

DEVELOPING SIO PEOPLEDB3

Scripps IT, Web Operations

UC San Diego



R/V Sally Ride, Anacortes , Washington. Credit: Jeff Dillon.

A large school of fish swimming in the ocean, with a diver in the foreground. The scene is underwater, with a blue-green tint. The fish are densely packed in a large, rounded formation on the right side of the frame. A diver is visible in the lower center, looking towards the school of fish.

OR, DATABASES IN THE TIME OF VIRTUALIZATION

Scripps IT, Web Operations

7 Minutes

- Old system
- New system
- How it was made
- What we would have done differently

What are we talking about?

- A database of all the people who are involved with the Scripps Institution of Oceanography
- Cross linked to all other apps at SIO

SIO PEOPLEDB 2

- Native PHP5 app
- MySQL storage with about 75% data in key/value pair table
- Interaction with other apps: MySQL queries



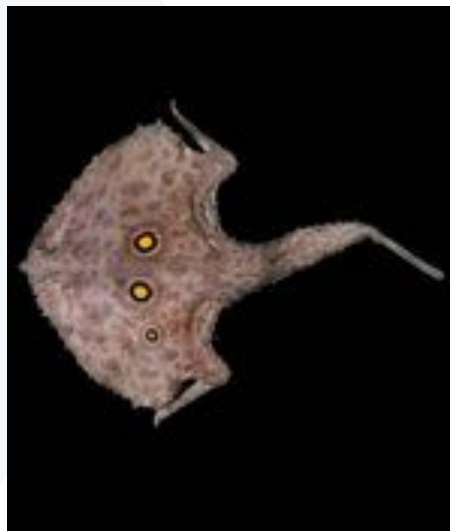
So what was wrong with it?

- complicated integration
- difficult queries
- no permissions
- scaling issues

NEW GOALS



Separate API
and front end



Document
based storage
model



Virtualization
and full stack
development

TECHNOLOGIES

Database: MongoDB Shards

Back end: Symfony

Communication: JSON

Front end: Angular

Virtualization: Atomic Host / Docker Swarm

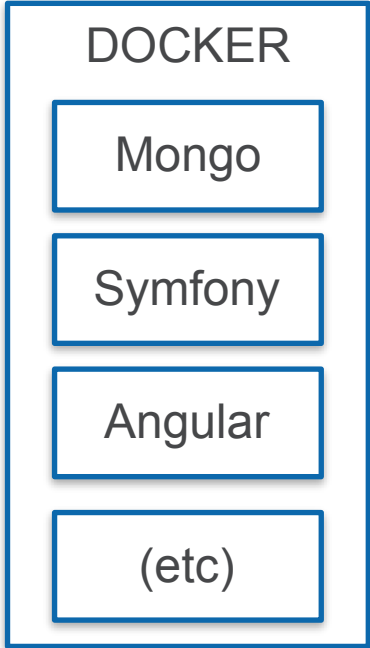
Auth: Google OAuth2 / JWT / Duo

DOCKER SWARM

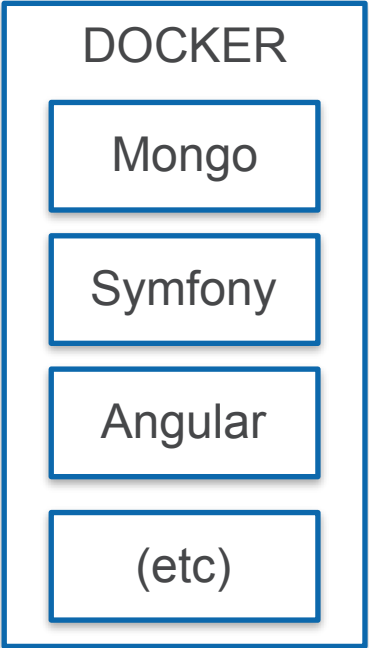
CONTAINER ID	IMAGE
1bfd5796fea0	scrippsit/sioatomic-bot
d7a03974d83a	docker.io/scrippsit/people3-angular:
b1a1aae6e0bf	docker.io/scrippsit/people3-angular:
9e84f58bd95d	docker.io/scrippsit/sio-collections:
afb420c6dabc	docker.io/scrippsit/space-database:1
53edc70c9ca6	docker.io/scrippsit/people3-symfony:
57f69648b813	docker.io/scrippsit/sioapps-id:18
88cf05c71cf1	scrippsit/v2exporter:latest
3f273c4b0a18	scrippsit/oauth2_proxy@sha256:23bfb2
64389f76ad18	docker.io/scrippsit/sio-training:112
730063b85396	docker.io/scrippsit/sio-collections:
ac414b22e15c	scrippsit/shiptrack:latest
0dc0e60fd1b8	rabbitmq@sha256:b31d1faf36a5f5cf7ba6
c8b9cbf93c9c	247284bc43fb
773d077b4f20	redis@sha256:a2c2a89fdcf3291c64ee1c4
bc6b49607352	docker.io/scrippsit/sio-training:112
780a99124112	traefik@sha256:6348d14975b683a2783cc
41b80e87dce8	docker.io/scrippsit/sio-pubs:4
8db22d85ba02	docker.io/scrippsit/artemis:5
00b1d1e24d2a	docker.io/scrippsit/iframe.ly@sha256:
6b04e27722fa	scrippsit/cachet-monitor@sha256:4759
8e5d0b859cbd	docker.io/scrippsit/docuSign-connect
75926c004fd7	scrippsit/cgffunding:prod
1e30fc62a4ca	docker.io/scrippsit/pofs:37
9f150728e423	postgres@sha256:b1bd17ceb17880f9a34e
4419ccfe4563	cachethq/docker@sha256:c2cd8ab0c9524

