CoGIS Portal
Installing and setting

Manual on installing and setting CoGIS Designer and CoGIS SOE, CoGIS Portal and service for work of mobile applications CoGIS Mobile

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1. Preamble

This manual provides instructions on installing and primary setting of CoGIS Portal.

Instructions on installing and primary setting of CoGIS Server, which is a part of the CoGIS platform, are provided in the ‘CoGIS Server - Installing and setting’ manual.

Complete list of instructions on work with CoGIS platform components is provided in section 2.1 below.

2. System requirements

CoGIS Portal can be installed and used with the following operation systems:

- Windows Server 2012+
- Linux:
    - Astra Linux
    - RED OS
    - Alt Linux
    - Alpine 3.13+
    - Debian 10+
    - Ubuntu 16.04+
    - Fedora 36+
    - CentOS 7
    - CentOS Stream Linux 8+
    - RHEL 7+
    - openSUSE 15+
    - SUSE Enterprise Linux (SLES) 12 SP2+.

For proper work of CoGIS Portal, the NGINX, Apache, or IIS web server needs to be installed.

CoGIS Portal can be installed on the same server as the CoGIS Server and does not require additional computing resources.

2.1.Additional information

Additional information about CoGIS platform is provided in the following documents and manuals:

- General description of CoGIS platform, including description of CoGIS Server
- CoGIS Server - Publishing GIS services
- CoGIS Server - Installing and setting
- CoGIS Server - Creating map projects in QGIS
- CoGIS Portal - Creating map applications
- CoGIS Mobile - Working in mobile applications.

3. Installing CoGIS Portal

3.1. Installing on Windows OS

3.1.1. Preliminary system setup

3.1.1.1. Internet Information Services (IIS)

For work of CoGIS Portal make sure that the IIS program components are installed in the system.

To do so, go to *Windows Features* (*Windows components*) of control panel:

Control Panel -> Programs and Features -> Turn Windows features on or off

If *Internet Information Services* and/or *Internet Information Services Hostable Web Core* components are turned off, turn them on as shown on Figure 1.

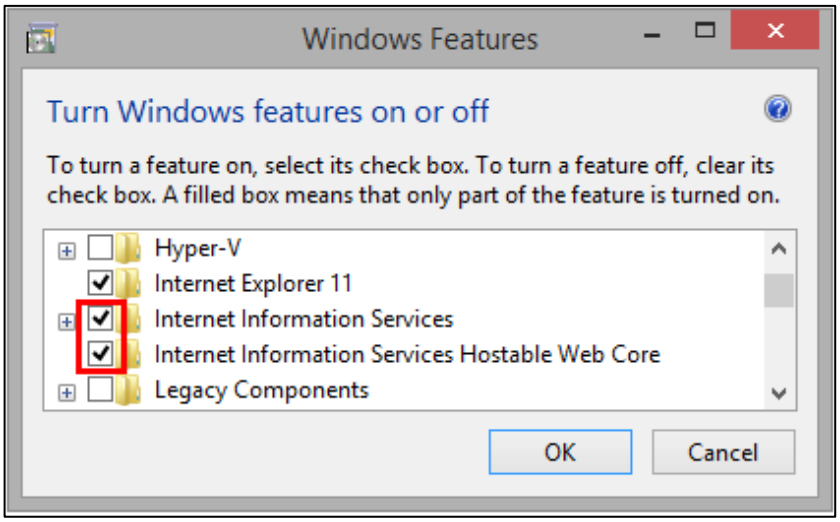

Figure 1 – Turning on IIS program components

Then press OK. The program components will be installed.

3.1.1.2. .NET 6.0

For work of CoGIS Portal you also need to install .Net Core 6.0 (module *ASP.NET Core/.NET Core: Runtime & Hosting Bundle*).

To do so, follow the link at https://dotnet.microsoft.com/download/dotnet-core/6.0 and download the installer as shown on Figure 2 below.

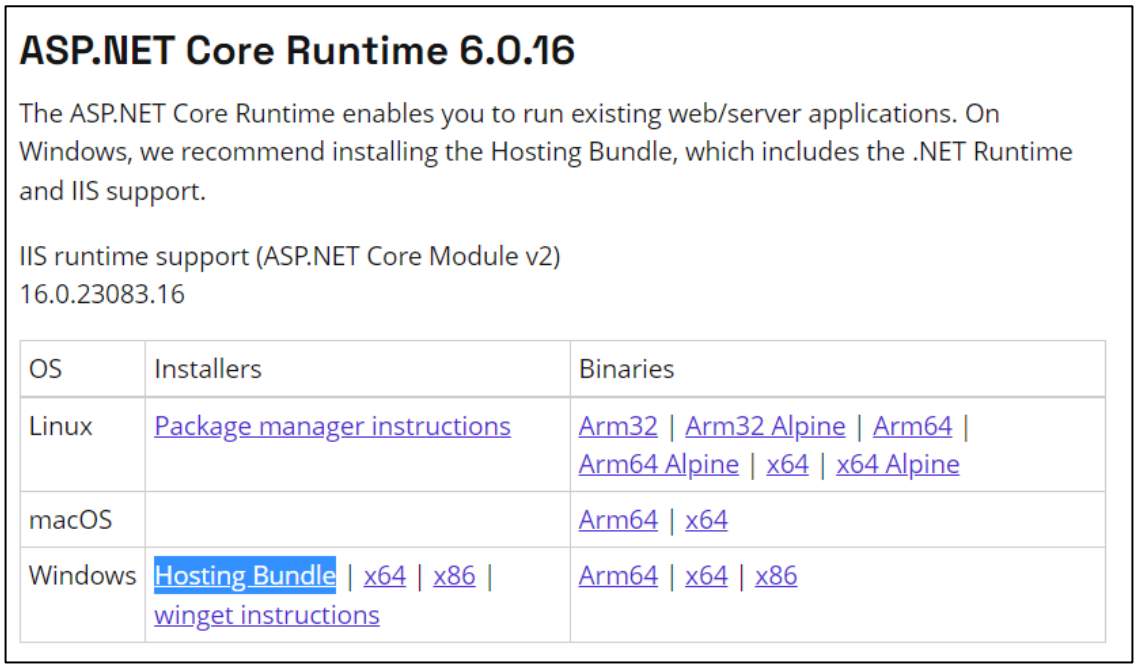

Figure 2 – Downloading .Net 6.0 (Hosting bundle) installer

3.1.2. Running installer

After setting up system for CoGIS Portal installation you can proceed with the installation itself. To do so, start **CoGIS.Portal.10.0.0000.En.msi**, and press *Next*, see Figure 3.

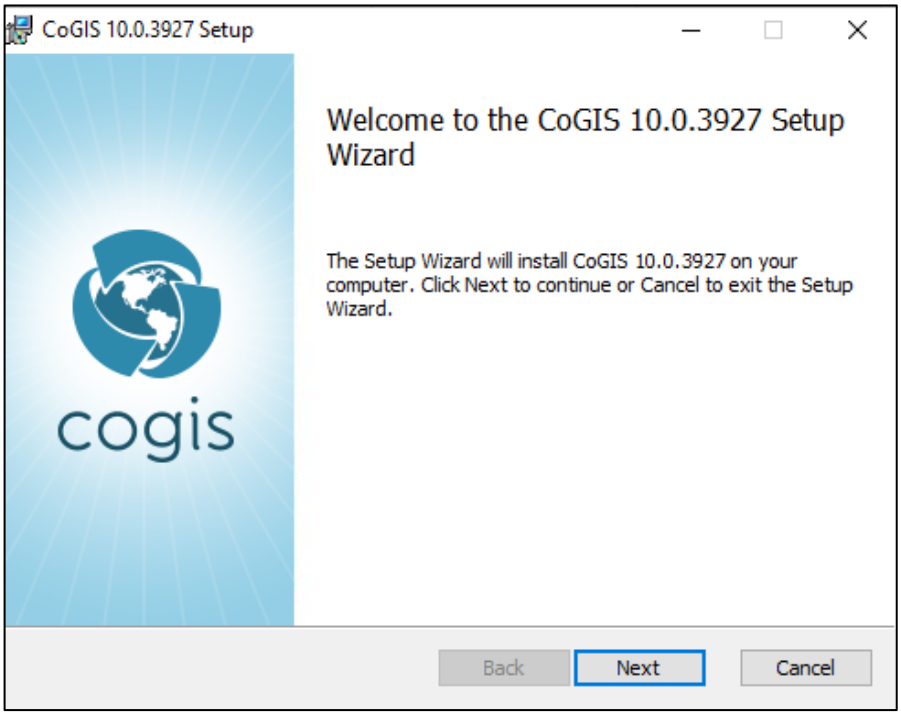

Figure 3 – Starting CoGIS Portal installer

3.1.3. End-user license agreement

At the next step of CoGIS Portal installation read the End-user license agreement, check the box to accept its terms and conditions and press Next, see Figure 4.

Figure 4 – End-user license agreement

3.1.4. Installation folder

At this step specify installation folder for CoGIS Portal.

Press *Next* to install CoGIS Portal to the default installation folder, or *Change*, to select the other folder, see Figure 5.

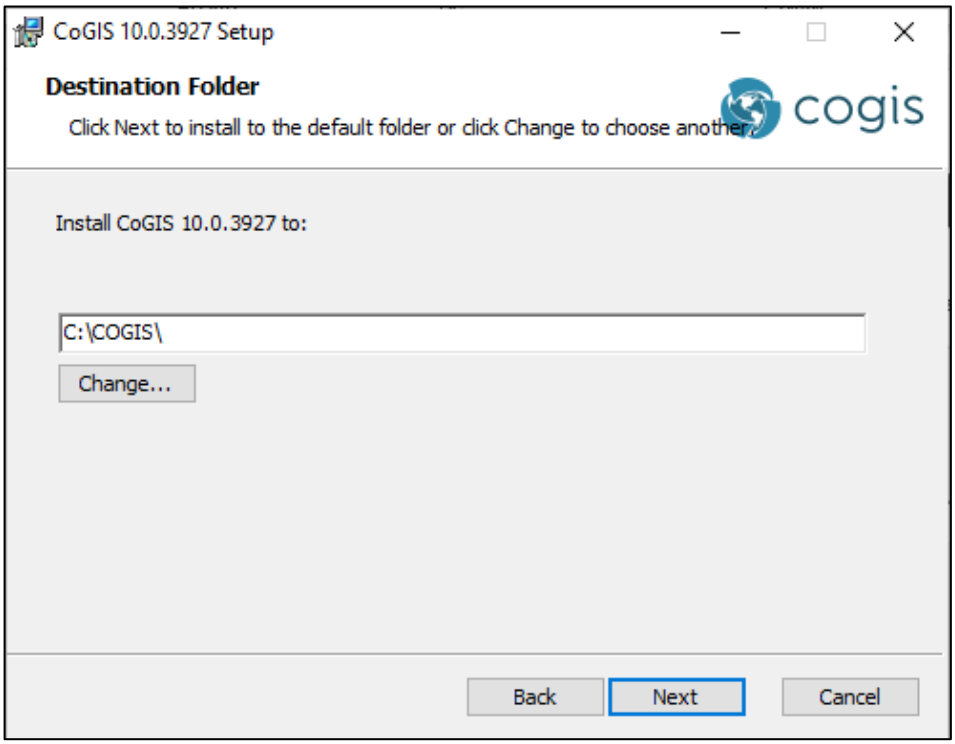

Figure 5 – Installation folder

Note: For your convenience you can install CoGIS Server and CoGIS Portal to one directory, for example, C:\COGIS\.

3.1.5. Applications parameters for IIS

At this step of CoGIS Portal installation specify applications names for Internet Information Services or keep the default names, see Figure 6.

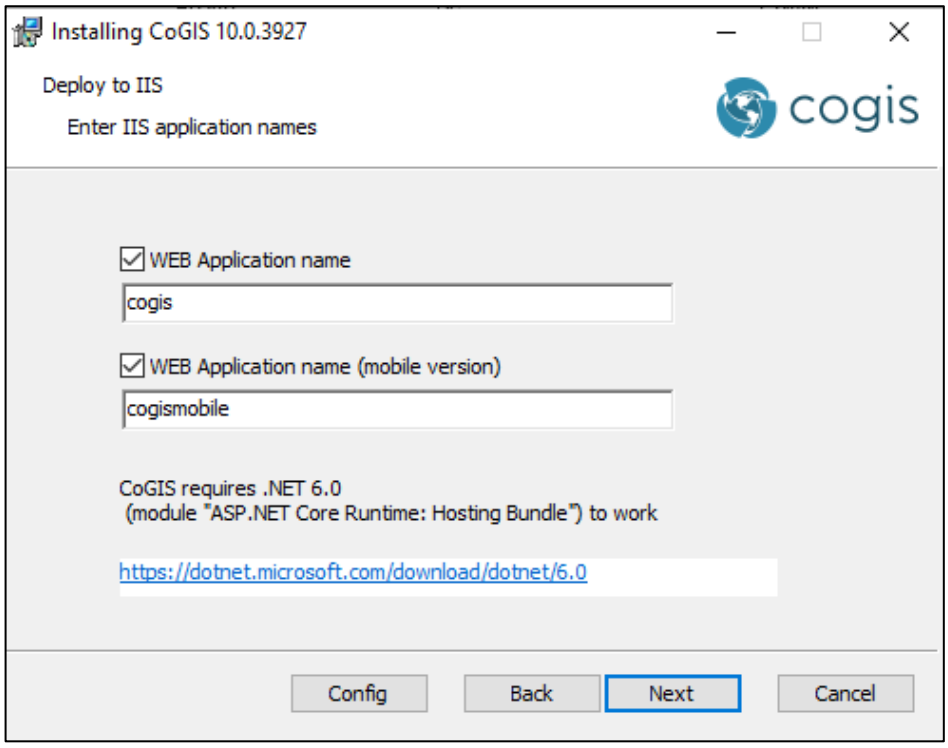

Figure 6 – Applications parameters for IIS

If needed, press *Config* to select site binding and press OK. By default, the Http option is selected, see Figure 7.

