

The Holy Trinity/Triforce of Software Engineering

Chris Allan



Outline

- The “Holy Trinity” or “Triforce”
- Integrating the components
- Case studies
- Discussion



Chris Allan



Carlos Neves



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Chris MacLeod



Liza Unson



Wilma Woudenberg



Andreas Knab



Laura Koneval



Sam Hart



Abe Yang



Emil Rozbicki

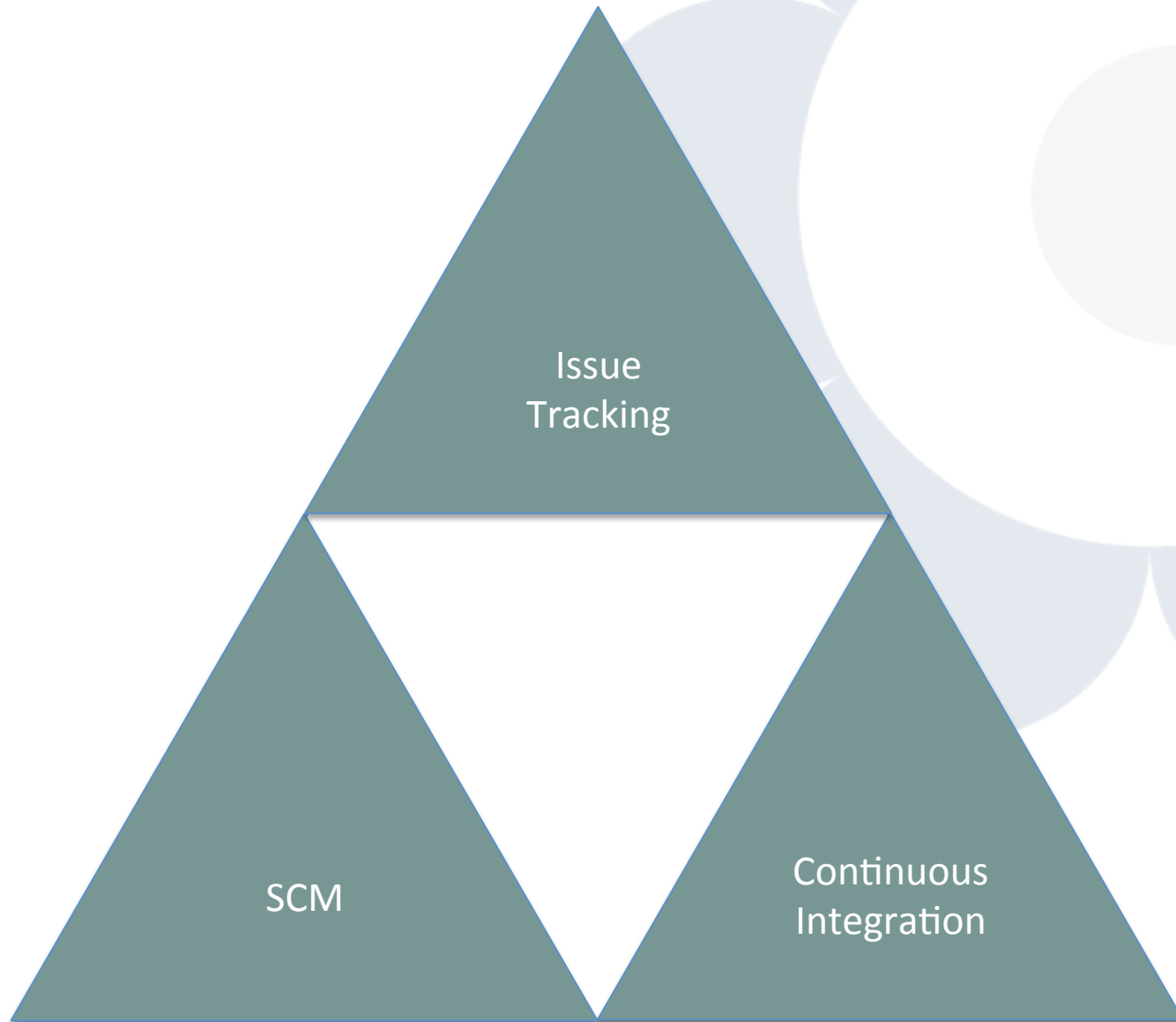


Joshua Ballanco



WHAT IS THE HOLY TRINITY/TRIFORCE?

