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UWWTD SIIF national toolbox Installation and configuration on a fully open source server with CentOS

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1 Introduction

This document is presenting how to install the UWWTD SIIF Toolbox, version released in February 2016 on a national server with a fully Open source environment.

2 General installation:

In order to install the UWWTD SIIF website in your own environment, you need six main modules:

- the database : Postgres 9.x with Postgis extension (version > 1.5) ,
- the web server : Apache 2.4 and PHP 5.5
- the website : Drupal 7,
- the map server : Geoserver,
- the catalogue: Geonetwork,
- the pdf generator : wkhtmltopdf

The machine which will be used to host the web portal as well as the webservice features, has the following configuration:

- The physical configuration should be at least (for evaluation): - disk : 20 Gbytes- RAM : 2Gbytes- CPU : 2 minimum- partition : 1. Ideally, you may install the webserver, the database server et map server on separates servers or increase the RAM to 4 Go and/or the number of CPU to 4.
- Linux (ideally centos 6 or 7, 64 bits) /Red Hat server with at least 2 Gbytes of RAM,
- an Apache 2 webserver- with PHP 5.3.3 (or more),
- the GeoPHP libraries,
- the installation kit with the website sources
- for the database management : postgres 9 and postgis 2
- Tomcat 8.0.12 webserver
- for the web services module (flat ones) : Geoserver 2.5 (or 2.8)
- GeoNetwork
- for the pdf printing function: upload wkhtmltopdf module

2.1 Install package with command line and yum

At first, you have to install the database server. You will find all needed package at this URL : <http://yum.postgresql.org/repopackages.php#pg95> . For example, if you want to install postgres 9.5 on centos 6, 64 bits you can run followings command :

```
cd /home
wget https://download.postgresql.org/pub/repos/yum/9.5/redhat/rhel-6-x86_64/pgdg-centos95-9.5-2.noarch.rpm
rpm -ivh pgdg-centos95-9.5-2.noarch.rpm
yum install postgresql95-server postgresql95-devel postgis2_95
```

You can also find some usefull information on postgres wiki : https://wiki.postgresql.org/wiki/YUM_Installation and on

Then, You can install development tools, apache and php with this shell's command under "root" user:

```
yum groupinstall 'Development Tools'
yum install httpd php php-devel php-pear php-pgsql git
pecl install dbase
```





```
pecl install uploadprogress
```

For GeoPHP installation, you can follow this guide: <https://github.com/phayes/geoPHP/wiki/Geos-installation-on-centos6>

To start the apache service, you can use the following command under “root” user:

```
service httpd start
OR (if the previous command line does not work)
service apache start
```

For auto-starting the apache server on the server reboot, use this command:

```
chkconfig httpd on
```

If everything went well, you can access to the following page with your web browser (Google Chrome, Firefox, Opera) at this URL: **[http://\[ip of your server\]/](http://[ip of your server]/)**

