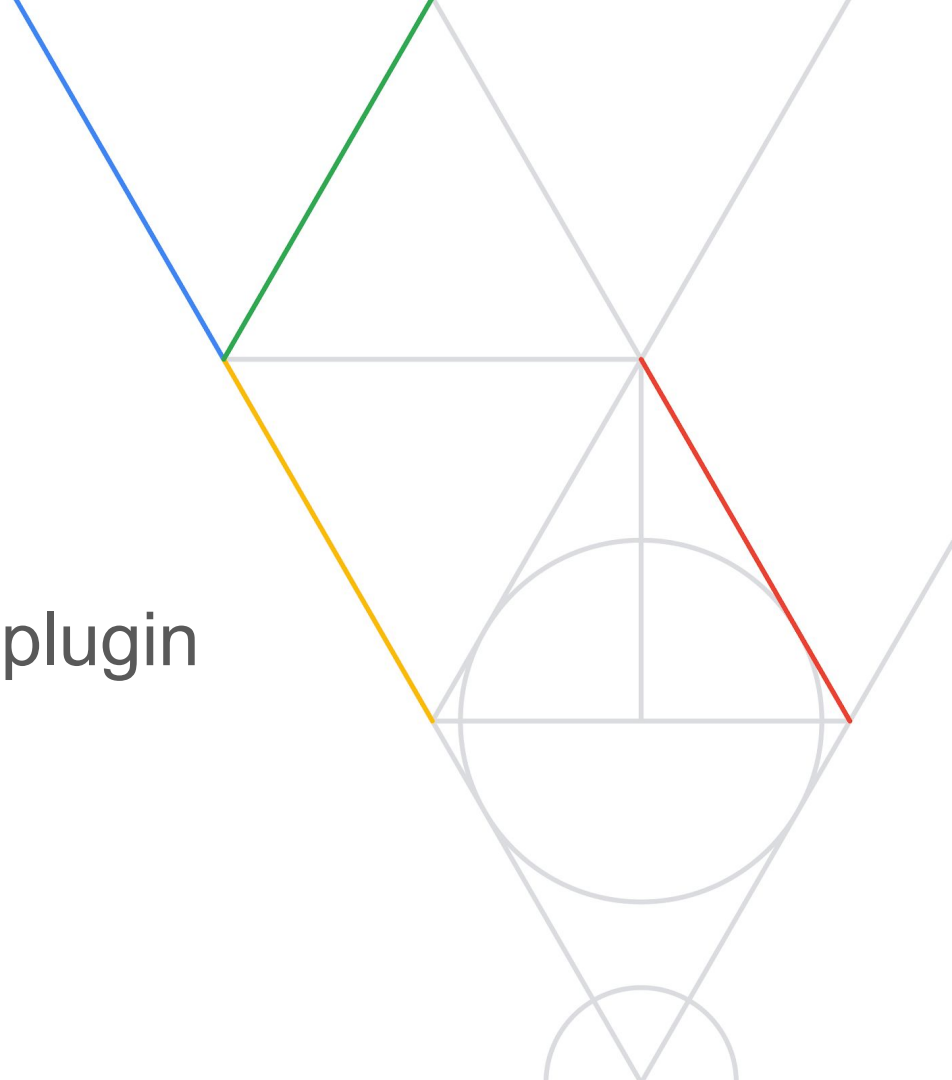


Google

# Code Owners

Demo of the *code-owners* plugin

Edwin Kempin, Google, Dec 2021



# Agenda

1. What's the *code-owners* plugin?
2. Demo

What's the *code-owners*  
plugin?



# What's the *code-owners* plugin?

- [Gerrit plugin](#) that adds support for code owners  
(maintained by Google, available since Gerrit 3.3)
- Code Owners are users that **own a path** inside a repository and that **need to approve changes** that touch files under this path.

