# Liveness Probe

1. Get familiar with pods/probes/probe-liveness-task.yaml.
2. Start Pod and check the its status. It should not be ready:

$ kubectl create -f pods/probes/probe-liveness-task.yaml  
pod/probe-liveness-task  
  
$ kubectl logs pod/probe-liveness-task -f  
2021.06.06 09:33:54 Starting  
2021.06.06 09:33:54 --> Started!  
got TERM but ignored  
2021.06.06 09:34:08 Bye  
  
$ kubectl get events -w | grep -i probe-liveness-task  
> kubectl get events -w | findstr /i probe-liveness-task  
  
0s Normal Scheduled pod/probe-liveness-task Successfully assigned msuslov/probe-liveness-task to minikube  
0s Normal Pulled pod/probe-liveness-task Container image "bash" already present on machine  
0s Normal Created pod/probe-liveness-task Created container bash  
0s Normal Started pod/probe-liveness-task Started container bash  
0s Warning Unhealthy pod/probe-liveness-task Liveness probe failed:  
0s Warning Unhealthy pod/probe-liveness-task Liveness probe failed:  
0s Normal Killing pod/probe-liveness-task Stopping container bash

1. Add Liveness Probe’s exec handler:

livenessProbe:  
 exec:  
 command:  
 - /bin/sh  
 - -c  
 - |  
 source /app/echotime.sh  
 if [ ! -e /tmp/liveness ]; then  
 echotime Liveness FAILED >> /app/my.log  
 exit 1  
 fi  
 echotime Liveness OK >> /app/my.log  
 exit 0

1. Tune probe’s parameters for different test cases:

| initialDelaySeconds | failureThreshold | periodSeconds |
| --- | --- | --- |
| 1 | 2 | 5 |
| 6 | 4 | 2 |

What are expected results?

1. Start Pod (kubectl create) and check the its logs (kubectl logs) and events.

What’s changed?

1. Clean up.

## Solution

1. Start Pod and check the its status. It should not be ready:

$ kubectl create -f pods/probes/probe-liveness-task.yaml  
pod/probe-liveness-task  
  
$ kubectl logs pod/probe-liveness-task -f  
2021.06.06 09:33:54 Starting  
2021.06.06 09:33:54 --> Started!  
got TERM but ignored  
2021.06.06 09:34:08 Bye  
  
$ kubectl get events -w | grep -i probe-liveness-task  
0s Normal Scheduled pod/probe-liveness-task Successfully assigned msuslov/probe-liveness-task to minikube  
0s Normal Pulled pod/probe-liveness-task Container image "bash" already present on machine  
0s Normal Created pod/probe-liveness-task Created container bash  
0s Normal Started pod/probe-liveness-task Started container bash  
0s Warning Unhealthy pod/probe-liveness-task Liveness probe failed:  
0s Warning Unhealthy pod/probe-liveness-task Liveness probe failed:  
0s Normal Killing pod/probe-liveness-task Stopping container bash  
  
$ kubectl get pods -w | grep -i probe-liveness-task  
probe-liveness-task 0/1 Pending 0 0s  
probe-liveness-task 0/1 Pending 0 0s  
probe-liveness-task 0/1 ContainerCreating 0 0s  
probe-liveness-task 1/1 Running 0 2s  
probe-liveness-task 0/1 Completed 0 16s

1. Add Liveness Probe’s exec handler:

livenessProbe:  
 exec:  
 command:  
 - /bin/sh  
 - -c  
 - |  
 source /app/echotime.sh  
 if [ ! -e /tmp/liveness ]; then  
 echotime Liveness FAILED >> /app/my.log  
 exit 1  
 fi  
 echotime Liveness OK >> /app/my.log  
 exit 0

1. Tune probe’s parameters for different test cases:

| initialDelaySeconds | failureThreshold | periodSeconds |
| --- | --- | --- |
| 1 | 2 | 5 |
| 6 | 4 | 2 |

What are expected results?

