

# A year with GeoNode in review 2020

# 2020 has been a busy year

Year: 2020, commits: 1317 (ongoing)

Year: 2019, commits: 1633

Year: 2018, commits: 1168

Year: 2017, commits: 1424

Year: 2016, commits: 510

Year: 2015, commits: 938

Year: 2014, commits: 1742

Year: 2013, commits: 2323

Year: 2012, commits: 2368

Year: 2011, commits: 807

Year: 2010, commits: 1282

# 1000+ Conversations @ gitter & Mailinglists

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## 302 closed issues

## 951 closed PRs

---

Most discussed Issue: Enable spatial Datastore (GNIP 75)

---

Most wanted feature

Running multiple Instances with Docker (?)

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# Release 3.0 and 3.1 (2020)

- o Let's check what's new in 3.0 and 3.1 release
- o Check the bottom of each slide to see who sponsored a certain feature, who implemented it, and what version contains it

Sponsor

Author

Version



# Upgrade to Python3 and Django 2.2 (GeoNode 3)

- o Important Security and performance fixes
- o Support Python 3.7+ and Django 2.2.16

# Upgrade to GeoServer 2.16.2 / 2.17.2

## Improvements and Fixes

- Support for vector custom dimensions (in addition to time and elevation)
- Allow limiting the number of concurrent jobs in the importer extension
- Default style descriptions wording improvement (as they are visible in capabilities documents)
- The REST API fixes regarding datastore and feature type handling (see notes for details)
- Fixed 100% CPU usage at idle on data directories with tens of thousands of layers
- Don't delay startup on an unresponsive cascaded WMS server
- Make GWC caching kick in also when using local workspaces along with non qualified layer names
- And various others!
- For more information check the [2.16.2](#) and [2.17.2](#) release notes.

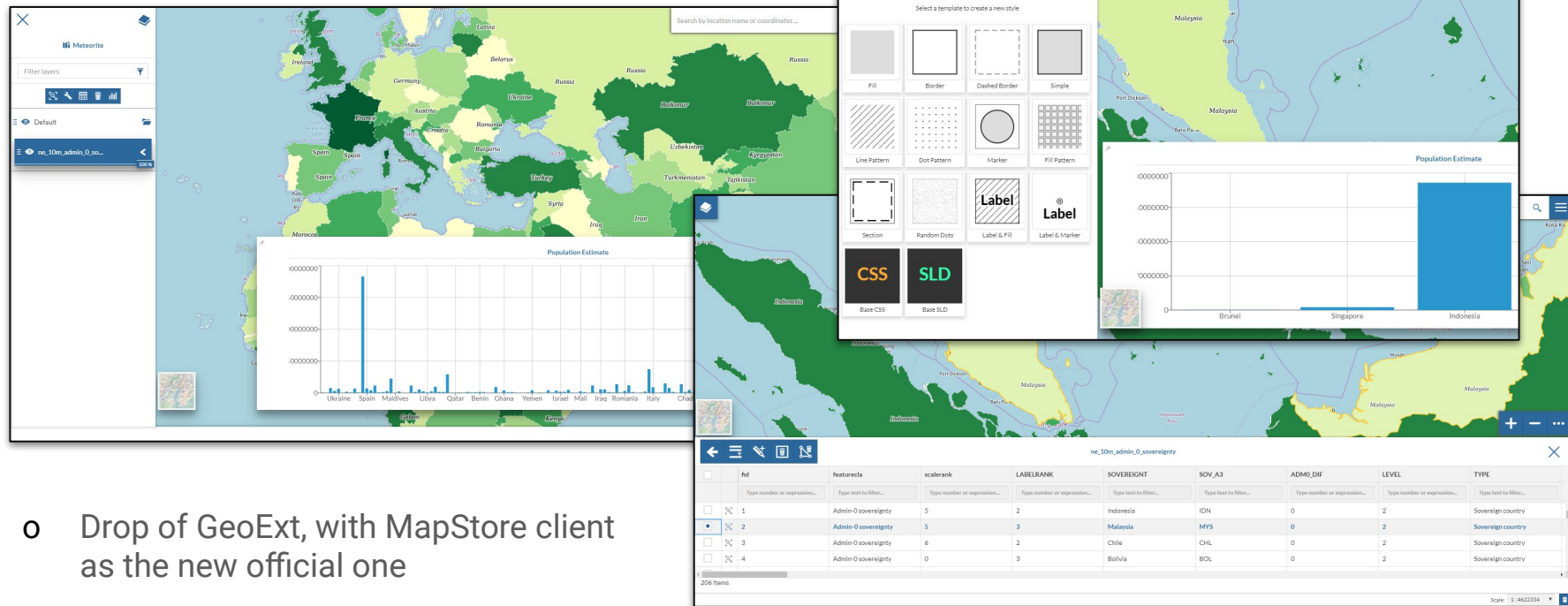
## Community Updates

- ✓ *Backup & Restore*
- ✓ *OAuth2*
- ✓ *GeoFence*

# Internationalization and Documentation

- ✓ Internationalization has been improved, we have almost 90% coverage for 5 main languages
- ✓ Added languages: Portuguese / Spanish
- ✓ Completely revised and updated Documentation:
  - GetFeatureInfo Templating For GeoNode
  - HowTo: Geonode with QGIS
  - Improve GeoNode OpenID SP Protocol in order to be able to provide access to external clients
  - Document the use of slide show in themes
  - Update Advanced Installation steps to work against Ubuntu 20.04LTS
  - Update Advanced Installation steps to work against RHEL 7.x
  - How to setup rabbitmq, supervisor and memcached in order to fully enable async workers
  - How to Upgrade from 2.10.x / 3.0

# MapStore2 Default Client



- Drop of GeoExt, with MapStore client as the new official one

# MapStore2 Client Updates

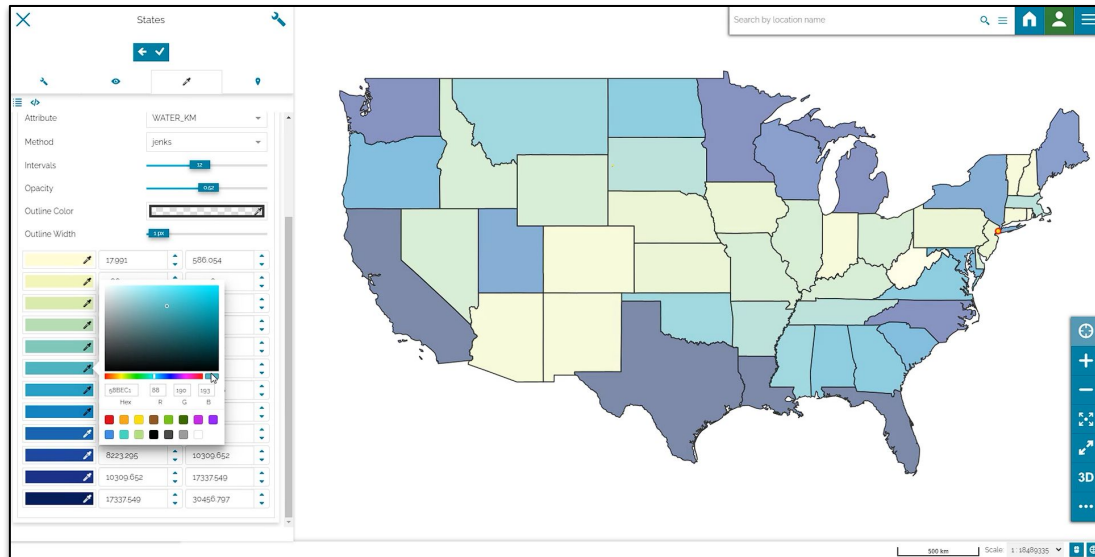
- ✓ Save Search Services to the Map
- ✓ Save Map Preferences into the adapter model
- ✓ Advanced Style Editor with graphical UI
- ✓ Improved Map Save Widget, specific for GeoNode



