

Agridea: GeoAcorda with Docker Infrastructure

GeoMapFish User Group 29.8.2016

camptocamp

INNOVATIVE SOLUTIONS
BY OPEN SOURCE EXPERTS

Agenda

- Project GeoAcorda
- Project Context
- Docker Infrastructure
- Docker ... and more @GeoAcorda
- CI / CD Workflow
- Sum Up and Experiences



Project GeoAcorda



- ACORDA = management of agricultural surfaces in Neuchâtel, Geneva, Vaud and Jura
- Each year, the farmers have to insert their plans for the coming season.
- The data is subject to a review process by the responsible administration at the canton.




Project GeoAcorda

- ACORDA has been an attributive web form until now, despite the high relevance of geographical information.
- → Extend the web form ACORDA with a geographic interface



Project GeoAcorda



Acorda-integration

Administration coordonnée romande des données agricoles

Exercice 2016

Administration

Adresse

Consultation

Géo données

Recensement

Inscriptions

Désinscriptions

Effcience ►

Divers ►

Contrôles

Forme d'exploitation sélectionnée

NE64560800, 06 communauté d'exploitation, Ce Bonjour Jean-Luc &

▼ Cultures

▼ NE64569800

Parcelles NE64569800

Consultation parcelles géo référencées NE64569800

Pdf parcelles géo référencées NE64569800

Saisie des données géo référencées NE64569800

Surfaces NE64569800

Reprises et cessions NE64569800

► NE64561800

Inscriptions

► Animaux

Récapitulatif

Bienvenue dans Acorda > Consultation > Cultures > NE64569800 >

Surfaces NE64569800

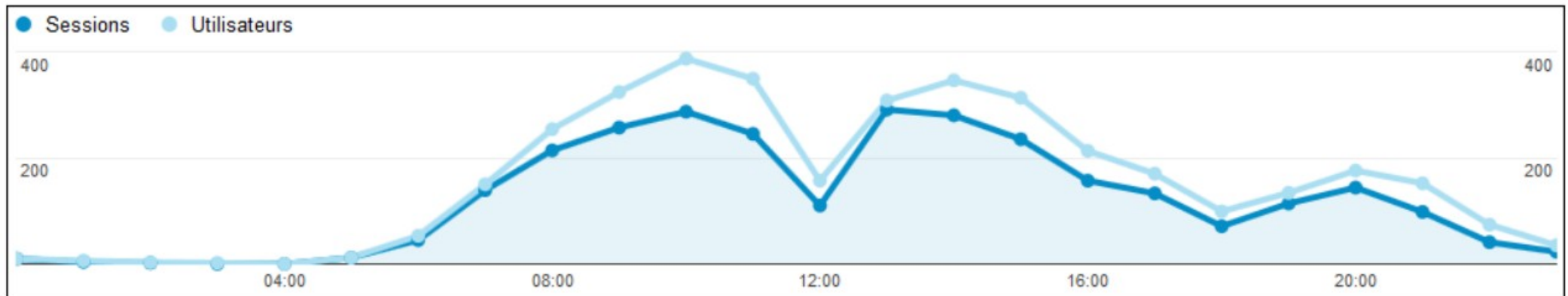
Synthèse par affectation

Affectation	SAU	Hors SAU	Arbres fruit. HT	Arbres isolés	Noyers	Châtaigniers	Cultures en pente	Vignes en pente ou terrasse
502- Orge d'automne	639	0	0	0	0	0	0	0
505- Triticale	918	0	0	0	0	0	0	0
513- Blé d'automne	1794	0	0	0	0	0	0	0
521- Maïs (ensilage et vert)	1178	0	0	0	0	0	0	0
527- Colza d'automne huile	644	0	0	0	0	0	0	0
601- Prairies temporaires	2737	0	0	0	0	0	0	0
611- Prairies extensives	303	0	0	0	0	0	0	0
613- Prairies perm. (fauche)	1903	0	0	0	0	0	0	0
616- Pâturages attenants	2415	0	0	0	0	0	0	0
617- Pâturages extensifs	1124	0	0	0	0	0	0	0
618- Pâturages boisés	606	0	0	0	0	0	0	0
625- Pâturages boisés(non sce)	34	0	0	0	0	0	0	0
852- Haies bosq + bande herb.	107	0	0	0	0	0	0	0
901- Forêt	0	360	0	0	0	0	0	0
902- Surfaces improductives	0	153	0	0	0	0	0	0
	14402	513	0	0	0	0	0	0



Project Context

- The solution has to be very user friendly
- The solution has to be fast
- **High service availability**
- **Peak of usage when the deadline is approaching**



Project Context

- High service availability and usage peaks make a very flexible scaling and deployment necessary
- We want to have a transparent, coherent and microservices-based infrastructure



Why Docker?

