G3W-SUITE Documentation

Release dev

GIS3W Team

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INSTALLATION AND DEPLOY

G3W-SUITE is a frame-work, based on Django and written in Python language, which allows to manage in an integrated way the different components of QGIS for the realization of its own Geographic Information System and for the publication on WebGis of its own projects in a simple and intuitive way.

G3W-SUITE is entirely based on tested Open Source software components built around QGIS:

- **QGIS Desktop:** for cartographic data management, editing and realization of high quality graphic projects
- **QGIS Server:** for the publication of QGIS projects as OGC services

The current development policy provides for the compatibility of the G3W-SUITE application only with the latest LTR version of QGIS

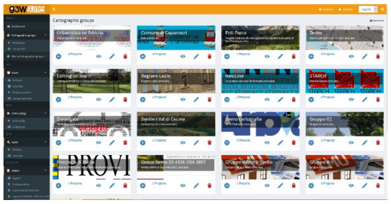
The current release (3.5) is compatible with QGIS 3.22 LTR (Server and Desktop).

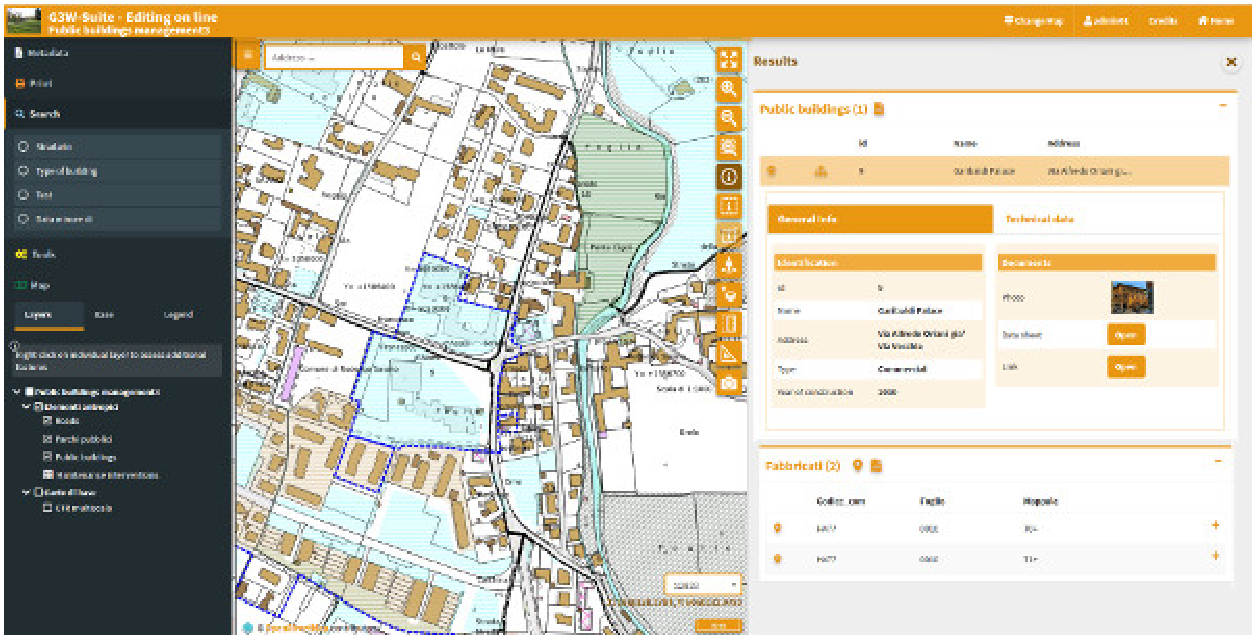
G3W-SUITE is a modular client-server application for the publication and management of QGIS cartographic projects, consisting of 3 components:

- **G3W-ADMIN:** Administration component (project management, ACL, OGC proxy server, API rest server)
- **G3W-CLIENT:** Cartographic client for consultation and interaction with OGC services
- **Front-end geographic portal:** access to information, thematic groups and WebGis services

Through the web interface of the G3W-SUITE framework it is possible to:

- **publish QGIS projects** directly on WebGis in a structured way
- **organize webgis services in thematic-functional containers** of various levels
- **manage users and groups of users** by defining each of them **different functional roles**
- **create and manage research methods**
- allow **online editing**
- activate **specific functional modules**
- **define permissions to access services and to use functional modules** at the individual user level




G3W-Suite - Editing on line
Metadata
Print
Search
Tools
Map
Layers
Base
Legend
Address ...
Results
Public buildings (1)
Id
Name
Address
General info
Technical data
Identification
Documents
Photo
Open
Open
Name
Garibaldi Palace
Type
Commercial
Fabbricati (2)

CHAPTER

ONE

RAW INSTALLATION

The following instructions are for a Ubuntu 22.04 LTS.

1.1 Install required packages

First step is install dev libraries packages for python module

```
sudo apt-get install -y \
    libxml2-dev \
    libxslt-dev \
    postgresql-server-dev-all \
    libgdal-dev \
    python3-dev
```

If you are running a ubuntu Server version is necessary to install also a XServer for the Qt libraries. Is possibile install `XVFB` a virtual framebuffer X server for X Version 11 and run it.

```
sudo apt intall -y xvfb

sudo Xvfb :99 -screen 0 640x480x24 -nolisten tcp &
export DISPLAY=:99
```

I suggest you to create a systemd service to run it on bootstrap.

1.2 Install QGIS Server

```
wget -qO - https://qgis.org/downloads/qgis-2022.gpg.key | sudo  gpg --no-default-
↪keyring --keyring gnupg-ring:/etc/apt/trusted.gpg.d/qgis-archive.gpg --import
sudo chmod a+r /etc/apt/trusted.gpg.d/qgis-archive.gpg
sudo bash -c "echo \"deb [arch=amd64] https://qgis.org/ubuntu-ltr jammy main\" >> /
↪etc/apt/sources.list"
sudo apt update && sudo apt install -y python3-qgis qgis-server
```

1.3 Installation of node.js and Yarn

G3W-ADMIN use javacript package manager **Yarn** and **Node.js**

```
sudo curl -sS https://dl.yarnpkg.com/debian/pubkey.gpg | sudo apt-key add -
echo "deb https://dl.yarnpkg.com/debian/ stable main" | sudo tee /etc/apt/sources.
↪list.d/yarn.list
sudo apt-get update && sudo apt install -y yarn
```

1.4 Create virtualenv

Install the follow python package **Virtualenv** *Virtualenvwrapper*

The following instructions are for python 3.10

Install python pip and virtualenvwrapper

```
sudo apt-get install python3-pip && sudo pip3 install virtualenvwrapper
```

Create a directory where to create environments for your virtualenvs.

```
mkdir <path_to_virtualenvs_directory>
```

To activate virtuenvwrapper on system login, add follow lines to 'bashrc' config file of your user

```
nano ~/.bashrc
....
export WORKON_HOME=<path_to_virtualenvs_directory>
export VIRTUALENVWRAPPER_PYTHON=/usr/bin/python3
source /usr/local/bin/virtualenvwrapper.sh
```

Login again with your user to activate `Virtualenvwrapper`

```
sudo su <my_ubuntu_username>
```

1.5 Virtualenv creation

To create a virtualnenv is sufficent call mkvirtualenv follow by the identification name for virtualenv (to use QGIS API into a virtualenv only solution is to give access python system site-packages to it using *–system-site-packages* option)

```
mkvirtualenv --system-site-packages g3wsuite
```

This last command just make active your new virtualenv environment, for the next times is possible use the follow command to activate the virtualenv environment:

```
workon g3wsuite
```

1.5.1 Use of native `venv` Python3

For G3W-SUITE deploy clearly can be used the native Python3 `venv` module, `virtualenvwrapper` is a third part module that render the use and management of virtual environments very simple.

1.6 Install G3W-SUITE

1.6.1 Clone code from github

```
git clone https://github.com/g3w-suite/g3w-admin.git
```

1.6.2 Set local_config.py file

G3W-ADMIN is a Django application, and to work is necessary set a config.py file. To start copy local_settings.example.py and set the databse and other:

```
cd g3w-admin/g3w-admin/base/settings
cp local_settings_example.py local_settings.py
```

set database, media root and session cookies name:

```
...

DATABASES = {
    'default': {
        'ENGINE': 'django.contrib.gis.db.backends.postgis',
        'NAME': '<db_name>',
        'USER': '<db_user>',
        'PASSWORD': '<db_user_password>',
        'HOST': '<db_host>',
        'PORT': '<db_port>',
    }
}

...

DATASOURCE_PATH = '<static_path_to_gis_data_source>'

...

MEDIA_ROOT = '<path_to_media_root>'

...

SESSION_COOKIE_NAME = '<unique_session_id>'
```

1.6.3 With paver commands

G3W-ADMIN has a series of paver CLI commands to administrate the suite. After prepared environment if sufficient invoce paver *install* task

```
paver install
```

1.6.4 Run G3W-SUITE

To run the application with paver

```
paver start
```

and for stop

```
paver stop
```

G3W-ADMIN is a django application so is possibile run app by standard django manage.py commands

```
./manage.py runserver
```

1.7 Deploy G3W-SUITE

As other Django application, G3W-SUITE can be deployed by its wsgi capabilities. On the web if simple to find tutorial for deploy a Django application.

The simpler way is to use Apache2 as server WEB and its mod_wsgi module.

Alternative solutions are:

- Apache2 + mod_proxy + Uwsgi
- Apache2 + mod_proxy + Gunicorn
- Nginx + Uwsgi
- Nginx + Gunicorn

1.8 Manual installation steps

The preferred installation is by using the `paver` script as mentioned above, but in case you need to customize the installation process, here are the build and setup steps:

1.8.1 Build static js code

```
# Install yarn (requires root):
curl -sS https://dl.yarnpkg.com/debian/pubkey.gpg | apt-key add -
echo "deb https://dl.yarnpkg.com/debian/ stable main" | \
    tee /etc/apt/sources.list.d/yarn.list
apt-get update && sudo apt install -y yarn
# Back to unprivileged user, from the repository directory, run:
yarn --ignore-engines --ignore-scripts --prod
nodejs -e "try { require('fs').symlinkSync(require('path').resolve('node_modules/
↪@bower_components'), 'g3w-admin/core/static/bower_components', 'junction') } catch␣
↪(e) { }"
```

Make sure build components are available in static and collected later

```
cd g3w-admin/core/static
ln -s "../../../node_modules/@bower_components" bower_components
```

1.8.2 Install requirements

Possibily within a virtual env:

```
pip install -r requirements.txt
pip install -r requirements_huey.txt
```

1.8.3 Django setup

```
python manage.py collectstatic --noinput
python manage.py migrate --noinput
```

Install some fixtures for EPSG and other suite options:

```
for FIXTURE in 'BaseLayer.json' 'G3WGeneralDataSuite.json' 'G3WMapControls.json'
↪'G3WSpatialRefSys.json'; do
    python manage.py loaddata  core/fixtures/${FIXTURE}
done
```

Sync menu tree items (re-run this command in case you installed optional modules and they are not visible in the admin menu tree):

```
python manage.py sitetree_resync_apps
```

1.9 Continuous integration testing

CI tests are automatically run on Github by custom actions.

The Docker compose configuration used in the CI tests is available at docker-compose.latest.yml.

The testing image is built from the dependency image and it will run all install and build steps from the local repository.

The dependency image is built from the Dockerfile.deps.

G3W-SUITE supports the latest LTR QGIS version, so at now is the 3.22, therefore there are alse dockerfiles and docker compose files for this version:

- docker-composer.322.yml
- Dockerfile.32..deps

CHAPTER

TWO

DOCKERIZATION

This repository contains scripts and recipes for deploy of the G3W-SUITE web-gis application with Docker and Docker compose .

2.1 Deploy

Follow steps to deploy G3W-SUITE on a Ubuntu Server (20.04)

2.1.1 Configuration

Create a file `.env` (or copy `.env.example` and rename it in `.env`) and place it in the main directory, the file will contain the database credentials (change `<your password>`) and other settings:

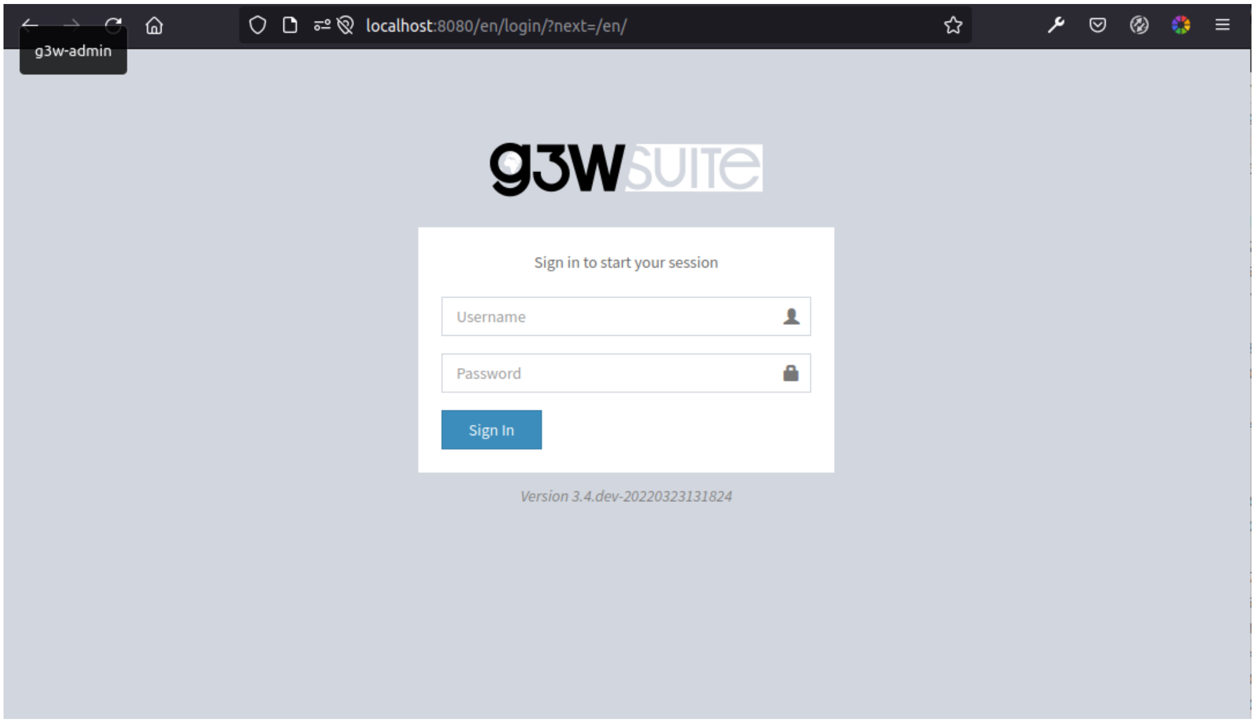
```
# External hostname, for docker internal network aliases
WEBGIS_PUBLIC_HOSTNAME=demo.g3wsuite.it/

# This volume is persistent and mounted by all
# containers as /shared-volume
WEBGIS_DOCKER_SHARED_VOLUME=/tmp/shared-volume-g3w-suite


# DB setup
G3WSUITE_POSTGRES_USER_LOCAL=g3wsuite
G3WSUITE_POSTGRES_PASS=<your_password>
G3WSUITE_POSTGRES_DBNAME=g3wsuite
G3WSUITE_POSTGRES_HOST=postgis
G3WSUITE_POSTGRES_PORT=5432
```

Description of other *environment variables* that can be used, are available on Docker environment variables

2.1.2 Run

```
docker-compose up -d
```

If all went well, G3W-SUITE run on http://localhost:8080


localhost:8080/en/login/?next=/en/
g3w-admin
g3wSUITE
Sign in to start your session
Username
Password
Sign In
Version 3.4.dev-20220323131824

2.2 G3W-SUITE with consumer image

G3W-SUITE use `huey` for bach processing (https://github.com/coleifer/huey), so if you want to use it, use `docker-compose-consumer.yml` file on deploy:

```
docker-compose -f docker-compose-consumer.yml up -d
```

2.3 Builds

Docker compose will download images from docker hub (https://hub.docker.com/u/g3wsuite), but is also possible build main image of G3W-SUITE and other docker-compose images.

2.3.1 G3W-SUITE

The main suite docker image can be built with:

```
docker build -f Dockerfile.g3wsuite.dockerfile -t g3wsuite/g3w-suite:dev --no-cache .
```

The image is build from `https://github.com/g3w-suite/g3w-admin.git --branch dev` and from a dependencies base image `Dockerfile.g3wsuite-deps.ltr.dockerfile`, the dependencies image can be built with:

```
docker build -f Dockerfile.g3wsuite-deps.ltr.dockerfile -t g3wsuite/g3w-suite-deps-
↪ltr:dev --no-cache .
```

Usually is sufficient make build of main docker image g3wsuite/g3w-suite:dev, the build of dependence image g3wsuite/g3w-suite-deps-ltr:dev is done to update last QGIS LTR version.

2.3.2 Postgis

Postgis image can be built with:

```
docker build -f Dockerfile.postgis.dockerfile -t g3wsuite/postgis:11.0-2.5 .
```

The Docker hub name for this image is `g3wsuite/postgis:11.0-2.5`

2.4 Setups

2.4.1 PG_SERVICE

To use of PostgreSql Service, put your service setups into `./scripts/pg_service.conf file`, the conf file will be mounted into docker container at runtime to PGSERVICEFILE path position.

2.4.2 HTTPS additional setup

To active https with LetsEncrypt just follow the following instructions:

- move `config/_nginx/django_ssl.conf` to `config/nginx/django_ssl.conf`
- check the domain name in the `.env` file and in `config/nginx/django_ssl.conf`
- run: `docker pull certbot/certbot`
- launch `./run_certbot.sh`
- activate 301 redirect into `config/nginx/django.conf`
- restart compose
- make sure the certs are renewed by adding a cron job with `crontab -e` and add the following line: `0 3 * * * /<path_to_your_docker_files>/run_certbot.sh`
- if you disabled HTTPS, you can move `config/nginx/django_ssl.conf` back to its original location now, and restart the Docker compose to finally enable HTTPS

2.4.3 Volumes

Data, projects, uploads and the database are stored in a shared mounted volume `shared-volume`, the volume should be on a persistent storage device and a backup policy must be enforced.

Currently, the volume is mounted in `/tmp/shared-volume-g3wsuite-dev`. In production environments it is encouraged to change this to a permanent location. This can be done by modifying the `.env` file.

2.4.4 First time setup

- log into the application web administation panel using default credentials (*admin/admin*)
- change the password for the admin user and for any other example user that may be present

2.4.5 Caching

Tile cache can be configured and cleared per-layer through the webgis admin panel and lasts forever until it is disabled or cleared.

> Tip: enable cache on linestring and polygon layers.

2.4.6 Editing

Editing module is active by default, to avoid simultaneous feature editing by two or more users, the editing module works with a feature lock system. This locking system can remain active if users do not exit the editing state correctly, to avoid this it is advisable to activate a cron job on host machine that checks the features that have been locked for more than 4 hours and frees them:

```
0 */1 * * * docker exec -e DISPLAY=:99 g3w-suite-docker_g3w-suite_1 python3 /code/g3w-
↪admin/manage.py check_features_locked
```

2.5 Front-end App

Set the environment variable

```
FRONTEND=True
```

This will set the front end app as the default app

2.6 Style customization

Templates can now be overridden by placing the overrides in the `config/g3w-suite/overrides/templates`, a Docker service restart is required to make the changes effective.

The logo is also overridden (through `config/g3w-suite/settings_docker.py` which is mounted as a volume), changes to the settings file require the Docker service to be restarted.

A custom CSS is added to the pages, the file is located in `config/g3w-suite/overrides/static/style.css` and can be modified directly, changes are effective immediately.

2.7 Performances optimization

General rules (in no particular order: they are all mandatory):

1. set scale-dependent visibility for the entire layer or for some filtered features (example: show only major roads until at scale 1:1E+6)
2. when using rule-based/categorized classification or scale-dependent visibility create indexes on the column(s) involved in the rule expression (example: "create index idx_elec_penwell_ious on elec_penwell_ious (owner);")
3. start the project with only a few layers turned on by default
4. do not turn on by default base-layers XYZ such as (Google base maps)
5. do not use rule-based/categorized rendering on layers with too many categories (example: elec_penwell_public_power), they are unreadable anyway
6. enable redering simplification for not-point layers, set it to `Distance 1.2` and check `Enable provider simplification if available`

2.8 PostgreSQL administration

Postgres is running into a Docker container, in order to access the container, you can follow the instruction below:

2.8.1 Check the container name

```
$ docker ps | grep postgis
84ef6a8d23e6        g3wsuite/postgis:11.0-2.5       "/bin/sh -c /docker-..."   2 days␣
↪ago           Up 2 days           0.0.0.0:5438->5432/tcp           g3wsuitedocker_
↪postgis_1
```

In the above example the container name is `g3wsuitedocker_postgis_1`

2.8.2 Log into the container

```
$ docker exec -it g3wsuitedocker_postgis_1 bash
```

2.8.3 Become postgres user

```
root@84ef6a8d23e6:/# su - postgres
```

2.8.4 Connect to postgis

```
postgres@84ef6a8d23e6:~$ psql
psql (11.2 (Debian 11.2-1.pgdg90+1))
Type "help" for help.

postgres=#
```

2.9 Portainer usage

Portainer (https://www.portainer.io) is a docker-based web application used to edit and manage Docker applications in a simple and intuitive way.

Plese refer to the Add new stack section to learn how to deploy the `docker-compose-consumer.yml` stack with Portainer (>= v2.1.1).

2.9.1 Contributors

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CHAPTER

THREE

DOCKER ENVIRONMENT VARIABLES

The following environment variables used to deploy G3W-SUITE by docker (https://github.com/g3w-suite/g3w-suite-docker).

They must added to `.env` deploy file.

3.1 Requirements variables

3.1.1 `WEBGIS_PUBLIC_HOSTNAME`

The domain to which the application will respond.

3.1.2 `WEBGIS_DOCKER_SHARED_VOLUME`

The path on which the docker permanent volume will be mounted with the application data inside.

Database connections parameters

The follow variables re for set the connection to G3W-SUITE administration database.

3.1.3 `G3WSUITE_POSTGRES_USER_LOCAL`

Database username to connect to G3W-SUITE database. If you are going to use docker postgis image, it'll be created on first run of container.

3.1.4 `G3WSUITE_POSTGRES_PASS`

Database username password to connect to G3W-SUITE database. If you are going to use docker postgis image, it'll be created on first run of container.

3.1.5 `G3WSUITE_POSTGRES_DBNAME`

Database name of G3W-SUITE database connect to. If you are going to use docker postgis image, it'll be created on first run of container.

3.1.6 `G3WSUITE_POSTGRES_HOST`

Database host value connect to. If you are going to use docker postgis image, it'll be set to *postgis*

3.1.7 `G3WSUITE_POSTGRES_PORT`

Database port value connect to. If you are going to use docker postgis image, it'll be set to *5432*

3.2 Other not required settings

3.2.1 `TILESTACHE_CACHE_TOKEN`

A custom unique token to use for internal caching request. Default value is : *374h5g96831hsgetvmkdel*.

3.2.2 `TILESTACHE_CACHE_BUFFER_SIZE`

Tile width/height tile map dimension. Default value is: *256*.

3.2.3 `G3WSUITE_TILECACHE_PATH`

Internal path to folder to save tiles of map. Dafault value is: */shared-volume/tile_cache/*.

Gunicorn settings

G3W-SUITE with docker is deployed with Gunicorn.

3.2.4 `G3WSUITE_GUNICORN_NUM_WORKERS`

Number of workers Gunicorn has to start with. Default: *8*. Usually then number of workers is equal to number of processor x 2.

3.2.5 `G3WSUITE_GUNICORN_MAX_REQUESTS`

Number of requests after that gunicorn worker restart. Default: *200*. Thi is used to compensate the python/gunicorn memory leaks.

QGIS server variables

Every QGIS environment variables available as specified on manual https://docs.qgis.org/3.22/en/docs/server_manual/config.html#environment-variables can be set, important is remember to add thy to *docker-compose.yml* o *docker-compose-consument.yml*.

The following varaible are just set into docker-compose files:

3.2.6 `PGSERVICEFILE`

Put your pg services into *./scripts/pg_service.conf file*, the conf file will be mounted into docker container at runtime to PGSERVICEFILE path position.

3.2.7 `QGIS_SERVER_LOG_FILE`

3.2.8 `QGIS_SERVER_LOG_LEVEL`

Openrouteservice

3.2.9 `ORS_API_ENDPOINT`

Openrouteservice API end point. Default: 'https://api.openrouteservice.org/v2'.

3.2.10 `ORS_API_KEY`

Openrouteservice API key Optional, can be blank if the key is not required by the endpoint

3.2.11 `ORS_MAX_RANGES`

Max number of ranges (it depends on the server configuration) Default: 6.

3.2.12 `ORS_MAX_LOCATIONS`

Max number of locations(it depends on the server configuration) Default: 2.

Frontend module

3.2.13 `FRONTEND`

If *true* install and activate G3W-SUITEfrontend module https://github.com/g3w-suite/g3w-admin-frontend

CHAPTER

FOUR

SETTINGS

The following variables can be added to or edited in the project's `local_settings.py`:

4.1 Base settings

4.1.1 `G3WADMIN_PROJECT_APPS`

Custom django map server module other than *qdjango* (QGIS-Server provider)

4.1.2 `G3WADMIN_LOCAL_MORE_APPS`

Custom django modules that is possible to add, i.e. `g3w-admin-frontend` (https://github.com/g3w-suite/g3w-admin-frontend) module and other third part django modules. G3W-SUITE accessory modules:

- `g3w-admin-frontend` (https://github.com/g3w-suite/g3w-admin-frontend)
- `caching`
- `filemanager`
- `editing`

4.1.3 `DATASOURCE_PATH`

Path to geo data directory (shp, Spatialite, raster, etc..).

4.1.4 `G3WFILE_FORM_UPLOAD_FORMATS`

List of formats file that *file form ajax uploader* can manage at global level. Default is *['qgs', 'qgz', 'png', 'jpg', 'jpeg', 'pdf', 'doc', 'docx', 'xls', 'xlsx', 'ods']*

Important: Last part of path could be common with QGIS project datasource path. I.e.:

QGIS project: <datasource>/<path>/<to>/**project_data/**<geodata>.shp</datasource>

local_settings.py: DATASOURCE_PATH = /<local_server_<path>/<to>/**project_data**

Mandatory.

4.1.5 `G3WADMIN_VECTOR_LAYER_DOWNLOAD_FORMATS`

Default is *['shp', 'xls']*, set download data format. Values possible:

- *shp*: download into Esri Shape format.
- *xls*: download into Excel format
- *gpx*: download into GPS format (only for Point and Line layers)

4.1.6 `RESET_USER_PASSWORD`

Default is *False*, set tot *True* to activate reset user password by email workflow. If set to True remember to set Django emailing settings (https://docs.djangoproject.com/en/2.2/topics/email/).

4.1.7 `CLIENT_OWS_METHOD`

Default is *'GET'*, set to *'POST'* to change default http call method.

4.2 Frontend portal setting

4.2.1 `FRONTEND`

Default is `False`, set to `True` for activate **G3W-SUITE** frontend portal like `g3w-admin-frontend`. If it's set to `True` base url path for G3W-SUITE admin section become */admin/*.

4.2.2 `FRONTEND_APP`

Module name added to `G3WADMIN_LOCAL_MORE_APPS` to use as *portal-frontend*. I.e.:

```
G3WADMIN_LOCAL_MORE_APPS = [
    ...
    'frontend',
    ...
]

FRONTEND = True
FRONTEND_APP = 'frontend'
```

4.3 General layout settings

4.3.1 `G3WSUITE_POWERD_BY`

Default is `True`, set to `False` for don't show bottom *attribution* informations.

4.3.2 `G3WSUITE_CUSTOM_STATIC_URL`

A custom url from to load custom static files as images, css, etc..

4.3.3 `G3WSUITE_MAIN_LOGO`

Main admin section logo image. Mandatory is set `G3WSUITE_CUSTOM_STATIC_URL`

4.3.4 `G3WSUITE_RID_LOGO`

Main admin section reduced logo image. Mandatory is set `G3WSUITE_CUSTOM_STATIC_URL`

4.3.5 `G3WSUITE_LOGIN_LOGO`

Login logo image. Mandatory is set `G3WSUITE_CUSTOM_STATIC_URL`

4.3.6 `G3WSUITE_CUSTOM_TITLE`

G3W-SUITE html page title. If is not set, title is: *g3w-admin* for admin section and *g3w-client* for webgis client.

4.3.7 `G3WSUITE_FAVICON`

Favorite icon image. Mandatory is set `G3WSUITE_CUSTOM_STATIC_URL`

4.3.8 `G3WSUITE_CUSTOM_CSS`

A list of custom css files added to *admin* pages and to the *client*. Mandatory is set `G3WSUITE_CUSTOM_STATIC_URL`. I.e.:

```
G3WSUITE_CUSTOM_CSS = [
    G3WSUITE_CUSTOM_STATIC_URL +'css/custom.css'
]
```

4.3.9 `G3WSUITE_CUSTOM_JS`

A list of custom js files added to *admin* pages and to the *client*. Mandatory is set `G3WSUITE_CUSTOM_STATIC_URL`. I.e.:

```
G3WSUITE_CUSTOM_JS = [
    G3WSUITE_CUSTOM_STATIC_URL +'js/custom.js'
]
```

4.4 Client layout settings

4.4.1 `G3W_CLIENT_SEARCH_TITLE`

Custom webgis client *search* section title.

4.4.2 `G3W_CLIENT_SEARCH_ENDPOINT`

Search url endpoint for 'searches calling', default *ows*.

- *ows*: by wms search;
- *api*: by g3w-suite layer vector API.

4.4.3 `G3W_CLIENT_HEADER_CUSTOM_LINKS`

A list of dict of custom links to add into main top bar of webgis client. I.e.:

```
G3W_CLIENT_HEADER_CUSTOM_LINKS = [
     {
         'url': 'https://gis3w.it',
         'title': 'Gis3W company',
         'i18n': True, #(False as default value)
         'target': '_blank'
         'img': 'https://gis3w.it/wp-content/uploads/2016/10/logo_qgis-1-100x100.png?
↪x22227'
     },
     {
        'title': 'Modal 1',
        'content': '<p>Html example content to show in modal</p>',
        'type': 'modal',
        'position': 10
    },
]
```

i18n (optional) set True if you want lent client try to translate title.

4.4.4 `G3W_CLIENT_LEGEND`

A dict to customize **QGIS-server** legend image generate with WMS *GetLegendGraphics* request. I.e.:

```
G3W_CLIENT_LEGEND = {
   'color': 'red',
   'fontsize': 8,
   'transparent': True,
   'boxspace': 4,
   'layerspace': 4,
   'layertitle': True,
   'layertitlespace': 4,
   'symbolspace': None,
   'iconlabelspace': 2,
   'symbolwidth': 8,
   'symbolheight': 4
}
```

4.4.5 `G3W_CLIENT_RIGHT_PANEL`

Custom properties settings for webgis right panel section (default, width 33%). A the moment only *width* is managed. I.e.:

```
G3W_CLIENT_RIGHT_PANEL = {
    'width': 33
}
```

4.4.6 `G3W_CLIENT_NOT_SHOW_EMPTY_VECTORLAYER`

Default is `False`. Set to `True` for remove from webgis TOC vector layer empty, without data.

4.5 Editing settings

Settings params for `editing` module.

4.5.1 `EDITING_SHOW_ACTIVE_BUTTON`

Default is `True`. Set to `False` for not show editing button activate/deactivate into layers project list.

4.5.2 `EDITING_ANONYMOUS`

Default is `False`. Set to `True` to render possible give to *anonymous user* editing permissions.

4.5.3 `EDITING_LOGGING`

Default is `False`. Set to `True` to log users editing action into database.

4.6 Caching settings

Settings params for `caching` module

4.6.1 `TILESTACHE_CACHE_NAME`

A name to identify caching

4.6.2 `TILESTACHE_CACHE_TYPE`

Default is `Disk` to save tile on a disk. Set to `Memcache` for to use *Memcached* caching framework (https://www.memcached.org/)

4.6.3 `TILESTACHE_CACHE_DISK_PATH`

Path to disk space where to save tile created by tilestache if `TILESTAHCE_CACHE_TYEPE` is se to `Disk`.

4.6.4 `TILESTACHE_CACHE_TOKEN`

Mandatory, strign to use as token for internal WMS call for caching module.

4.7 Filemanger settings

Settings params for `filemanager` module.

4.7.1 `FILEMANAGER_ROOT_PATH`

Mandatory, path to disk space where to CRUD geo data files i.e. Shp Raster, etc.

4.7.2 `FILEMANAGER_MAX_UPLOAD_N_FILES`

Default is 5, max number files to upload simultaneously.

4.8 Qplotly settings

4.8.1 `LOAD_QPLOTLY_FROM_PROJECT`

Default is `False`, set to `True` to import DataPlotly settings from QGIS project.

4.9 Openrouteservice settings

4.9.1 `ORS_API_ENDPOINT`

Default is `http://localhost:8080/ors/v2/`, this is the endpoint for Openrouteservice API.

4.9.2 `ORS_API_KEY`

Openrouteservice API key, optional, can be blank if the key is not required by the endpoint.

4.9.3 `ORS_PROFILES`

List of available Openrouteservice profiles, default: `("driving-car", "driving-hgv")`

4.10 Vendors settings

Settings variables about third part services, i.e. Google API etc..

4.10.1 `VENDOR_KEYS`

A list with services API keys. I.e.:

```
VENDOR_KEYS = {
 'google': 'fhgnrjwipòflsjhjjdhjdhashhabs',
 'bing': 'agbsgtrkADgstejaaklkklkds8irncdfk'
}
```

At the moment only *Google* and *Bing* services are supported, for background base map and for google geoconding service plus of *Nominatim* default service.

CHAPTER

FIVE

INTRODUCTION

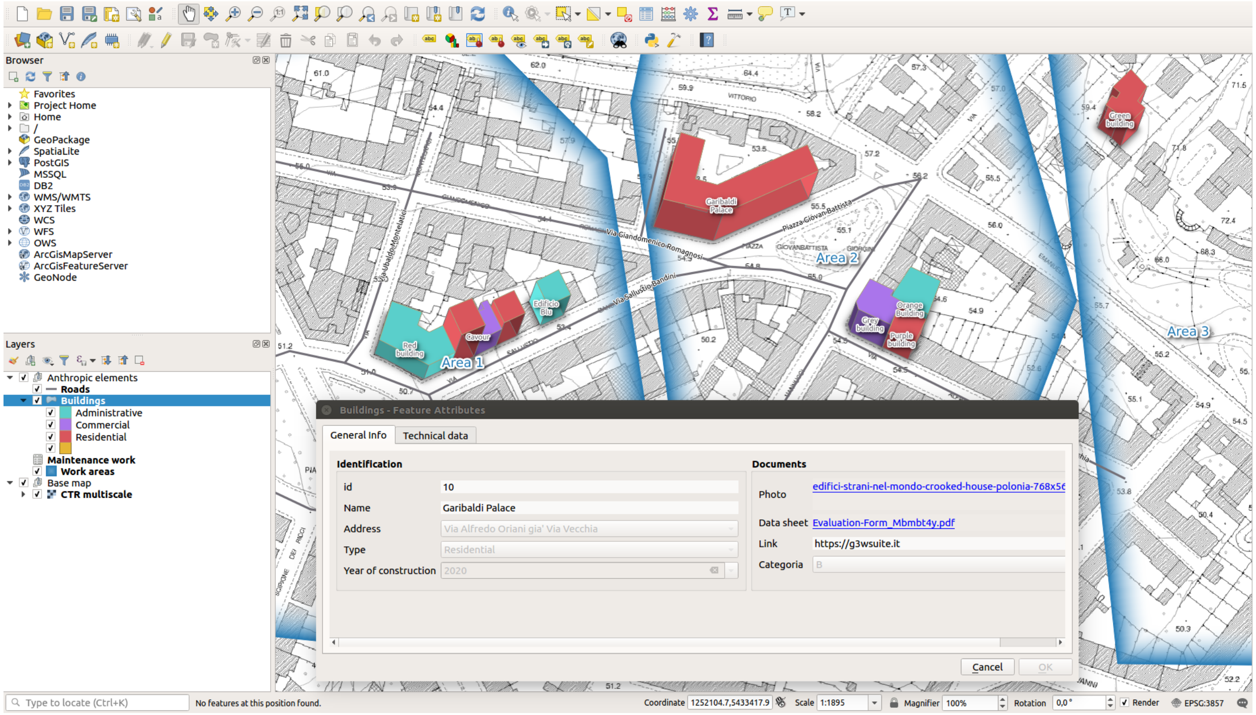
G3W-SUITE is a modular client-server application for the management and publication of interactive map projects.

The framework was born from the need to have a software capable of **publishing, in total autonomy and in a simple and fast way on a webgis client, cartographic projects realized with QGIS.**

The following aspects will be analyzed within the manual:

- **organization and optimization of data and QGIS projects for web publishing**
- **organization of cartographic contents in a hierarchical way: macro groups and cartographic groups**
- **user management and access control systems for consultation and management of webgis services**
- **management of the online editing function for the creation of web cartographic management systems**
- **publishing and managing QGIS projects as WebGis services**
- **creation of searches, visualization of graphics created with the DataPlotly plugin and definition of constraints (geographic and alphanumeric) on visualization and editing permissions**

The current release (3.5) is compatible with `QGIS 3.22.x LTR` (Server and Desktop).



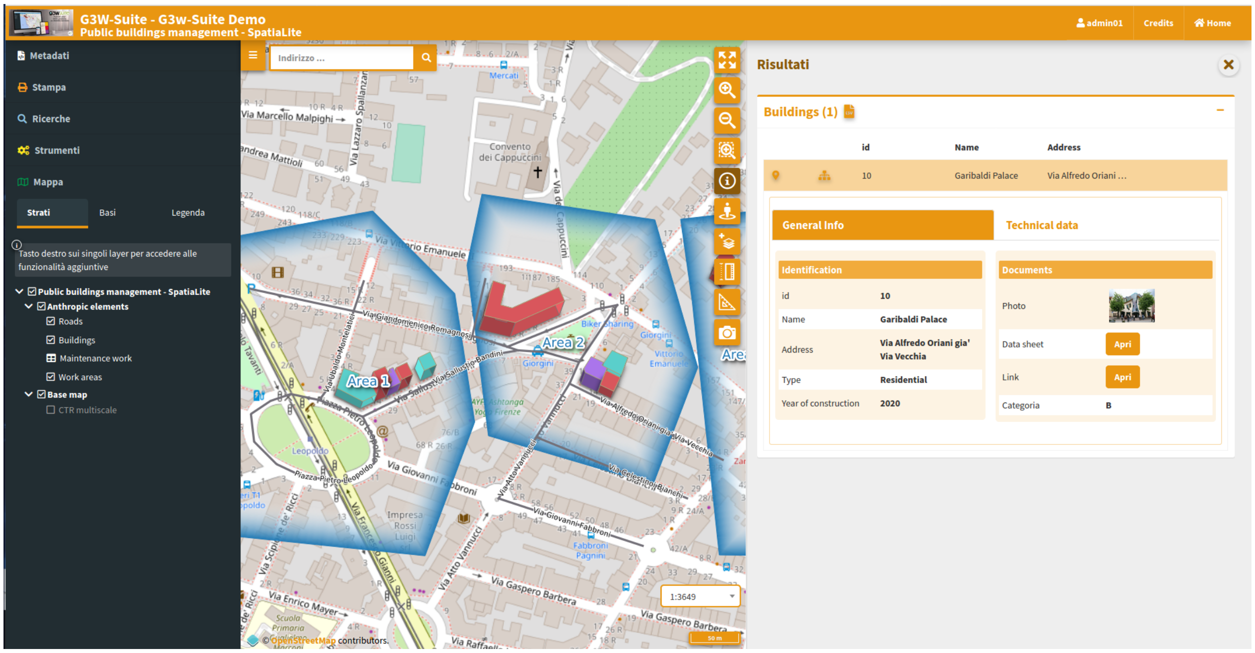
Identification

id: 10
Name: Garibaldi Palace
Address: Via Alfredo Oriani gia' Via Vecchia
Type: Residential
Year of construction: 2020

Documents

Photo: edifici-strani-nel-mondo-crooked-house-polonia-768x56
Data sheet: Evaluation-Form_Mbmbt4y.pdf
Link: https://g3wsuite.it
Categoria: B

No features at this position found.
Coordinate 1252104.7,5433417.9
Scale 1:1895
Magnifier 100%
Rotation 0,0 °



Tasto destro sui singoli layer per accedere alle funzionalità aggiuntive

- ☑ Public buildings management - SpatiaLite
  - ☑ Anthropic elements
    - ☑ Roads
    - ☑ Buildings
    - Maintenance work
    - ☑ Work areas
  - ☑ Base map
    - ☐ CTR multiscale

id	Name	Address
10	Garibaldi Palace	Via Alfredo Oriani ...

Identification

id	10
Name	Garibaldi Palace
Address	Via Alfredo Oriani gia' Via Vecchia
Type	Residential
Year of construction	2020

Documents

Photo	
Data sheet	Apri
Link	Apri
Categoria	B

5.1 Version

At the moment it’s not used a classic versioning system for the suite, this branches are avialable.

5.2 Main contributors

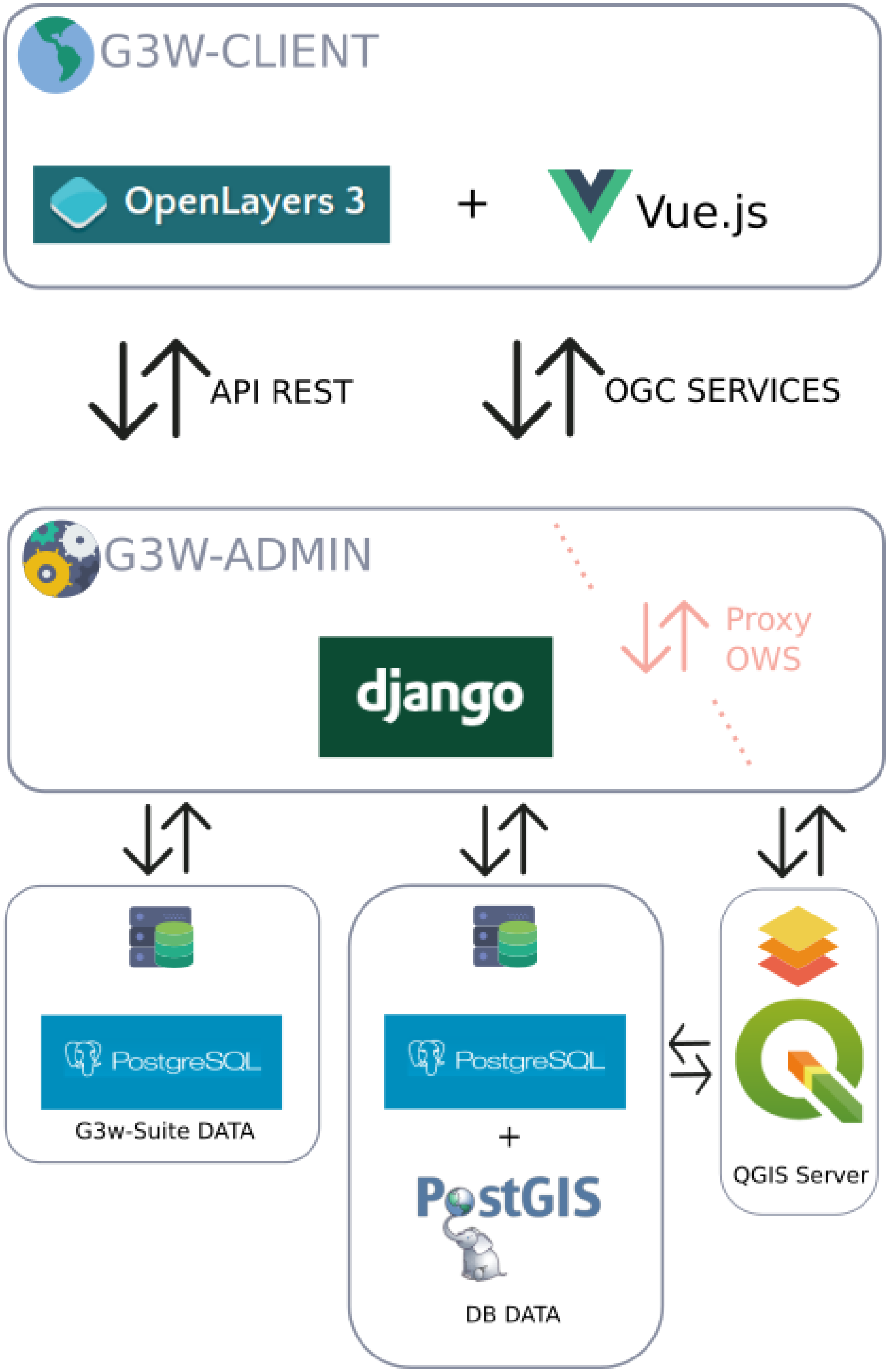
- Walter Lorenzetti - Gis3W (@wlorenzetti)
- Leonardo Lami - Gis3W (@leolami)
- Francesco Boccacci - Gis3W (@volterra79)
- Alessandro Pasotti - QCooperative (@elpaso)
- Luigi Pirelli - QCooperative (@luipir)
- Mazano - Kartoza (@NyakudyaA) (Dockerization refactoring)

CHAPTER SIX

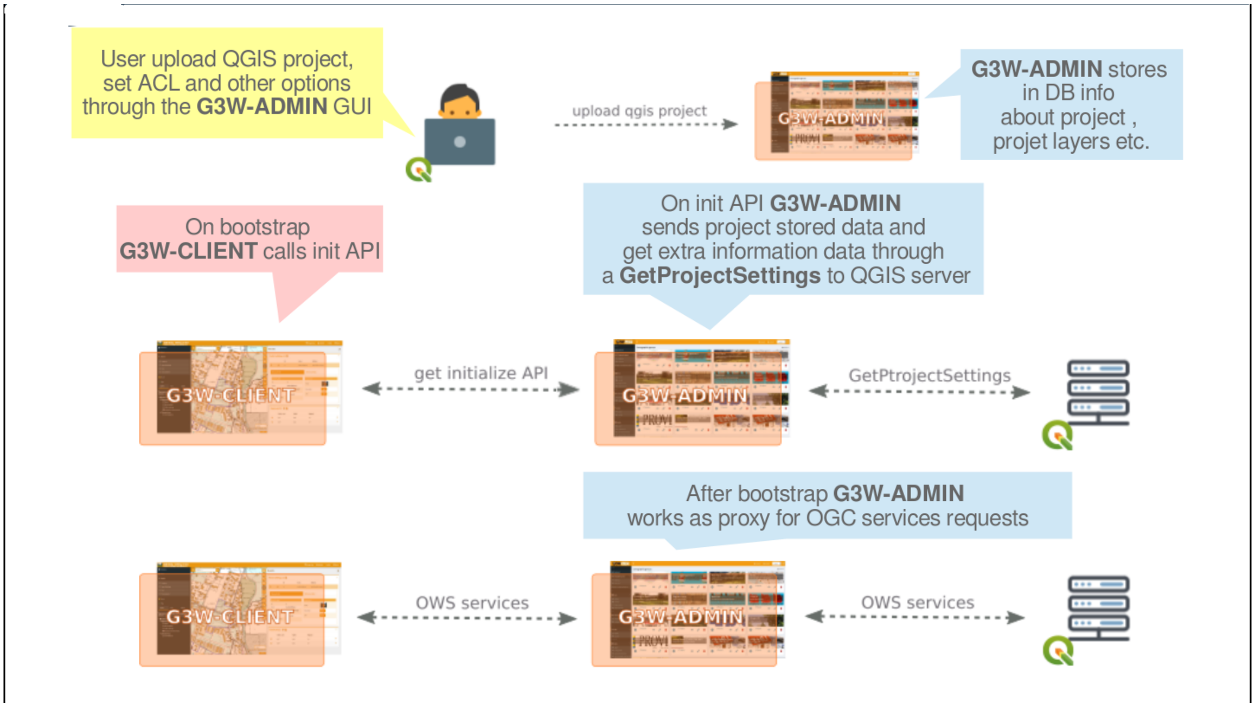
TECHNOLOGICAL INFRASTRUCTURE

The publishing system is based on a series of OS tools and software

- **`PostgreSQL/PostGis`**: for the management of application data
- **`PostgreSQL/PostGis` or `SpatiaLite`**: for the management of geographic data
- **`QGIS Server LTR`** as OGC services server
- **`G3W-ADMIN` - the Administration component**: developed in **`Python`** using **`Django`**
- **`G3W-CLIENT` - the Cartographic client**: based on **`OpenLayers3`** and developed with **reactive tecnology by `Vue.js`**
- The main libraries used for the management and the visualization of the geographical part and the interaction with the user are: **`OpenLayer, Boostrap, jQuery, Lodash` and `Vue.js`**.
- **`Gulp.js`** as task runner


G3W-CLIENT
OpenLayers 3
+
Vue.js
API REST
OGC SERVICES
G3W-ADMIN
django
Proxy
OWS
PostgreSQL
G3w-Suite DATA
PostgreSQL
+
PostGIS
DB DATA
QGIS Server

Below is a diagram relating to the standard workflow


User upload QGIS project, set ACL and other options through the **G3W-ADMIN** GUI
upload qgis project
G3W-ADMIN
G3W-ADMIN stores in DB info about project , projet layers etc.
On bootstrap **G3W-CLIENT** calls init API
On init API **G3W-ADMIN** sends project stored data and get extra information data through a **GetProjectSettings** to QGIS server
G3W-CLIENT
get initialize API
G3W-ADMIN
GetPtrojectSettings
After bootstrap **G3W-ADMIN** works as proxy for OGC services requests
G3W-CLIENT
OWS services
G3W-ADMIN
OWS services

CHAPTER

SEVEN

MANAGEMENT AND ORGANIZATION OF GEOGRAPHIC DATA AND QGIS PROJECTS

This section describes how to organize QGIS data and projects locally and how to synchronize them on the server environment for publication purposes

Thanks to the integration with the APIs of QGIS it is now possible to manage the main formats (geographic or not) supported by QGIS Server:

- **reading and editing mode**
  - PostGreSQL/PostGIS
  - Oracle Spatial (compiling QGIS Server)
  - SQLite/SpatiaLite
  - GeoPackage
  - ShapeFile
- **reading mode**
  - SQL Server
  - Virtual layer

The suite also allows you to manage the consultation and editing of:

- **simple join data with no nesting limits**
- **1:N relation data**
- **N:M relation data**

7.1 Data on DB Server

If your geographic data is stored on `Server DB`, it will be sufficient to allow access to the DB from the IP address on which the application is installed.

