valid statement about security in a Cassandra cluster named `cluster1`, created with the Cass Operator?

- A. The Cass Operator will not enable security in the cluster.
- B. The Cass Operator will create a superuser with username: `cassandra`.
- C. The Cass Operator will create a superuser with username: `cluster1-superuser`.
- D. The Cass Operator will create a superuser based on credentials defined in the `yaml` file.

Solution 1

Which is a valid statement about security in a Cassandra cluster named `cluster1`, created with the Cass Operator?

- A. The Cass Operator will not enable security in the cluster.
- B. The Cass Operator will create a superuser with username: `cassandra`.
- C. The Cass Operator will create a superuser with username: `cluster1-superuser`.**
- D. The Cass Operator will create a superuser based on credentials defined in the yaml file.

The Cass Operator creates a secure Cassandra cluster. Unlike a local Cassandra installation, the super user will be: `cluster1-superuser`. The password for this user will be stored in a Kubernetes secret.

Question 2

Which two are required to create a cluster with the Cass Operator? (Choose two)

- A. a datacenter name
- B. a storage class
- C. a keystore
- D. a rack name
- E. a cluster name

Solution 2

Which two are required to create a cluster with the Cass Operator? (Choose two)

- A. a datacenter name
- B. a storage class**
- C. a keystore
- D. a rack name
- E. a cluster name**

All Cassandra clusters must have a **cluster name**. Since Cassandra is a database, it must be stateful. Therefore the Cass Operator requires a k8s **storage class**.

Datacenters, racks and keystores are optional in Cassandra.

Question 3

Which two are valid statements about containers running in the same Kubernetes Pod? (Choose two)

- A. Containers in a Pod always run in different hardware or virtual machines.
- B. Containers in a Pod always share network resources.
- C. Containers in a Pod always run in the same hardware or virtual machine.
- D. Containers in a Pod always run the same application.
- E. Containers in a Pod always expose ports outside the Kubernetes cluster.

Solution 3

Which two are valid statements about containers running in the same Kubernetes Pod? (Choose two)

- A. Containers in a Pod always run in different hardware or virtual machines.
- B. Containers in a Pod always share network resources.**
- C. Containers in a Pod always run in the same hardware or virtual machine.**
- D. Containers in a Pod always run the same application.
- E. Containers in a Pod always expose ports outside the Kubernetes cluster.

A Pod may house multiple containers. Containers in a Pod **share network resources** and **run on the same hardware or virtual machine**.

Containers in the same Pod often run different applications. Containers may offer services that are only used in the K8s cluster and do not need to be exposed to the outside world.

Question 4

Which two Kubernetes operators are included in K8ssandra? (Choose 2)

- A. cass-operator
- B. reaper-operator
- C. stargate-operator
- D. docker-operator
- E. helm-operator

Solution 4

Which two Kubernetes operators are included in K8ssandra? (Choose 2)

- A. **cass-operator**
- B. **reaper-operator**
- C. stargate-operator
- D. docker-operator
- E. helm-operator

K8ssandra includes the **cass-operator** and **reaper-operator**. There is no stargate-operator. Docker and Helm are not included in the K8ssandra deployment and there are no Docker or Helm operators.

Question 5

Which three are features of Medusa? (Choose three)

- A. scheduled backups
- B. single node backup
- C. differential backups
- D. cluster wide backup
- E. single node restore

Solution 5

Which three are features of Medusa? (Choose three)

- A. scheduled backups
- B. single node backup**
- C. differential backups**
- D. cluster wide backup
- E. single node restore**

Medusa supports **single node backup and restore** including **differential backups**. Medusa does not have scheduling capability -- external tools like *cron* can provide rudimentary scheduling features. Likewise, Medusa instances backup individual Cassandra nodes. Medusa does not perform *cluster-wide* backups. To do *cluster-wide* backup, set up an external orchestration tool to manage Medusa instances.

Question 6

Which Docker commands create a Docker network and run Cassandra in a container using that network?