- High availability → simple deployment



Why Docker?

- High availability → simple deployment
- Microservices → migration in small steps



Why Docker?

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- Microservices → migration in small steps
- Transparency while deploying → a project manager can guide the deployment on integration / production



Why Docker?

- High availability → simple deployment
- Microservices → migration in small steps
- Transparency while deploying → a project manager can guide the deployment on integration / production
- Documentation of a big distributed project → use automatic documentation



Why Docker?

- High availability → simple deployment
- Microservices → migration in small steps
- Transparency while deploying → a project manager can guide the deployment on integration / production
- Documentation of a big distributed project → use automatic documentation
- Separation of services vs. limited number of servers → Docker allows to do both



Why Docker?

- High availability → simple deployment
- Microservices → migration in small steps
- Transparency while deploying → a project manager can guide the deployment on integration / production
- Documentation of a big distributed project → use automatic documentation
- Separation of services vs. limited number of servers → Docker allows to do both
- Run everywhere → locally, on the cloud, in your infrastructure



Docker Infrastructure

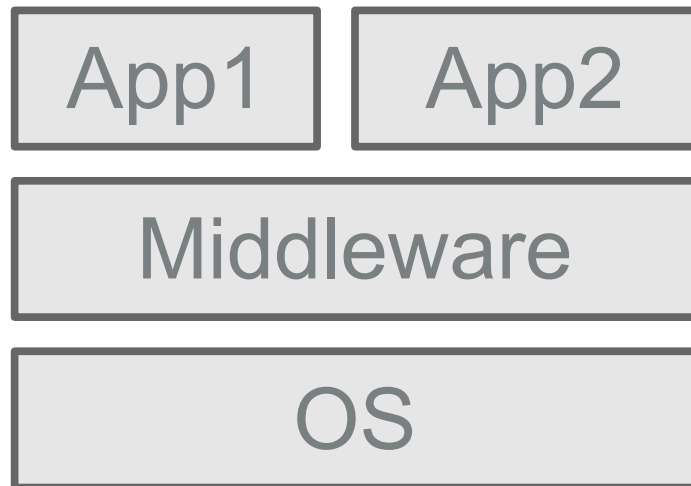
- What is Docker?
 - Container Infrastructure
 - Container = application code, middleware libraries and OS libraries (like a VM, but without the Kernel)
 - The Container uses the Kernel of the host
 - A **registry** contains the docker **images** which allow to build the **containers**, which are orchestrated into a **composition**



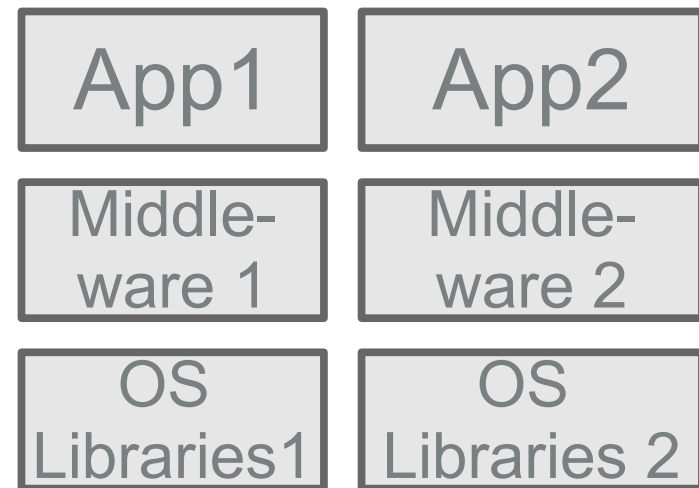
Docker Infrastructure

■ What is Docker?