# What's the *code-owners* plugin? cont.

- For details see this [presentation](#).
- [Documentation](#):  
[setup guide](#), [UI walkthrough](#), [user guide](#), [syntax](#), [cookbook](#), [REST API](#)
- Alternative plugins: [owners](#), [find-owners](#) (deprecated)

**Demo**



# Demo

1. Getting approval from code owners.
  - Add Code Owners to the Change.
  - Approve Change as a Code Owner.
  - Bypass the Code Owners in Emergency Cases.
2. Define code owners.

([demo script](#))

# Getting approval from code owners






# Add Code Owners to the Change

*(Change Owner)*

# Create a change


```
ekempin@ekempin2:~/test/demo/code-owners-demo$ git push origin HEAD:refs/for/master
Enumerating objects: 46, done.
Counting objects: 100% (46/46), done.
Delta compression using up to 12 threads
Compressing objects: 100% (21/21), done.
Writing objects: 100% (26/26), 8.55 KiB | 2.85 MiB/s, done.
Total 26 (delta 15), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (15/15)
remote: Processing changes: refs: 1, new: 1, done
remote:
remote: SUCCESS
remote:
remote:   http://ekempin2.muc.corp.google.com:8080/c/code-owners-demo/+/161 Move DiffOperation
s into change package [NEW]
remote:
To http://ekempin2.muc.corp.google.com:8080/a/code-owners-demo
 * [new reference]      HEAD -> refs/for/master
```

# View the change


Active ☆ [161](#) Move DiffOperations into change package 

Change Info

Owner Administrator

Reviewers 

Repo | Branch [code-owners-demo](#) | [master](#)

Topic 


[SHOW ALL](#) ▾


REPLY

Move DiffOperations into change package

Change-Id: I03b9c547ac0980b4931ae8fef84675036503d3a9


Submit requirements

 Code Owners 8 missing [SUGGEST OWNERS](#)

 Code-Review No votes

Other labels

[SHOW LESS](#) ^

 Owners-Override No votes

Comments

No comments

# Code owners submit requirement

Active

☆ 161

Move DiffOperations into change package

Change Info

SHOW ALL

REPLY

Owner

Administrator

Reviewers

Repo | Branch

code-owners-demo | master

Topic

Submit requirements

🕒 Code Owners

8 missing

🕒 Code-Review

No votes

Other labels

Owners-Override


No votes

Submit requirements


🕒 Code Owners

8 missing

# Code owner statuses

Files		Comments	Findings
Base ▾ → Patchset 1 ▾		<a href="#">ab24a69</a> 	
File			
Commit message			
✗	<a href="#">java/com/google/gerrit/pgm/util/BatchProgramModule.java</a>		
✗	<a href="#">java/com/google/gerrit/server/change/DiffOperations.java</a>		Renamed
	<a href="#">java/com/google/gerrit/server/patch/DiffOperations.java</a>		
✗	<a href="#">java/com/google/gerrit/server/change/DiffOperationsImpl.java</a>		Renamed
	<a href="#">java/com/google/gerrit/server/patch/DiffOperationsImpl.java</a>		
✗	<a href="#">java/com/google/gerrit/server/change/FileInfoJsonNewImpl.java</a>		
✗	<a href="#">java/com/google/gerrit/server/config/GerritGlobalModule.java</a>		
✗	<a href="#">java/com/google/gerrit/server/patch/PatchListCache.java</a>		
✗	<a href="#">java/com/google/gerrit/server/patch/PatchScriptFactory.java</a>		
✗	<a href="#">javatests/com/google/gerrit/server/patch/DiffOperationsTest.java</a>		