PHP Version 5.3.27

System	Linux webnuxdev.mde.tm.fr 2.6.18-402.el5PAE #1 SMP Tue Feb 10 18:29:18 EST 2015 i686
Build Date	Aug 8 2013 21:36:56
Configure Command	'/configure' '--build=i686-redhat-linux-gnu' '--host=i686-redhat-linux-gnu' '--target=i686-redhat-linux-gnu' '--program-prefix=' '--prefix=/usr' '--exec-prefix=/usr' '--bindir=/usr/bin' '--sbindir=/usr/sbin' '--sysconfdir=/etc' '--datadir=/usr/share' '--includedir=/usr/include' '--libdir=/usr/lib' '--libexecdir=/usr/libexec' '--localstatedir=/var' '--sharedstatedir=/usr/com' '--mandir=/usr/share/man' '--infodir=/usr/share/info' '--cache-file=../config.cache' '--with-libdir=lib' '--with-config-file-path=/etc' '--with-config-file-scan-dir=/etc/php.d' '--disable-debug' '--disable-rpath' '--with-pic' '--without-pear' '--with-bz2' '--with-exec-dir=/usr/bin' '--with-freetype-dir=/usr' '--with-png-dir=/usr' '--with-xpm-dir=/usr' '--enable-gd-native-ttf' '--with-t1lib=/usr' '--without-gdcm' '--with-gettext' '--with-gmp' '--with-iconv' '--with-jpeg-dir=/usr' '--with-openssl' '--with-pcre-regex=/usr' '--with-zlib' '--with-layout=GNU' '--enable-exif' '--enable-ftp' '--enable-magic-quotes' '--enable-sockets' '--with-kerberos' '--enable-ucd-snmp-hack' '--enable-shmop' '--enable-calendar' '--without-sqlite' '--with-libxml-dir=/usr' '--enable-xml' '--with-system-tzdata' '--with-apxs2=/usr/sbin/apxs' '--without-mysql' '--without-gd' '--disable-dom' '--disable-dba' '--without-unixODBC' '--disable-pdo' '--disable-xmlreader' '--disable-xmlwriter' '--without-sqlite3' '--disable-phar' '--disable-fileinfo' '--disable-json' '--without-pspell' '--disable-wddx' '--without-curl' '--disable-posix' '--disable-sysvmsg' '--disable-sysvshm' '--disable-sysvsem'
Server API	Apache 2.0 Handler
Virtual Directory Support	disabled
Configuration File (php.ini) Path	/etc
Loaded Configuration File	/etc/php.ini

Figure 1 : Test page of the apache server

Nota: If it doesn't work, you can try to replace your ip by the server name. If it doesn't have effect, check if the 80 port is open on your server, your firewall and if the service “Apache” is running.

For easing the database administration, you can also install the phpPgAdmin package a web administration tool for postgres database with the following command:

```
yum install phpPgAdmin
```

You will find some useful information at this URL : <http://tecadmin.net/how-to-install-phppgadmin-on-centos-using-yum/#>

With your web browser, you can also visit phpPgAdmin at the URL: [http://\[server ip\]/phppgadmin/](http://[server ip]/phppgadmin/)





Figure 2 : phpPgAdmin, the web administration tool of the postgres database

The login interface is available on click on “PostgreSQL” link below the “Servers” item on the left of screen and enter your “super user” account (**login : postgres, password : postgres if you have use the recommended parameters**).

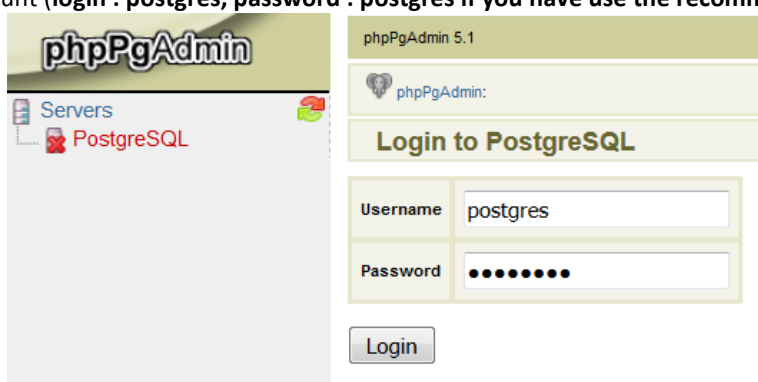


Figure 3 : login interface on phpPgAdmin

Then you have to install WKHTMLTOPDF tool. WKHTMLTOPDF is open source (LGPLv3) command line tools to render HTML into PDF and various image formats using the Qt WebKit rendering engine. These run entirely "headless" and do not require a display or display service. To start the installation, goes on <http://wkhtmltopdf.org/downloads.html> page and download the right package for your server. You can find usefull help on this webpage : <https://jaimegris.wordpress.com/2015/03/03/how-to-install-wkhtmltopdf-in-centos-6-5/>