- A. `docker network create d-net`
`docker run --network d-net cassandra`
- B. `docker network start d-net`
`docker run --network d-net cassandra`
- C. `docker network create d-net`
`docker run d-net cassandra`
- D. `docker network start d-net`
`docker run d-net cassandra`

Solution 6

Which Docker commands create a docker network and run Cassandra in a container using that network?

- A. `docker network create d-net`
`docker run --network d-net cassandra`
- B. `docker network start d-net`
`docker run --network d-net cassandra`
- C. `docker network create d-net`
`docker run d-net cassandra`
- D. `docker network start d-net`
`docker run d-net cassandra`

Create a Docker network with the `docker network create` command and use the `--network` switch when running the container to use the named network.

Question 7

How do clients authenticate to the Stargate Auth API using Table-based authentication/authorization?

- A. username and password
- B. two-way SSL/TLS
- C. SAML token
- D. JWT

Solution 7

How do clients authenticate to the Stargate Auth API using Table-based authentication/authorization?

- A. **username and password**
- B. two-way SSL/TLS
- C. SAML token
- D. JWT

Table-based authentication and authorization uses the Stargate Auth API to generate an auth token based on a Cassandra **username and password**. The auth-table-based-service uses the generated auth token to allow Stargate API queries access to the Cassandra data.

JWT-based authentication and authorization is an alternative to Table-based authentication and authorization.

Stargate does not support authentication through two-way SSL/TLS or SAML.

Question 8

How does Prometheus communicate with Cassandra?

- A. JMX
- B. SNMP
- C. TLS
- D. UDP

Solution 8

How does Prometheus communicate with Cassandra?

- A. **JMX**
- B. SNMP
- C. TLS
- D. UDP

Java Management Extensions (JMX) is the native management protocol for Java applications and the JVM. Prometheus uses **JMX** to monitor Cassandra.

Question 9

Given that a Docker container named Main01 was started with the journald logging driver, which Docker command can be used to view its logs?

- A. `docker logs -f Main01`
- B. `docker cat -f logs --name Main01`
- C. `docker logs --name Main01`
- D. `docker cat -f Main01`

Solution 9

Given that a Docker container named Main01 was started with the journald logging driver, which Docker command can be used to view its logs?

- A. `docker logs -f Main01`
- B. `docker cat -f logs --name Main01`
- C. `docker logs --name Main01`
- D. `docker cat -f Main01`

The command `docker logs -f <container-name>` displays log files for a container.

Question 10

Which two commands can re-start a stopped Docker container named NodeZ? (Choose two.)

- A. `docker run NodeZ`
- B. `docker restart NodeZ`
- C. `docker resume NodeZ`
- D. `docker start NodeZ`

Solution 10

Which two commands can re-start a stopped Docker container named NodeZ? (Choose two.)

- A. `docker run NodeZ`
- B. `docker restart NodeZ`
- C. `docker resume NodeZ`
- D. `docker start NodeZ`

The commands `docker restart` and `docker start` can *re-start* a stopped container.

`docker run` creates a new container and there is no `docker resume` command.

Question 11

Which is an advantage of using Reaper over nodetool to perform repairs?

- A. Reaper can do incremental repairs.
- B. Reaper can do full repairs.
- C. Reaper can repair data when nodes are down.
- D. Reaper can schedule repairs.

Solution 11

Which is an advantage of using Reaper over nodetool to perform repairs?

- A. Reaper can do incremental repairs.
- B. Reaper can do full repairs.
- C. Reaper can repair data when nodes are down.
- D. Reaper can schedule repairs.**

Reaper and nodetool can both initiate incremental and full repairs. Neither tool can do a repair on a downed node. A big advantage of **Reaper** is that it **can schedule repairs**.

Question 12

Which tool installs K8ssandra?

- A. RPM
- B. YUM
- C. Helm
- D. apt-get

Solution 12

Which tool installs K8ssandra?

- A. RPM
- B. YUM
- C. Helm**
- D. apt-get

K8ssandra is a Kubernetes application so it is installed using a **Helm** chart.