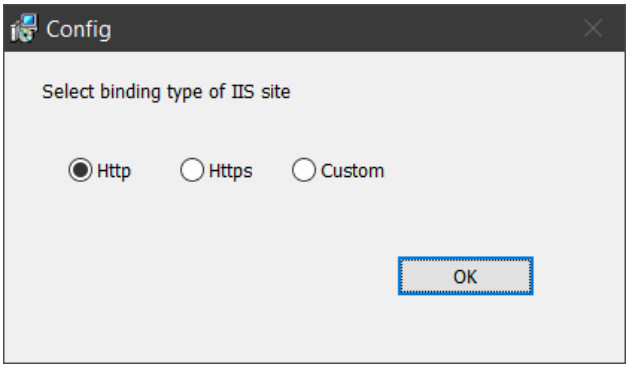

Figure 7 – Site binding

Press *Next* to get to the next step.

3.1.6. Installation

At this step, the CoGIS Portal installation will be done. Press *Install* as shown on Figure 8 to start the process.

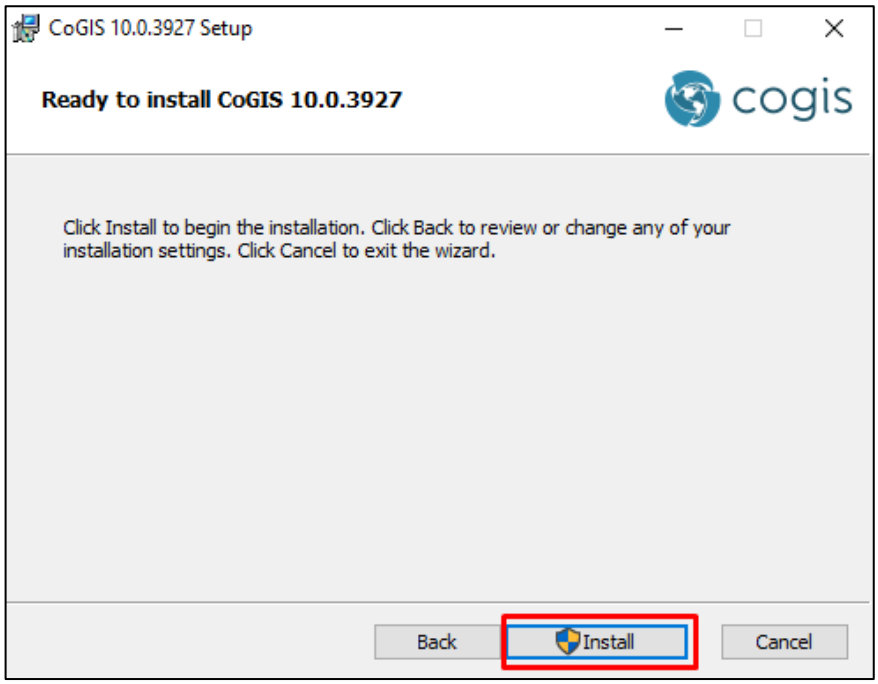

Figure 8 – Staring CoGIS Portal installation process

The progress bar showing the installation process will appear.

Upon CoGIS Portal installation completion, the appropriate message will appear.

3.1.7. Installing license

CoGIS license can be activated via command line (administrator mode) as following:

1. If you have Internet access, you can quickly activate your CoGIS license using the activation key and the following command:

   ```
   dotnet C:\COGIS\COGIS.Licensing\CoGIS.Licensing.Console.Manager.dll activate -k <activation-key> -a "C:\COGIS\COGIS.Licensing\CoGIS 10.0.appinfo"
   ```

2. If you do not have access to Internet, you will need to find out your Host ID via the following command:

   ```
   dotnet C:\COGIS\COGIS.Licensing\CoGIS.Licensing.Console.Manager.dll host
   ```

   Send the obtained Host ID and CoGIS purchase information to the license provider and request manual activation of your license. The file with the activated license will be forwarded to you; install this license with the following command:

   ```
   dotnet C:\COGIS\COGIS.Licensing\CoGIS.Licensing.Console.Manager.dll install -l <license-file> -a "C:\COGIS\COGIS.Licensing\CoGIS 10.0.appinfo"
   ```

After the license installation, restart the CoGIS Portal service.

3.1.8. Primary setting and performance testing

3.1.8.1. Starting IIS

For primary setting and testing CoGIS Portal performance you need to start Internet Information Services (IIS) Manager first.

Press WIN+S to open the search field and enter IIS. In the search results list select Internet Information Services (IIS) Manager, and run the program, see Figure 9.

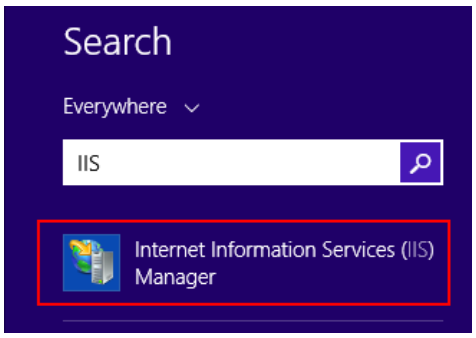

Figure 9 – Running IIS

Now make sure that server is started, otherwise, press *Start*, see Figure 10.

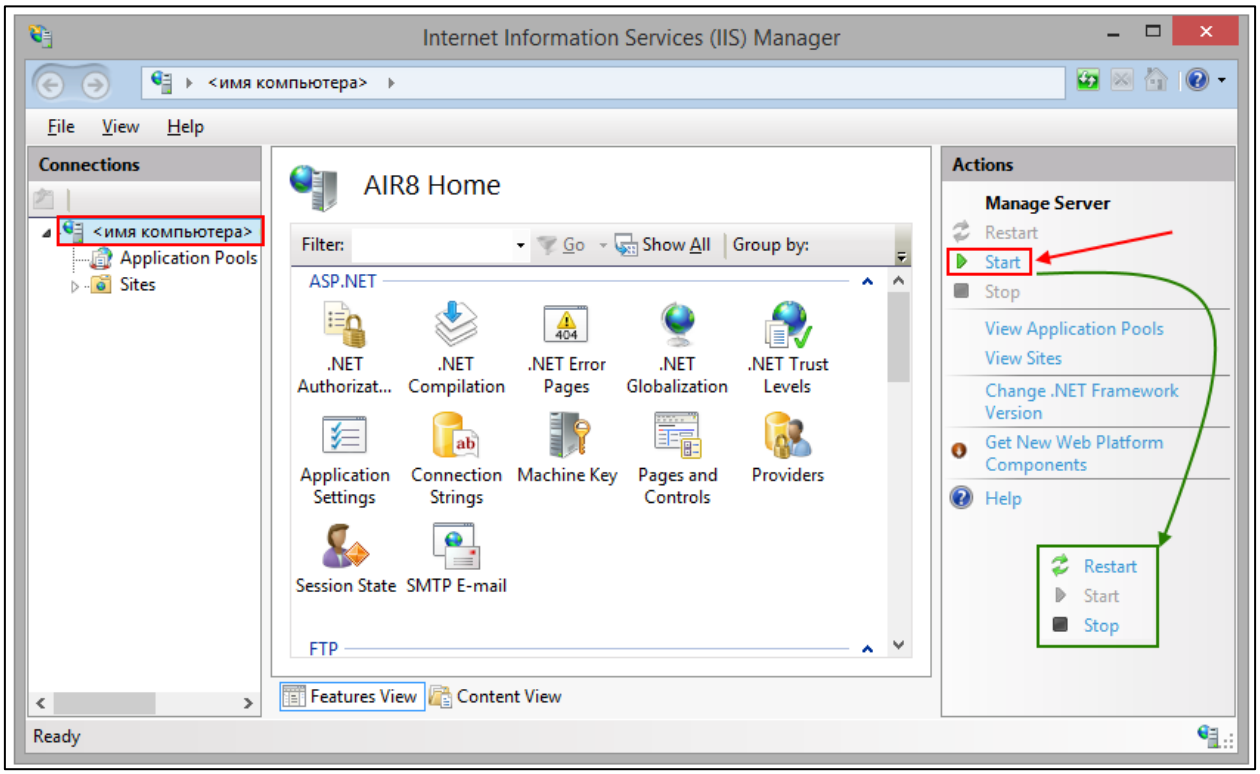

Figure 10 – Starting IIS server

Now make sure that Default Web Site is started, otherwise press *Start*, see Figure 11.

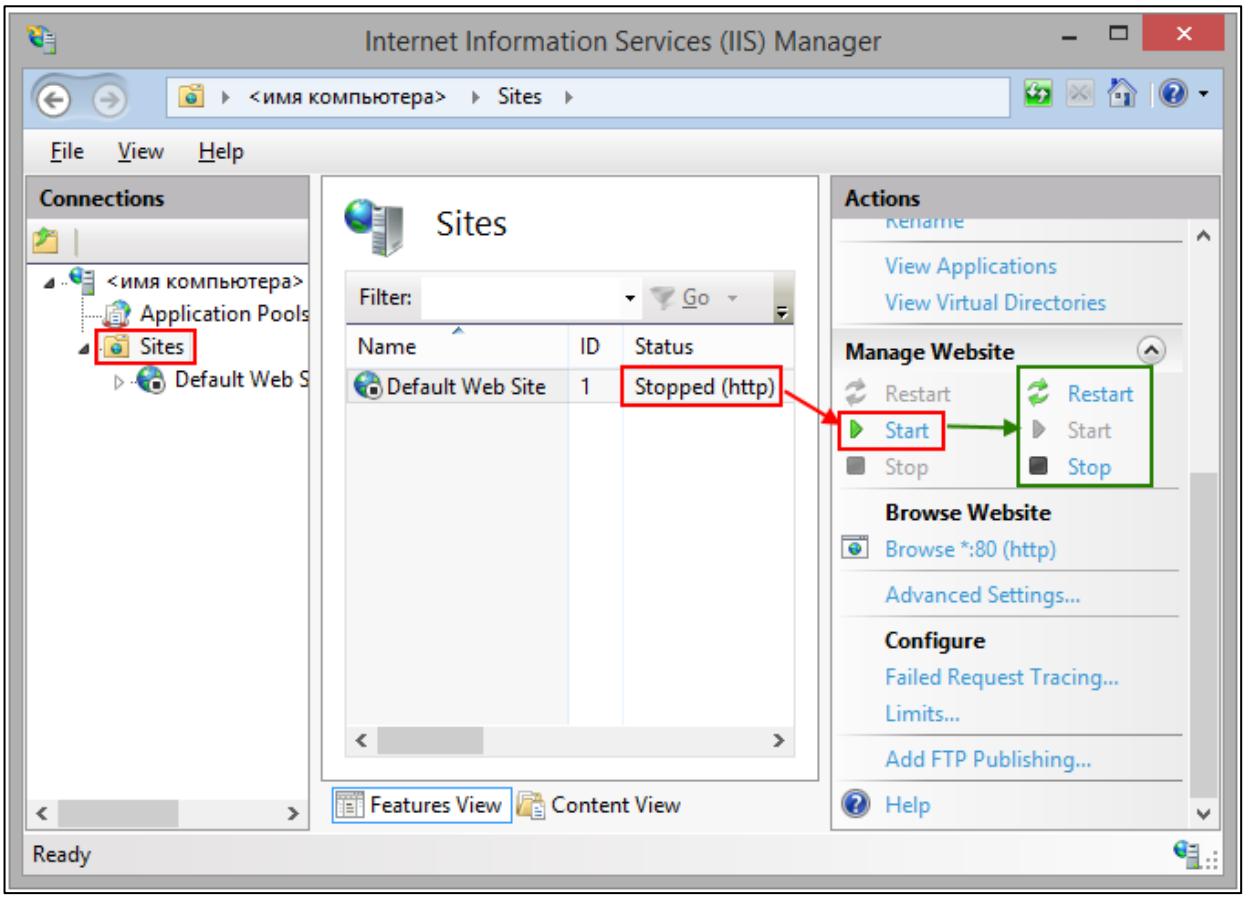

Figure 11 – Starting Default Web Site

3.1.8.2. Setting and testing CoGIS Portal

For setting and testing CoGIS open CoGIS Portal from Internet Information Services (IIS) Manager, see Figure 12.

