

GeoServer: Publishing Geospatial Data

Option GIS-Python

hes.
SO
business.

Jean-Paul Calbimonte



School of Management

Bachelor of Science HES-SO (BSc) in Business Information Technology

> GeoServer

What is GeoServer?



<https://geoserver.org/>

- open-source server for sharing geospatial data

> GeoServer



What is GeoServer?

- GeoServer is built on GeoTools, an open source Java GIS toolkit.
- OpenLayers, free mapping library integrated into GeoServer
- Publish maps for ease of use by web mapping and mobile applications.
- Modular application with additional functionality added via extensions.

> GeoServer

Open Geospatial Consortium OGC Standards



Open
Geospatial
Consortium

- Web Map Service (WMS): maps over the Internet on different formats.
- Web Feature Service (WFS): geographic information at the feature level.
- Web Coverage Service (WCS): geospatial data as “coverages”, i.e. space/time-varying phenomena
- Web Processing Service (WPS): interface to instantiate, control and monitor processing jobs



GeoServer docker installation

> Docker installation



We can modify the same docker-compose.yml used with PostGIS

```
version: "3.9"                                docker-compose.yml

services:
  db:
  ...
  ...

  web:
  ...
  ...
  ...

  pgadmin:
  ...
  ...
  ...

  geoweb:
    image: kartoza/geoserver
    environment:
      - GEOSERVER_ADMIN_USER=admin
      - GEOSERVER_ADMIN_PASSWORD=admin
    ports:
      - "8080:8080"
    depends_on:
      - db
```

> Start Geoserver and dependencies



















```
> docker-compose up
```

> Start Geoserver and dependencies

Containers [Give feedback](#)

A container packages up code and its dependencies so the application runs quickly and reliably from one computing environment to another. [Learn more](#)

Only show running containers

<input type="checkbox"/>	Name	Image	Status	Port(s)	Last started	Actions
<input type="checkbox"/>	 django	-	Running (4/4)		7 hours ago	<input type="checkbox"/> ⋮ 
<input type="checkbox"/>	 geoweb-1 8fa9dd3fbf74 	kartoza/geoserver	Running	8080:8080 	7 hours ago	<input type="checkbox"/> ⋮ 
<input type="checkbox"/>	 web-1 fe613d7395e1 	django-web	Running	8000:8000 	7 hours ago	<input type="checkbox"/> ⋮ 
<input type="checkbox"/>	 db-1 ee8256c0ac53 	postgis/postgis	Running	5432:5432 	7 hours ago	<input type="checkbox"/> ⋮ 
<input type="checkbox"/>	 pgadmin4_container 88daec0676ce 	dpage/pgadmin4	Running	5050:80 	7 hours ago	<input type="checkbox"/> ⋮ 

> Go to <http://localhost:8080/geoserver/>



Remember me

Serveur

À propos de GeoServer

Données

Prévisualisation de la couche

Demos

Bienvenue

GeoServer Web Service, anonymous a accès à 1 espaces de travail, avec 1 couches.

Ce service GeoServer appartient à `${organization}`.

WMS

WMS
1.3.0

WMS
1.1.1

GeoServer Web Map Tile Service

Predefined map tiles generated from vector data, raster data, and imagery.

TMS
1.0.0

WMS-C
1.1.1

WMTS
1.1.1

WFS

WFS
2.0.0

WFS
1.1.0

WFS
1.0.0

> Login

Compte utilisateur

Vous tentez d'accéder à une page sécurisée. Veuillez fournir vos coordonnées pour vous identifier.

Remember me

 **Se connecter**

> Create a workspace

The screenshot shows the GeoServer web interface. On the left, a sidebar menu under the heading 'Data' contains several items: 'Layer Preview', 'Workspaces' (circled in red), 'Stores', 'Layers', 'Layer Groups', and 'Styles'. The main content area is titled 'Workspaces' and includes the text 'Manage GeoServer workspaces' and two buttons: '+ Add new workspace' and '- Remove selected workspace(s)'. To the right, a 'New Workspace' dialog is open, showing the 'Basic Info' tab. The dialog contains the following fields and options:

- Name:** myspace
- Namespace URI:** myspace
- Description:** The namespace uri associated with this workspace
- Default Workspace
- Isolated Workspace
- Buttons:** Save (green), Cancel

> Create a store

Data

- Layer Preview
- Workspaces
- Stores**
- Layers
- Layer Groups
- Styles

Stores

Manage the stores providing data to GeoServer

+ Add new Store - Remove selected Stores

New data source

Choose the type of data source you wish to configure

Vector Data Sources

- CSV - Comma delimited text file
- Directory of spatial files (shapefiles) - Takes a directory of shapefiles and exposes it
- GeoPackage - GeoPackage
- PostGIS - PostGIS Database
- PostGIS (JNDI) - PostGIS Database (JNDI)
- Properties - Allows access to Java Property files containing Feature information
- Shapefile - ESRI(tm) Shapefiles (*.shp)
- Web Feature Server (NG) - Provides access to the Features published a Web Featur allowed).

Raster Data Sources

- AIG - Arc/Info Binary Grid (AIG) Coverage Format

New Vector Data Source

Add a new vector data source

PostGIS
PostGIS Database

Basic Store Info

Workspace *

myspace ▼

Data Source Name *

Description

Enabled

Auto disable on connection failure

Connection Parameters

host *

localhost

port *

5432

> Create a store

Edit Vector Data Source

Edit an existing vector data source

PostGIS

PostGIS Database

Basic Store Info

Workspace *

myspace ▾

Data Source Name *

gis

Description

Enabled

Auto disable on connection failure

Connection Parameters

host *

db

port *

5432

database

postgres

schema

public

user *

postgres

passwd







.....