# Improve MapStore Styler Integration

- o Current Styler is somewhat “poor”

- ✓ *Widget based styler*
- ✓ *Vector data classifications*
- ✓ *Raster Data Classifications*
- ✓ *Well Known Markers*
- ✓ *Advanced Styling Options*



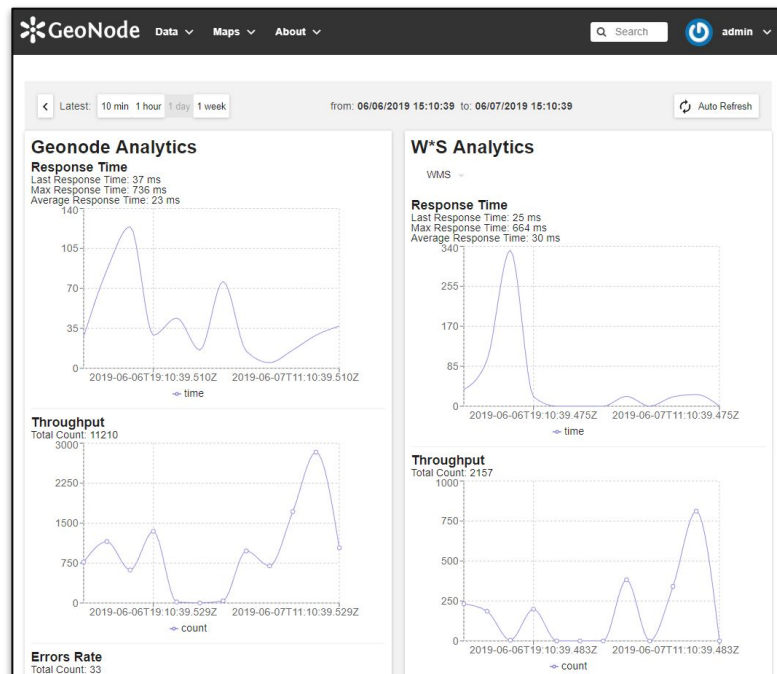
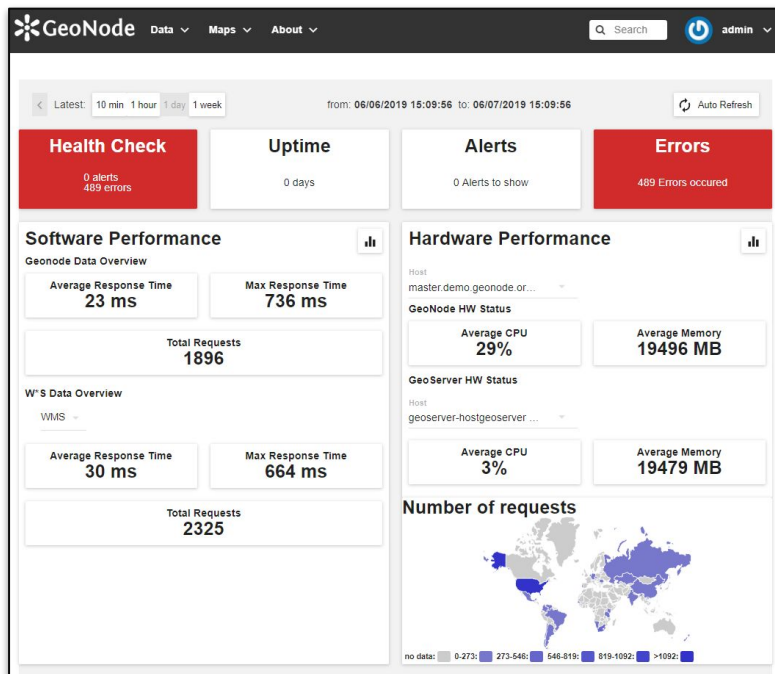
# Docker Improvements / GeoNode-Project Compose

Docker built-in

- ✓ Docker Compose installation has been simplified a lot on GeoNode-Project  
<https://docs.geonode.org/en/master/install/basic/index.html>
- ✓ The setup is also usable for Geonode development or customization.
- ✓ **Built-in GeoNode Contribs and settings**  
<https://github.com/GeoNode/geonode-contribs>
- ✓ Check out the features with “Docker built-in” label.  
Those are now included into the Docker build automatically.

# GeoNode Integrated Monitoring

Docker built-in



The World Bank

GeoSolutions

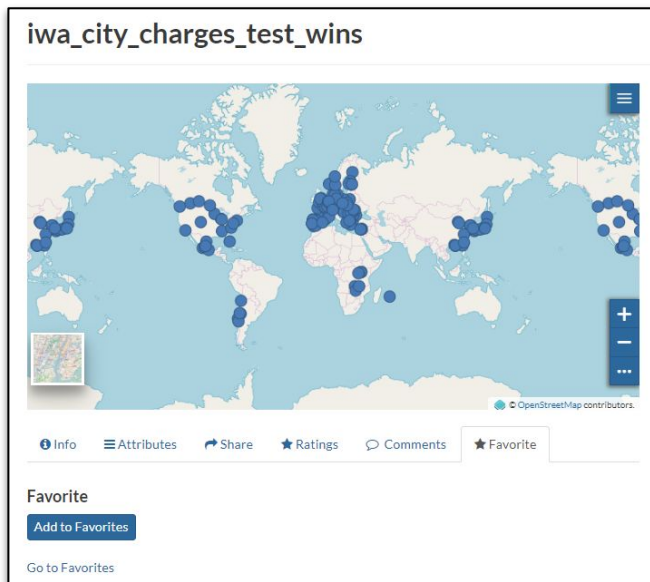
3.0



# Contrib Apps Promotion

Docker built-in

## ✓ Favorites



## ✓ EXIF support for Document Images



Community

Community

3.0



# Contrib Apps Promotion

Docker built-in



## Create Empty Layer

### Create an empty layer

Layer name

Layer title

Geometry type

Polygons

Add Attribute

FT\_NAME

String

Remove

FT\_NUM

Float

Remove

Create



## WMS GetCapabilities for single Layers

Info Attributes Share Ratings Comments Favorite

Title Test Empty Layer

License Not Specified

Abstract No abstract provided

Publication Date June 7, 2019, 9:44 a.m.

Type Vector Data

Keywords features, test\_1

Regions Global

Owner admin

More info -

Layer WMS GetCapabilities document

Community

Community

3.0



# Contrib Apps Promotion

Docker built-in



## Metadata XSL Renderer

Metadata for iwa\_city\_charges\_test\_wins

Completeness  
Check Schema mandatory fields  
75 %

Edit Preview Settings

GeoNode

**iwa\_city\_charges\_test\_wins**

Abstract: No abstract provided

Hierarchy level	dataset
Resource Identifier	
Alternative Title	
Resource Status	completed

**WHAT**

Resource Purpose	
Spatial Representation Type	
Topic Category	Environment
Keywords	Anomalia Data features iwa_city_charges_test_wins theme Global place

**WHERE**

**GEOGRAPHIC LOCATION**

North Bound	South Bound	West Bound	East Bound
-------------	-------------	------------	------------



## Original Dataset Download Link

Download Layer

Images Data

Do you want to filter it?

