QGEP Documentation

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The QGEP Project/OPENGIS.ch

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QGEP is a wastewater management module for QGIS based on SIA 405 and developed closely to the QGIS application.

This document can also be downloaded as a single PDF document: QGEP.pdf  .

CAPITOLO 1

Contents

1.1 QGEP Installation Guide

This will guide you through the setup of required applications and services to get your system ready for running QGEP.

Nota: You also have the option of downloading a *Demo Virtual Machine* that has a working QGEP demo.

1.1.1 Setup database server

If you expect to access the data from several different workstations, you can install the database on a network accessible server. If it is just a single desktop you are working on, this can be installed on the same machine.

Required Software

Server installation

- Install PostgreSQL (>=9.3)
  - Windows download page
- Install PostGIS (>=2.1)

Nota: In a single desktop environment (no network database server) you can setup your database to trust local connections.

This way, the database won't ask for a password if you're connecting from your local workstation while no password is written anywhere. You even can do with no database password at all.

This can be done by editing the database access configuration file pg_hba.conf and set the auth-options from `md5` to `trust`. A database service reload is required to activate changes.

1.1.2 Database initialization

You can use *pgAdmin* to access and manage the database server.

Nota: By clicking the link you can learn how to *Install pgAdmin*

Process

In pgAdminIII

- Connect to the database server
- Create a new group role (preferably named *qgep*, but you are free to choose)
- Create a new login role (*qgepuser* for example) and make it a member of the *qgep* group

You can do this graphically or by simply opening a pgAdminIII *SQL query* window and type the following:

```
CREATE GROUP qgep;
CREATE ROLE qgepuser LOGIN;
GRANT qgep TO qgepuser;
```

- Create a new database (preferably named *qgep*, but you are free to choose)
  - Change to this database
- Create a new schema with the name *qgep*
- Open an *SQL query* Window and create the extensions (if they're not created yet)
  - `CREATE EXTENSION hstore;`
  - `CREATE EXTENSION postgis;`
- Download demo data
  - https://github.com/QGEP/data/raw/demodata/qgep_demodata.backup
- Right click the *qgep* schema
  - Click restore
  - Load your download of qgep.backup
  - Restore Options #2: Activate *Clean before restore*
  - Click *Restore*
  - Click *Cancel*
- Right click the database and click *Refresh*
- Update privileges for the database
  - Right click the *qgep* schema
  - Click *Grant Wizard . . .*
  - Selection, click *Check All*
  - Privileges
    - Group *qgep*
    - Choose *ALL*

1.1.3 Setup workstation

Database configuration

To tell a workstation, where the database is (on the local system or on a network server) you will have to create some files initially on every device on which you will have QGIS/QGEP running. It is not required to do that on the server itself.

These instructions depend on your operating system.

Windows

Create a new directory where you want to store the configuration in. (E.g. a new folder `pgconfig` in your home folder). This directory will be referred to as `PGSYSCONFDIR` in this guide.

Set the environment variable `PGSYSCONFDIR` to the path to `PGSYSCONFDIR`.

Inside this folder, there will be two files

- `pg_service.conf`
- `pgpass` (If you do not want to enter the password for the db every time)

Attenzione: On Windows, you need to save `pg_service.conf` in Unix format in order to work. One way to do it is to open it with Notepad++ and `Edit --> EOL Conversion --> UNIX Format --> File save.`

Linux

On linux you may put the files `.pg_service.conf` and `.pgpass` into your home folder (normally `/home/[username]`)

All systems

Put the following content in the file `pg_service.conf` or `.pg_service.conf`. You may have to adapt the variables for your setup.

```
[pg_qgep]
host=localhost
port=5432
dbname=qgep
user=qgepuser
```

To save the password as well on the system you may use the file pgpass.

```
localhost:5432:*:qgepuser:password
```

Nota: If you don't have the database on your local machine replace any occurence of `localhost` with the network address of your database server.

Install QGIS

- Minimum requirement 2.10
  - We recommend using the latest master builds (called qgis-dev on Windows) which often offer a better experience in combination with QGEP.

Install QGEP plugin

- Open QGIS
- Go to Plugins (position *1* in the image below)
  - Manage and Install Plugins
  - Settings (position *3*)
    - Add...