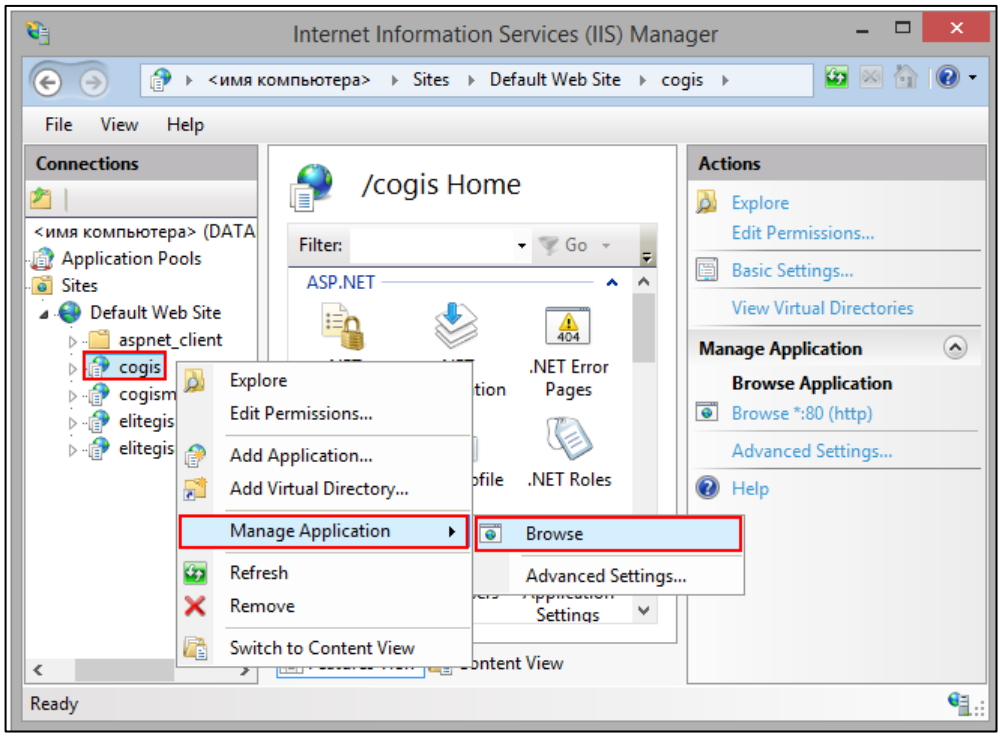

Figure 12 – Starting CoGIS from Internet Information Services (IIS) Manager

Now (at http://localhost/portal) CoGIS Portal tab will open. Press *Administration* and select *Settings* item in the drop down list, see Figure 13.

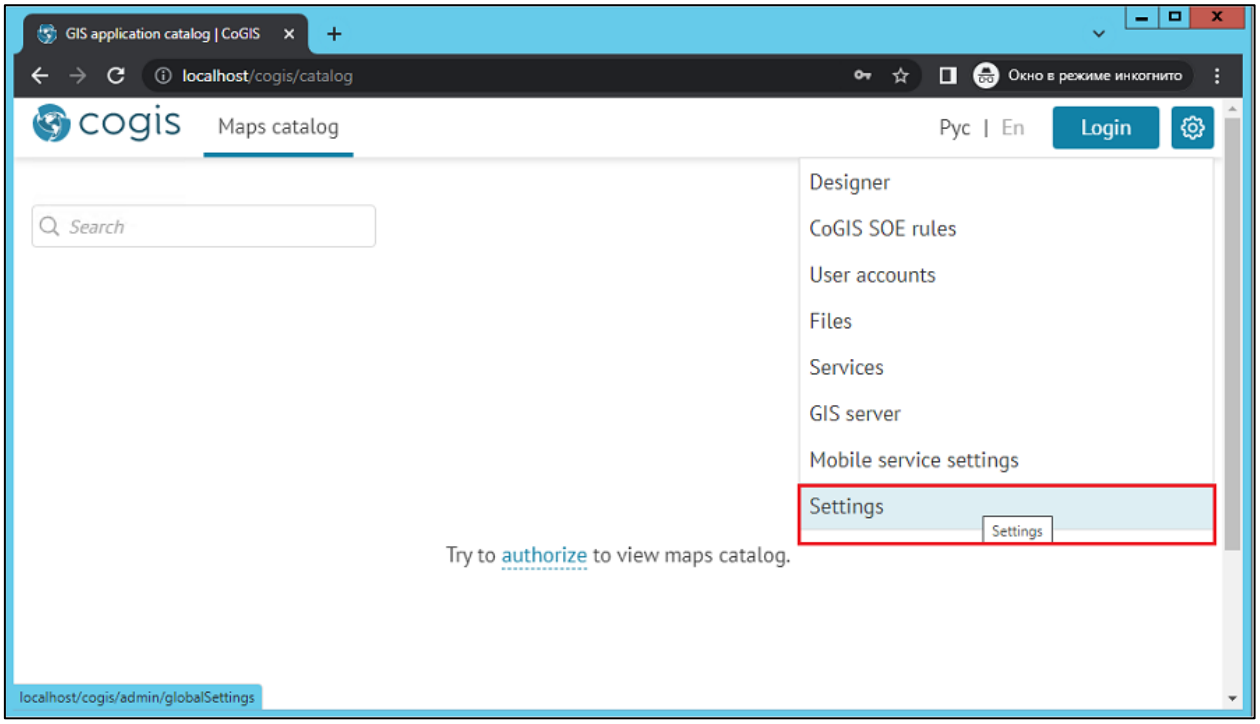

Figure 13 – Starting CoGIS Portal

In the *General settings* tab specify path to /eLiteGIS.SOE folder from directory with installed CoGIS Server.

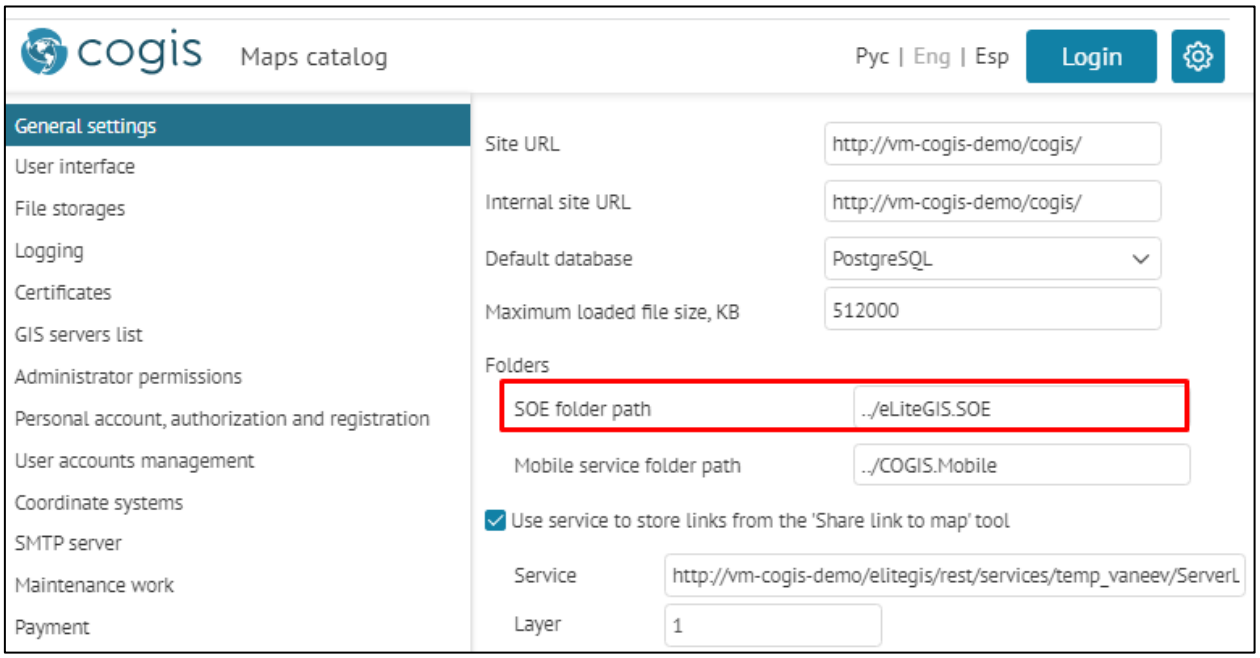

Figure 14 – General settings of CoGIS Portal

In the *GIS servers list* tab fill in the appropriate fields, see Figure 15:

- Public URL: http://<computername>/elitegis
- URL: http://localhost/elitegis
- Login: admin

- Password: admin.

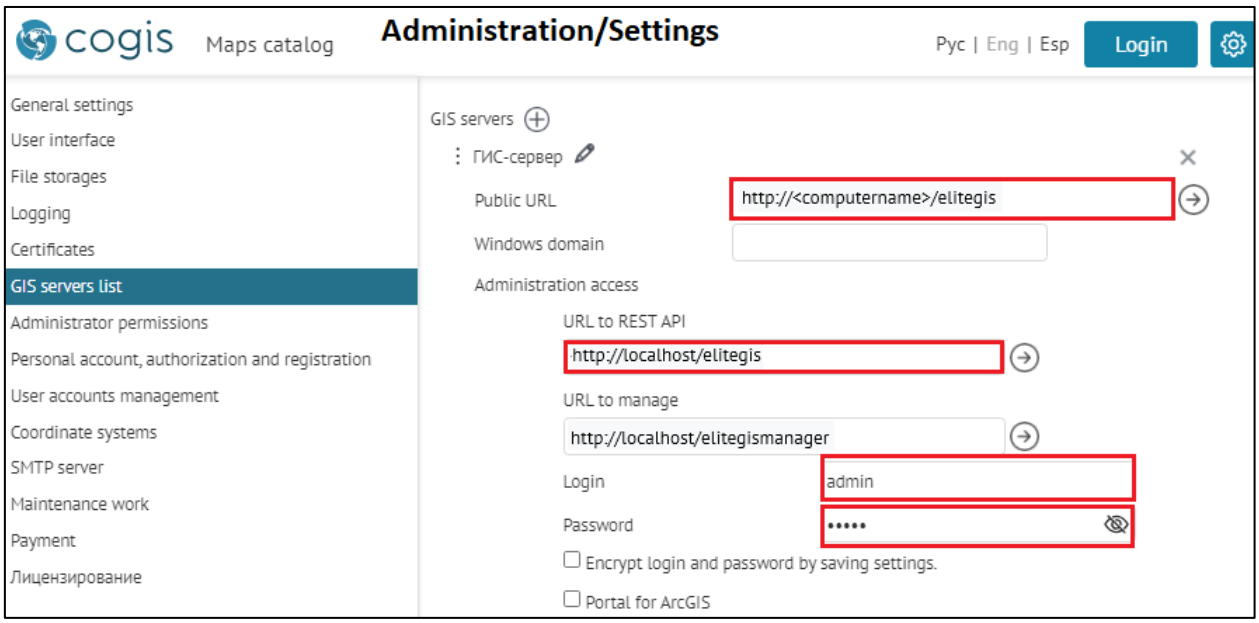

Figure 15 – Setting CoGIS Portal. List of GIS servers.

3.2. Installing on Linux OS

3.2.1. Setting up Windows environment for connection with Linux

The following steps should be done:

Install PuTTY client, download installation package at https://www.putty.org/.

Install WinSCP client, download installation package at https://winscp.net/eng/download.php.

Create new connection to Linux in PuTTY: enter session name and press *Save*, see Figure 16.

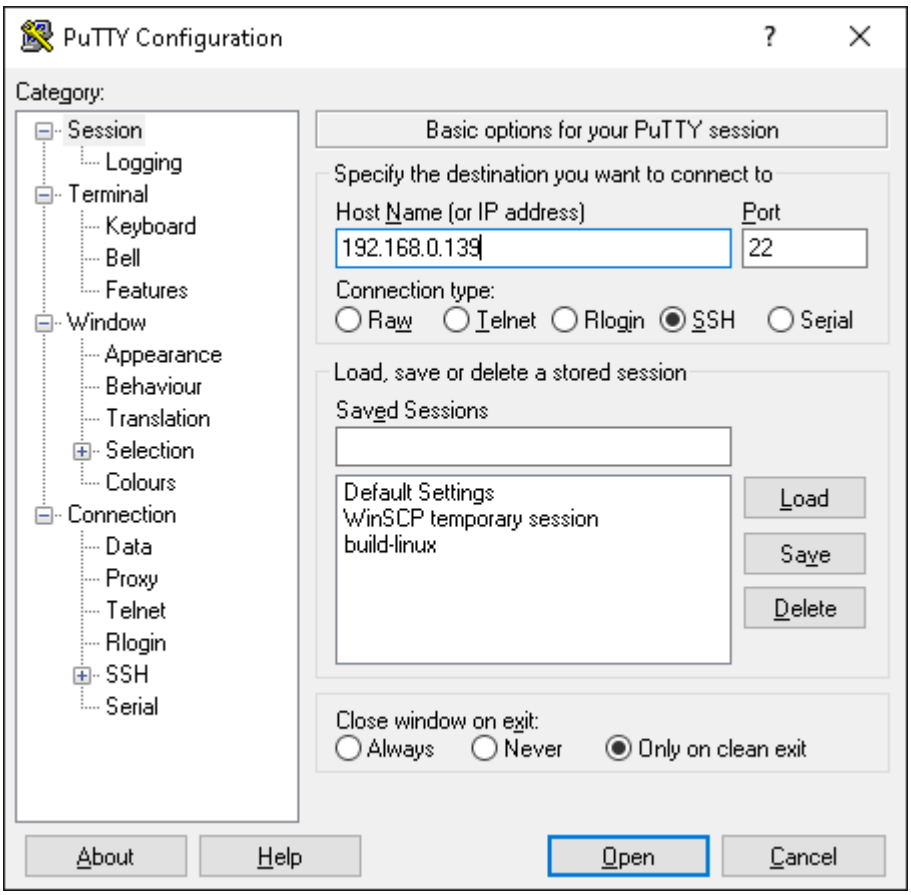

Figure 16 – Creating new connection to Linux in PuTTY

To open connection press *Open* and enter login and password in the appeared window, see Figure 17 and Figure 18.