2.2 Create a new PostgreSQL database

To correctly install the SIIF platform a PostgreSQL database must be used. Any database name can be used but we suggest using a name you can remember as you will need this information at a later stage like : “uwatd_siif”. You can create the database, with followings command lines :

```
su postgres
createdb -E UTF8 -T template0 uwatd_siif
```

Note you have to use a “postgres” user we recommend you to use the super user account “postgres”

2.3 Import the SQL structure to your database (only for prefill-installation)

If you want to install a new uwatd siif plaform from scratch you can skip this step. However, if you want to install a prefilled dataset for Cyprus, Slovenia, Romania, Poland, Croatia, Lithuania or Ireland you can download a SQL dump on the git space : <https://github.com/OIEau/uwatd/>.





The next step involves inserting the premade SQL structure to your platform with the following command line :

```
psql -U postgres - d uwwtd_siif -f uwwtd_structure.sql
```

Note : the postgresql server need to be running and you have create the “uwwtd_siif” database before.
When the import has been completed, you have to run the following sql query (with phpPgAdmin or with the postgres console):

```
ALTER DATABASE uwwtd_siif SET bytea_output='escape';
```

2.4 Import RBD and NUTS layers in database (only for from scratch installation)

These two geographical layers are available on github at this URL : https://github.com/OIEau/uwwtd/releases/download/V1.1/region_nuts_and_river_basin.zip . You have to download the zip file and unzip it on the root of the server.

```
psql -U postgres - d uwwtd_siif
create extension IF NOT EXISTS postgis
\i /path on your server/region_nuts_and_river_basin.sql
```





2.5 Webservice settings

At first, you need to make some modifications in your PHP settings. Edit your “php.ini” file (located in the /etc/php.ini), and change the following parameters:

- memory_limit = 1024M
- max_execution_time = 600 #you can reduce this value to 30 seconds after the database initialization
- post_max_size = 100M
- file_uploads = On
- upload_max_filesize = 100M
- allow_url_fopen = On
- date.timezone = "Europe/Paris" #Use your timezone

And at the end of the php.ini file copy/paste these lines:

- extension=dbase.so
- extension=uploadprogress.so

For debugging, but not in production mode, you can change these lines:

- error_reporting = E_ALL
- display_errors = On

Save your php.ini file and then restart the Apache server with this command:

```
service httpd restart
```

2.6 Website installation

2.6.1 Copy files to server directory

Now you have the database correctly setup we need to add all the source files to your server directory. You can download sources on github at this URL : <https://github.com/OIEau/uwwtd/archive/master.zip> and unzip it on your server or use the git command line. The better way is probably to use git command.

```
cd /var/www/html
git clone https://github.com/OIEau/uwwtd/
```

2.6.2 Allow access to your public directory

Drupal, the CMS used by the platform SIIF, needs to access certain directories of your server to function correctly. First you need to copy the “uwwtd” directory (in the website directory of the installation kit) into the root of your Apache server. On Centos server, the root directory of Apache server is “/var/www/html”.

Then, you need to change write access to full access (read, write, execute) for ‘apache’ to the directory ‘sites/default/files’ and all of its children directories.

Drupal needs to have “write” access on the “sites” directory located at root of Drupal folder. You can do this with this command:

```
chown -R apache:apache /var/www/html/uwwtd/sites
chmod -R 777 /var/www/html/uwwtd/sites/default/files
```





2.6.3 Start the Drupal Install (only for installation from scratch)

If you have already imported a dump in point 2.3., you can skip this point. If you install the UWWTD SIIF platform from scratch, this point is mandatory.

In order to install Drupal and after you have realized 2.6.1 & 2.6.2 operations you can start the installation process. With your web-browser go to this URL : http://localhost/uwwtd_siif/install.php, and the following screen will appear:

Figure 4 : Install screen of Drupal

Select “standard” installation profile and click on “Save and continue”.

On the next screen, select the default language (always English as this is the language of the file reported, you will be able to change the language settings in a next step) and click on “Save and continue”.