DOCKER SWARM

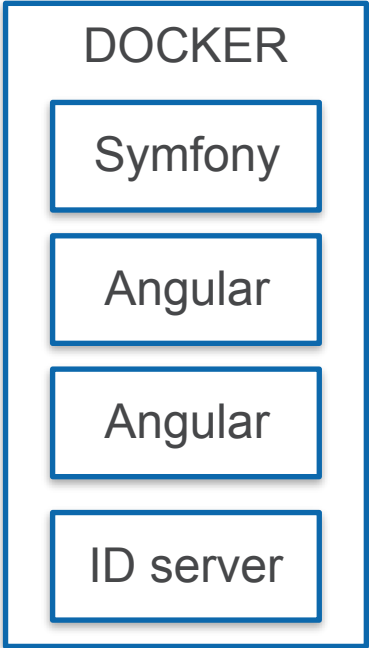
DEV
(personal machine)



STAGE
RedHat Atomic

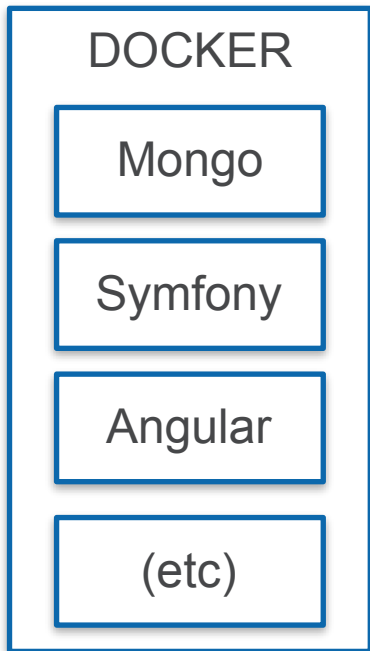


PROD
RedHat Atomic Separate VMs

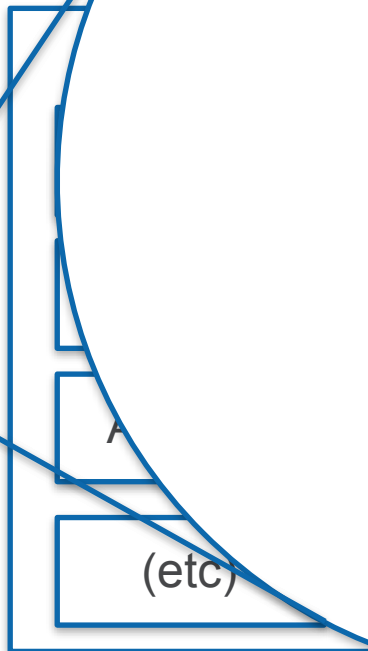


DOCKER SWARM

DEV
(personal machine)