Figure 17 – Opening connection in PuTTY: entering login

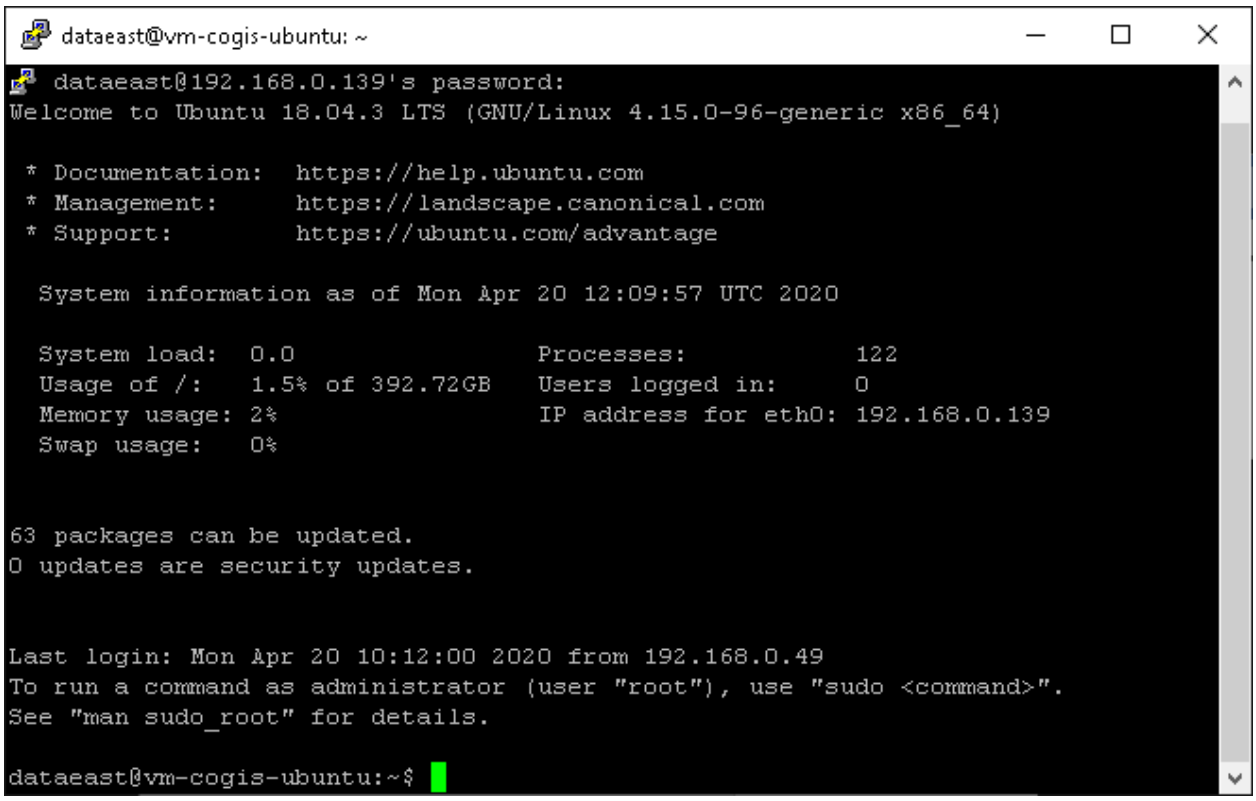

Figure 18 – Opening connection in PuTTY: entering password

Same way connect to Linux via WinSCP, see Figure 19 and Figure 20.

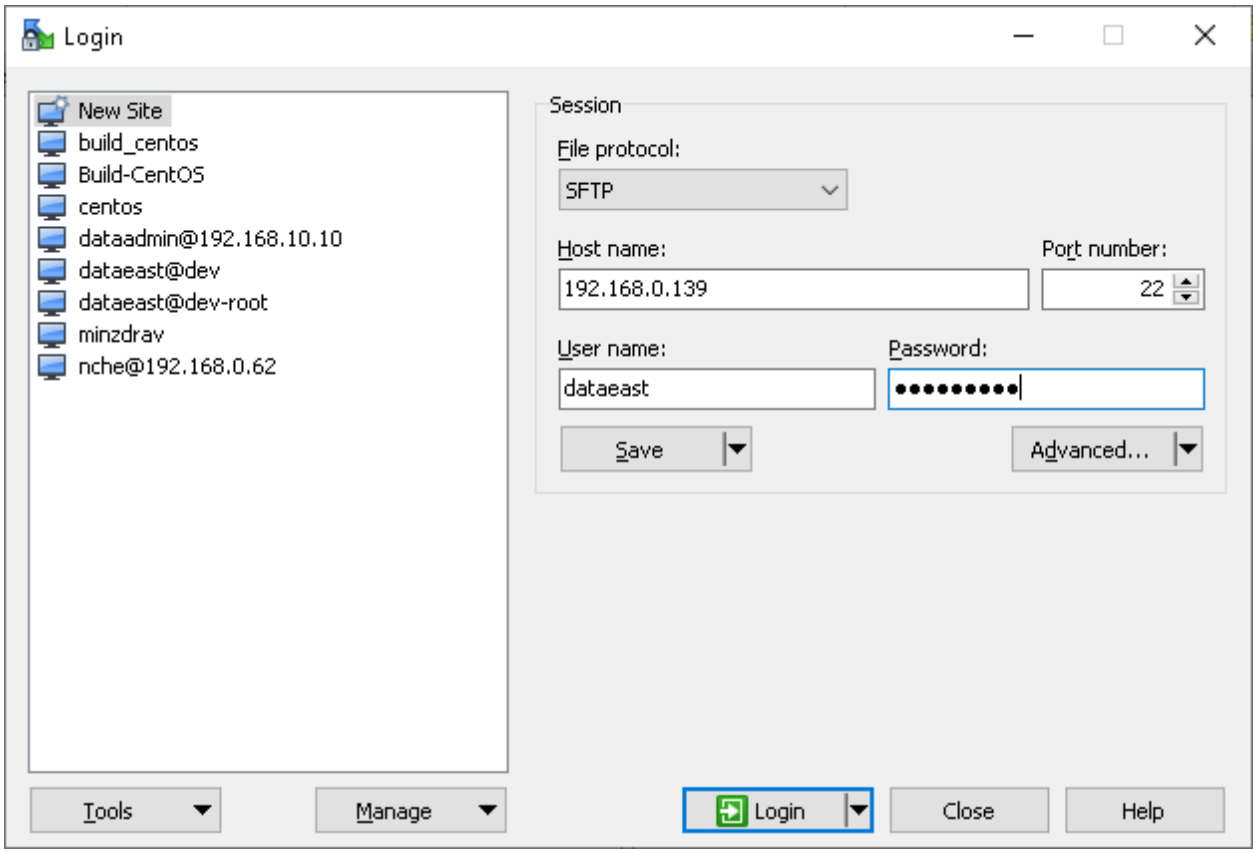

Figure 19 – Connecting to Linux via WinSCP (1)

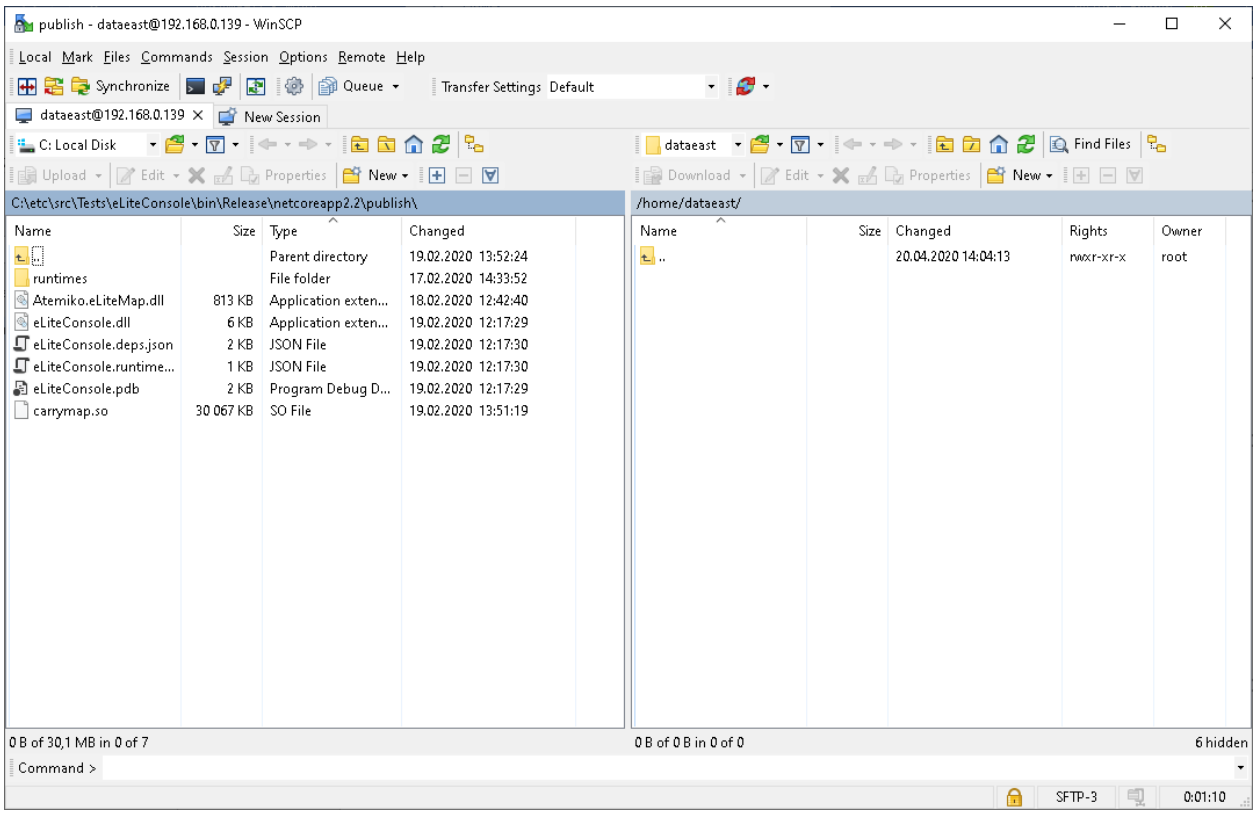

Figure 20 – Connecting to Linux via WinSCP (2)

3.2.2. Setting up Linux before installing CoGIS Portal

The following steps should be done to set up Linux before installing CoGIS Portal:

To update system in Ubuntu / Debian / Astra Linux / Alt Linux OS run the following commands:

```
sudo apt-get update
sudo apt-get upgrade
```

To update system in Red OS / CentOS 7 run the following command:

```
sudo yum update
```

To update system in CentOS Stream 8 / CentOS Stream 9 run the following command:

```
sudo dnf update
```

3.2.3. Installing ASP.NET Core Runtime

Below are the commands to be run to install asp.net core runtime depending on OS.

To install asp.net core runtime in Ubuntu 22.04:

```
sudo apt-get install aspnetcore-runtime-6.0
```

To install asp.net core runtime in Ubuntu 20.04:

```
sudo apt-get install wget

wget https://packages.microsoft.com/config/ubuntu/20.04/packages-
microsoft-prod.deb -O packages-microsoft-prod.deb
```

```
sudo dpkg -i packages-microsoft-prod.deb
rm packages-microsoft-prod.deb


sudo apt-get update
sudo apt-get install aspnetcore-runtime-6.0
```

To install asp.net core runtime in CentOS 7:

```
sudo rpm -Uvh https://packages.microsoft.com/config/centos/7/packages-microsoft-prod.rpm
sudo yum install aspnetcore-runtime-6.0
```

To install asp.net core runtime in CentOS Stream 8 / CentOS Stream 9:

```
sudo dnf install aspnetcore-runtime-6.0
```

To install asp.net core runtime in Astra Linux Common Edition:

```
sudo wget https://packages.microsoft.com/config/debian/9/prod.list -O /etc/apt/sources.list.d/microsoft-prod.list


sudo apt-get update
sudo apt-get install aspnetcore-runtime-6.0
```

To install asp.net core runtime in Alt Linux / Alt Server:

```
sudo apt-get install dotnet-aspnetcore-runtime-6.0
```

To install asp.net core runtime in Red OS:

```
sudo yum install aspnetcore-runtime-6.0
```

3.2.4. Installing NGINX

Below are the commands to be run to install NGINX depending on OS.