Holy Trinity/Triforce of Software Engineering



Holy Trinity/Triforce - Components

- Issue Tracking
 - Trello
 - Trac
 - Remine
 - GitHub pull requests (kind of)
- Continuous Integration
 - Jenkins
 - Travis
 - Snoopy Crime Cop (scc)
- Source Code Management (SCM)
 - Git
 - GitHub



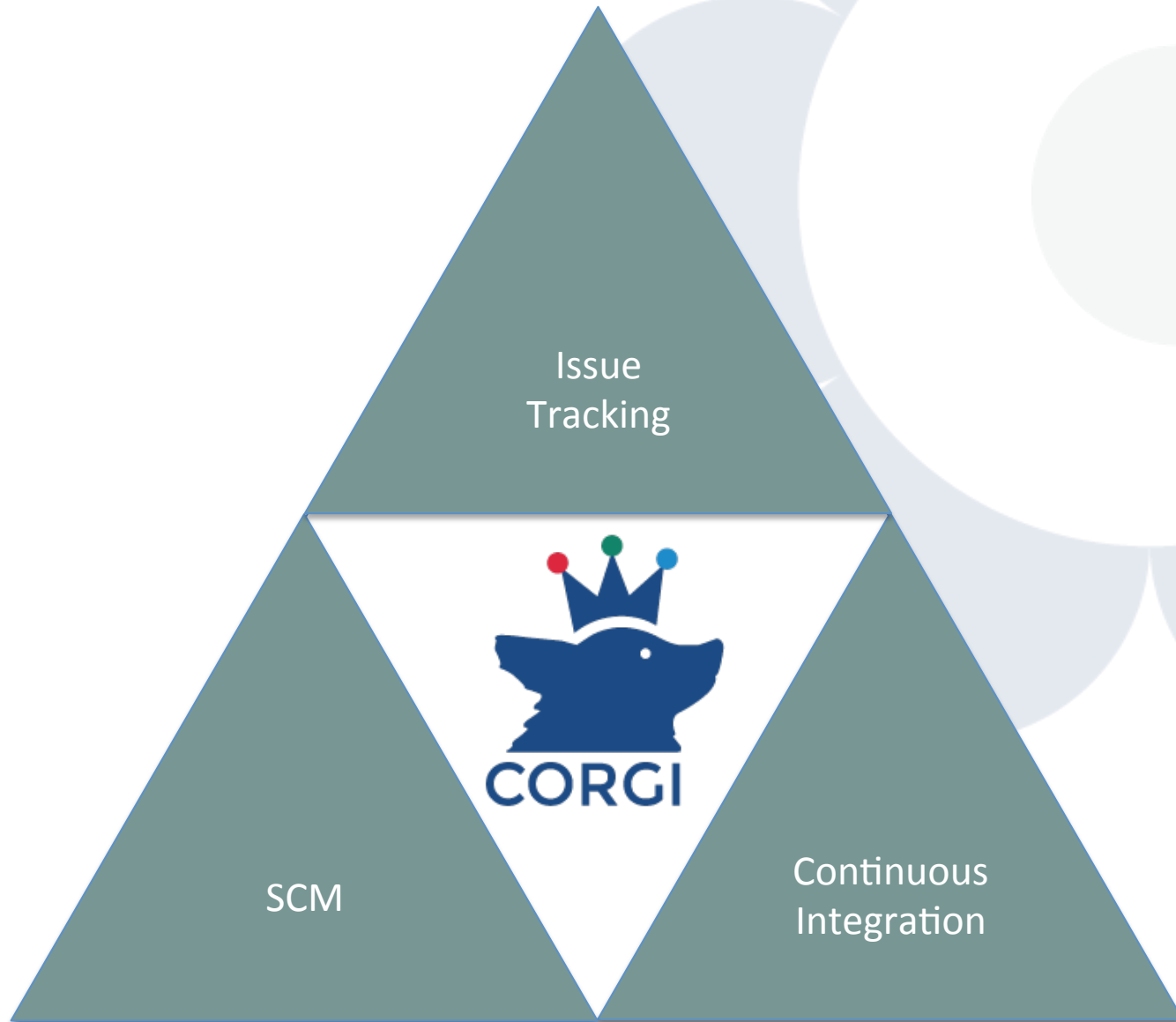
**HOW CAN WE INTEGRATE
THESE COMPONENTS?**

