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# Merging Quickly in a Cloud Native World

Lucas Roesler

# We all hate waiting



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#15 opened 28 days ago by LucasRoesler

How can we make this faster?

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- What I've learned
  - contributing to OpenFaaS
  - maintaining OpenFaaS
- What we/community are doing to make contributing easier & faster

# Plan

How can we make this faster?

- What I've learned
  - contributing to OpenFaaS
  - maintaining OpenFaaS
- What we/community are doing to make contributing easier & faster



# Lessons Learned



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As a contributor:

- *Communicate with the team*
  - work on known issues, say hi on slack/chat, *remind people*
- *Make contributions approachable*
  - small changes are better changes
  - better commit messages
  - write tests

# Sometimes, Hard Learned

- *Make contributions approachable:*
  - small changes are better changes



kenfdev left a comment

Member + 😊 ...

Thank you Lucas! The formatting is pretty crucial for people to easily contribute but it was quite hard to find where you changed the code (I looked at the specific [commit](#) ).

I'm assuming it was the following line:  
<https://github.com/openfaas/faas/pull/996/files#diff-5295f7f0080732c0f900cd58ac2c76f8R206>

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# Sometimes, Hard Learned



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- *Make contributions approachable:*
  - small changes are better changes
  - Your best friend(s):

git add -p

and/or

The screenshot shows a GitHub commit interface. At the top, it displays the current repository as "ofc-bootstrap" and the current branch as "feature-102-use-non-root...". There is also a "Publish branch" button. Below this, the "Changes" tab is selected, showing "1 changed file". The file listed is "scripts/install-openfaas.sh". The diff view shows the following code changes:

```
@@ -18,4 +18,5 @@ helm upgrade openfaas --install openfaas/openfaas \
    --set gateway.replicas=2 \
    --set queueWorker.replicas=2 \
    --set faasIdler.dryRun=true \
+   --set faasIdler.setNonRootUser=true \
    --set faasnetes.httpProbe=false
```

# Sometimes, Hard Learned



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- *Make contributions approachable:*
  - small changes are better changes

git add -p

```
diff --git a/scripts/install-openfaas.sh b/scripts/install-openfaas.sh
index b08cede..1dc6493 100755
--- a/scripts/install-openfaas.sh
+++ b/scripts/install-openfaas.sh
@@ -18,4 +18,5 @@ helm upgrade openfaas --install openfaas/openfaas \
    --set gateway.replicas=2 \
    --set queueWorker.replicas=2 \
    --set faasIdler.dryRun=true \
+   --set faasIdler.setNonRootUser=true \
    --set faasnetes.httpProbe=false
Stage this hunk [y,n,q,a,d,/,e,?]?
```

# Sometimes, Hard Learned



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- *Write better commit messages:*

# Sometimes, Hard Learned



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- *Write better commit messages:*
  - more context!



```
commit abc123
```

```
Author: Lucas Roesler <roesler.lucas@gmail.com>
Date:   Sat Apr 27 08:43:59 2019 +0200
```

```
Fix secret handling
```

# Sometimes, Hard Learned



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- *Write better commit messages:*
  - more context!



```
commit abc123
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Author: Lucas Roesler <roesler.lucas@gmail.com>
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```

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Fix secret handling
```

# Sometimes, Hard Learned



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- *Write better commit messages: more context!*

1. Create a `.gitmessage` file in your home folder
2. Put this in it

```
Capitalized, short (50 chars or less) summary
```

```
**What**
```

```
-
```

```
**Why**
```

```
-
```

```
**Notes**
```

# Sometimes, Hard Learned



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- *Write better commit messages: more context!*

## Add generic secret handling ...



LucasRoesler committed on Nov 15, 2017

Verified



ea23308



### \*\*What\*\*

- During deploy, inspect the secret type and mount docker config secrets as image pull secrets and all other secrets as files
- fix import name in the tests

Signed-off-by: Lucas Roesler <roesler.lucas@gmail.com>

## Update rbac permissions to access secrets ...



LucasRoesler committed on Nov 27, 2017 ✓

Verified



54aef99



### \*\*What\*\*

- Add read permissions for secrets

### \*\*Why\*\*

- We need this to create the projected volume that merges each of the required secrets into a single volume

Please enter the commit message for your changes. Lines starting

# Sometimes, Hard Learned



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- *Write better commit messages: explain the impact!*

`commit abc123`

`Author: Lucas Roesler <roesler.lucas@gmail.com>`

`Date: Sat Apr 27 08:43:59 2019 +0200`

Support image pull secrets for functions

\*\*What\*\*

- The current secret implementation does not correctly support image pull secrets. This breaks the documented behavior.
- When creating the function Deployment object, inspect the secret's Type to determine if it is a docker config. If it is, use it as an image pull secret. All other secrets are mounted as files for the function.
- Fix RBAC permissions to ensure that we can read the
- Improve secrets documentation so that the support and behavior of image pull secrets are easier to find

# Sometimes, Hard Learned



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- *Write tests:*

# Sometimes, Hard Learned



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- *Write tests:*
  - in Go use the `kubernetes.Interface`

```
func MakeSecretHandler(namespace string, kube  
kubernetes.Interface) http.HandlerFunc { }
```