# Code owner statuses


Files		Comments	Findings
Base ▾	→ Patchset 1 ▾	<a href="#">ab24a69</a> 	
File			
Commit message			
✗	java/com/google/gerrit/pgm/util/Bat		
✗	java/com/google/gerrit/server/chan java/com/google/gerrit/server/patch		
✗	java/com/google/gerrit/server/chan java/com/google/gerrit/server/patch		
✗	java/com/google/gerrit/server/chan java/com/google/gerrit/server/patch		
✗	java/com/google/gerrit/server/chan java/com/google/gerrit/server/patch		
✗	java/com/google/gerrit/server/config/GerritGlobalModule.java		
✗	java/com/google/gerrit/server/patch/PatchListCache.java		
✗	java/com/google/gerrit/server/patch/PatchScriptFactory.java		
✗	javatests/com/google/gerrit/server/patch/DiffOperationsTest.java		

Missing code owner approval




java/com/google/g

# Suggest Code Owners


Active ☆ [161](#) Move DiffOperations into change package 


Change Info

Owner Administrator

Reviewers 


Repo | Branch [code-owners-demo](#) | [master](#)


Topic 

[SHOW ALL](#) 


REPLY

Submit requirements

 Code Owners 8 missing SUGGEST OWNERS

 Code-Review No votes

Other labels

 Owners-Override No votes

Comments

No comments

Move DiffOperations into change package



Change-Id: I03b9c547ac0980b4931ae8fef84675036503d3a9



# Suggest Code Owners

Reviewers

Add reviewer...

HIDE OWNERS  

☐ Show all owners

BatchProgramModule.java	Ann Bra...	Catheri...	Donald ...	Ginger ...	Gregory...
DiffOperations.java (+ 4 more)	Wallace...	Allan Wi...	Carolyn ...	Dexter ...	Tracy B...
DiffOperations.java (+ 2 more)	Ginger ...	Roberta...	Wallace...	Dexter ...	Tracy B...
GerritGlobalModule.java	Adam H...	Cedric ...	Benny R...	Emma ...	Gregory...

CC

Add CC...

Code-Review

-2

-1

0

+1

+2

No score

Owners-Override


0


+1

No score

Say something nice...

☒ Resolved ☐ Preview formatting

No changes to the attention set.  MODIFY



CANCEL



SEND



# Suggest Code Owners

Reviewers

Add reviewer...

HIDE OWNERS  

BatchProgramModule.java

DiffOperations.java (+ 4 more)

DiffOperations.java (+ 2 more)

GerritGlobalModule.java

java/com/google/gerrit/server/patch/DiffOperations.java

java/com/google/gerrit/server/patch/DiffOperationsImpl.java

java/com/google/gerrit/server/patch/PatchListCache.java

javatests/com/google/gerrit/server/patch/DiffOperationsTest.java

java/com/google/gerrit/server/patch/PatchScriptFactory.java

☐ Show all owners

CC

Add CC...

Code-Review

-2

-1

0

+1

+2

No score

Owners-Override


0

+1

No score

Say something nice...

☒ Resolved ☐ Preview formatting

No changes to the attention set.  MODIFY



CANCEL

SEND

# Select Code Owners

Reviewers

Add reviewer...

HIDE OWNERS  

☐ Show all owners

BatchProgramModule.java	Ann Bra...	Catheri...	Donald ...	Ginger ...	Gregory...
DiffOperations.java (+ 4 more)	Wallace...	Allan Wi...	Carolyn ...	Dexter ...	Tracy B...
DiffOperations.java (+ 2 more)	Ginger ...	Roberta...	Wallace...	Dexter ...	Tracy B...
GerritGlobalModule.java	Adam H...	Cedric ...	Benny R...	Emma ...	Gregory...

CC

Add CC...

Code-Review

-2

-1

0

+1

+2

No score

Owners-Override


0

+1

No score

Say something nice...

☒ Resolved ☐ Preview formatting

No changes to the attention set.  MODIFY

CANCEL

SEND

# Select Code Owners

Reviewers

Add reviewer...