7.2 Data on SpatiaLite/GeoPackage or OGR format

If your geographical data are stored on `SpatiaLite`, `GeoPackage` or an other physical files (`.shp`, `.kml`, `.tif...`) located on your local PC, you will need:

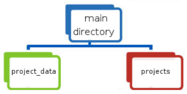
- **organize data and projects** in predefined local directories and subdirectories
- **upload/synchronize geographic data to the corresponding folder located on the server** where the application is installed

Of course, mixed solutions with geographical data on PostGreSQL/PostGIS, SpatiaLite and other formats will also be possible.

7.2.1 Organization of data and projects

Data on physical files and / or on GeoDB SpatiaLite and QGIS cartographic projects must be organized in compliance with the following indications:

- a **main directory** named and positioned in according to need's user
  - a **`project_data` sub-directory** that must contain the **geographic data** used for the various cartographic projects, such data can also be organized in subdirectories with no nesting limits.
  - a **`projects` sub-directory** that must contain the **QGIS cartographic projects** (.qgz or .qgs files)



NB: The name of the local directory dedicated to geographic data must correspond to the name defined for the **`DATASOURCE_PATH`** variable set during installation. See dedicated paragraph.

That directory is also used to contain **images used in the print layouts** associated with the QGIS cartographic projects.

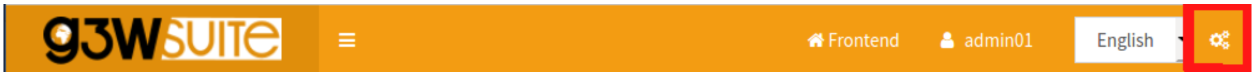
7.2.2 Geographic data synchronization on the server

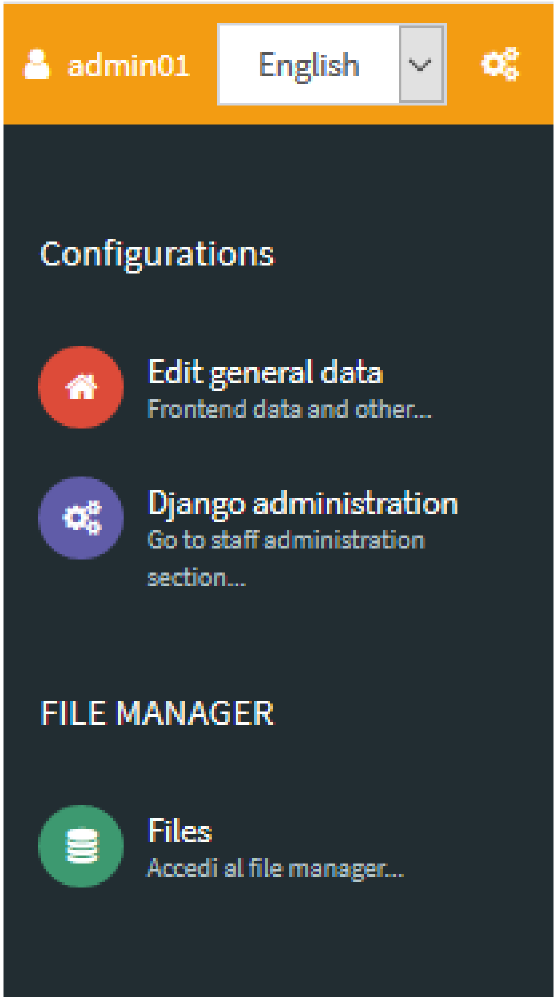
The data stored in the local **`project_data`** directory must be synchronized on the server where the G3W-SUITE application is installed.

The geographic data stored in the local **`project_data`** folder must be loaded, reflecting any subdirectory structure.

To synchronize your data access to the Administration panel of G3W-ADMIN and click on the **`Configurations`** **icon** ⚙ located in the upper right corner.

Choose the **`File Manager`** item in the linked menu.




admin01
English
Configurations
Edit general data
Frontend data and other...
Django administration
Go to staff administration section...
FILE MANAGER
Files
Accedi al file manager...

Using this tool it is possible to manage the physical geographic data on the server in a simple and intuitive way.

The root directory of the File Manager corresponds to the local `project_data` directory

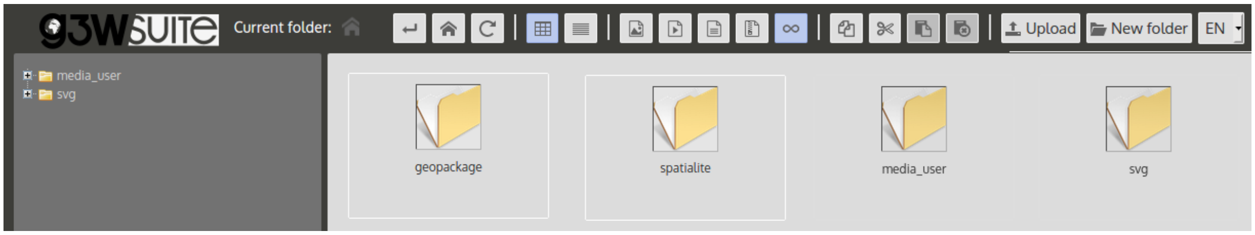
It will therefore be necessary, in the case of using geographic files on the file system, to synchronize the contents of the local **`project_data`** directory (and any sub-directories) before proceeding with the publication of QGIS projects.

Two specific directories can also be created within the root directory of the File Manager:

- **`media_user`**: a directory exposed on the web, to store your **multimedia files**
- **`svg:`** a directory to store **extra SVG icons** used your QGIS projects

All the directories can be organized in subdirectories with no nesting limits.

NB: The names of these directories are defined by the basic settings set during the installation of the suite. See dedicated paragraph.



The example shows the case in which in the local **project_data** directory there are two directories (**geopackage** and **spatialite**) in addition to the two system directories (**svg** and **media_user**).

CHAPTER

EIGHT

HIERARCHICAL ORGANIZATION OF WEBGIS SERVICES AND TYPES OF USERS (ROLES)

This paragraph allows you to understand how G3W-SUITE makes it possible to manage the individual WebGis services in a structured and hierarchical way.

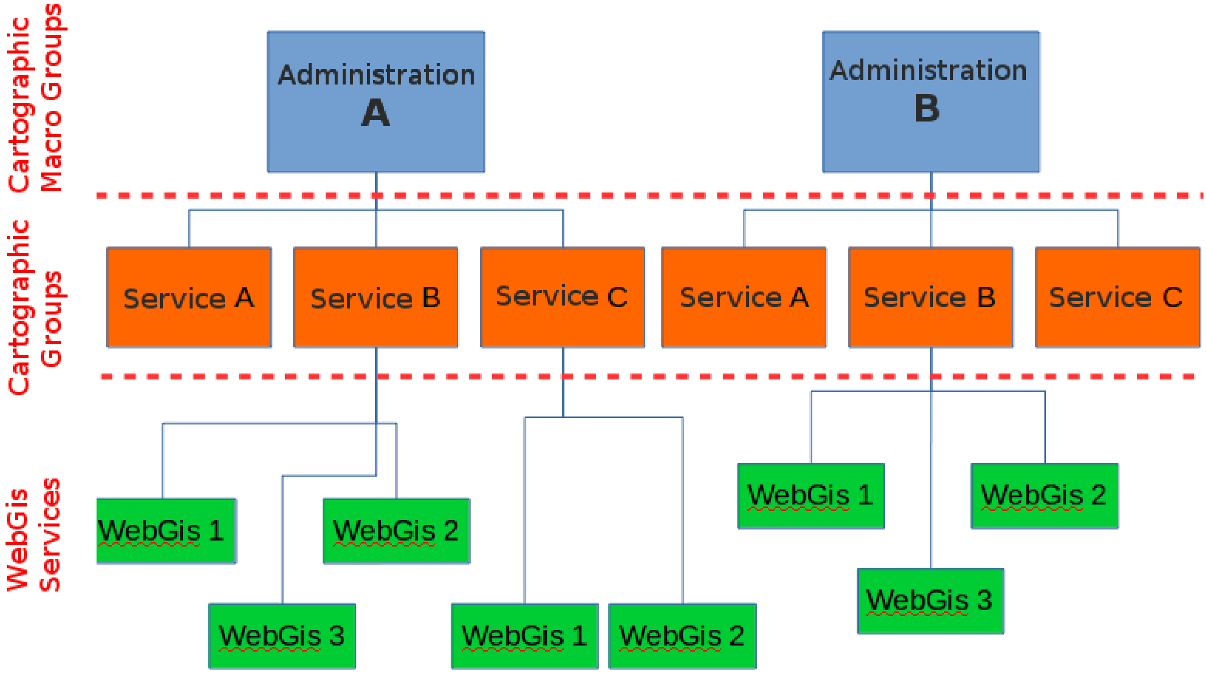
In G3W-SUITE it is possible to organize WebGis services on two thematic/functional levels

- **`Cartographic MacroGroups`**
    - **`Cartographic groups`**

These organizational levels can be associated with different types of users (Editor 1, Editor2 and Viewer) in order to manage the access/management powers to the individual elements in a granular way.

The following image shows an example of the functional use of these organizational levels within a Union of Municipalities.

Access policies and individual functional modules may be associated with each WebGis service.



8.1 Types of Users (Roles)

In G3W-SUITE you can create **Users** and **Users Groups** and associate them with specific roles:

- **`Admin1:`** user with full powers **including** Django administration (basic suite configuration)
- **`Admin2:`** user with full powers **excluding** those of Django administration (basic configuration of the suite)
- **`Editor1:` administrator of one or more Cartographic MacroGroups** for which it will be possible:
  - create users and/or user groups
  - create Cartographic Groups and, if necessary, assign them to an Editor 2 user
  - publish WebGis services and define their access policy
  - activate and configure some functional modules
- **`Editor2:` administrator of one or more Cartographic Groups** for which it will be possible:
  - publish/update WebGis services and define their access policy
  - activate and configure some functional modules
- **`Viewer:`** user with access permission in **consultation on WebGis service**s characterized by authentication. This user can also use individual functional Modules if the relative permissions have been attributed to him
- **`Anonymus User:`** user to be associated with WebGis services and/or functional modules **with free access**

8.2 Hierarchical organization of contents

The following paragraph is dedicated to better understanding the relationships between the different types of users and the different elements of the suite (MacroGroups, Map Groups, WebGis services . . .).

In G3W-SUITE it is possible to manage Webgis services in a more or less structured way

- **an organizational level** (Cartographic Groups):
- **two organizational levels** (MacroGroups and Cartographic Groups)

These hierarchical levels can be used for **organizational purposes** (thematic containers) and/or **functional** (containers managed by different users/roles).

It is in fact possible to associate the two types of containers (MacroGroups and Cartographic Groups) to users with different roles/powers (Editor1 and Editor2) who will thus become the Administrators of all their contents.

In particular **Editor1 users will also be able to create/manage users who can be associated with the Cartographic Groups and WebGis services present in the reference MacroGroup**.

The cases relating to one or two organizational levels will be better described below.

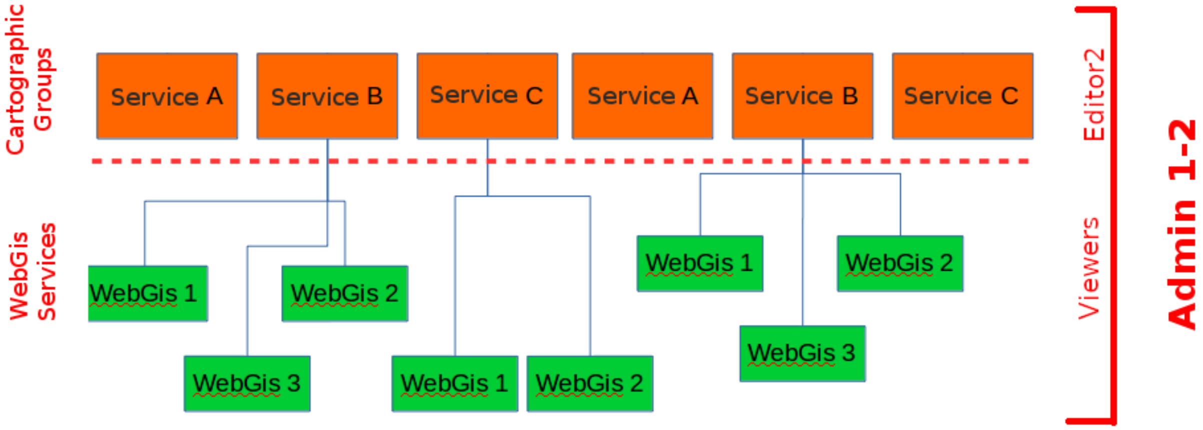
8.2.1 One organization level (absence of MacroGroups)

If MacroGroups are not needed, the Admin user will be the only administrator of the suite and can therefore:

- create users (individuals and/or groups) of various types
- create **Cartographic Groups**
- publish **WebGis services** within the individual **Cartographic Groups**
- activate some specific modules on individual WebGis services

When creating a cartographic group, the Admin user can define:

- the eventual user (individual/group) **Editor 2** to associate the Group with
- **Viewers** users (individuals/groups) who will have access to this container



In the event that the Cartographic Group is assigned to **Editor 2** (single or group users), they will may autonomously publish/update WebGis services inside in this container.

Editor 2 users will also be able to define the access policies to the published WebGis services, limited to the Viewers users associated with the Cartographic Group by the Admin user.

Even the **Admin** user can publish **WebGis services** within a Cartographic Group and, if necessary, associate them with a user (single and/or group) of **Editor 2** type.

8.2.2 Two organization levels (presence of MacroGroups)

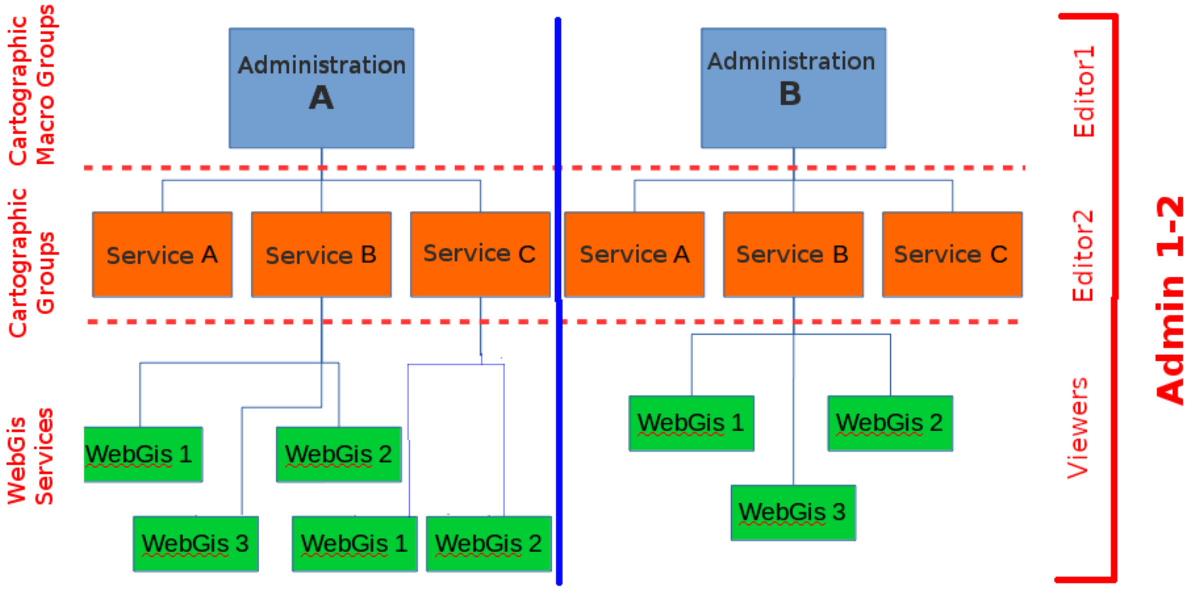
Macrogroups can be created only by **Admin** users.

Each **Macrogroup** can be associated with only one **Editor1** user.

Each MacroGroup can be considered as a watertight compartment within which the associated Editor 1 user (administrator of the MacroGroup), will be able to create users and user groups that will be made available to define access permissions for content (Groups Maps, WebGis services, functional modules . . .) of the reference MacroGroup only.

In this way it will be possible to create totally independent entities, the MacroGroups, which will be managed exclusively by the user Editor 1 associated with them.

Clearly the Admin users (1 and 2) will continue to have full powers on all groups present in the system.



As previously specified, **Editor 1** user will be able to:

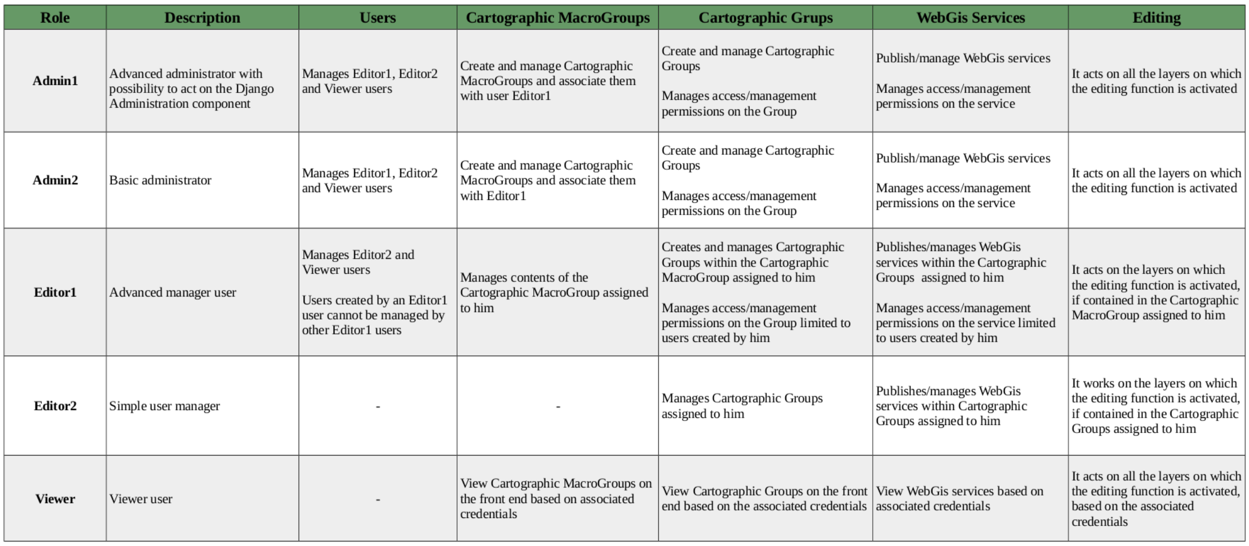
- create **users** (single and/or groups) of type Editor2 and Viewer
- create **Cartographic Groups** within its **Macro Group**
- publish **WebGis services** within his **Cartographic Groups**
- activate **specific modules** on individual **WebGis services**

When Editor 1 user creates a Cartographic Group, he can define:

- the eventual **Editor2** user (individual/group) to associate with this Group
- **Viewers** users (individuals/groups) who will have access to this container

8.3 Summary table of access/administration policies

Below is a summary table of the powers associated with the different roles.



Role	Description	Users	Cartographic MacroGroups	Cartographic Grups	WebGis Services	Editing
Admin1	Advanced administrator with possibility to act on the Django Administration component	Manages Editor1, Editor2 and Viewer users	Create and manage Cartographic MacroGroups and associate them with user Editor1	Create and manage Cartographic Groups Manages access/management permissions on the Group	Publish/manage WebGis services Manages access/management permissions on the service	It acts on all the layers on which the editing function is activated
Admin2	Basic administrator	Manages Editor1, Editor2 and Viewer users	Create and manage Cartographic MacroGroups and associate them with Editor1	Create and manage Cartographic Groups Manages access/management permissions on the Group	Publish/manage WebGis services Manages access/management permissions on the service	It acts on all the layers on which the editing function is activated
Editor1	Advanced manager user	Manages Editor2 and Viewer users Users created by an Editor1 user cannot be managed by other Editor1 users	Manages contents of the Cartographic MacroGroup assigned to him	Creates and manages Cartographic Groups within the Cartographic MacroGroup assigned to him Manages access/management permissions on the Group limited to users created by him	Publishes/manages WebGis services within the Cartographic Groups assigned to him Manages access/management permissions on the service limited to users created by him	It acts on the layers on which the editing function is activated, if contained in the Cartographic MacroGroup assigned to him
Editor2	Simple user manager	-	-	Manages Cartographic Groups assigned to him	Publishes/manages WebGis services within Cartographic Groups assigned to him	It works on the layers on which the editing function is activated, if contained in the Cartographic Groups assigned to him
Viewer	Viewer user	-	View Cartographic MacroGroups on the front end based on associated credentials	View Cartographic Groups on the front end based on the associated credentials	View WebGis services based on associated credentials	It acts on all the layers on which the editing function is activated, based on the associated credentials

CHAPTER

NINE

QGIS: PROJECT SETTINGS

This section describes how to optimize your QGIS projects to publish as a WebGis service.

Thanks to the integration with QGIS Server, all the symbology aspects associated with the singoly layers are automatically reproduced on the WebGis service

In the QGIS cartographic projects you can set some parameters and options that affect functionalities and contents in the derivative WebGis service, such as:

- the **webgis service identification name**
- the associated **basic metadata**
- the **capabilities of the service**
- the possibility to **exclude some associated print layouts** on the WebGis service
- which layers are **queryable and searchable**
- which layers to expose with the different **OGC services (WMTS, WFS, WCS)**
- which **fields** (for each vector data) are exposed as WMS and/or WFS
- the **Themes (Views)** defined at the project level
- layer/group management from **embedded projects**
- the **structure of the query form** visible on the WebGis service
- the **editing widget**, **constraints** and **default values** (also based on QGIS expressions) for every fields of vector layers
- the associated **print layouts, report included**

The following paragraphs describe which QGIS project settings are more relevant in relation to the published WebGis service.

9.1 Project property

From the `Project` → `Properties` menu, you can access the `Project Properties` window and the three submenus of our interest:

- **General**
- **Data sources**
- **QGIS server**

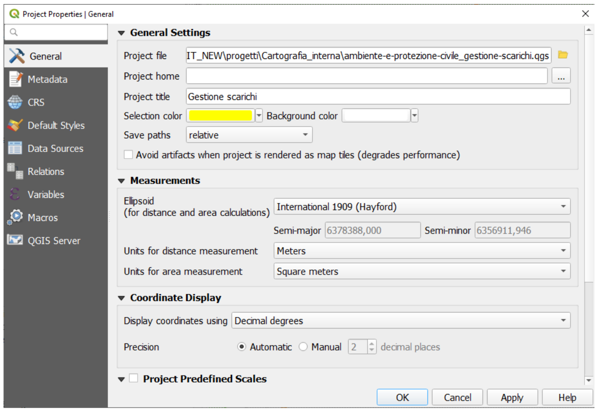
9.1.1 General

General Settings

In this section it is possible to define the title of the project, consequently the `title of the WebGis service`.

This title will be used at the G3W-SUITE application level to uniquely identify the published project; for this reason **it will not be possible to assign the same name to different projects published on the WebGis service**.

We advise against using special characters, or numbers in the project name.



Project file: IT_NEW\progetti\Cartografia_interna\ambiente-e-protezione-civile_gestione-scarichi.qgs

Project home:

Project title: Gestione scarichi

Selection color: 🟨 Background color: ☐

Save paths: relative

☐ Avoid artifacts when project is rendered as map tiles (degrades performance)

Ellipsoid (for distance and area calculations): International 1909 (Hayford)

Semi-major: 6378388,000 Semi-minor: 6356911,946

Units for distance measurement: Meters

Units for area measurement: Square meters

Display coordinates using: Decimal degrees

Precision: ● Automatic ○ Manual 2 decimal places

☐ Project Predefined Scales

9.1.2 Data sources

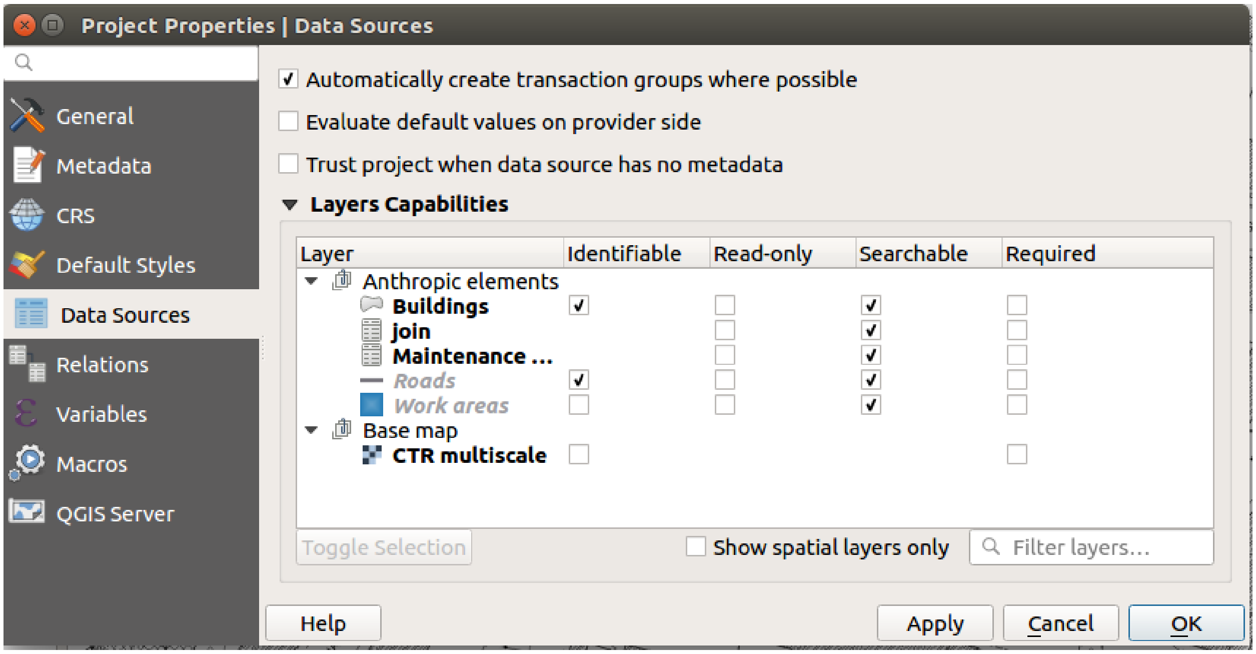
The option `Automatically create transaction group where possible` is automatically inherited in the online editing function.

Layers Capabilities

This submenu defines the querable and/or searchable layers at the WebGis service level.

- Check the `Identifiable` column if you want that the layer will be searchable on the WebGis
- Check the `Searchable` column if you want that the layer will be querable on the WebGis

NB: this differentiation is only possible by using the QGIS APIs such as Search URL endpoint. See dedicated paragraph



☑ Automatically create transaction groups where possible

☐ Evaluate default values on provider side

☐ Trust project when data source has no metadata

Layers Capabilities

Layer	Identifiable	Read-only	Searchable	Required
Anthropic elements				
Buildings	☑	☐	☑	☐
join		☐	☑	☐
Maintenance …		☐	☑	☐
Roads	☑	☐	☑	☐
Work areas	☐	☐	☑	☐
Base map				
CTR multiscale	☐			☐

☐ Show spatial layers only

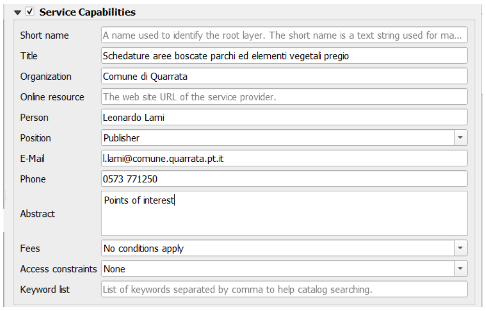
9.1.3 QGIS Server

Service capabilities

In this section it is possible to define the `capabilities of the service`.

This information, together with info about the structure of the attribute tables of the layers present in the project, will be displayed in the **Metadata session** of the cartographic client.

See also dedicated paragraph



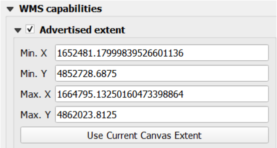
☑ **Service Capabilities**

Short name	A name used to identify the root layer. The short name is a text string used for ma…
Title	Schedature aree boscate parchi ed elementi vegetali pregio
Organization	Comune di Quarrata
Online resource	The web site URL of the service provider.
Person	Leonardo Lami
Position	Publisher
E-Mail	l.lami@comune.quarrata.pt.it
Phone	0573 771250
Abstract	Points of interest
Fees	No conditions apply
Access constraints	None
Keyword list	List of keywords separated by comma to help catalog searching.

Capabilities WMS - Advertised extent

In this section it is possible to define the `geographical extension` displayed when the WebGis service starts.

To define it, set the desired geographical view on the map and then click on the **'Use Current Canvas Extent'** button.



☑ **Advertised extent**

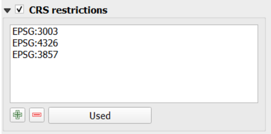
Min. X	1652481.17999839526601136
Min. Y	4852728.6875
Max. X	1664795.13250160473398864
Max. Y	4862023.8125

WMS Capabilities - CSR restrictions

In this section it is possible to define the `projection systems` for which the project is available in relation to `OGC services`.

It is clearly necessary to insert the projection system on which the project was made, this SR is added by clicking on the **'Used'** button.

Other geographic reference systems can be implemented by clicking on the **'+'** button and choosing from the list of reference systems.

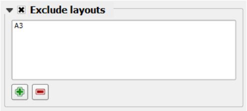


☑ CRS restrictions

EPSG:3003
EPSG:4326
EPSG:3857

Capabilities WMS - Exclude layouts

In this section it is possible to `exclude some of the print layouts` that are associated with the cartographic project from the availability of the WebGis service.



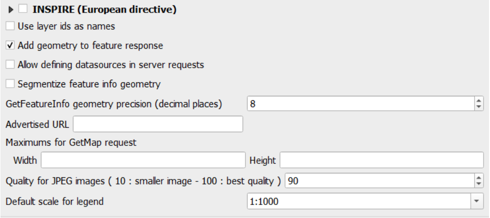
☒ Exclude layouts

A3

Capabilities WMS - General aspects

Two further aspects are manageable with regard to WMS capabilities

- in general it is recommended to check `use the layer ids as names` option
- the option `Add geometry to feature response` must be checked to activate the **zoom to the features** on the WebGis service



☐ INSPIRE (European directive)
☐ Use layer ids as names
☑ Add geometry to feature response
☐ Allow defining datasources in server requests
☐ Segmentize feature info geometry
GetFeatureInfo geometry precision (decimal places): 8
Advertised URL:
Maximums for GetMap request
Width: Height:
Quality for JPEG images (10 : smaller image - 100 : best quality): 90
Default scale for legend: 1:1000

WMTS Capabilities

In this section it is possible to define which `layers are exposed as WMTS services` defining the various options

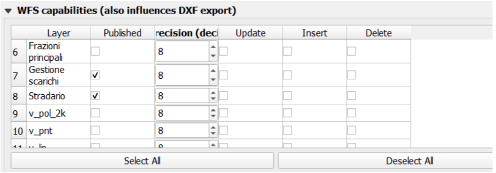
WFS Capabilities

In this section it is possible to define which `layers are exposed as WFS services`.

The WFS service is needed if you want activate following types of query:

- **bbox query**
- **bypolygon query**

It is sufficient to check only the **`Published`** column



▼ WFS capabilities (also influences DXF export)

	Layer	Published	recision (deci	Update	Insert	Delete
6	Frazioni principali	☐	8	☐	☐	☐
7	Gestione scarichi	☑	8	☐	☐	☐
8	Stradario	☑	8	☐	☐	☐
9	v_pol_2k	☐	8	☐	☐	☐
10	v_pnt	☐	8	☐	☐	☐

WCS Capabilities

In this section it is possible to define which `rasters are exposed as WCS services`

9.2 General aspects

9.2.1 Themes (Views)

The creation of **Themes** (combination of off / on layers and differentiated simbology styles) is managed at the WebGis service level.

A specific menu on the webgis will allow you to choose the Theme to be displayed.

The views will be parameterizable at the URL level of the related webgis service.

9.2.2 Layer order

The option to define the layer order different from the order in the TOC on the QGIS project is automatically supported.

9.2.3 Legend

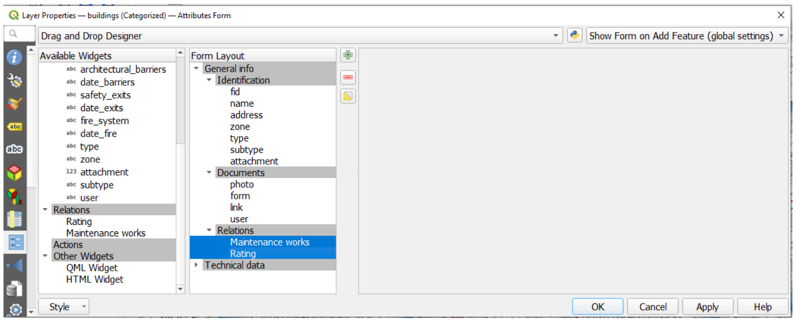
The activation of the **`Filter legend by Map content`** option on the QGIS project is automatically applied to the derived WebGis service.

9.2.4 Mutually exclusive groups

The activation on the QGIS project of the **`Mutually exclusive group`** option for the layers groups is automatically applied to the derived WebGis service.

9.2.5 1:N and N:M relations

ATTENTION: to correctly manage these types of relations it is NECESSARY to insert the reference to the relations in the customized form



9.2.6 Embedded project

It is possible to publish QGIS projects that contain layers or groups of layers deriving from embedded projects. It is clearly necessary to publish the embedded project first and then those derived from it. An update of the embedded project will result in a consequent modification of all derived projects. The request to delete the basic embedded project causes a warning message as this operation will cause problems on all derived projects.

9.3 Layers properties

9.3.1 Simbology

The rendering style associated with the individual layers is replicated autonomously on the WebGis service.

The suite allows the switching on/off of the individual categories linked to the various simbolgy methods (categorized, graduated, by rules . . .).

images/manual/g3wsuite_simbology_onoff.png

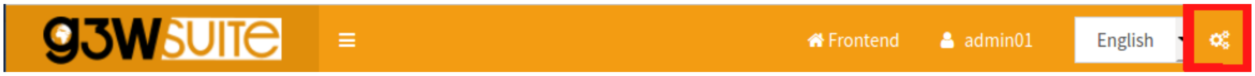
If external SVG icons are used (added to the basic ones of QGIS, via the **`Settings -> Options -> System -> SVG paths`**), these must be uploaded to the server (through the **`File Manager`** tool) in order to be used by QGIS Server.

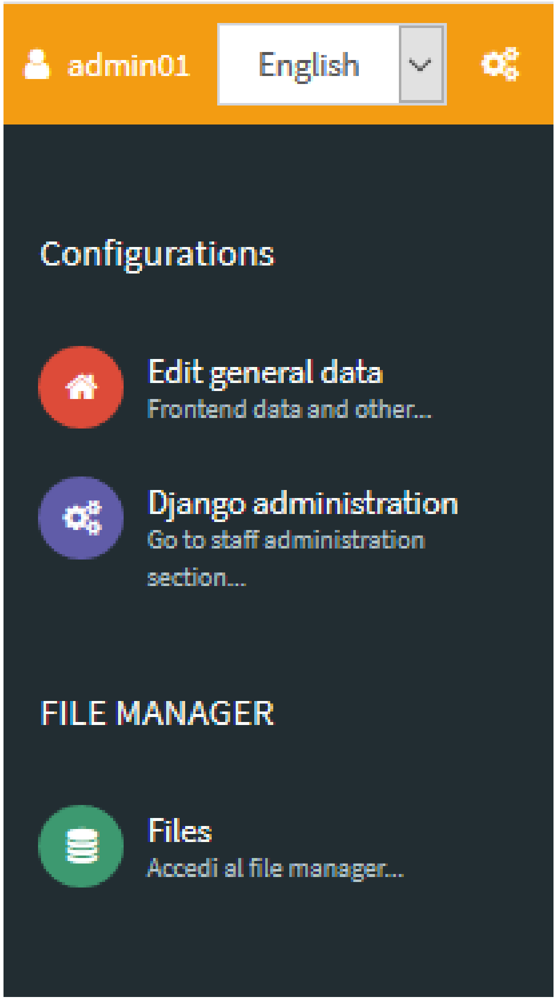
Manage custom SVG icons

In the installation procedure of the G3W-SUITE application, an **`svg`** named directory is created on the server.

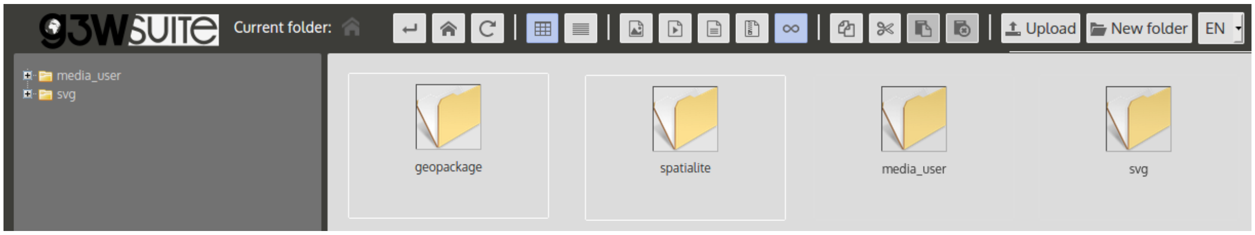
Within this directory it is therefore possible to store SVG icons, also organized in subdirecory.

The **`Configurations icon`**, located in the upper right corner of the **Administration Panel**, allows you to access a menu that includes the **`File Manager`** item.




admin01
English
Configurations
Edit general data
Frontend data and other...
Django administration
Go to staff administration section...
FILE MANAGER
Files
Accedi al file manager...

Through this tool it is possible to manage SVG icons on the server in a simple and intuitive way.



The SVG folder on the server must reflect the structure in any subfolders present locally.

NB: The name of this directory is defined by the basic settings set during the installation of the suite. See dedicated paragraph.

PS: remember that the **`File Manager`** tool also allows you to manage the synchronization of geographical data (in the case of using physical files) and the management of multimedia files.

See also dedicated paragraph

9.3.2 Multi-style layer

The suite manages the presence of multiple styles associated with a layer.

It will be possible to dynamically choose the style on the cartographic client.

It will be possible to manage the styles associated with a layer from the Administration component, also by **loading .qml file styles** and **setting the default style** among those present.

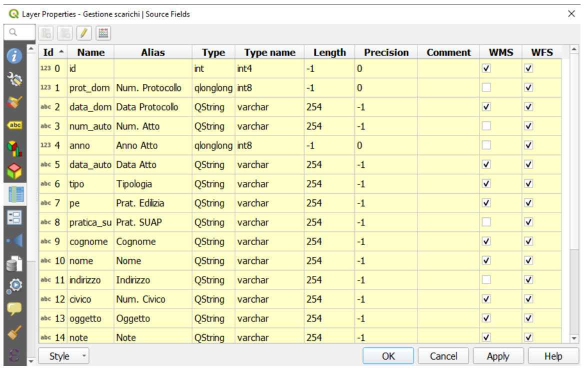
9.3.3 Definition of the fields that can be consulted for each layer

Within the QGIS project it is also possible to define, for each layer, which fields are available following query on the WebGis service.

To define these settings, you access the properties of one of the vectors previously defined as searchable and choose the **`Source Fields`** submenu in the **`Layer Properties`** window.

This submenu lists the fields associated to the table of the vector.

The check box relating to the **`WMS`** column defines whether or not the values contained in this field will be available following the query on the WebGis service.



Id	Name	Alias	Type	Type name	Length	Precision	Comment	WMS	WFS
123 0	id		int	int4	-1	0		☑	☑
123 1	prot_dom	Num. Protocollo	qlonglong	int8	-1	0		☐	☑
abc 2	data_dom	Data Protocollo	QString	varchar	254	-1		☑	☑
abc 3	num_auto	Num. Atto	QString	varchar	254	-1		☐	☑
123 4	anno	Anno Atto	qlonglong	int8	-1	0		☐	☑
abc 5	data_auto	Data Atto	QString	varchar	254	-1		☑	☑
abc 6	tipo	Tipologia	QString	varchar	254	-1		☑	☑
abc 7	pe	Prat. Edilizia	QString	varchar	254	-1		☑	☑
abc 8	pratica_su	Prat. SUAP	QString	varchar	254	-1		☐	☑
abc 9	cognome	Cognome	QString	varchar	254	-1		☑	☑
abc 10	nome	Nome	QString	varchar	254	-1		☑	☑
abc 11	indirizzo	Indirizzo	QString	varchar	254	-1		☐	☑
abc 12	civico	Num. Civico	QString	varchar	254	-1		☑	☑
abc 13	oggetto	Oggetto	QString	varchar	254	-1		☑	☑
abc 14	note	Note	QString	varchar	254	-1		☑	☑

9.3.4 Definition of the attribute display form

For each layer it is possible to define the structure of the attributes form associated with displaying the results following query operations.

On QGIS we can build a personalized form (query form) by creating thematic tabs and groups and defining the distribution of the individual fields and their aliases.

This structural organization will be replicated directly on the query form on the WebGis service.