- Name: QGEP
- URL: `http://qgis.vitu.ch/plugins/plugins.xml`

* Enable *Show also experimental plugins* (position 2)

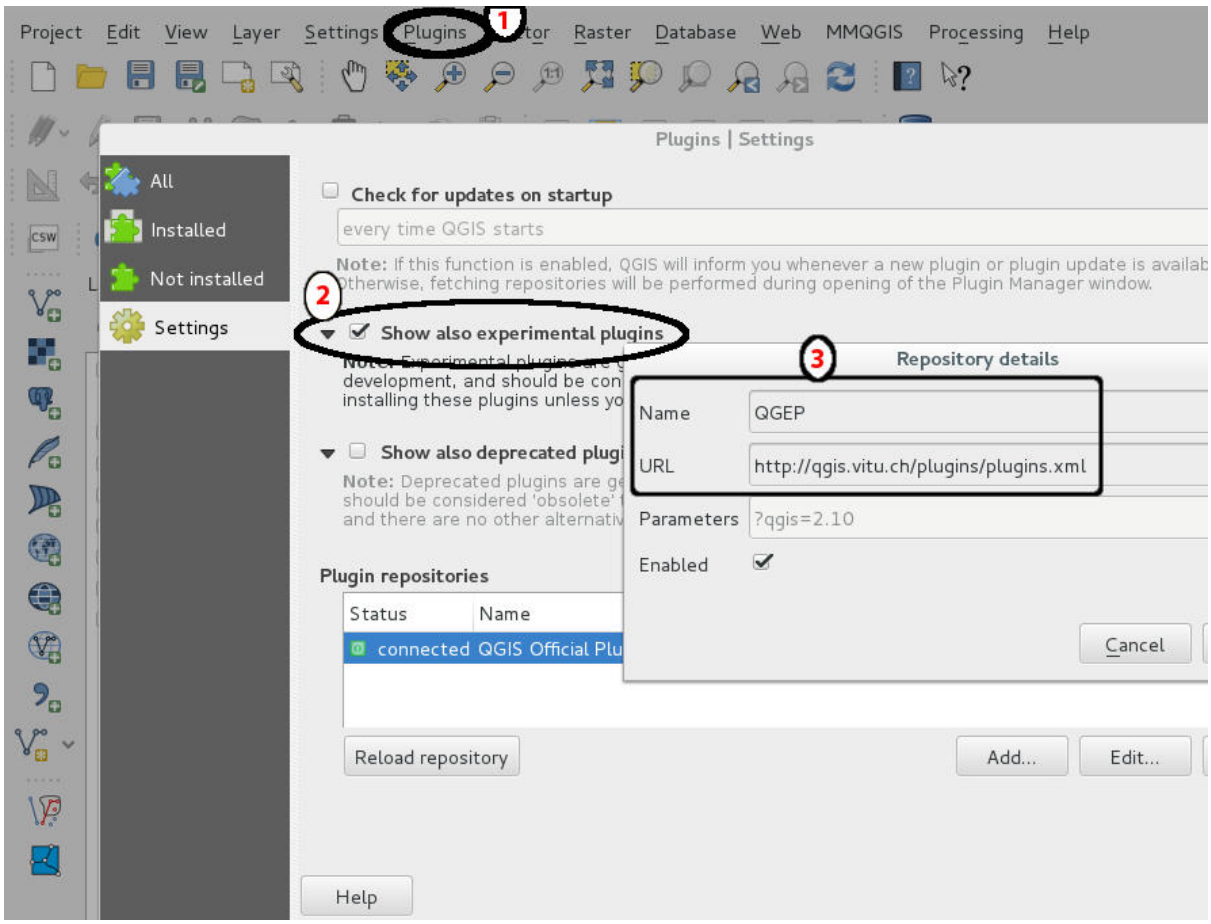

Fig. 1.1: **Add the plugin repo**

Activate the plugin (see image below):

- All
  - Search *QGEP*
  - Click the checkbox next to it

Install the demo project

- Download https://github.com/QGEP/data/archive/demodata.zip
- Extract the file
- Restore the file *qgep_demodata.backup* with pgAdminIII
- Open *project/qgep_en.qgs* with QGIS

1.2 pgAdmin

PgAdminIII is a Desktop tool that permits to access and manage the database server. This chapter represents a guide on how to do basic PostgreSQL management using pgAdmin.