# Sometimes, Hard Learned



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- *Write tests:*
  - in Go use the `kubernetes.Interface`

```
func Test_SecretsHandler(t *testing.T) {
    kube := testclient.NewSimpleClientset()
    secretsHandler := MakeSecretHandler("of-fnc", kube).ServeHTTP

    // ...
    secretsHandler(w, req)
    actualSecret, _ := kube.CoreV1().
        Secrets("of-fnc").
        Get("testsecret", metav1.GetOptions{})

    if actualSecret.Name != "testsecret" {
        t.Errorf("...", actualSecret.Name)
    }
}
```

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```
$ go test -count=1 github.com/openfaas/faas-netes/handlers -run
'^Test_SecretsHandler$' -v
==== RUN    Test_SecretsHandler
==== RUN    Test_SecretsHandler/create_managed_secrets
==== RUN    Test_SecretsHandler/update_managed_secrets
==== RUN    Test_SecretsHandler/update_non-existing_secrets_returns_404
==== RUN    Test_SecretsHandler/list_managed_secrets_only
==== RUN    Test_SecretsHandler/delete_managed_secrets
==== RUN    Test_SecretsHandler/delete_missing_secret_returns_404
--- PASS: Test_SecretsHandler (0.00s)
    --- PASS: Test_SecretsHandler/create_managed_secrets (0.00s)
    --- PASS: Test_SecretsHandler/update_managed_secrets (0.00s)
    --- PASS: Test_SecretsHandler/update_non-existing_secrets_returns_404
(0.00s)
    --- PASS: Test_SecretsHandler/list_managed_secrets_only (0.00s)
    --- PASS: Test_SecretsHandler/delete_managed_secrets (0.00s)
    --- PASS: Test_SecretsHandler/delete_missing_secret_returns_404 (0.00s)
PASS
ok      github.com/openfaas/faas-netes/handlers 0.046s
```

# Lessons Learned



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As a maintainer:

- *Write contributor docs*
- *Make contributions approachable:*
  - make setting up a dev environment easy
  - make testing easy

# Lessons Learned



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As a maintainer:

- *Write contributor docs*
- *Make contributions approachable:*
  - make setting up a dev environment easy
  - make testing easy
  - tell people how to use it
  - even better, automate it!

# Dev and Test Env



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- **docker-for-\***
- **kind / minikube / microk8s**

- *Easy dev and test*
  - Non-example: <https://github.com/openfaas/faas-netes/pull/340>

## How Has This Been Tested?

Manually tested by deploying into a cluster using the standard instructions found in the readme and then installing and invoking a the `nodeinfo` function from the store.

- Not easy for anyone else to validate

# Dev and Test Env



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- Easy dev and test
  - Want <https://github.com/openfaas/faas-netes/pull/417>

A new unit test has been added and I have started testing it manually with various functions.

I have pushed a public docker image so that others can also test it

1. I used <https://gist.github.com/LucasRoesler/c029f7b7446f7c051522b8edb456b703> to create an OpenFaaS installation in KinD.
2. I then update the installation to use my dev image

```
export KUBECONFIG="$(kind get kubeconfig-path --name="devopenfaas")"
helm upgrade openfaas --install ./chart/openfaas \
    --namespace openfaas \
    --set basic_auth=true \
    --set openfaasImagePullPolicy=IfNotPresent \
    --set faasnetes.imagePullPolicy=IfNotPresent \
```

# Dev and Test Env



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*Use kind it makes manual testing / validation easier.*

With 35 lines of bash we start a basic K8S OpenFaaS development environment on "any" laptop

<https://gist.github.com/LucasRoesler/c029f7b7446f7c051522b8edb456b703>

# Dev and Test Env



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**DEMO!**

While we wait:

Standout commands

```
kind create cluster --name "$DEVENV"  
kubectl rollout status deploy coredns  
kind load docker-image openfaas/faas-netes:latest
```

# Dev and Test Env



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- kind <https://kind.sigs.k8s.io/>

Has made it easier for people to contribute more automated tests

The screenshot shows a GitHub pull request titled "CI for Helm using KinD #382". The status bar indicates the pull request has been merged. It includes metrics such as 38 conversations, 9 commits, 0 checks, and 5 files changed. A comment from user "zeerorg" is visible, dated March 7, and a signed-off-by note for "Rishabh Gupta".

CI for Helm using KinD #382

Merged alexellis merged 9 commits into openfaas:master from zeerorg:helm\_chart\_ci

Conversation 38 Commits 9 Checks 0 Files changed 5

zeerorg commented on Mar 7

Signed-off-by: Rishabh Gupta

# Contributing



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- Contributing to faas-netes
  - create feature branch
  - build locally & run in kind
  - verify feature or fix
    - write down steps used during verification
  - write a test or two
  - commit & push
  - create PR

# Contributing



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  - create feature branch
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  - write a test or two
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**YOUR WORK HERE IS DONE**



# Get Involved



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1. Join us on Slack <https://docs.openfaas.com/community>
2. Try it out <https://github.com/openfaas/workshop>
3. Help us continue improving the dev experience
4. Ping me @Lucas Roesler



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# Thanks!

Lucas Roesler

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<https://lucasroesler.com>