The current version of QGIS also handles conditional forms and cascade drill-downs

9.3.5 Layer basic information

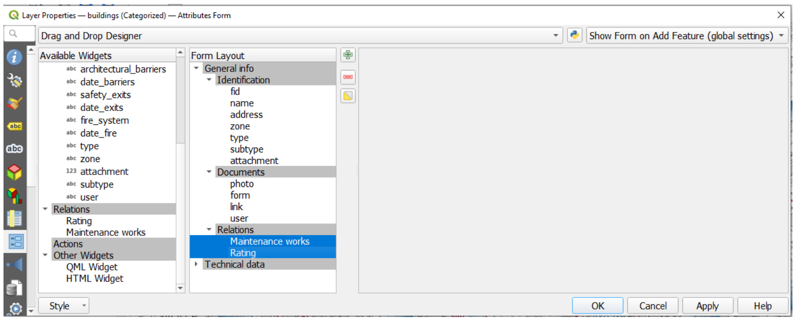
If you set a descriptive information in the **`Abstract`** form of the **`QGIS Server`** session of the **`Layer Properties`**, this information will be associated with the layer at the webgis level.

9.3.6 Temporal settings

This functionality is only available using QGIS Server >= 3.26

This version of G3W-SUITE manages the temporal aspects for both vector and raster layers but with limitations:

- vector layers: limited to the Single filed with Date/Time configuration
- raster layers: only for NetCDF file upload as raster (no Mesh)



Viewing multimedia content

Multimedia contents (images, pdf, web URL . . .) can be viewed interactively on the map client following publication of the QGIS project.

In the case of web links, simply insert them (preceded by the prefix **`http://`** or **`https://`**) within the dedicated attribute fields

In the case of multimedia files it is necessary:

- **upload the media file to the `media_user` folder** (folder exposed on the web) accessible through the **`File Manager`** tool in the Suite Administration Panel
- **insert the web link to this file in the dedicated attribute field**

The link to the file can be obtained in the following way:

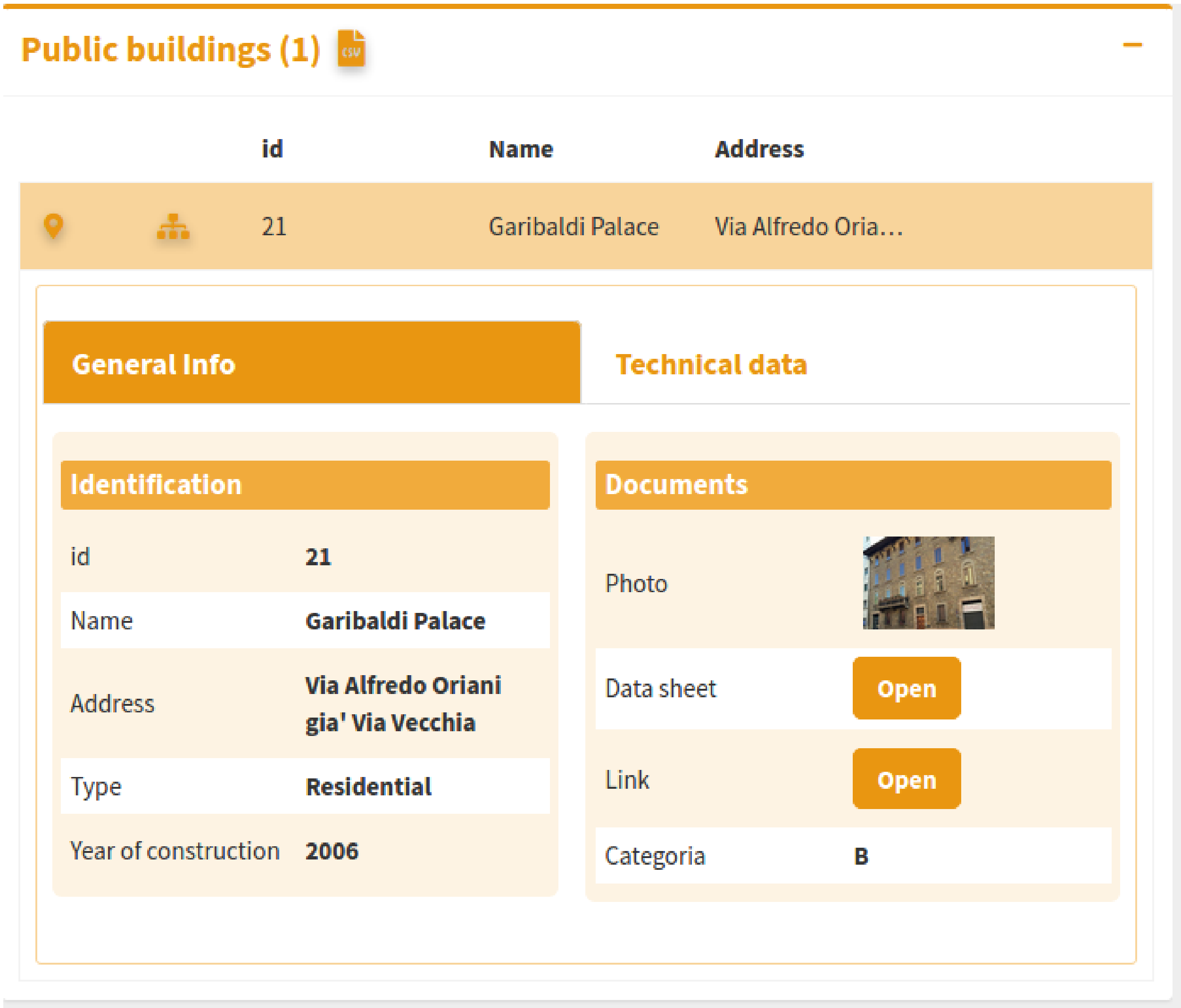
- **`application domain + media_user + path of the file + file name`**

Example:

- application domain: **`https://dev.g3wsuite.it`**
- file **`file_A.pdf`** located in the folder **`/media_user/form/`**
- web link: **`https://dev.g3wsuite.it/media_user/form/file_A.pdf`**

Following queries at the cartographic client level, we will have different behaviors based on the type of content:

- **image**: preview display in the form, click on the preview to display the image in real size
- **web link or other multimedia file**: display of an **Open** orange button to allow consultation of the content



Public buildings (1)

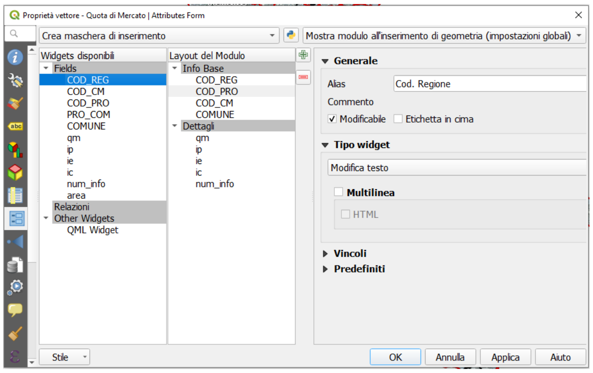
		id	Name	Address
		21	Garibaldi Palace	Via Alfredo Oria…

Identification

id	21
Name	Garibaldi Palace
Address	Via Alfredo Oriani gia' Via Vecchia
Type	Residential
Year of construction	2006

Documents

Photo	
Data sheet	Open
Link	Open
Categoria	B



Proprietà vettore - Quota di Mercato | Attributes Form

Crea maschera di inserimento

Mostra modulo all'inserimento di geometria (impostazioni globali)

Alias: Cod. Regione

Commento

☑ Modificabile ☐ Etichetta in cima

Modifica testo

☐ Multilinea

☐ HTML

9.4 Print layouts

Any print layouts associated with the published QGIS project will automatically be associated with the published WebGis service.

Print layouts can contain more than one `Map` items and panoramic maps.

You can set also a **custom title** (definible in the WebGis side) setting an **Item ID** at a **Label** item.

Atlas and report are also supported.

Any images present in the print layouts must be placed in the local **`project_data`** folder (in any subdirectory) and synchronized on the server.

See also the dedicated paragraph Geographic data synchronization on the server.

9.5 Performances optimization

9.5.1 Mandatory rules

- PostGreSQL/PostGis, SQLite/Spatialite and GeoPKG layers must have a **primary key**
- the primary key field and all fields involved in search, join, 1:n or N:M relations or editing function have to be **published as WMS**
- **don't use commas for aliases** associated with layers
- style settings defined at the auxiliary data level are not supported

9.5.2 Tips

- when using rule-based/categorized classification **create indexes on the column(s) involved** in the rule expression
- start the project with **only a few layers turned on** by default
- do not exceed three nesting levels in the groups of layers defined in the TOC

CHAPTER

TEN

G3W-FRONTEND: THE FRONT END PORTAL

This section describes the different sections of the access portal and how to login to the Administration Panel

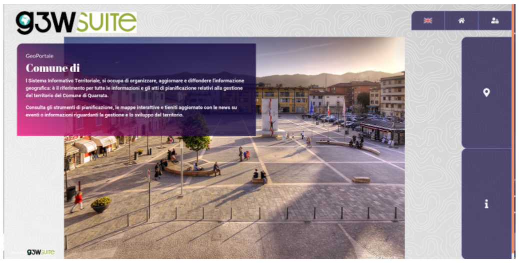
10.1 The login portal sessions

The G3W-SUITE application is accessible via any internet browser (FireFox and Chrome recommended) via the URL address defined during installation

If you have also installed the front-end portal from the GitHub repository, access to the application will be via the portal itself.

The home page will contain, in addition to a brief and customizable presentation of the service, also:

- a **menu at the top right side** with the following items:
  - `Change language`
  - `Go back to the home page`
  - `Login`
- a **panel menu on the right** with the following items:
  - `Maps`
  - `Info`



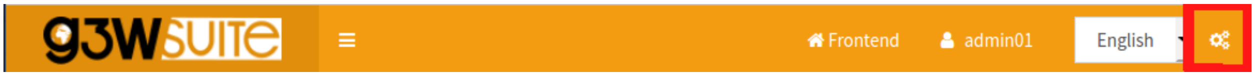
GeoPortale

Comune di

I Sistema Informativo Territoriale, si occupa di organizzare, aggiornare e diffondere l'informazione geografica: è il riferimento per tutte le informazioni e gli atti di pianificazione relativi alla gestione del territorio del Comune di Quarrata.

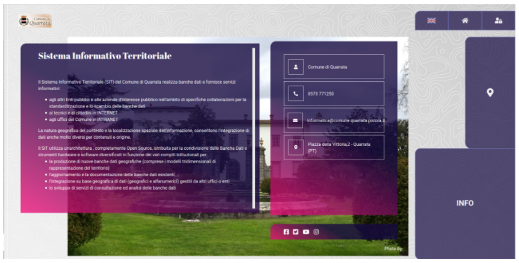
Consulta gli strumenti di pianificazione, le mappe interattive e tieniti aggiornato con le news su eventi o informazioni riguardanti la gestione e lo sviluppo del territorio.

Most of the information shown in the access portal can be defined from the **`Configurations -> Edit General Data`** **session**, accessible from the icon located in the upper right corner of the Administration Panel.



10.1.1 Info

The **Info** session can contains a small introduction and contact information for your company or public facility.



Sistema Informativo Territoriale

Il Sistema Informativo Territoriale (SIT) del Comune di Quarrata realizza banche dati e fornisce servizi informativi:

- agli altri Enti pubblici e alle aziende d'interesse pubblico nell'ambito di specifiche collaborazioni per la standardizzazione e lo scambio delle banche dati
- ai tecnici e ai cittadini in INTERNET
- agli uffici del Comune in INTRANET

La natura geografica del contesto e la localizzazione spaziale dell'informazione, consentono l'integrazione di dati anche molto diversi per contenuti e origine.

Il SIT utilizza un'architettura , completamente Open Source, istituita per la condivisione delle Banche Dati e strumenti hardware e software diversificati in funzione dei vari compiti istituzionali per:

- la produzione di nuove banche dati geografiche (comprese i modelli tridimensionali di rappresentazione del territorio)
- l'aggiornamento e la documentazione delle banche dati esistenti
- l'integrazione su base geografica di dati (geografici e alfanumerici) gestiti da altri uffici o enti
- lo sviluppo di servizi di consultazione ed analisi delle banche dati

Comune di Quarrata

0573 771250

informatica@comune.quarrata.pistoia.it

Piazza della Vittoria,2 - Quarrata (PT)

10.1.2 Maps

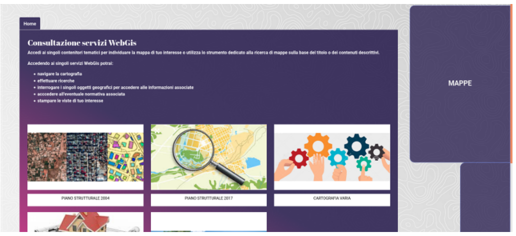
Within G3W-SUITE it is possible to organize webgis services in hierarchical containers (**Cartographic Macrogroups and Cartographic Groups**)

By accessing the **Maps** session, the **Macrogroups** (if present) will be displayed, access to the Macrogroup will allow you to view the associated **Cartographic Groups** and from these access the list of individual **WebGis services**.

The MacroGroups, Groups and WebGis services listed will be those defined as free access.

If you have a user for access, you can authenticate yourself through the **Login session**.

Following authentication, the **Maps** page will also show the MacroGroups, Groups and WebGis services with restricted access and on which the user has access permissions.

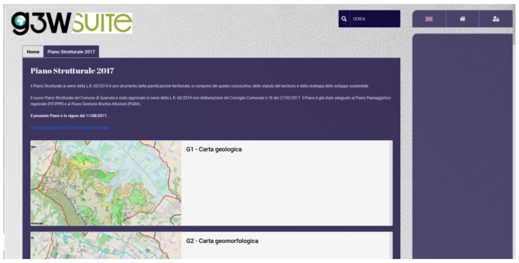


Consultazione servizi WebGis

Accedi ai singoli contenitori tematici per individuare la mappa di tuo interesse o utilizza lo strumento dedicato alla ricerca di mappe sulla base del titolo o dei contenuti descrittivi.

Accedendo ai singoli servizi WebGis potrai:

- navigare la cartografia
- effettuare ricerche
- interrogare i singoli oggetti geografici per accedere alle informazioni associate
- acccedere all'eventuale normativa associata
- stampare le viste di tuo interesse



Piano Strutturale 2017

Il Piano Strutturale ai sensi della L.R. 65/2014 è uno strumento della pianificazione territoriale, si compone del quadro conoscitivo, dello statuto del territorio e della strategia dello sviluppo sostenibile.

Il nuovo Piano Strutturale del Comune di Quarrata è stato approvato ai sensi della L.R. 65/2014 con deliberazione del Consiglio Comunale n.18 del 27/03/2017. Il Piano è già stato adeguato al Piano Paesaggistico regionale (PIT-PPR) e al Piano Gestione Rischio Alluvioni (PGRA).

Il presente Piano è in vigore dal 11/08/2017.

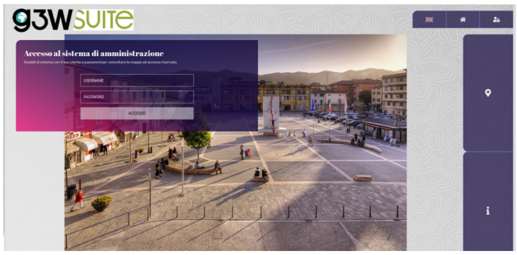
Accedi agli elaborati PDF del Piano Strutturale.

10.1.3 Login

If you have a user with login credentials, you can authenticate yourself through this session by entering your user and password.

If you are an **Administrator** or **Editor** of 1 or 2 level, you can also access the Administration session.

Once logged in, you access the **Admin** session and from here, via the **"Backend"** button to the Administration panel



Accesso al sistema di amministrazione

Accedi al sistema con il tuo utente e password per consultare le mappe ad accesso riservato.

CHAPTER

ELEVEN

G3W-ADMIN: THE ADMINISTRATION PANEL

This section describes how to manage the various aspects and features of the Suite:

- ***customization of the access portal***
- ***user creation and management (individuals and groups)***
- ***creation of MacroGroups and cartographic Groups and definition of access and management policies***
- ***publication of QGIS projects as WebGis services***
- ***updating and management of WebGis services (search tool and additional functions)***

11.1 Description of the interface

The Administration Panel allows you to manage all aspects related to the publication of QGIS projects and configuration of related WebGis services

The main page of the Administration Panel shows:

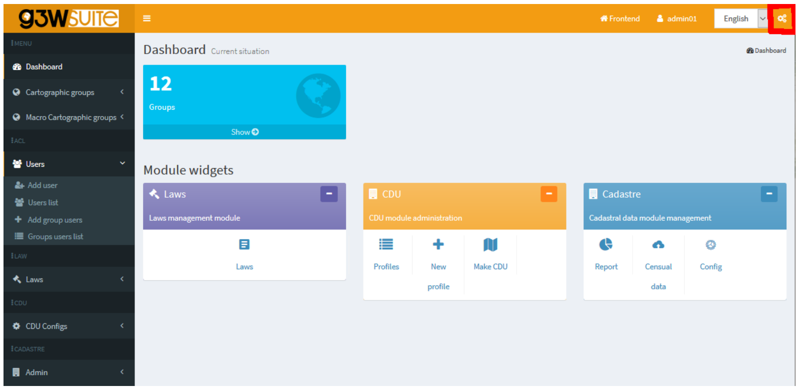
- **`a bar at the top:`**
  - **Frontend:** to return the landing page portal
  - **Username:** to edit your profile and log out
  - **Language:** to choose the interface language
  - **A gear icon** ⚙: to access a menu with:

    –> **Edit general data**: to set informations shown in the front-end portal

    –> **Django Administration** (only for Admin01 user): to configure Django advanced settings

    –> **Files:** to access the File Manager tool
- **`a text menu on the left:`**
  - **Dashboard:** Administration dashboard
  - **Cartographic Groups:** to create/manage cartographic groups
  - **Macro Cartographic Groups:** to create/manage Cartographic MacroGroups
  - **Users:** to create/manage single users and/or user groups
  - **List of active modules:** to activate/manage the functional modules active in your installation

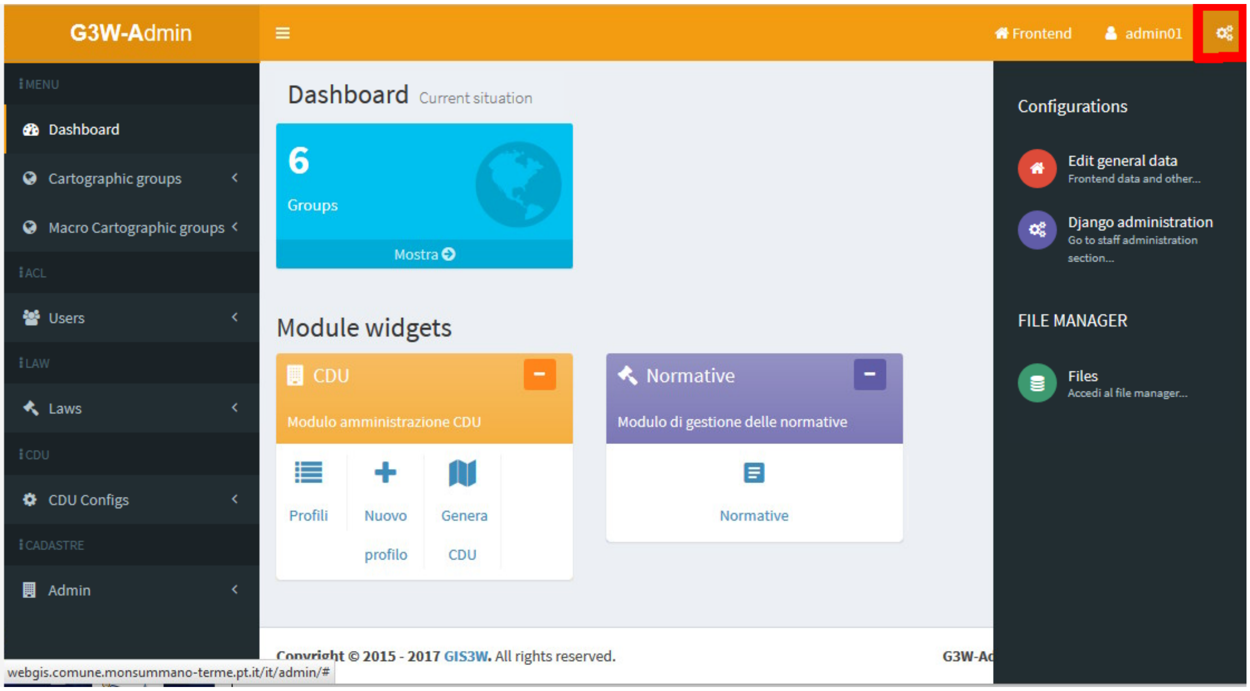
- **`a dashboard in the center of the page`**
  - **Dashboard:** to access to list of Cartographic Groups
  - **Module list:** to access the respective settings



11.2 Front end portal customization

From the main page of the **Administration Panel** it is possible to customize the information shown on the Front End Portal.

Click on the **Configurations** icon located at the rigth bottom and choose the item **Edit general data** which will appear in the menu below.


G3W-Admin
Frontend
admin01
MENU
Dashboard
Cartographic groups
Macro Cartographic groups
ACL
Users
LAW
Laws
CDU
CDU Configs
CADASTRE
Admin
Dashboard Current situation
6
Groups
Mostra
Module widgets
CDU
Modulo amministrazione CDU
Profili
Nuovo profilo
Genera CDU
Normative
Modulo di gestione delle normative
Normative
Configurations
Edit general data
Frontend data and other...
Django administration
Go to staff administration section...
FILE MANAGER
Files
Accedi al file manager...
Copyright © 2015 - 2017 GIS3W. All rights reserved.
G3W-Ad
webgis.comune.monsummano-terme.pt.it/it/admin/#

In the **`General suite data`** form you can define all the informations that will appear on the portal home page

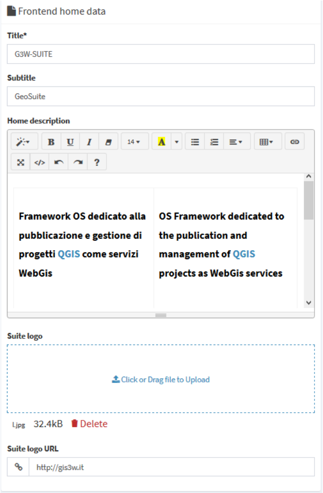
- **`Home data:`** info that will appear on the front end landing page

- `About data`: info that will appear in the **About it** session
- `Group map data`: info that will appear in the **Maps** session
- `Login data`: info that will appear in the **Login/Administration** session
- `Social media data`: links to the social channels that will appear in the **About it** it session
- `Map Client data`: main title to be displayed in the cartographic client bar

11.2.1 Front End Home Data

Informations that will appear on the front end landing page

ATTENTION: contents marked with * are mandatory.


Frontend home data

Title*: G3W-SUITE

Subtitle: GeoSuite

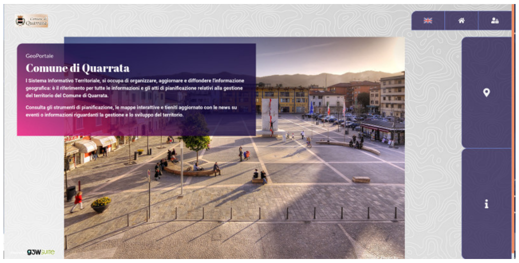
Home description:

Framework OS dedicato alla pubblicazione e gestione di progetti QGIS come servizi WebGis	OS Framework dedicated to the publication and management of QGIS projects as WebGis services

Suite logo: Click or Drag file to Upload

l.jpg 32.4kB Delete

Suite logo URL: http://gis3w.it


GeoPortale

Comune di Quarrata

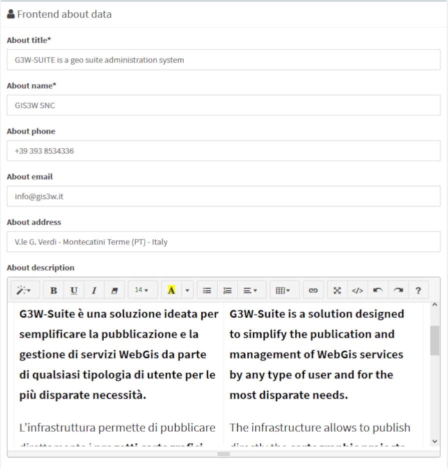
I Sistema Informativo Territoriale, si occupa di organizzare, aggiornare e diffondere l'informazione geografica: è il riferimento per tutte le informazioni e gli atti di pianificazione relativi alla gestione del territorio del Comune di Quarrata.

Consulta gli strumenti di pianificazione, le mappe interattive e tieniti aggiornato con le news su eventi o informazioni riguardanti la gestione e lo sviluppo del territorio.

11.2.2 Front End About Data

Informations that will appear in the **Info** session

ATTENTION: contents marked with * are mandatory.



Frontend about data

About title*

G3W-SUITE is a geo suite administration system

About name*

GIS3W SNC

About phone

+39 393 8534336

About email

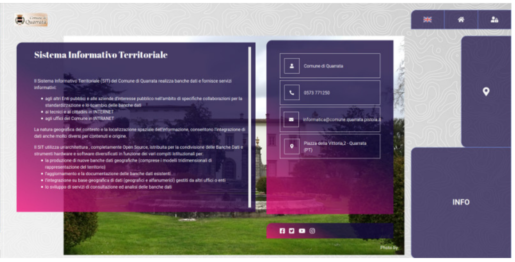
info@gis3w.it

About address

V.le G. Verdi - Montecatini Terme (PT) - Italy

About description

G3W-Suite è una soluzione ideata per semplificare la pubblicazione e la gestione di servizi WebGis da parte di qualsiasi tipologia di utente per le più disparate necessità.	**G3W-Suite is a solution designed to simplify the publication and management of WebGis services by any type of user and for the most disparate needs.**
L'infrastruttura permette di pubblicare	The infrastructure allows to publish



Sistema Informativo Territoriale

Il Sistema Informativo Territoriale (SIT) del Comune di Quarrata realizza banche dati e fornisce servizi informativi:

- agli altri Enti pubblici e alle aziende d'interesse pubblico nell'ambito di specifiche collaborazioni per la standardizzazione e lo scambio delle banche dati
- ai tecnici e ai cittadini in INTERNET
- agli uffici del Comune in INTRANET

La natura geografica del contesto e la localizzazione spaziale dell'informazione, consentono l'integrazione di dati anche molto diversi per contenuti e origine.

Il SIT utilizza un'architettura , completamente Open Source, istribuita per la condivisione delle Banche Dati e strumenti hardware e software diversificati in funzione dei vari compiti istituzionali per:

- la produzione di nuove banche dati geografiche (comprese i modelli tridimensionali di rappresentazione del territorio)
- l'aggiornamento e la documentazione delle banche dati esistenti
- l'integrazione su base geografica di dati (geografici e alfanumerici) gestiti da altri uffici o enti
- lo sviluppo di servizi di consultazione ed analisi delle banche dati

Comune di Quarrata

0573 771250

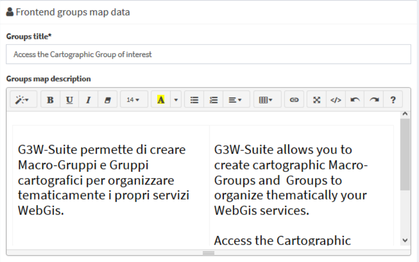
informatica@comune.quarrata.pistoia.it

Piazza della Vittoria,2 - Quarrata (PT)

11.2.3 Frontend Groups Map Data

Information that will be displayed in the **Maps** session

ATTENTION: contents marked with * are mandatory.



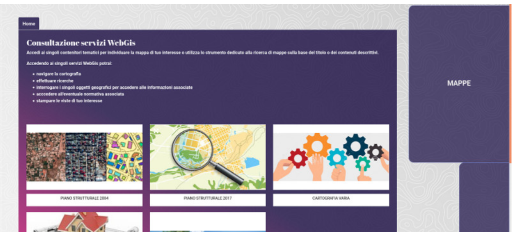
Frontend groups map data

Groups title*

Access the Cartographic Group of interest

Groups map description

G3W-Suite permette di creare Macro-Gruppi e Gruppi cartografici per organizzare tematicamente i propri servizi WebGis.	G3W-Suite allows you to create cartographic Macro-Groups and Groups to organize thematically your WebGis services.
	Access the Cartographic



Consultazione servizi WebGis

Accedi ai singoli contenitori tematici per individuare la mappa di tuo interesse o utilizza lo strumento dedicato alla ricerca di mappe sulla base del titolo o dei contenuti descrittivi.

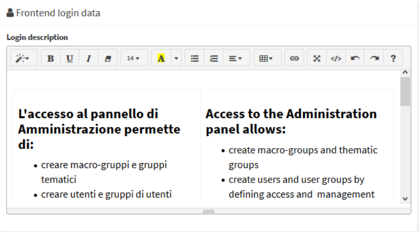
Accedendo ai singoli servizi WebGis potrai:

- navigare la cartografia
- effettuare ricerche
- interrogare i singoli oggetti geografici per accedere alle informazioni associate
- acccedere all'eventuale normativa associata
- stampare le viste di tuo interesse

11.2.4 Front End Login Data

Information that will be displayed in the **Login/Administration** session

ATTENTION: contents marked with * are mandatory.

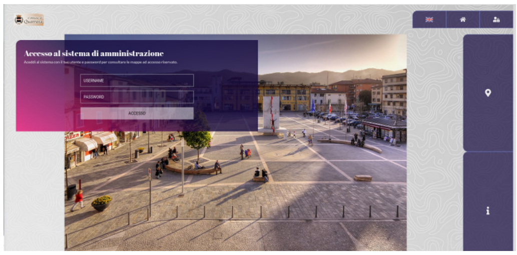


L'accesso al pannello di Amministrazione permette di:

- creare macro-gruppi e gruppi tematici
- creare utenti e gruppi di utenti

Access to the Administration panel allows:

- create macro-groups and thematic groups
- create users and user groups by defining access and management



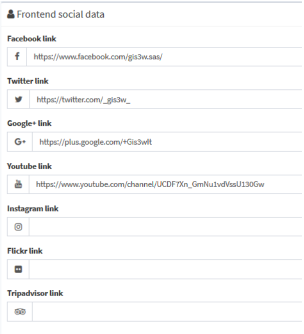
Accesso al sistema di amministrazione

Accedi al sistema con il tuo utente e password per consultare le mappe ad accesso riservato.

11.2.5 Front End Social Data

Links to the social channels that will be displayed in the **About it** it session

ATTENTION: contents marked with * are mandatory.



Facebook link: https://www.facebook.com/gis3w.sas/

Twitter link: https://twitter.com/_gis3w_

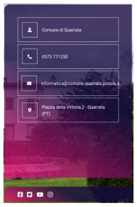
Google+ link: https://plus.google.com/+Gis3wlt

Youtube link: https://www.youtube.com/channel/UCDF7Xn_GmNu1vdVssU130Gw

Instagram link:

Flickr link:

Tripadvisor link:



Comune di Quarrata

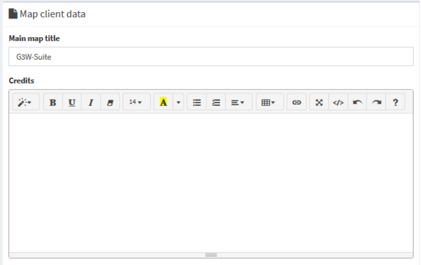
0573 771250

informatica@comune.quarrata.pistoia.it

Piazza della Vittoria,2 - Quarrata (PT)

11.2.6 Map client data

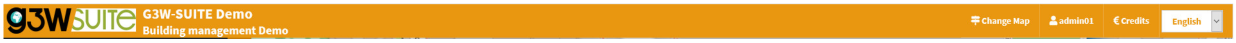
Main title to be displayed in the cartographic client bar


Map client data

Main map title

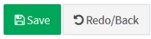
G3W-Suite

Credits


G3W-SUITE Demo
Building management Demo

In the **Credits** subsection it is possible to define additional text for the publishing aspects.

After filling in the various form, click on the **Save button** to confirm your choices.



11.3 Users and Users Groups management

In the left side menu there is the **Users** item with four sub-items:

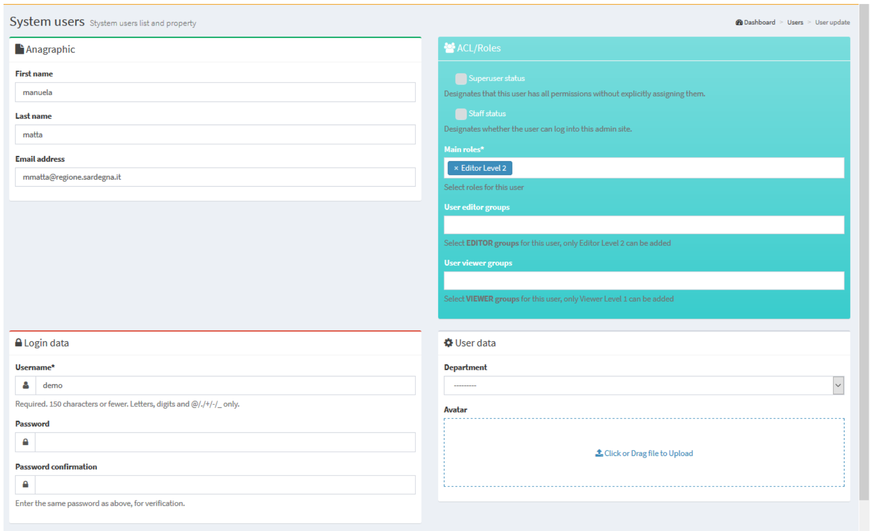
- **Add user**
- **Users list**
- **Add groups users**
- **Groups users list**

Please note that the Suite is equipped with a dedicated module for the integration of Active Directory users via **LDAP**.

11.3.1 Add user

Through this form it is possible to insert new users and define their characteristics.

- **`Anagraphic`**: first name, last name and email address
- **`Login`**: username and password
- **`User backend`**
- **`ACL/Roles`**
  - **Superuser status** (Admin1 and Admin2 users only)
  - **Staff status**: deep administration of the application (Admin1 users only)
  - Main roles (**Editor1, Editor2 or Viewer**)
  - **User Editor groups**: any Editor2 user group they belong to
  - **User Viewer groups**: any Viewer user group they belong to
- **`User data`**:
  - Departments and image to be associated with the profile



System users System users list and property

Dashboard > Users > User update

Anagraphic

First name: manuela

Last name: matta

Email address: mmatta@regione.sardegna.it

ACL/Roles

☐ Superuser status

Designates that this user has all permissions without explicitly assigning them.

☐ Staff status

Designates whether the user can log into this admin site.

Main roles*: × Editor Level 2

Select roles for this user

User editor groups:

Select **EDITOR groups** for this user, only Editor Level 2 can be added

User viewer groups:

Select **VIEWER groups** for this user, only Viewer Level 1 can be added

Login data

Username*: demo

Required. 150 characters or fewer. Letters, digits and @/./+/-/_ only.

Password:

Password confirmation:

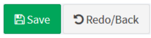
Enter the same password as above, for verification.

User data

Department: ---------

Avatar: Click or Drag file to Upload

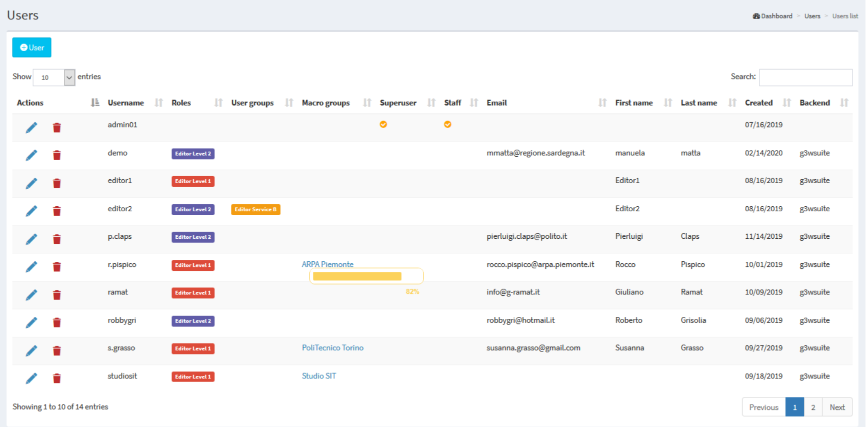
After filling in the various form, click on the Save button to confirm your choices.



11.3.2 Users list

Through this form you can consult the list of enabled users and their characteristics:

- Username
- Roles
- User groups to which they belong
- Associated Cartographic MacroGroups (only for Editor1 users)
- Super user and/or Staff privileges
- Email, name and surname
- Creation date
- Info on user creation (G3W-SUITE or LDAP)



Users

Dashboard > Users > Users list

User

Show 10 entries

Search:

Actions	Username	Roles	User groups	Macro groups	Superuser	Staff	Email	First name	Last name	Created	Backend
✎ 🗑	admin01				✓	✓				07/16/2019	
✎ 🗑	demo	Editor Level 2					mmatta@regione.sardegna.it	manuela	matta	02/14/2020	g3wsuite
✎ 🗑	editor1	Editor Level 1						Editor1		08/16/2019	g3wsuite
✎ 🗑	editor2	Editor Level 2	Editor Service B					Editor2		08/16/2019	g3wsuite
✎ 🗑	p.claps	Editor Level 2					pierluigi.claps@polito.it	Pierluigi	Claps	11/14/2019	g3wsuite
✎ 🗑	r.pispico	Editor Level 1		ARPA Piemonte			rocco.pispico@arpa.piemonte.it	Rocco	Pispico	10/01/2019	g3wsuite
✎ 🗑	ramat	Editor Level 1					info@g-ramat.it	Giuliano	Ramat	10/09/2019	g3wsuite
✎ 🗑	robbygri	Editor Level 2					robbygri@hotmail.it	Roberto	Grisolia	09/06/2019	g3wsuite
✎ 🗑	s.grasso	Editor Level 1		PoliTecnico Torino			susanna.grasso@gmail.com	Susanna	Grasso	09/27/2019	g3wsuite
✎ 🗑	studiosit	Editor Level 1		Studio SIT						09/18/2019	g3wsuite

Showing 1 to 10 of 14 entries

Previous 1 2 Next

The icons at the head of each row, allow you to:

- **Modify:** to modify the characteristics of the user
- **Delete:** to permanently delete a user

11.3.3 Add Group Users

Through this form it is possible to insert new user groups and define their role.

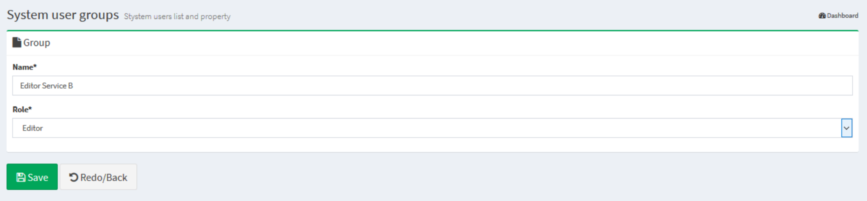
It is possible to create only two types of user groups:

- **`Editor`:** in which only Editor2 users can be inserted
- **`Viewer`:** in which only Viewer users can be inserted

The association between user and user groups is made at the individual user management level.

In the specific form for creating user groups, the following info are defined:

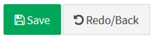
- **Name**
- **Role** (Editor or Viewer)



Name*: Editor Service B

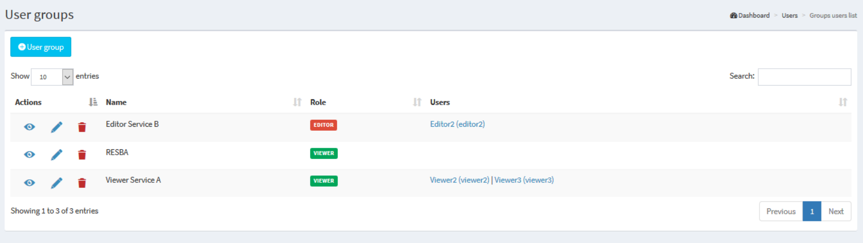
Role*: Editor

After filling in the from, click on the **Save** button to confirm your choices.



11.3.4 Groups users list

Through this form it is possible to consult the list of enabled user groups, their characteristics and the individual users belonging to the group.



Actions	Name	Role	Users
	Editor Service B	EDITOR	Editor2 (editor2)
	RESBA	VIEWER	
	Viewer Service A	VIEWER	Viewer2 (viewer2) | Viewer3 (viewer3)

Showing 1 to 3 of 3 entries

Using the icons at the head of each row, you can:

- **Show details:** to consult the characteristics of the user group

- ✎ **Modify:** to modify the characteristics of the group
- 🗑 **Delete:** to permanently delete a group and therefore association with users belonging to the group itself

11.4 Macro Cartographic Groups

In this section it is possible to view the list of Cartographic Macrogroups, manage them and create new ones.

ATTENTION: use the Cartographic MacroGroups only if you need them.

See chapter Hierarchical organization of WebGis services and types of Users to learn more about this aspect.

For example, you can create a **Macrogroup** to collect a series of **Cartographic Groups** belonging to the same Administration (single Municipality within a Union of Municipalities) or more simply to have main containers that contain second level groupings (Groups).

In the left side menu there is the **MacroGroup Cartographic** item with two sub-items:

- **Add MacroGroups:** to create a new Cartographic MacroGroup
- **MacroGroups list:** to access the list of MacroGroups present

11.4.1 Add MacroGroups

Through this item, available only for the **Admin** users, it will be possible to **create a new Cartographic MacroGroup and associate it with an Editor1 type user who will become its administrator**.

Let's see in detail the various sub-sessions of the group creation form.

ACL users

`Editor users:` you define the **Editor1 user** who will become the **MacroGroup administrator**. This user will can manage the MacroGroup by creating Cartographic Groups, publishing projects and creating Users or User Groups.

General data

- **`Identification name *:`** a generic internal identification name (not show in the front end)
- **`Title *:`** descriptive title of the MacroGroup (will appear in the list of MacroGroups) and, eventually, in the client header
  - **Use title for client** option
  - **Use logo image for client** option
- **`Description:`** the description to be associated with the MacroGroup in the frontend
- **`Logo img*:`** the logo to be associated with the MacroGroup in the frontend and, eventually, in the client header

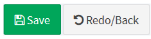
By default, the map client header, for each WebGis service, is composed of:

- main title (if set at General Data management level)
- logo and title associated with the **Cartographic Group**
- title of the WebGis service

If you select the **Use MacroGroup title and logo for the client** options, the map client header, for each WebGis service, will instead consist of:

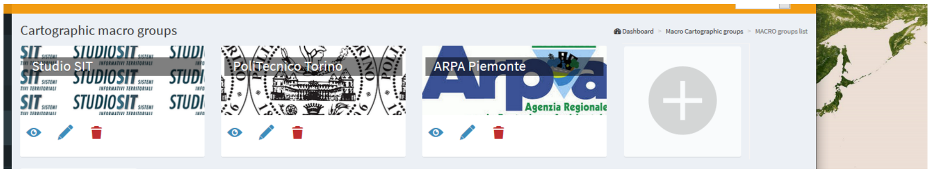
- main title (if set at General Data management level)
- logo and title associated with the **Cartographic MacroGroup**
- title of the WebGis service

After compiling the form, click on the **Save button** to confirm your choices.



11.4.2 MacroGroups list

The menu provides access to the list of cartographic macro-groups present.


Cartographic macro groups
Dashboard > Macro Cartographic groups > MACRO groups list
Studio SIT
PoliTecnico Torino
ARPA Piemonte
Agenzia Regionale

There are a series of icons to access specific functions:

- 👁 **Show the details** of the MacroGroup
- ✏ **Change** characteristics of the MacroGroup
- 🗑 **Delete** MacroGroup

ATTENTION: the removal of the Cartographic MacroGroup group will result in:

- the **removal of all the Cartoghraphic Groups** contained in it
- the **removal of all the cartographic projects** contained in the individual Groups
- the **removal of all the widgets** (eg searches) that would remain orphaned after the removal of the cartographic projects contained in the group. See the Widget chapter for more information.

Define the MacroGroups order on the FrontEnd

Through the Drag & Drop function it is possible to define the order of the MacroGroups in the list. This order will be reflected in the FronEnd.

11.5 Cartographic Groups

In this section it is possible to view the list of Cartographic Groups present, manage them and create new ones.

A Cartographic Group is create to **collect a series of cartographic projects belonging, for example, to the same theme** (Urban Planning Regulations, tourist maps . . .) and characterized by the same projection system.

It should be remembered that it will be possible to switch from one webgis service to another, leaving the same geographical extension and scale, only between the projects contained in the same cartographic group.

In the left side menu there is the **Cartographic Groups** item with two sub-items:

- **Add Group:** to create a new Cartographic Group
- **Group List:** to access the list of groups present

You can also access the list of groups by clicking on the **"Show"** button in the **Cartographic Groups** box on the **Dashboard**.

11.5.1 Add Group

Through this item it is possible to create a new Cartographic Group.

During creation, some functional characteristics and tools that the WebGis interface will show for all cartographic projects published within the group are also defined.

Let's see in detail the various sub-sessions of the group creation form.

General data

- **`Name *:`** a generic internal identification name (not show in the front end)
- **`Title`***: descriptive title of the Group (will appear in the list of Cartographic Groups)
- **`Description`**: description of the content
- **`Language`***: interface language

Logo/Picture

- **`Header logo img`***: the logo to be displayed in the header del client cartografico
- **`Use logo image for client`** option
- **`Logo link:`** a eventual link to associate with the logo

REMEBER

By default, the map client header, for each WebGis service, is composed of:

- main title (if set at General Data management level)
- logo and title associated with the **Cartographic Group**

- title of the WebGis service

If you select the **Use MacroGroup title and logo for the client** options, the map client header, for each WebGis service, will instead consist of:

- main title (if set at General Data management level)
- logo and title associated with the **Cartographic MacroGroup**
- title of the WebGis service

If you select the **Use Group logo for the client** options, the map client header, for each WebGis service, will instead consist of:

- main title (if set at General Data management level)
- title associated with the **Cartographic MacroGroup**
- logo associated with the **Cartographic Group** (if MacroGroup logo option is active this options takes precendence)
- title of the WebGis service

ACL Users

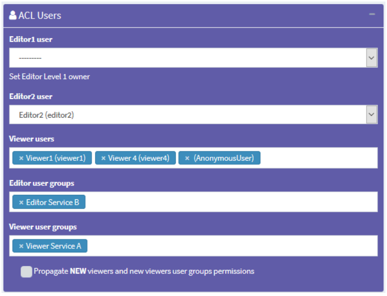
Access and modification powers are managed.