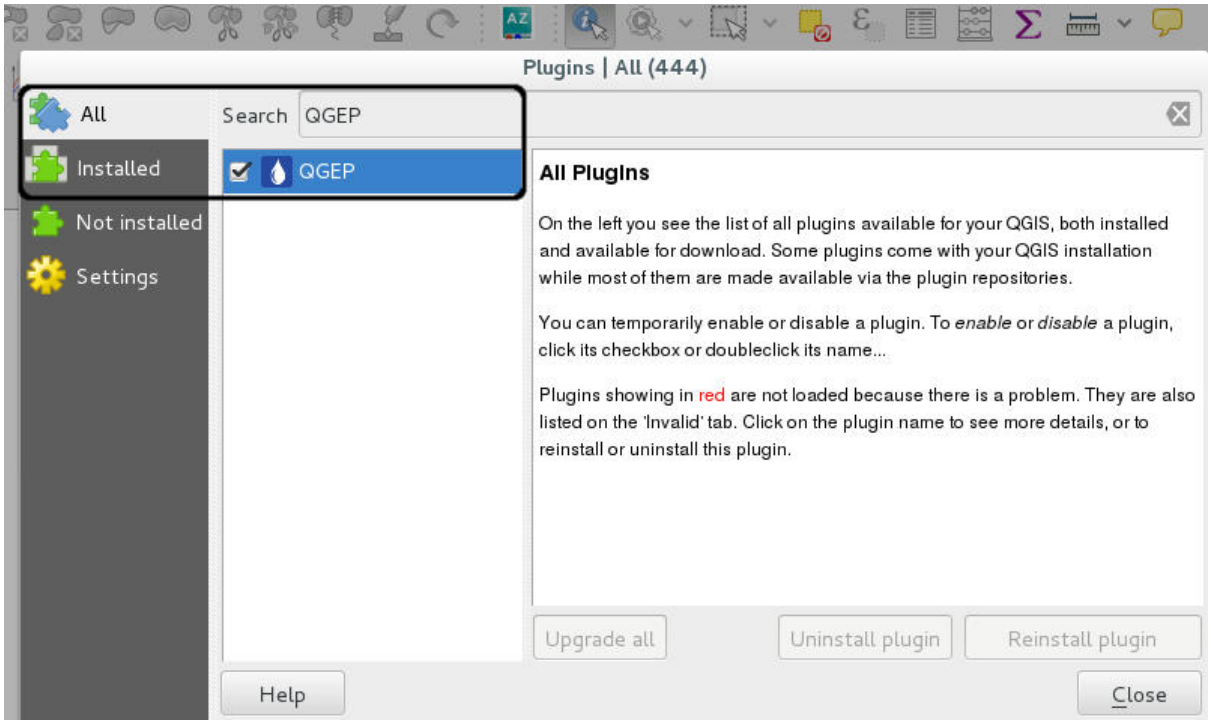

Fig. 1.2: **Add the QGEP plugin**

1.2.1 Install pgAdmin

Windows

pgAdmin should be automatically installed if you used the EnterpriseDB installer.

Linux

Debian/Ubuntu based distros

You can install pgAdmin by running the following command:

```
sudo apt-get install pgadmin3
```

Fedora based distros

```
sudo yum install pgadmin3
```

Suse based distros

```
sudo zypper install pgadmin3
```

Nota: All the commands presented above assume that you are logged in as a user with sudo (admin) privileges. On certain systems it may be required to use the command `su` to become the *root* user and then issue the above command without the `sudo` prefix.