Holy Trinity/Triforce - Components

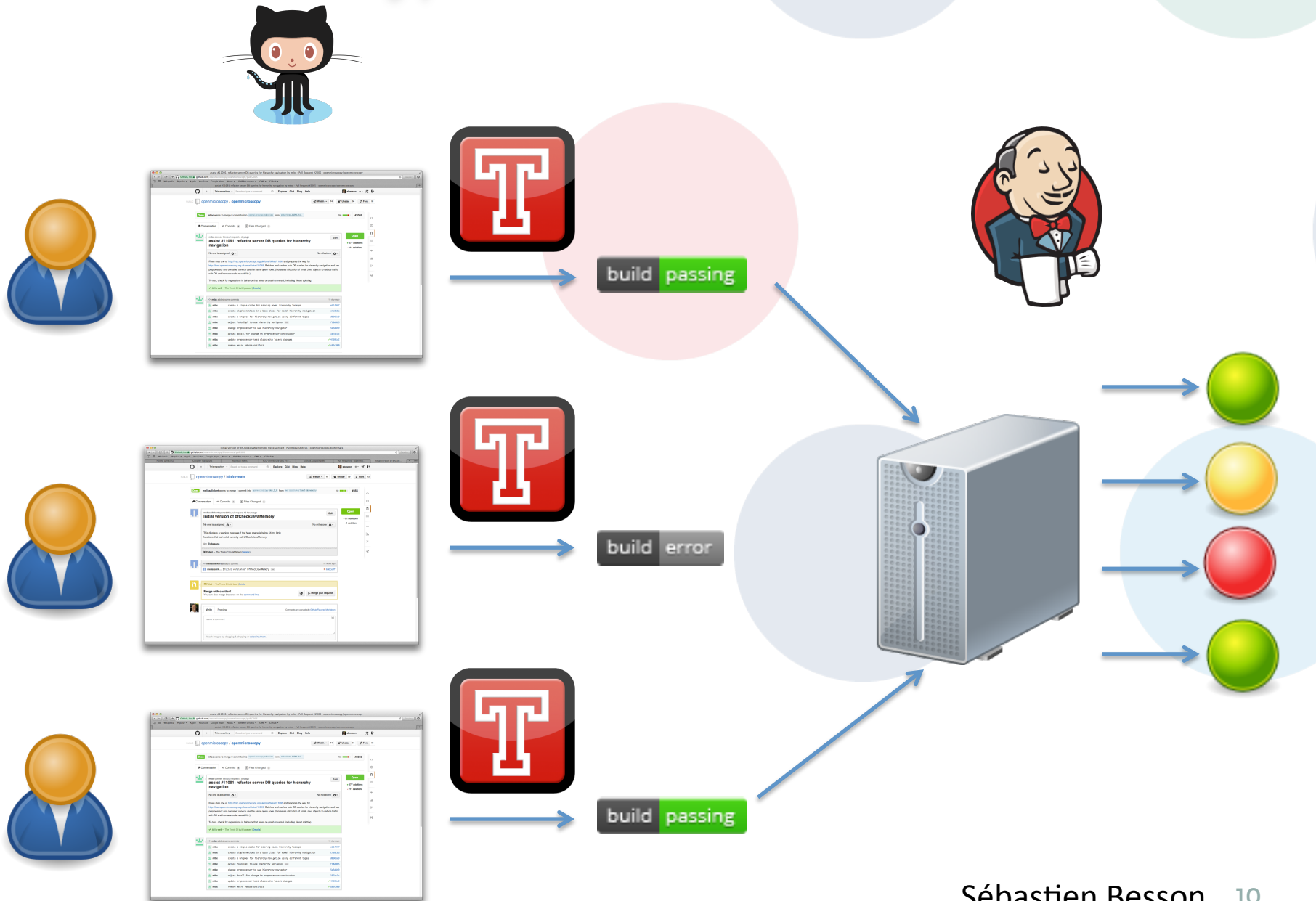
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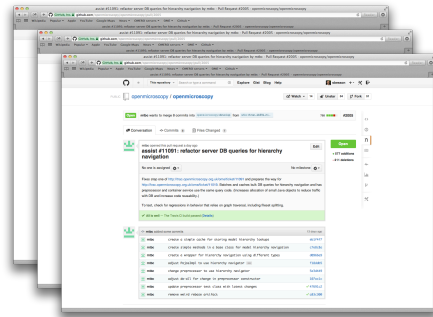
Holy Trinity/Triforce of Software Engineering