Pick your download format:

- GeoJSON
- Excel
- CSV
- GML 3.1.1
- GML 2.0
- Zipped Shapefile
- Original Dataset

Close

Community

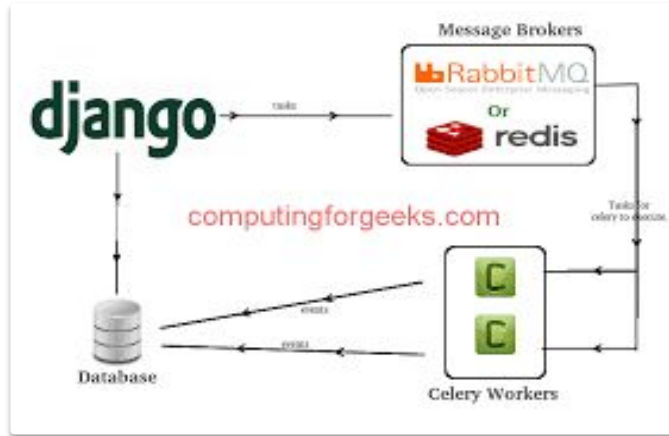
Community

3.0



# GeoNode Celery Beat and Workers

Docker built-in



[Flower 1.0.0 documentation »](#)

[next](#)

## Flower - Celery monitoring tool

Flower is a web based tool for monitoring and administrating Celery clusters

### Table Of Contents

- Features
- Screenshots
- Installation
  - Usage
- Configuration
  - Options
- Tasks filtering
  - Task filter syntax
- API Reference
- Authentication
  - HTTP Basic Authentication
  - Google OAuth 2.0
  - GitHub OAuth
- Running behind reverse proxy
- Docker Usage

### Quick search

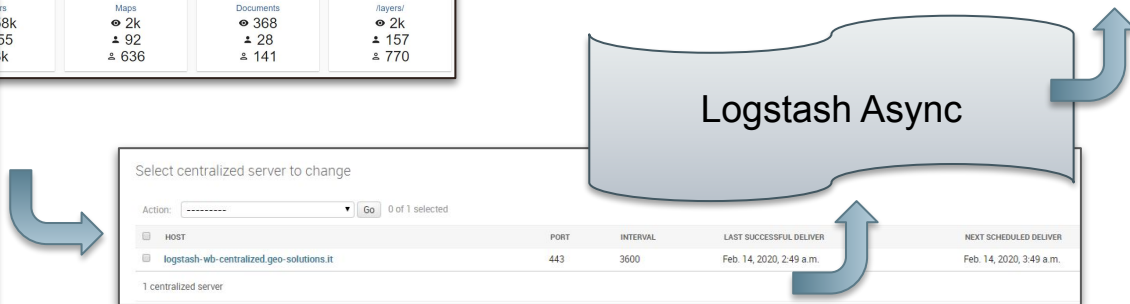
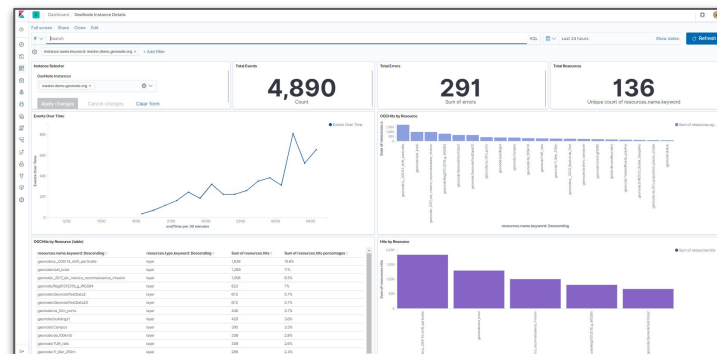
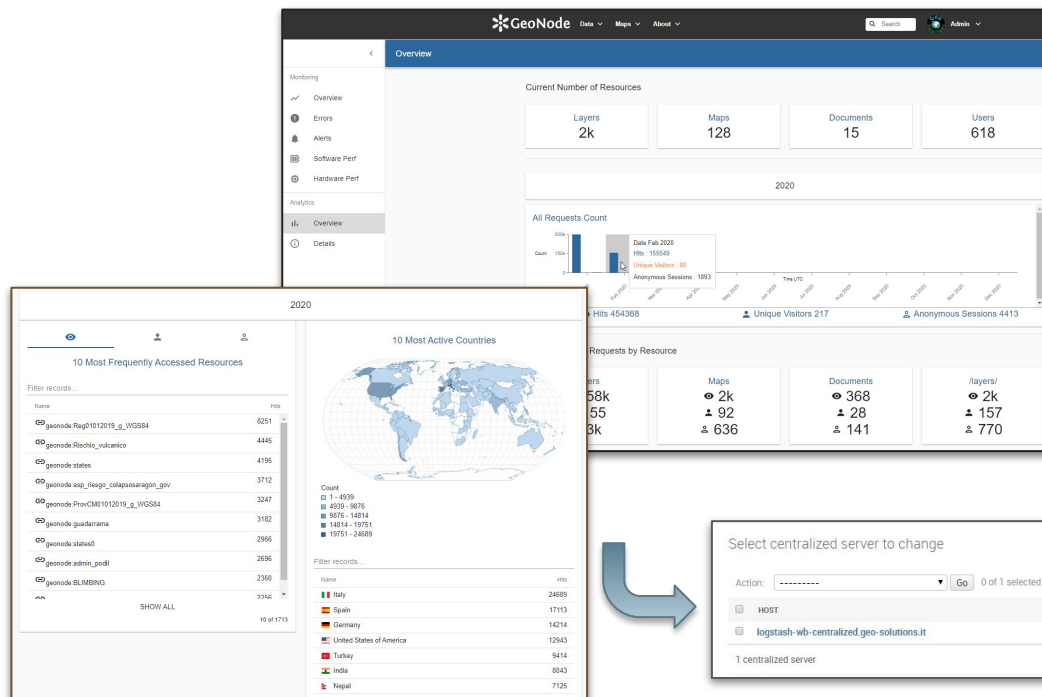
Enter search terms or a module, class or function name.

### Features

- Real-time monitoring using Celery Events
  - Task progress and history
  - Ability to show task details (arguments, start time, runtime, and more)
  - Graphs and statistics
- Remote Control
  - View worker status and statistics
  - Shutdown and restart worker instances
  - Control worker pool size and autoscale settings
  - View and modify the queues a worker instance consumes from
  - View currently running tasks
  - View scheduled tasks (ETA/countdown)
  - View reserved and revoked tasks
  - Apply time and rate limits
  - Configuration viewer
  - Revoke or terminate tasks
- Broker monitoring
  - View statistics for all Celery queues
  - Queue length graphs
- HTTP API
- Basic Auth, GitHub OAuth2 and Google OpenID authentication

# GeoNode Analytics and Centralized Dashboard

Docker built-in



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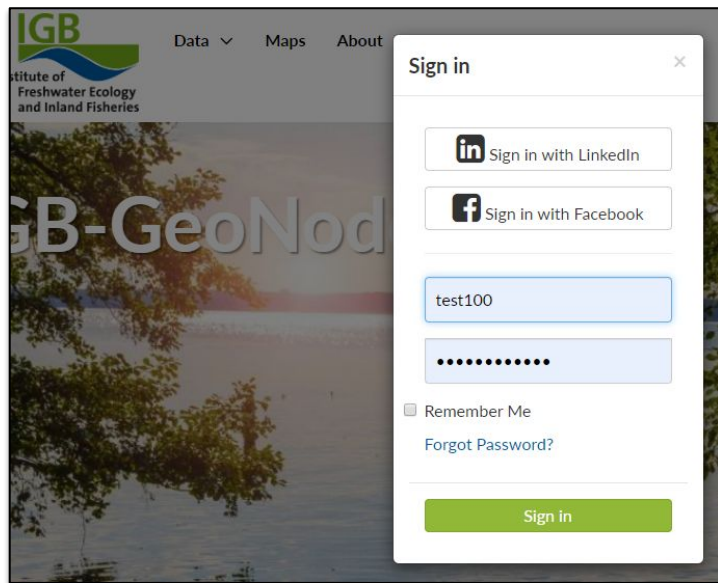
GeoSolutions