HIDE OWNERS

☐ Show all owners

BatchProgramModule.java	Ann Bra...	Catheri...	Donald ...	Ginger ...	Gregory...
DiffOperations.java (+ 4 more)	Wallace...	Allan Wi...	Carolyn ...	Dexter ...	Tracy B...
DiffOperations.java (+ 2 more)	Ginger ...	Roberta...	Wallace...	Dexter ...	Tracy B...
GerritGlobalModule.java	Adam H...	Cedric ...	Benny R...	Emma ...	Gregory...

CC

Add CC...

Code-Review

-2

-1

0

+1

+2

No score

Owners-Override

0

+1

No score

Say something nice...

☒ Resolved ☐ Preview formatting

No changes to the attention set.

MODIFY

CANCEL

SEND

# Select Code Owners

Reviewers

Ginger Reynolds

×

Add reviewer...

HIDE OWNERS

?

☐ Show all owners

<input checked="" type="checkbox"/>	BatchProgramModule.java	Ann Bra...	Catheri...	Donald ...	<div>Ginger ...</div>	Gregory...
<input type="checkbox"/>	DiffOperations.java (+ 4 more)	Wallace...	Allan Wi...	Carolyn ...	Dexter ...	Tracy B...
<input checked="" type="checkbox"/>	DiffOperations.java (+ 2 more)	<div>Ginger ...</div>	Roberta...	Wallace...	Dexter ...	Tracy B...
<input type="checkbox"/>	GerritGlobalModule.java	Adam H...	Cedric ...	Benny R...	Emma ...	Gregory...

CC

Add CC...

Code-Review

-2

-1

0

+1

+2

No score

Owners-Override

0

+1

No score

Say something nice...

☒ Resolved ☐ Preview formatting

Bring to attention of

▶

Ginger Reynolds

✎



MODIFY

?

CANCEL

SEND

# Code Owners Sorted by Score

Reviewers Add reviewer... HIDE OWNERS  

☐ Show all owners

BatchProgramModule.java	Ann Bra...	Catheri...	Donald ...	Ginger ...	Gregory...
DiffOperations.java (+ 4 more)	Wallace...	Allan Wi...	Carolyn ...	Dexter ...	Tracy B...
DiffOperations.java (+ 2 more)	Ginger ...	Roberta...	Wallace...	Dexter ...	Tracy B...
GerritGlobalModule.java	Adam H...	Cedric ...	Benny R...	Emma ...	Gregory...



CC Add CC...