Namespace *

myspace

> Create a layer


Data

-  Layer Preview
-  Workspaces
-  Stores
-  Layers
-  Layer Groups
-  Styles

Layers

Manage the layers being published by GeoServer

 Add a new layer  Remove selected layer

 Results 1 to 1 (out of 1 ite

New Layer


Add a new layer

Add layer from

You can create a new feature type by manually configuring the attribute names and types. [Create new feature type...](#)

On databases you can also create a new feature type by configuring a native SQL statement. [Configure new SQL view...](#)

Here is a list of resources contained in the store 'gis'. Click on the layer you wish to configure

 Results 0 to 0 (out of 0 items)

 Search

Published	Layer name	Action
	auth_group	Publish
	auth_group_permissions	Publish
	auth_permission	Publish
	auth_user	Publish
	auth_user_groups	Publish
	auth_user_user_permissions	Publish
	cantons	Publish
	django_admin_log	Publish
	django_content_type	Publish

> Create a layer

Edit Layer

Edit layer data and publishing

myspace:cantons

Configure the resource and publishing information for the current layer

Data Publishing Dimensions Tile Caching Security

Edit Layer

Basic Resource Info

Store Name: gis

Native Name: cantons

Name

cantons

Enabled

Advertised

Title i18n

cantons

> View a layer

Layer Preview

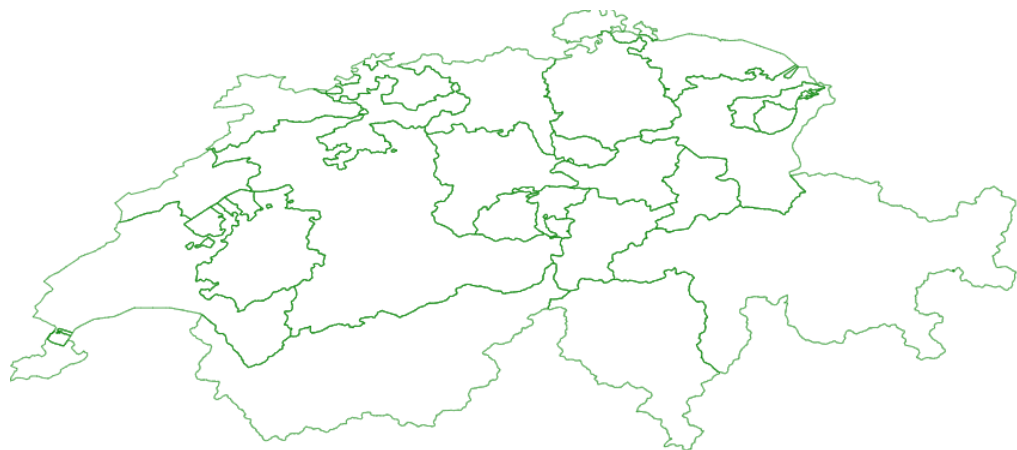
List of all layers configured in GeoServer and provides previews in various formats for each.

<< < 1 > >> Results 1 to 1 (out of 1 items)

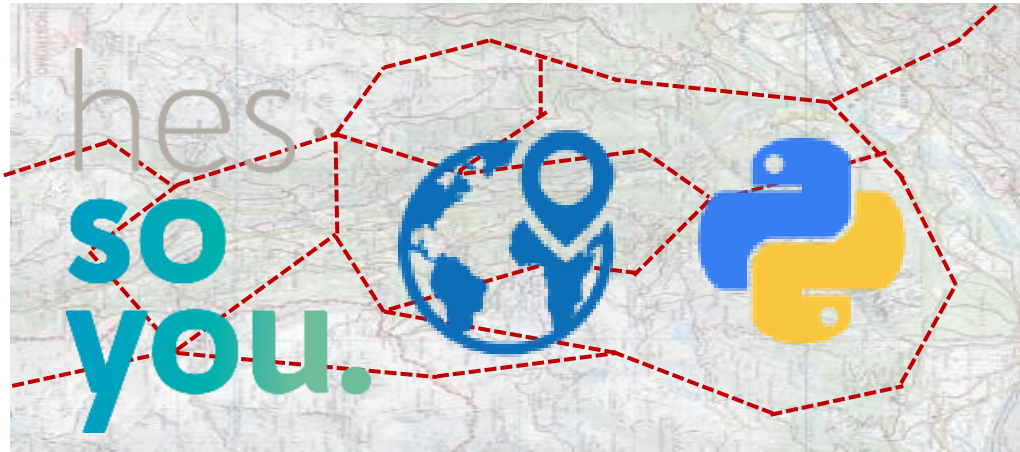
Search

Type	Title	Name	Common Formats	All Formats
	cantons	myspace:cantons	OpenLayers GML KML	Select one

<< < 1 > >> Results 1 to 1 (out of 1 items)



- Select one
- WMS**
- AtomPub
- GIF
- GeoJSON Vector Tiles
- GeoRSS
- GeoTiff
- GeoTiff 8-bits
- JPEG
- JPEG-PNG
- JPEG-PNG8
- KML (compressed)
- KML (network link)
- KML (plain)
- MapBox Vector Tiles
- OpenLayers
- OpenLayers 2
- OpenLayers 3
- PDF
- PNG



School of Management
Route de la Plaine 2
3960 Sierre

hevs.ch/heg



Thank you for your attention.

swissuniversities