1.2.2 Using Pgadmin

SQL query

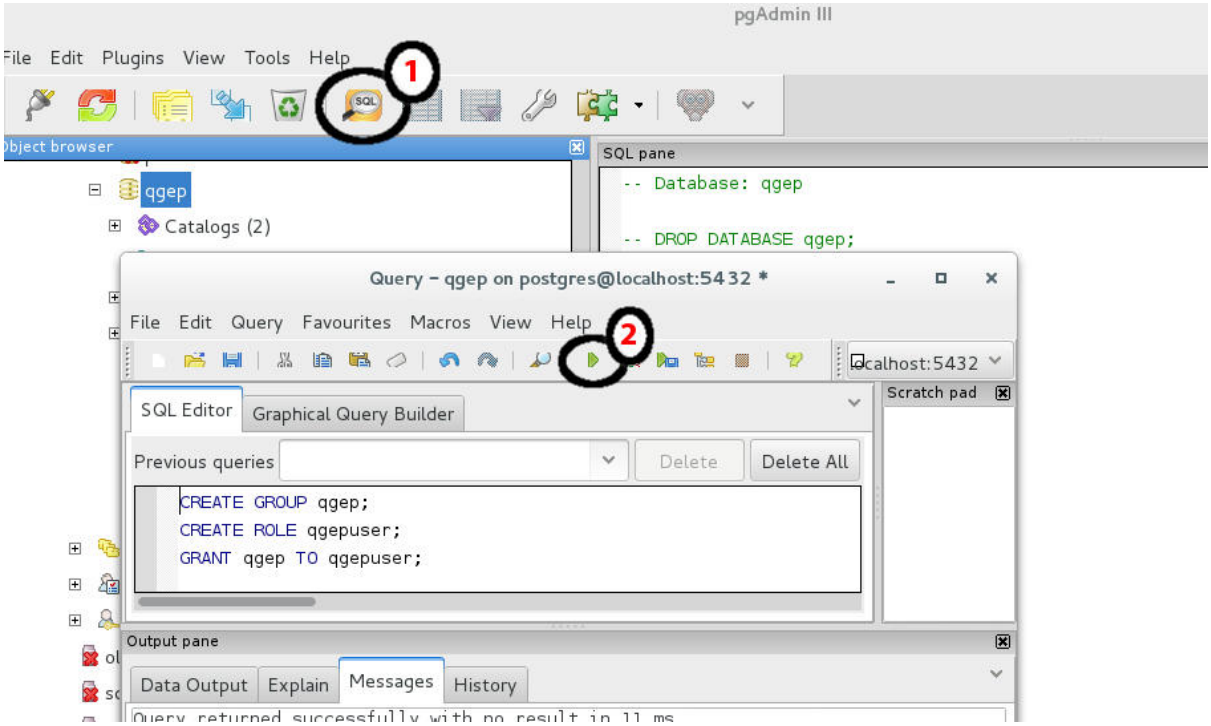

Fig. 1.3: **Running SQL commands in PgAdminIII**

Nota:

- Clicking the highlighted icon at location *1* opens the SQL Window. The SQL icon is active only when you're connected to a database.
- Clicking the icon at *2* runs the written SQL commands.

1.3 Demo Virtual Machine

This represents a guide on how to download and install a virtual machine (VM) that has a working QGEP installation with a preinstalled demo dataset.

1.3.1 About

The VM is based on Debian Jessie with Cinnamon Desktop.

Installed software:

- PostgreSQL 9.4.4 with Postgis 2.1.7
- QGIS Master 2.11

Settings that are changed from a default software install:

- `pg_hba.conf` has **trust** for local connections
- QGIS is setup with multithreaded rendering enabled
- QGIS is setup with postgres server side expression compiler enabled

Nota: The users `web` and `root` have the password `qgis`

Nota: If you decide to use the VM in production, it is recommended to:

- change the passwords
- regenerate the ssh keys by running in a terminal `sudo rm /etc/ssh/ssh_host_* && sudo dpkg-reconfigure openssh-server`

1.3.2 Install

Download

Download the vm from here

Nota: The size of the VM is around 2GB compressed and around 7GB uncompressed.

Extract

The virtual disk is archived using XZ compression.

To extract the archive:

- **Windows:** you can use 7-Zip to extract the archive.
- **Linux:** cd to the download directory and run `xz -d qgisplatform.vdi.xz`

You can run the VM as you would do with any VirtualBox VM.

Nota: As the VM is based on Linux it is fairly simple to convert the image to a raw disk and put it on a USB stick (minimum 8GB) or a faster storage. This would enable you to run the app without the virtualization penalty and enjoy the full speed of your hardware.

1.3.3 QGIS Server

The VM has working installations of QGIS Server and QGIS Web Client (QWC).

Access the Web Services

The Apache server is setup to respond to requests pointing to the *http://qgisplatform.demo*. Accessing the above link with the Internet Browser of the VM will take you to the starting page of QWC depicted in the above image.

If you want to access the web services outside the VM, you need to edit the `hosts` file on your machine and point `qgisplatform.demo` to the IP of the VM.