Fill information for the database settings like the following screen and click on “Save and continue”.





Database configuration



- ✓ Choose profile
- ✓ Choose language
- ✓ Verify requirements

► Set up database

- Install profile
- Configure site
- Finished

Database type *

Ⓒ PostgreSQL

The type of database your Drupal data will be stored in. Your PHP configuration only supports a single database type, so it has been automatically selected.

Database name *

uwvtd_siif

The name of the database your Drupal data will be stored in. It must exist on your server before Drupal can be installed.

Database username *

postgres

Database password

••••••••

▼ ADVANCED OPTIONS

These options are only necessary for some sites. If you're not sure what you should enter here, leave the default settings or check with your hosting provider.

Database host *

localhost

If your database is located on a different server, change this.

Database port

5432

If your database server is listening to a non-standard port, enter its number.

Table prefix

drupal_

If more than one application will be sharing this database, enter a table prefix such as *drupal_* for your Drupal site here.

Save and continue

Figure 5 : Drupal database configuration form

In the last screen, you have to enter your settings for the admin account and the site name. Fill all mandatory fields and click on “save”. In theory, you’ll be redirected to a default front page like the following:

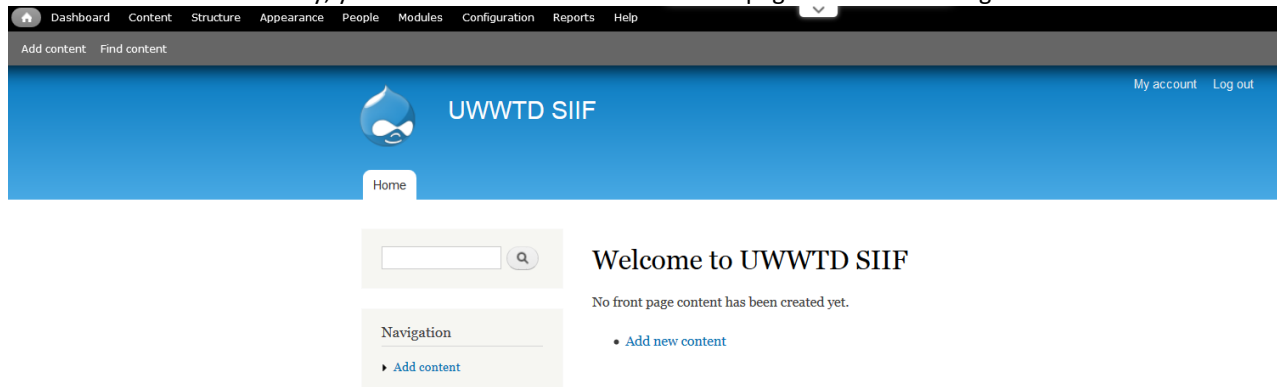


Figure 6 : Default Front page of Drupal

2.6.4 Modify the settings.php file (for all install)

The settings.php file is used by Drupal for declare all required settings like database connection or alter some php settings. This file is located in this path “/var/www/html/uwwtd_siif/sites/default/settings.php” and you can edit it with a text editor (like notepad++).

Important: you have to pay attention to keep/use UTF8 encoding for the file





First, you need to check the database connection. If you installed your Postgres database on the same server as your website, your connection settings could be:

```
$databases = array (  
  'default' =>  
    array (  
      'default' =>  
        array (  
          'database' => 'uwwtd_siif',  
          'username' => 'postgres',  
          'password' => 'postgres',  
          'host' => 'localhost',  
          'port' => '5432',  
          'driver' => 'pgsql',  
          'prefix' => 'drupal_',  
        ),  
      ),  
    ),  
);
```

PS: the use of “postgres” user for a production website is not recommended.