3.1






# LDAP Authentication




IGB  
Institute of  
Freshwater Ecology  
and Inland Fisheries

Data ▾ Maps About

Sign in

 Sign in with LinkedIn

 Sign in with Facebook

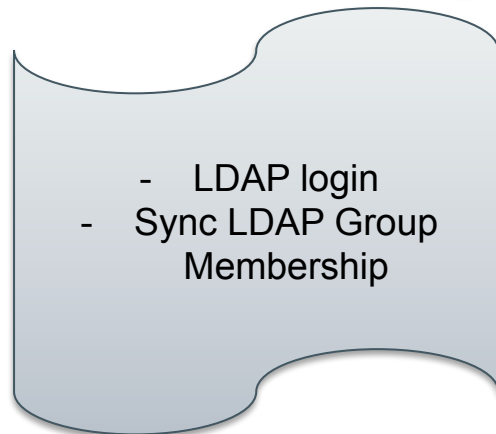
test100

.....

☐ Remember Me

[Forgot Password?](#)

Sign in



Test User (test100)



Test

Position	Not provided.
Organization	Not provided.
Location	Not provided.
Voice	Not provided.
Fax	Not provided.
Description	Not provided.
Keywords	

Explore Groups

SEARCH

Search by name

GROUP CATEGORIES

Total: 6

- abt1**  
Abteilung 1  
5 Members 1 Manager
- abt2**  
Abteilung 2  
6 Members 1 Manager
- abt3**  
Abteilung 3  
1 Member 1 Manager
- abt4**  
Abteilung 4  
1 Member 1 Manager
- abt5**

IGB

GeoSolutions  
CSGIS

3.1

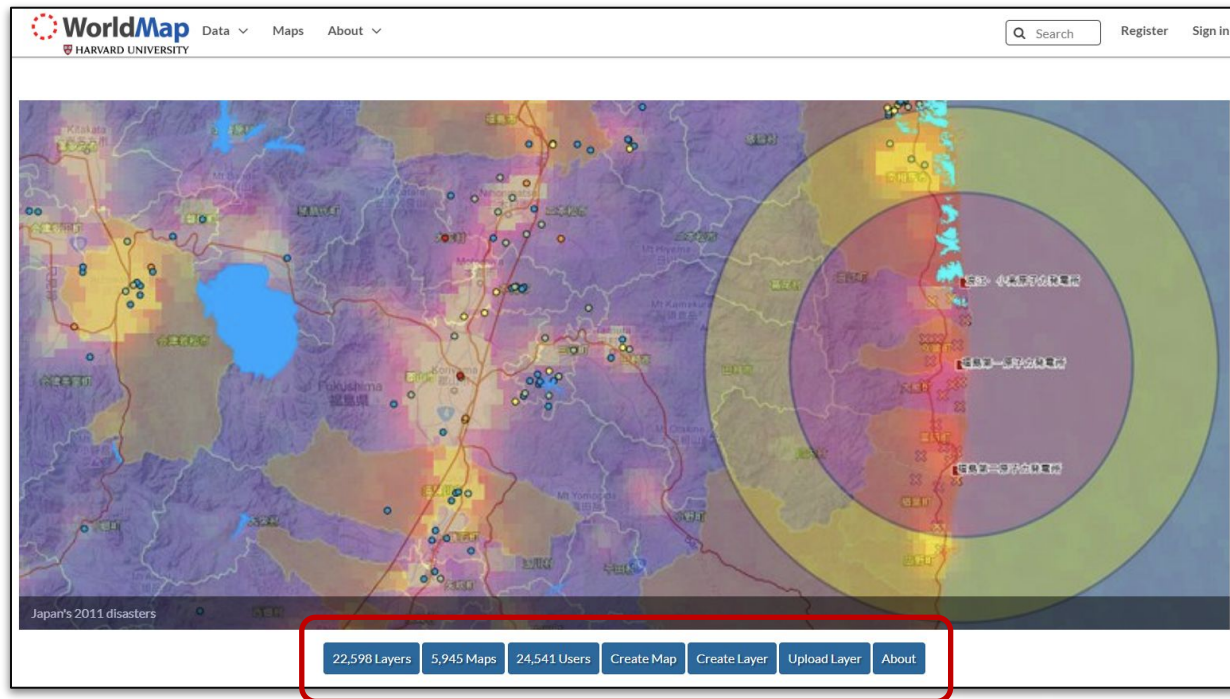


Docker built-in

# GeoNode and GeoFence Performance Optimizations

Docker built-in

- Performance improvements and hardening to support a huge number of resources and maps, 10k+ layers!
- The possibility to activate **DELAYED SECURITY** signals in order to allow GeoNode and GeoFence align asynchronously
- **DB Stored Rules**



# Full Backup/Restore - Read only Mode

Docker built-in

Select restored backup to view

NAME	RESTORATION DATE	ARCHIVE MD5	CREATION DATE
<a href="#">2020-03-19_151016.zip</a>	March 24, 2020, 1:33 p.m.	3dfdec2ac8df0ce78e2ef046bed2ef81	March 19, 2020, 3:11 p.m.
<a href="#">2020-03-19_151016.zip</a>	March 24, 2020, 12:11 p.m.	3dfdec2ac8df0ce78e2ef046bed2ef81	March 19, 2020, 3:11 p.m.

2 restored backups

- Improved Backup/Restore Management Commands
- Stores the settings used along with the archive
- Now able to check **md5** and send notifications
- Automatically puts GeoNode in “Read-only mode”
- **Docker built-in**

- Activate “Read only” and “Maintenance” modes from the Admin GUI

Django administration

WELCOME, ADMIN. [VIEW SITE](#) / [CHANGE PASSWORD](#) / [LOG OUT](#)

Home > Base > Configuration > Configuration

Change configuration HISTORY

☐ Read only

☐ Maintenance

[Save and add another](#) [Save and continue editing](#) [SAVE](#)

# Geospatial Security Restrictions (Geo-Limits)

Set permissions for this resource

People and Groups **Geo Limits**

Who can view it?

☒ Anyone

The following users:

The following groups:

Who can download it?

Who can change metadata for it?

Who can edit data for this layer?

Who can edit styles for this layer?