- Common approach :



- Docker approach :



- A container can share disk usage, RAM and CPU with other containers



Docker ... and more @GeoAcorda

- Tools for Continous Delivery / Continuous Integration Workflows
 - Registry :
 - Dockerhub for **public** images
 - Camptocamp Dockerhub account for **private** images
 - Build tools
 - Test + build, f.e. **Travis**, Jenkins
 - Run tools
 - Docker compose (for 1 server)
 - **Rancher** (for several servers)









Docker ... and more

■ Dockerhub Explore

Dashboard Explore Organizations Search Create eleu

Explore Official Repositories

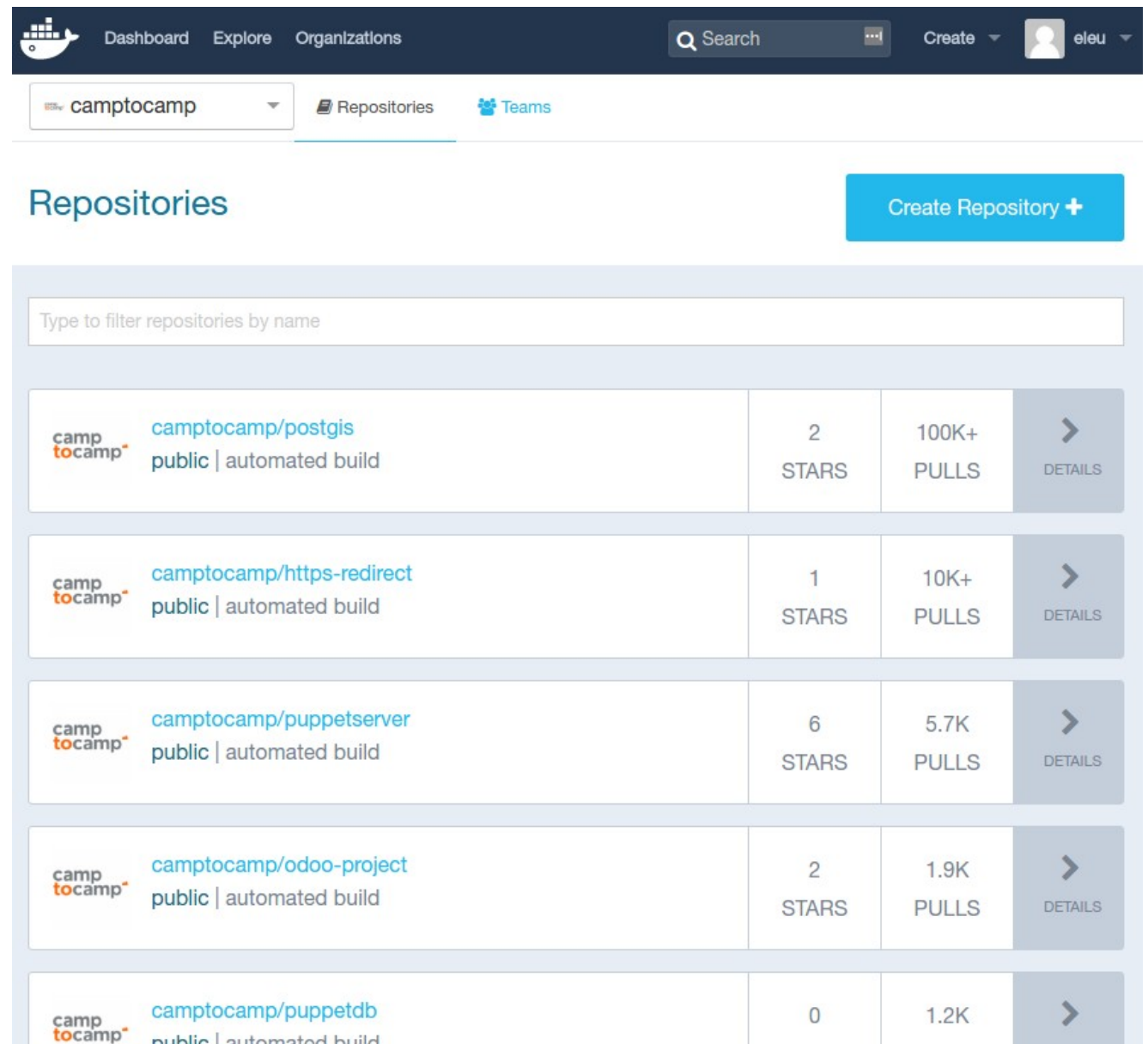
 nginx official	3.9K STARS	10M+ PULLS	> DETAILS
 busybox official	777 STARS	10M+ PULLS	> DETAILS
 ubuntu official	4.6K STARS	10M+ PULLS	> DETAILS
 redis official	2.6K STARS	10M+ PULLS	> DETAILS
 registry official	1.0K STARS	10M+ PULLS	> DETAILS
 swarm official	465 STARS	10M+ PULLS	> DETAILS