In the settings file, you also have to set the country code (please use ISO 3136 codes in two positions) (eg : si,cy,pl,ro,fr,ie,lt,hr...). You can add this information to the end of the file with the following line

```
$conf['siif_eru_country_code'] = 'si'; //for slovenia
```

Now, in theory you can access to your website, with a web browser with this url:

http://[ip.of.the.server]/ uwwtd_siif /

2.6.5 Activate the uwwtd module (only for from scratch installation)

The uwwtd contain all specific component for the UWWTD SIIF platform. You have to activate this module in the Drupal administration interface. You can find this setting option in admin/modules path.

ENABLED	NAME	VERSION	DESCRIPTION	OPERATIONS
<input type="checkbox"/>	Aggregator	7.41	Aggregates syndicated content (RSS, RDF, and Atom feeds).	
<input checked="" type="checkbox"/>	Block	7.41	Controls the visual building blocks a page is constructed with. Blocks are boxes of content rendered into an area, or region, of a web page. <small>Required by: Dashboard (enabled), Block languages (disabled)</small>	Help Permissions Configure
<input type="checkbox"/>	Blog	7.41	Enables multi-user blogs.	
<input type="checkbox"/>	Book	7.41	Allows users to create and organize related content in an outline.	

Figure 7 : Drupal module list

And check the UWWTD line and then click on “save configuration” on the bottom of the screen.

After the install process, the front page of your website will take this look :



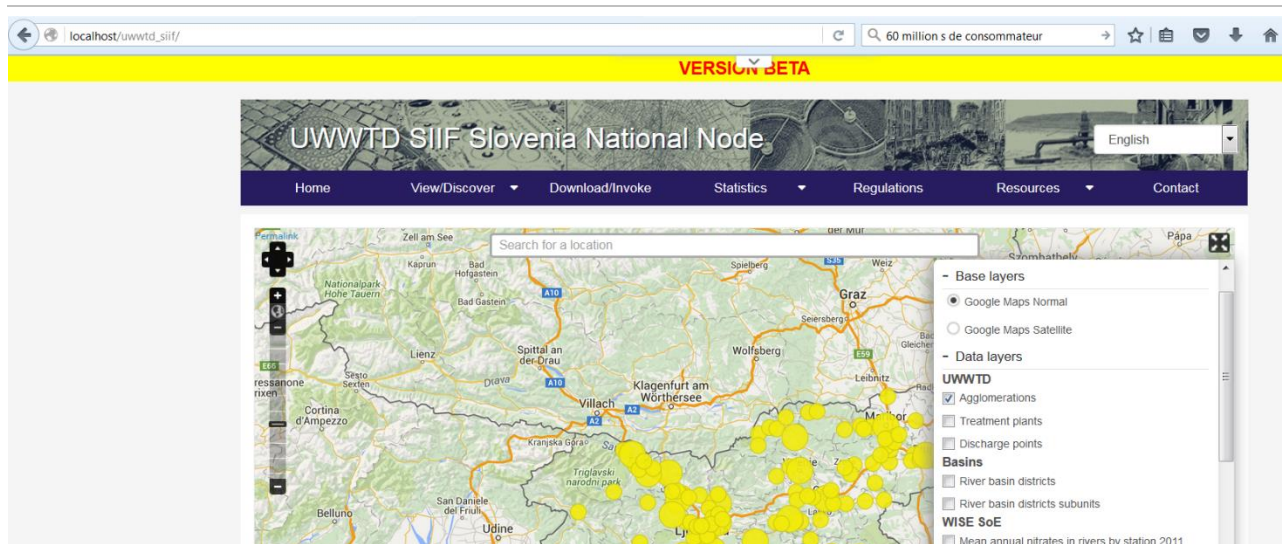


Figure 8: Front page

2.6.6 Customize the domain name of your website

You can customise the Apache configuration of your website to allow for URL rewriting and setup your domain name. We recommend you to create a file, eg “uwvtd.conf” in the /etc/httpd/conf.d directory and add the following content (you have to change the ip and the domain name):

```
<VirtualHost 192.168.1.40:80>
  ServerName uwvtd.domain.eu
  ServerAdmin contact@domain.eu
  DocumentRoot /var/www/html/uwvtd_siif

  <Directory "/var/www/html/uwvtd_siif">
    AllowOverride All
    Options indexes
    IndexOptions FancyIndexing IconsAreLinks FoldersFirst HTMLTable
  </Directory>
</VirtualHost>
```