Code-Review -2 -1 0 +1 +2 No score

Owners-Override 0 +1 No score

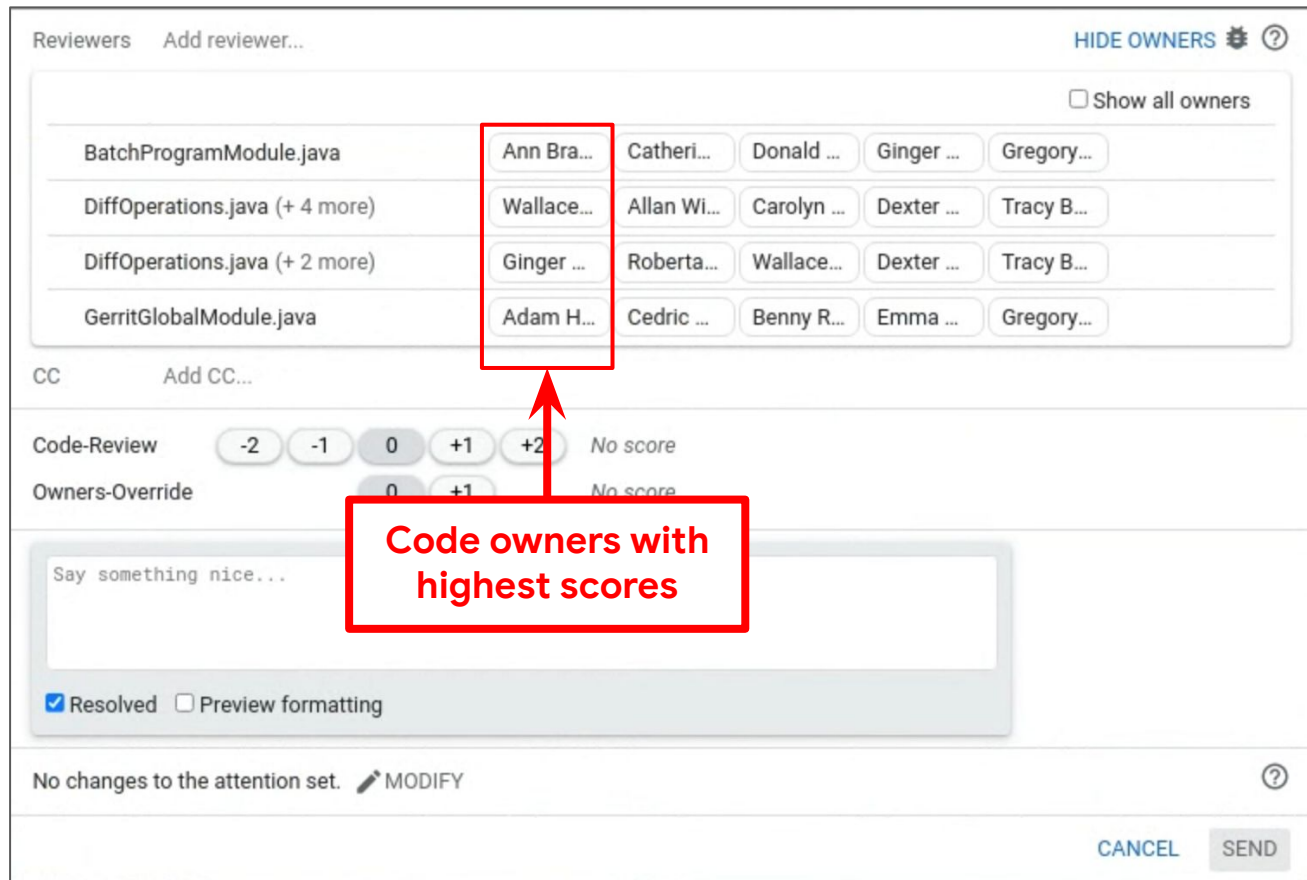
Say something nice...

☒ Resolved ☐ Preview formatting

No changes to the attention set.  MODIFY 

CANCEL SEND

**Code owners with highest scores**



# Show all code owners

☒ Show all owners

DiffOperationsImpl.java (+ 2 more)

Ginger ... Roberta... Wallace... Dexter ... Tracy B...

DiffOperations.java (+ 4 more)

Wallace... Allan Wi... Carolyn ... Dexter ... Tracy B...

BatchProgramModule.java

Ann Bra... Catheri... Donald ... Ginger ... Gregory... Emma ... Tracy B... Dexter ...

GerritGlobalModule.java

Adam H... Cedric ... Benny R... Emma ... Gregory... Dexter ... Tracy B...

# Select Code Owners

Reviewers

Ginger Reynolds X Carolyn Erickson X Cedric Perry X Add reviewer...

HIDE OWNERS ?

☐ Show all owners

<input checked="" type="checkbox"/> BatchProgramModule.java	Ann Bra...	Catheri...	Donald ...	Ginger ...	Gregory...
<input checked="" type="checkbox"/> DiffOperations.java (+ 4 more)	Wallace...	Allan Wi...	Carolyn ...	Dexter ...	Tracy B...
<input checked="" type="checkbox"/> DiffOperations.java (+ 2 more)	Ginger ...	Roberta...	Wallace...	Dexter ...	Tracy B...
<input checked="" type="checkbox"/> GerritGlobalModule.java	Adam H...	Cedric ...	Benny R...	Emma ...	Gregory...

CC Add CC...

