

Log Linking Enablement

Overview

The purpose of this document is to describe how to enable the functionality delivered in [OpenShift 4.13.4](#) to allow for container logs to be linked to a volume within OpenShift and implemented within [CRI-O](#).

Feature Enablement

The ability to activate the log linking feature is enabled by updating the configuration of the CRI-O on the OpenShift worker nodes and is achieved by specifying a custom MachineConfig.

Apply the following MachineConfig:

Unset

```
apiVersion: machineconfiguration.openshift.io/v1
kind: MachineConfig
metadata:
  labels:
    machineconfiguration.openshift.io/role: worker
  name: 99-workers-linked-log
spec:
  config:
    ignition:
      config: {}
      security:
        tls: {}
      timeouts: {}
    version: 3.1.0
```

```
networkd: {}
passwd: {}
storage:
  files:
    - contents:
        source:
data:text/plain;charset=utf-8;base64,W2NyaW8ucnVudGltZS53b3JrbG9h
ZHMubGlua2VkXQphY3RpdmF0aW9uX2Fubm90YXRpb24gPSAiaW8ua3ViZXJuZXRlc
y5jcmktby5MaW5rTG9ncyIgCmFsbG93ZWRfYW5ub3RhdGlvbzMgPSBbICJpby5rdW
Jlcm5ldGVzLmNyaS1vLkxpbmtMb2dzIiBdCg==
        mode: 420
        overwrite: true
        path: /etc/crio/crio.conf.d/99-linked-log.conf
osImageURL: ""
```

The MachineConfig will create a file at `/etc/crio/crio.conf.d/99-linked-log.conf` (base64 string in the MachineConfig example above) containing the following:

Unset

```
[crio.runtime.workloads.linked]
activation_annotation = "io.kubernetes.cri-o.LinkLogs"
allowed_annotations = [ "io.kubernetes.cri-o.LinkLogs" ]
```

The ability to make use of custom MachineConfig's in the OpenShift managed offerings are addressed in support exceptions for both [ARO](#) and [ROSA](#) environments.

Once the feature has been enabled, the log linking feature can be leveraged by setting the `io.kubernetes.cri-o.LinkLogs` annotation with the name of the volume defined on the pod where logs should be linked:

```
Unset
kind: Deployment
apiVersion: apps/v1
metadata:
  name: test-log-linking
spec:
  replicas: 1
  selector:
    matchLabels:
      app: test-log-linking
  template:
    metadata:
      labels:
        app: test-log-linking
      annotations:
        io.kubernetes.cri-o.LinkLogs: httpd-logs
    spec:
      volumes:
        - name: httpd-logs
          emptyDir:
            sizeLimit: 500Mi
      containers:
        - name: httpd
          image: registry.redhat.io/rhel8/httpd-24
        - name: sidecar
          image: registry.access.redhat.com/ubi8/ubi
          command:
            - sleep
            - '1000'
          volumeMounts:
            - name: httpd-logs
```

```
        mountPath: /mnt/logs
        terminationMessagePath: /dev/termination-log
    restartPolicy: Always
strategy:
  type: RollingUpdate
  rollingUpdate:
    maxUnavailable: 25%
    maxSurge: 25%
```