Red S7



Bitbucket

Pipelines

Docker
Cloud

Slack

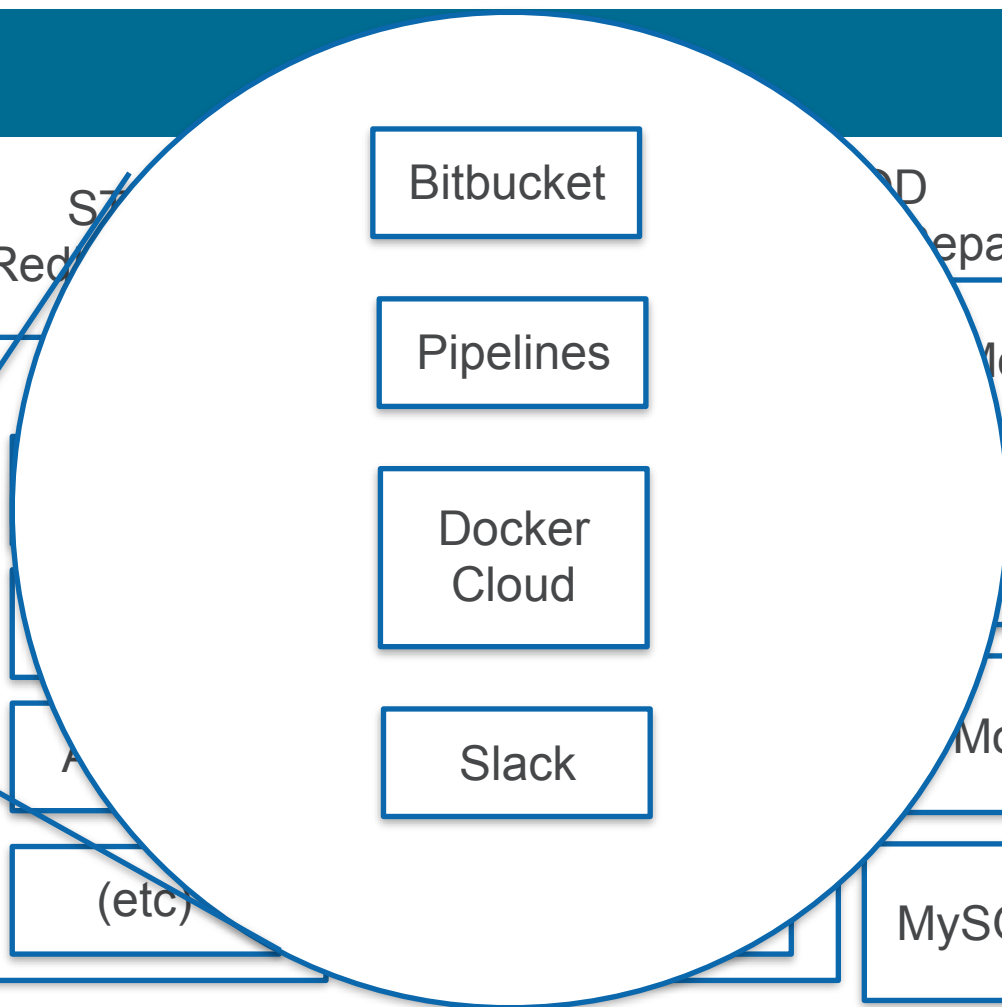
ND
separate VMs

Mongo1

Mongo 2

Mongo 3

MySQL (auth)



MONGO

```
1   _id: ObjectId("5c05a8ccf81ced0001816ce5")
2   > email : Array
3   > section : Array
4   > pps_app_title : Array
5   > dept : Array
6   > curricular_group : Array
7   > curricular_subgroup : Array
8   > program : Array
9   > integ_rsch_theme : Array
10  > research_topic : Array
11  > leadership : Array
12  > major_code : Array
13  < cg : Array
14     0 : "MS "
15     1 : "AOS "
16     2 : "CS "
17     3 : "GS "
18  sio_role : "Staff - Career "
19  email_primary : "test@sio.ucsd.edu "
20  title : "Programmer Analyst "
21  critical : "No "
22  business_office : "SIO/00 "
23  nickname : "Teststudent "
24  lname : "TEST "
25  fname : "PERSON "
26  is_supervisor : "No "
27  sio_status : "Active "
28  email_display : "test@sio.ucsd.edu "
29  space_primary : "185 "
30  visa_type : "H1 "
```

Record:

```
{_id: "4ij83ong98o34nour",  
name: "Grzegorz Bręczyszczkiewicz",  
email: ["g2brzecz@ucsd.edu",  
        "greg_b@ucsd.edu"],  
etc etc
```

FROM

... LEFT JOIN

sio_people.people_values AS pv

ON (p.people_id = pv.people_id AND pv.field = "nickname")

LEFT JOIN

sio_people.people_values AS pv2

ON (p.people_id = pv2.people_id AND pv2.field = "known_as")...

TO

db.records.find({_by:"studentimport"})