Who can manage it? (update, delete, change permissions, publish/unpublish it)

Cancel Apply Changes

Set permissions for this resource

People and Groups **Geo Limits**

Users Groups

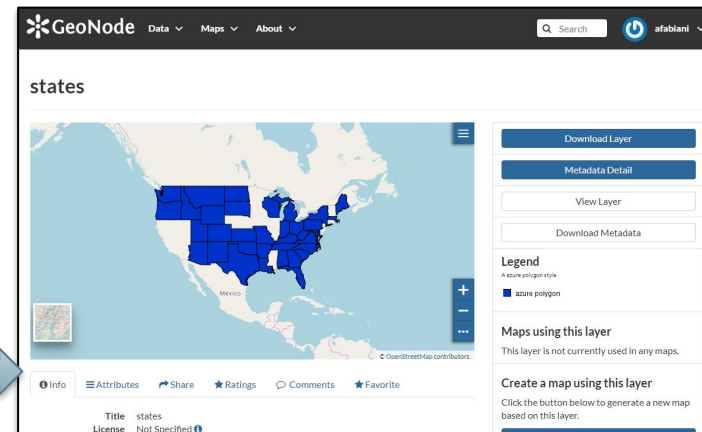
Search

AnonymousUser  
No Group

afabiani  
No Group

Save Geo Limits

Cancel Apply Changes

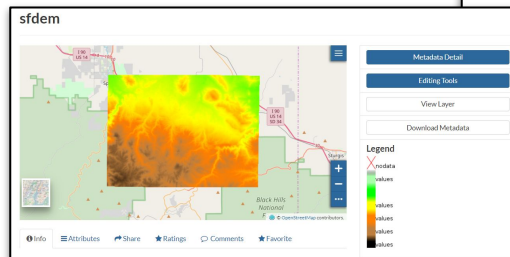


# Remote Services Improvements

Remote Services			<a href="#">Register a new Service</a>
Title	URL	Type	
GeoServer Web Map Service <sup>2</sup>	https://demo.geo-solutions.it/geoserver/wms	Web Map Service	
World Imagery <sup>1</sup>	http://server.arcgisonline.com/arcgis/rest/services/World_Imagery/MapServer	ArcGIS REST MapServer	

- o Import Legends and as much as metadata fields as possible
- o Allows remote resource filtering and exposure to the catalogue

- o Improved stability on harvesting
- o Support for more endpoints, WMS, ArcGIS REST, GeoNode OWS APIs
- o **Allow GeoServer WMS CASCADE support for unsupported projections**



Import resources		Manage
https://server.arcgisonline.com/arcgis/rest/services/world_imagery/mapserver		<a href="#">Service rescanner</a> <a href="#">Re-scan Service for new Resources</a>
5 resources can be imported		
Name	Description	
World Imagery	World Imagery	
Low Resolution 15m Imagery	Low Resolution 15m Imagery	
High Resolution 60cm Imagery	High Resolution 60cm Imagery	
High Resolution 30cm Imagery	High Resolution 30cm Imagery	
Citations	Citations	
<a href="#">Clear Filter</a> <a href="#">Back to service details</a> <a href="#">Import Resources</a>		

# GetFeatureInfo Templating For GeoNode

Metadata for Test Get Feature Info Templates

✎ Edit Preview ⚙ Settings

Check Schema mandatory fields 64%

1 2 3 4

Basic Metadata Location and Licenses Optional Metadata Dataset Attributes

Use a custom template? ☐ Off

Attribute	Label	Description	Display Order	
fid			1	
the_geom			2	
attr_type	Type		3	
attr_description	Description		4	
attr_value	Value		5	

- Label
- URL
- Image
- Video (mp4)
- Video (ogg)
- Video (webm)
- Video (3gp)
- Video (flv)

Basic Metadata Location and Licenses Optional Metadata Dataset Attributes

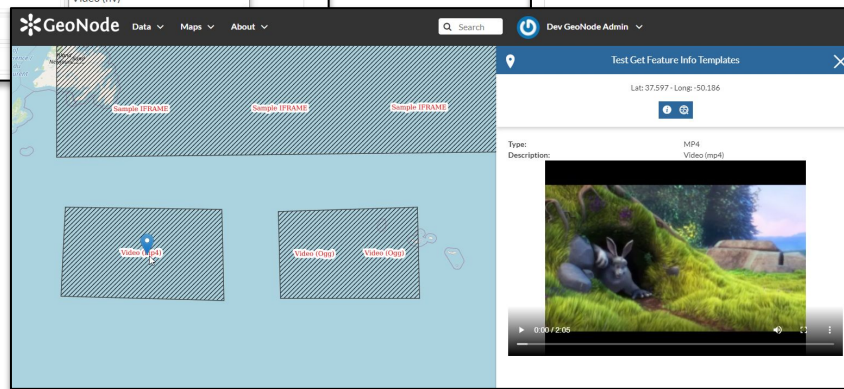
Use a custom template? ☐ On

File Edit View Insert Format Tools Table Help

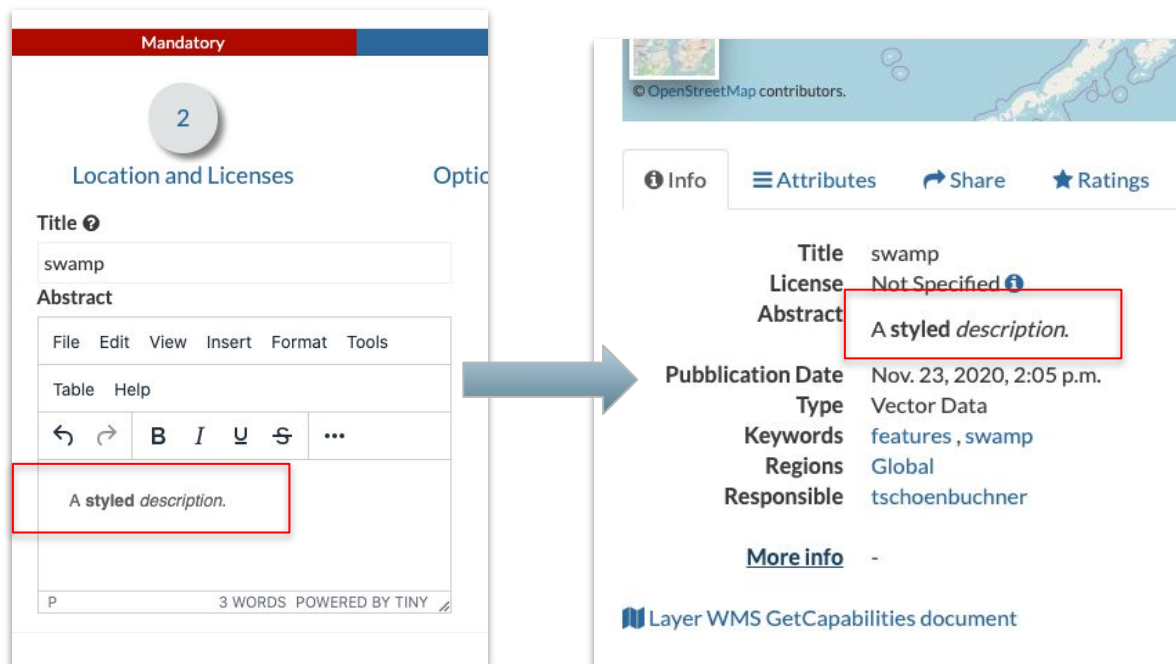
Test HTML Template

3 WORDS, POWERED BY TINY

Return to Layer << Back Update





# TinyMce wysiwyg editor for metadata fields





# Support for more media-types on documents

 Data ▾ Maps ▾ About ▾   Toni Schönbuchner ▾

## Upload Documents

[Explore Documents](#)

Allowed document types:

.txt

.log

.doc

.docx

.ods

.odt

.slid

.qml

.xls

.xlsx

.xml

.bm

.bmp

.dwg

.dxf

.fif

.gif

.jpg

.jpe

.jpeg

.png

.tif

.tiff

.pbm

.odp

.ppt

.pptx

.pdf

.tar

.tgz

.rar

.gz

.7z

.zip

.aif

.aifc

.aiff

.au

.mp3

.mpga

.wav

.afl

.avi

.avs

.fli

.mp2

.mp4

.mpg

.ogg

.webm

.3gp

.flv

.vdo

Title:

  
name by which the cited resource is known

File:

Keine ausgewählt

URL:

  
The URL of the document if it is external.

Link to:

### Permissions

Who can view it? ▾

☒ Anyone

The following users:

The following groups:

Who can download it? ▾



# QGIS Desktop 3.x+ OAuth2 auth integration

The image displays two side-by-side screenshots from the QGIS Desktop application, illustrating the steps to configure an OAuth2 connection.