To install NGINX in Ubuntu / Astra / Alt Linux:

```
sudo apt-get install nginx
```

To install NGINX in Red OS:

```
sudo yum install nginx
```

To install NGINX in CentOS 7:

```
sudo yum install epel-release
sudo yum update
sudo yum install nginx
```

To install NGINX in CentOS Stream 8 / CentOS Stream 9:

```
sudo dnf install nginx
```

3.2.5. Setting NGINX

In order to set *reverse proxy* in NGINX, you need to build configuration and redirect requests to the appropriate CoGIS components. To do so, the following steps should be done:

To create configuration in Ubuntu / Astra:

```
sudo nano /etc/nginx/sites-available/reverse-proxy.conf
```

To create configuration in Alt Linux / Alt Server:

```
sudo nano /etc/nginx/sites-available.d/reverse-proxy.conf
```

To create configuration in Red OS / CentOS 7 / CentOS Stream 8 / CentOS Stream 9, delete or comment **server** section **/etc/nginx/nginx.conf** file and create the following configuration file:

```
sudo nano /etc/nginx/conf.d/reverse-proxy.conf
```

Content of reverse-proxy.conf file is as following (replace **SERVERNAME** value with the full name of your server in network):

```
server {
	listen 443 ssl;

	access_log /var/log/nginx/reverse-access.log;
	error_log /var/log/nginx/reverse-error.log;

	server_name SERVERNAME localhost;
	ssl_certificate /etc/nginx/ssl/cert.crt;
	ssl_certificate_key /etc/nginx/ssl/cert.key;

	client_max_body_size 100M;

	location / {
		return 301 /portal/;
	}

	location /elitegis/ {
		proxy_pass http://127.0.0.1:5000/;
		include proxy_params;
	}

	location /portal/ {
		proxy_pass http://127.0.0.1:5001/;
		include proxy_params;
	}

	location /elitegismanager/ {
		proxy_pass http://127.0.0.1:5002/;
```

```
            include proxy_params;
        }

        location /mobile/ {
            proxy_pass http://127.0.0.1:5003/;
            include proxy_params;
        }
    }
```

For RedOS / CentOS 7 / CentOS Stream 8 / CentOS Stream 9 create /etc/nginx/proxy_params file with the following content:

```
proxy_set_header Host $http_host;
proxy_set_header X-Real-IP $remote_addr;
proxy_set_header X-Forwarded-For $proxy_add_x_forwarded_for;
proxy_set_header X-Forwarded-Proto $scheme;
```

To copy link to the new configuration in Ubuntu / Astra:

```
sudo ln -s /etc/nginx/sites-available/reverse-proxy.conf /etc/nginx/sites-enabled/reverse-proxy.conf
```

To copy link to the new configuration in Alt Linux / Alt Server:

```
sudo ln -s /etc/nginx/sites-available.d/reverse-proxy.conf /etc/nginx/sites-enabled.d/reverse-proxy.conf
```

In Red OS / CentOS 7 / CentOS Stream 8 / CentOS Stream 9, copying link to configuration is not needed, but you need to allow nginx to access other services:

```
setsebool -P httpd_can_network_connect 1
```

Now reload NGINX:

```
sudo nginx -s reload
```

3.2.6. Installing CoGIS Portal

After all the preliminary steps you can proceed with CoGIS Portal installation as follows:

Connect to Linux via WinSCP.

Copy packages as shown on Figure 21.

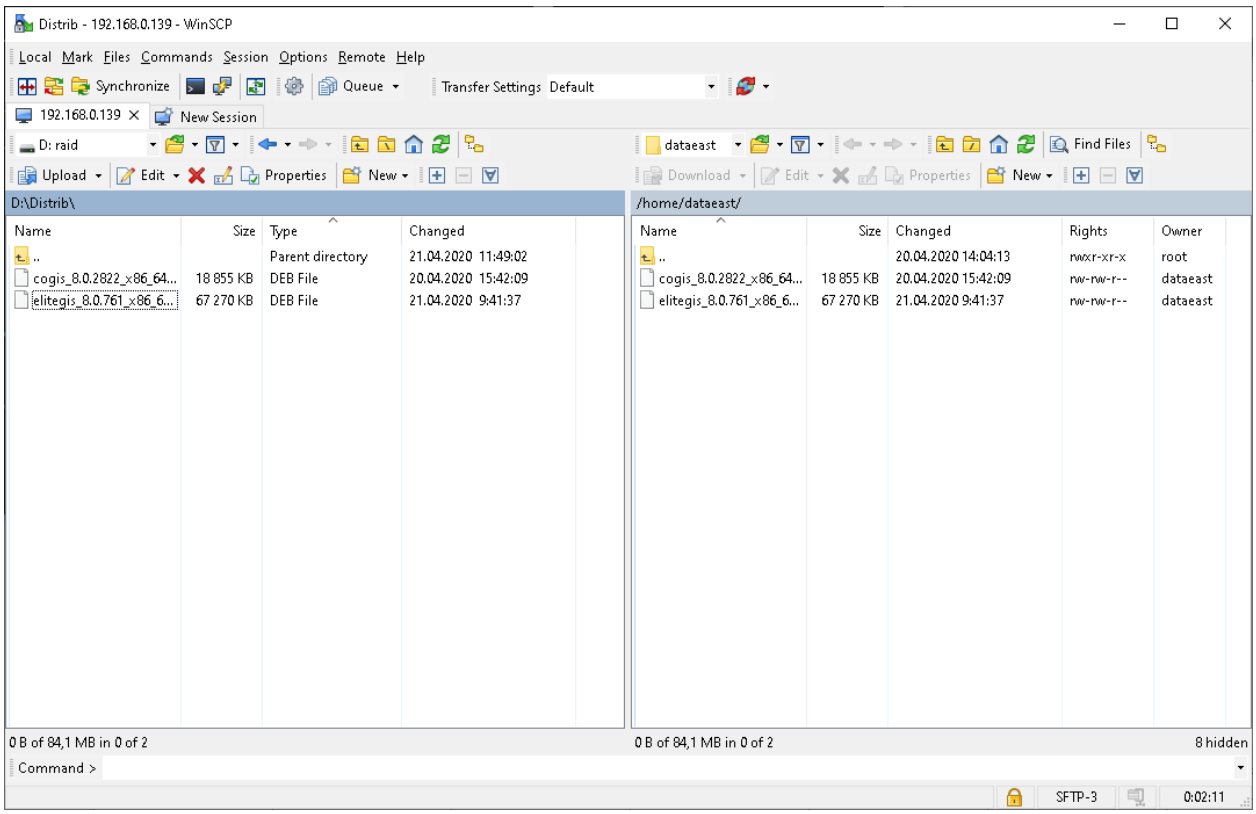

Figure 21 – Copying packages

Go to PuTTY and start installation as following:

```
sudo dpkg -i cogis.portal.10.0.0000_x86_64.deb
```

When installing on Alt Linux / Alt Server, the additional parameter 'force-all' needs to be used to ignore dependencies:

```
sudo dpkg --force-all -i cogis.portal.10.0.0000_x86_64.deb
```

Now carry out the initial configuration of the Portal by running the script, see Figure 22:

```
sudo /usr/cogis/setup
```

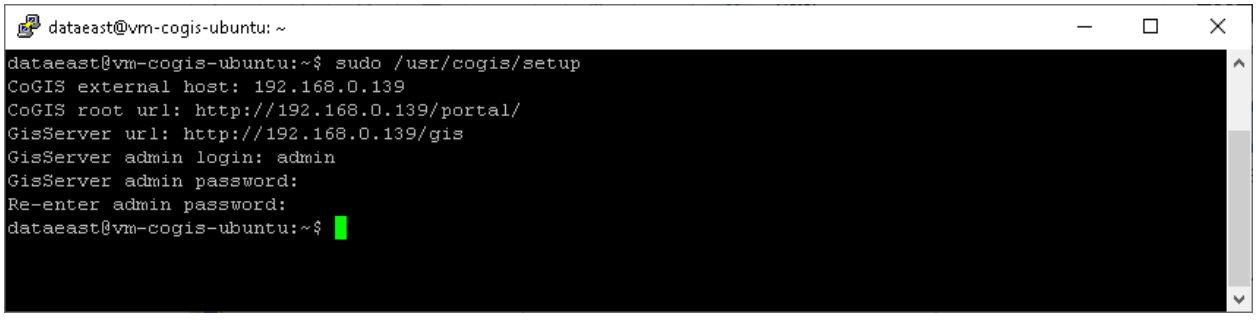

Figure 22 – Configuring CoGIS Portal

For fine tuning use the following command:

```
sudo nano /usr/cogis/frontend/App_Data/settings.xml
```

3.2.7. Installing license

CoGIS license can be activated as following:

3. If you have Internet access, you can quickly activate your CoGIS license using the activation key and the following command:

   ```
   sudo dotnet /usr/cogis/licensing/CoGIS.Licensing.Console.Manager.dll
   activate -k <activation-key> -a /usr/cogis/licensing/CoGIS\ 10.0.appinfo
   ```

4. If you do not have access to Internet, you will need to find out your Host ID via the following command:

   ```
   sudo dotnet /usr/cogis/licensing/CoGIS.Licensing.Console.Manager.dll host
   ```

   Send the obtained Host ID and CoGIS purchase information to the license provider and request manual activation of your license. The file with the activated license will be forwarded to you; install this license with the following command:

   ```
   sudo dotnet /usr/cogis/licensing/CoGIS.Licensing.Console.Manager.dll
   install -l <license-file> -a /usr/cogis/licensing/CoGIS\ 10.0.appinfo
   ```

After the license installation, restart the CoGIS Portal service via the following command:

```
sudo systemctl restart cogis
```

3.3. Checking out work of the test map

Now check the work of published web map service in CoGIS Portal, see Figure 23:

- Go to CoGIS Designer (1)
- Add online map (2)
- In Services tab (3) press Add service -> Map service (4)
- To the URL line paste the WorldMap service address copied from CoGIS ServerManager (5)
- Save the map (6)
- Open the map (7)

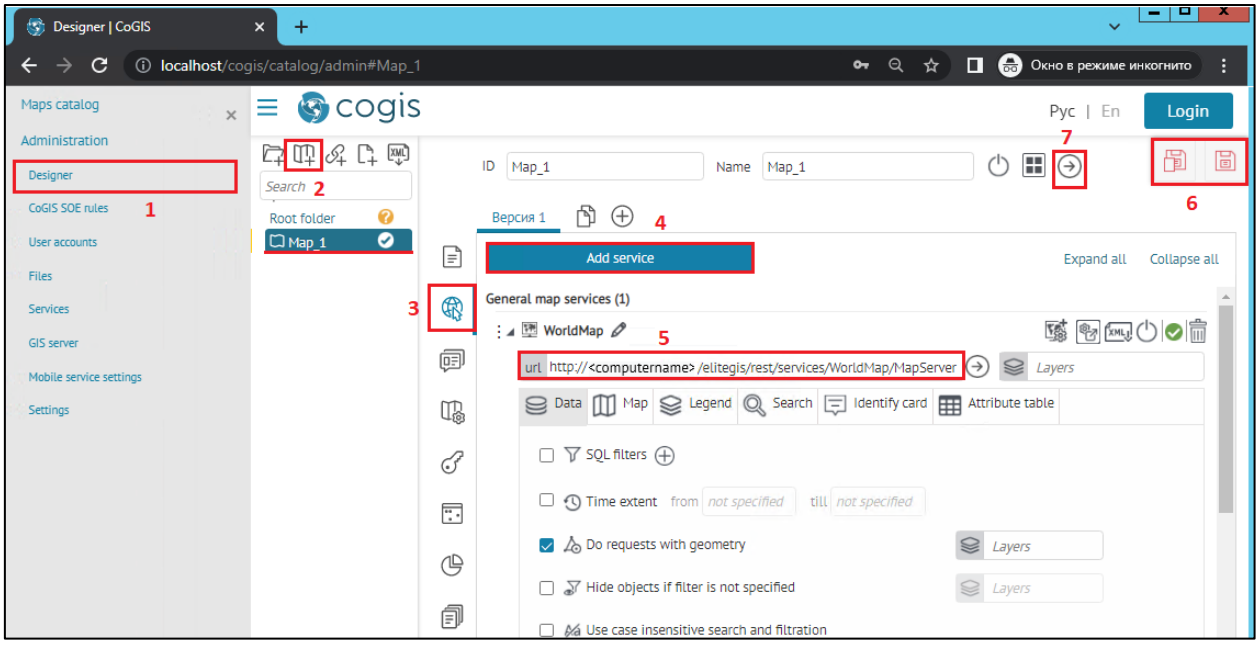

Figure 23 – Opening map based on web map service published in CoGIS Server

Example of correctly opened map is shown on Figure 24.