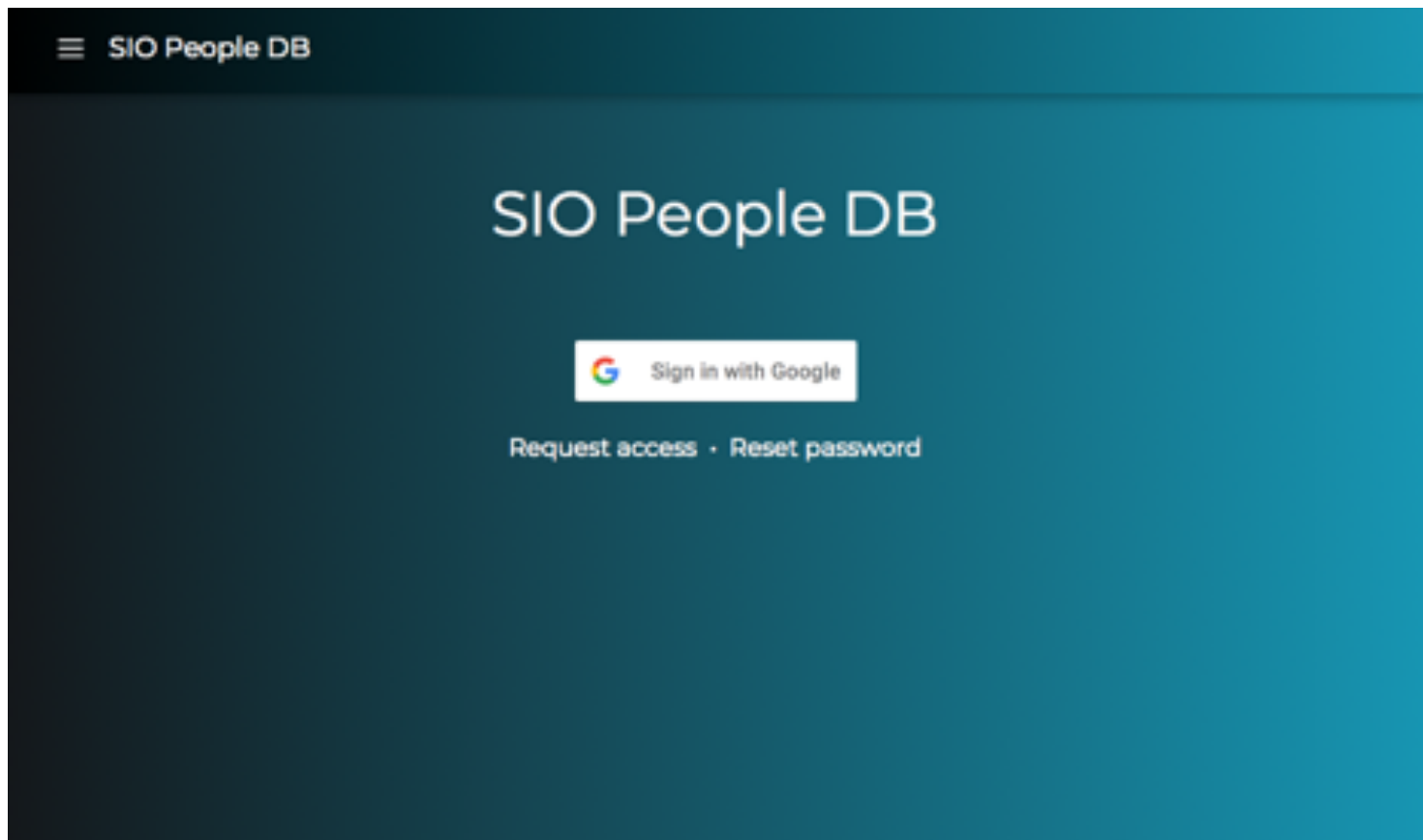
SYMFONY

```
<?php
2
3 namespace AppBundle\Controller;
4
5 /**
6  * Controller in charge data output and mongo/API interactions
7  */
8
9 use Sensio\Bundle\FrameworkExtraBundle\Configuration\Route;
10 use Sensio\Bundle\FrameworkExtraBundle\Configuration\Method;
11 use Symfony\Bundle\FrameworkBundle\Controller\Controller;
12 use Symfony\Component\HttpFoundation\Request;
13 use Symfony\Component\HttpFoundation\Response;
14 use Symfony\Component\HttpFoundation\JsonResponse;
15 use AppBundle\Entity\Field;
16 use AppBundle\Entity\Module;
17 use AppBundle\Entity\Affiliation;
18 use AppBundle\Entity\User;
19 use AppBundle\Entity\Permission;
20 use AppBundle\Entity\ResultSet;
21 use AppBundle\Entity\Filter;
22 use AppBundle\Entity\Notification;
23 use AppBundle\Entity\Translator;
24 use Doctrine\ORM\EntityManagerInterface;
25 use Doctrine\Common\Persistence\ManagerRegistry;
26 use MongoDB\Client;
27 use MongoDB\Driver\Manager;
28 use MongoDB\Driver\Command;
29 use MongoDB\Driver\BulkWrite;
30 use MongoDB\Driver\Query;
31 use MongoDB\Driver\ReadPreference;
32 use MongoDB\BSON\Regex;
33 use MongoDB\BSON\UTCDateTime;
34 use MongoDB\BSON\ObjectId;
35 use MongoDB\BSON\fromPHP;
```

- JSON output
- Google Auth + Duo 2 factor
- ORM for internal user database
- Custom handlers for MongoDB
- Permissions for each field
- Unit tests