Typical CI workflow



Typical corgi™ workflow



GitHub Service Hook Event(s)



Talkback



Talkback

Build Triggers

Ticket, Issue, Card Updates



+



Talkback





CASE STUDY ISSUE TRACKING





Case Study – Issue Tracking


- On GitHub
 - `glencoesoftware/corgi`
 - `glencoesoftware/corgi#17`
- Update issue (forward) and pull request (backward) links
- Change issue states
- Update issue with pull request commits
- Pick up tokens from commits or pull request

Case Study – Issue Tracking

[Overview](#) [Activity](#) **Issues** [New issue](#) [News](#) [Wiki](#) [Repository](#) [Settings](#)

Support #1070

 Update  Watch  Copy  Delete


**Fix flake8, header and style errors in corgi**

« Previous | 1 of 16 | Next »

Added by Chris Allan less than a minute ago.

Status: New

Priority: Normal

Assignee:  Chris Allan


Category: -

Target version: -

Start date: 02/06/2014

Due date:





% Done: 0%



Description  Quote



There are various flake8, header and style errors that need to be fixed in corgi.

Subtasks [Add](#)

Related issues [Add](#)

 Update  Watch  Copy  Delete

Also available in:  Atom |  PDF

Issues
[View all issues](#)
[Summary](#)
Watchers (1) [Add](#)
 [Andreas Knab](#) 

Case Study – Issue Tracking

glencoesoftware / corgi

Unwatch 10

Star 0

Fork 3

Flake8 and style (See gs-1070) #17

Edit

New Issue

Open

chris-allan wants to merge 5 commits into `glencoesoftware:master` from `chris-allan:flake8-and-style`

Conversation 0

Commits 5

Files Changed 4

171



chris-allan commented just now

Referenced Issues:

- [Issue 1070: Fix flake8, header and style errors in corgi](#)



chris-allan added some commits 3 days ago

- Fix flake8 warnings
- Fix flake8 warnings
- Fix flake8 warnings
- Adding header
- Move main code into main()

39d93b1
0093080
9dde17e
9f40003
f237861

Labels

None yet

Milestone

No milestone

Assignee

No one assigned

Notifications

Unsubscribe

1 participant



Add more commits by pushing to the `flake8-and-style` branch on `chris-allan/corgi`.



We can't automatically merge this pull request.

Use the [command line](#) to resolve conflicts before continuing.