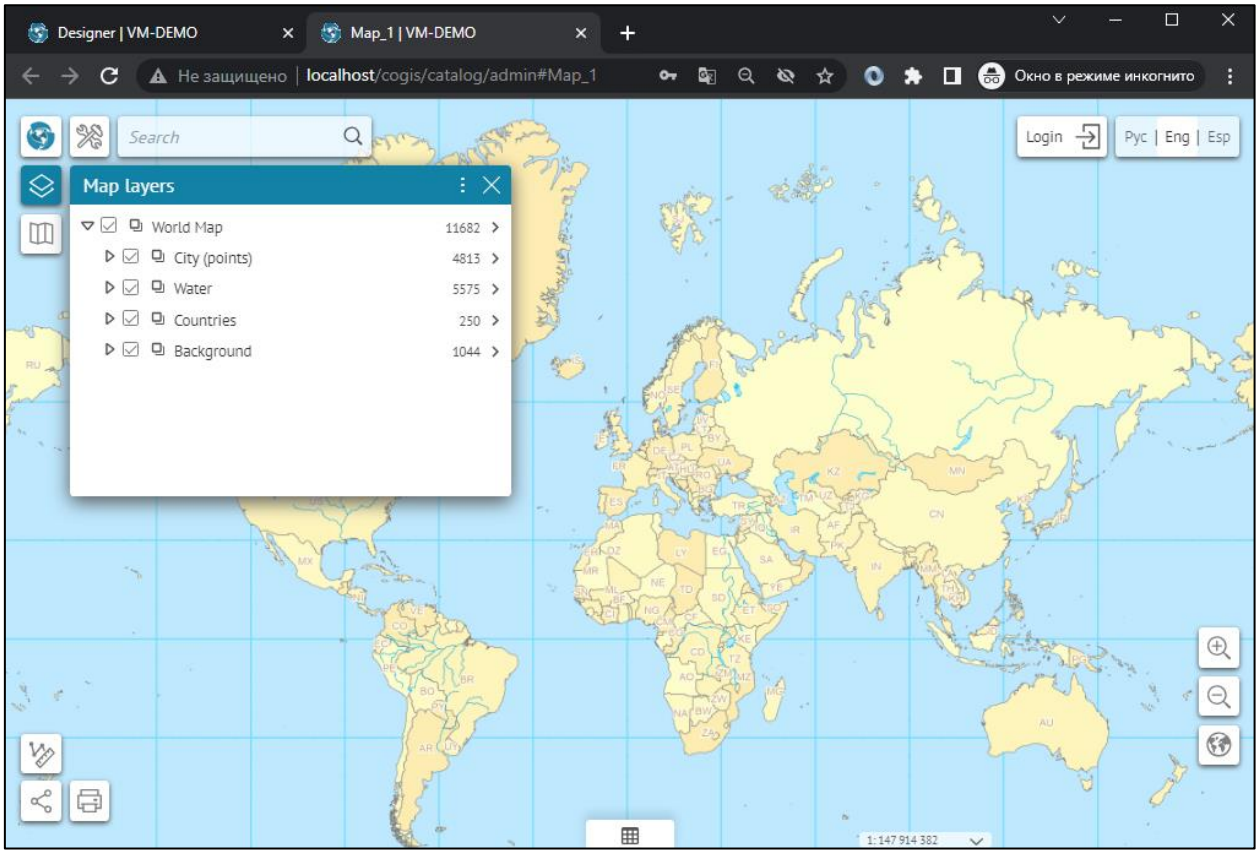

Figure 24 – Viewing published map in web browser

Checking out is finished.

4. Setting CoGIS Portal

4.1.Setting CoGIS Portal. General information.

After installing CoGIS Portal, it should be set. To do so, in Administration menu select General settings. The settings page shown on Figure 25 will appear. The navigation tabs are located in the left part of the settings window. All CoGIS Portal settings are specified on this page.

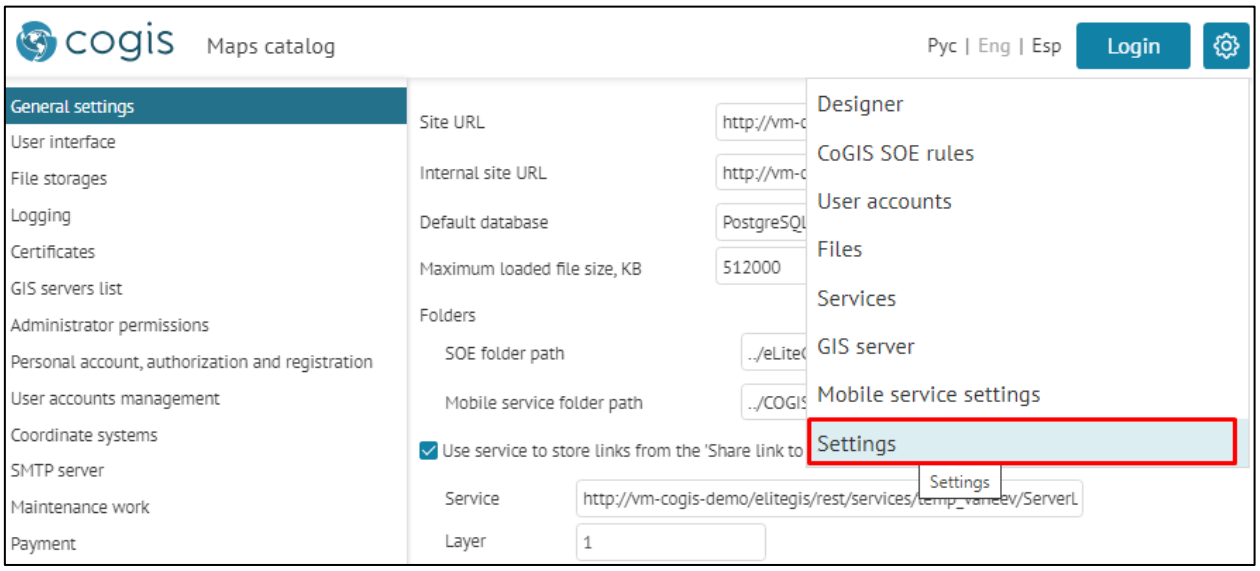

Figure 25 – CoGIS Portal settings page

4.2.Connection to GIS server

4.2.1. Connection to GIS server. General information.

You need to establish connection to GIS server where maps and other services are published. Services are used for work with online and offline maps. After establishing connection to GIS server, you will be able to:

- Authorize CoGIS Portal user on GIS server, get token to build requests to services of GIS server;
- Get list of authorized users and user groups from GIS server, based on which CoGIS Portal elements' access rules are specified;
- Register CoGIS Portal user on GIS server;
- Change registration parameters of CoGIS Portal users on GIS server;
- Get list of services of GIS server, run and stop them, update service extensions.

To connect to GIS server, go to *GIS servers list* shown on Figure 26.

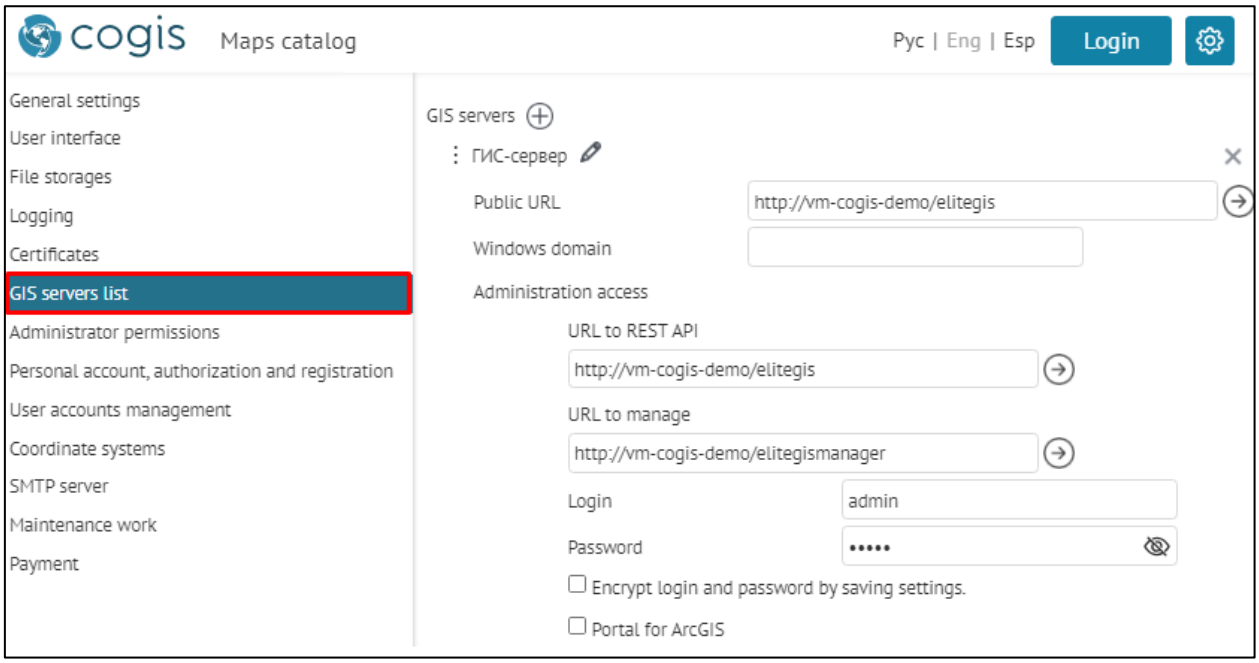

Figure 26 – Connecting to GIS server

Establish connection between web server where CoGIS Portal is deployed and GIS server. To do so, enter GIS server address to the *URL* field. This address can be available only within server infrastructure web server–GIS server. GIS server will receive and process users' requests. For example, to registered user GIS server will assign token based on which the user will further get responses to his requests.

To authorize account of GIS server administrator, enter login and password. If you want that login and password will not be explicitly displayed on this tab and saved, cipher it, checking *Encrypt login and password by saving settings* option. Encrypted data is stored in XML file of CoGIS Portal settings on web server.

If in the selected IIS service *Windows authorization* has been specified as web server, enter the Windows domain name of your network.

For work with online and offline maps in *CoGIS Designer* you will need services. To build requests to services, in *Public URL* field enter address of GIS server where these services have been published. To avoid possible errors, make sure that address of service mentioned in *CoGIS Designer* contains the address of GIS server specified here, for example, as shown on Figure 27.

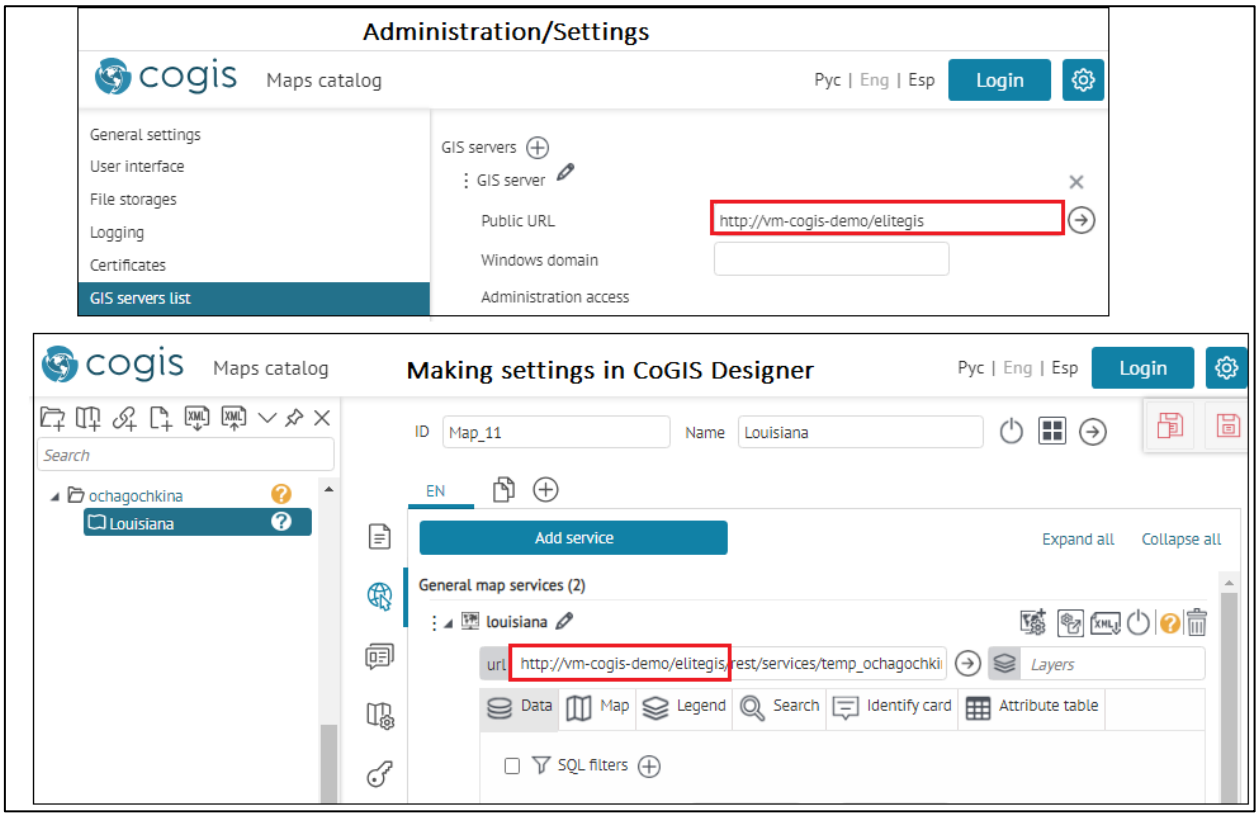

Figure 27 – Including address of GIS server to address of service

For debugging purposes you can establish connection to multiple GIS servers. When setting users authorization and registration and managing administration access rights, make sure to specify GIS server for which these settings will be applied. To do so, in *Administrator permissions* and *Personal account, authorization and registration* tabs select GIS server in the drop-down list, as shown on Figure 28.

