

# Configure liveness and readiness probes for Containers

## SSH to your AWS Workstation

ssh devops@<public-ip-addr> of your Workstation

Password is : Dev0p\$!!!

Replace <your-name> with your name throughout the lab.

### 1. Run the below commands to create a pod object as <your-name>probe.yaml.

```
$ sudo su
# cd application/
# curl -f https://pastebin.com/raw/wsFvgeSZ > <your-name>-probe.yaml
# vim <your-name>probe.yaml
```

Update <your-name> with your Name

Note :

**- touch /tmp/healthy; sleep 30; rm -rf /tmp/healthy; sleep 600**

This command will create a healthy file in the /tmp dir for the first 30 secs and then deletes this file. When the pod is being scheduled the liveness probe will be able to find the file for the first 30 secs and when this file gets deleted the probe will fail and hence will kill the container and recreates it.

**initialDelaySeconds: 5** Number of seconds after the container has started before liveness or readiness probes are initiated.

**periodSeconds: 5** How often (in seconds) to perform the probe. Default to 10 seconds.

**timeoutSeconds:** Number of seconds after which the probe times out. Defaults to 1 second.

Edit the fields **test name image (your hub image)**

### 2. Create a Pod

```
# kubectl create -f <your-name>probe.yaml
```

### 3. Within 30 seconds, view the Pod events:

```
# kubectl get po <your-name>
```

```
root@ip-172-31-40-214: /home/devops/application# kubectl get po albert
NAME      READY   STATUS    RESTARTS   AGE
albert    0/1     Running   0           47s
root@ip-172-31-40-214: /home/devops/application#
```

#### 4. Run the below command to describe the pod and check pod events.

```
# kubectl describe pod <your-name>
```

The output indicates that Liveness probe failed and Readiness probe failed.

```
Events:
  Type     Reason      Age           From              Message
  ----     -
  Normal   Scheduled   76s           default-scheduler  Successfully assigned default/albert to gke-demo-pool-1-66f23b9e-7686
  Normal   Pulling     75s           kubelet, gke-demo-pool-1-66f23b9e-7686  pulling image "lovescloud/rildemo.default"
  Normal   Pulled      63s           kubelet, gke-demo-pool-1-66f23b9e-7686  Successfully pulled image "lovescloud/rildemo.default"
  Normal   Created     62s           kubelet, gke-demo-pool-1-66f23b9e-7686  Created container
  Normal   Started     62s           kubelet, gke-demo-pool-1-66f23b9e-7686  Started container
  Warning  Unhealthy   29s           kubelet, gke-demo-pool-1-66f23b9e-7686  Liveness probe failed: cat: /tmp/healthy: No such file or directory
  Warning  Unhealthy   7s (x6 over 57s) kubelet, gke-demo-pool-1-66f23b9e-7686  Readiness probe failed: cat: /tmp/health: No such file or directory
root@ip-172-31-40-214: /home/devops/application#
```

#### 5. After 30 seconds, view the Pod events again:

```
# kubectl describe pod <pod-name>
```

At the bottom of the output, there are messages indicating that the liveness probes have failed, and the containers have been killed and recreated.

```
Events:
  Type     Reason      Age           From              Message
  ----     -
  Normal   Scheduled   2m43s         default-scheduler  Successfully assigned default/albert to gke-demo-pool-1-66f23b9e-7686
  Normal   Pulling     2m42s         kubelet, gke-demo-pool-1-66f23b9e-7686  pulling image "lovescloud/rildemo.default"
  Normal   Pulled      2m30s         kubelet, gke-demo-pool-1-66f23b9e-7686  Successfully pulled image "lovescloud/rildemo.default"
  Normal   Created     86s (x2 over 2m29s) kubelet, gke-demo-pool-1-66f23b9e-7686  Created container
  Normal   Started     86s (x2 over 2m29s) kubelet, gke-demo-pool-1-66f23b9e-7686  Started container
  Warning  Unhealthy   51s (x2 over 116s) kubelet, gke-demo-pool-1-66f23b9e-7686  Liveness probe failed: cat: /tmp/healthy: No such file or directory
  Warning  Unhealthy   24s (x13 over 2m24s) kubelet, gke-demo-pool-1-66f23b9e-7686  Readiness probe failed: cat: /tmp/health: No such file or directory
  Normal   Killing     21s (x2 over 86s) kubelet, gke-demo-pool-1-66f23b9e-7686  Killing container with id docker://liveness:Container failed liveness probe. Container will be killed and recreated.
  Normal   Pulled      21s (x2 over 86s) kubelet, gke-demo-pool-1-66f23b9e-7686  Container image "lovescloud/rildemo.default" already present on machine
root@ip-172-31-40-214: /home/devops/application#
```