Save your uwvtd.conf file and then restart the Apache server with this command:

```
service httpd restart
```

Your website is ready and can be reached with your own domain name, such as: <http://uwvtd.domain.eu>

The next step is to link the files to your newly created database. You will need to edit the settings.php file located in the relative directory 'sites/default/settings.php'.

Once opened find the uncommented line with the following code:

```
$databases = array (
  'default' =>
    array (
      'default' =>
        array (
```





```
'database' => 'uwwtd_siif',  
'username' => username,  
'password' => 'password',  
'host' => '192.168.1.2',  
'port' => '5432',  
'driver' => 'pgsql',  
'prefix' => 'drupal_',  
) ,  
) ,  
) ;
```

You will now need to replace all of the information contained in this php array by your database characteristics. 'database' is the name of your new database, 'username' is your PostgreSQL admin username, 'password' is your PostgreSQL admin password, 'host' is the IP address of your PostgreSQL server, 'port' is the port of your PostgreSQL server, 'driver' is the type of database used (do not modify) and 'prefix' is the prefix for your PostgreSQL tables (do not modify).

2.6.7 Log in to your site and empty any cache (for prefilled installation)

The next step is to log into your SIIF platform by entering the URL to your website followed by the path /user (ex: www.YOURWEBSITE.com/user) into your browser. Once on the page please enter your login and password, as this is your first time on the platform your login is 'admin' and your password is 'password'.

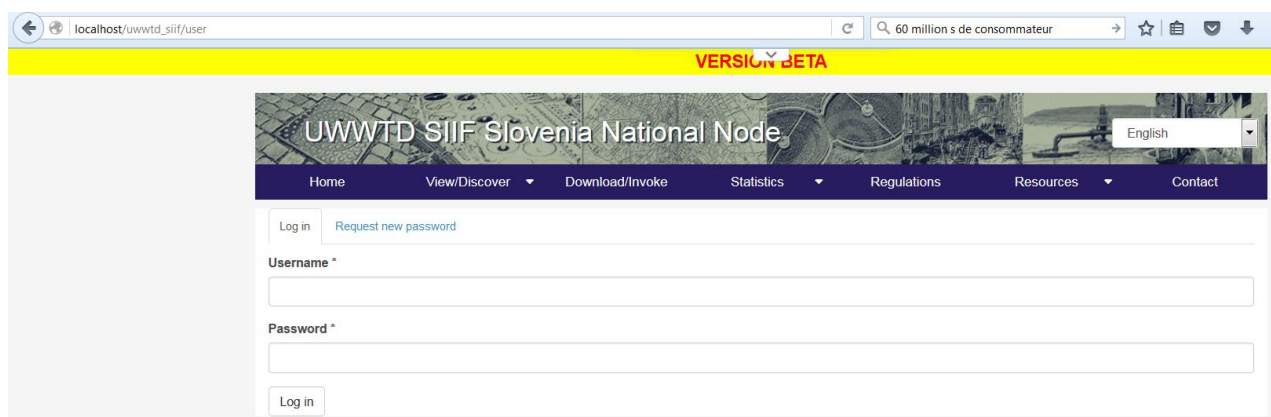


Figure 9 : login page

PLEASE CHANGE THESE AS SOON AS POSSIBLE.

You will now be presented with a menu at the top of the screen. This menu is the admin menu and will allow you to alter your entire platform to your wishes.