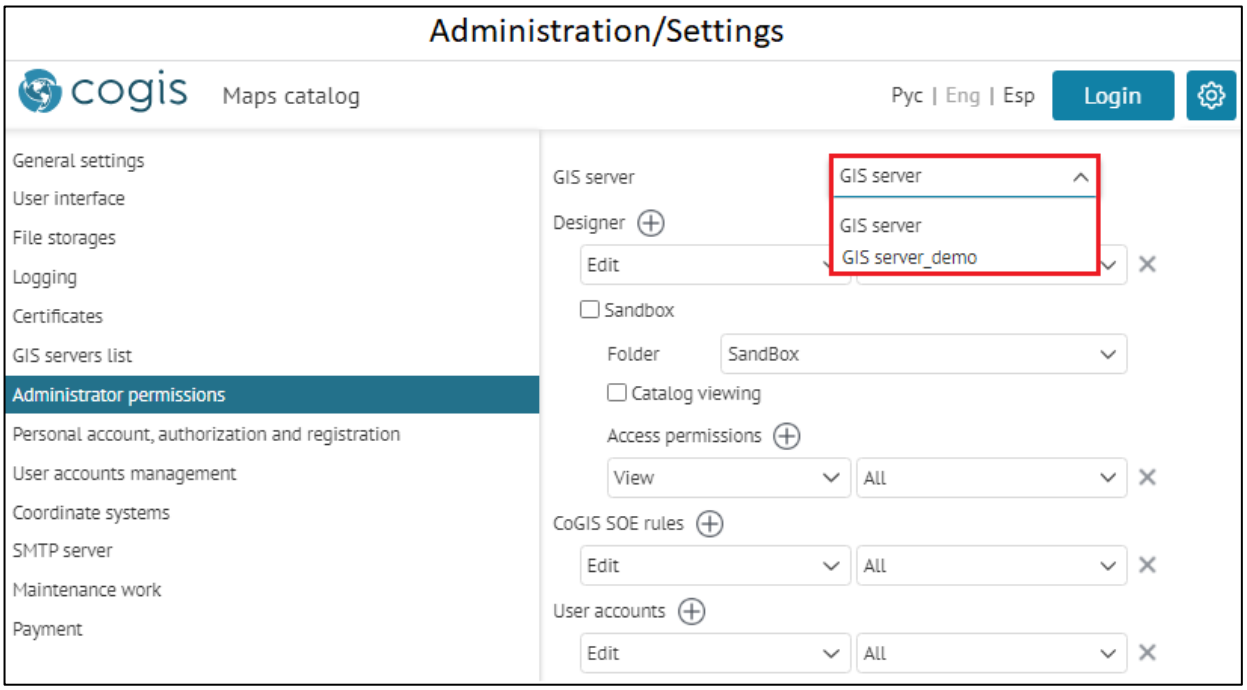

Figure 28 – Selecting GIS server

4.2.2. Restoring password for administrator accounts

If you cannot login under administrator account after ciphering login and password, you will need XML file of settings stored on web server. In this XML file delete the line with encryption and enter the line with login and password. See Figure 29 with location of this line.

Delete:

```
<encryptedCredentials>шифр</encryptedCredentials>
```

Enter:

```
<login>enter login</login>
<password>enter password</password>
```

Figure 29 – Restoring password for administrator account

4.3. Managing access to web portal administration

By default administration of web portal is allowed to any user.

Administration menu consists of the following items:

- *CoGIS Designer* – provided for creation of main elements of CoGIS Portal. The CoGIS Designer description is provided in section *Basic principles of work in CoGIS Designer* of the *CoGIS - Creating map applications* manual.
- *Sandbox* – provided for access to CoGIS Designer. At that in the sandbox the user gets access to his/her maps only, the option of changing settings for maps of the other users is not provided.
- *SOE rules* – provided for extending functionality of map service. See details in *Service objects extension* section of the *CoGIS - Creating map applications* manual.
- *User accounts* – provided for managing accounts of users and user groups. See details in *Managing user accounts* section of the *CoGIS - Creating map applications* manual.
- *Files* – provided for managing files. See details in *Managing files* section of the *CoGIS - Creating map applications* manual.
- *Services* – provided for SOE installation and update, as well as for managing GIS server services.
- *Settings*.

Specify access rights to *Administration* menu items in *Administrator permissions* tab. For one item you can specify different access rights.

Specify access rights to:

- Page view;
- Settings editing.

You can specify access rights for group of users or for separate user. To do so, select the needed variant from the drop-down list and enter the group or the user's name. For example, Figure 30 shows settings when CoGIS Designer is available for viewing to all authorized user, and editing rights are given to one user only.

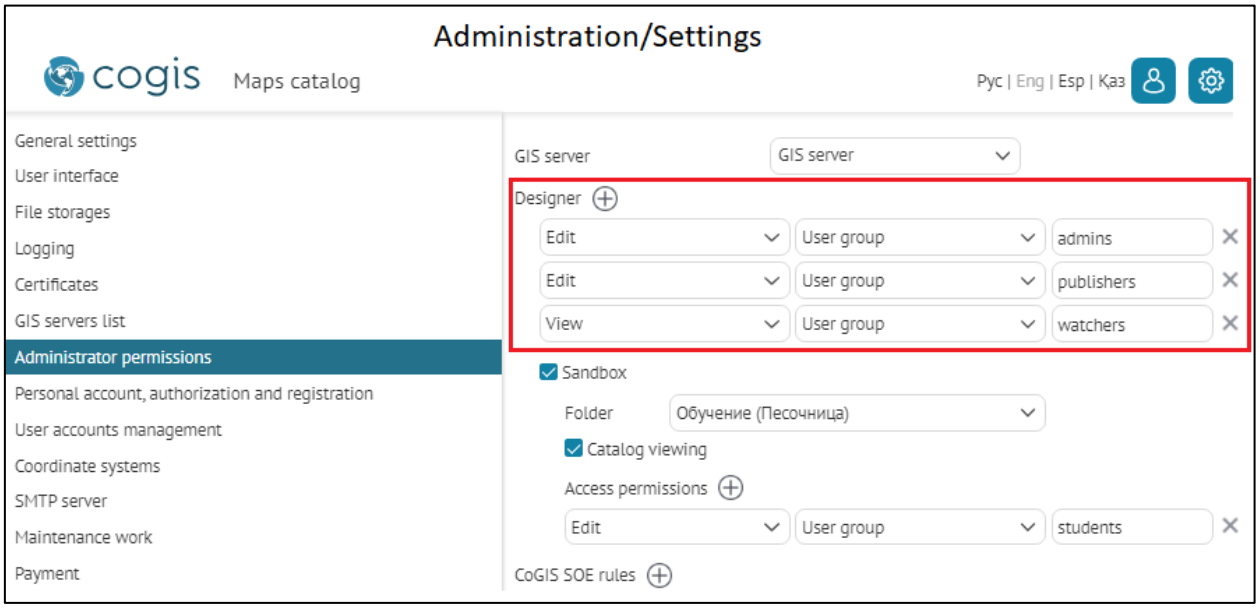

Figure 30 – Setting access rights to Administration menu

List of users registered or authorized on web portal is stored in a table with appropriate fields published as map service on GIS server.

4.4. Logging

For debugging of web portal, define which actions need to be recorded and specify location of the file where these records will be stored. To do so, go to *General settings* tab, *Logging* section. Set the file size limitation, see example on Figure 31. To allow users to see errors arising during the work, check *Show errors* option. To record users activity, specify frequency of transferring this information to web server where CoGIS Portal is installed.

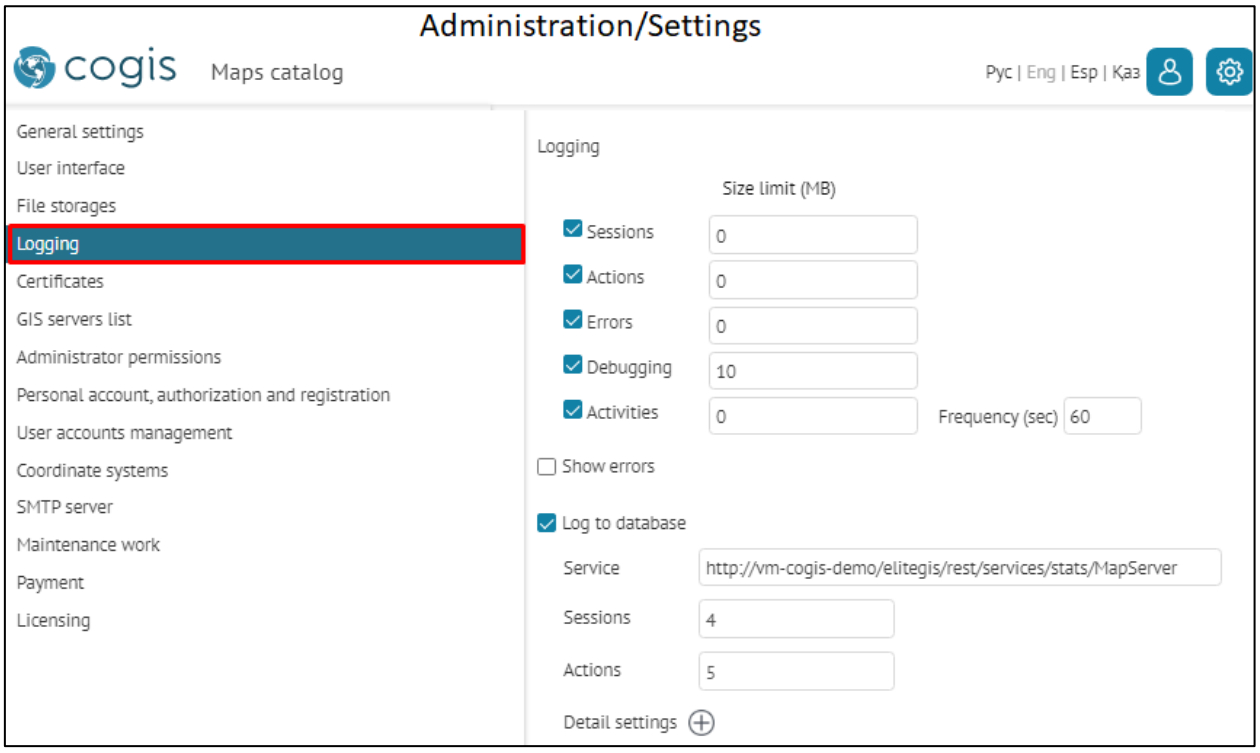

Figure 31 - General settings tab, Logging section

4.4.1. Recording to database

The ability to log user sessions/actions and write them to the database allows you to control users and visit statistics in more detail. To take advantage of this opportunity, in Logging tab check *Log to database* option and specify the needed settings, see example on Figure 32.

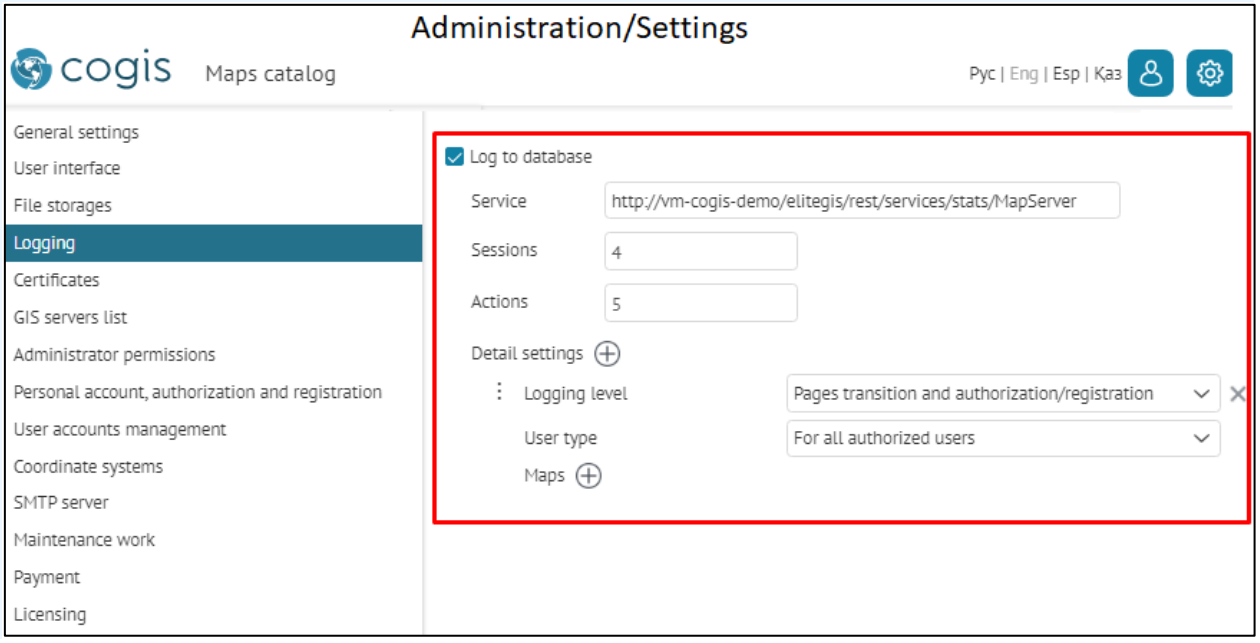

Figure 32 - Setting Log to database option to log user sessions/actions

To be able to log user sessions/actions and write them to the database, the following default settings need to be specified:

1) To record events, specify layers of map service in *Sessions* field, and to record user actions specify layers of map service in *Actions* field.
   To do so, first you need to prepare and publish map service using the GIS server, this map service should contain the following tables:
   - *cogis_logs_actions* – for logging user actions, see example on Figure 33 and in Table 1;
   - *cogis_logs_sessions* – for logging user sessions, see example on Figure 34 and in Table 2.