https://hub.docker.com/_/busybox/



Docker ... and more

- Dockerhub
C2C Images



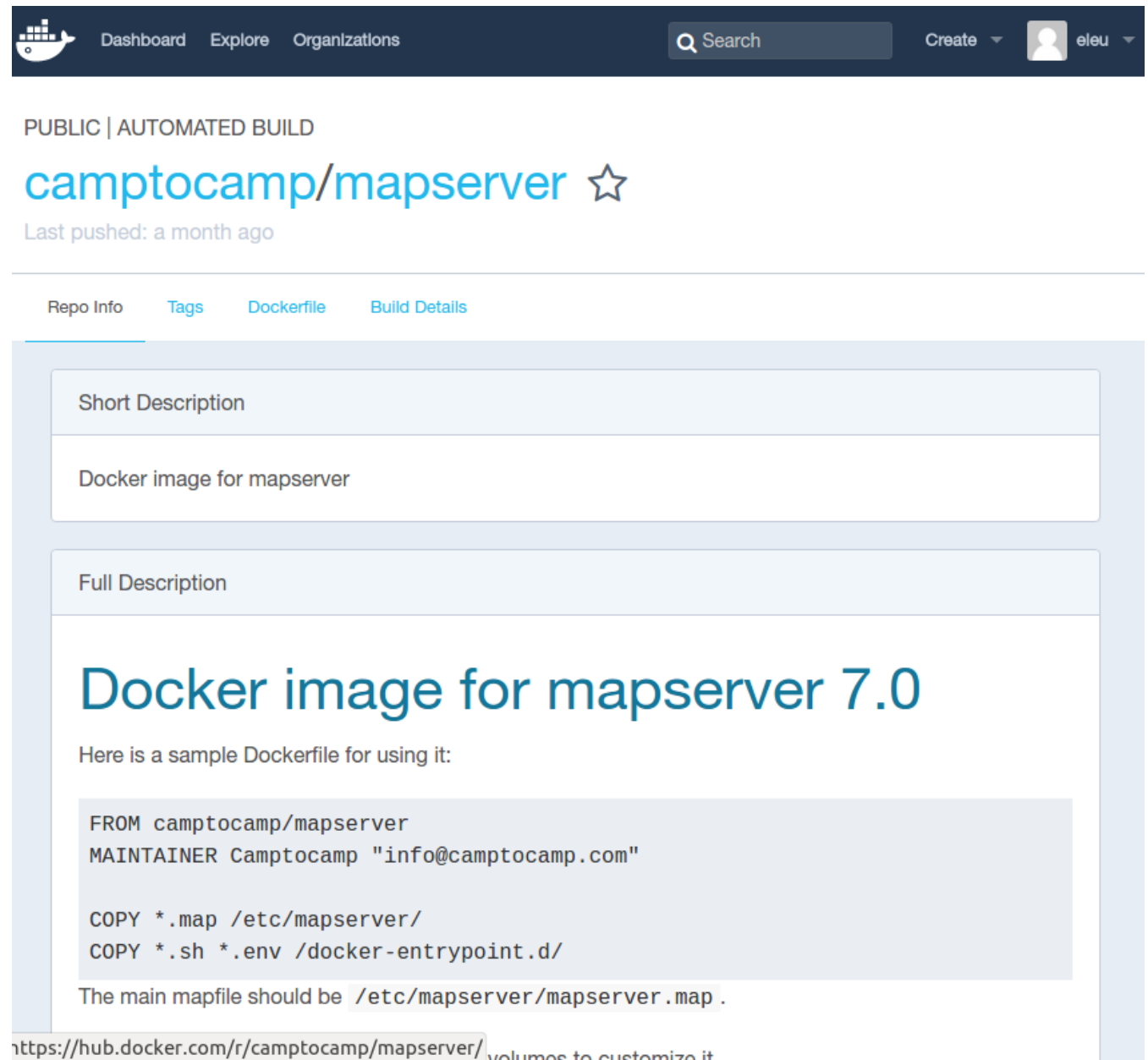
The screenshot shows the Docker Hub interface for the organization 'camptocamp'. The top navigation bar includes 'Dashboard', 'Explore', 'Organizations', a search bar, and a user profile 'eleu'. Below the navigation bar, the 'Repositories' tab is selected, and a 'Create Repository +' button is visible. A search bar prompts the user to 'Type to filter repositories by name'. The main content area displays a list of repositories for 'camptocamp', each with its name, public status, automated build status, star count, pull count, and a 'Details' link.