Question 13

Consider the following service manifest:

```
kind: Service
apiVersion: v1
metadata:
  name: my-service
spec:
  selector:
    app: my-app
  ports:
    - protocol: TCP
      port: 80
      targetPort: 8080
```

Which is a valid statement about `my-service`?

- A. The service makes `my-app` available outside the Kubernetes cluster on port 80.
- B. The service makes `my-app` available outside the Kubernetes cluster on port 8080.
- C. The service makes `my-app` available inside the Kubernetes cluster on port 80.
- D. The service makes `my-app` available inside the Kubernetes cluster on port 8080.

Solution 13

Consider the following service manifest:

```
kind: Service
apiVersion: v1
metadata:
  name: my-service
spec:
  selector:
    app: my-app
  ports:
    - protocol: TCP
      port: 80
      targetPort: 8080
```

Which is a valid statement about `my-service`?

- A. The service makes `my-app` available outside the Kubernetes cluster on port 80.
- B. The service makes `my-app` available outside the Kubernetes cluster on port 8080.
- C. **The service makes `my-app` available inside the Kubernetes cluster on port 80.**
- D. The service makes `my-app` available inside the Kubernetes cluster on port 8080.

This service manifest exposes `my-app` outside the cluster. The internal port is 8080 and the external port is 80.

Question 14

In K8ssandra, how does Grafana collect Cassandra metrics.

- A. Grafana connects directly to Cassandra.
- B. Grafana gets Cassandra metrics from Medusa.
- C. Grafana gets Cassandra metrics from Reaper.
- D. Grafana gets Cassandra metrics from Prometheus.

Solution 14

In K8ssandra, how does Grafana collect Cassandra metrics.

- A. Grafana connects directly to Cassandra.
- B. Grafana gets Cassandra metrics from Medusa.
- C. Grafana gets Cassandra metrics from Reaper.
- D. Grafana gets Cassandra metrics from Prometheus.**

Prometheus is the K8ssandra component that monitors Cassandra. **Grafana gets metrics from Prometheus.**

Question 15

Given the output from this command: (You may need to scroll left/right to see the entire output.)

```
% kubectl get pods
```

NAME	READY	STATUS	RESTARTS	AGE
some-really-really-long-meaningless-pod-name-0	2/2	Running	0	2m34s
some-really-really-long-meaningless-pod-name-1	0/2	Running	0	2m34s
some-really-really-long-meaningless-pod-name-2	1/2	Running	0	2m34s

Which is a valid statement about some-really-really-long-meaningless-pod-name-2?

- A. The pod and all its containers are running.
- B. The pod and one of its containers are running.
- C. The pod and its container are in stage 1 of the initialization process.
- D. The pod is running and its container is in stage 1 of the initialization process.

Solution 15

Given the output from this command: (You may need to scroll left/right to see the entire output.)

```
% kubectl get pods
```

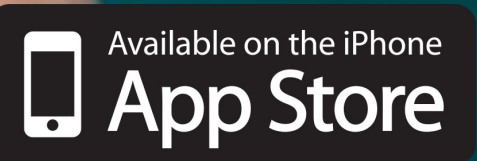
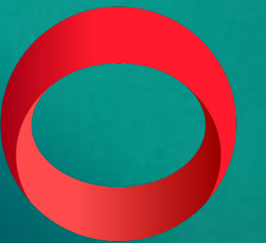
NAME	READY	STATUS	RESTARTS	AGE
some-really-really-long-meaningless-pod-name-0	2/2	Running	0	2m34s
some-really-really-long-meaningless-pod-name-1	0/2	Running	0	2m34s
some-really-really-long-meaningless-pod-name-2	1/2	Running	0	2m34s

Which is a valid statement about some-really-really-long-meaningless-pod-name-2?

- A. The pod and all its containers are running.
- B. **The pod and one of its containers are running.**
- C. The pod and its container are in stage 1 of the initialization process.
- D. The pod is running and its container is in stage 1 of the initialization process.