Merge pull request

Case Study – Issue Tracking


General Infrastructure

Search: General Infrastructure


Overview Activity **Issues** New Issue News Wiki Repository Settings

Support #1070

Update Watch Copy Delete

**Fix flake8, header and style errors in corgi** « Previous | 1 of 16 | Next »

Added by Chris Allan 14 minutes ago. Updated 2 minutes ago.


Status:	In Progress	Start date:	02/06/2014
Priority:	Normal	Due date:	
Assignee:	 Chris Allan	% Done:	<div></div> 0%
Category:	-		
Target version:	-		

Description Quote

There are various flake8, header and style errors that need to be fixed in corgi.

Subtasks Add

Issues
View all issues
Summary

Watchers (1) Add
 Andreas Knab



Updated by Chris Allan less than a minute ago

#2

PR 17: Flake8 and style from chris-allan/corgi/flake8-and-style into glencoesoftware/corgi/master synchronized by chris-allan

Most recent commit: "Merge remote-tracking branch 'origin/master' into flake8-and-style"

Conflicts:
server.py":<https://github.com/glencoesoftware/corgi/commit/5cdf6cc8c189f8d8911e7c97cae1adbaccd91e4e>

Update Watch Copy Delete

Also available in: Atom | PDF

Case Study – Issue Tracking

The screenshot displays a GitHub pull request interface. On the left, a vertical timeline of commit history shows a series of updates: 'Fix flake8 warnings' (multiple times), 'Adding header', 'Move main code into main()', 'Merge remote-tracking branch 'origin/master' into flake8-and-style', and another 'Fix flake8 warnings'. To the right of these commits are their respective commit hashes. Below the commit history, two comments are visible: one from 'knabar' stating 'Changes look good to merge' and another from 'joshmoore' with a thumbs-up emoji. Further down, the activity section shows 'joshmoore' referencing the pull request from a commit, merging it into the master branch, and finally closing the pull request. On the right side of the interface, there are sections for 'Assignee' (currently 'No one assigned'), 'Notifications' (with an 'Unsubscribe' button), and '3 participants' (represented by three profile icons). At the bottom, a purple banner indicates 'Pull request successfully merged and closed'.

Commit History:

- chris-allan added some commits 3 days ago
 - Fix flake8 warnings (39d93b1)
 - Fix flake8 warnings (0093080)
 - Fix flake8 warnings (9dde17e)
 - Adding header (9f40003)
 - Move main code into main() (f237861)
 - Merge remote-tracking branch 'origin/master' into flake8-and-style (5cdf6cc)
 - Fix flake8 warnings (fa3c673)

Comments:

- knabar commented 6 minutes ago: Changes look good to merge
- joshmoore commented just now: 👍

Activity:

- joshmoore referenced this pull request from a commit just now
- Merge pull request #17 from chris-allan/flake8-and-style (1a75579)
- joshmoore merged commit 1a75579 into glencoesoftware:master from chris-allan:flake8-and-style just now
- joshmoore closed the pull request just now

Right Sidebar:

- Assignee:** No one assigned
- Notifications:** Unsubscribe
- 3 participants:** [Profile Icons]

Bottom Banner: Pull request successfully merged and closed


Case Study – Issue Tracking

There are various flake8, header and style errors that need to be fixed in corgi.

Subtasks [Add](#)

Related issues [Add](#)

History




Updated by **Chris Allan** 32 minutes ago

#1

- **Status** changed from *New* to *In Progress*

PR 17: Flake8 and style from [chris-allan/corgi/flake8-and-style](#) into [glencoesoftware/corgi/master](#) opened by [chris-allan](#)

Most recent commit: [Move main code into main\(\)](#)




Updated by **Chris Allan** 24 minutes ago

#2

PR 17: Flake8 and style from [chris-allan/corgi/flake8-and-style](#) into [glencoesoftware/corgi/master](#) synchronized by [chris-allan](#)

Most recent commit: "Merge remote-tracking branch 'origin/master' into flake8-and-style"

Conflicts:
server.py":<https://github.com/glencoesoftware/corgi/commit/5cdf6cc8c189f8d8911e7c97cae1adbaccd91e4e>