Code-Review

-2 -1 0 +1 +2 No score

Owners-Override

0 +1 No score

Say something nice...

☒ Resolved ☐ Preview formatting

Modify attention to

Select chips to set who will be in the attention set after sending this reply

Owner Administrator

Reviewers ▶ Ginger Reynolds ▶ Carolyn Erickson ▶ Cedric Perry

💡 Be mindful of requiring attention from too many users.

CANCEL

SEND

# Code Owners Added

Active ☆ 161 Move DiffOperations into change package

Change Info

Owner: Administrator

Reviewers: Ginger Reynol... Cedric Perry Carolyn Ericks...

Repo | Branch: code-owners-demo | master

Topic:

Submit requirements

- Code Owners: 8 pending
- Code-Review: No votes
- Owners-Override: No votes

Files

Base → Patchset 1 ab24a69

File

Commit message

- java/com/google/gerrit/pgm/util/BatchProgramModule.java
- java/com/google/gerrit/server/change/DiffOperations.java Renamed
- java/com/google/gerrit/server/patch/DiffOperations.java
- java/com/google/gerrit/server/change/DiffOperationsImpl.java Renamed
- java/com/google/gerrit/server/patch/DiffOperationsImpl.java
- java/com/google/gerrit/server/change/FileInfoJsonNewImpl.java
- java/com/google/gerrit/server/config/GerritGlobalModule.java
- java/com/google/gerrit/server/patch/PatchListCache.java
- java/com/google/gerrit/server/patch/PatchScriptFactory.java

Submit requirements

Code Owners 8 pending



# Code Owners Added

## Administrator

Ginger Reynolds, who was added as reviewer owns the following files:

- `java/com/google/gerrit/pgm/util/BatchProgramModule.java`
- `java/com/google/gerrit/server/change/DiffOperations.java`
- `java/com/google/gerrit/server/change/DiffOperationsImpl.java`
- `java/com/google/gerrit/server/change/FileInfoJsonNewImpl.java`

Carolyn Erickson, who was added as reviewer owns the following files:

- `java/com/google/gerrit/server/patch/DiffOperations.java`
- `java/com/google/gerrit/server/patch/DiffOperationsImpl.java`
- `java/com/google/gerrit/server/patch/PatchListCache.java`
- `java/com/google/gerrit/server/patch/PatchScriptFactory.java`
- `javatests/com/google/gerrit/server/patch/DiffOperationsTest.java`



Cedric Perry, who was added as reviewer owns the following files:

- `java/com/google/gerrit/server/config/GerritGlobalModule.java`

# Approve Change as a Code Owner

*(Code Owner)*

# Approve as a Code Owner


Reviewers Ginger Reynolds X Cedric Perry Carolyn Erickson Add reviewer... SUGGEST OWNERS  

CC Add CC...

Code-Review -1 0 +1 *Looks good to me, but someone else must approve*

**Voting Code-Review+1 counts as a Code Owner Approval**

☒ Resolved ☐ Preview formatting













Bring to attention of Administrator MODIFY 

CANCEL SEND

# Approve as a Code Owner



Submit requirements

 Code Owners 6 pending [ADD OWNERS](#)

Files	Comments	Findings
Base ▾ → Patchset 1 ▾	<a href="#">ab24a69</a> 	
File		
	Commit	
	java/co	ogramModule.java
	java/co	ffOperations.java <span>Renamed</span>
	java/co	Operations.java
	java/com/google/gerrit/server/change/DiffOperationsImpl.java	<span>Renamed</span>
	java/com/google/gerrit/server/patch/DiffOperationsImpl.java	
	java/c	
	java/	
	java/co	
	java/co	
	javates	

**2 files approved  
now**

Pending code owner approval on pre-renamed file

 [java/com/google/gerrit/server/char](#)  
 [java/com/google/gerrit/server/patc](#)