ANGULAR

```
1 // angular core stuff~
2 import { Location } from '@angular/common';~
3 import {~
4   Component,~
5   HostListener,~
6   OnInit,~
7   SecurityContext~
8 } from '@angular/core';~
9 import {~
10   FormBuilder,~
11   FormControl,~
12   FormGroup,~
13   Validators~
14 } from '@angular/forms';~
15 import { DomSanitizer } from '@angular/platform-browser';~
16 import { ActivatedRoute, Params, Router } from '@angular/router';~
17 ~
18 // third-party modules~
19 import { ScrollToService } from 'ng2-scroll-to-el';~
20 ~
21 // third-party helpers~
22 import { Observable, EMPTY } from 'rxjs';~
23 import { switchMap } from 'rxjs/operators';~
24 ~
25 // custom services~
26 import {~
27   AlertService,~
28   AuthenticationService,~
29   DataService,~
30   DevlogService,~
31   OverlayService,~
32   PeopleAPIService~
33 } from '../core/services';~
34 ~
35 // custom guards~
36 import { ComponentCanDeactivate } from '../core/guards/unsaved-changes.guard';~
37 ~
38 // custom models~
```



SIO Web Apps Login

UC San Diego

[What is this?](#) [Need help?](#)

Powered by Duo Security

Choose an authentication method



Duo Push Used automatically

Send Me a Push



Call Me

Call Me



Passcode

Enter a Passcode


Remember me for 12 hours

Pushed a login request to your device...

Cancel

SIO People DB

Find someone by name, employee ID, or email address



SIO People DB

An SIO-centric repository of data across all divisions, the Department, the Director's office, SOMTS, Sea Grant, and the Birch Aquarium.

Resources

Training for beginners and experts.

[Schedule Training](#)

Reporting

Canned and ad hoc reports.

[Go to reports](#)

Create Record

Available for affiliates only.

[Create record](#)

Leadership

Current leadership status at SIO.

[View list](#)

Recent Activity

No recent activity.

Recent Updates

June 10, 2019





- Reports page: Relationship columns display names correctly



June 6, 2019

- Speed Improvements in showing the Reports page

Data Stewards

[View all](#)

-  @ucsd.edu · Admin
-  @ucsd.edu · Admin
-  @ucsd.edu · Admin
-  @ucsd.edu · Admin


SIO People DB  

MILIK, EDGAR JAN | SIO/DO Staff - Career [05/03/2019 8:13 PM] Newest Version [Active](#)

[Save Changes](#)

Last Updated
05/03/2019 8:13 PM


All Records
[SIO/DO Staff - Career](#)
Current Record

Merge Related Record
 

[Employment](#)
[Relationships](#)
[Hiring / Separation](#)
[Personal Data](#)
[Teaching / Education](#)

Employment / HR

EID / Employee ID	<input type="text"/>	SIO Role	Staff - Career	Primary Email	<input type="text" value="emilik@ucsd.edu"/>
Last Name	MILIK	Blink Phone	<input type="text" value="(858)534-1711"/>	Email Addresses	<input checked="" type="radio"/> emilik@ucsd.edu <input type="text" value="x"/> <input type="radio"/> edgar@ucsd.edu <input type="text" value="x"/>
First Name	EDGAR	Blink Lab Phone	<input type="text"/>	<input type="text" value="Add new"/> <input type="text" value="+"/>	
Middle Name	JAN	Blink Fax	<input type="text"/>	Email Display	<input type="text"/>
Nickname (First/Middle Name)	<input type="text"/>	Blink Mail Code	<input type="text" value="0235"/>	Private Email	<input type="text"/>
Preferred Last Name	MILIK	Blink Location	<input type="text" value="154 Eckart Bldg"/>	Designated Supervisor?	<input type="text"/>
pps Home Dept	<input type="text"/>				


SIO People DB 

MILIK, EDGAR JAN | SIO/DO Staff - Career [05/03/2019 8:13 PM] Newest Version [Active](#)

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All Records
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[Relationships](#)
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[Teaching / Education](#)
[Leadership](#)

Space

Allocated

Space	Usage	Allocated %	Shared with	Occupants
<i>No Space Allocated</i>				


Occupying

Space	Usage	Allocated to
Eckart 154	OTHER OFF	ADMIN 100 %

Research

Integrated Research Themes

Research Topic (Primary)


SIO People DB 

MILIK, EDGAR JAN | SIO/DO Staff - Career [05/03/2019 8:13 PM] Newest Version Active

[Save Changes](#)

Last Updated
05/03/2019 8:13 PM

All Records
[SIO/DO Staff - Career](#)
Current Record

Merge Related Record
 


[Employment](#)
[Relationships](#)
[Hiring / Separation](#)
[Personal Data](#)
[Teaching / Education](#)
[Leadership](#)
[Space](#)

Relationships

All Active Inactive

PI / Sponsor <input type="text"/>	Advisor(s) <input type="text"/>
Sponsoring <input type="text"/>	Advisee(s) <input type="text"/>
Supervisor(s) <input type="text" value="GONZALEZ, LUCY x"/>	Work Director(s) <input type="text"/>
Supervisee(s) <input type="text"/>	Work Directee(s) <input type="text"/>

To add a supervisor or supervisee, search for a person, and then drag and drop their name to the appropriate section. To remove someone, click the X next to the person's name.



