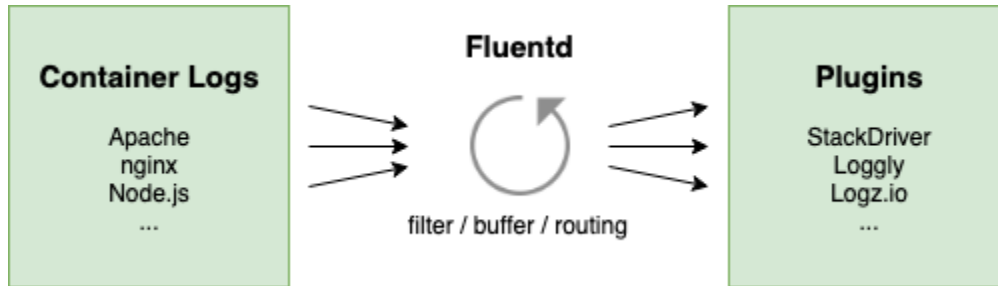


## Application Logging

[Fluentd is an open source data collector](#), which lets you unify data collection and consumption for a better use and understanding of data generated on your Oak device.



**Figure 1.1** - Your application container logs are forwarded to `platform-fluentd`

### Logging with Fluentd

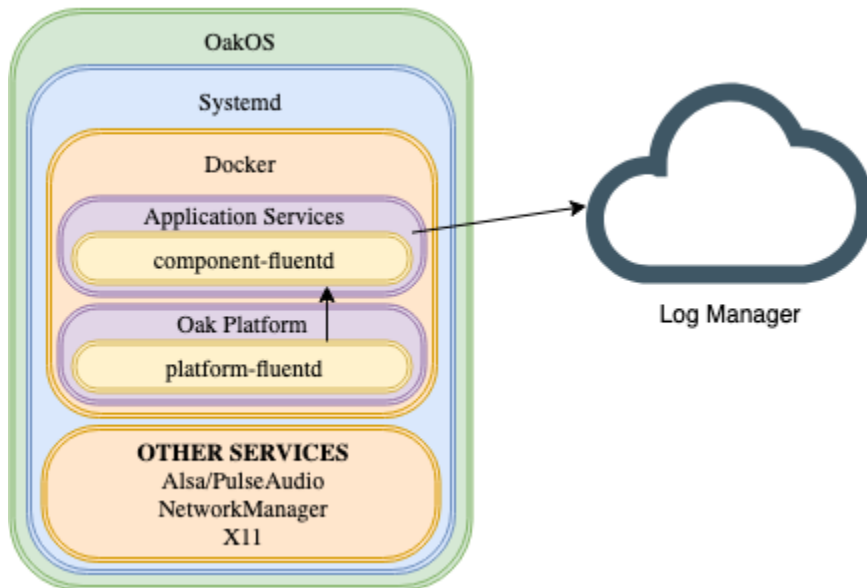
Fluentd structures data into JSON, allowing for filtering, buffering and routing as seen in Figure 1.1.

Fluentd utilizes a [unified logging layer](#) to allow for easier processing and analysis. [There are countless plugins](#) available to handle your logs.

In order to utilize a logging provider, you must install [component-fluentd \(GitHub\)](#) [:fa-external-link-square:](#) onto your Oak Device.

The master branch of component-fluentd uses [Google Cloud Plugin \(Tutorial\)](#). Some providers require mounting or providing credentials in your Docker image for `component-fluentd`. If that is the case, as it is with Google Cloud Plugin, you will need to clone the GitHub repository for [component-fluentd](#) to mount your secrets and then create a private Docker container for you to install on your Oak devices.

This same component-fluentd has two other branches for the providers: [Logz.io \(Plugin Tutorial\)](#) and [Loggly \(Plugin Tutorial\)](#).



**Figure 1.2** - `platform-fluentd` captures all logs and `component-fluentd` sends them to your provider."

OakOS uses a system component called `platform-fluentd` (Figure 1.2) that provides a stream for logs. In order to send logs to a provider as shown in Figure 1.1, you will need to install a plugin using `component-fluentd`. The plugin is rather simple, the primary facets of this

repository are the Dockerfile and the fluentd.conf configuration.

```
FROM fluent/fluentd:stable
USER root
ENTRYPOINT []

RUN apk add --no-cache --virtual .build-deps build-base ruby-dev \\\
  && gem install fluent-plugin-google-cloud \\\
  && apk del .build-deps

ENV GOOGLE_APPLICATION_CREDENTIALS=/gcp-credentials.json

CMD ["fluentd", "-p", "/fluentd/plugins", "-c", "/fluentd.conf"]
```

In the Dockerfile, you may specify any environment variables your provider requires such as `GOOGLE_APPLICATION_CREDENTIALS`.

The [fluentd.conf \(Stackdriver for Google Cloud Plugin\)](#) configuration provides the options for your plugin.

```
# Accept logs from OakOS forwarding
<source>
@type forward
port 24224
</source>

# Filter out FluentD logs
<match fluent.**>
@type null
</match>

# Dump logs to stdout (do not use in production)
# <match **>
# @type stdout
# </match>

# Send logs to Stackdriver (Google Cloud Platform)
<match **>
@type google_cloud
use_metadata_service false
use_grpc true
# This is used by Stackdriver to group logs.
# It is recommended that the same value is used on all units for an org.
zone "${ENV['GOOGLE_ZONE']}"
vm_id "${Socket.gethostname}"
# Set the chunk limit conservatively to avoid exceeding the limit
# of 10MB per write request.
buffer_chunk_limit 2M
flush_interval 15s
retry_wait 30s
max_retry_wait 4h
disable_retry_limit
num_threads 4
</match>
```

This fluentd.conf file specifies how you want to handle your logs. This file will be customized for each provider. See more examples in our other plugin tutorials: [Logz.io Plugin](#) and [Loggly Plugin](#).

## Fluentd Components for your platform application"

Our Docker Hub has three different logging provider component plugins, using Fluentd, for your use:

GitHub Component	Provider	Howto
<a href="#">component-fluentd:logzio</a>	<a href="#">Logz.io</a>	<a href="#">Logz.io Plugin</a>
<a href="#">component-fluentd:loggly</a>	<a href="#">loggly</a>	<a href="#">Loggly Plugin</a>
<a href="#">component-fluentd:master</a>	<a href="#">Google Stackdriver</a>	<a href="#">Google Cloud Plugin</a>