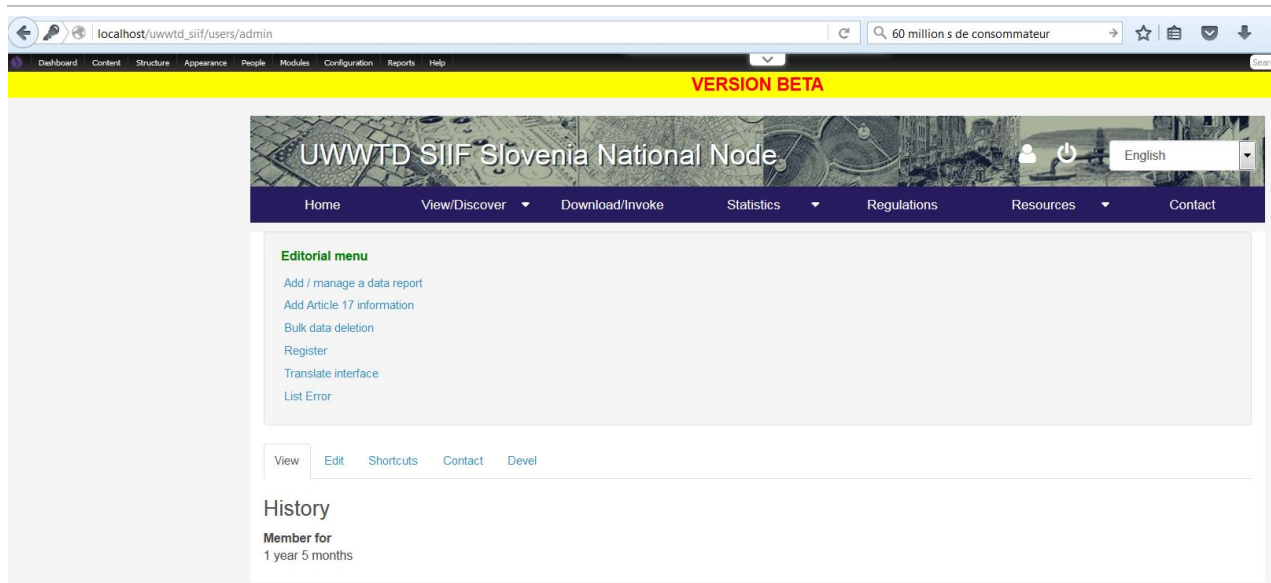


Figure 10 : Log on page

To clear all the cached data on your platform please hover your mouse over the Drupal logo situated to the far left of the admin menu and click on 'flush all caches'.

NOTE: If you encounter a white screen after connecting to your website for the first time, please go to www.YOURWEBSITE.com/data, click the update page then perform the updates. Your platform should function correctly afterwards.

2.6.8 Change the name of your SIIF platform

To change the name of your SIIF platform go to the following page: www.YOURWEBSITE.com/admin/config/system/site-information. Once on the page to change the name of your platform edit the field named 'Site name' and click 'save configuration'.

2.6.9 Change the logo of your SIIF platform

To change the logo of your SIIF platform go to the following page: www.YOURWEBSITE.com/admin/appearance/settings/uwwtd. Once on the page you will notice a few tabs on the left side of the page. Choose 'logo image settings' uncheck the checkbox 'Use the default logo' and enter the path to your file or choose to upload it directly. To remove the logo completely return to the page: www.YOURWEBSITE.com/admin/appearance/settings/uwwtd, choose the tab 'toggle display' and uncheck the checkbox 'logo'.

When you have finished your modifications please click the button 'Save configuration'.

2.6.10 Add a national language

To add a new language to your website go to the following page: www.YOURWEBSITE.com/admin/config/regional/language. This page displays all the active languages for your platform which you can choose to remove or set as the default language. To add a new language click the link 'Add language' choose from the dropdown menu 'Language name' then click the button 'Add language'.

2.7 Install GeoServer and create the webservices

The software is available on Geoserver website (<http://geoserver.org/>). The setting up procedure is detailed <http://docs.geoserver.org/stable/en/user/installation/index.html>.