ANGULAR

The screenshot shows the 'SIO People DB' interface. At the top, there is a search bar with the text 'Find someone by name, employee ID, or email address' and a magnifying glass icon. To the right of the search bar is a user profile picture and a notification icon. Below the search bar is the 'Reports' section. On the left side, there is a sidebar with a navigation menu containing icons for a home page, a clock, and a list. The main content area is divided into two sections: 'Filters' and 'Columns'. The 'Filters' section has a 'Reset to Default' button and a 'Canned Reports' link. Below it is a 'Record Status' dropdown menu. The 'Columns' section has a 'Reset to Default' button and a 'Display All Columns' button. Below these are several column selection buttons: 'Employment', 'Relationships', 'Hiring', 'Personal', 'Education', 'Leadership', and 'Research'. A blue horizontal bar spans the width of the main content area, displaying the text 'loading data (77%)...' and a small square icon. Below this bar, the 'Employment / HR' section is visible, with a list of filter options: 'SIO Role', 'SIO Business Office', 'Home Dept', 'Display Title', 'Appointment Title', 'Census Category', 'PIP Report Category', and 'Relationships'. Each option has a right-pointing chevron and a radio button labeled 'All'.

SIO People DB

Report: Active Records

Filters [Reset to Default](#)

Columns [Reset to Default](#) [Display All Columns](#)

[Employment](#)
[Relationships](#)
[Hiring](#)
[Personal](#)
[Education](#)
[Leadership](#)
[Research](#)

2786/15155 results

[Bookmark this report](#)
[Export this report to CSV](#)
[Export this report to PDF](#)

	Full Name ▲ ▼	Department Affiliation(s)	Email ▲ ▼	SIO
Active		IGPP		Sta
Active		IGCC MPL Physics SCH ENG		Acc
Active				Stu
Active				Stu
Active		IGPP		Affl (no
Active		MBRD		Acc

Canned Reports
 Record Status:
 Employment / HR
 SIO Role All
 SIO Business Office All
 Home Dept All
 Display Title All
 Appointment Title All
 Census Category All
 PIP Report Category All
 Relationships All

SIO People DB

Report: Active Records

Filters [Reset to Default](#)

Columns [Reset to Default](#) [Display All Columns](#)

[Employment](#)
[Relationships](#)
[Hiring](#)
[Personal](#)
[Education](#)
[Leadership](#)
[Research](#)

566/15155 results

[Bookmark this report](#)
[Export this report to CSV](#)
[Export this report to PDF](#)

	Full Name	Department Affiliation(s)	Email	SIO
Active		IGPP		Sta
Active		SDSC STS		Sta
Active		SIO/DO		Sta
Active		GRD		Sta
Active		IOD		Sta
Active		CASPO		Sta
Active		MPL		Sta

Record Status

Employment / HR
 SIO Role(s) All

- Staff - Career
- Staff - Career (Grad Student)
- Staff - Career
- Staff - Casual Restricted
- Staff - Contract
- Staff - Limited
- Staff - Per Diem
- Staff - Returning Retiree

Relationships All

SIO People DB

Report: Active Records

Columns [Reset to Default](#) [Display All Columns](#)

[Employment](#) [Relationships](#) [Hiring](#) [Personal](#) [Education](#) [Leadership](#) [Research](#)

1/15155 result

[Bookmark this report](#) [Export this report to CSV](#) [Export this report to PDF](#)

	Full Name	Supervisor(s)	Department Affiliation(s)	Email
Active	MILIK, EDGAR JAN	GONZALEZ, LUCY	SIO/DO	emil...

< Previous **1** Next >

Employment / HR

- > SIO Role() All
- > SIO Business Office() All
- > Home Dept All
- > Display Title All
- > Appointment Title() All
- > Census Category All
- > PIP Report Category All

Relationships All

Teaching / Education

- > Program All
- > Curricular Group All
- > Curricular Sub-Group All

Leadership



How was it done?



How was it done?

