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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?

# 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
  - informative 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>

# Small commits



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Your best friend(s):

git add -p

and/or

The screenshot shows a GitHub commit history for a repository named 'ofc-bootstrap'. The current branch is 'feature-102-use-non-root...'. The commit history displays several small, sequential changes made to the file 'scripts/install-openfaas.sh'. The commits are numbered 18 through 22, with lines 18 and 19 being standard, line 20 being a conflict, and lines 21 and 22 being additions. The code changes involve setting configuration parameters for OpenFaaS, specifically 'gateway.replicas=2', 'queueWorker.replicas=2', 'faasIdler.dryRun=true', 'faasIdler.setNonRootUser=true', and 'faasnetes.httpProbe=false'.

Line	Line	Change
18	18	--set gateway.replicas=2 \
19	19	--set queueWorker.replicas=2 \
20	20	--set faasIdler.dryRun=true \
21	+ 21	+ --set faasIdler.setNonRootUser=true \
21	22	--set faasnetes.httpProbe=false

# Small commits



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## Warning about 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,?]?
```

# Commit Messages



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Give me more context!

# Commit Messages



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Give me more context!



```
commit abc123
Author: Lucas Roesler <roesler.lucas@gmail.com>
Date:   Sat Apr 27 08:43:59 2019 +0200
```

Fix secret handling

# Automating Context



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- *Have git remind you to add more context*

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

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

```
**Why**
```

```
-
```

```
**What**
```

```
-
```

```
**Notes**
```

# Sometimes, Hard Learned



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- *Write better commit messages: more context!*

## Add generic secret handling ...



LucasRoesler committed on Nov 15, 2017

\*\*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 ✓

# 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.
- 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 {  
    kube.CoreV1().Secrets(namespace)...  
}
```

# 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)
    }
}
```

# Sometimes, Hard Learned



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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!**

# Dev and Test Env



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While we wait:

The commands to remember

```
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 by alexellis. It shows 9 commits from zeerorg:helm\_chart\_ci into openfaas:master. Below the status bar, there are metrics: Conversation (38), Commits (9), Checks (0), and Files changed (5). A comment from zeerorg is visible, dated Mar 7, stating "Signed-off-by: Rishabh Gupta".

# Automate all the things



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- Script dev environment setup
- Continuous Integration
- Bots



# Automate all the things



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## Empower the community to manage Github



Derek

[github.com/alexellis/derek](https://github.com/alexellis/derek)



Prow

[github.com/kubernetes/test-infra/tree/master/prow](https://github.com/kubernetes/test-infra/tree/master/prow)

# 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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- Contributing to faas-netes
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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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