Nota: If you've setup the VM with the network adapter in NAT mode only the VM host will be able to access the services. If you want all the devices on your LAN to do it, you need to setup the network adapter in bridge mode.

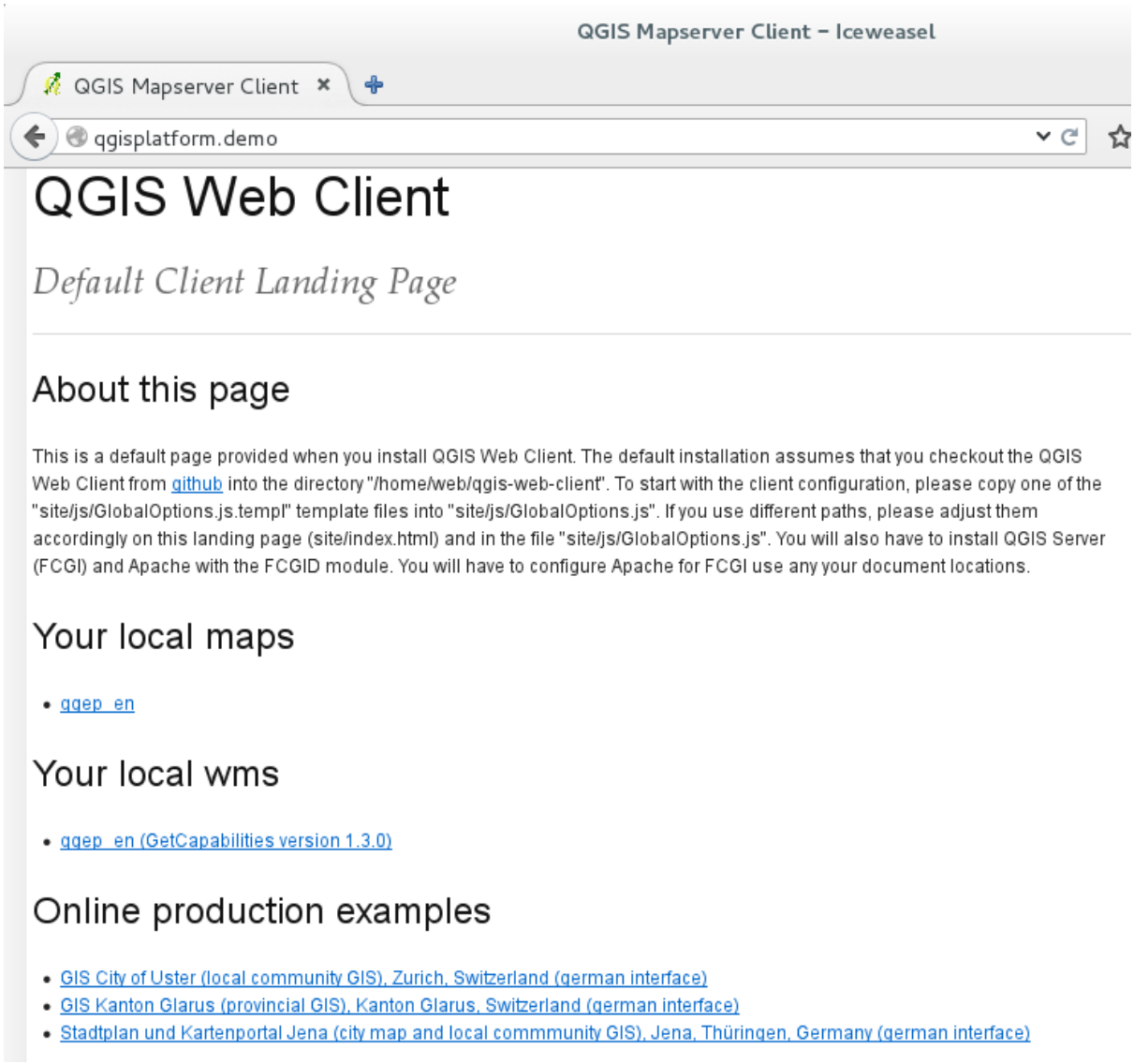

Fig. 1.4: **QGIS Web client starting page**

1.4 QGEP User Guide

1.4.1 Digitizing Wastewater Structures

1.4.2 Deleting Wastewater Structures

Deleting Geometry

Deleting the structure

Indices and tables

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