**Left Window: Modify WFS Connection**

- Connection Details:** The 'Name' field is set to 'GeoNode Local' and the 'URL' field is set to 'http://localhost:8000/gs/ows'. Both fields are highlighted with a red box.
- Authentication:** The 'Basic' tab is selected. Under 'Choose or create an authentication configuration', 'GeoNode Local OAuth2 (OAuth2)' is selected. A red box highlights the '+' icon used to add a new configuration.

**Right Window: Authentication**

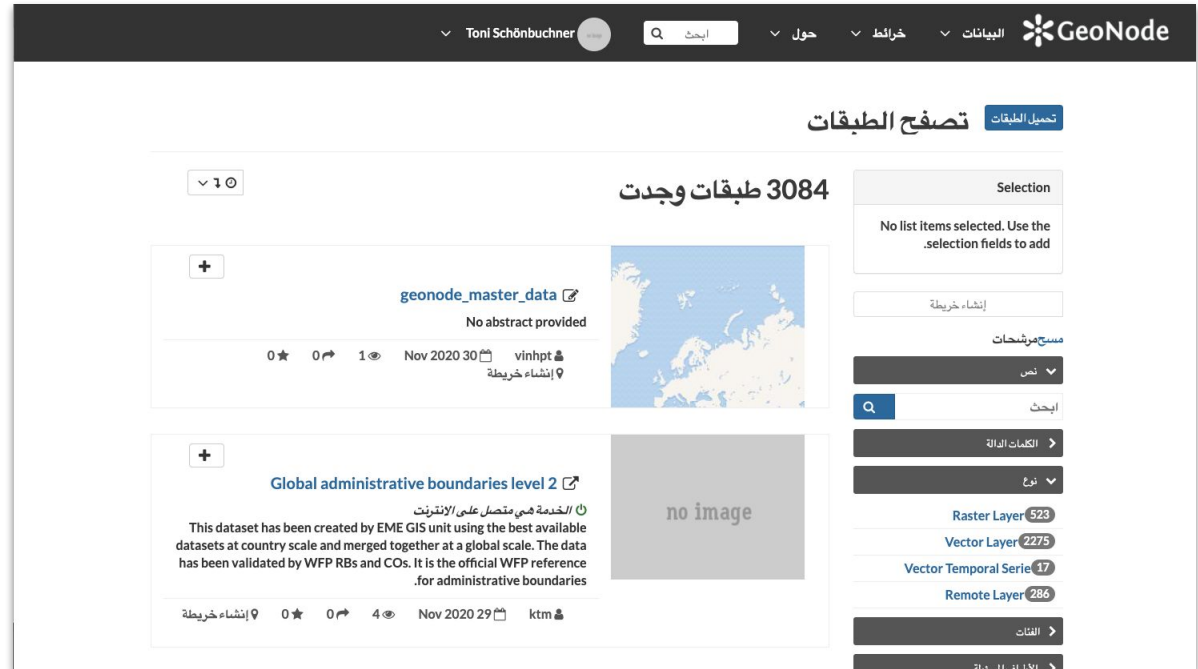
- Name:** 'GeoNode Local OAuth2' (highlighted with a red box).
- Id:** 'oap2ov0'.
- Resource:** 'Optional URL resource'.
- OAuth2 authentication:** The dropdown menu is set to 'OAuth2 authentication'.
- Grant Flow:** 'Authorization Code' is selected (highlighted with a red box).
- Description:** (Empty field).
- Request URL:** 'http://localhost:8000/o/authorize/' (highlighted with a red box).
- Token URL:** 'http://localhost:8000/o/token/' (highlighted with a red box).
- Refresh Token URL:** 'http://localhost:8000/o/token/' (highlighted with a red box).
- Redirect URL:** 'http://127.0.0.1:7070/qgis-client' (highlighted with a red box).
- Client ID:** '3rch2z0PY3akmzndmgUTYrs9gc2goV20YPSvgv' (highlighted with a red box).
- Client Secret:** A masked field (highlighted with a red box).
- Scope:** 'openid write' (highlighted with a red box).
- API Key:** 'Optional'.
- Advanced:**
  - Token Session:** 'Persist between launches' is checked (highlighted with a red box).
  - Access Method:** 'Header' (highlighted with a red box).
  - Request Timeout:** '30 seconds' (highlighted with a red box).
- Extra initial request parameters:** (Empty section).

Red arrows point from the 'URL' field in the 'Modify WFS Connection' window to the 'Request URL' field in the 'Authentication' window, and from the '+' icon to the 'Client ID' field.

[https://docs.geonode.org/en/master/usage/other\\_apps/qgis/index.html?highlight=qgis](https://docs.geonode.org/en/master/usage/other_apps/qgis/index.html?highlight=qgis)

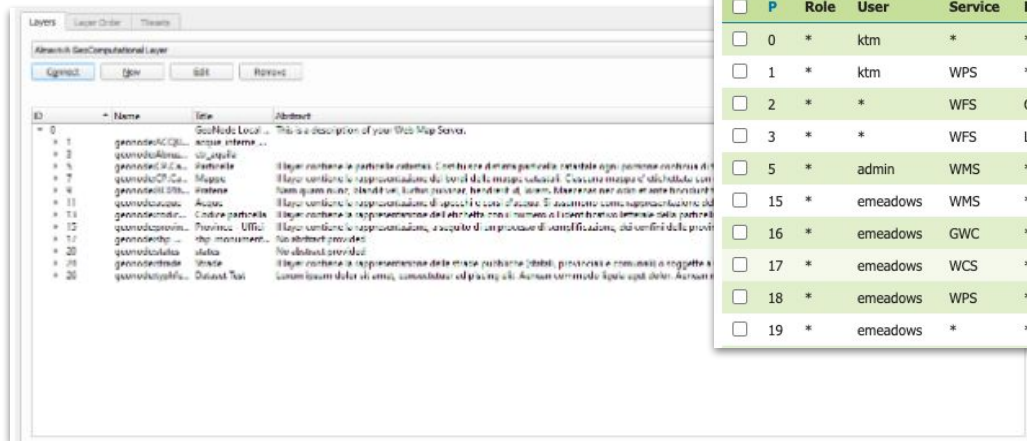
# RTL Support

- For RTL languages like Arabic



# WFS-T GeoFence rules respect edit permissions

- Important when using GeoNode with QGIS
































## GeoFence Data Rules

Configure data rules for the internal GeoFence server.

-  Add new rule
-  Remove selected rules

<< < 1 2 3 4 5 > >> Ergebnisse 1 bis 25 (von 36.040 Objekten)

<input type="checkbox"/>	P	Role	User	Service	Request	Workspace	Layer	Access	
<input type="checkbox"/>	0	*	ktm	*	*	remoteWorkspace	geonode:01_provincias	ALLOW	 
<input type="checkbox"/>	1	*	ktm	WPS	*	remoteWorkspace	geonode:01_provincias	ALLOW	  
<input type="checkbox"/>	2	*	*	WFS	GETFEATUREWITHLOCK	geonode	Boundary_State0	DENY	  
<input type="checkbox"/>	3	*	*	WFS	LOCKFEATURE	geonode	Boundary_State0	DENY	  
<input type="checkbox"/>	5	*	admin	WMS	*	remoteWorkspace	geonode:aep_2015_rurale_madagascar	ALLOW	  
<input type="checkbox"/>	15	*	emeadows	WMS	*	remoteWorkspace	1	ALLOW	  
<input type="checkbox"/>	16	*	emeadows	GWC	*	remoteWorkspace	1	ALLOW	  
<input type="checkbox"/>	17	*	emeadows	WCS	*	remoteWorkspace	1	ALLOW	  
<input type="checkbox"/>	18	*	emeadows	WPS	*	remoteWorkspace	1	ALLOW	  
<input type="checkbox"/>	19	*	emeadows	*	*	remoteWorkspace	1	ALLOW	  