Repository Name	Public	Automated Build	Stars	Pulls	Details
camptocamp/postgis	Yes	Yes	2	100K+	Details
camptocamp/https-redirect	Yes	Yes	1	10K+	Details
camptocamp/puppetserver	Yes	Yes	6	5.7K	Details
camptocamp/odoo-project	Yes	Yes	2	1.9K	Details
camptocamp/puppetdb	Yes	Yes	0	1.2K	Details



Docker ... and more

■ Dockerhub



The screenshot shows the Docker Hub interface for the repository `camptocamp/mapserver`. The page is titled "PUBLIC | AUTOMATED BUILD" and "Last pushed: a month ago". The repository is categorized under "Tags", "Dockerfile", and "Build Details". The "Short Description" section states "Docker image for mapserver". The "Full Description" section features the title "Docker image for mapserver 7.0" and provides a sample Dockerfile for using the image. The Dockerfile includes instructions to set the base image to `camptocamp/mapserver`, set the maintainer to `Camptocamp <info@camptocamp.com>`, and copy map files and environment files into the container. A note specifies that the main mapfile should be `/etc/mapserver/mapserver.map`. The URL `https://hub.docker.com/r/camptocamp/mapserver/` is provided for further details.

Dashboard Explore Organizations Search Create eleu

PUBLIC | AUTOMATED BUILD

camptocamp/mapserver ☆

Last pushed: a month ago

Repo Info Tags Dockerfile Build Details

Short Description

Docker image for mapserver

Full Description

Docker image for mapserver 7.0

Here is a sample Dockerfile for using it:

```
FROM camptocamp/mapserver
MAINTAINER Camptocamp "info@camptocamp.com"

COPY *.map /etc/mapserver/
COPY *.sh *.env /docker-entrypoint.d/
```

The main mapfile should be `/etc/mapserver/mapserver.map`.

<https://hub.docker.com/r/camptocamp/mapserver/> volumes to customize it



Docker ... and more



PUBLIC | AUTOMATED BUILD

camptocamp/mapserver

Last pushed: a month ago

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Here is a sample Dockerfile for using it:

```
FROM camptocamp/mapserver
MAINTAINER Camptocamp "info@camptocamp.com"
```

```
COPY *.map /etc/mapserver/
COPY *.sh *.env /docker-entrypoint.d/
```

The main mapfile should be /etc/mapserver/mapserver.map .

<https://hub.docker.com/r/camptocamp/mapserver/> volumes to customize it

camptocamp



PRIVATE REPOSITORY

camptocamp/geoacorda_mapserver ☆

Last pushed: 12 days ago

Repo Info Tags

Short Description

MapServer for Agridea, Geoacorda project.

Full Description

Full description is empty for this repo.

Docker Pull Command

```
docker pull camptocamp/geoacorda_mapserver
```

Owner

camptocamp



Docker ... and more

- Run tools
 - Rancher : Stack GeoAcorda

The screenshot shows the Rancher UI interface for managing a stack named 'geoacorda-dev'. The top navigation bar includes links for 'agridea-int', 'STACKS', 'CATALOG', 'INFRASTRUCTURE', and 'API'. The main content area displays a table of services within the stack.