# Approve as a Code Owner

Ginger Reynolds

Code-Review +1

By voting Code-Review+1 the following files are now code-owner approved by Ginger Reynolds:

- `java/com/google/gerrit/pgm/util/BatchProgramModule.java`
- `java/com/google/gerrit/server/change/DiffOperations.java`
- `java/com/google/gerrit/server/change/DiffOperationsImpl.java`
- `java/com/google/gerrit/server/change/FileInfoJsonNewImpl.java`

REPLY



# Bypass Code Owners in Emergency Cases

*(Sheriff)*

# Override Code Owners Requirement

Reviewers

Ginger Reynolds × Cedric Perry × Carolyn Erickson × Add reviewer...

SUGGEST OWNERS  

CC

Add CC...

Code-Review

-2

-1

0

+1

+2

No score

Owners-Override



0

+1

Overridden

Say something nice...

☒ Resolved ☐ Preview formatting

No additions to the attention set.  MODIFY 

CANCEL

SEND

# Override Code Owners Requirement

Active ☆ 161 Move DiffOperations into change package

Change Info

Owner Administrator

Reviewers Cedric Perry Carolyn Ericks... Ginger Reynol...

Repo | Branch code-owners-demo | master

Topic

Submit requirements

✓ Code Owners Approved (Owners-Override) ADD OWNERS

Code-Review Ginger Reynol...

Other labels

✓ Owners-Override +1

REPLY

Move DiffOperations into change package

Change-Id: I03b9c547ac0980b4931ae8fef84675036503d3a9

Comments No comments

Submit requirements

✓ Code Owners Approved (Owners-Override)

Administrator Owners-Override +1

By voting Owners-Override+1 the code-owners submit requirement is overridden by Administrator

REPLY DELETE



# Override Code Owners Requirement

Active ☆ 161 Move DiffOperations into change package

Change Info

Owner Administrator

Reviewers Cedric Perry × Carolyn Ericks... × Ginger Reynol... ×

Repo | Branch code-owners-demo | master

Topic

SHOW ALL

REPLY

Move DiffOperations into change package

Change-Id: I03b9c547ac0980b4931ae8fef84675036503d3a9

Submit requirements

✓ Code Owners Approved (Owners-Override) ADD OWNERS

🕒 Code-Review +1 Ginger Reynol... 🗑️

Other labels

✓ Owners-Override +1 Administrator 🗑️

Comments No comments

Other submit requirements are orthogonal and may still block the change submission

# Define Code Owners

*(Project Owner)*



# OWNERS files

```
./javatests/com/google/gerrit/server/patch/OWNERS  
./java/com/google/gerrit/server/config/OWNERS  
./java/com/google/gerrit/server/change/OWNERS  
./java/com/google/gerrit/server/patch/OWNERS  
./java/com/google/gerrit/pgm/OWNERS  
./java/com/google/gerrit/OWNERS  
./OWNERS
```

# OWNERS files

```
./java/com/google/gerrit/OWNERS  
file://BACKEND_OWNERS  
per-file *Module.java=gregory.sims@example.com,emma.turner@example.com
```

```
./java/com/google/gerrit/pgm/OWNERS  
catherine.mcbride@example.com  
donald.cohen@example.com  
ginger.reynolds@example.com
```

**Code Owners are defined  
via email addresses**



```
./java/com/google/gerrit/server/change/OWNERS  
ginger.reynolds@example.com  
roberta.carson@example.com  
wallace.wong@example.com
```

```
./java/com/google/gerrit/server/config/OWNERS  
cedric.perry@example.com  
adam.hall@example.com  
benny.rodriquez@example.com
```

# OWNERS files

```
./java/com/google/gerrit/OWNERS  
file://BACKEND OWNERS  
per-file *Module.java=gregory.sims@example.com,emma.turner@example.com
```

```
./java/com/google/gerrit/pgm/OWNERS  
catherine.mchride@example.com  
donald.  
ginger.
```