# Revised/enhanced approval workflow

- The “unpublished” resources will be hidden to anonymous users only. The registered users will be still able to access the resources
- The “unpublished” resources will remain hidden to users if the permission will be explicitly removed
- During the upload, whenever the advanced workflow is enabled, the owner’s Groups are automatically allowed to access the resource, even if the “anonymous” flag has been disabled.
- During the upload, “managers” of the owner’s Groups associated to the resource, are always allowed to edit the resource, the same as they are admin for that resource
- “managers” of the owner’s Groups associated to the resource are allowed to “publish” also the resources, not only to “approve” them

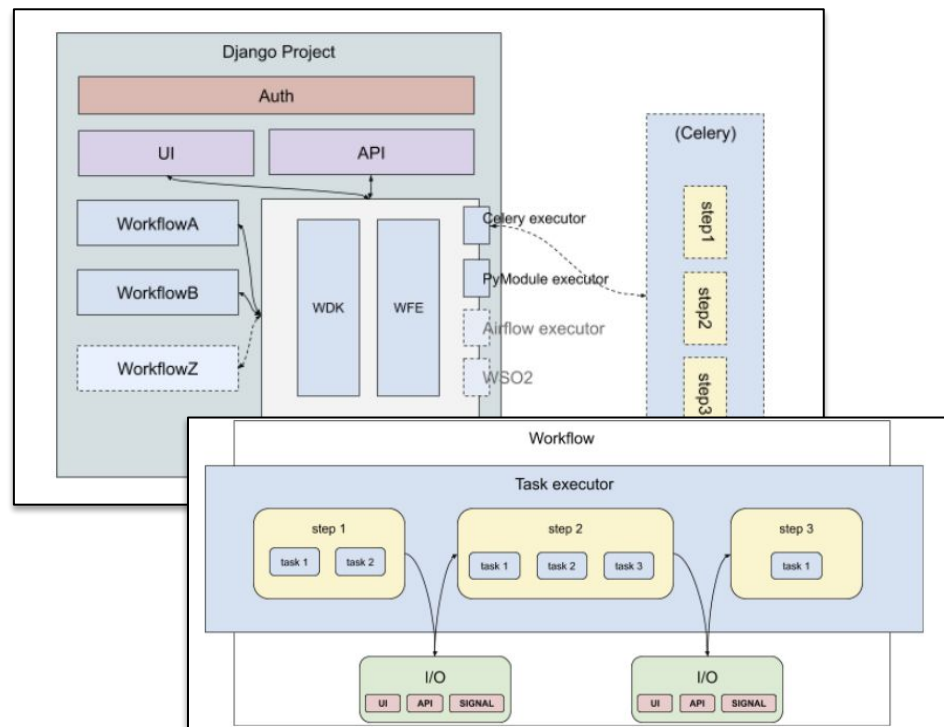
# Fixes and Improvements

- ✓ Well known 2.10 issues:
- ✓ Added "DOI" field to base metadata
- ✓ Extend resource search APIs with abstract and purpose fields
- ✓ Improved Remote Services and Metadata Fetch
- ✓ Improved Message Inbox and Messaging & Notification System
- ✓ Improved Thumbnails and Thumbnails Upload / edit before posting
- ✓ Improved Management Commands
- ✓ and many more...

Where do we go  
from here?  
2021, 2022, ...

# Integrated Workflow

- We lack the ability to execute a series of asynchronous actions as part of an upload
- ✓ Decouple upload workflow from GeoNode
- ✓ Make use of a workflow engine to expose upload APIs (e.g. <https://github.com/geosolutions-it/django-wfe>)
- ✓ Allow the users to define more complex upload workflows in order to perform {pre/post}-processing of geospatial datasets  
e.g:
  - Optimize GeoTIFFs before ingestion
  - Being able to provide DB storages connection params
  - ...



# API v2 REST pluggable module

- o What if I want to consume GeoNode from third party apps or a SPA client?

- ✓ A clean REST API for CRUD operations on GeoNode model would be nice!
- ✓ Cleaner Authentication support - OAuth2 but also proper API keys management
- ✓ OpenAPI 3.0 specification, for documentation and versioning
- ✓ GNIP-79: GeoNode REST APIs (v2)

GeoSolutions (?)  
... (?)

GeoSolutions

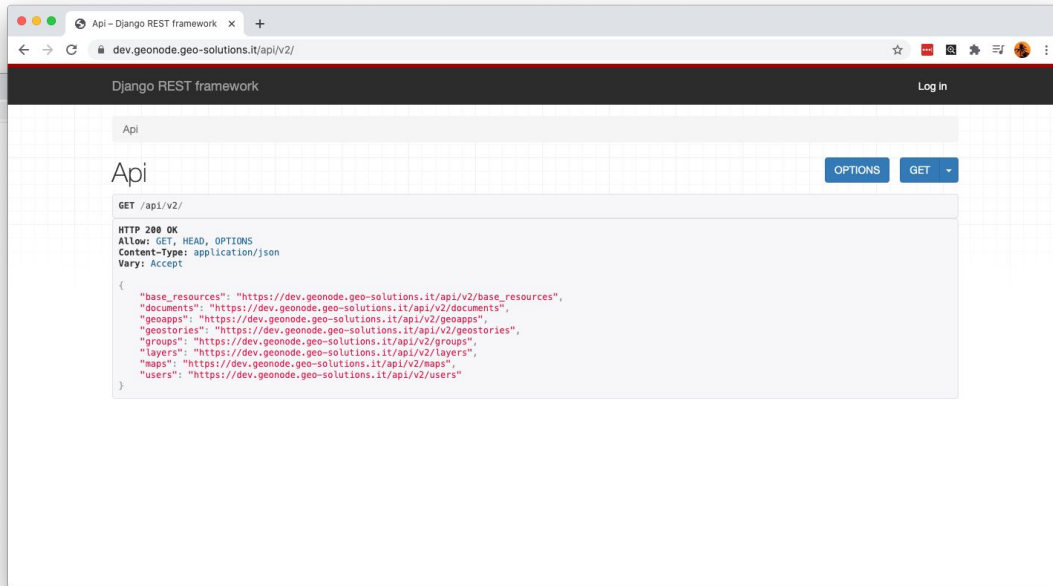
3.2





# REST API based on DRF v2 (Tastypie, v1)

```
1 // 20201130162458
2 // https://master.demo.geonode.org/api/
3
4 {
5   "base": {
6     "list_endpoint": "/api/base/",
7     "schema": "/api/base/schema/"
8   },
9   "categories": {
10    "list_endpoint": "/api/categories/",
11    "schema": "/api/categories/schema/"
12  },
13  "documents": {
14    "list_endpoint": "/api/documents/",
15    "schema": "/api/documents/schema/"
16  },
17  "featured": {
18    "list_endpoint": "/api/featured/",
19    "schema": "/api/featured/schema/"
20  },
21  "group_profile": {
22    "list_endpoint": "/api/group_profile/",
23    "schema": "/api/group_profile/schema/"
24  },
25  "groupcategory": {
26    "list_endpoint": "/api/groupcategory/",
27    "schema": "/api/groupcategory/schema/"
28  },
29  "groups": {
30    "list_endpoint": "/api/groups/",
31    "schema": "/api/groups/schema/"
32  },
33  "keywords": {
34    "list_endpoint": "/api/keywords/",
35    "schema": "/api/keywords/schema/"
36  }
37 }
```



GeoSolutions (?)  
... (?)