- JIRA
- git
- Bitbucket
- Docker Cloud
- PHP Unit
- Slack (with bots)

HOW WAS IT DONE

The screenshot displays a Jira issue page for the project 'SIO People Database'. The issue title is 'missing visa for [redacted]' with ID 'PEOPLE-841'. The status is 'In Progress'. The description states: 'despite being in the PPS upload, the data is missing in record'. The reporter and assignee are both 'Edgar Milk'. The left sidebar shows navigation options like 'Back to project', 'Open issues', and 'All issues'. A central list shows other issues, including 'orig_hire_date is not storing anything' (PEOPLE-839) and 'records/reports: make relationship field values alphabetical' (PEOPLE-838). The right sidebar shows metadata like 'ASSIGNEE', 'REPORTER', 'DEVELOPMENT', 'LABELS', and 'ZENDESK TICKET'. The bottom of the page has an 'Activity' section with a comment input field.

Projects / SIO People Database

Open issues

Back to project

Issues and filters

- My open issues
- Reported by me
- All issues
- Open issues**
- Done issues
- Viewed recently
- Created recently
- Resolved recently
- Updated recently

missing visa for [redacted]

PEOPLE-841

orig_hire_date is not storing anything

PEOPLE-839

records/reports: make relationship field values alphabetical

PEOPLE-838

2019-06-18 Meeting BAS People DB

PEOPLE-832

PEOPLE-841

missing visa for [redacted]

In Progress

ASSIGNEE: Edgar Milk

REPORTER: Edgar Milk

DEVELOPMENT

+ Create branch

LABELS: None

ZENDESK TICKET: None

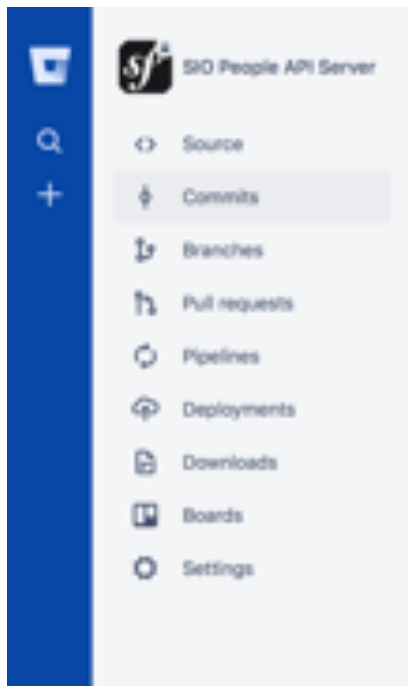
Description: despite being in the PPS upload, the data is missing in record

Checklists: None

Activity: Comments

Add a comment...

HOW WAS IT DONE





















The sidebar contains a vertical list of navigation items: Source, Commits (highlighted), Branches, Pull requests, Pipelines, Deployments, Downloads, Boards, and Settings. The top of the sidebar features a logo and the text 'SIO People API Server'.

Scripts IT / SIO People Database / SIO People API Server

Commits

Clone

All branches ▾

Author	Commit	Message	Date	Builds
 Tomohisa Kusano	39c4c78 	Merged in delete-requires-master (pull request #128)	2019-06-11	
 Tomohisa Kusano	48845b4	/admin/delete/version requires master	2019-06-11	
 Edgar Milk	7f98fde 	Merged in permissions-adding@slackmon (pull request #127)	2019-06-30	
 Edgar Milk	a97185c	synced to the spreadsheet as of 2019-05-30	2019-05-30	
 Edgar Milk	88a15f5	added	2019-05-30	
 Michael Chadwick	1824597 	Merged in PEOPLE-819-google-drive-api (pull request #126)	2019-06-23	
 Michael Chadwick	d44d9f8	added method to get google api key and test for it	2019-05-23	
 Michael Chadwick	2398c31	added getGoogleKey endpoint	2019-05-23	

HOW WAS IT DONE

Sf SID People API Server

Scripts IT / SID People Database / sid-pe...server

What's new

Schedules

Caches

Usage

Pipelines

All branches

Status

Trigger type

Only mine

OTHER BRANCHES

master **MAIN BRANCH**

mjchadwick/bitbucketpipelines...

fix/PEOPLE-720-active-rule-ucs...

patch-records-update

addingUser

pie_chart_categories



















PEOPLE-720

json_last_error

max-post-32mb

sonate-admin

Load more...

Pipeline	Status	Started	Duration
#794  Merged in delete-requires-master (pull request #128) (admini... Tomohisa Kusano # 3904c79 D master	 Successful	14 days ago	14 min 3 sec
#793  Admin/deleteVersion requires master Tomohisa Kusano # 48046b4 D delete-requires-master	 Successful	14 days ago	16 min 5 sec
#792  Merged in permissions-adding (pull request #127) P... Edger Milk # 7f88da D master	 Successful	a month ago	16 min 38 sec
#791  synced to the spreadsheet as of 2019-05-30 Edger Milk # a97195c D permissions-adding@blackmon	 Successful	a month ago	13 min 6 sec
#790  added Edger Milk # 0847575 D permissions-adding@blackmon	 Successful	a month ago	16 min 14 sec
#789  Merged in PEOPLE-819-google-drive-api (pull request #126) ... Michael Chadwick # 1024597 D master	 Successful	a month ago	14 min 46 sec
#788  added method to get google api key and test for it Michael Chadwick # 6042998 D PEOPLE-819-google-drive-api	 Successful	a month ago	15 min 21 sec
#787  Merged in siomiz/permissions.yml-edited-online-with-bitbuc-1... Tomohisa Kusano # 8065867 D master	 Successful	a month ago	17 min 3 sec
#786  add tbody as a SIDDeptAdmin Tomohisa Kusano # 74804c8 D siomiz/permissions.yml-edited...	 Successful	a month ago	13 min 58 sec