Verify that the container logs from the primary httpd container are available within the volume mounted to the sidecar to confirm that logs have been linked properly. Contents will be available in the `/mnt/logs` within the sidecar container as shown below:

```
Unset
$ oc exec -ti deployment/test-log-linking -c sidecar -- cat
/mnt/logs/logs/httpd/0.log
2023-07-26T17:34:25.010466482+00:00 stdout F => sourcing 10-set-mpm.sh ...
2023-07-26T17:34:25.012101066+00:00 stdout F => sourcing 20-copy-config.sh ...
2023-07-26T17:34:25.014141085+00:00 stdout F => sourcing 40-ssl-certs.sh ...
2023-07-26T17:34:25.017951298+00:00 stdout F ---> Generating SSL key pair for
httpd...
2023-07-26T17:34:25.391323074+00:00 stderr F AH00558: httpd: Could not reliably
determine the server's fully qualified domain name, using 10.128.2.32. Set the
'ServerName' directive globally to suppress this message
2023-07-26T17:34:25.394782394+00:00 stdout F [Wed Jul 26 17:34:25.394709 2023]
[ssl:warn] [pid 1:tid 140167491435968] AH01909: 10.128.2.32:8443:0 server
certificate does NOT include an ID which matches the server name
2023-07-26T17:34:25.394871519+00:00 stdout F [Wed Jul 26 17:34:25.394842 2023]
[:notice] [pid 1:tid 140167491435968] ModSecurity for Apache/2.9.6
(http://www.modsecurity.org/) configured.
2023-07-26T17:34:25.394871519+00:00 stdout F [Wed Jul 26 17:34:25.394850 2023]
[:notice] [pid 1:tid 140167491435968] ModSecurity: APR compiled
version="1.6.3"; loaded version="1.6.3"
2023-07-26T17:34:25.394871519+00:00 stdout F [Wed Jul 26 17:34:25.394852 2023]
[:notice] [pid 1:tid 140167491435968] ModSecurity: PCRE compiled version="8.42
"; loaded version="8.42 2018-03-20"
```

```
2023-07-26T17:34:25.394871519+00:00 stdout F [Wed Jul 26 17:34:25.394857 2023]
[:notice] [pid 1:tid 140167491435968] ModSecurity: LUA compiled version="Lua
5.3"
2023-07-26T17:34:25.394871519+00:00 stdout F [Wed Jul 26 17:34:25.394859 2023]
[:notice] [pid 1:tid 140167491435968] ModSecurity: YAJS compiled
version="2.1.0"
2023-07-26T17:34:25.394871519+00:00 stdout F [Wed Jul 26 17:34:25.394861 2023]
[:notice] [pid 1:tid 140167491435968] ModSecurity: LIBXML compiled
version="2.9.7"
2023-07-26T17:34:25.394871519+00:00 stdout F [Wed Jul 26 17:34:25.394862 2023]
[:notice] [pid 1:tid 140167491435968] ModSecurity: Status engine is currently
disabled, enable it by set SecStatusEngine to On.
2023-07-26T17:34:25.412624158+00:00 stdout F AH00558: httpd: Could not reliably
determine the server's fully qualified domain name, using 10.128.2.32. Set the
'ServerName' directive globally to suppress this message
2023-07-26T17:34:25.462993570+00:00 stdout F [Wed Jul 26 17:34:25.462944 2023]
[ssl:warn] [pid 1:tid 140167491435968] AH01909: 10.128.2.32:8443:0 server
certificate does NOT include an ID which matches the server name
2023-07-26T17:34:25.463095396+00:00 stdout F [Wed Jul 26 17:34:25.463067 2023]
[lbmethod_heartbeat:notice] [pid 1:tid 140167491435968] AH02282: No slotmem
from mod_heartbeat
2023-07-26T17:34:25.466034043+00:00 stdout F [Wed Jul 26 17:34:25.466009 2023]
[mpm_event:notice] [pid 1:tid 140167491435968] AH00489: Apache/2.4.37 (Red Hat
Enterprise Linux) OpenSSL/1.1.1k configured -- resuming normal operations
2023-07-26T17:34:25.466071455+00:00 stdout F [Wed Jul 26 17:34:25.466060 2023]
[core:notice] [pid 1:tid 140167491435968] AH00094: Command line: 'httpd -D
FOREGROUND'
```

Important: It is important to note that the Log Linking feature that was released as part of OpenShift 4.13.4 does include a bug prohibiting the use of the standard restricted-v2 SecurityContextConstraint (SCC). However, since Adobe will be using a customized SCC (restricted-adobe) for all workloads as part of the initial deployment and onboarding process, the existing delivered solution as included with 4.13.4 is compatible.