#### 6. Wait another 30 seconds, and verify that the Container has been restarted:

```
# kubectl get pod <pod-name>
```

```
root@ip-172-31-40-214: /home/devops/application# kubectl get po albert
NAME      READY   STATUS    RESTARTS   AGE
albert    0/1     Running   3           3m54s
root@ip-172-31-40-214: /home/devops/application#
```

The output shows that RESTARTS has been incremented:

7. Login to your **Kubernetes Dashboard** and check the pod events. You can see that the pod is being killed and recreated once the probe check fails.

The screenshot shows the Kubernetes Dashboard Overview page. The left sidebar contains navigation links for Cluster, Namespaces, Nodes, Persistent Volumes, Roles, Storage Classes, Namespace (default), Overview, Workloads, Cron Jobs, Daemon Sets, and Deployments. The main content area is divided into two sections: Deployments and Pods.

**Deployments**

Name	Labels	Pods	Age	Images
python-app-albert	-	2 / 2	46 minutes	lovescloud/docker-python:lat...
dotnet-app-albert	-	2 / 2	an hour	lovescloud/docker-dotnet:lat...

**Pods**

Name	Node	Status	Restarts	Age	CPU (cores)	Memory (bytes)
albert	gke-demo-pool-1-66f23b9e-76	Running	5	5 minutes	0.001	1.305 Mi
Readiness probe failed: cat: /tmp/health: No such file or directory						
python-app-albert-657c8...	gke-demo-pool-1-66f23b9e-76	Running	0	46 minutes	0.005	36.258 Mi
python-app-albert-657c8...	gke-demo-pool-1-66f23b9e-76	Running	0	46 minutes	0.004	31.352 Mi
dotnet-app-albert-7c7cd...	gke-demo-pool-1-66f23b9e-76	Running	0	an hour	0	25.871 Mi

The screenshot shows the Kubernetes Dashboard Workloads > Pods > albert page. The left sidebar contains navigation links for Cluster, Namespaces, Nodes, Persistent Volumes, Roles, Storage Classes, Namespace (default), Overview, Workloads, Cron Jobs, Daemon Sets, and Deployments. The main content area shows a table of pod events.

**Pod Events**

Event	Node	Container	Reason	Age	Timestamp
Successfully pulled image "lovescloud/rildemo:default"	gke-demo-pool-1-66f23b9e-7686	spec.containers(liveness)	1	2019-04-16T11:42 UTC	2019-04-16T11:42 UTC
Created container	gke-demo-pool-1-66f23b9e-7686	spec.containers(liveness)	2	2019-04-16T11:42 UTC	2019-04-16T11:43 UTC
Started container	gke-demo-pool-1-66f23b9e-7686	spec.containers(liveness)	2	2019-04-16T11:42 UTC	2019-04-16T11:43 UTC
Readiness probe failed: cat: /tmp/health: No such file or directory	gke-demo-pool-1-66f23b9e-7686	spec.containers(liveness)	13	2019-04-16T11:42 UTC	2019-04-16T11:44 UTC
Liveness probe failed: cat: /tmp/healthy: No such file or directory	gke-demo-pool-1-66f23b9e-7686	spec.containers(liveness)	5	2019-04-16T11:42 UTC	2019-04-16T11:47 UTC
Killing container with id docker://liveness:Container failed liveness probe... Container will be killed and recreated.	gke-demo-pool-1-66f23b9e-7686	spec.containers(liveness)	2	2019-04-16T11:43 UTC	2019-04-16T11:44 UTC
Container image "lovescloud/rildemo:default" already present on machine	gke-demo-pool-1-66f23b9e-7686	spec.containers(liveness)	2	2019-04-16T11:43 UTC	2019-04-16T11:44 UTC