Updated by **Chris Allan** 20 minutes ago

#3

PR 17: Flake8 and style from [chris-allan/corgi/flake8-and-style](#) into [glencoesoftware/corgi/master](#) synchronized by [chris-allan](#)

Most recent commit: [Fix flake8 warnings](#)



Updated by **Josh Moore** 2 minutes ago

#4

- **Status** changed from *In Progress* to *Resolved*

PR 17: Flake8 and style from [chris-allan/corgi/flake8-and-style](#) into [glencoesoftware/corgi/master](#) merged by [joshmoore](#)

Most recent commit: [Fix flake8 warnings](#)

[Update](#) [Watch](#) [Copy](#) [Delete](#)



CASE STUDY CONTINUOUS INTEGRATION

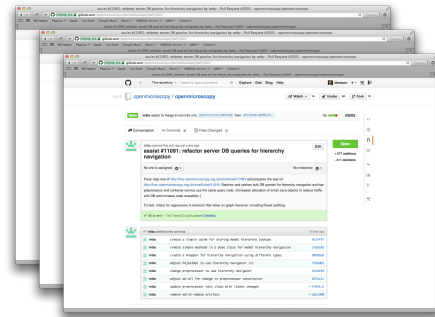
Case Study – Continuous Integration

- Truly continuous integration
 - Great for OMERO.web plugins
- On GitHub
 - `glencoesoftware/corgi`
 - `will-moore/figure`
 - `chris-allan/figure`
- On Jenkins
 - `OMERO-4.4-webfigure`
 - `OMERO-4.4-webfigure-dev`
- Trigger specific builds on pull request update
- Perform SCC merges
- Re-deploy with zero downtime on successful build

AKA: How Chris gobbled all the disk space on Howe!

Demo! (Part I)

Typical corgi™ workflow



GitHub Service Hook Event(s)

Talkback

Talkback



Build Triggers



+



Ticket, Issue, Card Updates



Talkback



Case Study – Continuous Integration

The screenshot shows the GitHub repository settings page for a repository named 'figure' by user 'chris-allan'. The page is titled 'WebHook URLs saved successfully!' at the top. The repository is a fork of 'will-moore/figure'. The 'Service Hooks' section is active, showing a list of services and a 'WebHook URLs (1)' section. The 'WebHook URLs' section contains one URL: 'http://corgi.openmicroscopy.org/event'. The 'Test Hook' and 'Update settings' buttons are visible. A note at the bottom states: 'We'll hit these URLs with POST requests when you push to us, passing along information about the push. More information can be found in the [Post-Receive Guide](#). The Public IP addresses for these hooks are: 192.30.252.0/22.'

WebHook URLs saved successfully!

chris-allan / figure
forked from will-moore/figure

Unwatch 1 Star 0 Fork 1

Options
Collaborators
Service Hooks
Deploy Keys

Services

- WebHook URLs (1) ✓
- ActiveCollab
- Acunote
- AgileBench
- AgileZen
- AmazonSNS
- Apiary
- Apolo
- AppHarbor
- Apropos
- Asana
- AWS OpsWorks
- Backlog
- Bamboo
- Basecamp

WebHook URLs

URL (remove)
http://corgi.openmicroscopy.org/event

URL (remove)

Add another webhook URL

Test Hook Update settings

We'll hit these URLs with POST requests when you push to us, passing along information about the push. More information can be found in the [Post-Receive Guide](#).
The Public IP addresses for these hooks are: 192.30.252.0/22.