GeoSolutions

3.2



# Concept of a generic abstract “App” model

- ✓ Manage and share "Geo Applications" similarly to the other GeoNode entities, such as Documents, Layers and Maps.
- ✓ Such Geo Applications could be any kind of object provided by a plugged in client library, which is not a Layer nor a Map. As an instance Dashboards, GeoStories, Charts, Geospatial Analysis and so forth.
- ✓ GNIP-78: GeoNode generic "Apps" model to include pluggable entities into the framework

The image shows a screenshot of the GeoNode web application interface. The main heading is "Explore Apps". On the left, there is a sidebar with a "TYPE" dropdown menu. The "TYPE" menu is open, showing "Geostory" as the selected option, with a red box around it and a red circle containing the number "2". Below the "TYPE" menu is a "CATEGORIES" section. A red box highlights the "Create New Apps" button in the top right corner of the main content area. A dashed line connects this button to a callout box on the right. The callout box shows a "Create New Apps" dropdown menu with "GeoStory" selected. Below the callout box, there is a list of apps, including "Satellite Imagery" and "Teststory2". A red box highlights the "Satellite Imagery" app. A red line connects this box to a callout box on the right. The callout box shows a "Satellite Imagery" app card with a red box around the "Satellite Imagery" text. Below the callout box, there is a red box containing the text "1: GeoStories integration into GeoNode".

1: GeoStories integration into GeoNode

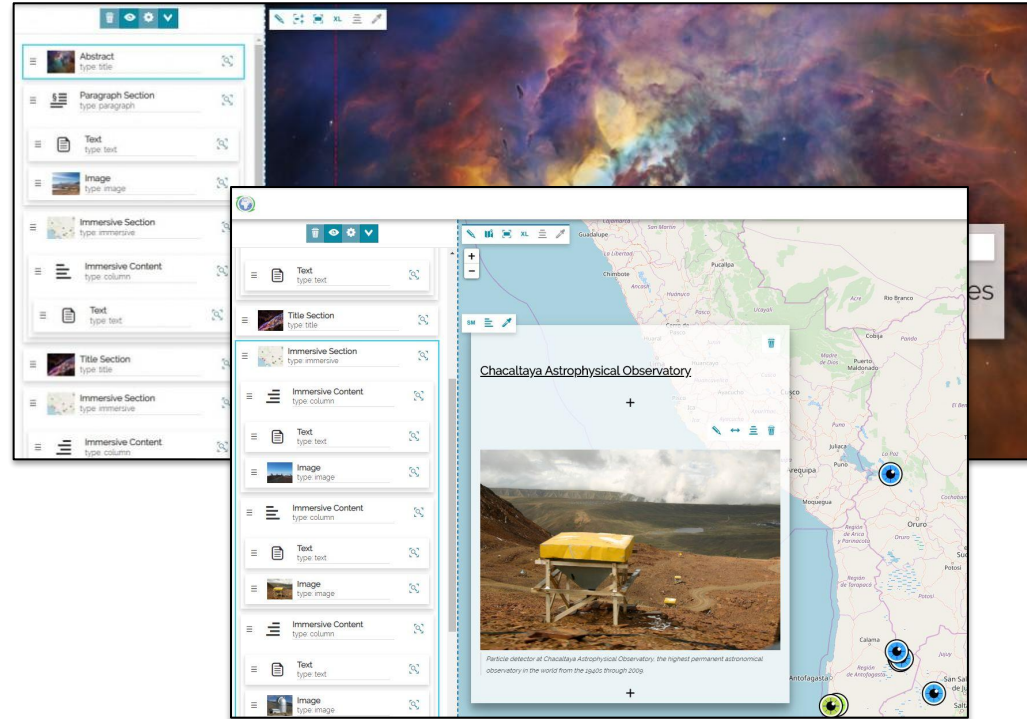
GeoSolutions

3.2

GeoNode

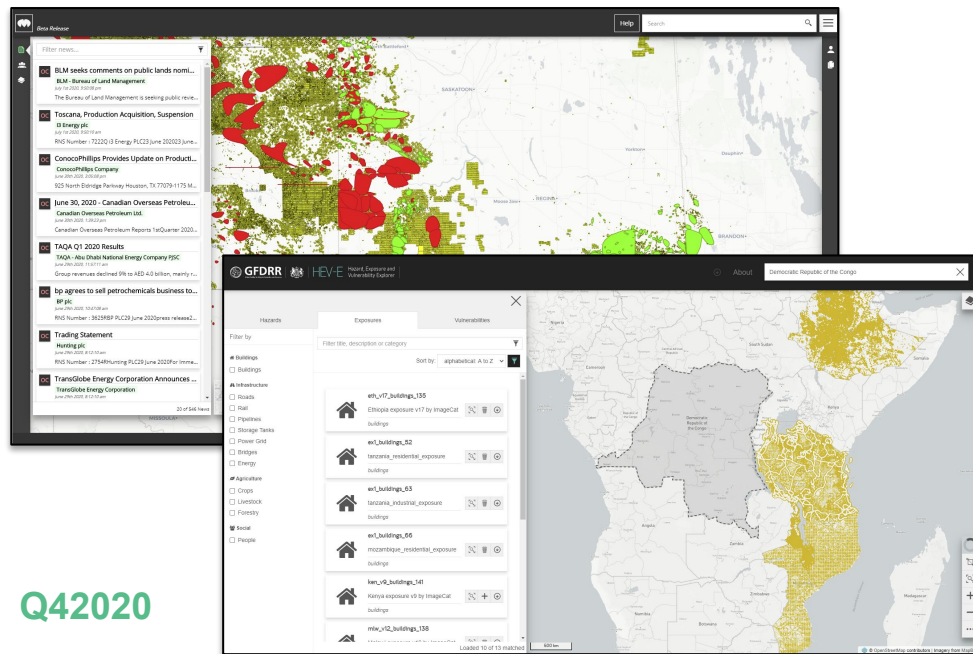
# GeoStory Integration

- o GeoSpatial Storytelling in GeoNode
- ✓ *MapStore Plugin*
- ✓ *Reuse GeoNode Layers and Resources to build Story*
- ✓ *Images, Video, Maps and so on*
- ✓ *Integrated visual editor*



# Single Page Application (SPA) for end users

- o GeoNode GUI looks “oldish” and cluttered
- ✓ MapStore based with improved layout
- ✓ Simplified UI for end users
- ✓ Improved UX with a clear distinction between end users and back-office functionalities
- ✓ Visual and functional separation between catalogue and dataviz functionalities
- ✓ Improved organization of tools, layered on multiple visual levels, depending on the user profile (end user, data owner, administrator)
- ✓ Charts, dashboards and other dataviz tools as first citizens



... (?)

GeoSolutions

3.2



# GNIP: GeoNode 4 (24 August 2017)

- Django
- Minimal core
- Behavior Driven Development
- Fresh Start
- Web UI Framework Agnostic
- API First & API Gateway
- Support for multiple data providers

<https://github.com/GeoNode/geonode-vision/blob/master/geonode-vision.md>

# GNIP: GeoNode 4 (December 2020)

- ~~Fresh Start~~
- ~~Web UI Framework Agnostic~~
- API First & API Gateway
- A Frontend based on Mapstore (Geosolutions)
- A general blog like frontend (Thünen)
- An Updated Version of GeoNode Django based Frontend with Bootstrap 4
- Combine Docker compositions (SPX+main)
- Remove QGIS Server, Leaflet Hookset, ... ?
- Improved Testing with Circle CI
- GeoApps & GeoStories
- Clustering and High Availability
- Improved/Modular Storage
- Improve Upload/Download
- Let's open the discussion

# Thanks