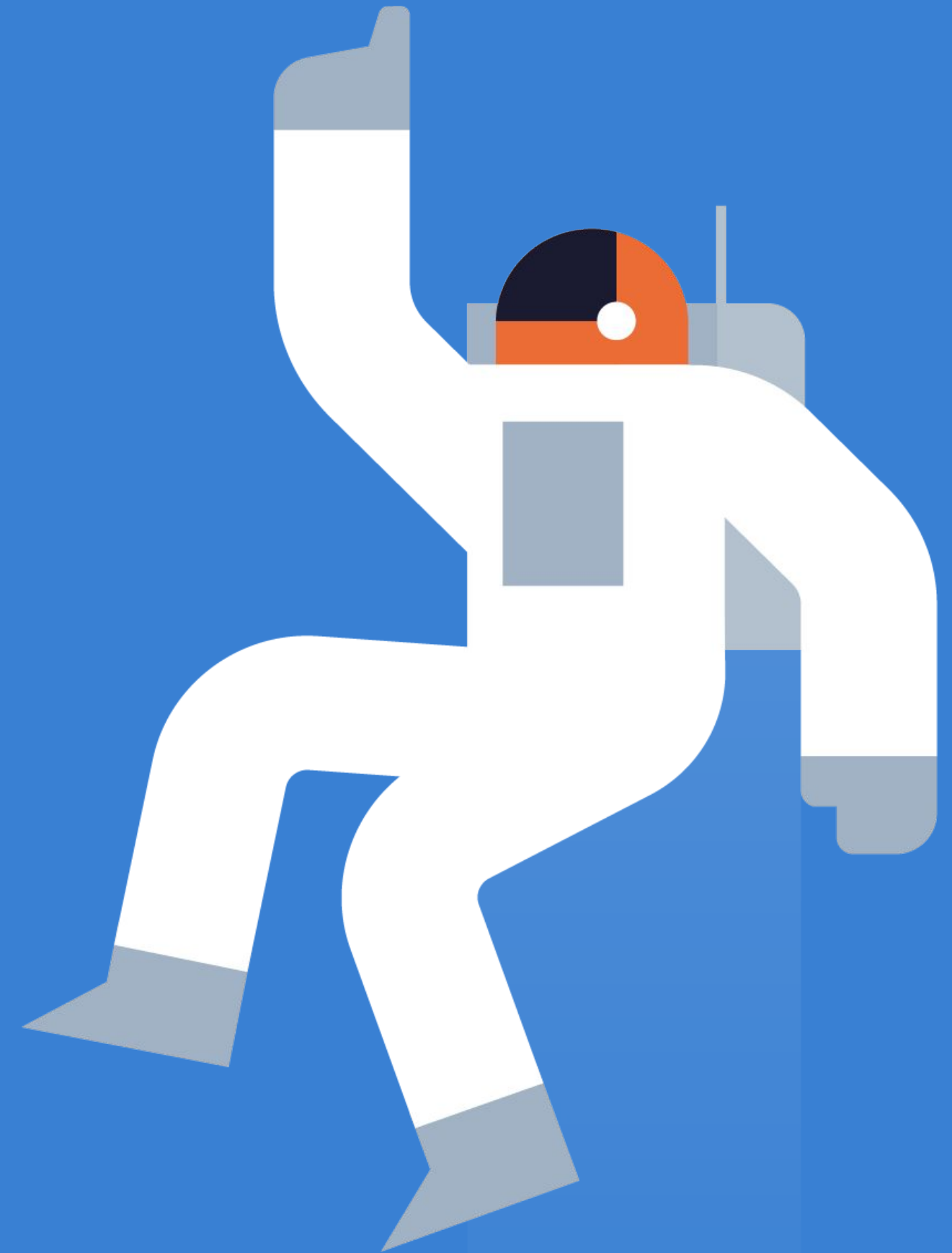
In this example the pod’s status is **Running**. Looking at the *Ready* column, the pod has **two containers and one is ready (running.)**

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