The options present will vary according to the type of user (Admin or Editor1) who creates/manages the Group

- **`Editor1 User:`** defines the **user (Editor1) manager of the Group**. The entry is present only when the Admin type user creates the Group If the Group is created by a user of type Editor1, the Group is associated directly with that user
- **`Editor2 User:`** defines the **user (Editor2) manager of the Group**.
- **`Viewers users:`** define the individual **users (Viewers) who have the credentials to view the contents of the group**. By choosing the anonymous user (AnonymusUser) the group will be free to access
- **`Editor user groups:`** define the **user groups (Editor2) who manage the Group**.
- **`Viewer user groups:`** you define the **user groups (Viewer) which have the credentials to view the contents of the group**.

The option **`Propagate viewers user (single and groups) permissions`** allows you to propagate the Viewer users (individuals and/or groups) associated to the Group to ALL the WebGis services present in it.

This option cancels any differentiation in the access policies applied to the WebGis services contained in the Group.



ACL Users

Editor1 user

Set Editor Level 1 owner

Editor2 user

Editor2 (editor2)

Viewer users

× Viewer1 (viewer1) × Viewer 4 (viewer4) × (AnonymousUser)

Editor user groups

× Editor Service B

Viewer user groups

× Viewer Service A

☐ Propagate **NEW** viewers and new viewers user groups permissions

MacroGroups

Possible definition of the belonging MacroGroup.

This option is available only if Cartographic macro groups have been created

In the event that the Group is created by an Editor1 type user, the Group will be automatically associated with the MacroGroup associated with the same Editor1.

GEO data

Projection system associated with the group.

N.B. All projects loaded into the group must be associated with this SRID.

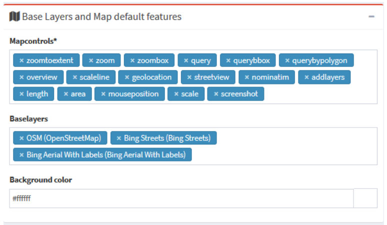
Base layers and Map interaction tools

In this box you can define:

- **`Mapcontrols`***: list of tools available on the WebGis client:
    - **zoomtoextent:** zoom to the initial extension
    - **zoom:** zoom in and zoom out
    - **zoombox:** zoom tool based on drawing a rectangle
    - **query:** puntual query of geographical layers
    - **querybbox:** query via bounding box (**N.B. it is necessary that the layers are published as WFS services on the QGIS project**)
    - **querybypolygon:** it will be possible to automatically query the features of one or more layers that fall inside a polygonal element of a guide layer. (Eg what's inside a cadastral parcel?). - **N.B. it is necessary that the all the layers involved in this kind of query are published as WFS services on the QGIS project**
    - **overview:** presence of a panoramic map
    - **scaleline:** presence of the scale bar
    - **scale:** tool for defining the display scale
    - **mouseposition:** display of mouse position coordinates
    - **geolocation:** geolocation tool (available only with https certificate)
    - **nominatin:** address search tools and toponyms based on OSM
    - **streetview:** Google StreetView on your map
        - in the presence of GoogleMaps API Key, StreetView it is integrated on the client and synchronized with the position and direction of the icon on the map
        - in the absence of GoogleMaps API Key, StreetView it will open on a new browse tab without the aspects of synchronization with the map
    - **length:** linear measuring instrument
    - **area:** surface measuring instrument
    - **addlayers:** tool for temporarily uploading GML, GeoJson, KML, GPX, SHP (zipped) and CSV with coordinate to WebGis. These layers will remain until the end of the work session

  - **screenshot:*** tool to take a screenshot of the map area
  - **GeoScreenshot:*** tool to create a GeoTIFF of the map area
- **`Baselayer:`** choice of the base maps that will be available on the WebGis client
- **`Background color:`** choice of the background color of the maps (default white)

***NB:** the security protocols prevent the creation of screenshots if WMS services with domains other than the publication one are present on the map. **In this case the icons will not be present on the client even if the MapControl is selected.** To avoid this, set the WMS as **external WMS** in the Widget managment session.



Base Layers and Map default features

Mapcontrols*

× zoomtoextent × zoom × zoombox × query × querybbox × querybypolygon × overview × scaleline × geolocation × streetview × nominatim × addlayers × length × area × mouseposition × scale × screenshot

Baselayers

× OSM (OpenStreetMap) × Bing Streets (Bing Streets) × Bing Aerial With Labels (Bing Aerial With Labels)

Background color

#ffffff

With regard to the **Base Layers**, it is specified that the external services available by default are:

- **OSM**

It is also possible to add **Bing** and **Google** maps to the Base Layers but it is first necessary to acquire the respective API Keys and set them in the Django settings level.

Remember that it is possible to build customized Base Layers starting from projects published on the suite.

In this regard, consult the session **Base map layer**

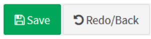
It is possible to create/add **customized Base Layers** starting from the cache of the single layers present in published webgis

See **Caching layer** paragraph in the **Widget management** session.

Copyrigth

`Terms of use:` description of the terms of use of the map and any other info **`Link to terms:`** link to text

After filling in the various form, click on the **Save** button to confirm your choices.



11.5.2 Groups List

From this item you can access the list of the created cartographic groups.

For each group, the Title and Subtitle defined at the time of creation are shown.

There are also a series of icons to access specific functions:

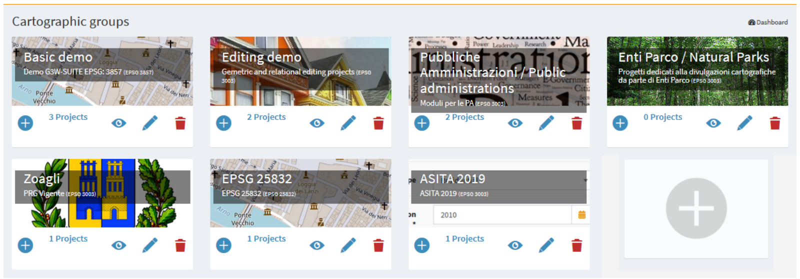
- **Add a new project** to be published on the WebGis service
- Number and links to projects published within the Group

- 👁 **Show group details**
- ✎ **Change** group characteristics
- 🗑 **Delete** group

ATTENTION: the removal of the cartographic group will involve:

- the **removal of all the WebGis services** contained therein
- the **removal of all widgets** (eg searches) that would be orphaned after the removal of the WebGis services contained in the group. See the Widget chapter for more information.

A large **+ icon** is available to access the form for creating a new group.


Cartographic groups
Dashboard
Basic demo
Demo G3W-SUITE EPSG: 3857 (EPSG 3857)
3 Projects
Editing demo
Gemetric and relational editing projects (EPSG 3003)
2 Projects
Pubbliche Amministrazioni / Public administrations
Moduli per le PA (EPSG 3003)
2 Projects
Enti Parco / Natural Parks
Progetti dedicati alla divulgazioni cartografiche da parte di Enti Parco (EPSG 3003)
0 Projects
Zoagli
PRG Vigente (EPSG 3003)
1 Projects
EPSG 25832
EPSG 25832 (EPSG 25832)
1 Projects
ASITA 2019
ASITA 2019 (EPSG 3003)
2010
1 Projects

Define the Groups order on the FrontEnd

Using the Drag & Drop function it is possible to define the order of the Groups in the list.

This order will be reflected within the belonging MacroGroups.

NB: currently in the list of Groups it is not present in the subdivision in the belonging MacroGroups but the fact that a Group can be associated with only one MacroGroup still allows you to manage intuitively what will be the complessive display order.

11.6 Publication of new WebGis services

11.6.1 To publish a new QGIS cartographic project

It is possible to publish new QGIS projects:

- **from the list of cartographic groups:** click on the icon ⊕ located under the box of the cartographic group in which you want to publish the project.
- **from the list of cartographic projects published within a group:** by clicking on the the buttom +Project QGIS

In the dedicated form we could define the charatteristicsof the project being published:

QGIS project

`QGIS file`*: load the QGIS cartographic project to be published (.qgz or .qgs file)

ACL Users

Management of access and/or modification permissions

The options present will vary according to the type of user (Admin, Editor1 or Editor2) who creates / manages the WebGis service.

- **`Editor1 user:`** defines the **user (Editor1) manager of the WebGis service**.

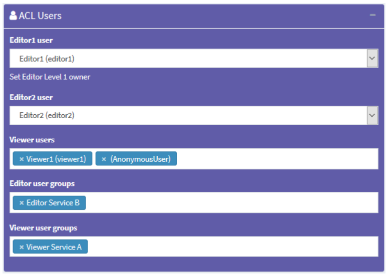
The entry is present only when the WebGis service is created by Admin or Editor1 user.

In the event that the WebGis service is published by a user of type Editor1, the WebGis service is associated directly with that user

- **`Editor2 User:`** defines the **user (Editor2) manager of the WebGis service**.

  The item is present only when the user of the Admin or Editor1 type creates the service WebGis. In the event that the WebGis service is published by a user of type Editor2, the WebGis service is associated directly with that user

- **`Viewers users:`** define the individual **users (Viewers) who have the credentials to view the WebGis service**. By choosing the anonymous user (**AnonymusUser**) the group will be freely accessible.
- **`Editor user groups:`** define the **user groups (Editor2) who manage the service**.
- **`Viewer user groups:`** you define the **user groups (Viewer) which have the credentials to view the content of the service**.



ACL Users

Editor1 user

Editor1 (editor1)

Set Editor Level 1 owner

Editor2 user

Editor2 (editor2)

Viewer users

× Viewer1 (viewer1) × (AnonymousUser)

Editor user groups

× Editor Service B

Viewer user groups

× Viewer Service A

Default base layer

In this session you define which base layer should be active at startup.

The choice is limited to the list of base layers activated for the cartographic group in which you work.

It is also possible not to define any active base layer at startup.

Description data

- **`Public title:`** title of the WebGis service, it will appear at the font end level and in the header of the client.
- **`Description:`** Description of the project, it will appear at the public portal level.
- **`Thumbnail (Logo):`** logo to associate with the project. This image will be viewable in the list of projects within the cartographic group
- **`URL alias:`** a human readable URL for the map. Only alphanumeric characters, not white space or special characters.

The title associated with the WebGis service is inherited by the following settings evaluated in the following order of priority:

- Public title: if set
- QGIS project title: if set on the **General session** of **QGIS project properties**
- Name of the QGIS project file

Options and actions

- **`User QGIS project map start extent as webgis init extent`**: check this control if you want set initial extent from QGSI project initial extent

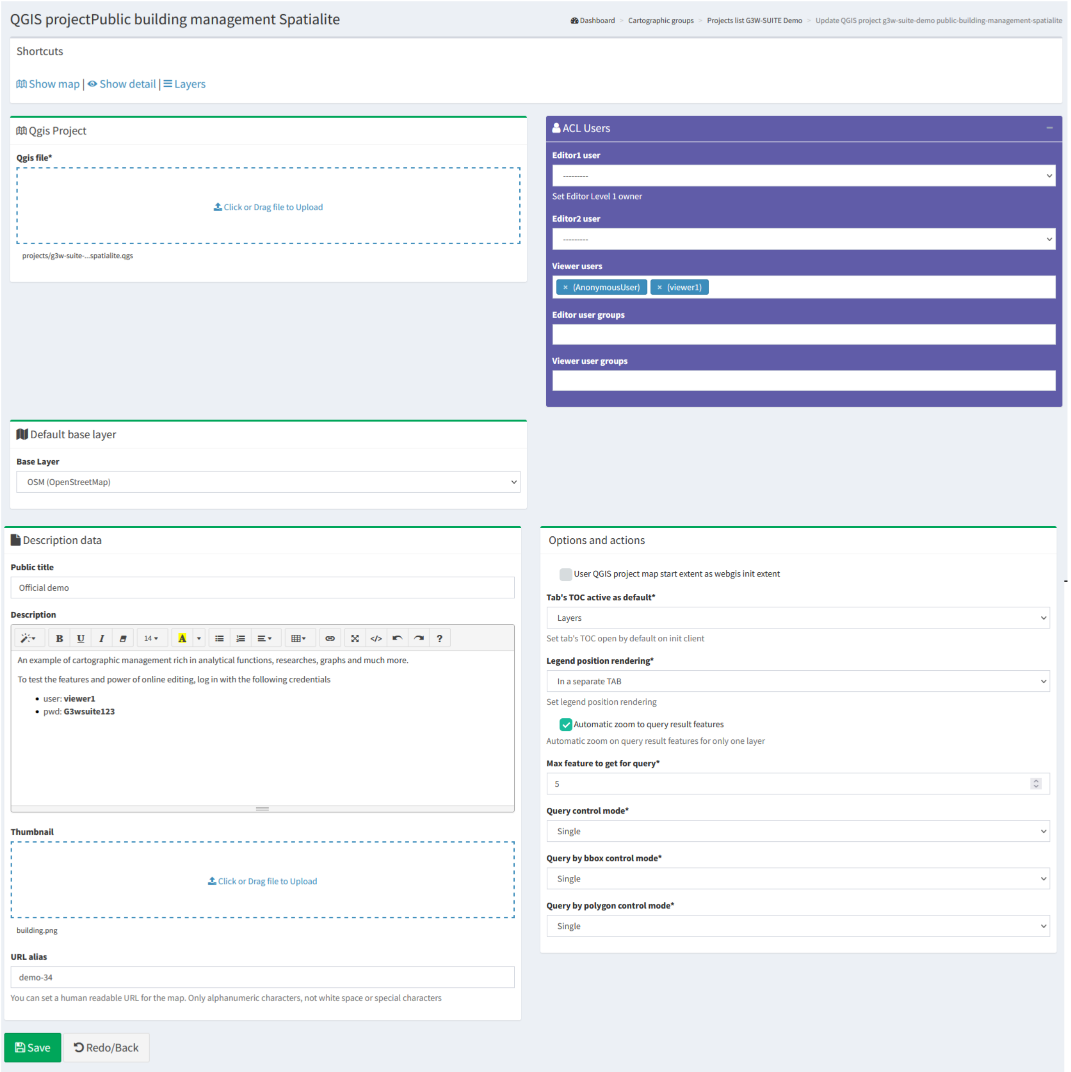
Otherwise the initial extension will correspond to the maximum one defined on the basis of the extension associated with the WMS capabilities of the QGIS project (**Project properties -> QGIS Server -> WMS capabilities (Advertised extent)**)

- **`Tab's TOC active as default`**: set tab's TOC (Layers, Base layers, Legend) open by default on startup of webgis service
- **`Tab’s TOC layer initial status`**: it is possible to define whether the TOC layer list is collapsed or expanded when the WebGis service is started
- **`Map themes list initial status`**: it is possible to define whether the list of themes (views) possibly associated with the project is collapsed or expanded when the WebGis service is started
- **`Legend position rendering`**: this option allows to set legend rendering position:
  - **In a separate TAB:** default value, the legend is rendered into a separate tab
  - **Into TOC layers:** the legend is rendered inside layers toc
- **`Automatic zoom to query result features`**: if in the results of a search there are only features of a layer, the webgis automatic zoom on their extension

The next options allow you to define the type of WMS / WFS query to be carried out and the maximum number of results obtainable following a query.

- **`Max feature to get for query`***: max number of feature to get for single or multiple mode
- **`Query control mode`***: single or multiple
- **`Query by bbox control mode`***: single or multiple
- **`Query by polygon control mode`***: single or multiple

ATTENTION: contents marked with * are mandatory.



QGIS projectPublic building management Spatialite

Dashboard > Cartographic groups > Projects list G3W-SUITE Demo > Update QGIS project g3w-suite-demo public-building-management-spatialite

Shortcuts

Show map | Show detail | Layers

Qgis Project

Qgis file*

Click or Drag file to Upload

projects/g3w-suite-...spatialite.qgs

ACL Users

Editor1 user: ---------

Set Editor Level 1 owner

Editor2 user: ---------

Viewer users: × (AnonymousUser) × (viewer1)

Editor user groups

Viewer user groups

Default base layer

Base Layer: OSM (OpenStreetMap)

Description data

Public title: Official demo

Description

An example of cartographic management rich in analytical functions, researches, graphs and much more.

To test the features and power of online editing, log in with the following credentials

- user: **viewer1**
- pwd: **G3wsuite123**

Thumbnail

Click or Drag file to Upload

building.png

URL alias: demo-34

You can set a human readable URL for the map. Only alphanumeric characters, not white space or special characters

Options and actions

☐ User QGIS project map start extent as webgis init extent

Tab's TOC active as default*: Layers

Set tab's TOC open by default on init client

Legend position rendering*: In a separate TAB

Set legend position rendering

☑ Automatic zoom to query result features

Automatic zoom on query result features for only one layer

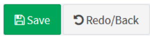
Max feature to get for query*: 5

Query control mode*: Single

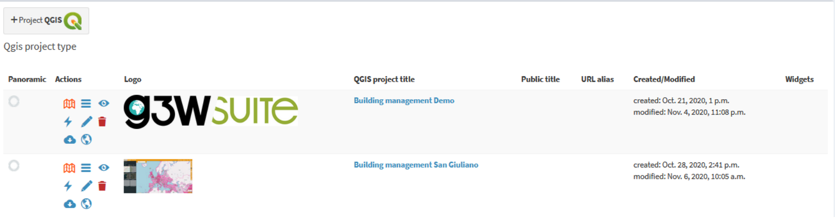
Query by bbox control mode*: Single

Query by polygon control mode*: Single

After filling in the various form, click on the Save button to confirm your choices.

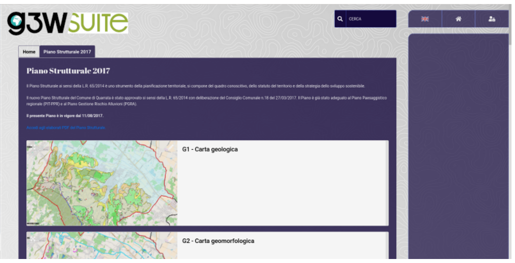


If the operation is successful we will see the new project appear in the list of projects in in the working Cartographic Group.



Qgis project type

Panoramic	Actions	Logo	QGIS project title	Public title	URL alias	Created/Modified	Widgets
○			Building management Demo			created: Oct. 21, 2020, 1 p.m. modified: Nov. 4, 2020, 11:08 p.m.	
○			Building management San Giuliano			created: Oct. 28, 2020, 2:41 p.m. modified: Nov. 6, 2020, 10:05 a.m.	



Piano Strutturale 2017

Il Piano Strutturale ai sensi della L.R. 65/2014 è uno strumento della pianificazione territoriale, si compone del quadro conoscitivo, dello statuto del territorio e della strategia dello sviluppo sostenibile.

Il nuovo Piano Strutturale del Comune di Quarrata è stato approvato ai sensi della L.R. 65/2014 con deliberazione del Consiglio Comunale n.18 del 27/03/2017. Il Piano è già stato adeguato al Piano Paesaggistico regionale (PIT-PPR) e al Piano Gestione Rischio Alluvioni (PGRA).

Il presente Piano è in vigore dal 11/08/2017.

Accedi agli elaborati PDF del Piano Strutturale.

G1 - Carta geologica

G2 - Carta geomorfologica

11.6.2 Embedded project

It is possible to publish QGIS projects that contain layers or groups of layers deriving from embedded projects. It is clearly necessary to publish the embedded project first and then those derived from it. An update of the embedded project will result in a consequent modification of all derived projects. The request to delete the basic embedded project causes a warning message as this operation will cause problems on all derived projects.

11.6.3 Define the WebGis order on the FrontEnd

The order of the WebGis services listed within the Thematic Group at the FrontEnd level reflects the order defined at the level of the corresponding administration session. It is possible to define a custom order by moving the published projects via drag&drop.

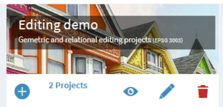
11.7 Update/ Manage WebGis services

To **update** a published WebGis service, access the list of projects in the Cartographic Group.

Click on the **Edit** icon placed at the top of the WebGis service and reload the QGIS file with the changes made in the relevant form.

Click on the **SAVE** button to confirm the change.

Always starting from the list of WebGis services, it is possible to manage numerous functional aspects associated with them.



11.7.1 Basic tools

In this section it is therefore possible to view the list of cartographic projects present, view them, manage them and create new ones.

Through the single icons, placed at the level of each project, it is possible to:

- **Display the cartographic project on the WebGis interface:** to check the display by the user
- **Access the list of layers** present within the project and define their functional aspects

- **VShow details**: for each WebGis service it will be possible to access a detailed summary that will list all the activated settings and widgets:
  - access and modification permissions
  - the list of active searches
  - editing permissions on individual layers
  - definition of alphanumeric and geographical constraints
  - visibility constraints on layers
  - visibility constraints on attribute fields
- **Test the WMS Capabilities** of the project
- **Update a project:** update of the QGIS file and other options related to the project
- **Remove a cartographic project Warning:** removing a project also removes all the widgets (e.g. searches) that would be orphaned after the project has been removed
- **Download of the QGIS project**
- **List of OGC services** associated with the project

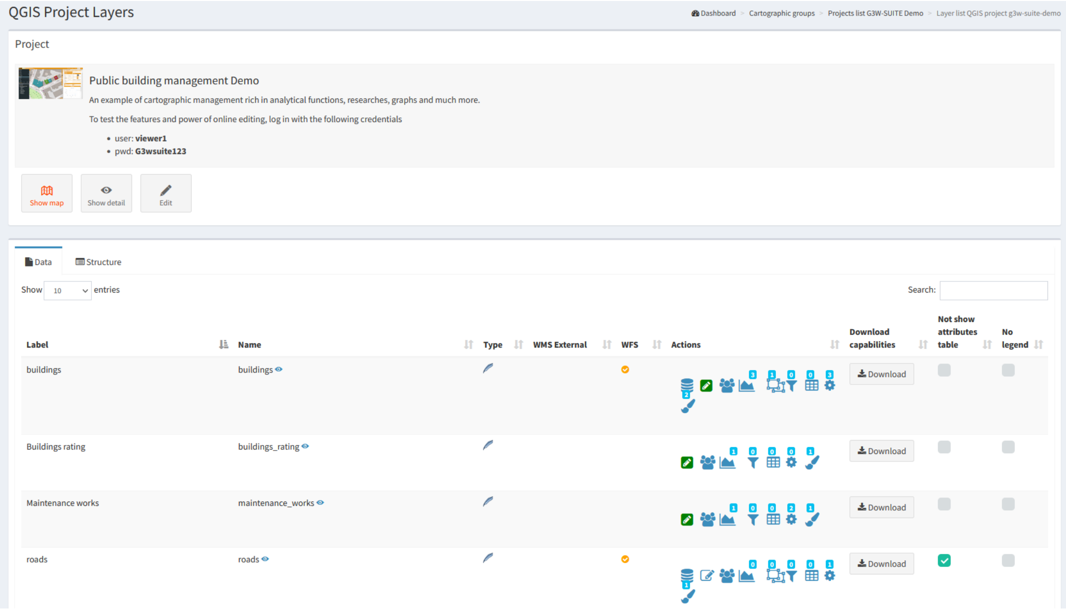
11.7.2 Setting up the overview map for WebGis services

In this session it is also possible to define which of the cartographic projects loaded within the group will be used as a panoramic map.

To set the panoramic map, choose the projects and tick the check box in the `Overview` column.

11.8 Widget management

Once a cartographic project has been published, thougth the icon ☰ it is possible to access the list of the geographical states that compose it and define some functional aspects that will be enabled at the cartographic client level.



QGIS Project Layers
Dashboard > Cartographic groups > Projects list G3W-SUITE Demo > Layer list QGIS project g3w-suite-demo

Project

Public building management Demo

An example of cartographic management rich in analytical functions, researches, graphs and much more.

To test the features and power of online editing, log in with the following credentials

- user: **viewer1**
- pwd: **G3wsuite123**

Show map
Show detail
Edit
Data
Structure
Show 10 entries
Search:

Label	Name	Type	WMS External	WFS	Actions	Download capabilities	Not show attributes table	No legend
buildings	buildings			✓		Download	☐	☐
Buildings rating	buildings_rating					Download	☐	☐
Maintenance works	maintenance_works					Download	☐	☐
roads	roads			✓		Download	☑	☐

Next to each layer are a series of icons and checkboxes:

- **Label:** layer alias applied at the QGIS project level
  - The eye icon allows you to know the ID associated with the layer at the project level, this ID will be useful for creating parameterized URLs
- **Name:** name of the layer (file or DB table)
- **Type:** illustrates the type of data (WMS, PostGis, SpatiaLite, GDAL / OGR ...)
- **WMS external:** to speed up loading, the WMS layers present in a QGIS project are managed directly by Django and not by QGIS-Server.
  - In case of non-external WMS, the service is managed by Django and this eliminates cross-domain problems but the only managed GetFeatureInfo response type is GML.
  - The external WMS option allows obtaining a response to the query (GetFeatureInfo) even if the response is not in GML but also in HTML or text/plain format.
- **WFS:** a check mark shows whether the layer is published as a WFS service or not
- **Actions:** a series of icons dedicated to various functions
  - **Caching Layer:** allows you to activate and manage the cache of the single layer at the project level
  - **Editing layer:** shows if the online editing function is active on the layer and allows you to activate and define it
  - **Hide layer by user/groups:** hide specific layers from the TOC based on specific users or groups of users
  - **QPlotly widget:** add or manage plots created with DataPlotly QGIS plugin

  - **Geo-constraints by user/group:** create or manage editing and visualization geo-constraints based on poligonal layers
  - **Alphanumeric and QGIS expressions constraints by user/groups:** create or manage editing and visualization constraints based on SLQ language or QGIS expressions
  - **Hide columns by User/Groups:** create or manage constraints on one or more fields of a layer based on single or group user/s
  - **Widgets list:** shows how many widgets (eg searches) are associated with this layer and allows you to activate new ones
  - **Manage layer styles:** manage multi-style layer

- **Download:** allows the download of the geographic and not geographic layers in various formats
  - **Download as shp/geotiff:** for vector and raster layers
  - **Download as GPK:** for geographic or not geographic layers
  - **Download as xls:** for all types of layers, in .xls format
  - **Download as csv:** for all types of layers, in .csv format
  - **Download as gpx:** for geographic layers, in .gpx format
- **Not show attributes table:** hide attributes table of the layer for every users
- **No legend:** it allows to define if the layer must have published the legend at TOC level of the WebGis client

The number above each Action icon shows if and how many related objects are present.

The functions present in the **Actions session** are described below.

11.8.1 Caching layer (Base Map)

With this icon it is possible to **activate/manage the cache of the single layers** and **create XYZ Tiles layer** that you can use as **Base Layer** in your webgis.

The form allows you to:

- **Active**: enable cache on the layer
- **Action**:
  - **Reset cache:** limited to the specific layer
  - **Reset cache for project:** reset cache of all the layers in the project

If the published project contains only one layer is it possible to convert this WebGis service into a Base Layer.

To do this you need to activate the **Base layer option** form and fill in the second part of the form:

- Base layer title
- Base layer description
- Base layer attribution

The newly created base layer will be available to be associated with those available for the various Cartographic Groups.

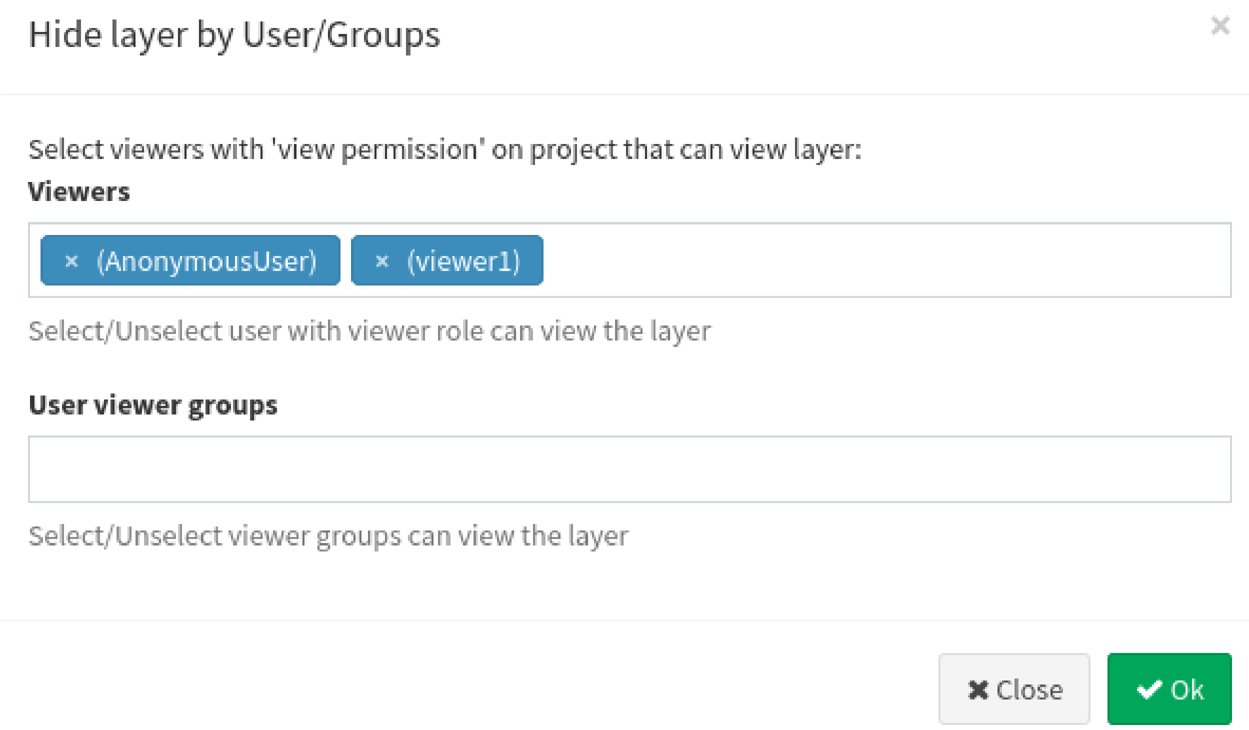
11.8.2 Editing layer

Through this icon it is possible to activate the online editing function on the individual layers and define the permissions for individual / groups of users

See the dedicated paragraph in the Editing on line session.

11.8.3 Hide layer by user/groups

With this icon it will be possible to define the list of users (single and/or groups) who will be enabled to view this layer at the TOC and map level.



Hide layer by User/Groups

Select viewers with 'view permission' on project that can view layer:

Viewers

× (AnonymousUser) × (viewer1)

Select/Unselect user with viewer role can view the layer

User viewer groups

Select/Unselect viewer groups can view the layer

11.8.4 QPlotly widget

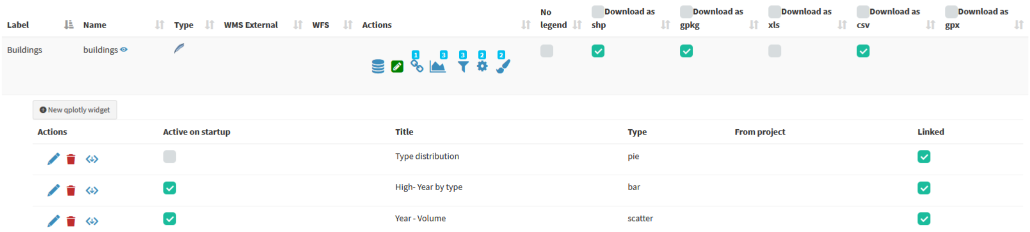
View plots created using QGIS DataPlotly (a great plugin developed by Matteo Ghetta) in the cartographic client.

The module, based on the Plotly library, manages **plots saved as xml**.

The plots are connected to the layers defined on the QGIS project, in this way, as for the searches and the constraints, it is possible to activate (checkink the **Linked** checkbox) the same plots on all WebGis services in which the reference layer is present.

It is also possible:

- **download the plot XML file** to reuse it in QGIS
- **define the activation status** of the plots when the WebGis service is started



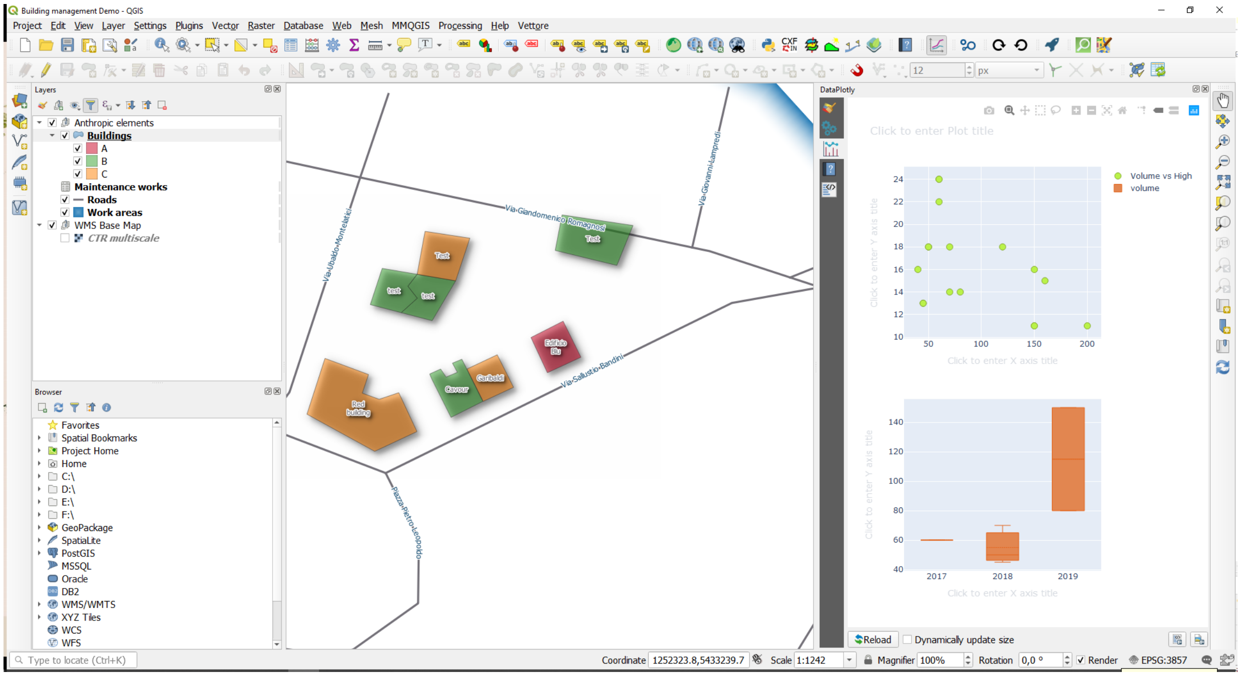
Label	Name	Type	WMS External	WFS	Actions	No legend	Download as shp	Download as gpkg	Download as xls	Download as csv	Download as gpx
Buildings	buildings					☐	☑	☑	☐	☑	

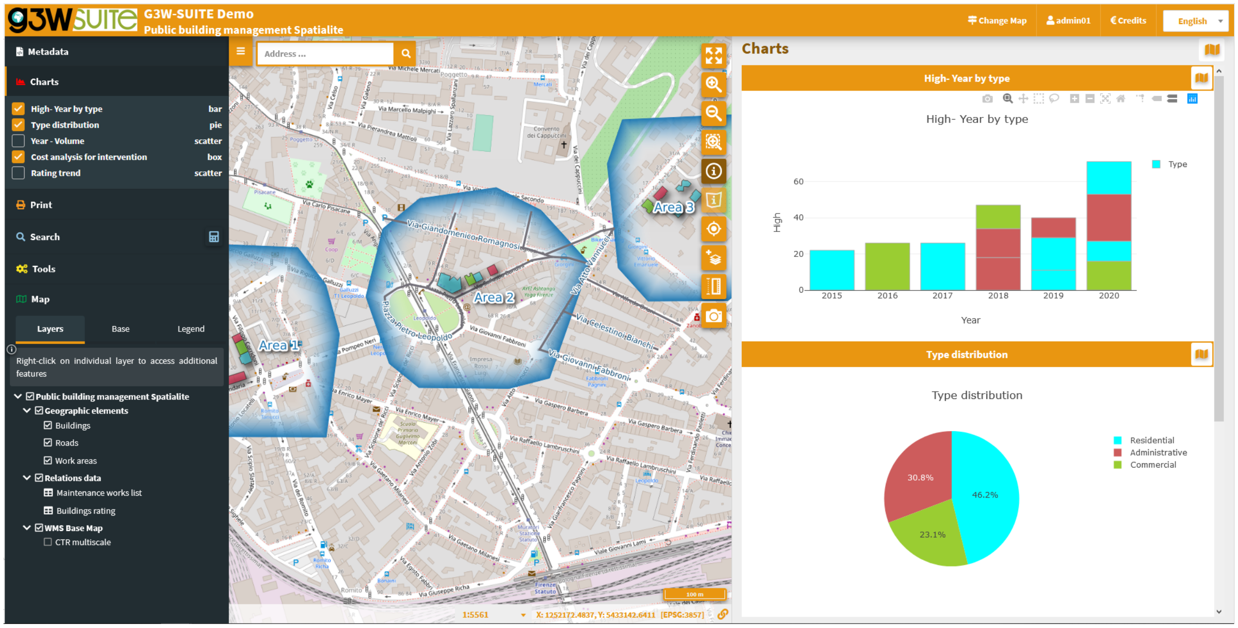
New qplotly widget

Actions	Active on startup	Title	Type	From project	Linked
	☐	Type distribution	pie		☑
	☑	High- Year by type	bar		☑
	☑	Year - Volume	scatter		☑

The title of the chart, defined at the plugin level, will be the unique identifier.

At client level, it will be possible to **filter plots based on the geometries visible on the map and/or selected by the user**.

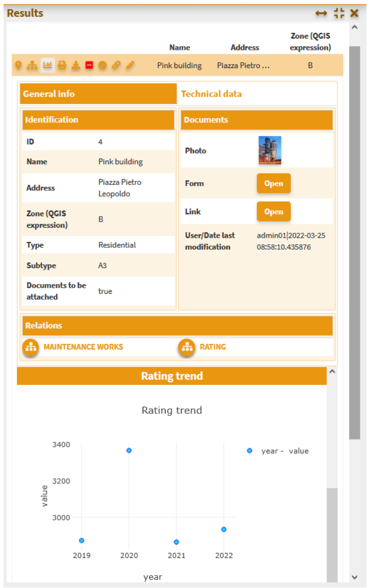




☑ High- Year by type — bar
☑ Type distribution — pie
☐ Year - Volume — scatter
☑ Cost analysis for intervention — box
☐ Rating trend — scatter

Charts based on 1:N data relation (child layer)

If the chart is linked to a child layer in a 1:N relation, it can also be displayed at the information level of the individual parent features



Name	Address	Zone (QGIS expression)
Pink building	Piazza Pietro ...	B

ID	4
Name	Pink building
Address	Piazza Pietro Leopoldo
Zone (QGIS expression)	B
Type	Residential
Subtype	A3
Documents to be attached	true

Photo	
Form	Open
Link	Open
User/Date last modification	admin01|2022-03-25 08:58:10.435876

11.8.5 Display and editing constraints

Through the **Geo-constraints by user/group** and **Alphanumeric and QGIS expressions constraints by user/groups** widgets it is possible to define editing and display filters for users authorized to consult/edit the project.

See the dedicated paragraph in the Editing on line session.

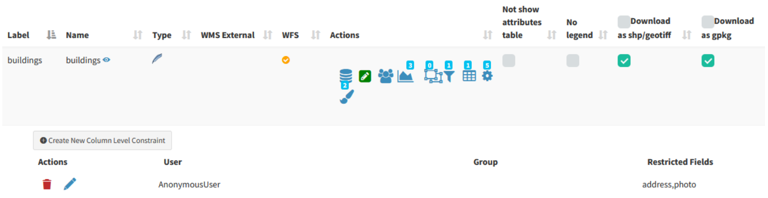
11.8.6 Hide columns by User/Groups

Thanks to this function it is possible to hide specific fields of a layer for consultation. This constraint can be differentiated for individual users or groups of users.

This setting is also available for the AnonymousUser user

To activate this type of constraint, you must click, at the level of the layer of interest, on the Hide columns by User/Groups icon.

Clicking on the icon will show the list of any existing alphanumeric column constraints and the item `+ Create New Column Level constraints` to create a new one.



Label	Name	Type	WMS External	WFS	Actions	Not show attributes table	No legend	Download as shp/geotiff	Download as gpkg
buildings	buildings			✓		☐	☐	☑	☑

Actions	User	Group	Restricted Fields
	AnonymousUser		address,photo

Clicking on the item will open a modal window which will allow you to define:

- **user or group of user**
- **list of fields to hide to them**

Once all the constraints have been setted, click on the OK to confirm the rules.

11.8.7 Widget setting - Search tools

Using this icon it is possible to associate a series of widgets to the layer. The basic widget allows you to define search tools that will be available in the webgis.

Basic settings

In G3W-SUITE it is possible to create search widgets.

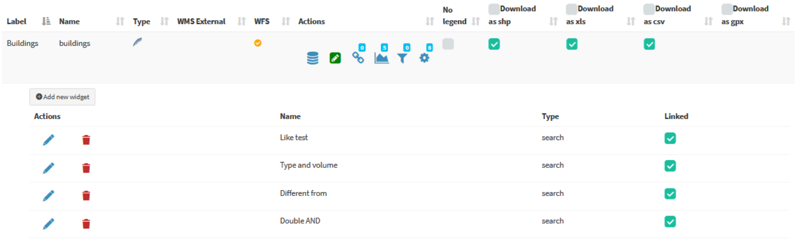
By default, searches can be built on individual vector layers based on the fields of the table associated with the layer.

NB: to create searches based on fields derived from simple joins (1:1/N:1) or from 1:N relation, you have to change the setting of the method used (from WMS to QGIS API). See dedicated paragraph.**

Every search widget will be saved by referring to the layer identifiers (for example the DB parameters: IP, DB name, schema, layer name).

This aspect allows, once a search widget for a layer has been created, to have it available on all the projects in which the layer is present, without having to rebuild the widget from scratch each time.

In the list of layers present within the project, **identify the layer on which to create and associate the search widget** and click on the icon ⚙



Label	Name	Type	WMS External	WFS	Actions	No legend	Download as shp	Download as xls	Download as csv	Download as gpx
Buildings	buildings			✓		☐	☑	☑	☑	

Add new widget

Actions	Name	Type	Linked
	Like test	search	☑
	Type and volume	search	☑
	Different from	search	☑
	Double AND	search	☑

By clicking on the icon, the list of already active (or activatable) widgets associated with the layer will be shown.

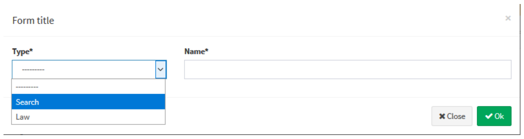
These widgets can be **modified, deleted or disconnected** using the appropriate icons.

ATTENTION: deleting a search will delete it from all projects in which that search is active.

To **deactivate a search** from a project, simply disconnect it using the check-box on the right.

To **create a new search**, click on the link **`New widget`**.

In the pop-up that appears, the **`Search` type** have to be chosen.



Form title

Type*: Search

Name*:

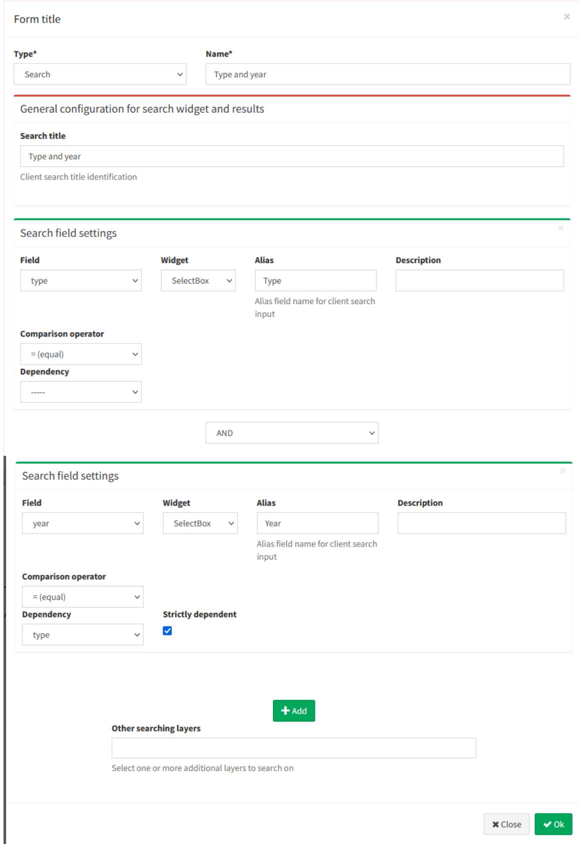
In the related form we can define:

- **Form Title**
  - **`Type:`** “Search”
  - **`Name:`** name that G3W-SUITE will use to internally register the search widget.
- **General configuration of research and results**
  - **`Search title:`** title that will become available in the **‘Research’** panel of the WebGis interface
- **Search fields settings**
  - **`Field:`** field on which to carry out the research
  - **`Widget:`** method of entering the value to be searched
    - `InputBox`: manual compilation
    - `SelectBox`: values shown via drop-down menu
    - `AutoCompleteBox`: values shown through auto-complete mode
    - `DateTimeBox`: widget to be used exclusively for date type fields. On the client, the user will define the date/time to search through the calendar/clock widget.
  - **`Alias:`** alias assigned to the field that will appear in the search form
  - **`Description:`** description assigned to the field
  - **`Comparison operator:`** comparison operator (**=, <,>,> <,> =, <=, LIKE, ILIKE**) through which the search query will be carried out.
  - **`Dependency:`** this parameter (optional) allows, only in the case of **SelectBox** or **AutoCompleteBox** widgets, to show the list of values of a field filtered according to the value defined for the previous fields.

Now it is possible to **define the dependence more or less strong** (strictly).

In case of **strictly dependence**, the values of the dependent fields will be loaded **only after** the choice of the value of the field on which the dependency depends.