Because probe will start failing after 20 seconds then:

Case 1:

| Time | Probe | State |
| --- | --- | --- |
| 1 | OK | Working |
| 6 | OK | Working |
| 11 | OK | Working |
| 16 | OK | Working |
| 21 | NOK | Working |
| 26 | NOK | Terminating |

Case 2: on 6+4\*2=14 second, probe should succeed.

| Time | Probe | State |
| --- | --- | --- |
| 6 | OK | Working |
| 8 | OK | Working |
| 10 | OK | Working |
| 12 | OK | Working |
| 14 | OK | Working |
| 16 | OK | Working |
| 18 | OK | Working |
| 20 | OK | Working |
| 22 | NOK | Working |
| 24 | NOK | Working |
| 26 | NOK | Working |
| 28 | NOK | Terminating |

1. Start Pod (kubectl create) and check the its logs (kubectl logs) and events.

What’s changed?

Case 1:

$ kubectl logs probe-liveness-task -f  
2021.06.11 11:23:21 --> Started!  
2021.06.11 11:23:21 Starting  
2021.06.11 11:23:26 Liveness OK  
2021.06.11 11:23:31 Liveness OK  
2021.06.11 11:23:36 Liveness OK  
2021.06.11 11:23:41 --> Done!  
2021.06.11 11:23:41 Liveness FAILED  
got TERM but ignored  
2021.06.11 11:23:47 Bye  
  
$ kubectl get events -w | grep -i probe-liveness-task  
0s Normal Scheduled pod/probe-liveness-task Successfully assigned msuslov/probe-liveness-task to minikube  
0s Normal Pulled pod/probe-liveness-task Container image "bash" already present on machine  
0s Normal Created pod/probe-liveness-task Created container bash  
0s Normal Started pod/probe-liveness-task Started container bash  
0s Warning Unhealthy pod/probe-liveness-task Liveness probe failed:  
0s Warning Unhealthy pod/probe-liveness-task Liveness probe failed:  
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$ kubectl get pods -w | grep -i probe-liveness-task  
probe-liveness-task 0/1 Pending 0 0s  
probe-liveness-task 0/1 Pending 0 0s  
probe-liveness-task 0/1 ContainerCreating 0 0s  
probe-liveness-task 1/1 Running 0 2s  
probe-liveness-task 0/1 Completed 0 27s

Case 2:

$ kubectl logs probe-liveness-task -f  
2021.06.11 11:26:41 Starting  
2021.06.11 11:26:41 --> Started!  
2021.06.11 11:26:48 Liveness OK  
2021.06.11 11:26:50 Liveness OK  
2021.06.11 11:26:52 Liveness OK  
2021.06.11 11:26:54 Liveness OK  
2021.06.11 11:26:56 Liveness OK  
2021.06.11 11:26:58 Liveness OK  
2021.06.11 11:27:00 Liveness OK  
2021.06.11 11:27:01 --> Done!  
2021.06.11 11:27:02 Liveness FAILED  
2021.06.11 11:27:04 Liveness FAILED  
2021.06.11 11:27:06 Liveness FAILED  
got TERM but ignored  
2021.06.11 11:27:09 Bye  
  
$ kubectl get events -w | grep -i probe-liveness-task  
0s Normal Scheduled pod/probe-liveness-task Successfully assigned msuslov/probe-liveness-task to minikube  
0s Normal Pulled pod/probe-liveness-task Container image "bash" already present on machine  
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probe-liveness-task 0/1 Pending 0 0s  
probe-liveness-task 0/1 Pending 0 0s  
probe-liveness-task 0/1 ContainerCreating 0 0s  
probe-liveness-task 1/1 Running 0 2s  
probe-liveness-task 0/1 Completed 0 29s

1. Clean up:

$ kubectl delete -f pods\probes\probe-liveness-task.yaml  
pod "probe-liveness-task" deleted