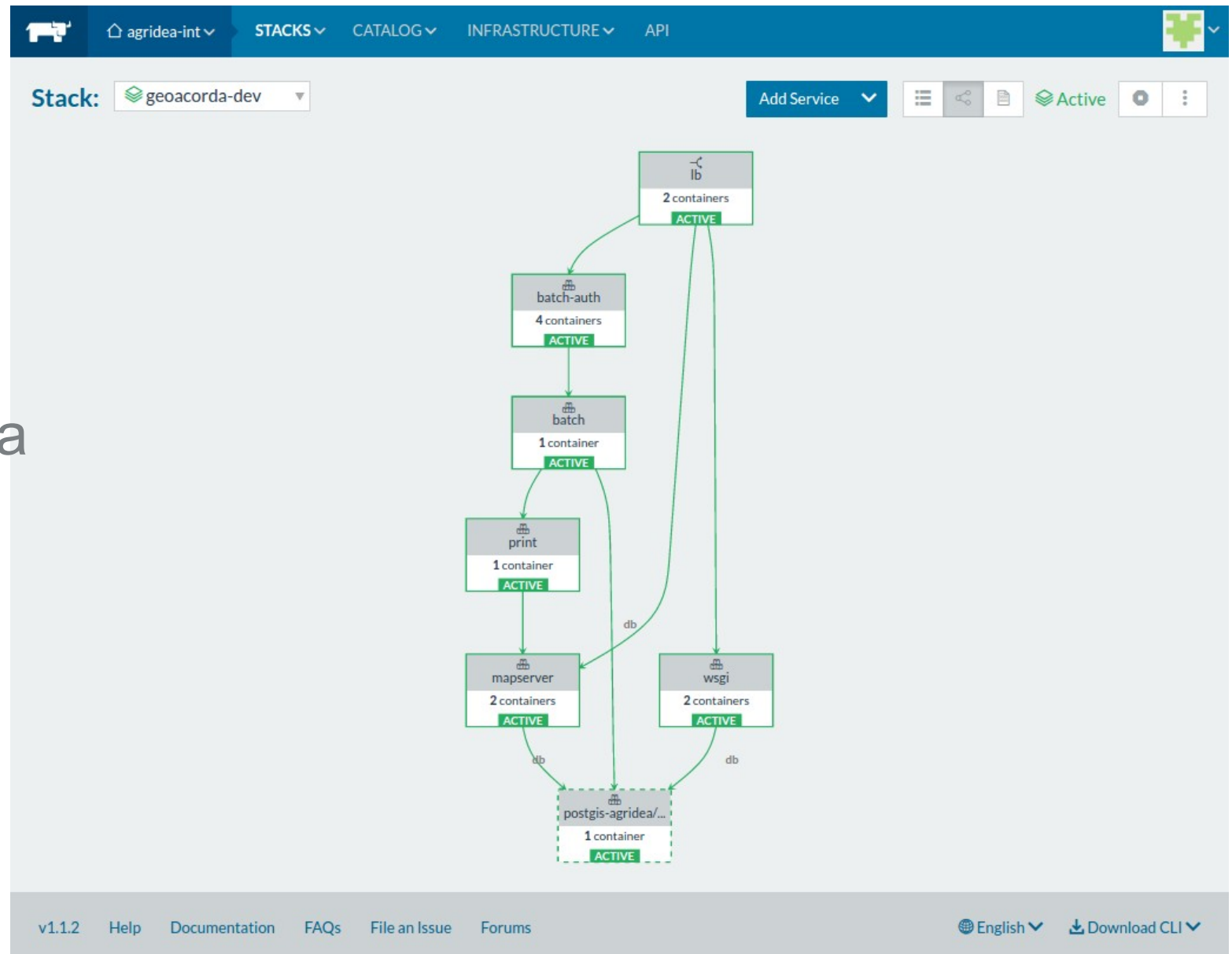
Stack:	geoacorda-dev	Add Service	Active		
Active	batch ⓘ	Image: camptocamp/geoacorda_batch:latest	Service	1 Containers	⌵ ⋮
Active	batch-auth + 1 Sidekicks ⓘ	Image: nginx:1.10	Service	4 Containers	⌵ ⋮
↶ Active	lb ⓘ	To: batch-auth , mapserver , wsgi Ports: 1443	Load Balancer	2 Containers	⌵ ⋮
Active	mapserver ⓘ	Image: camptocamp/geoacorda_mapserver:latest	Service	2 Containers	⌵ ⋮
Active	print ⓘ	Image: camptocamp/geoacorda_print:latest	Service	1 Containers	⌵ ⋮
Active	wsgi ⓘ	Image: camptocamp/geoacorda_wsgi:latest	Service	2 Containers	⌵ ⋮

The footer of the interface includes version information (v1.1.2) and links for Help, Documentation, FAQs, File an Issue, and Forums. It also shows language settings (English) and a Download CLI option.