Otherwise it will be possible to define the values of the individual fields freely and **without a specific order**. The values available for the other fields will in any case depend on the choice made.



Type*: Search
Name*: Type and year

General configuration for search widget and results
Search title: Type and year
Client search title identification

Search field settings
Field: type
Widget: SelectBox
Alias: Type
Alias field name for client search input
Description:
Comparison operator: = (equal)
Dependency: -----

AND

Search field settings
Field: year
Widget: SelectBox
Alias: Year
Alias field name for client search input
Description:
Comparison operator: = (equal)
Dependency: type
Strictly dependent ☑

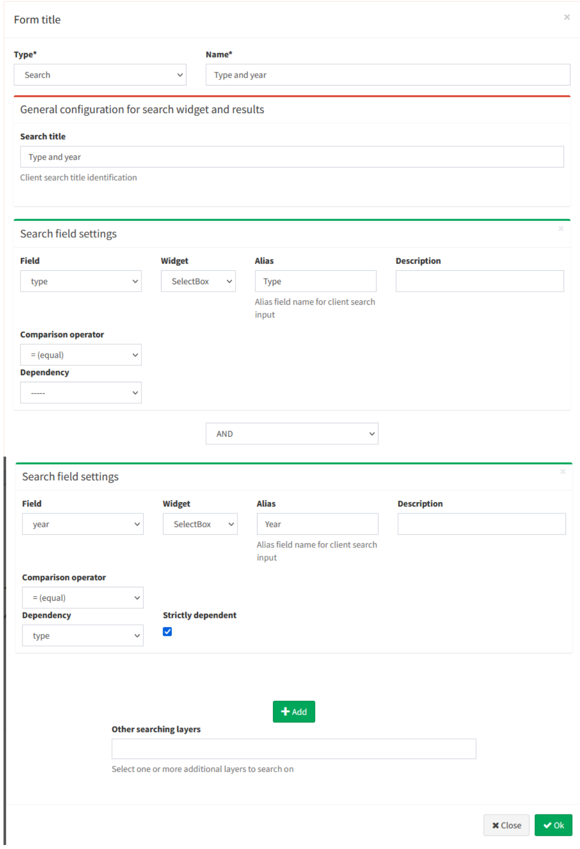
Other searching layers:
Select one or more additional layers to search on

Warning: in the case of fields with more than 100 unique values, the WMS service does not allow to obtain the complete list of values. In this case it is recommended not to use the `SelectBox` method

Alternatively, you can use the QGIS API as a search method to overcome this limitation. See dedicated paragraph.

The button **+ Add** allows you to add additional fields for the construction of the search query currently manageable through **AND/OR operators**.

The example below shows the compilation of the form for creating a search widget dedicated to a cadastral cartography layer.



Form title

Type*: Search

Name*: Type and year

General configuration for search widget and results

Search title: Type and year

Client search title identification

Search field settings

Field: type

Widget: SelectBox

Alias: Type

Alias field name for client search input

Description:

Comparison operator: = (equal)

Dependency: -----

AND

Search field settings

Field: year

Widget: SelectBox

Alias: Year

Alias field name for client search input

Description:

Comparison operator: = (equal)

Dependency: type

Strictly dependent: ☑

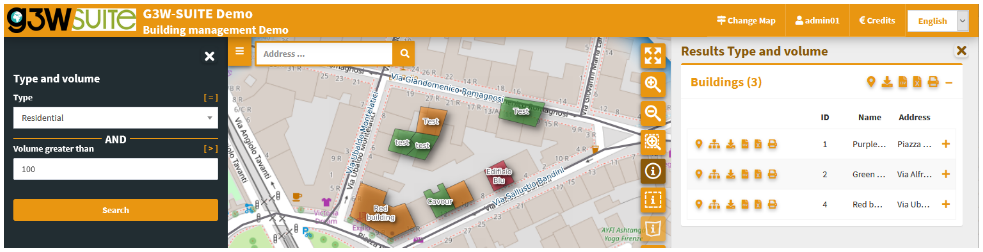
Other searching layers

Select one or more additional layers to search on

Once the form has been filled in, click on the OK button to save the settings.

Once the settings are saved, the created widget will appear in the list of Widgets associated with the layer.

The widget will already be **`connected`** and therefore **available in the WebGis interface**.



Type and volume

Type [=]: Residential

AND

Volume greater than [>]: 100

Results Type and volume

Buildings (3)

ID	Name	Address
1	Purple…	Piazza …
2	Green …	Via Alfr…
4	Red b…	Via Ub…

IMPORTANT: the created search widget will now be available (disconnected) for all projects in which the layer with which it has been associated will be present.

This will allow you not to have to recreate the widget several times and to decide in which projects to activate the search and in which not.

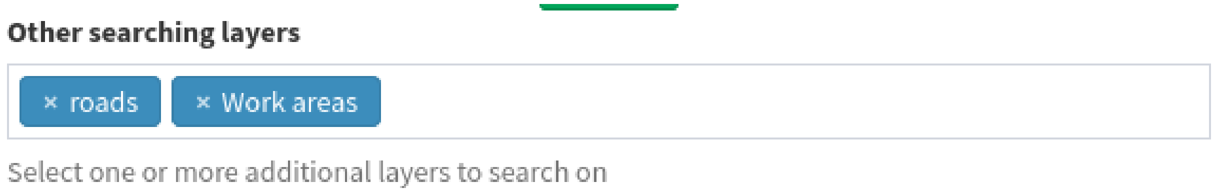
Multiple layers search

The **Other searching layers** option allows you to extend the search carried out to other layers.

If the additional layers have homologous fields (same name and type) the search will be extended to them.

The results will be differentiated according to the corresponding layer.

Especially useful in the case of multigeometric layers.



Other searching layers

× roads × Work areas

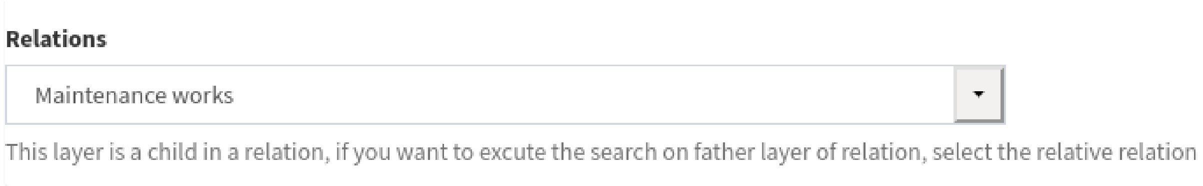
Select one or more additional layers to search on

Search based on 1:N relation data

The option allows you to create a search based on the fields of a table (child in a 1:N relation) and obtain results relating to the parent layer of the relation.

N.B. to create searches based on fields derived from simple joins (1: 1 / N: 1) or from 1: N relation, you have to change the setting of the method used (from WMS to QGIS API). See dedicated paragraph.

The **Relations** option allows you to to define the relationship to be used (if present) to identify the parent layer whose results will be shown.



Relations

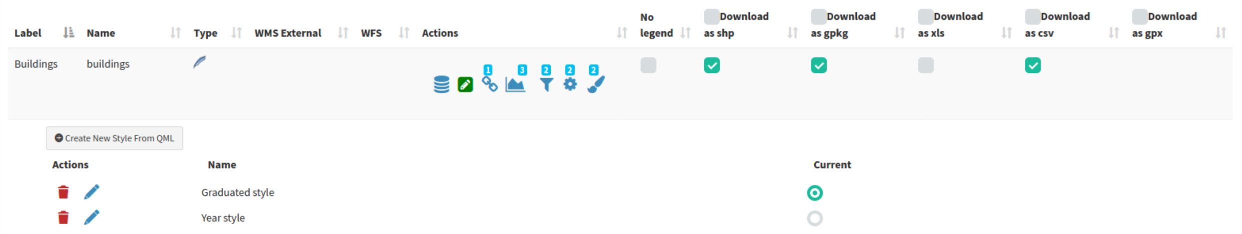
Maintenance works

This layer is a child in a relation, if you want to excute the search on father layer of relation, select the relative relation

11.8.8 Manage layer styles

If **multi styles have been associated with the same layer** in the QGIS project, they will be exposed.

It will be possible to associate new layers by **loading related QML files** and **set the style to be used as default**.



Label	Name	Type	WMS External	WFS	Actions	No legend	Download as shp	Download as gpkg	Download as xls	Download as csv	Download as gpx
Buildings	buildings					☐	☑	☑	☐	☑	

Create New Style From QML

Actions	Name	Current
	Graduated style	●
	Year style	○

11.9 Multilinguage

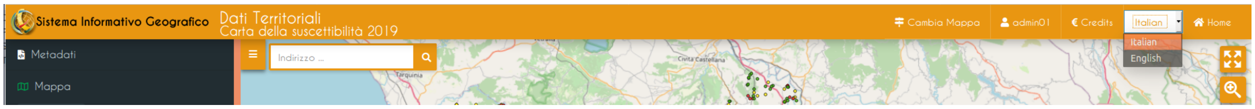
By default the suite manages four languages:

- English
- French
- Italian
- Finnish
- Swedish

Other languages can be added.

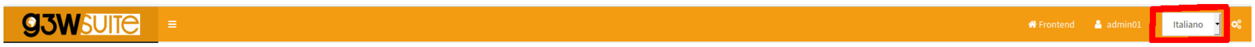
11.9.1 Map client

On the top bar you can choose, through a drop-down menu, the language of the entire client interface.



11.9.2 Administration

Also for the Administration panel, through the same drop-down menu, it is possible to define the language of the entire interface of the console.



11.9.3 Front end

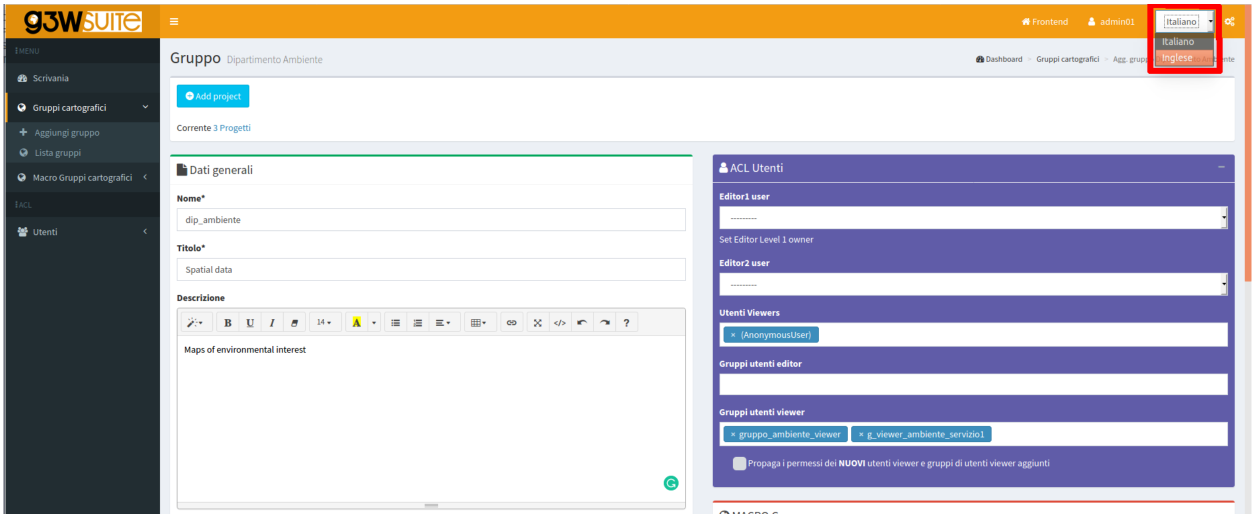
Fixed front end content is already available in the four basic languages.

Variable contents, i.e. user-definable contents, are instead translated:

- Sessions `Home`, `About`, `Maps` and `Login`: content that can be defined and translated in the **Edit General Data** session of the Control Panel Administration
- Sessions `MacroGroups Cartogarfici`, `Groups Cartogarfici` and `WebGis Services`: contents definable and translatable in the form defining these elements, limited to the items:
  - **Public Title**
  - **Description**

To carry out the translation of these contents, proceed as follows:

- access to the form for creating the element (**MacroGroup, Group or WebGis Service**)
- define one of the available languages from the drop-down menu at the top right
- fill in the form in the chosen language
- save the settings



Nome*: dip_ambiente

Titolo*: Spatial data

Descrizione: Maps of environmental interest

Editor1 user: ---------

Set Editor Level 1 owner

Editor2 user: ---------

Utenti Viewers: × (AnonymousUser)

Gruppi utenti editor:

Gruppi utenti viewer: × gruppo_ambiente_viewer × g_viewer_ambiente_servizio1

☐ Propaga i permessi dei **NUOVI** utenti viewer e gruppi di utenti viewer aggiunti

Then:

- access the form again in modification
- change the language
- fill in the translatable content in the new language
- save the new settings

Titles and Descriptions of the various elements in the defined languages will be available on the front.

CHAPTER

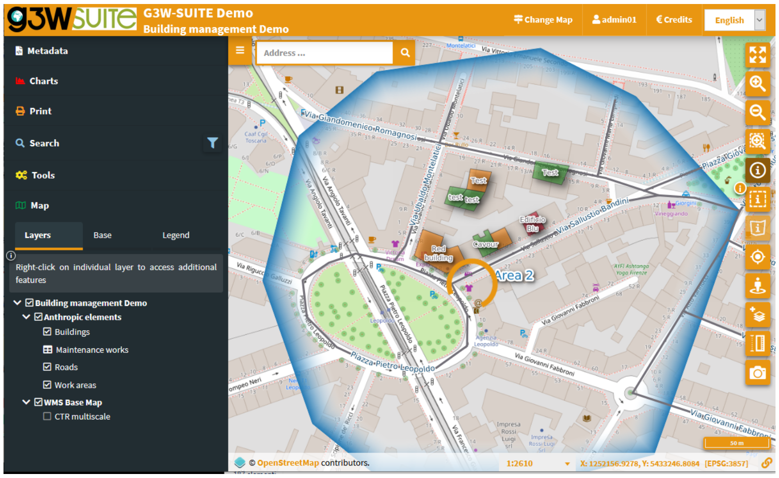
TWELVE

G3W-CLIENT: THE CARTOGRAPHIC CLIENT

12.1 Generic aspects

The application has a responsive interface consisting of expandable and reducible sessions.

The color of the interface depends on the type of user logged in.

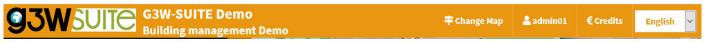


Right-click on individual layer to access additional features

- ☑ Building management Demo
  - ☑ Anthropic elements
    - ☑ Buildings
    - Maintenance works
    - ☑ Roads
    - ☑ Work areas
  - ☑ WMS Base Map
    - ☐ CTR multiscale

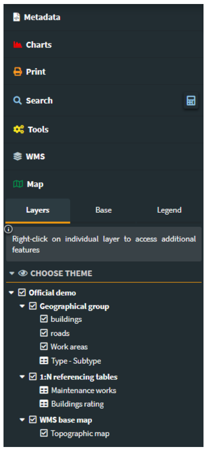
`The header` contains the following elements:

- **Logo, title and subtitle**, deriving from:
  - main title (set at General Data level) or MacroGroup name, according to the settings
  - Cartographic Group name
  - WebGis service title
- **Change map:** which allows you to switch from one WebGis service to another (located within the same Cartographic Group) while maintaining extension and display scale
- **User ID:** if you have logged in to the system
- **Credits**
- **Home:** to access the FrontEnd
- **Language:** the choice of language is reflected in the individual menus of the map client and on the contents of the access portal. The languages available are those activated by the Administration.



The `Tools panel` is located on the left and containing the following objects:

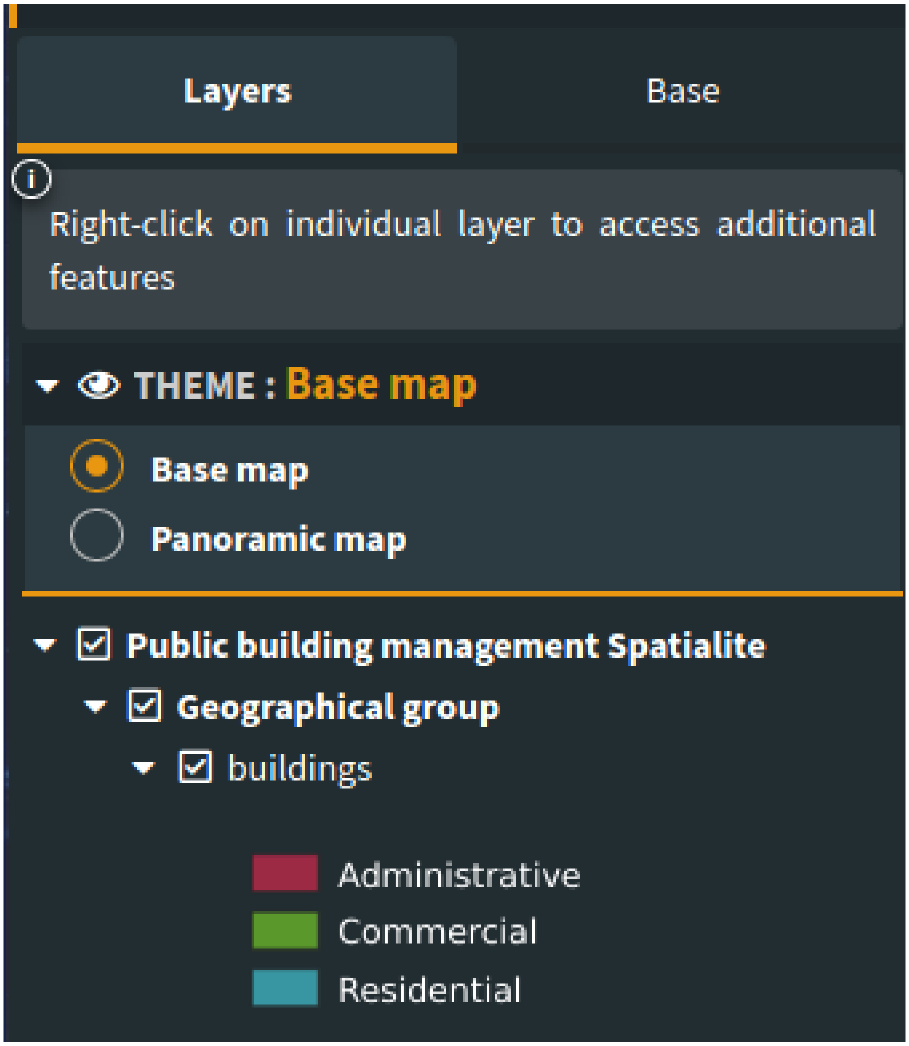
- **Metadata:** content defined on QGIS project
- **Print:** printing tool based on the layouts defined on the QGIS project
- **Search:** with the search tools defined through the Administration panel
- **Tools:** session that collects the various tools that may be activated on the WebGis service
- **WMS:** session to add custom WMS services to the map
- **Map:** containing:
  - **Layers:** structured list of layers, defined on the QGIS project
  - **Base:** choice of the base map from those defined at the creation level of the Thematic Group
  - **Legend:** graphic legend of the various layers



Right-click on individual layer to access additional features

In the event that **Themes (Views) are defined in the QGIS project**, a specific choice menu will be available in the Layers session of the TOC.

The choice of a Theme will determine the **automatic activation of the layers and related styles**, defined in the Theme itself.



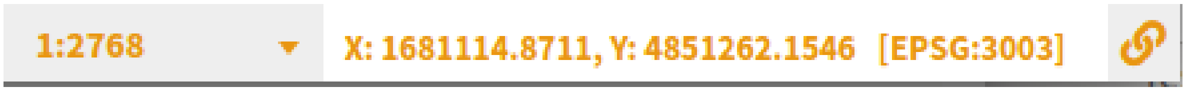
Right-click on individual layer to access additional features

12.2 Navigation and interaction with the map

12.2.1 Map area

At the base of the map area there is an information bar showing:

- **display scale**
- **mouse coordinates**: coordinates can be shown in project projection system and in WGS84 LatLong (ESPG: 4326)
- **project projection system**
- **icon to copy the URL with the references to the extension currently displayed**



1:2768 X: 1681114.8711, Y: 4851262.1546 [EPSG:3003]

12.2.2 Map controls

The icons and description of the functions of the various `MapControls` activated at the thematic group level are shown below.

- **`zoomtoextent`:** zoom to the initial extension
- **`zoom`:** zoom in and zoom out
- **`zoombox`:** zoom tool based on drawing a rectangle
- **`query`:** puntual query of geographical layers
- **`querybbox`:** query via bounding box - **N.B.** for the layers to be queried according to this method it is necessary that they are published as WFS services on the QGIS project
- **`querybypolygon`:** it will be possible to automatically query the features of one or more layers that fall within a polygonal element of a guide layer. (Eg what's inside a cadastral parcel?). - **N.B.** the questionable layers must be published as WFS services on the QGIS project
- **`geolocation`:** geolocation tool (useful for consultation from tablet)
- Address ... **`nominatin`:** search tools for addresses and toponyms based on OSM
- **`streetview`:** Google StreetView on your map
  - in the presence of GoogleMaps API Key, StreetView it is integrated on the client and synchronized with the position and direction of the icon on the map
  - in the absence of GoogleMaps API Key, StreetView it will open on a new browse tab without the aspects of synchronization with the map
- **`length`:** linear measuring instrument

- **`area:`** tool for measuring surfaces
- **`addlayers:`** tool for temporarily uploading GML, GeoJson, KML, GPX, SHP (zipped) and CSV with coordinate to WebGis. These layers will remain until the end of the work session
- **`snapshot:`** tool for taking snapshots of the map area
- **`GeoSnapshot:`** tool to export a GeoTIFF of the map area

Query type

It should be noted that the query function acts, by default, with the coring method, providing information relating to all the layers underlying the point where you click with the mouse or draw a box.

To query a single layer, it must be previously selected at the TOC level.

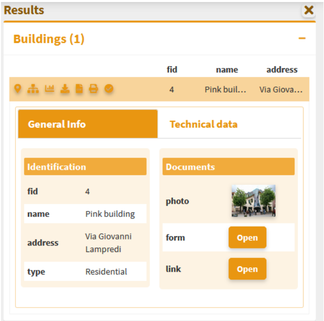
Remember that query modes based on **querybbox** and **querybypolygon** require the publication of all the layers involved as WFS services at the QGIS project level.

NB: Remember that, after viewing the results, it will be possible to zoom on the feature associated with the individual results only if the option **`Add geometry to object response`** has been activated at the QGIS project level (**`Project`** → **`Properties, QGIS Server session`**).

12.2.3 Map query

In the QGIS project (**`Vector properties`** → **`Attributes Form`**), you can create custom attribute forms (tabs, groups . . .)

Upon querying a geometry, the form structure will be replicated at the client level.



fid	name	address
4	Pink buil...	Via Giova...

fid 4
name Pink building
address Via Giovanni Lampredi
type Residential

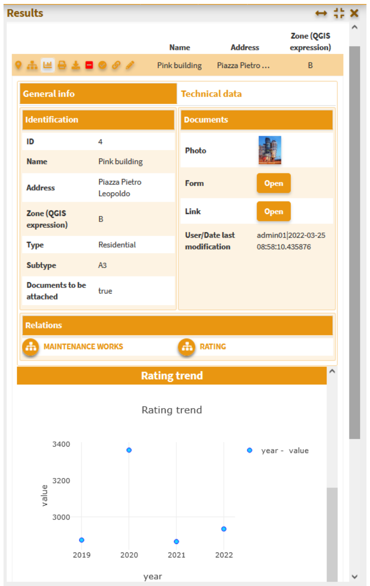
photo
form
link

Any links to photos will determine the display of a clickable preview, any links to links or other multimedia content will determine the display of the Open button that will allow consultation of the link.

For further information on this point, see the **dedicated paragraph**.

Single result

In case the query provides one single result, the attributes will be displayed according to the form defined in the QGIS project or as a column list



Name	Address	Zone (QGIS expression)
Pink building	Piazza Pietro ...	B

ID	4
Name	Pink building
Address	Piazza Pietro Leopoldo
Zone (QGIS expression)	B
Type	Residential
Subtype	A3
Documents to be attached	true

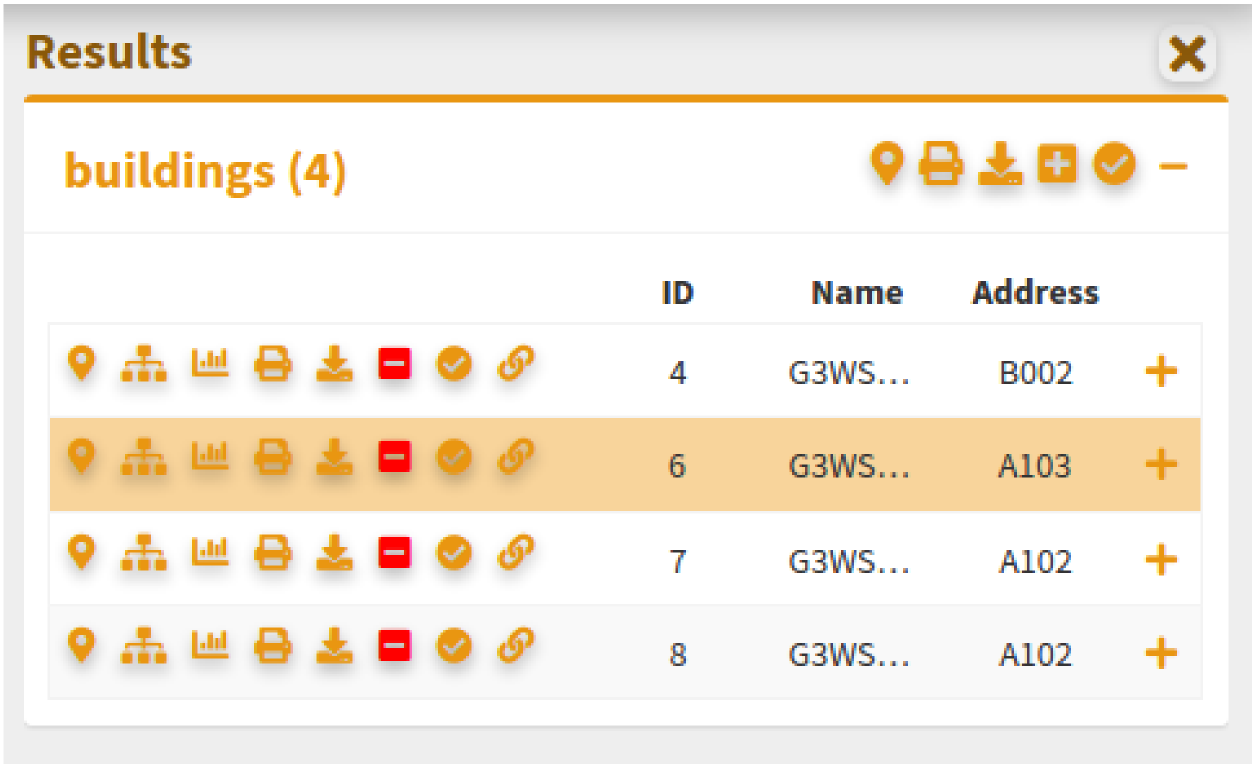
Photo	
Form	Open
Link	Open
User/Date last modification	admin01|2022-03-25 08:58:10.435876

The bar above the query results shows the following icons:

- **Zoom to feature:** if the function is activated on the Properties of the QGIS project
- **Show relations (1: N):** if present on the QGIS project
- **Show relation charts:** display of plots related to 1: N related data. Only if 1: N relationships are associated with the interrogated layer and plots have been activated on the referencing tables.
- **Print Atlas:** prints the reports (atlas) (if set on QGIS project) related to the queried feature
- **Download single results (Shapefile, GPK, GPX, CSV, XLS):** if activated in the administration session
- **Remove feature from result:** remove the feature to the current list of results (useful to choose manually the list of objects to select/download)
- **Add/Remove selection:** add/remove the features to the current selection
- **Copy map URL pointing to the geometry :** to create a parameterized URL that points to this features
- **Editing:** to start editing directly on this feature

Multiple result

In case the query provides more results these will be listed as a list with the possibility to expand the detailed information.



Results

buildings (4)

ID	Name	Address
4	G3WS...	B002
6	G3WS...	A103
7	G3WS...	A102
8	G3WS...	A102

A series of icons, relating to the list of resulting features, will allow you to:

- **Zoom to features result extent:** if the function is activated on the Properties of the QGIS project
- **Print Atlas:** prints the reports (atlas) (if set on QGIS project) related to all the features result
- **Download all the features results (Shapefile, GPK, GPX, CSV, XLS):** if activated in the administration session
- **Add feature on result:** add features (clicking on the map) to the current list of results (useful to choose manually the list of objects to select/download)
- **Add/Remove selection:** add/remove the list of features result to the current selection

12.2.4 Display of 1:n relation data

In the event that, at the QGIS project level, **one or more type 1:n relations** have been associated with a layer, the icon **View Relationships** will be shown in the attribute form.

By clicking on the icon you will access the **list of 1:N relations** present and, from these, the list of child records associated with the individual relationships.

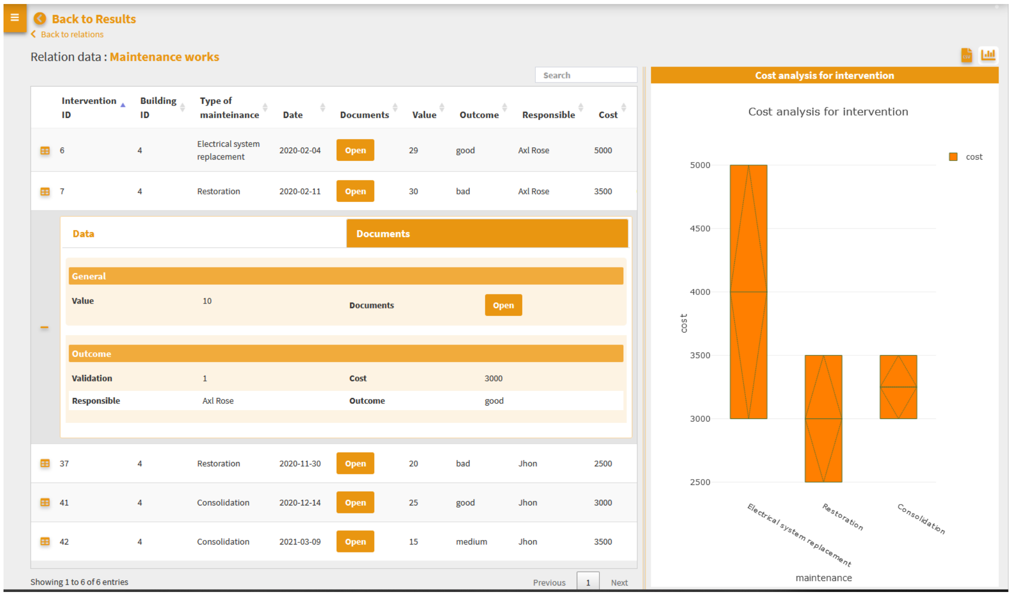
In the case of a **simple 1:1 or N:1 joins**, the joined records will be displayed directly in the main form.

In the new frame, a filter, applied generically to the contents of all fields, will allow you to filter the list of child records.

The icon to the left of each record allows you to switch from the classic table view to the one based on any form defined on the QGIS project

In the case of **links to multimedia contents**, the previews of the images and/or the `Open` **button** will be displayed for consultation of different types of content.

In case of **active plots** on the related table, these will be displayed through **`Show charts`** at the top right.



Relation data : Maintenance works

Intervention ID	Building ID	Type of mainteinance	Date	Documents	Value	Outcome	Responsible	Cost
6	4	Electrical system replacement	2020-02-04	Open	29	good	Axl Rose	5000
7	4	Restoration	2020-02-11	Open	30	bad	Axl Rose	3500
37	4	Restoration	2020-11-30	Open	20	bad	Jhon	2500
41	4	Consolidation	2020-12-14	Open	25	good	Jhon	3000
42	4	Consolidation	2021-03-09	Open	15	medium	Jhon	3500

General

Value	10	Documents	Open

Outcome

Validation	1	Cost	3000
Responsible	Axl Rose	Outcome	good

Showing 1 to 6 of 6 entries

12.2.5 Parameterized URLs

It is possible to create parameterized URLs for direct zomming to: geographical extension single feature by FID single/list features by value of a field

Here the URL paramters available:

- **map_extent (Zoom to map extent)**
  - Ex: `<url_project>?map_extent=Xmin, Ymin,Xmax,Ymax`
- **zoom_to_fid (Zoom to a specific feature by FID)**
  - Ex: `<url_project>?zoom_to_fid=<layer_id>|<fid value>`
- **ztf (Zoom to features defined on the basis of attribute values)**
  - Ex: `<url_project>?ztf=<layer_id or layer name>:<field name>=<field value>`

If **Views (Themes)** are set up in the QGIS project, it will also be possible to parameterize them in the webgis URL:

- Ex: `<url>?map_theme=<theme_name>`

12.3 Tools panel

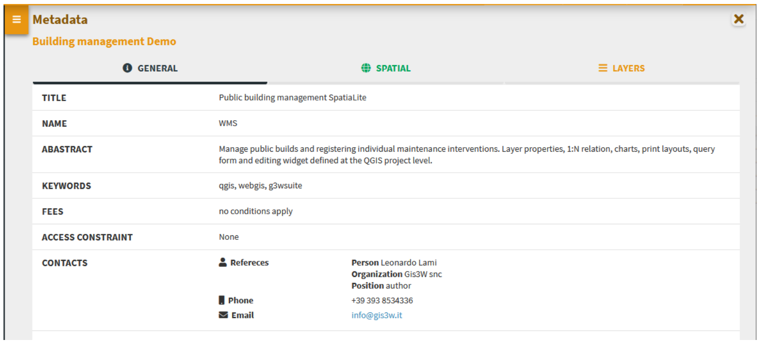
12.3.1 Metadata

The metadata reported in this session derive from those set at the QGIS project level.

This content is divided into three sessions: **General, Space Info and Layers.**

- **`General:`** reports the **metadata defined on the QGIS project** in the item: **`Project` → `Properties (QGIS Server session, Service Capabilities)`** In case of login as anonymous user the URL of the WMS service is shown.

- `Spatial:` reports the **EPSG code** of the projection system associated with the QGIS project and the **BoundingBox** relating to the initial publication extension, defined in the item: `Project → Properties (QGIS Server session, WMS Capabilities, Advertised extent)`
- `Layers:` reports **simple metadata associated with the individual layers**.



Metadata

Building management Demo

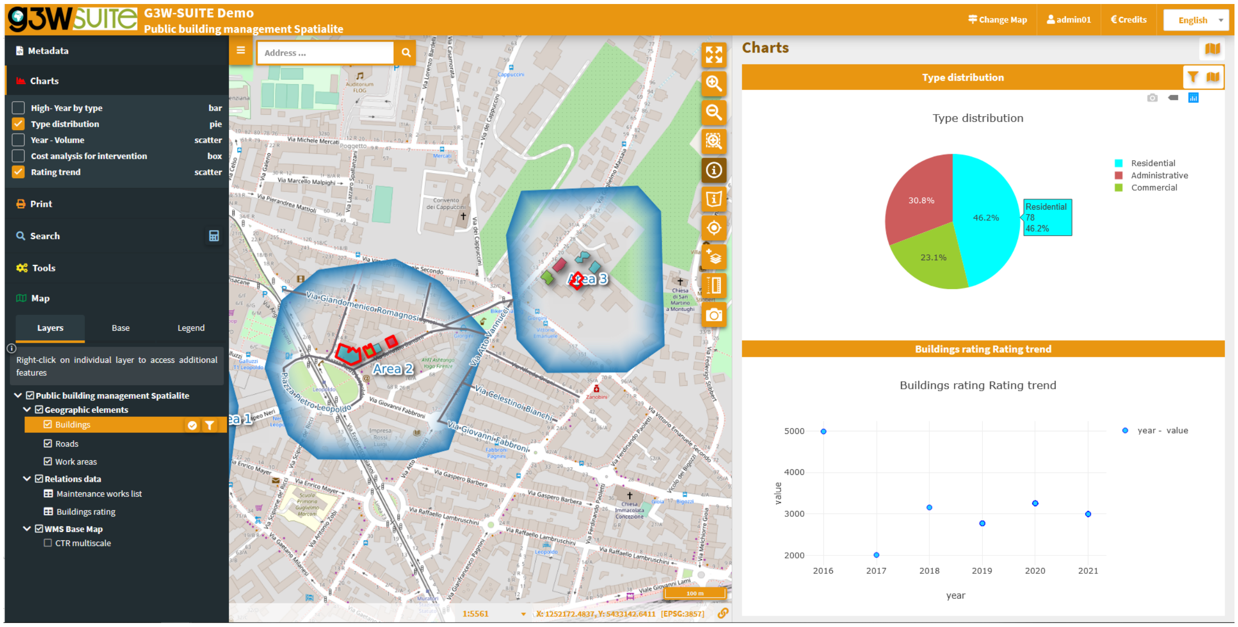
GENERAL SPATIAL LAYERS

TITLE	Public building management SpatiaLite
NAME	WMS
ABASTRACT	Manage public builds and registering individual maintenance interventions. Layer properties, 1:N relation, charts, print layouts, query form and editing widget defined at the QGIS project level.
KEYWORDS	qgis, webgis, g3wsuite
FEES	no conditions apply
ACCESS CONSTRAINT	None
CONTACTS	Refereces: **Person** Leonardo Lami **Organization** Gis3W snc **Position** author Phone: +39 393 8534336 Email: info@gis3w.it

12.3.2 Charts

View graphs created using QGIS DataPlotly and activated at the admin session level.

Check the plots in the list and consult them on the rigth panel.



The graphs are filterable based on the:

- features visible on the map
- filter based on the selected features

These **filters** are also **reflected on the plots associated to the related data** (in 1:N mode) based on the visible and/or selected parent features.

The **filter based on the map content** can be activated globally on all plots (icon at the top of the panel dedicated to charts) or on only some specific plots (icon placed at the level of the individual plots).

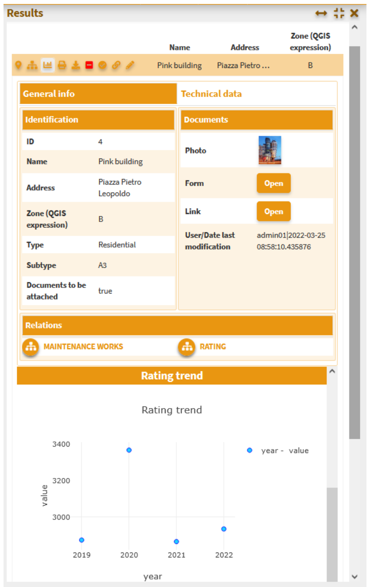
The plots will automatically update after pan and zoom operations on the map

If activated, the **filter based on the selected features** is automatically activated on all related plots (associated with the same layer and with the 1:N relationed tables)

Appropriate **messages** at the single plots level will indicate the activation of these filters.

Charts based on 1:N data relation (child layer)

If the **chart is linked to a child layer in a 1:N relation**, it can also be displayed at the information level of the individual parent features



Name	Address	Zone (QGIS expression)
Pink building	Piazza Pietro ...	B

Identification	
ID	4
Name	Pink building
Address	Piazza Pietro Leopoldo
Zone (QGIS expression)	B
Type	Residential
Subtype	A3
Documents to be attached	true

Documents	
Photo	
Form	Open
Link	Open
User/Date last modification	admin01|2022-03-25 08:58:10.435876

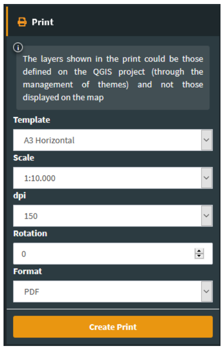
12.3.3 Print

Printing tool based on layouts defined on QGIS project.

The tool allows you to choose:

- **Template:** print layout among those associated with the published QGIS project
- **Scale:** print scale
- **DPI:** print resolution
- **Rotation:** rotation angle
- **Format:** print to PDF or JPEG
- **Custom title:** using the **ItemIDs** at the print layout level of the QGIS project it is possible to insert one or more labels with **customized content in the print** from WebGis

On the map, a light rectangular area will allow you to define the print area.



The layers shown in the print could be those defined on the QGIS project (through the management of themes) and not those displayed on the map

Template: A3 Horizontal

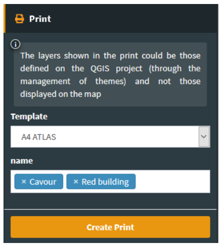
Scale: 1:10.000

dpi: 150

Rotation: 0

Format: PDF

If an **Atlas type print layout** is associated in the QGIS project, the layout reference will be available. The cards to be printed are defined by referring to the atlas identifier defined in the print layout.



The layers shown in the print could be those defined on the QGIS project (through the management of themes) and not those displayed on the map

Template: A4 ATLAS

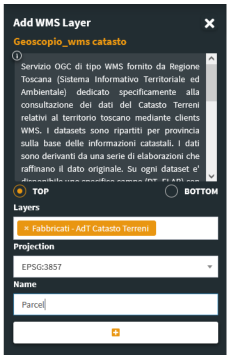
name: × Cavour × Red building

12.3.4 WMS

Through this tool the user can add custom WMS layers to the WebGis service.

The user can add one or more WMS URLs (associated with a customizable name) and, for each of them, define:

- the position (top or buttom) with respect to the other layers of the project
- the layer to load
- the projection system to be associated
- a custom name



Geoscopio_wms catasto

Servizio OGC di tipo WMS fornito da Regione Toscana (Sistema Informativo Territoriale ed Ambientale) dedicato specificamente alla consultazione dei dati del Catasto Terreni relativi al territorio toscano mediante clients WMS. I datasets sono ripartiti per provincia sulla base delle informazioni catastali. I dati sono derivanti da una serie di elaborazioni che raffinano il dato originale. Su ogni dataset e'

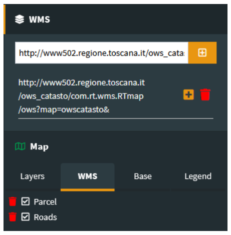
● TOP ○ BOTTOM

Layers: × Fabbricati - AdT Catasto Terreni

Projection: EPSG:3857

Name: Parcel

When the first custom WMS is added, a new tab (WMS) appears in the TOC; here you can switch on/off or delete the individual added WMS layers.



http://www502.regione.toscana.it/ows_cata

http://www502.regione.toscana.it
/ows_catasto/com.rt.wms.RTmap
/ows?map=owscatasto&

☑ Parcel
☑ Roads

The added WMS layer cannot not be queried.

The list of WMS services and the specific WMS layers added will remain available to the user until the browser cache is cleared.

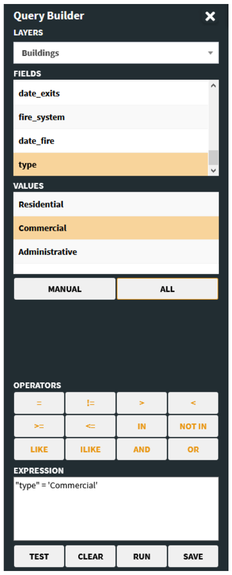
12.3.5 Search and Query Builder

A classic Query Builder is present at the Search menu level. Through this tool it is possible to:

- carry out alphanumeric searches on geometric layers
- save the query to reuse it until the end of the work session
- edit a previously saved query

The saved query will be available until the browser cache is cleared

NB: fields not exposed as QGIS project-level WMS are not available for query building.



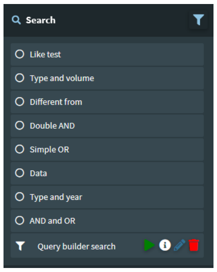
LAYERS: Buildings

FIELDS:
date_exits
fire_system
date_fire
type

VALUES:
Residential
Commercial
Administrative

EXPRESSION: "type" = 'Commercial'

The Search menu contains the list of search tools defined through the Administration panel and custom searches created with the Query Builder.



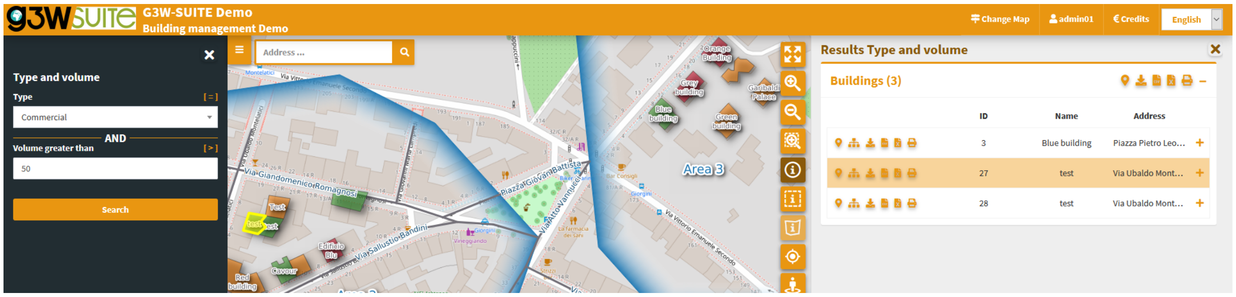
○ Like test
○ Type and volume
○ Different from
○ Double AND
○ Simple OR
○ Data
○ Type and year
○ AND and OR
Query builder search

You choose the search you are interested in, fill in the required fields and click on the `Search` **button**.

The **panel with the list of results** will open on the right side of the client, for each result the first three fields of the associated table will be displayed.

By positioning on the individual results, the corresponding features will be highlighted on the map; clicking on the individual results you can consult all the attributes.

Zoom to features and download icons are available for results (single or cumulative)



Type and volume

Type [=]: Commercial

AND

Volume greater than [>]: 50

Results Type and volume

Buildings (3)

ID	Name	Address
3	Blue building	Piazza Pietro Leo...
27	test	Via Ubaldo Mont...
28	test	Via Ubaldo Mont...