Depending on the server configuration used to host the software, some adjustments may be required. Geoserver may run with Apache-Tomcat (<http://tomcat.apache.org/>),

In order to install the software, it is necessary to get the latest version of Geoserver in WAR format <http://geoserver.org/release/stable/> (v2.6.2).

If Tomcat is used, the archive containing the WAR installing files, has to be stored in the directory: Tomcat /WebApps.

In order to extract the files and install, open a navigator and type in [http://\[ServerAddress\]:\[port\]/geoserver/](http://[ServerAddress]:[port]/geoserver/).
(e.g. : <http://localhost:8082/geoserver/>)

Some useful links

- The user manual on geoserver website
<http://docs.geoserver.org/stable/en/user/>
- Overall introduction of the interface
<http://docs.geoserver.org/stable/en/user/gettingstarted/web-admin-quickstart/index.html>
- Main functionalities
<http://docs.geoserver.org/stable/en/user/gettingstarted/index.html>
- To secure the software
<http://docs.geoserver.org/stable/en/user/webadmin/security/index.html>

The default access information for the software is:

- login : admin
- password : geoserver

2.8 Install GeoNetwork

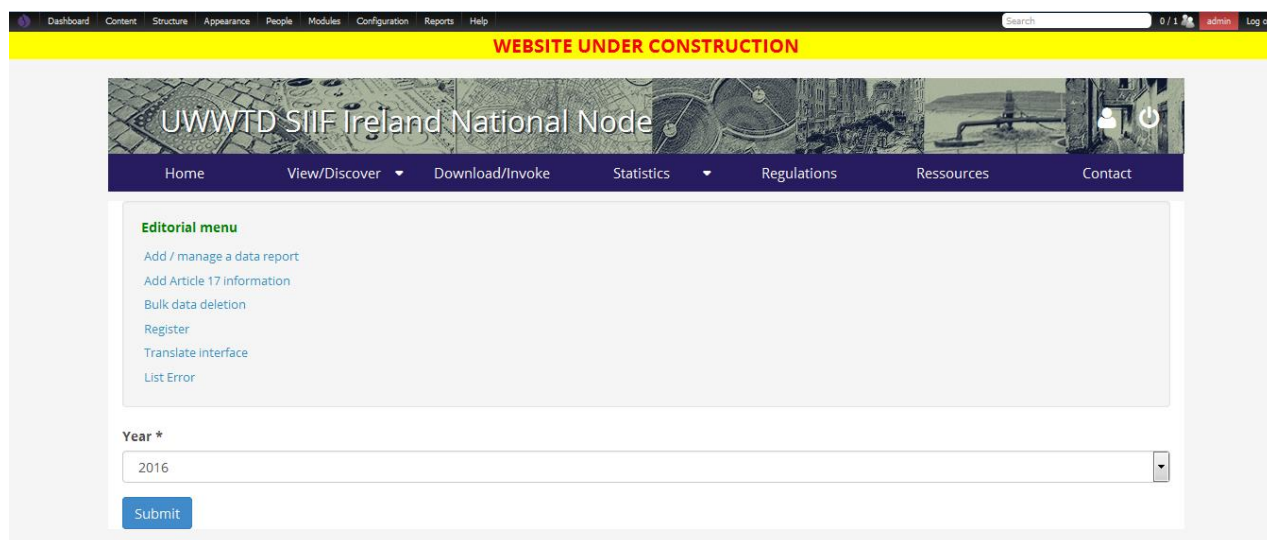
The software is available on GeoNetwork website (<http://geonetwork-opensource.org/>). The setting up procedure is detailed in the documentation (<http://geonetwork-opensource.org/manuals/2.10.4/eng/users/quickstartguide/installing/index.html>).





3 Data submission and calculations

Once the platform installed, you can start importing datasets. You need first to be logged in as administrator with all the necessary rights. You arrive then to an Editorial menu where you can manage datasets and launch specific calculations.



For a detailed description of this, please refer to the administration guide also available on the GitHub platform.