Docker ... and more

- Run tools
 - Rancher :
Stack
GeoAcorda



Docker ... and more

- Run tools
 - Rancher : Hosts

The screenshot displays the Rancher UI interface for managing hosts and stacks. The top navigation bar includes links for 'agridea-int', 'STACKS', 'CATALOG', 'INFRASTRUCTURE', and 'API'. The main section is titled 'Hosts' and features an 'Add Host' button. Three hosts are listed, each with a status of 'ACTIVE' and a 'node_role' tag.

Host 1: geoacorda-int-application-0
IP: 185.19.29.138 | 1.11.2
OS: Ubuntu 16.04.1 LTS (with KVM) (4.4.0-21-generic)
CPU: 4x2.59 GHz | Memory: 7.8 GiB | Disk: 48.4 GiB
node_role=apps

Stack: concplicity

Service	IP
..concplicity_4	10.42.49.218
..jobber_4	10.42.235.203

Stack: geoacorda

Service	IP
..batch-auth_3	10.42.223.123
Sidekicks	
..mapserver_2	10.42.193.99
..wsgi_1	10.42.234.119
..print_1	10.42.246.231
..lb_2	10.42.132.60

Stack: geoacorda-dev

Service	IP
..mapserver_2	10.42.197.239
..wsgi_2	10.42.247.96
..print_1	10.42.117.37

Host 2: geoacorda-int-application-1
IP: 185.19.29.190 | 1.11.2
OS: Ubuntu 16.04.1 LTS (with KVM) (4.4.0-21-generic)
CPU: 4x2.59 GHz | Memory: 7.8 GiB | Disk: 48.4 GiB
node_role=apps

Stack: concplicity

Service	IP
..concplicity_3	10.42.87.14
..jobber_3	10.42.86.25

Stack: geoacorda

Service	IP
..batch-auth_4	10.42.99.64
Sidekicks	
..wsgi_2	10.42.95.133
..mapserver_1	10.42.101.84
..batch_1	10.42.98.38
..lb_1	10.42.97.150

Stack: geoacorda-dev

Service	IP
..mapserver_1	10.42.28.40
..wsgi_1	10.42.219.255
..batch-auth_1	10.42.238.255

Host 3: geoacorda-int-database-0
IP: 185.19.30.56 | 1.11.2
OS: Ubuntu 16.04.1 LTS (with KVM) (4.4.0-28-generic)
CPU: 4x2.59 GHz | Memory: 7.8 GiB | Disk: 48.4 GiB
node_role=database