12.3.6 Map

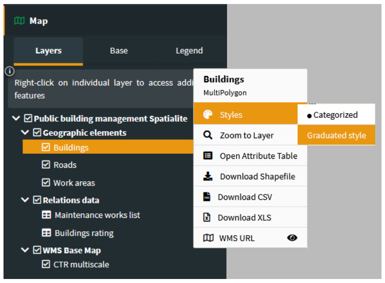
This session has three tabs:

- **Layers:** structured list of layers, defined on the QGIS project
- **Base:** choice of the base map from those defined at the Cartographic Group creation level
- **Legend:** graphic legend

Layers

In the list of layers, right click on the name of the single layer shows the following items:

- **Name and kind of geometry** of the layer
- **Metadata:** descriptive information inherited from what has been defined, at QGIS project level, in the 'Abstract' form of the 'QGIS Server' session of the 'Layer Properties'
- **Styles:** to choose the style to be applied to the layer, in the case of multi-style layers
- **Abstract:** a text (also html) defined in the **Layer Properties**, **Metadata** session, **Identification** tab, **Abstract** form.
- **Zoom to layer:** to zoom in on the extension of the layer
- **Open attribute table:** to consult the associated attribute table
- **Download shapefile:** to download the layer as a shapefile; function activatable from the administration panel
- **Download GEOTIFF:** to download a raster in GeoTiff format, full layer or clipped to the extent of the canvas; function activatable from the administration panel
- **Download GeoPackage:** to download the layer as a GeoPackage; function activatable from the administration panel
- **Download CSV:** to download the layer as a CSV; function activatable from the administration panel
- **Download XLS:** to download the layer as a XLS; function activatable from the administration panel
- **WMS/WFS URL:** URL of the WMS/WFS service relative to the project or URL of the external WMS



It is possible to hide, automatically, layers from the TOC when they have no records.

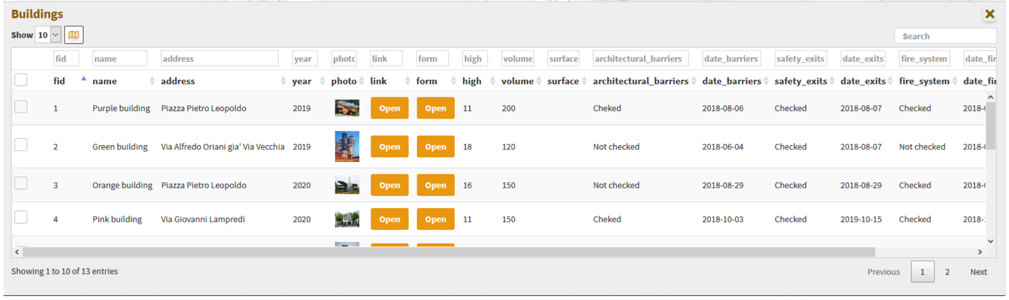
Useful when using filters on layers or geographic views.

Attribute table

The attribute table (resizable) is equipped with **paging function, highligth function and zooming** to the associated features.

In the case of links to **multimedia content**, the previews of the images and/or the **Open** button will be displayed for consultation of different types of content.

The window is resizable.



☐	fid	name	address	year	photo	link	form	high	volume	surface	architectural_barriers	date_barriers	safety_exits	date_exits	fire_system	date_fi
☐	1	Purple building	Piazza Pietro Leopoldo	2019		Open	Open	11	200		Cheked	2018-08-06	Checked	2018-08-07	Checked	2018-
☐	2	Green building	Via Alfredo Oriani gia' Via Vecchia	2019		Open	Open	18	120		Not checked	2018-06-04	Checked	2018-08-07	Not checked	2018-
☐	3	Orange building	Piazza Pietro Leopoldo	2020		Open	Open	16	150		Not checked	2018-08-29	Checked	2018-08-29	Checked	2018-
☐	4	Pink building	Via Giovanni Lampredi	2020		Open	Open	11	150		Cheked	2018-10-03	Checked	2019-10-15	Checked	2018-

Showing 1 to 10 of 13 entries

A **generic filter**, positioned at the top right, is applied generically to the contents of all the fields and it will allow you to filter the list of displayed records.

Filters based on the contents of the individual fields are available at the top of each column.

The **Show features visible on the map** icon 🗺 allows you to filter the records of the table according to the features visible in the map.

From this version it is possible to **select the features of the individual layers and apply filters** that will affect:

- on the map content
- on the attribute table content
- on the contents of the plots
- on print contents (only with QGIS 3.18)

The selection of features can be made:

- at the attribute table level (through the checkboxes on the left of each records)
- on the results of a query (add / remove from current selection)
- on the results of a query (add / remove from current selection)

At the same time, additional icons appear:

- on the layer attribute table
- to the right of the layer on the TOC
- at the level of the relevant plots

Aggiungi immagine: g3wclient_selection.png The icons in the attribute table allow you to:

- Clear selection
- Invert selection
- Add/Remove filter

The icons to the right of the layer on the TOC allow you to:

- Clear selection
- Add/Remove filter

When one or more features are selected, they appear highlighted in red on the map. Activation of the filter is reflected:

- on the map content
- on the attribute table content
- on the data displayed by plots
- on the print contents (only with QGIS 3.18)

Base layer

The list shows the active base layers at the cartographic group level.

If the user has created base layers starting from cached layers, these may also be present.

Legend

If at the publication level of the QGIS project, the **Legend position** option i setted as TOC, this panel will be not present and the legend will be rendered inside layers TOC.

If the option is activated on the QGIS project, the **legend is filtered on the map content**.

12.4 Time series

NB: the Time Series function is only available with a QGIS Server version >= 3.26

This version of G3W-SUITE manages the temporal aspects for both vector and raster layers but with limitations:

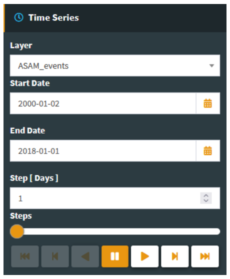
- **vector layers:** limited to the **Single field with Date/Time** configuration
- **raster layers:** only for **NetCDF** file upload as raster (no Mesh)
- **WMS-T**

If in the QGIS project a temporal vector/raster layer on which the **Dynamic temporal control** property has been activated is present, the client will show an additional panel called **Time series**.

This panel will allow you to:

- define the start/end date of the time series

- define the step of the animation
- start and manage the temporal animation



Layer: ASAM_events

Start Date: 2000-01-02

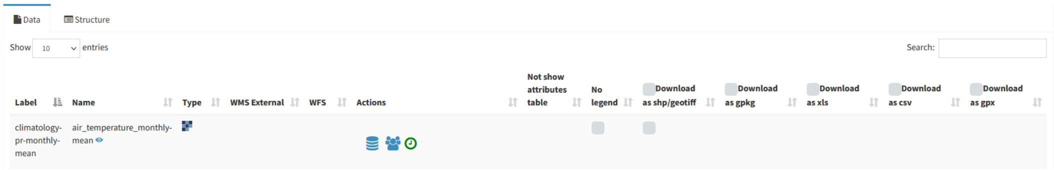
End Date: 2018-01-01

Step [Days]: 1

Steps

The modification of the start date of the series will determine the updating of the map with the visualization of the layer in coherence with the chosen date.

Pay attention: to use the Time series function for raster data, it must also be activated at the level of the G3W-ADMIN layer properties.



Label	Name	Type	WMS External	WFS	Actions	Not show attributes table	No legend	☐ Download as shp/geotiff	☐ Download as gpkg	☐ Download as xls	☐ Download as csv	☐ Download as gpx
climatology-pr-monthly-mean	air_temperature_monthly-mean						☐	☐				

CHAPTER

THIRTEEN

EDITING ON LINE

13.1 Activation and configuration

13.1.1 Introduction and main features

The **editing settings** are defined partly at the **QGIS project level (editing form structure, widgets associated with individual attributes, 1:n and, in part, N:M relations)** and partly at the **Administration level** (users with editing power, activation scale, alpha and geo constraints).

Thanks to the integration with the APIs of QGIS it is now possible to manage the main formats (geographically and not) supported by QGIS Server:

- **reading and editing mode**
  - PostGreSQL/PostGis
  - SQLite/SpatiaLite
  - Oracle Spatial
  - GeoPackage
  - ShapeFile(not recommended for multi-user editing)
- **reading mode**
  - SQL Server
  - Virtual layer

13.1.2 1:N and N:M relational editing

The editing function manages both direct editing on geometric and alphanumeric layers, and editing on layers in a 1:N or N:M relations, also both geometric and alphanumeric.

Attention: the management of the editing of the N: M relations is limited to the management of the 1:N relationship between the parent layer and the intermediate table.

This means that currently it is not possible to create new records in table M but only:

- modify the current relations present
- create new relations between new elements of layer N and pre-existing records of layer M

The **editing settings** are defined partly at the **QGIS project level** (**editing form structure, widgets associated with individual attributes, 1:n and N:M relations**) and partly at the **Administration level** (users with editing power, activation scale, alpha and geo constraints).

13.1.3 Multi-user editing

G3W-SUITE manages **multi-user editing** through a **feature lock system**.

It's strongly recommended to allow multi-user editing only in the case of layers on the GeoDatabase and not on physical files.

When an enabled user activates the editing function at the map client level, the **features visible on the map at that time will be blocked**, in relation to the editing aspect, **for all the other enabled users** who will still be able to edit features present outside this geographical extension. .

In case of features of a layer locked by other users, the user will receive a warning message when starting the editing.

This block will be deactivated when the user exits the editing mode.

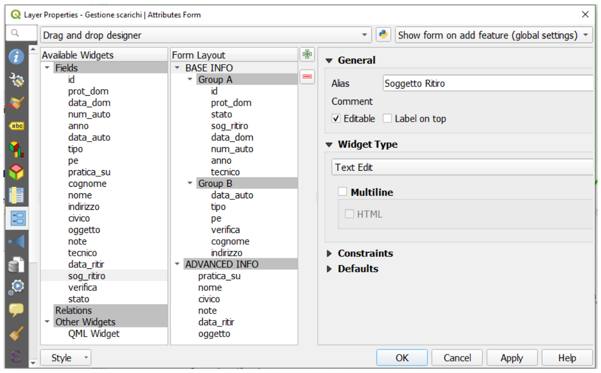
13.1.4 QGIS project settings

Definition of editing widgets associated with individual attributes

In the QGIS project, for each layer it is possible to **define the structure of the attribute display module**.

The same structure will be used in the cartographic client when editing attributes.

The definition of the form structure can be managed, on QGIS, from the **`Properties of the vector`, in the `Attributes Form section`**.



Alias: Soggetto Ritiro

☑ Editable ☐ Label on top

Text Edit

☐ Multiline

☐ HTML

Conditionals forms based on QGIS expressions

Conditional forms based on QGIS expressions are supported and implemented for online editing/consulting.

It is therefore possible to define the visibility of a forms (form or group) and of the fields it contains, on the basis of the values defined on further fields when filling in the attributes.

Drill-down (cascading) forms

Drill-down (cascading) forms **based on QGIS expressions** are supported and implemented for online editing.

The functionality can be used to implement "drill-down" within editing forms, where the values available in one field depend on the values of other fields.

This function will be reflected in the consultation side.

Definition of editing widgets associated with individual attributes

At the QGIS project level (always from **`Vector Properties`**, **`Attribute Form`** section) it is possible to define an alias and an editing widget for each attribute.

The alias and editing widgets defined at the project level will be available during web editing with some limitations.

Below are the available widgets and any limitations:

- **`Checkbox`**
- **`Date/time:`** management limited to the date
- **`Attachment`**
- **`Range`**
- **`Text edit`** multiline and html included
- **`Unique values`**: this widget will be equipped with a **pick layer** tool at the cartographic client level
- **`Value map`**
- **`Value relations`** with `QGIS expression-based filter` management, the suite not support `sort by value` and `allow multiple selections` options

The expression-based filter can also be dependent on the values of other fields on the form and useful to create cascading drill down.

With regard to the **`Attachment widget`**, it is necessary to specify that the association of a multimedia file with a feature requires that this file is uploaded to a dedicated space (exposed on the web) on the server and that the association takes place via a URL that refers to that file.

This solution allows you to consult the associated attachments also from QGIS or from other GIS software.

Additional settings at single layer level

In the **`Attribute Form`** section of the **`Layer Properties`** it is also possible to define for every field:

- **enable/disable editing**
- **mandatory and/or unique constraints**
- **range of acceptable values** through the **Range** widget
- **default values**
- **conditional forms**

QGIS expressions and default values

All the QGIS expressions can be used as default values.

The default values defined for individual fields at the QGIS project level are inherited from the suite.

In this case, at the online edit level, the form relating to the field thus defined will be self-calculated and can be set not editable by the user.

The result of the expression can also be dependent on the values of other fields on the form.

Very useful in all cases where we want the values of a field to be calculated automatically through the potential of QGIS expressions.

The `Apply the default value also to the update` option is supported for all non-geometric functions and only for the following geometric functions: `$area`, `$perimeter`, `$length`, `$x`, `$y` `$geometry`

As in QGIS the default values are displayed in the form during editing and not only after saving.

Definition of 1:n relations

In the event that, at the QGIS project level, one or more 1: n type relationships have been associated with a layer (**`Project menu` → `Properties...`, `Relations` section**), it will be possible to carry out relational editing also on the webgis platform.

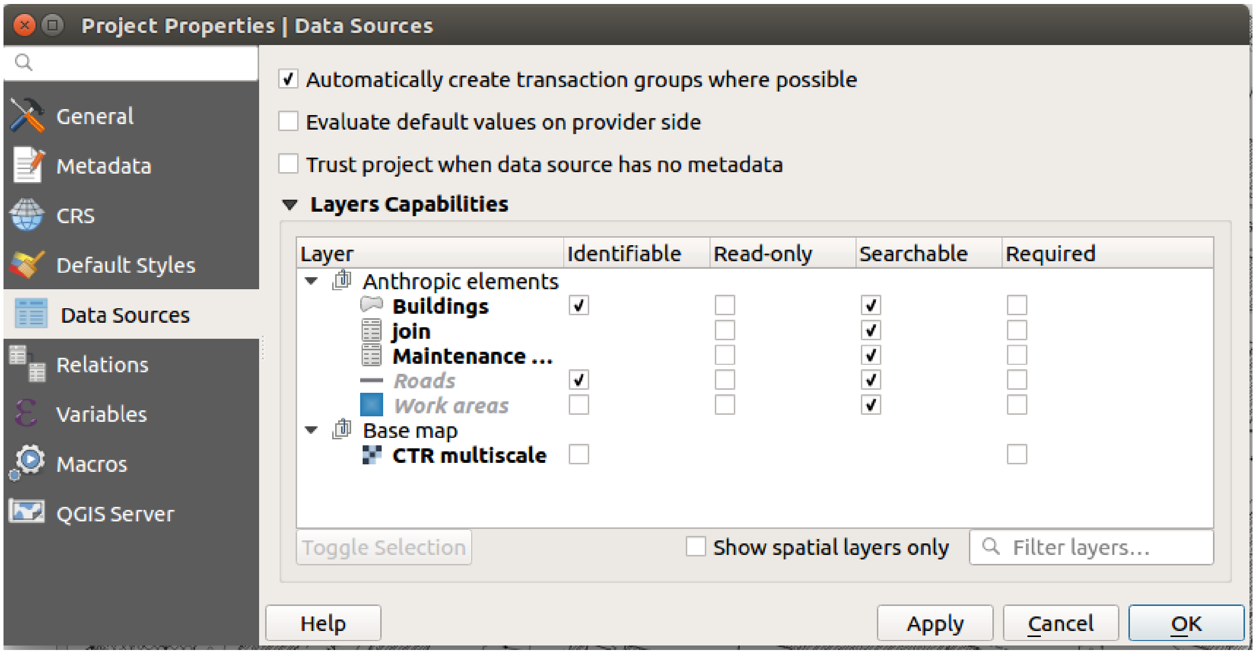
Also for the tables related in 1:n mode it will be possible to define the **attribute form structure, aliases and editing widgets** in the QGIS project.

These configurations and tools will automatically available on the webgis platform.

Transaction Group

Use transaction group to edit, save or rollback multiple layers changes at once

When working with layers with the same source (es. layer from the same PostGreSQL database), activate the **`Automatically create transaction groups where possible`** option in **`Project` → `Properties...` → `Data Sources`** to sync their behavior (enter or exit the edit mode, save or rollback changes at the same time).



☑ Automatically create transaction groups where possible

☐ Evaluate default values on provider side

☐ Trust project when data source has no metadata

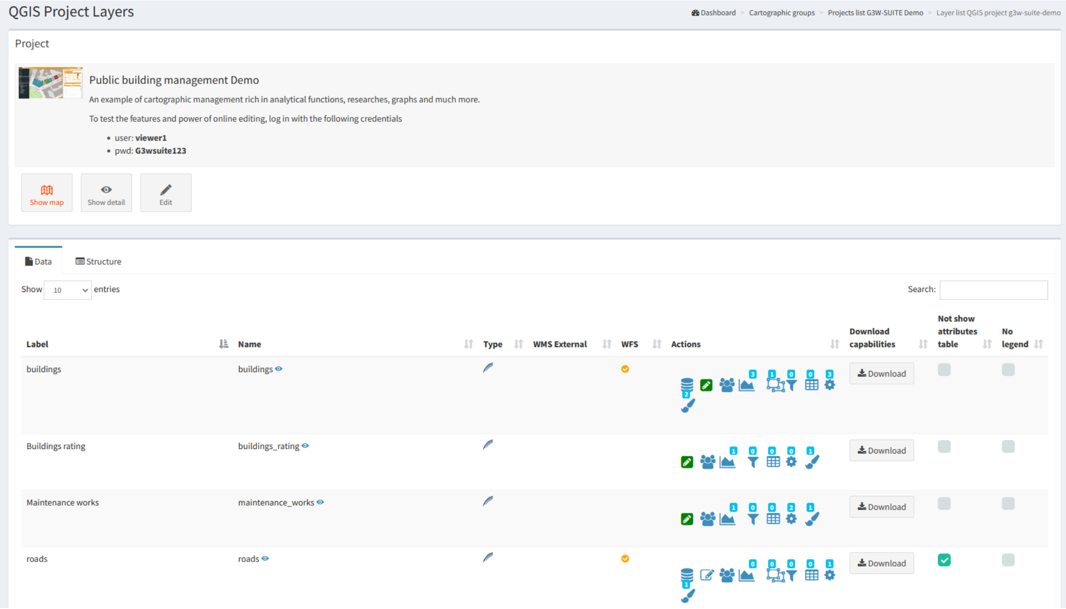
Layers Capabilities

Layer	Identifiable	Read-only	Searchable	Required
Anthropic elements				
Buildings	☑	☐	☑	☐
join		☐	☑	☐
Maintenance ...		☐	☑	☐
Roads	☑	☐	☑	☐
Work areas	☐	☐	☑	☐
Base map				
CTR multiscale	☐			☐

13.1.5 Administration settings

Activation of layer editing

To activate the online editing functions, access the **`Layer list`** section of the project within the administration panel of G3W-ADMIN.


QGIS Project Layers
Dashboard > Cartographic groups > Projects list G3W-SUITE Demo > Layer list QGIS project g3w-suite-demo
Project

Public building management Demo

An example of cartographic management rich in analytical functions, researches, graphs and much more.

To test the features and power of online editing, log in with the following credentials

- user: **viewer1**
- pwd: **G3wsuite123**

Show map
Show detail
Edit
Data
Structure
Show 10 entries
Search:

Label	Name	Type	WMS External	WFS	Actions	Download capabilities	Not show attributes table	No legend
buildings	buildings			✓		Download	☐	☐
Buildings rating	buildings_rating					Download	☐	☐
Maintenance works	maintenance_works					Download	☐	☐
roads	roads			✓		Download	☑	☐

Identify the layer on which you want to activate the editing function and click on the **`Editing layer icon`** located on the left

Attention: check that the layer format is among those supported by QGIS for the editing function

Clicking on the icon will open a modal window that will allow you to:

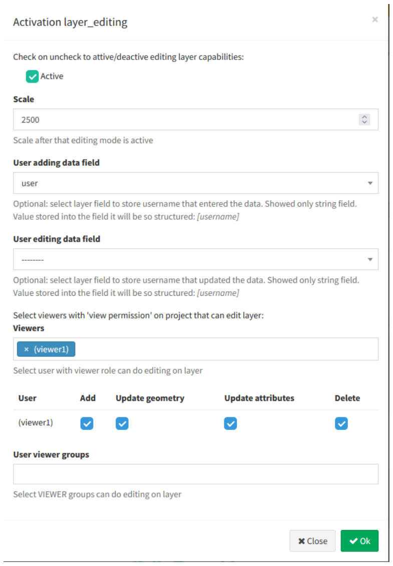
- **define the editing activation scale** (only for geometric tables)
- **define the Viewer users** (individuals or groups) **enabled** for online editing

For each user (single or group) it is possible to discriminate the editing powers:

- **Add:** add feature, copy feature, add part to multipart
- **Update geometry:** update vertex feature, move feature, add part to multipart, delete part from multipart, split features, dissolve features
- **Update attributes:** update feature attributes, update attributes of selected features
- **Delete:** delete features

I should be noted that:

- **Viewers users** (individuals or groups) **available** in the drop-down menu **will be limited to those who have allowed access in consultation to the WebGis project**
- **Editor1 and Editor2 users**, **owners** of the project, are **enabled by default** to the online editing function



Activation layer_editing

Check on uncheck to attive/deactive editing layer capabilities:

☑ Active

Scale

2500

Scale after that editing mode is active

User adding data field

user

Optional: select layer field to store username that entered the data. Showed only string field.
Value stored into the field it will be so structured: *[username]*

User editing data field

Optional: select layer field to store username that updated the data. Showed only string field.
Value stored into the field it will be so structured: *[username]*

Select viewers with 'view permission' on project that can edit layer:

Viewers

× (viewer1)

Select user with viewer role can do editing on layer

User	Add	Update geometry	Update attributes	Delete
(viewer1)	☑	☑	☑	☑

User viewer groups

Select VIEWER groups can do editing on layer

NB: In case a user belongs to a user group, the permissions set will be added together.

Ability to associate references to create/update G3W-SUITE users

Through these two optional settings it is possible to define two fields of the table of the layer being edited automatically filled in.

These two fields will contain references to G3W-SUITE users who creators or modifiers of the individual features edited.

All settings defined at the QGIS level for these fields (eg default values) will no longer be considered.

It is recommended that these fields be set as non-editable at the project level.

1:N relational editing

To allow editing on the related table in mode `1: n`, the **editing function must also be activated** (always in the same way) **also for the related table** present in the project layers list.

Constraints setting

G3W-SUITE allows you to manage two types of constraints:

- **alphanumeric (SQL) / QGIS expressions constraints**
- **geographic constraints**

Both work in terms of visualization and/or editing

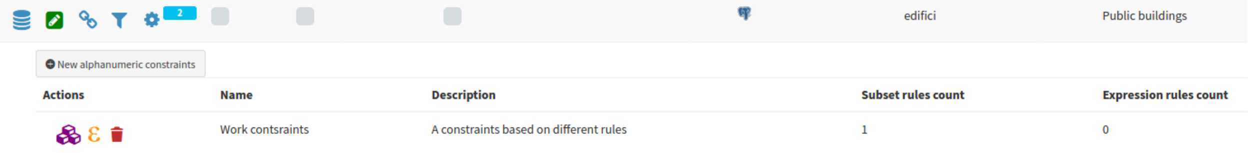
Alphanumeric (SQL) / QGIS expressions Constraints

Alphanumeric (SQL) / QGIS expression constraints allow you to define, for each published layer, the subset of features that can be viewed and/or edited by individual users and/or groups of users.

This setting is also available for the AnonymousUser user

To activate this type of constraint, you must click, always at the level of the list of project layers, on the **`Alphanumeric constraints list` icon** ▼.

Clicking on the icon will show the list of any existing alphanumeric constraints and the item **`+ New alphanumeric constraint`** to create a new constraints.



edifici

Public buildings

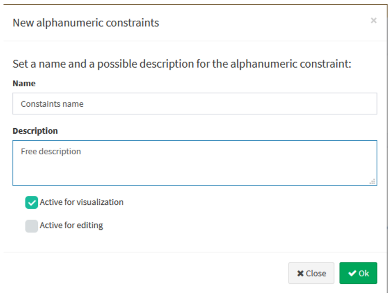
New alphanumeric constraints

Actions	Name	Description	Subset rules count	Expression rules count
	Work contsraints	A constraints based on different rules	1	0

Clicking on the item **`+ New constraint`** will open a modal window which will allow you to define a name and a description for the new constraint.

In the form it is possible to specify whether this filter will act at the level:

- display only
- editing only
- in both cases



New alphanumeric constraints

Set a name and a possible description for the alphanumeric constraint:

Name

Constaints name

Description

Free description

☑ Active for visualization

☐ Active for editing

After clicking the OK button, the constraint will appear in the list and can be parameterized using two ways of defining the rules:

- **Provider's language / SQL dialect**
- **QGIS Expression**

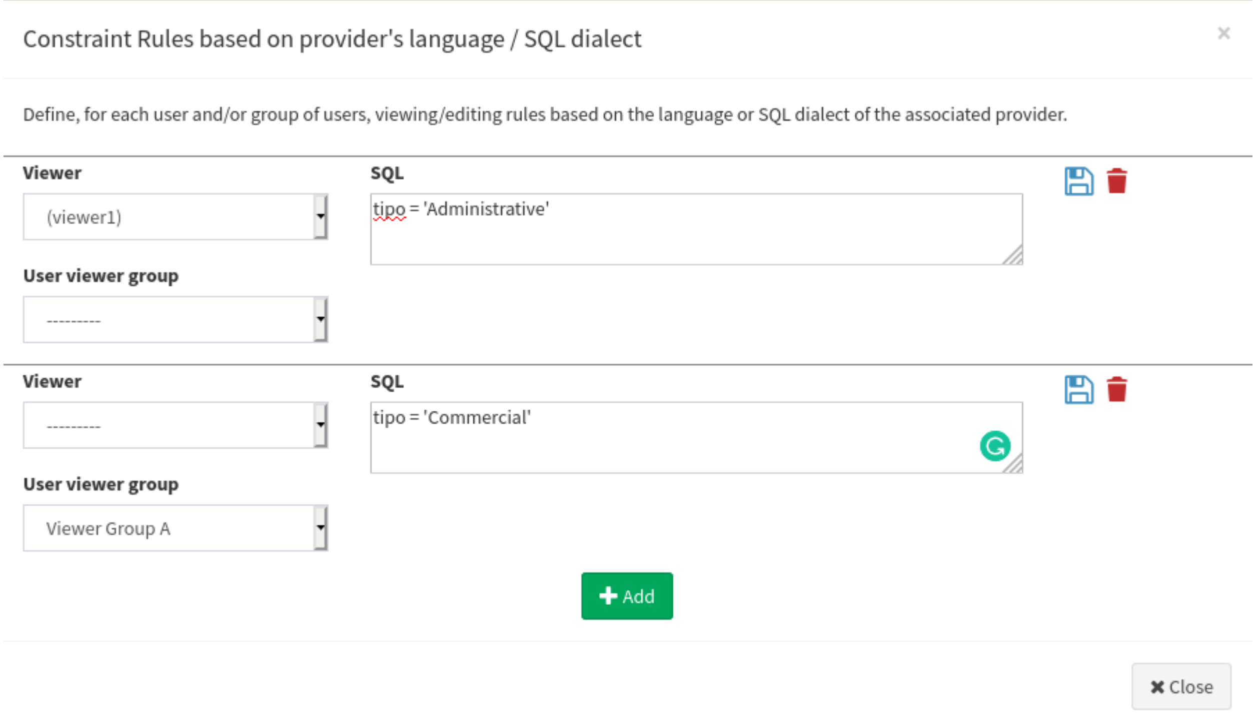
Provider's language / SQL dialect Rules

Clicking on the icon will open a modal window which, by pressing the green button **+ Add**, it will allow you to **define, for each user and/or group of users, the rules of the constraints**.

The individual rules must be defined via the **`Provider's language`** or the **`SQL dialect Rules`** associated with the format of the geo-constraints layer (es. use standard SQL if your layer is a PostGis layer)

The single rules must refer to the layer's attributes and values.

The **`Save icon`** will allow you to validate the rules, in order to ensure proper functioning of the constraints itself.



Constraint Rules based on provider's language / SQL dialect

Define, for each user and/or group of users, viewing/editing rules based on the language or SQL dialect of the associated provider.

Viewer: (viewer1)
User viewer group: ---------
SQL: tipo = 'Administrative'

Viewer: ---------
User viewer group: Viewer Group A
SQL: tipo = 'Commercial'

Once all the constraints have been entered and validated, click on the **Close button** to confirm the rules.

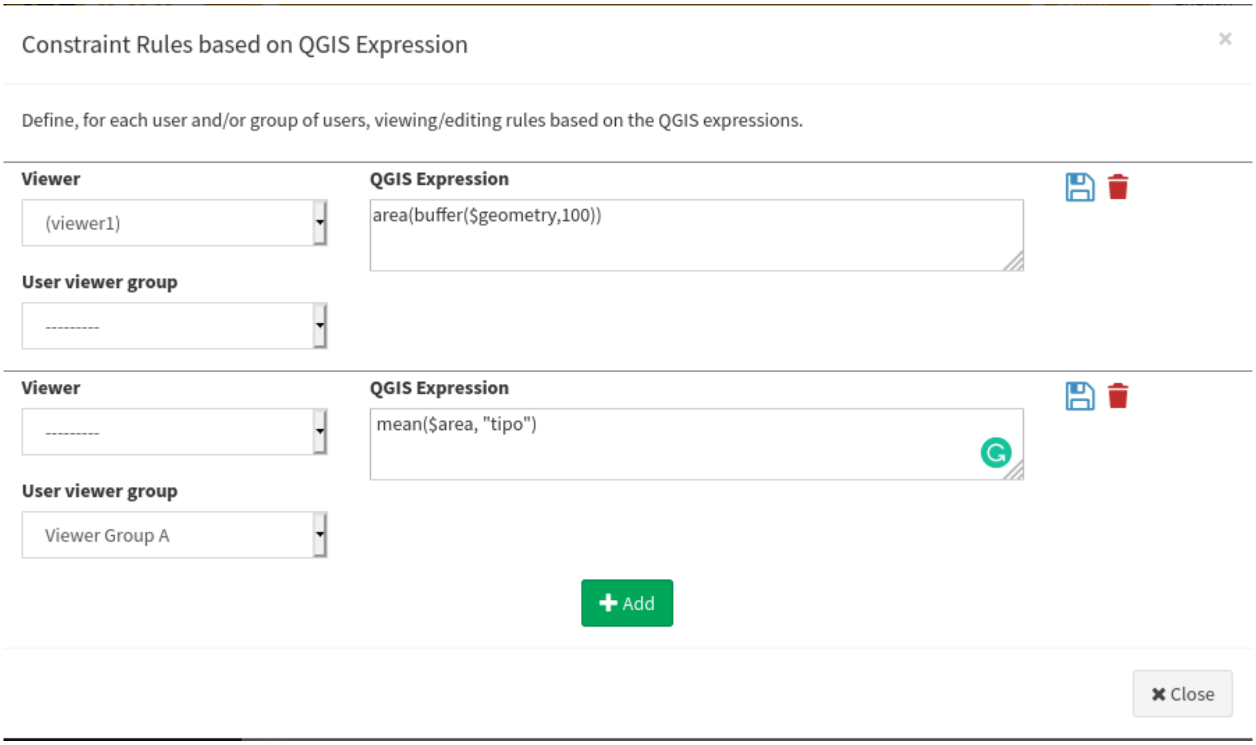
QGIS Expressions Rules

Clicking on the icon **QGIS expression rules** ε will open a modal window which, by pressing the green button ✚ Add, it will allow you to **define, for each user and/or group of users, the rules of the constraints**.

The individual rules must be defined via **`QGIS expression`** and this allows to have a great degree of freedom in the ways in which to set these rules.

See the paragraph dedicated to the functions available directly on the QGIS manual.

The **`Save icon`** 💾 will allow you to validate the rules, in order to ensure proper functioning of the constraints itself.



Constraint Rules based on QGIS Expression

Define, for each user and/or group of users, viewing/editing rules based on the QGIS expressions.

Viewer: (viewer1)

User viewer group: ---------

QGIS Expression: area(buffer($geometry,100))

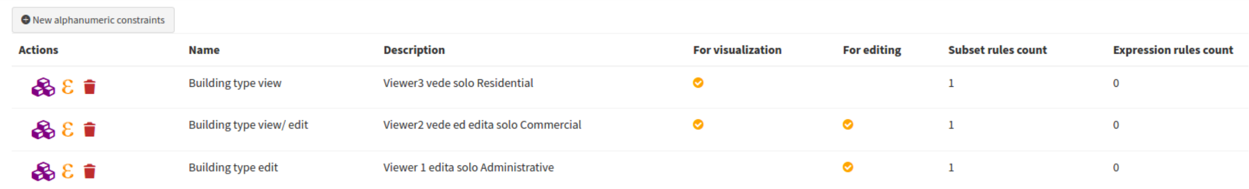
Viewer: ---------

User viewer group: Viewer Group A

QGIS Expression: mean($area, "tipo")

Once all the constraints have been entered and validated, click on the **Close button** to confirm the rules.

In the dedicated panel it will be possible to check, modify and delete the defined rules.



Actions	Name	Description	For visualization	For editing	Subset rules count	Expression rules count
	Building type view	Viewer3 vede solo Residential	✓		1	0
	Building type view/ edit	Viewer2 vede ed edita solo Commercial	✓	✓	1	0
	Building type edit	Viewer 1 edita solo Administrative		✓	1	0

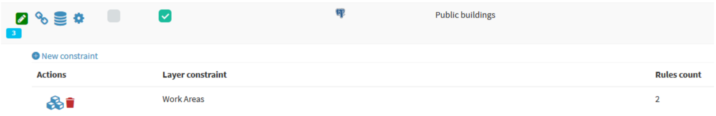
Geo-constraints

The online editing function also allows you to manage geo-constraints that allow the user to view and/or edit features only if they intersect or are contained within specific features of a second polygonal layer.

This setting is also available for the AnonymousUser user

To activate a geographical constraint, you must click, always at the level of the list of project layers, on the **`Manage Geo-Constraints` icon** which will appear once the online editing function is activated.

Clicking on the icon will show the list of any existing constraints and the item **`+ New geo-constraint`** to create a new geo-constraints.

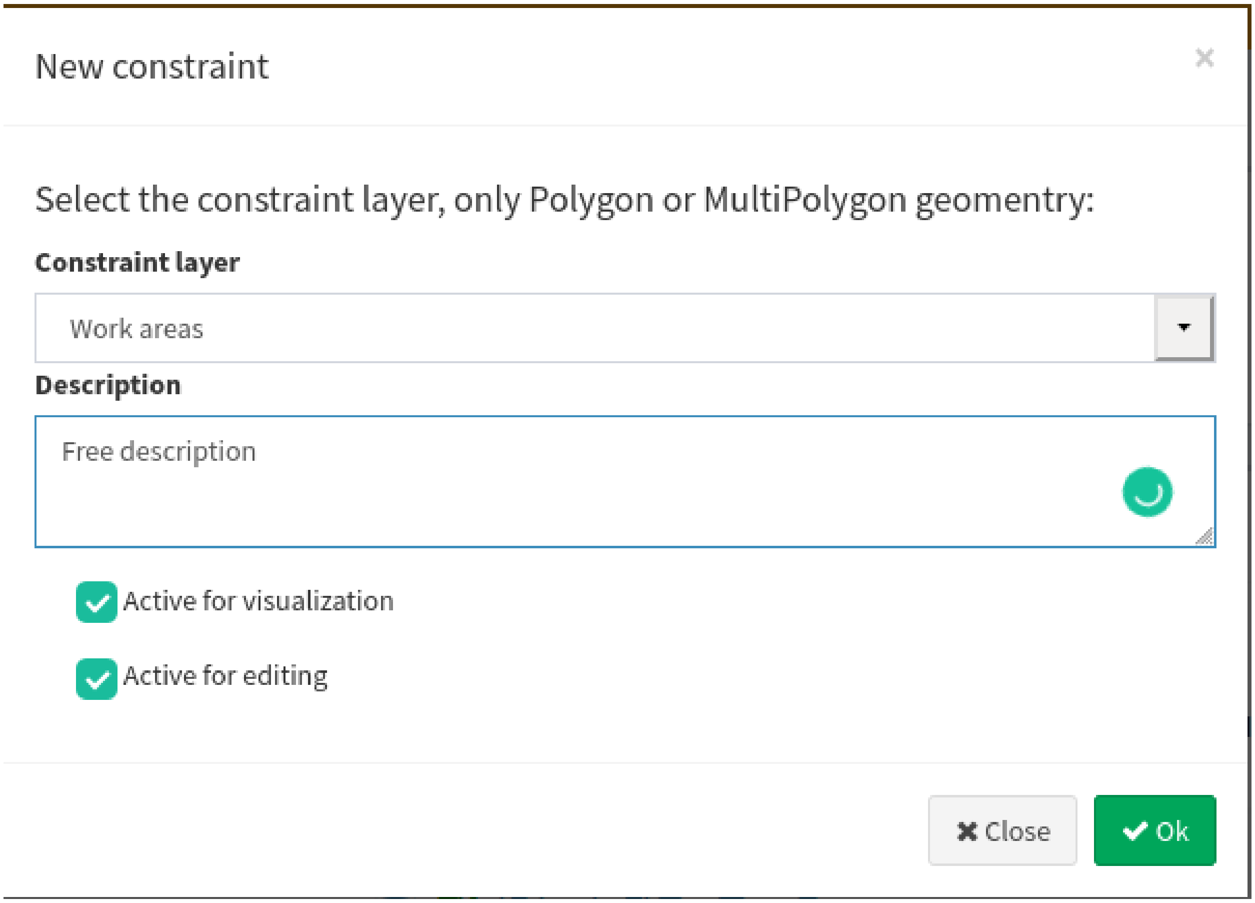


Actions	Layer constraint	Rules count
	Work Areas	2

Clicking on the item **`+ New geo-constraint`** will open a modal window which will allow you to **define the polygonal layer** (among those present in the project) **on which the constraint itself must be based**.

In the form it is possible to specify whether this filter will act at the level:

- display only
- editing only
- in both cases



New constraint ×

Select the constraint layer, only Polygon or MultiPolygon geomentry:

Constraint layer

Work areas

Description

Free description

☑ Active for visualization

☑ Active for editing

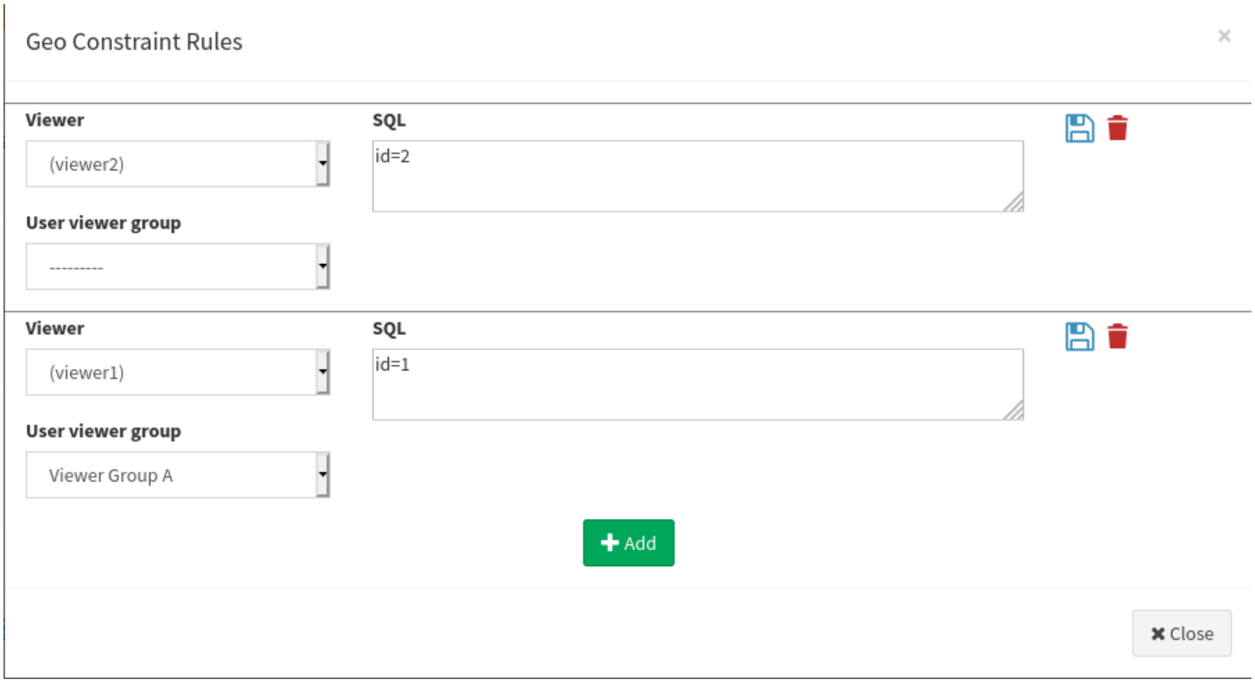
Once the layer has been defined, the constraint will appear in the list and can be parameterized using the **Rules icon**

Clicking on this icon will open a modal window which, by pressing the green button + Add, it will allow you to **define, for each user and/or group of users, the rules of the constraints**.

The individual rules must be defined via the **`Provider's language`** or the **`SQL dialect Rules`** associated with the format of the geo-constraints layer (es. use standard SQL if your geo-constraint layer is a PostGis layer)

The single rules must refer to the layer's attributes and values.

The **`Save icon`** will allow you to validate the rules, in order to ensure proper functioning of the constraints itself.



Geo Constraint Rules

Viewer: (viewer2)

User viewer group: ---------

SQL: id=2

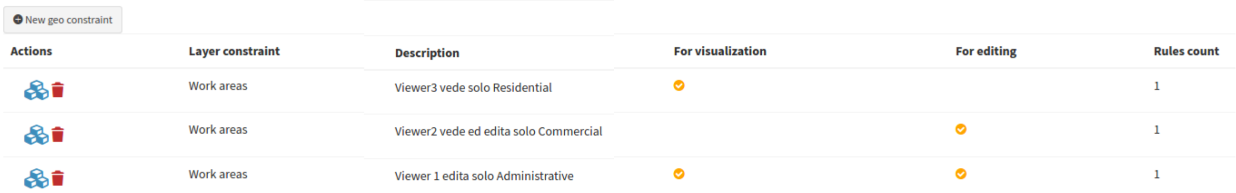
Viewer: (viewer1)

User viewer group: Viewer Group A

SQL: id=1

Once all the constraints have been entered and validated, click on the **Close button** to confirm the rules.

In the alphanumeric constraints list you can see a summary of the setted rules.



Actions	Layer constraint	Description	For visualization	For editing	Rules count
	Work areas	Viewer3 vede solo Residential	✓		1
	Work areas	Viewer2 vede ed edita solo Commercial		✓	1
	Work areas	Viewer 1 edita solo Administrative	✓	✓	1

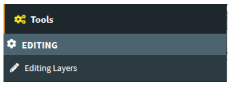
13.2 Online editing tools at cartographic client level

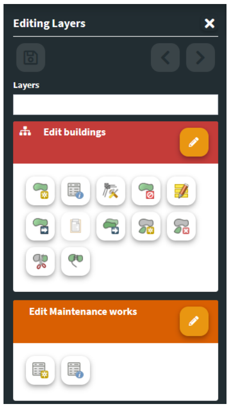
13.2.1 Geographic and alphanumeric editing

Once the online editing function has been activated and configured on one or more layers of a WebGis project, the `Editing` item, inside the `Tools` menu of the cartoographic client, will be shown.

In the case of many editable layers, a useful **filter** allows you to view only the layers of interest in the list.

If the editing function is activated at the Admin level, it is also possible to start the online editing also through the **Editing icon** that appears at the level of the **search and query results form** of a vector layer.





By clicking on the `Data Layers` item, the side menu will show the editing tools for all the layers on which this function is activated.

The actual activation of the editing function for the individual layers will take place by clicking on the `Edit layer` icon.

Create and edit features

The tools available are the following:

Geometric layers

- **Add feature:** to add a feature
- **Update feature attribute:** to modify the attribute values associated with an existing feature
- **Update feature vertex:** to modify the shape of a geometry
- **Remove feature**
- **Update attributes for selected features:** to modify the attribute values associated with more than one features
- **Move feature:** to move a feature

- images/manual/icon_feature_paste.png **Paste features from other layers:** query another layer with the same geometry, select the features to copy, press the Paste icon, select the features to paste and confirm.
- **Copy features:** to copy one or more features from the same layer
- **Add part** of a multi-geometry
- **Delete part** of a multi-geometry
- **Split features:** to split one or more features
- **Dissolve features:** to dissolve two or more features

A help panel will describe the steps to take for copy, dissolve and split operations.

In case of interaction of the editing tools with overlapping geometries, an intermediate step will allow to select the effective geometry on which to operate.