HOW WAS IT DONE

The image shows a GitHub Actions pipeline for a project named "SIO People API Server". The pipeline is titled "Scripts IT" and is currently running on commit #794. The pipeline consists of three jobs: "Docker Build (latest)", "PHPUnit Tests", and "Docker Build (prod)". The "PHPUnit Tests" job is currently running and has 13 tests passed in 11m 25s.

The terminal output for the "PHPUnit Tests" job shows the following commands and results:

```
ls -d | grep vendor || composer install --no-interaction --ignore-plat... -0s >
composer run-script symfony-scripts --no-interaction 2s >
sed -ir 's/mongo/localhost/' app/config/config_test.yml -0s >
cp test.env .env -0s >
bin/console doctrine:database:create && bin/console doctrine:schema:cr... -0s >
vendor/bin/simple-phpunit --version -0s >
vendor/bin/simple-phpunit --coverage-text --colors=never --group-safe ... 3m 55s >
+ vendor/bin/simple-phpunit --coverage-text --colors=never --group-safe --verbose --stop-on-felle
Sending fixture data to mongo:
fakercollection
PHPUnit 6.5.14 by Sebastian Bergmann and contributors.

Runtime: PHP 7.3.6 with Xdebug 2.7.2
Configuration: /opt/atlassian/pipelines/agent/build/phpunit.xml.dist

Testing Project Test Suite
Test "Tests/AppBundle/Controller/DefaultControllerTest::testReset" started
Test "Tests/AppBundle/Controller/DefaultControllerTest::testReset" ended
Test "Tests/AppBundle/Controller/DefaultControllerTest::testIndex" started
Test "Tests/AppBundle/Controller/DefaultControllerTest::testIndex" ended
Test "Tests/AppBundle/Controller/DefaultControllerTest::testGetEndpoint with data set #0 (/varst
Test "Tests/AppBundle/Controller/DefaultControllerTest::testGetEndpoint with data set #0 (/varst
Test "Tests/AppBundle/Controller/DefaultControllerTest::testReset" started
Test "Tests/AppBundle/Controller/DefaultControllerTest::testReset" ended
Test "Tests/AppBundle/Controller/DefaultControllerTest::testNotFictionalGet" started
Test "Tests/AppBundle/Controller/DefaultControllerTest::testNotFictionalGet" ended
Test "Tests/AppBundle/Controller/DefaultControllerTest::testNotFictionalMarkAsSeen" starte
Test "Tests/AppBundle/Controller/DefaultControllerTest::testNotFictionalMarkAsSeen" ended
Test "Tests/AppBundle/Controller/DefaultControllerTest::testNotFictionalCreateDeleteAndDi
Test "Tests/AppBundle/Controller/DefaultControllerTest::testNotFictionalCreateDeleteAndDi
```

HOW WAS IT DONE

08:03 **Bitbucket Cloud** APP

✓ Pipeline #714 passed for `master` @ `21c60c0` by @mchadwick

 **Michael Chadwick**

`21c60c0` Merged in PEOPLE-837-report-cell-overload (pull request #151)

 SIO People Front End



08:04 **Michael Chadwick**  @sioatomic deploy people3_angular prod-714



08:04 **sioatomic** APP  Deployed docker.io/scrippsit/people3-angular:prod-710

```
Id: 258e7b17fedec811a6e499f1811d3e36c07407ed89b93d797310c8d258595143
Name: people3_angular.2.ohcl31jd7y0r75lb9tzg7uq6v
Image: 'docker.io/scrippsit/people3-angular:prod-710'
State: running
Status: 'Up 8 days'
```

[Show more](#)



Things we would do next time

- Front end tests
- Generally more tests
- Test driven development
- Live data testing



Scripps IT, Web Operations is:

Lucina Gonzalez (supervisor)

Edgar Milik (programming lead)

Michael Chadwick (programmer)

Tomohisa Kusano (programmer)

Gabe Castillo (sysadmin)

Nate Huffnagle (sysadmin)

Luis Avila (database design)



**WE ARE CONTRACTUALLY OBLIGATED TO
END WITH A PHOTO OF THE PIER.**

THIS IS THE PIER.