Stack: concplicity

Service	IP
..concplicity_2	10.42.147.52
..jobber_2	10.42.117.50

Stack: logging

Service	IP
..agent_4	10.42.244.199
Sidekicks	

Stack: metrics

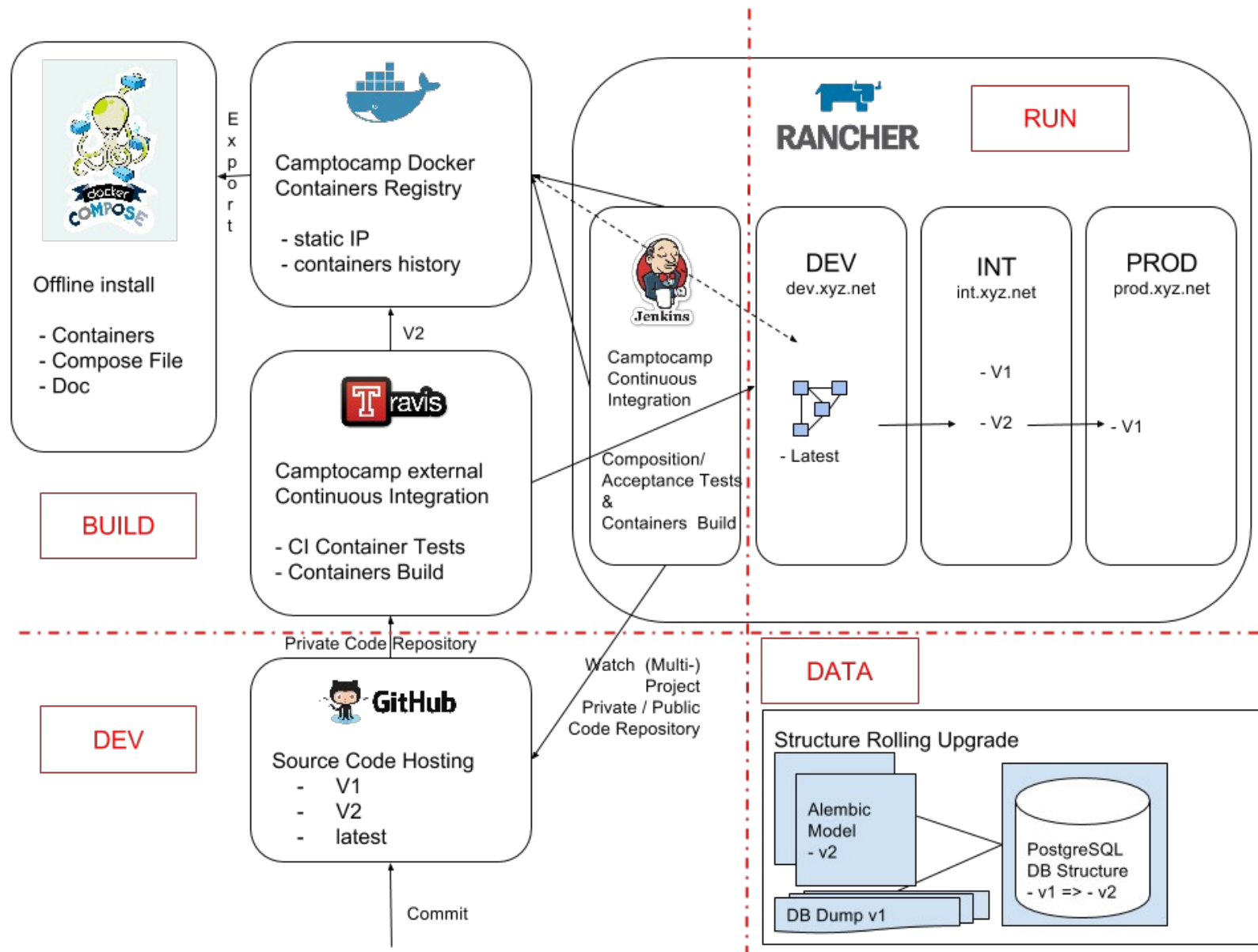
Service	IP
..containers_4	10.42.229.114
..node_4	10.42.17.43
Sidekicks	

Stack: postgis-agridea

Service	IP
..postgresql_1	10.42.162.87
..alembic_3	10.42.146.77



CI / CD Workflow



Experiences

- Complete Infrastructure on local computer
- Be sure that the same version of libraries are used
- More control and visibility on what is deployed where
- Flexibility for scaling



Danke, Merci, Thanks

[Bienvenue dans Acorda](#) > [Consultation](#) > Cultures > NE64569800 > [Saisie des données géo référencées NE64569800](#) >

Edition données géo-référencées

Parcelle

Statut	Commune	No	Nom	Zone	Affectation	SAU form A	SAU géo	Non SAU	Surface form A	Surface géo	Arbres HT	Arbres isolés	Noyers	Châtaign.
	6456 Lignières	12	CHAUDIERE 1 A	51	618 Pâturages boisés	125	124.78	0	125	124.78	0	0	0	0

Fond de plan

Cartes couleurs Photo aérienne blanc

Couches

- ☒ Parcelles culturelles de l'exploitation
- ☒ Parcelles culturelles d'autres exploitations terminées
- ☒ Exploitation
- ☐ Périmètre SAU
- ☐ Base cadastrale
- ☐ Limites de zones agricoles
- ☐ Terrains en pente
- ☐ Vignes en pente
- ☐ Photo aérienne Genève

GPX import

+
-

Recherche...

Plein écran
Dessiner
Supprimer
Snapping

i

Enregistrer
Annuler les modifications en cours
Surface : 124.78

to camp 

camp **to** camp

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BY OPEN SOURCE EXPERTS