Snap and other available function

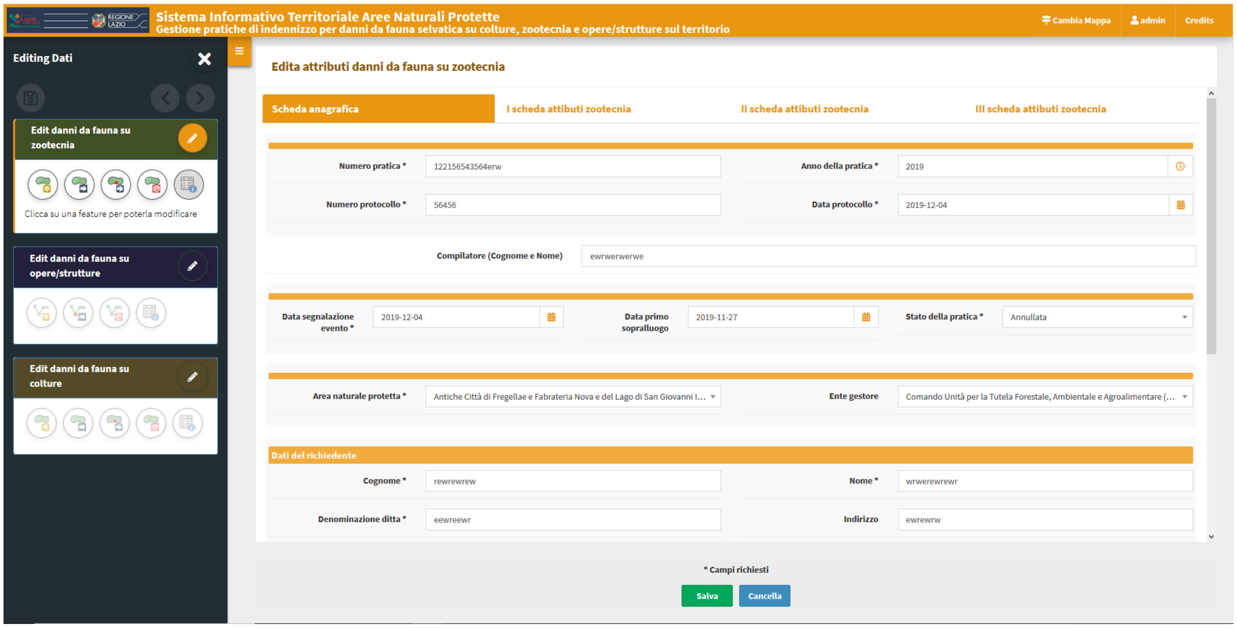
Activating the Add features and Update feature vertex tools allows you to:

- activate the **intralayer snap** function
- activate the **snap between layers**, but only if both layers are in editing mode
- activate the **interactive area and length measure** function

Alphanumeric layer

- **Add feature:** to add a record to the alphanumeric table
- **Modify features:** to modify the attributes of an existing record

Whenever a new feature/record is added or an existing feature/record is update, the attribute editing form and the respective editing widgets will be displayed as defined at the QGIS project level.


Sistema Informativo Territoriale Aree Naturali Protette
Gestione pratiche di indennizzo per danni da fauna selvatica su colture, zootecnia e opere/strutture sul territorio
Cambia Mappa
admin
Credits
Editing Dati
Edit danni da fauna su zootecnia
Clicca su una feature per poterla modificare
Edit danni da fauna su opere/strutture
Edit danni da fauna su colture
Edita attributi danni da fauna su zootecnia
Scheda anagrafica
I scheda attibuti zootecnia
II scheda attibuti zootecnia
III scheda attibuti zootecnia
Dati del richiedente
* Campi richiesti
Salva
Cancella

Numero pratica * 122156543564erw

Anno della pratica * 2019

Numero protocollo * 56456

Data protocollo * 2019-12-04

Compilatore (Cognome e Nome) ewrwerwerwe

Data segnalazione evento * 2019-12-04

Data primo sopralluogo 2019-11-27

Stato della pratica * Annullata

Area naturale protetta * Antiche Città di Fregellae e Fabrateria Nova e del Lago di San Giovanni I...

Ente gestore Comando Unità per la Tutela Forestale, Ambientale e Agroalimentare (...

Cognome * rewrewrew

Nome * wrwerewrewr

Denominazione ditta * eewreewr

Indirizzo ewrewrw

Any **mandatory fields will be marked with an asterisk**.

Any **unfulfilled constraints will be highlighted** with specific warning messages shown **in red**.

The changes made can be saved only after satisfying any constraints of mandatory and/or uniqueness.

For this reason the green button **SAVE** will be disabled until all constraints are met.

13.2.2 1:N and N:M related tables editing

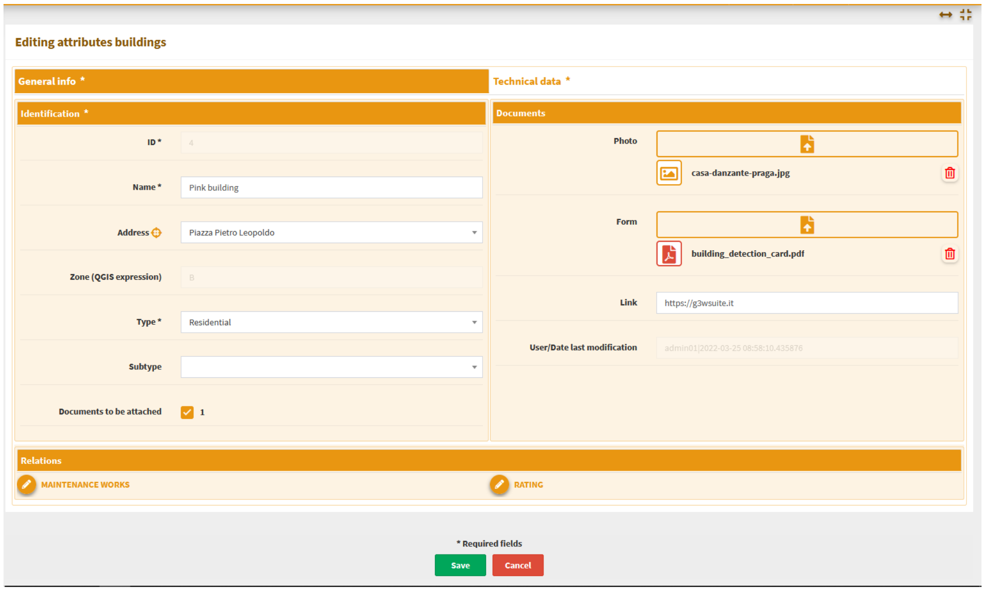
G3W-SUITE allows for relational editing; for this to be possible it is necessary that:

- on the published QGIS project there are one or more geographic layers related (1:n or N:M) with one or more alphanumeric tables
- on the administration panel the editing function has been activated both on the parent layer and on the child layers
- the operator user is enabled for the editing function on these layers

The activation, at the cartographic client level, of the editing mode on the parent layer automatically determines the possibility of also managing the information on the related table.

Important: to be able to edit related data, the relations must be inserted in the form of the parent layer, defined using the Drag and Drop designer method in the Layer Properties.

After the editing has been activated on a record in the parent table, an editing icon (pen) will appears at the level of the relations references.



Editing attributes buildings

General info * | Technical data *

Identification *

ID *	4
Name *	Pink building
Address	Piazza Pietro Leopoldo
Zone (QGIS expression)	B
Type *	Residential
Subtype	
Documents to be attached	☑ 1

Documents

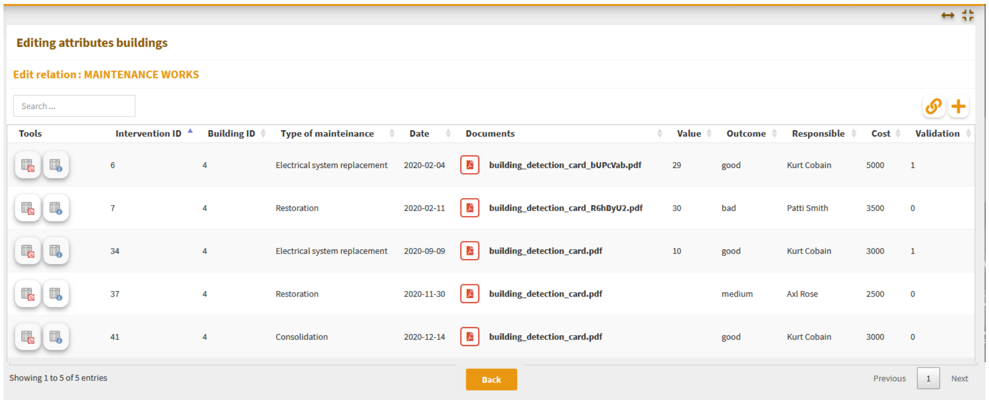
Photo	casa-danzante-praga.jpg
Form	building_detection_card.pdf
Link	https://g3wsuite.it
User/Date last modification	admin01|2022-03-25 08:58:10.435876

Relations

MAINTENANCE WORKS | RATING

* Required fields

Moving on the macro tab relating to one of the child layers, the list of records already associated with the edited feature will be displayed



Editing attributes buildings

Edit relation : MAINTENANCE WORKS

Tools	Intervention ID	Building ID	Type of mainteinance	Date	Documents	Value	Outcome	Responsible	Cost	Validation
	6	4	Electrical system replacement	2020-02-04	building_detection_card_bUPcVab.pdf	29	good	Kurt Cobain	5000	1
	7	4	Restoration	2020-02-11	building_detection_card_R6hByU2.pdf	30	bad	Patti Smith	3500	0
	34	4	Electrical system replacement	2020-09-09	building_detection_card.pdf	10	good	Kurt Cobain	3000	1
	37	4	Restoration	2020-11-30	building_detection_card.pdf		medium	Axl Rose	2500	0
	41	4	Consolidation	2020-12-14	building_detection_card.pdf		good	Kurt Cobain	3000	0

Showing 1 to 5 of 5 entries

Clicking on it the form switch in a session dedicated to the edit of the relationated table where it will be possible: * **create and add a new records** related to the edited feature

- **associate an existing records** (linked to other features or orphan) to the edited feature
- **modify the records** currently associated with the edited feature

Creation of a new related child records

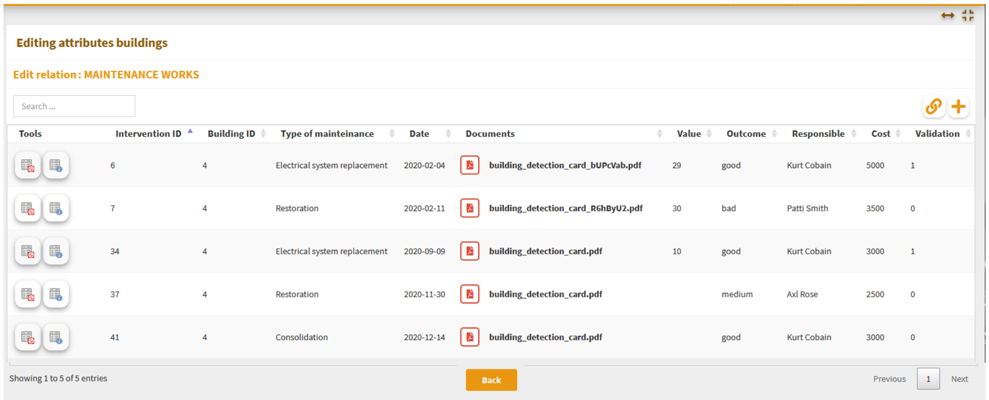
By clicking on the icon `Create and link a new relation` (located at the top right) it will be show the attribute form to insert a new record.

You can fill in the individual attributes and save the new record. **The change must be validated by clicking on the `Save` button at the bottom of the form.**

If the child layer is of the geometric type, it will be possible to add a new feature in two ways:

- **classic geometry editing**

- **copy and paste a feature from other layers (WFS included)** present in the project and characterized by the same type of geometry



Editing attributes buildings

Edit relation : MAINTENANCE WORKS

Tools	Intervention ID	Building ID	Type of mainteinance	Date	Documents	Value	Outcome	Responsible	Cost	Validation
	6	4	Electrical system replacement	2020-02-04	building_detection_card_bUPcVab.pdf	29	good	Kurt Cobain	5000	1
	7	4	Restoration	2020-02-11	building_detection_card_R6hByU2.pdf	30	bad	Patti Smith	3500	0
	34	4	Electrical system replacement	2020-09-09	building_detection_card.pdf	10	good	Kurt Cobain	3000	1
	37	4	Restoration	2020-11-30	building_detection_card.pdf		medium	Axl Rose	2500	0
	41	4	Consolidation	2020-12-14	building_detection_card.pdf		good	Kurt Cobain	3000	0

Showing 1 to 5 of 5 entries

To copy a geometry from another layer operate in this order:

- select the layer from which to copy the geometry from the drop-down menu
- click on the Copy button on the right of the list
- click on the feature of the layer to copy from
- select the feature of interest by consulting its attributes and/or zooming in on it, only one feature per operation
- fill in the attribute form of the pasted feature, some fields may already be filled in if they are omonymus to those of the feature's origin layer

Association of an existing record

By clicking on the icon `Join a relation to this feature` (located at the top right) you can associate a record, already linked to other features or orphaned, to the edited feature.

In the new window displayed:

- the list of all orphaned or already associated records will be displayed;
- a generic filter will allow you to locate the record of interest;
- by clicking on the individual records these will be associated with the edited features and, possibly, dissociated from other features

Modification of an already associated record

A series of icons appear to the right of each record associated with the edited feature:

- **Unlink relation:** to dissociate the record from the edited feature, the record will not be deleted but will become an orphan

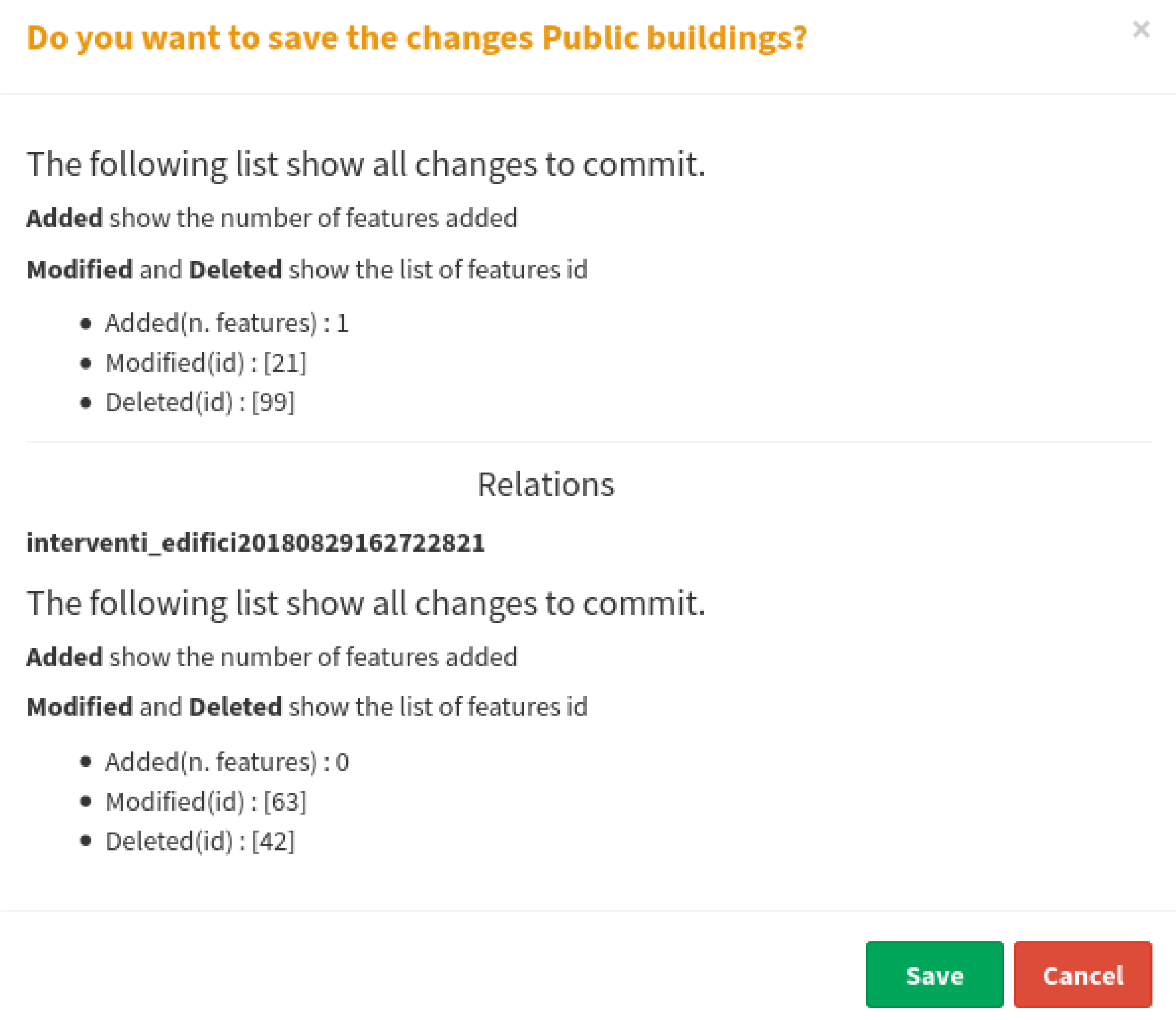
- **Delete feature:** permanently delete the record
- **Update feature:** modify the values associated with the attributes of this record; the change must be validated by clicking on the Save button at the bottom of the form.

Saving changes

Saving all the changes made in an editing session can be done in three ways:

- by clicking on the **`diskette icon`** placed at the top right. This icon is very useful in the case of complex projects with related data on various levels as it allows you to **save any changes made regardless of the form on which you are at the time of saving.** You will not be asked to confirm the save.
- by clicking on the **`diskette icon`** `images/manual/icon_save_all.png` placed at the top left of the TOC. The icon will only be active once you exit the attribute editing form. The changes made will be saved and you can continue making new changes. You will not be asked to confirm the save.
- bexiting edit mode by clicking on the **`Edit layer icon`** .

BExiting edit mode, a modal window will be displayed which will show the list of changes made and the request for confirmation or not of saving them.



Do you want to save the changes Public buildings?

The following list show all changes to commit.

Added show the number of features added

Modified and **Deleted** show the list of features id

- Added(n. features) : 1
- Modified(id) : [21]
- Deleted(id) : [99]

Relations

interventi_edifici20180829162722821

The following list show all changes to commit.

Added show the number of features added

Modified and **Deleted** show the list of features id

- Added(n. features) : 0
- Modified(id) : [63]
- Deleted(id) : [42]

Remember that during the editing phase the **undo/redo icons** allow you to delete/restore the latest changes made.

CHAPTER FOURTEEN

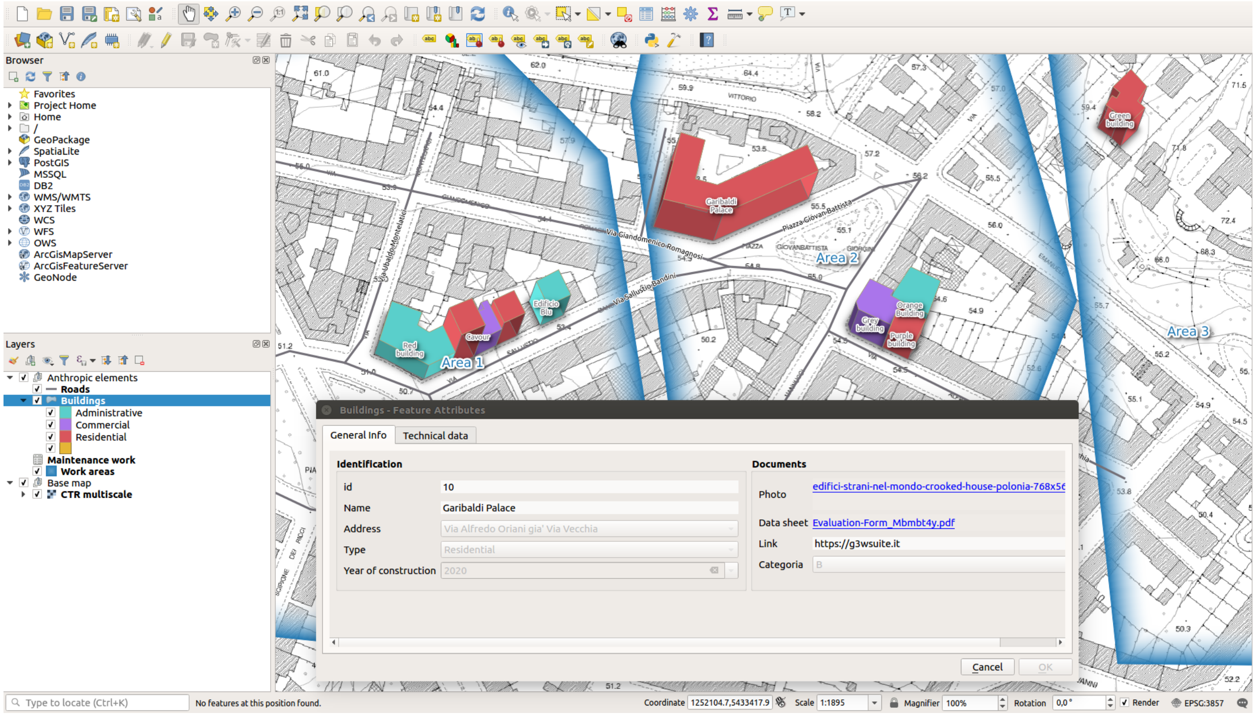
INTRODUCTION

The tutorial is based on a QGIS project dedicated to the management of a layer representing a series of buildings located on the territory.

In addition to the geographical aspects, the project involves the management of numerous and diversified attributes and of the related maintenance interventions through a 1: n type relationship.

Through the tutorials it will be possible to:

- customize the various graphic-functional aspects of the basic project
- publish the project as a WebGis service
- create personalized searches
- add plots made with DataPlotly QGIS plugin
- activate the editing functionality by customizing associated forms and widgets



Buildings - Feature Attributes

General Info | Technical data

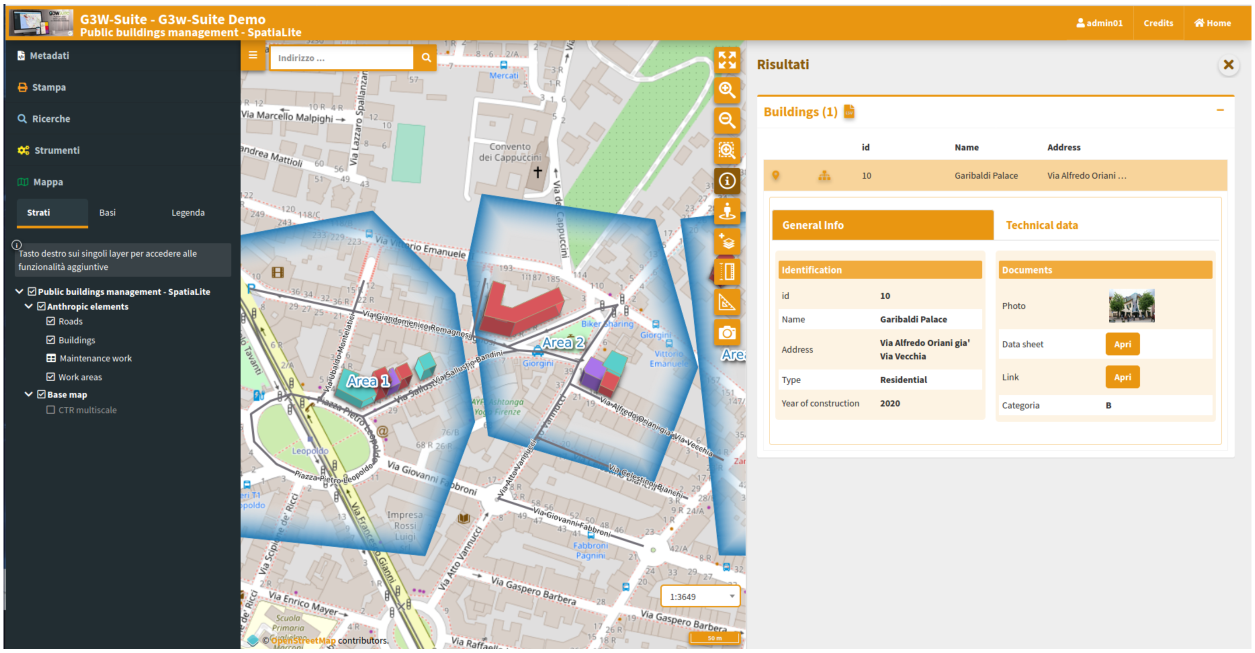
Identification

id 10
Name Garibaldi Palace
Address Via Alfredo Oriani gia' Via Vecchia
Type Residential
Year of construction 2020

Documents

Photo edifici-strani-nel-mondo-crooked-house-polonia-768x56
Data sheet Evaluation-Form_Mbmbt4y.pdf
Link https://g3wsuite.it
Categoria B

No features at this position found.
Coordinate 1252104.7,5433417.9
Scale 1:1895
Magnifier 100%
Rotation 0,0 °



Tasto destro sui singoli layer per accedere alle funzionalità aggiuntive

- ☑ Public buildings management - SpatiaLite
  - ☑ Anthropic elements
    - ☑ Roads
    - ☑ Buildings
    - Maintenance work
    - ☑ Work areas
  - ☑ Base map
    - ☐ CTR multiscale

id	Name	Address
10	Garibaldi Palace	Via Alfredo Oriani ...

Identification

id	**10**
Name	**Garibaldi Palace**
Address	**Via Alfredo Oriani gia' Via Vecchia**
Type	**Residential**
Year of construction	**2020**

Documents

Photo	
Data sheet	Apri
Link	Apri
Categoria	**B**

CHAPTER

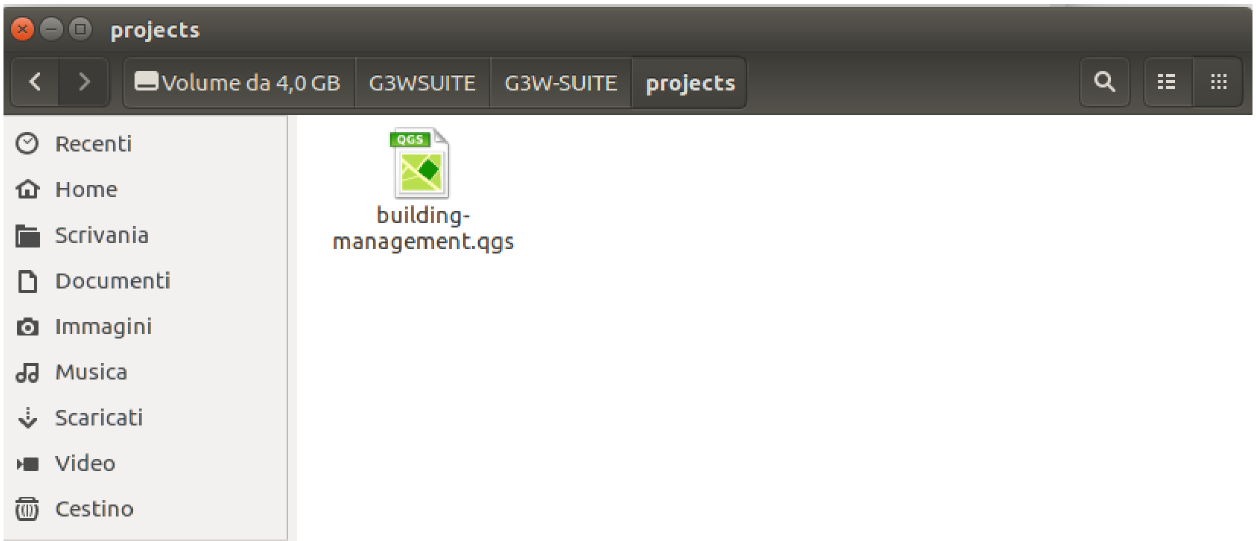
FIFTEEN

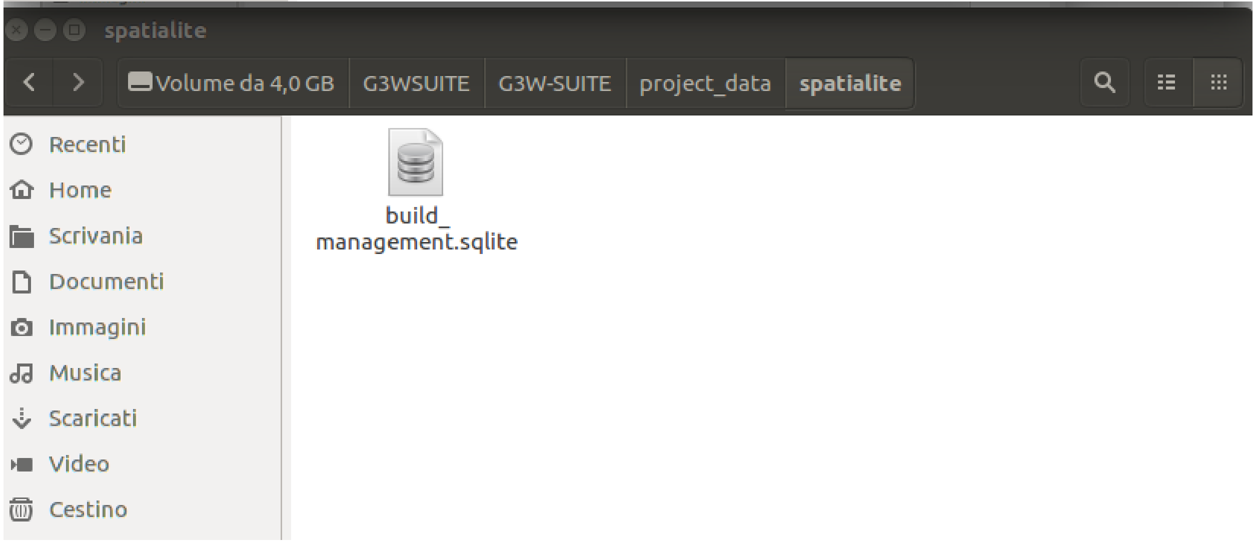
DOWNLOAD DEMO DATA

The tutorial is based on predefined data and QGIS 3.22.x LTR project **downloadable from this link**.

The .zip file contains the **`G3W-SUITE`** directory with three sub directories:

- **`projects:`** containing a QGIS project (**`buildings_management.qgs`**) already optimized for the tutorial
- **`project_data/spatialite`**: containing a SpatiaLite DB with basic data (**`build_management_demo.sqlite`**)
- **`plots`**: containing a a series of plots created with the **DataPlotly** plugin and saved in xml format





Inside the `build_management_demo.sqlite` **SpatiaLite DB** there are the following layers:

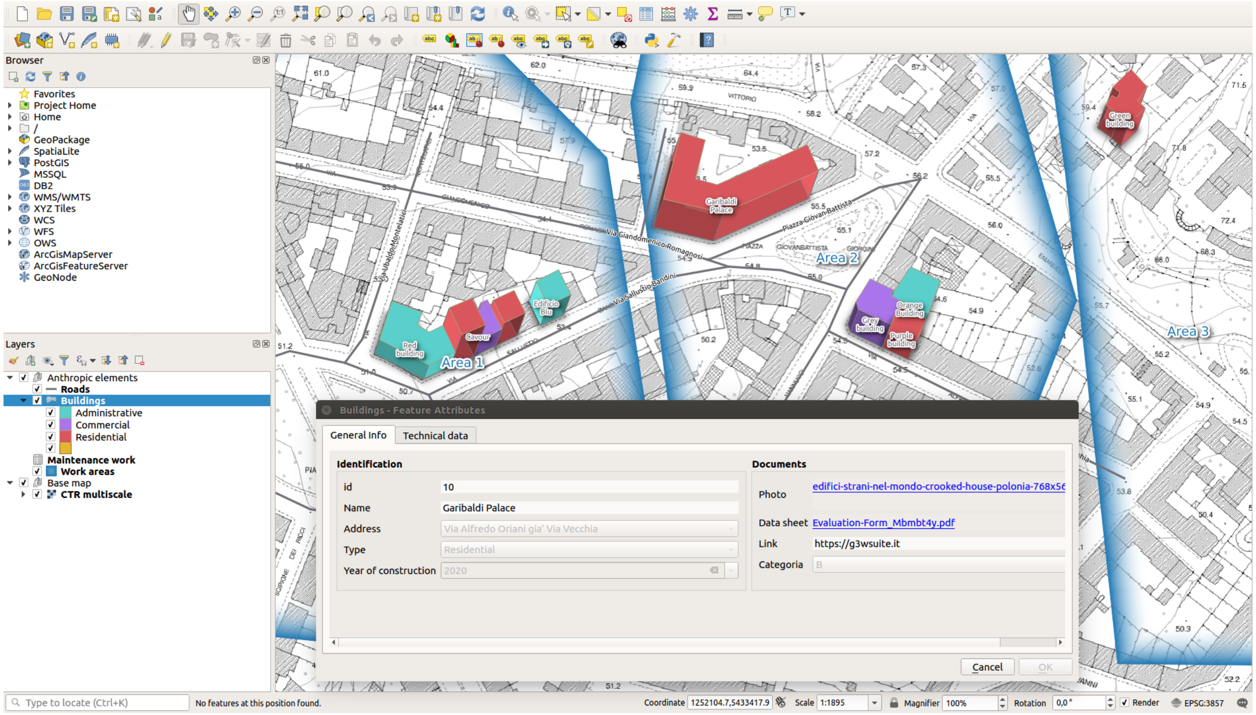
- **`buildings` (polygon layer):** reference layer for editing aspects
- **`maintenance_works` (alphanumeric table):** with the maintenance interventions associated with the individual buildings
- **`buildings_rating` (alphanumeric table):** with the annual assessments relating to individual buildings
- **`roads` (linear layer):** layer to define the address associated to any buildings
- **`work_areas` (polygon layer):** with the perimeter of work areas to be used to define any geo-constraints
- **`type_subtype` (alphanumeric table):** a decoding table of the type and subtype values associated with the individual buildings

IMPORTANT: a copy of this data are present on the server, you can not change your local data copy

The project (**based on QGIS LTR 3.22.x**) foresees:

- a **dressing categorized by the `buildings` layer** based on the categorical field `type`
- the presence of a **1: n relationship** between the `buildings` layer and the alphanumeric `maintenance_works` and `buildings_rating` tables

- pre-developed **query forms** for the **`buildings`** layer and the **`maintenance_works`** table
- predefined **editing widgets** for the fields of the two main layers: **`buildings`** , **`maintenance_works`** and **`buildings_rating`** tables
- two standard **print layout** in A4 and A3 and an two **atlas print layout** based on buildgs layer features



Buildings - Feature Attributes

General Info | Technical data

Identification

id: 10
Name: Garibaldi Palace
Address: Via Alfredo Oriani gia' Via Vecchia
Type: Residential
Year of construction: 2020

Documents

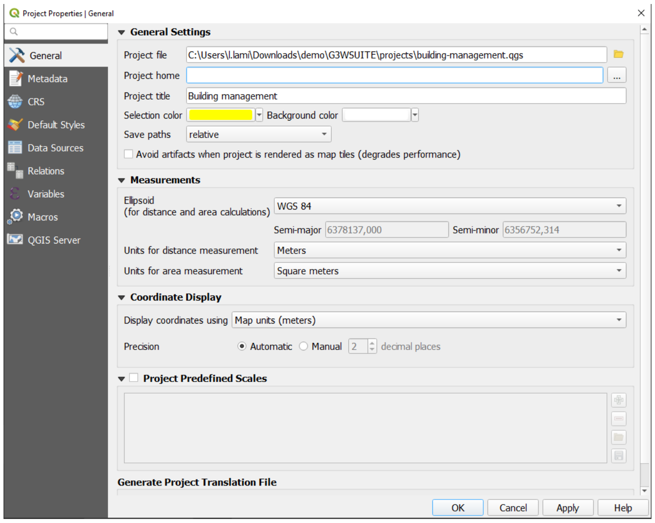
Photo: edifici-strani-nel-mondo-crooked-house-polonia-768x56
Data sheet: Evaluation-Form_Mbmbt4y.pdf
Link: https://g3wsuite.it
Categoria: B

Coordinate 1252104.7,5433417.9 Scale 1:1895 Magnifier 100% Rotation 0,0 ° Render EPSG:3857

15.1 Modify the QGIS project title

The publication system provides for the use of the **title of the project** as the **unique identifier of the WebGis service**.

So, before publishing the project, it will be NECESSARY to change the title associated with the basic project (`Project -> Properties ... - Session:  General`)



General Settings

Project file: C:\Users\l.lami\Downloads\demo\G3WSUITE\projects\building-management.qgs
Project home:
Project title: Building management
Selection color: 🟨 Background color:
Save paths: relative
☐ Avoid artifacts when project is rendered as map tiles (degrades performance)

Measurements

Ellipsoid (for distance and area calculations): WGS 84
Semi-major: 6378137,000 Semi-minor: 6356752,314
Units for distance measurement: Meters
Units for area measurement: Square meters

Coordinate Display

Display coordinates using: Map units (meters)
Precision: ● Automatic ○ Manual 2 decimal places

☐ **Project Predefined Scales**

Generate Project Translation File

CHAPTER

SIXTEEN

ACCESS THE ONLINE SERVICE

To publish the project, you can **access the G3W-SUITE test application** via the following URL: `https://v35.g3wsuite.it`

To access the **Administration Panel** it is necessary to log in using the following credentials:

- user: `demo`
- password: `G3wsuite!`

In case of login fails, report the problem to `info@gis3w.it`

CHAPTER

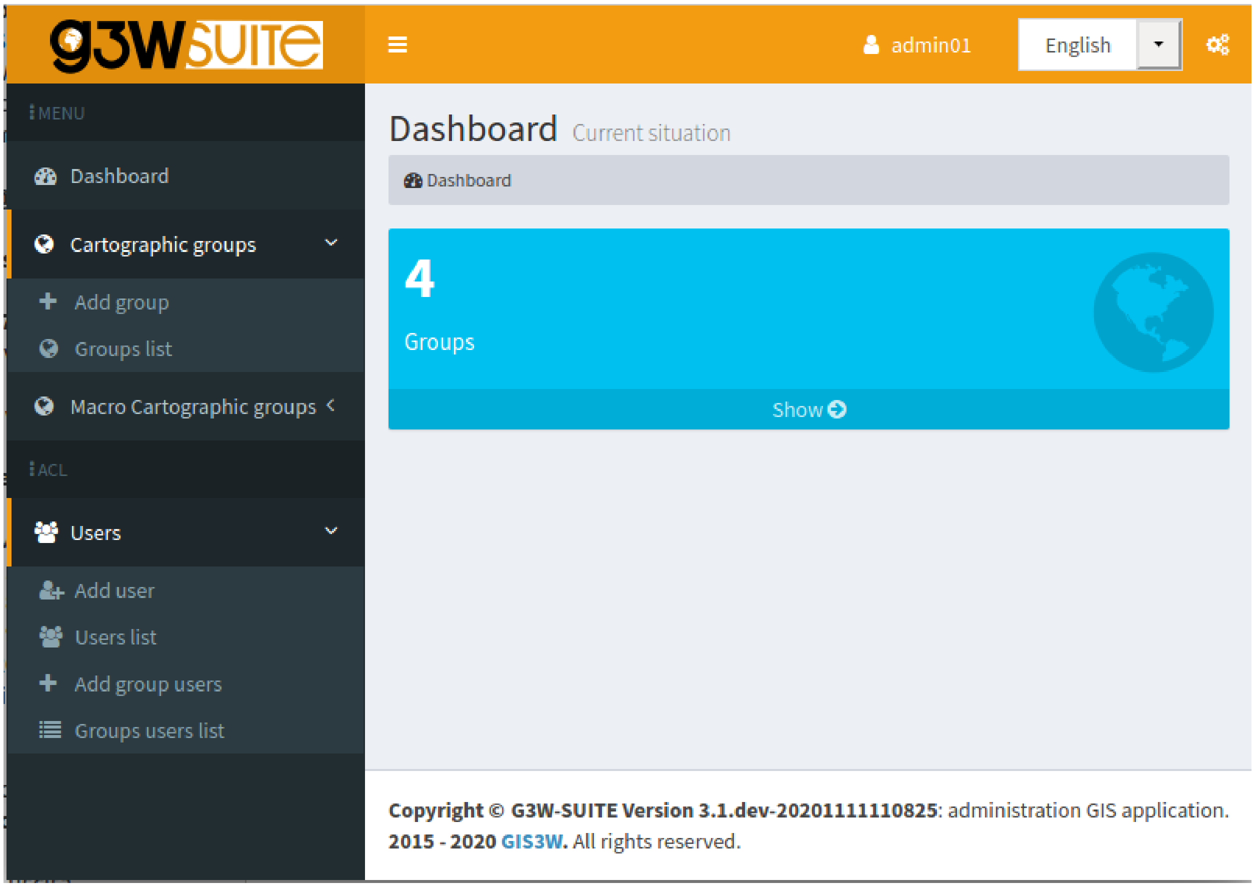
SEVENTEEN

PUBLISH THE QGIS PROJECT AS A WEBGIS SERVICE

After authentication it will be possible to access the **`Administration session`** and view the **Dashboard**.

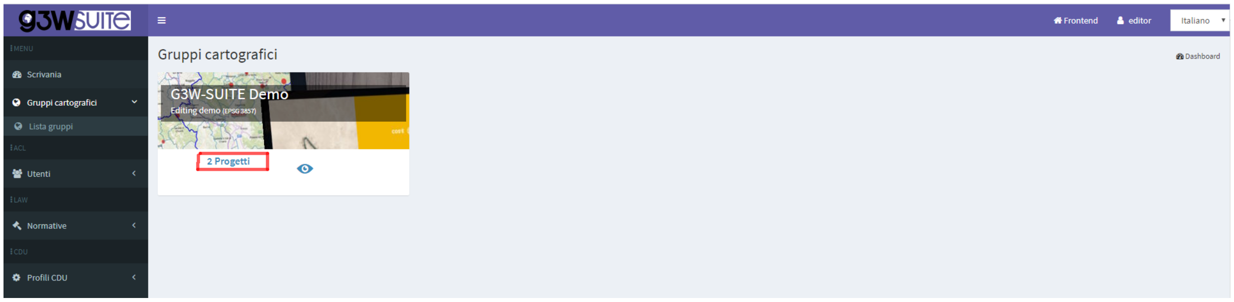
In the Dashboard there will be the menu for access to the **Cartographic Groups** pertaining to your user and the menus relating to additional modules not active in this demo.

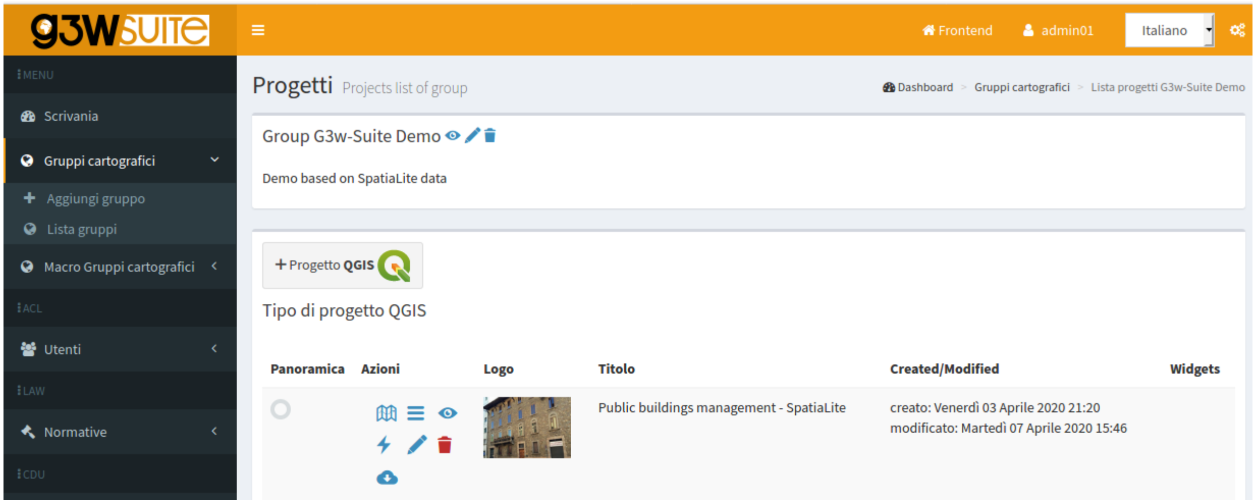
Click on the **`Show`** item in the ligth blue **Groups** box to acces at the list of available Cartographic Groups.



Copyright © G3W-SUITE Version 3.1.dev-20201111110825: administration GIS application. 2015 - 2020 GIS3W. All rights reserved.

Access the list of webgis in the Cartographic Group **`G3W-SUITE Demo`** clicking on the project number shown.




g3wSUITE
Frontend
admin01
Italiano
MENU
Scrivania
Gruppi cartografici
Aggiungi gruppo
Lista gruppi
Macro Gruppi cartografici
ACL
Utenti
LAW
Normative
CDU
Progetti Projects list of group
Dashboard > Gruppi cartografici > Lista progetti G3w-Suite Demo
Group G3w-Suite Demo
Demo based on SpatiaLite data
+Progetto QGIS
Tipo di progetto QGIS
Panoramica
Azioni
Logo
Titolo
Created/Modified
Widgets
Public buildings management - SpatiaLite
creato: Venerdì 03 Aprile 2020 21:20
modificato: Martedì 07 Aprile 2020 15:46

Now click on the button +Project QGIS to publish your **QGIS project**.

Fill out the form defining the various aspects to be associated with the WebGis service being published:

17.1 QGIS project

`QGIS file`: load the QGIS cartographic project to be published (.qgz or .qgs file)

17.2 ACL Users

Management of access permissions

- **`Viewers users`:** define the individual users (Viewers) who have the credentials to view the WebGis service. By choosing the anonymous user (**AnonymusUser**) the group will be freely accessible.
- **`Viewer user groups`:** you define the user groups (Viewer) which have the credentials to view the content of the service.

17.3 Default base layer

In this session you define which **`base layer` should be active at startup**.

The choice is limited to the list of base layers activated for the cartographic group in which you work.

It is also possible not to define any active base layer at startup.