Case Study – Continuous Integration

The screenshot shows the Jenkins web interface for a project named "OMERO-4.4-webfigure-dev". The browser address bar shows the URL "ci.openmicroscopy.org/job/OMERO-4.4-webfigure-dev/". The Jenkins logo and navigation links are at the top. A sidebar on the left contains links for Dashboard, Status, Changes, Workspace, Build Now, Delete Project, Configure, Trac, GitHub, Metadata, Failure Cause Management, and Job Config History. The main content area displays the project name, a "Workspace" link with a folder icon, "Last Successful Artifacts" showing a file "OMERO.py-4.4.10.7-wf.zip" of 15.07 MB, and "Recent Changes" with a notepad icon. Below this is a "Permalinks" section with a list of build links. At the bottom left, a "Build History" table lists the last seven builds with their status (green for success, red for failure) and timestamps. The footer includes a "Help us localize this page" link, the page generation time, and links to the REST API and Jenkins version.

ci.openmicroscopy.org/job/OMERO-4.4-webfigure-dev/

Jenkins

search ? cxallan | log out

Jenkins > OMERO-4.4-webfigure-dev > [ENABLE AUTO REFRESH](#)

[Back to Dashboard](#)

[Status](#)

[Changes](#)

[Workspace](#)

[Build Now](#)

[Delete Project](#)

[Configure](#)

[Trac](#)

[GitHub](#)

[Metadata](#)

[Failure Cause Management](#)

[Job Config History](#)

Project OMERO-4.4-webfigure-dev

[add description](#)
[Disable Project](#)

[Workspace](#)

[Last Successful Artifacts](#)
OMERO.py-4.4.10.7-wf.zip 15.07 MB

[Recent Changes](#)

Permalinks

- [Last build \(#7\), 9 min 10 sec ago](#)
- [Last stable build \(#7\), 9 min 10 sec ago](#)
- [Last successful build \(#7\), 9 min 10 sec ago](#)
- [Last failed build \(#4\), 1 hr 13 min ago](#)
- [Last unsuccessful build \(#4\), 1 hr 13 min ago](#)

Build History (trend)

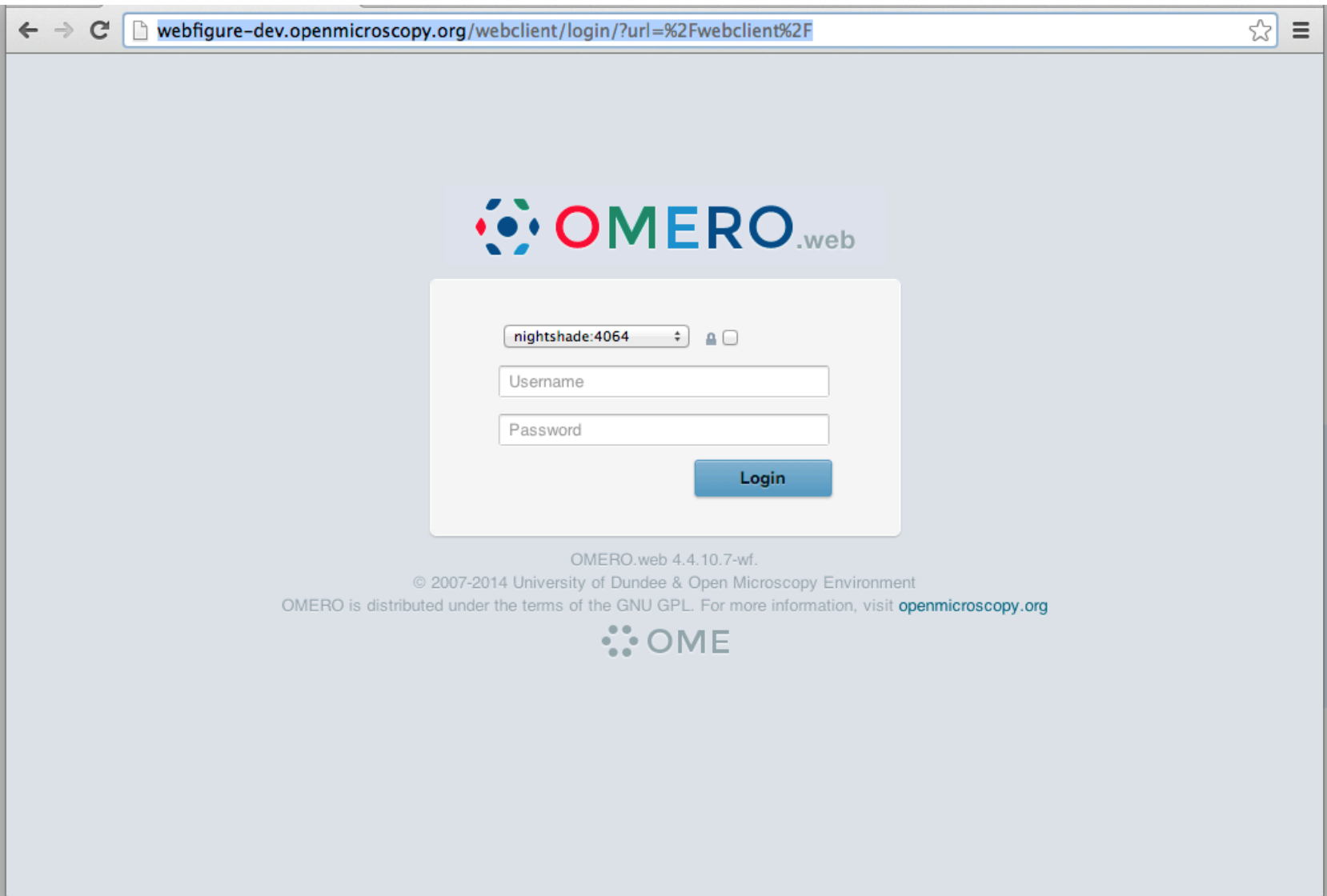
#7	Feb 10, 2014 9:37:30 PM	
#6	Feb 10, 2014 9:27:40 PM	
#5	Feb 10, 2014 9:04:23 PM	
#4	Feb 10, 2014 8:33:36 PM	
#3	Feb 10, 2014 8:25:47 PM	
#2	Feb 10, 2014 7:22:03 PM	
#1	Feb 10, 2014 6:23:57 PM	