**Code Owners can be defined  
per file or file pattern**

```
./java/com/google/gerrit/server/change/OWNERS  
ginger.reynolds@example.com  
roberta.carson@example.com  
wallace.wong@example.com
```

```
./java/com/google/gerrit/server/config/OWNERS  
cedric.perry@example.com  
adam.hall@example.com  
benny.rodriquez@example.com
```

# OWNERS files

```
./java/com/google/gerrit/OWNERS
file://BACKEND_OWNERS
per-file *Module.java=gregory.sims@example.com

./java/com/google/gerrit/pgm/OWNERS
catherine.mcbride@example.com
donald.cohen@example.com
ginger.reynolds@example.com

./java/com/google/gerrit/server/change/OWNERS
ginger.reynolds@example.com
roberta.carson@example.com
wallace.wong@example.com

./java/com/google/gerrit/server/config/OWNERS
cedric.perry@example.com
adam.hall@example.com
benny.rodriquez@example.com
```

Other OWNERS files can be imported



# Add a Code Owner

```
commit 99c8c6d15b8d69d1fb7909ef32e17ac2b3e5772c (HEAD)
```

```
Author: Edwin Kempin <ekempin@google.com>
```

```
Date: Thu Dec 2 12:46:45 2021 +0100
```

```
Add Ann as a code owner
```

```
Change-Id: Ib3944fd2c7e4b2d6c9b45b6af5f1cc0ed3199bf7
```

```
diff --git a/java/com/google/gerrit/pgm/OWNERS b/java/com/google/gerrit/pgm/OWNERS
```

```
index ee6a4e2d8c..ee5361c20f 100644
```

```
--- a/java/com/google/gerrit/pgm/OWNERS
```

```
+++ b/java/com/google/gerrit/pgm/OWNERS
```

```
@@ -1,3 +1,4 @@
```

```
+ann.brandy@example.com
```

```
catherine.mcbride@example.com
```

```
donald.cohen@example.com
```

```
ginger.reynolds@example.com
```

# OWNERS file validation

```
ekempin@ekempin2:~/test/demo/code-owners-demo$ git push origin HEAD:refs/for/master
Enumerating objects: 15, done.
Counting objects: 100% (15/15), done.
Delta compression using up to 12 threads
Compressing objects: 100% (6/6), done.
Writing objects: 100% (8/8), 644 bytes | 644.00 KiB/s, done.
Total 8 (delta 4), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (4/4)
remote: Processing changes: refs: 1, done
remote: ERROR: commit 99c8c6d: [code-owners] code owner email 'ann.brandy@example.com' in '/java/com/google/gerrit/pgm/OWNERS' cannot be resolved for admin
to http://ekempin2.muc.corp.google.com:8080/a/code-owners-demo
! [remote rejected] HEAD -> refs/for/master (commit 99c8c6d: [code-owners] invalid code owner config files)
error: failed to push some refs to 'http://ekempin2.muc.corp.google.com:8080/a/code-owners-demo'
```



# OWNERS file validation

```
ekempin@ekempin2:~/test/demo/code-owners-demo$ git push origin HEAD:refs/for/master
Enumerating objects: 15, done.
Counting objects: 100% (15/15), done.
Delta compression using up to 12 threads
Compressing objects: 100% (6/6), done.
Writing objects: 100% (8/8), 653 bytes | 653.00 KiB/s, done.
Total 8 (delta 4), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (4/4)
remote: Processing changes: refs: 1, new: 1, done
remote: hint: commit c05195e: [code-owners] code owner config files validated, no issues found
remote:
remote: SUCCESS
remote:
remote: http://ekempin2.muc.corp.google.com:8080/c/code-owners-demo/+/162 Add Ann as a code owner [NEW]
remote:
To http://ekempin2.muc.corp.google.com:8080/a/code-owners-demo
* [new reference] HEAD -> refs/for/master
```

**Questions?**