17.4 Description data

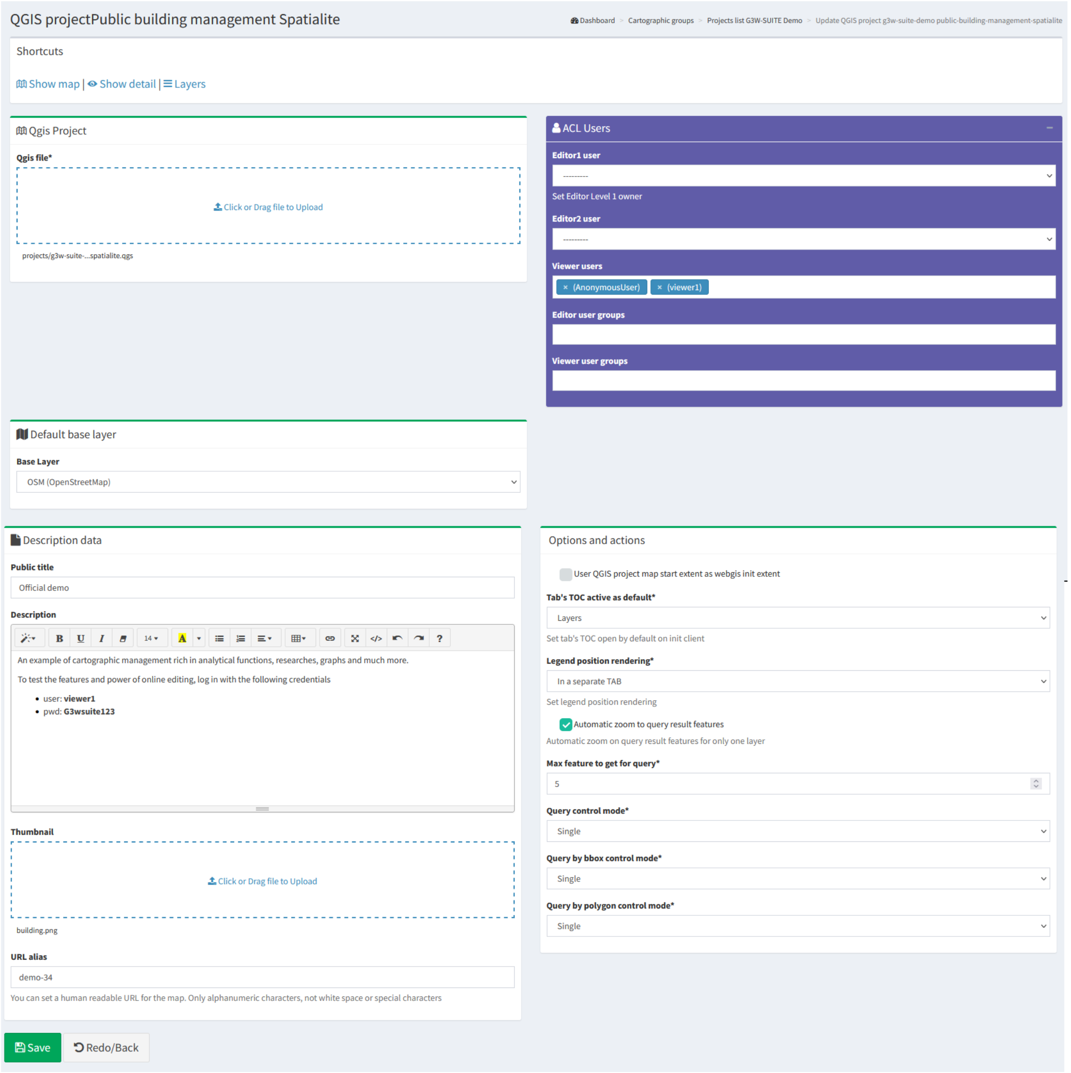
- **`Public title:`** Title to be associated with the project and displayed on the client header. If left blank, the title associated with the QGIS project will be used or, in the absence of this, the name of the project file
- **`Description:`** Description of the project, it will appear at the public portal level.
- **`Thumbnail (Logo):`** logo to associate with the project. This image will be viewable in the list of projects within the cartographic group
- **`URL alias:`** a human readable URL for the map

ATTENTION: contents marked with * are mandatory.

17.5 Options and actions

Choose your preferred options regarding the following options:

- **`User QGIS project map start extent as webgis init extent:`** check this control if you want set initial extent from QGSI project initial extent, **Project properties -> QGIS Server -> WMS capabilities (Advertised extent)**
- **`Tab's TOC active as default:`** set tab's TOC (Layers, Base layers, Legend) open by default on startup of webgis service
- **`Legend position rendering:`** this option allows to set legend rendering position:
  - **In a separate TAB:** default value, the legend is rendered into a separate tab
  - **Into TOC layers:** the legend is rendered inside layers toc
- **`Automatic zoom to query result features:`** if in the results of a search there are only features of a layer, the webgis automatic zoom on their extension



QGIS projectPublic building management Spatialite

Dashboard > Cartographic groups > Projects list G3W-SUITE Demo > Update QGIS project g3w-suite-demo public-building-management-spatialite

Shortcuts

Show map | Show detail | Layers

Qgis Project

Qgis file*

Click or Drag file to Upload

projects/g3w-suite-...spatialite.qgs

ACL Users

Editor1 user: ---------

Set Editor Level 1 owner

Editor2 user: ---------

Viewer users: (AnonymousUser), (viewer1)

Editor user groups

Viewer user groups

Default base layer

Base Layer: OSM (OpenStreetMap)

Description data

Public title: Official demo

Description

An example of cartographic management rich in analytical functions, researches, graphs and much more.

To test the features and power of online editing, log in with the following credentials

- user: **viewer1**
- pwd: **G3wsuite123**

Thumbnail

Click or Drag file to Upload

building.png

URL alias: demo-34

You can set a human readable URL for the map. Only alphanumeric characters, not white space or special characters

Options and actions

☐ User QGIS project map start extent as webgis init extent

Tab's TOC active as default*: Layers

Set tab's TOC open by default on init client

Legend position rendering*: In a separate TAB

Set legend position rendering

☑ Automatic zoom to query result features

Automatic zoom on query result features for only one layer

Max feature to get for query*: 5

Query control mode*: Single

Query by bbox control mode*: Single

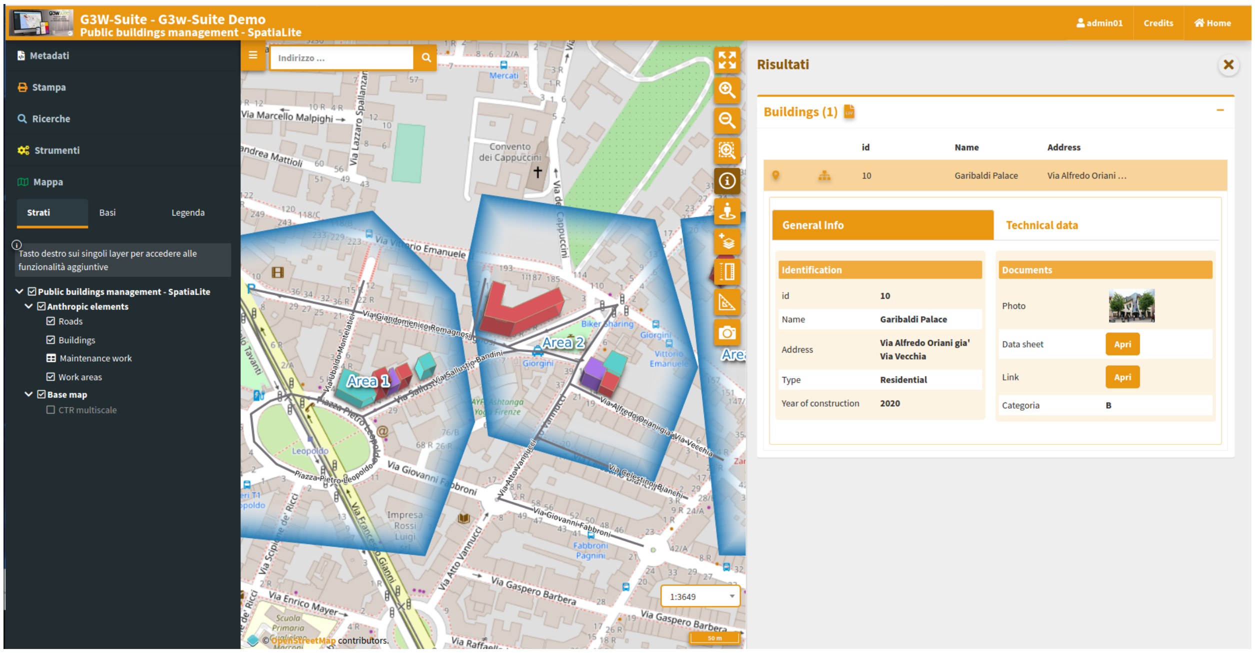
Query by polygon control mode*: Single

After filling in the various form, click on the `Save button` to confirm your choices.

Save Redo/Back

If the publication was successful, the QGIS project will appear in the list of projects in the Cartographic Group.

Clicking on the `View map` icon will access the WebGis service in consultation.



Tasto destro sui singoli layer per accedere alle funzionalità aggiuntive

- ☑ **Public buildings management - SpatiaLite**
  - ☑ **Anthropic elements**
    - ☑ Roads
    - ☑ Buildings
    - Maintenance work
    - ☑ Work areas
  - ☑ **Base map**
    - ☐ CTR multiscale

Buildings (1)

id	Name	Address
10	Garibaldi Palace	Via Alfredo Oriani ...

Identification

id	**10**
Name	**Garibaldi Palace**
Address	**Via Alfredo Oriani gia' Via Vecchia**
Type	**Residential**
Year of construction	**2020**

Documents

Photo	
Data sheet	Apri
Link	Apri
Categoria	**B**

CHAPTER
EIGHTEEN

UPDATE THE PUBLISHED WEBGIS SERVICE

If you want to modify some graphic-functional aspects of your WebGis service, modify your QGIS project and update the WebGis service by clicking on the **`Modify`** icon ✏.

Reupload the QGIS project with your changes, click on the **Save button** and see the resuts on the cartographic client.

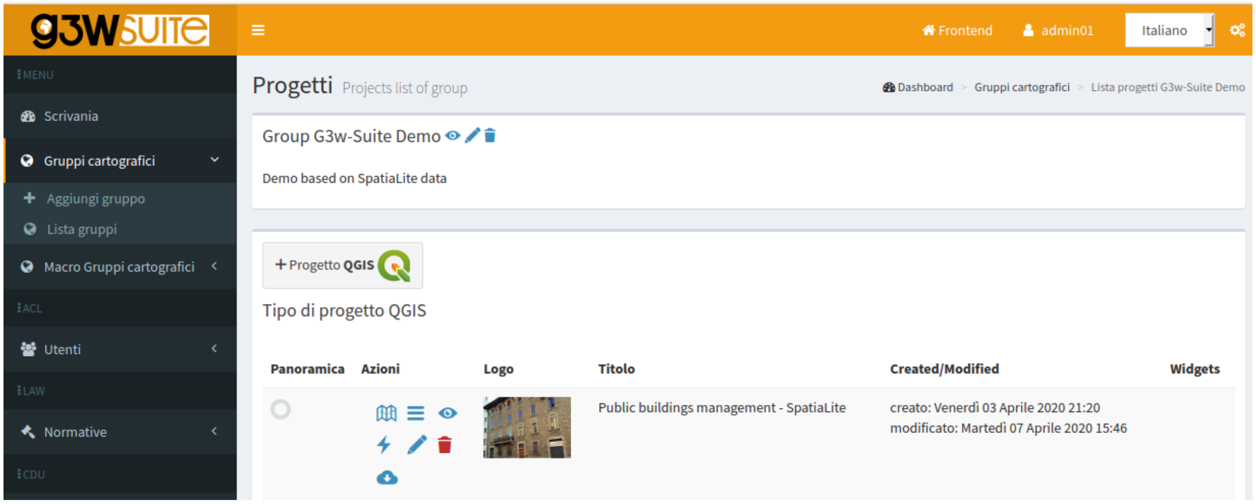
CHAPTER
NINETEEN

ACTIVATION OF ADDITIONAL FUNCTIONS

Once your project has been published, you can access the list of widgets and additional functions to enrich your WebGis service.

19.1 Widget management

Thougth the **`Layers list` icon** ☰ it is possible to access the list of the geographical states that compose it and define some functional aspects that will be enabled at the cartographic client level.



Progetti Projects list of group

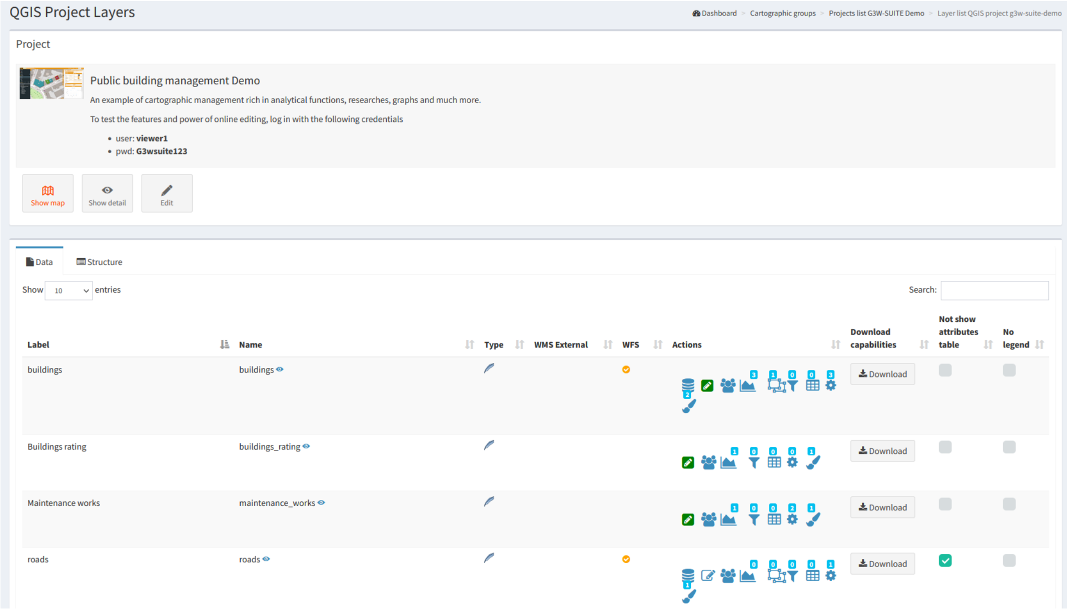
Group G3w-Suite Demo

Demo based on SpatiaLite data

Tipo di progetto QGIS

Panoramica	Azioni	Logo	Titolo	Created/Modified	Widgets
○			Public buildings management - SpatiaLite	creato: Venerdì 03 Aprile 2020 21:20 modificato: Martedì 07 Aprile 2020 15:46	

The new session will show you the **list of the layer** present in the published QGIS project



QGIS Project Layers

Dashboard > Cartographic groups > Projects list G3W-SUITE Demo > Layer list QGIS project g3w-suite-demo

Project

Public building management Demo

An example of cartographic management rich in analytical functions, researches, graphs and much more.

To test the features and power of online editing, log in with the following credentials

- user: **viewer1**
- pwd: **G3wsuite123**

Show map
Show detail
Edit
Data
Structure
Show 10 entries
Search:

Label	Name	Type	WMS External	WFS	Actions	Download capabilities	Not show attributes table	No legend
buildings	buildings			✓		Download	☐	☐
Buildings rating	buildings_rating					Download	☐	☐
Maintenance works	maintenance_works					Download	☐	☐
roads	roads			✓		Download	☑	☐

- **Label:** layer alias applied at the QGIS project level
  - The eye icon allows you to know the ID associated with the layer at the project level, this ID will be useful for creating parameterized URLs
- **Name:** name of the layer (file or DB table)
- **Type:** illustrates the type of data (WMS, PostGis, SpatiaLite, GDAL / OGR . . .)
- **WMS external:** to speed up loading, the WMS layers present in a QGIS project are managed directly by Django and not by QGIS-Server. However, this method prevents the application of any styling (e.g. opacity level) defined at the project level. The choice of the external WMS option means that the WMS layer is managed directly by QGIS-Server and therefore the associated styling is applied.
- **WFS:** a check mark shows whether the layer is published as a WFS service or not
- **Actions:** a series of icons dedicated to various functions
  - **Caching Layer:** allows you to activate and manage the cache of the single layer at the project level
  - **Editing layer:** shows if the online editing function is active on the layer and allows you to activate and define it
  - **Hide layer by user/groups:** hide specific layers from the TOC based on specific users or groups of users
  - **QPlotly widget:** add or manage plots created with DataPlotly QGIS plugin
  - **Geo-constraints by user/group:** create or manage editing and visualization geo-constraints based on poligonal layers

  - **Alphanumeric and QGIS expressions constraints by user/groups:** create or manage editing and visualization constraints based on SLQ language or QGIS expressions
  - **Hide columns by User/Groups:** create or manage constraints on one or more fields of a layer based on single or group user/s
  - **Widgets list:** shows how many widgets (eg searches) are associated with this layer and allows you to activate new ones
  - **Manage layer styles:** manage multi-style layer
- **Not show attributes table:** hide attributes table of the layer for every users
- **No legend:** it allows to define if the layer must have published the legend at TOC level of the WebGis client
- **Download:** allows the download of the geographic and not geographic layers in various formats
  - **Download as shp/geotiff:** for vector and raster layers
  - **Download as GPK:** for geographic or not geographic layers
  - **Download as xls:** for all types of layers, in .xls format
  - **Download as csv:** for all types of layers, in .csv format
  - **Download as gpx:** for geographic layers, in .gpx format

The number above each Action icon shows if and how many related objects are present.

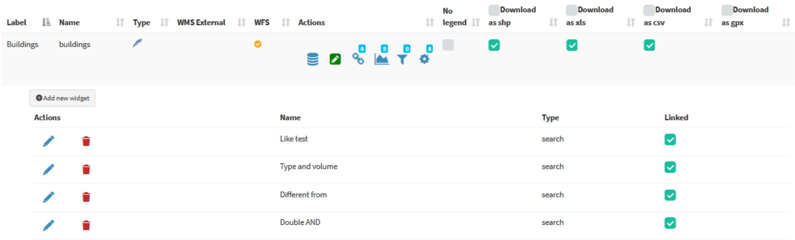
Try to activate the available options and test the result on the WebGis

19.2 Search widget creation

To create a search tool available at WebGis level, **choose the vector layer** on which to apply the tool and **click on the `Widget list icon`** ⚙

NB: there may be a number of searches created by other users for the same layer.

You can activate them by **clicking on the `Linked` chekbox**.



Label	Name	Type	WMS External	WFS	Actions	No legend	Download as shp	Download as xls	Download as csv	Download as gpx
Buildings	buildings			✓	0 5 0 8	☐	☑	☑	☑	

Actions	Name	Type	Linked
	Like test	search	☑
	Type and volume	search	☑
	Different from	search	☑
	Double AND	search	☑

The listed searches can be **modified, deleted or unlinked** using the appropriate icons.

To **create a new search**, click on the blue link **`New widget`**.

In the related form we can define:

- **Form Title**
  - **`Type`:** "Search"

  - **`Name:`** name that G3W-SUITE will use to internally register the search widget.
- **General configuration of research and results**
  - **`Search title:`** title that will become available in the **'Research'** panel of the WebGis interface
- **Search fields settings**
  - **`Field:`** field on which to carry out the research
  - **`Widget:`** method of entering the value to be searched `InputBox`: manual compilation `SelectBox`: values shown via drop-down menu `AutoCompleteBox`: values shown through auto-complete mode
  - **`Alias:`** alias assigned to the field that will appear in the search form
  - **`Description:`** description assigned to the field
  - **`Comparison operator:`** comparison operator (**=, <,>,> <,> =, <=, LIKE, ILIKE**) through which the search query will be carried out. The LIKE and ILIKE operators will only be available for PostGis or SpatiaLite layers
  - **`Dependency:`** this parameter (optional) allows, only in the case of SelectBox widgets, to list the list of values of a field filtered according to the value defined for the previous fields. The tool allows, for example, to display, in the drop-down menu dedicated to the choice of cadastral particles, only the particles connected to the sheet chosen in the previous option. This function is only available for PostGis or SpatiaLite layers.

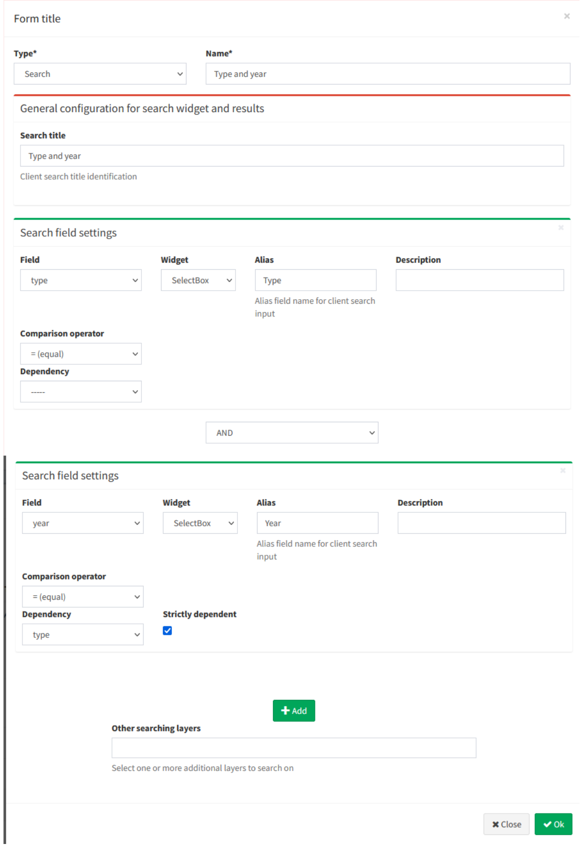
Now it is possible to **define the dependence more or less strong** (strictly).

In case of **strictly dependence**, the values of the dependent fields will be loaded **only after** the choice of the value of the field on which the dependency depends.

Otherwise it will be possible to define the values of the individual fields freely and **without a specific order**. The values available for the other fields will in any case depend on the choice made.

The button allows you to add additional fields for the construction of the search query currently manageable through **AND/OR operators**.

The example below shows the compilation of the form for creating a search widget dedicated to a cadastral cartography layer.


Form title

Type*: Search

Name*: Type and year

General configuration for search widget and results

Search title: Type and year

Client search title identification

Search field settings

Field: type

Widget: SelectBox

Alias: Type

Alias field name for client search input

Description:

Comparison operator: = (equal)

Dependency: -----

AND

Search field settings

Field: year

Widget: SelectBox

Alias: Year

Alias field name for client search input

Description:

Comparison operator: = (equal)

Dependency: type

Strictly dependent: ☑

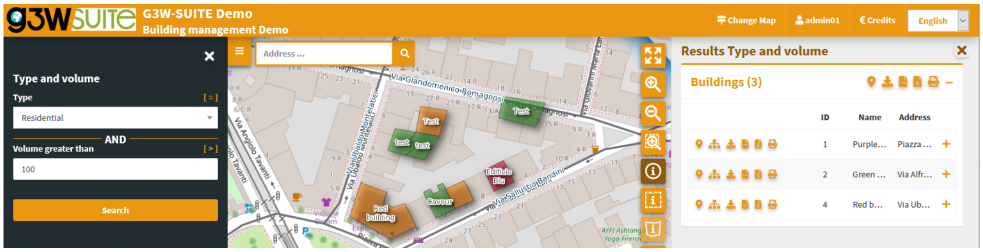
Other searching layers:

Select one or more additional layers to search on

Once the form has been filled in, click on the **`OK button` to save** the settings.

Once the settings are saved, the created widget will appear in the list of Widgets associated with the layer.

The widget will already be `linked` and therefore available in the WebGis interface on the left panel.



Type and volume

Type [=]: Residential

AND

Volume greater than [>]: 100

Results Type and volume

Buildings (3)

ID	Name	Address
1	Purple...	Piazza ...
2	Green ...	Via Alfr...
4	Red b...	Via Ub...

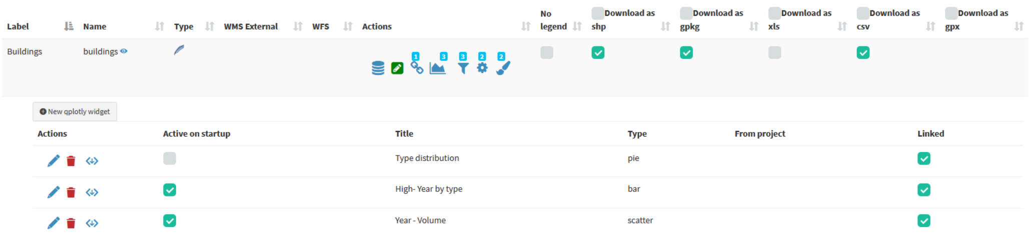
19.3 Plots widget

Add plots created using QGIS DataPlotly (a great plugin developed by Matteo Ghetta) in the cartographic client.

The module, based on the Plotly library, manages **plots saved as xml**.

The plots are connected to the layers defined on the QGIS project, in this way, as for the searches and the constraints, it is possible to activate the same plots on all WebGis services in which the reference layer is present.

For this reason, there may be some plots created by other users for the same layer. You can activate them by **clicking on the `Linked` chekbox**.



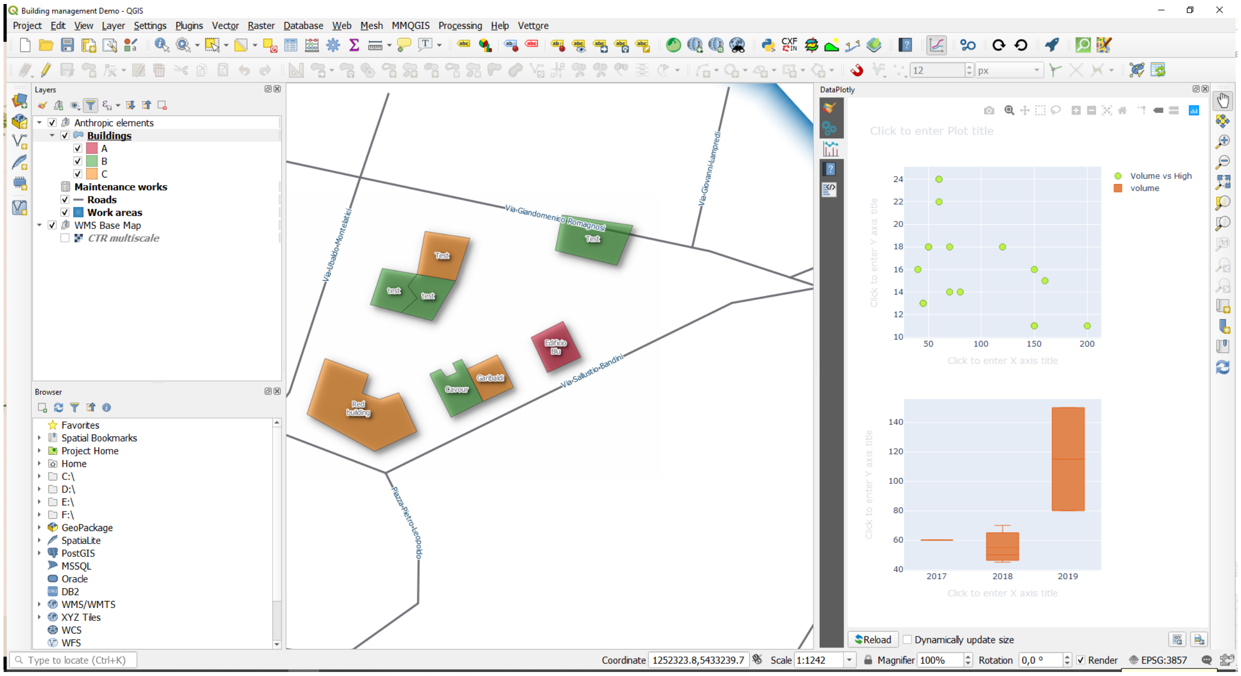
Label	Name	Type	WMS External	WFS	Actions	No legend	Download as shp	Download as gpkg	Download as xls	Download as csv	Download as gpx
Buildings	buildings				1 3 3 2 2	☐	☑	☑	☐	☑	

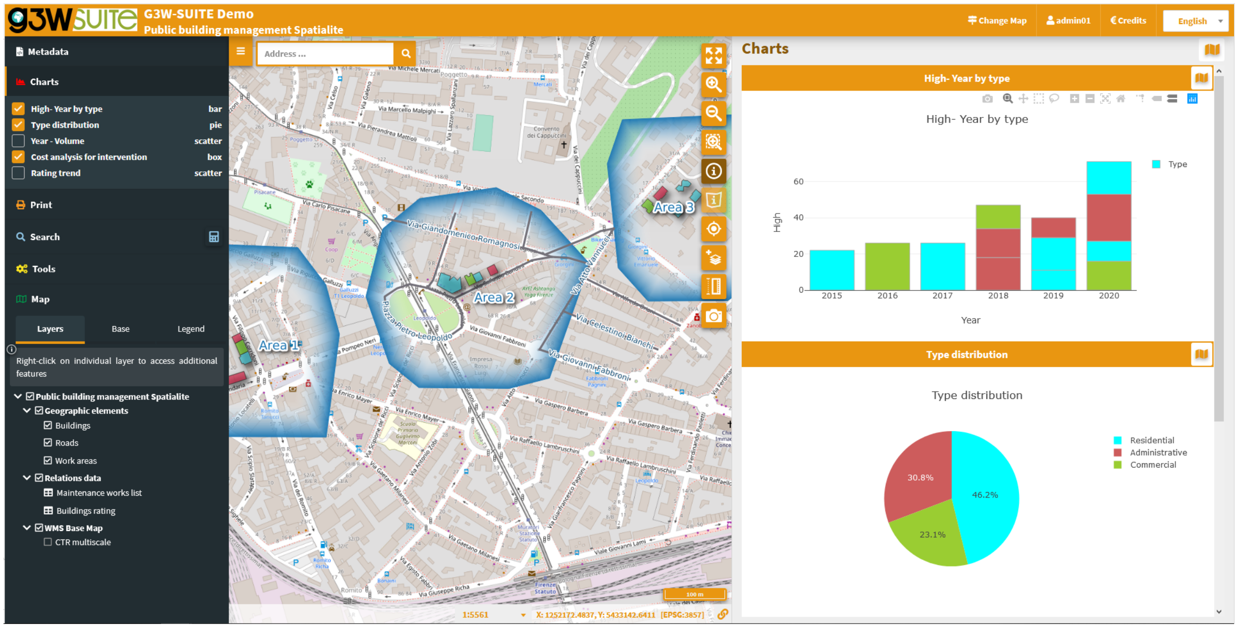
New qplotly widget

Actions	Active on startup	Title	Type	From project	Linked
	☐	Type distribution	pie		☑
	☑	High- Year by type	bar		☑
	☑	Year - Volume	scatter		☑

The title of the chart, defined at the plugin level, will be the unique identifier.

Try to create your plots in the QGIS project, save them as .xml and upload them to view the resluts on the webgis.





The graphs are filterable based on the:

- features visible on the map
- filter based on the selected features

These **filters** are also **reflected on the plots associated to the related data** (in 1:N mode) based on the visible and/or selected parent features.

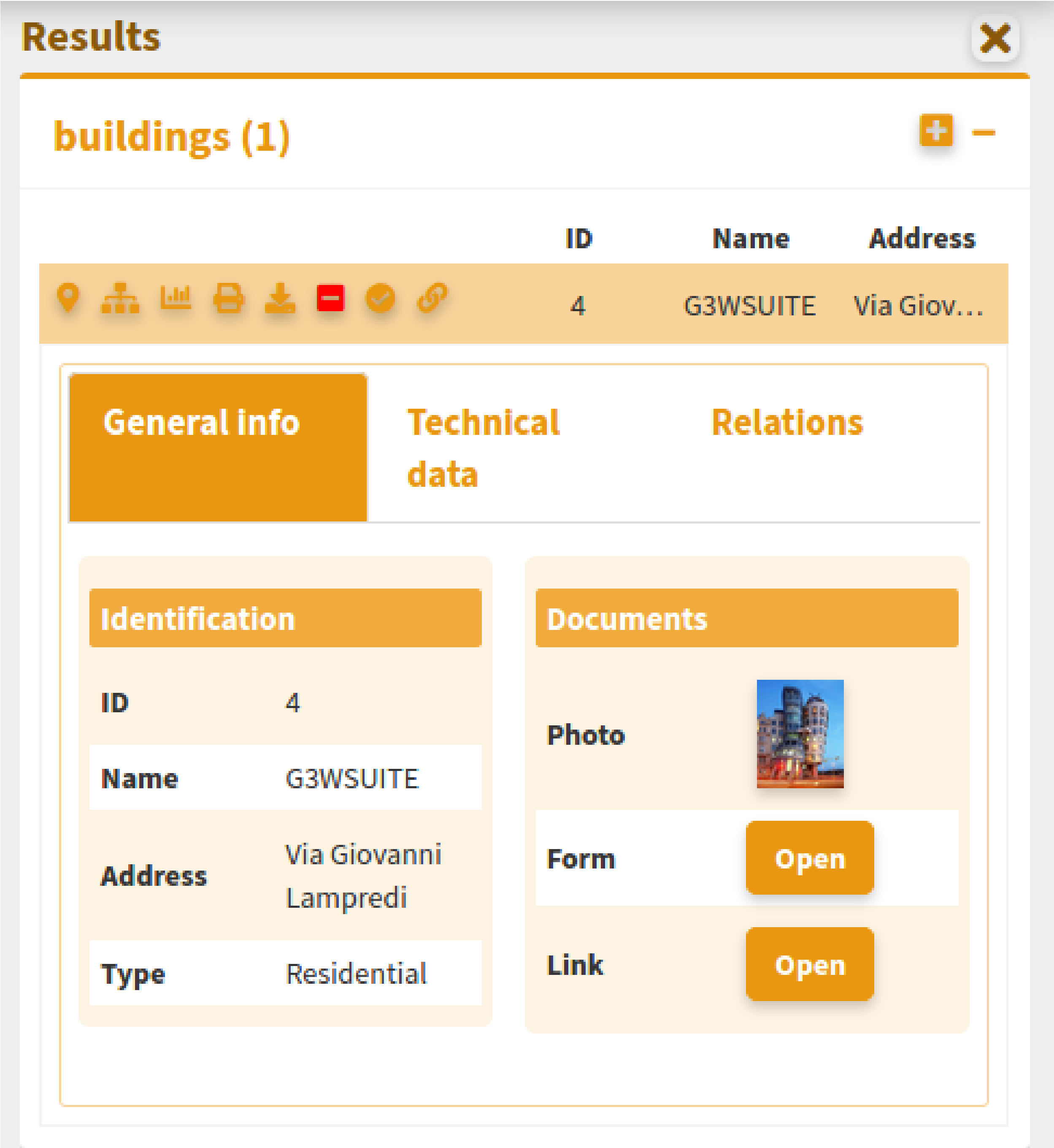
The **filter based on the map content** can be activated globally on all plots (icon at the top of the panel dedicated to charts) or on only some specific plots (icon placed at the level of the individual plots).

The plots will automatically update after pan and zoom operations on the map

If activated, the **filter based on the selected features** is automatically activated on all related plots (associated with the same layer and with the 1:N relationed tables)

Appropriate **messages** at the single plots level will indicate the activation of these filters.

If 1: N relationships are associated with the interrogated layer and plots have been activated on the referencing tables, it will also be possible to consult these plots by querying the referenced layer and clicking on the **Show relation charts** icon present in the results form.



ID	Name	Address
4	G3WSUITE	Via Giov…

ID	4
Name	G3WSUITE
Address	Via Giovanni Lampredi
Type	Residential

Show relation charts: display of graphs related to 1: N related data. Only if 1: N relationships are associated with the interrogated layer and graphics have been activated on the boy tables.

CHAPTER

TWENTY

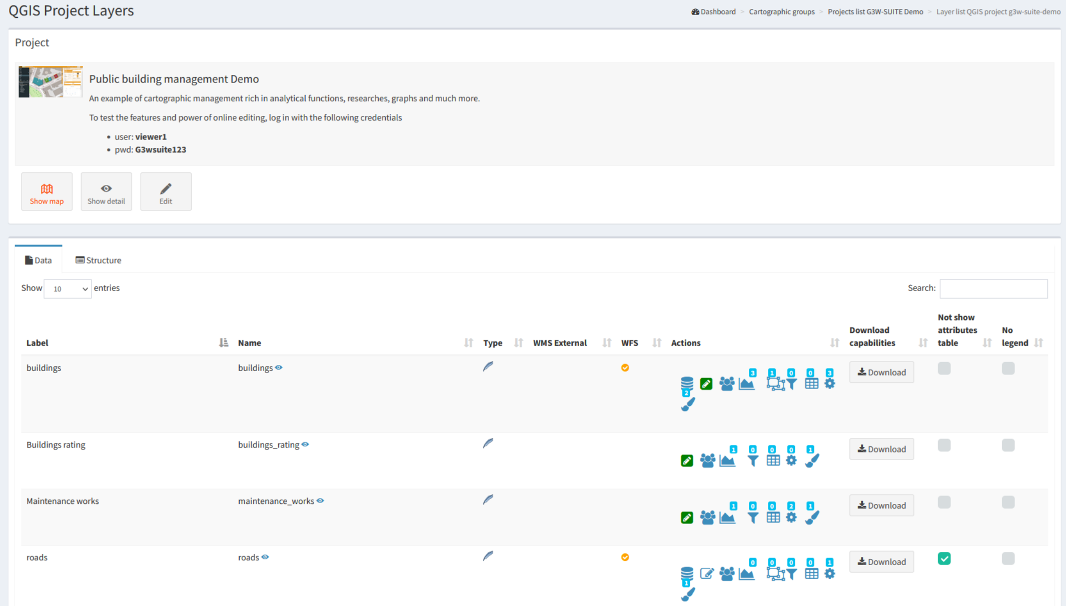
EDITING ON LINE

Forms and editing widgets are already defined on the project associated with the tutorial for the geometric layer of buildings and for the alphanumeric table related interventions_maintenance.

- **`Buildings`**
  - **id** (integer - primary key): autogenerate
  - **name** (text NOT NULL): text edit
  - **address** (text): Value relation (roads layer - code/name fileds)
  - **zone** (text): text edit (with default values based on a QGIS expression to for association with the intersecting works area)
  - **type** (text NOT NULL): unique values (Administrative, Commercial, Residential)
  - **subtype** (text NOT NULL): value relation (based on type_subtype table for a drill-down cascading forms)
  - **attachment** (integer): check box 1/0 (the visibility of the conditional form Documents is based on this field)
  - **photo** (text): attachment
  - **link** (text): text edit
  - **form** (text): attachment
  - **user** (text): text edit (automatically filled in with the G3W-SUITE username creator of the feature)
  - **year** (integer NOT NULL): unique values (2015,2016,2017,2018,2019,2020)
  - **high** (integer NOT NULL): range (10-30 step 2)
  - **volume** (integer): range (50-200 step 10)
  - **surface** (integer): text edit
  - **architectural_barriers** (text): Checkbox (Checked - Not checked)
  - **date_barriers** (date): date (yyyy/MM/dd)
  - **safety_exits** (text): checkbox (Checked - Not checked)
  - **date_exits** (date): date (yyyy/MM/dd)
  - **fire_system** (text): Checkbox (Checked - Not checked)
  - **date_fire** (date): date (yyyy/MM/dd)
- **`Maintenance_works`**
  - **id** (integer - primary key): autogenerate

  - **id_buildings** (text - relation key): text edit
  - **maintenance** (text NOT NULL): unique values
  - **date** (date): date (yyyy/MM/dd)
  - **form** (text): attachment
  - **value** (integer): range (10-30 step 2)
  - **outcome** (text): unique values (good, medium, bad)
  - **responsible** (text): text edit
  - **cost** (integer): range (1000-5000 step 1)
  - **validation** (boolean): checkbox (0/1)
- `Buildings rating`
  - **id** (integer - primary key): autogenerate
  - **id_buildings** (text - relation key): text edit
  - **date** (date): date (yyyy/MM/dd)
  - **value** (integer): range (1000-4000 step 500)
  - **year** (integer): range (2018-2022 step 1)

To activate the editing function on webgis, access the list of layers and identify the three layers shown above.



QGIS Project Layers

Dashboard > Cartographic groups > Projects list G3W-SUITE Demo > Layer list QGIS project g3w-suite-demo

Project

Public building management Demo

An example of cartographic management rich in analytical functions, researches, graphs and much more.

To test the features and power of online editing, log in with the following credentials

- user: **viewer1**
- pwd: **G3wsuite123**

Show 10 entries

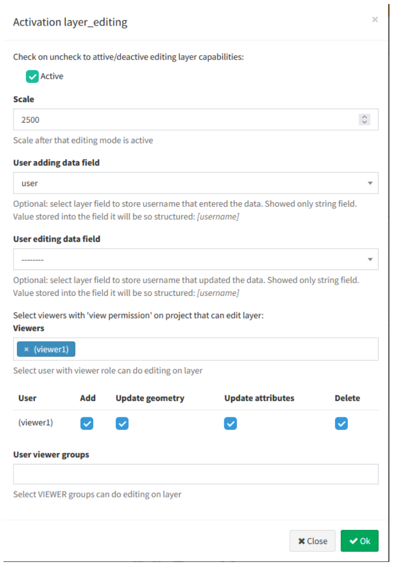
Search:

Label	Name	Type	WMS External	WFS	Actions	Download capabilities	Not show attributes table	No legend
buildings	buildings			✓		Download	☐	☐
Buildings rating	buildings_rating					Download	☐	☐
Maintenance works	maintenance_works					Download	☐	☐
roads	roads			✓		Download	☑	☐

Clicking on the icon **Editing layer** (placed at the left of each rows) will open a modal window that will allow you to:

- define the `editing activation scale` (only for geometric tables)
- define the `Viewer users` (individuals or groups) `enabled` for online editing

With regard to the last aspect, it should be noted that **Viewers users** (individuals or groups) **available** in the drop-down menu **will be limited to those who have allowed access in consultation to the WebGis project**



Activation layer_editing

Check on uncheck to attive/deactive editing layer capabilities:

☑ Active

Scale

2500

Scale after that editing mode is active

User adding data field

user

Optional: select layer field to store username that entered the data. Showed only string field. Value stored into the field it will be so structured: *[username]*

User editing data field

Optional: select layer field to store username that updated the data. Showed only string field. Value stored into the field it will be so structured: *[username]*

Select viewers with 'view permission' on project that can edit layer:

Viewers

× (viewer1)

Select user with viewer role can do editing on layer

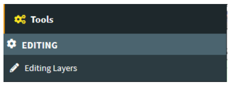
User	Add	Update geometry	Update attributes	Delete
(viewer1)	☑	☑	☑	☑

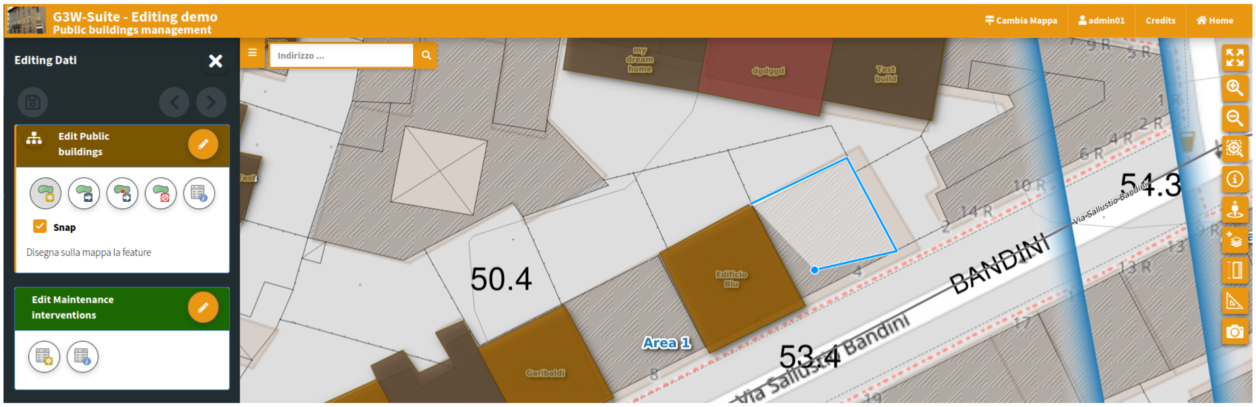
User viewer groups

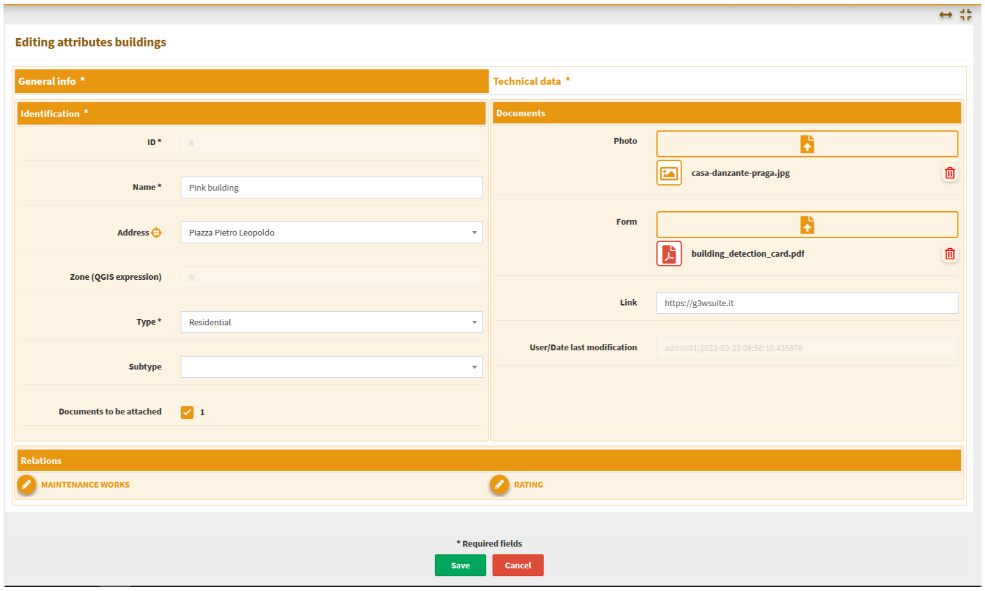
Select VIEWER groups can do editing on layer

Once the editing function is activated, updating the service, the **`Tools menu`** **will appear on the left panel.**

By activating the editing function it will be possible to edit the geometries and attributes of the Public Buildings layer and the related interventions.







ID * 4

Name * Pink building

Address Piazza Pietro Leopoldo

Zone (QGIS expression) B

Type * Residential

Subtype

Documents to be attached ☑ 1

Photo casa-danzante-praga.jpg

Form building_detection_card.pdf

Link https://g3wsuite.it

User/Date last modification admin01|2022-03-25 08:58:10.435876

For **further information** on the web editing function, read the **dedicated chapter on the manual**

CHAPTER
TWENTYONE

PERSONALIZE YOUR DEMO

Do you want to test the online editing function more deeply?

Redefine attribute forms, aliases and editing widgets associated with the individual fields and reload the project to check the new settings.

It is advisable to consult the paragraph dedicated **to the list and limitations of the individual editing widgets inheritable from the QGIS project.**