[RSS for all](#) [RSS for failures](#)

[Help us localize this page](#)

Page generated: Feb 10, 2014 9:46:41 PM [REST API](#) [Jenkins ver. 1.532.1](#)

Case Study – Continuous Integration



The screenshot shows a web browser window with the address bar displaying `webfigure-dev.openmicroscopy.org/webclient/login/?url=%2Fwebclient%2F`. The page features the OMERO.web logo at the top center. Below the logo is a login form with a dropdown menu showing `nightshade:4064`, a lock icon, and a checkbox. There are two input fields labeled `Username` and `Password`, and a blue `Login` button. At the bottom of the page, it says `OMERO.web 4.4.10.7-wf.`, followed by copyright information: `© 2007-2014 University of Dundee & Open Microscopy Environment`. It also states: `OMERO is distributed under the terms of the GNU GPL. For more information, visit openmicroscopy.org`. The OME logo is at the very bottom.

webfigure-dev.openmicroscopy.org/webclient/login/?url=%2Fwebclient%2F

OMERO.web

nightshade:4064

Username

Password

Login

OMERO.web 4.4.10.7-wf.
© 2007-2014 University of Dundee & Open Microscopy Environment
OMERO is distributed under the terms of the GNU GPL. For more information, visit openmicroscopy.org

OME

Demo! (Part II)

DISCUSSION

TODOs

- Trac
 - A better performing environment
 - Version upgrade
 - Loose Agilo?
- Modularize CORGI integration points
 - Issue Tracking (Currently: Redmine; Needs: Trac, Trello)
 - Increase size of test suite
 - Pull requests welcome!
- Expand SCC beyond the “merge build” use case
 - Remove requirement on GitHub issues
 - Merge of more than just pull requests (integration branches)
- Establish workflow with usable tokens
- Documentation
 - Provide better exposure to OMER0.py artifacts
 - Zero downtime deployments with nginx