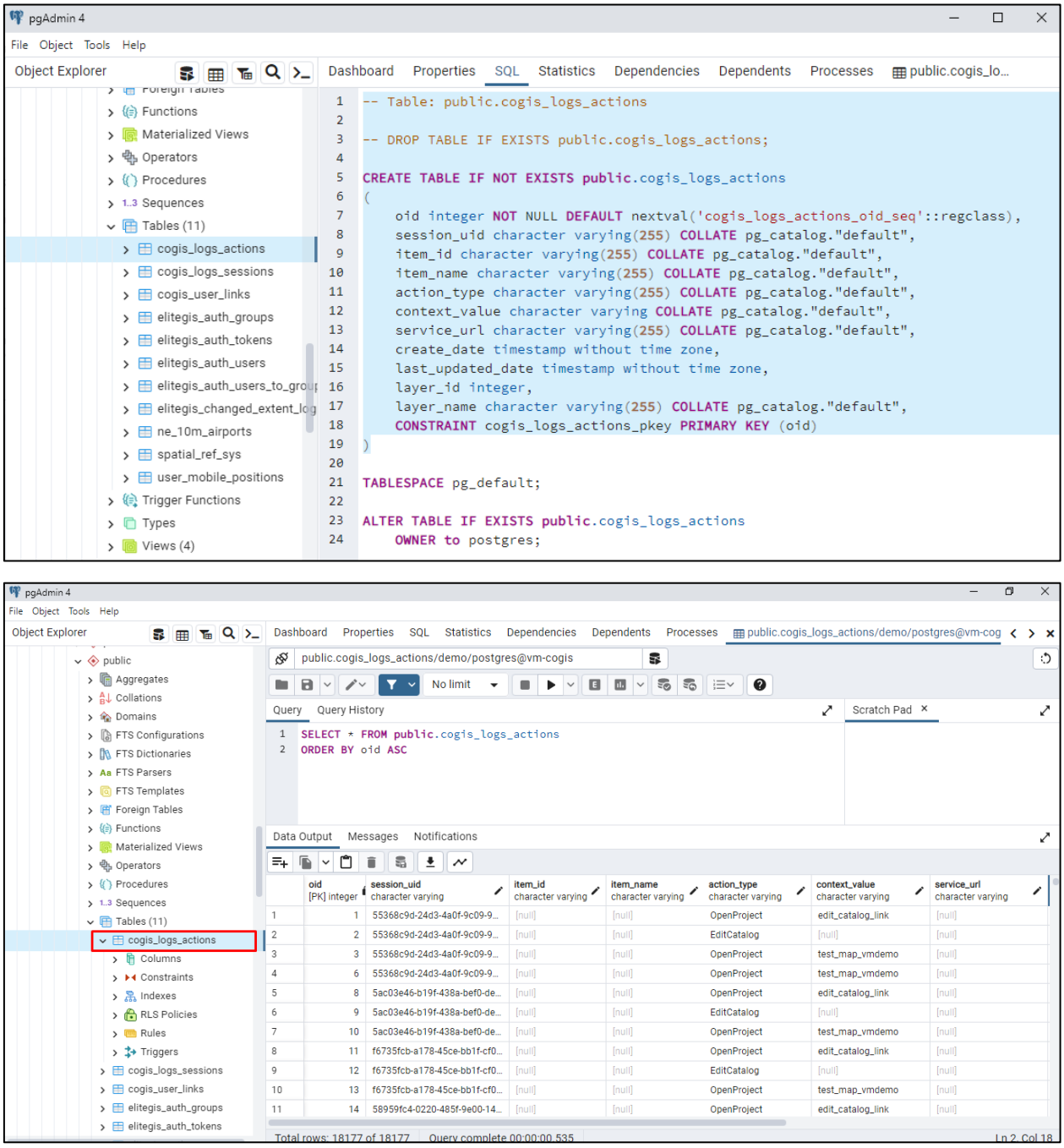

Figure 33 – Example of cogis_logs_actions table for logging user actions to PostgreSQL/PostGIS database

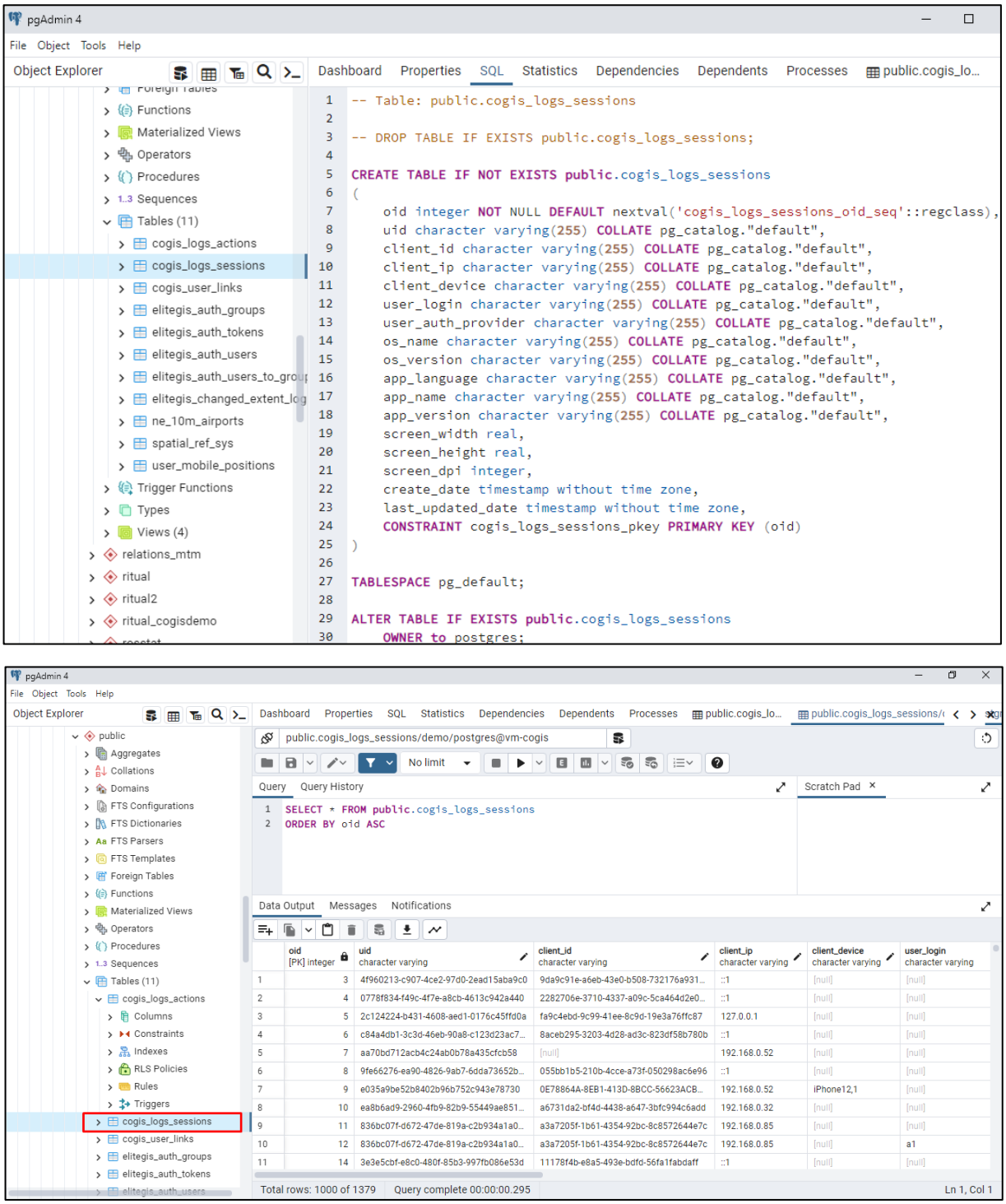

Figure 34 - Example of cogis_logs_sessions table for logging user sessions to PostgreSQL/PostGIS database

2) Add and set up Edit plugin with administrator rights for corresponding map service layers, see details in section *12. SOE rules / 12.4.Editing objects. Edit plugin* of the *CoGIS - Creating map applications* manual.
3) In *Detail settings – Logging level* select the variant of setting the logging level from the drop-down list, see Figure 35. The logging level depends on the purpose of recording events / actions in the database:
   - *Pages transition* - the possibility of accumulating general statistics of visits by maps popularity;

o *Authorization/registration* - logging entries in all elements of the catalog, on the administrator pages, as well as information about the facts of authorization / registration;

o *+ Data editing* - collection of information about editing objects: which user, where and what edits;

o *+ Main user actions on map* - allows you to evaluate which map functions are more in demand among users: identification, search, run geoprocessing tool, generate report, select basemap, enable swipe tool, manage layers visibility (legend, drop-down list, switch), open widget, view layer in attribute table, zoom to full extent, etc.;

o *All actions* - details of user actions when working with interactive map, for example, opening window with list of geoprocessing tools, zoom in/zoom out, edit geometry on map, etc.

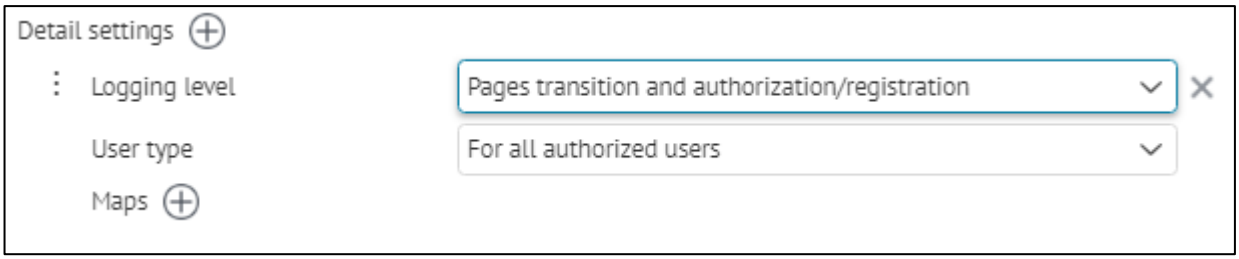

Figure 35 – Setting logging details to log user sessions/actions in database

4) In *User type* select for which users or user groups the logging settings will be applied.

5) In *Maps* press ⊕ and specify maps to which the logging settings will be applied.

Details of default settings based on logging data in the database to record the events/actions performed by users are provided in Table 1 and Table 2.

Table 1 – Logging user actions in cogis_logs_actions layer of map service

Attribute field in layer	Portal	Mobile service
session_uid	::userCookieId	::Session
item_id	::mainParameter *Logging map name ID*	::Map *Logging map name ID*
item_name	Name of element from catalog	Name of element from catalog
action_type	::actionType *Examples:* • *Open project OpenProject* • *Open Maps catalog GetCatalogItem* • *Open layer attribute table OpenAttributeTableLayer* • *Add object addObject;* • *Update object updateObject etc.*	::Method *Examples:* • *Open project OpenProject* • *Open Maps catalog GetCatalogItem* • *Open layer attribute table OpenAttributeTableLayer* • *Add object addObject;* • *Update object updateObject etc.*

Attribute field in layer	Portal	Mobile service
context_value	*Logging useful context, for example:* *- widget name;* *- search string;* *- coordinates by object's identification in "X,Y,wkid" format*	*Logging useful context, for example:* *- widget name;* *- search string;* *- coordinates by object's identification in "X,Y,wkid" format*
service_url	*Logging service url by selection of ApplyEdits, AddAttachment and GetObjectDetails*	*Logging service url by selection of ApplyEdits, AddAttachment and GetObjectDetails*
layer_id	*Number of layer id*	*Number of layer id*
layer_name	*Layer name*	*Layer name*

Table 2 - Logging user sessions in cogis_logs_sessions layer of map service

Attribute field in layer	Portal	Mobile service
uid	::userCookieId	::sessionId
client_id	::browserCookieId	::deviceId
client_ip	::IP	::clientIP
client_device	*Web client is not logged*	::deviceModel *Examples:* • *for iOS "iPhone12,1";* • *for Android "M2007J20CG".*
user_login	::Username *User login (without suffix), including string update after authorization*	::Username *User login (without suffix), including string update after authorization*
user_auth_provider	*Authorization provider (user login suffix) of the current login*	*Authorization provider (user login suffix) of the current login*
os_name	*Taken from parameter* ::Headers["User-Agent"] OS *examples*: *Windows, Linux, Mac, Android, iOS*	::clientType *OS examples: Android, iOS*
os_version	*Taken from parameter* ::Headers["User-Agent"] *OS examples*: *10.0, X11, 10_15_7 etc.*	::iosVersion *OS examples*: • *for iOS - 16.0.3;* • *for Android - 12.*

Attribute field in layer	Portal	Mobile service
app_language	*Taken from parameter* ::Headers["User-Agent"] *Examples*: • *RU (Russian);* • *EN (English) etc..*	::language *Examples*: • *RU (Russian);* • *EN (English) etc..*
app_name	*Taken from parameter* ::Headers["User-Agent"] *Examples*: *Mozilla, Chrome, Safari etc.*	::AppName *from client in OpenSession* *If it is empty (for old clients), then the CoGIS Mobile constant entry*
app_version	*Taken from parameter* ::Headers["User-Agent"] Versions examples: *109.0.0.0, 16.2 etc.*	::clientVersion Versions examples*:* • *for iOS – 6403;* • *for Android - 1000027.*
screen_width	*Browser window width*	::screenWidth *Browser window width*
screen_height	*Browser window height*	::screenHeight *Browser window height*
screen_dpi	-	::dpi

After checking the stable operation of the default logging settings, you can configure a custom map service with your own settings, for example, for interactive map Visit statistics, see Figure 36.

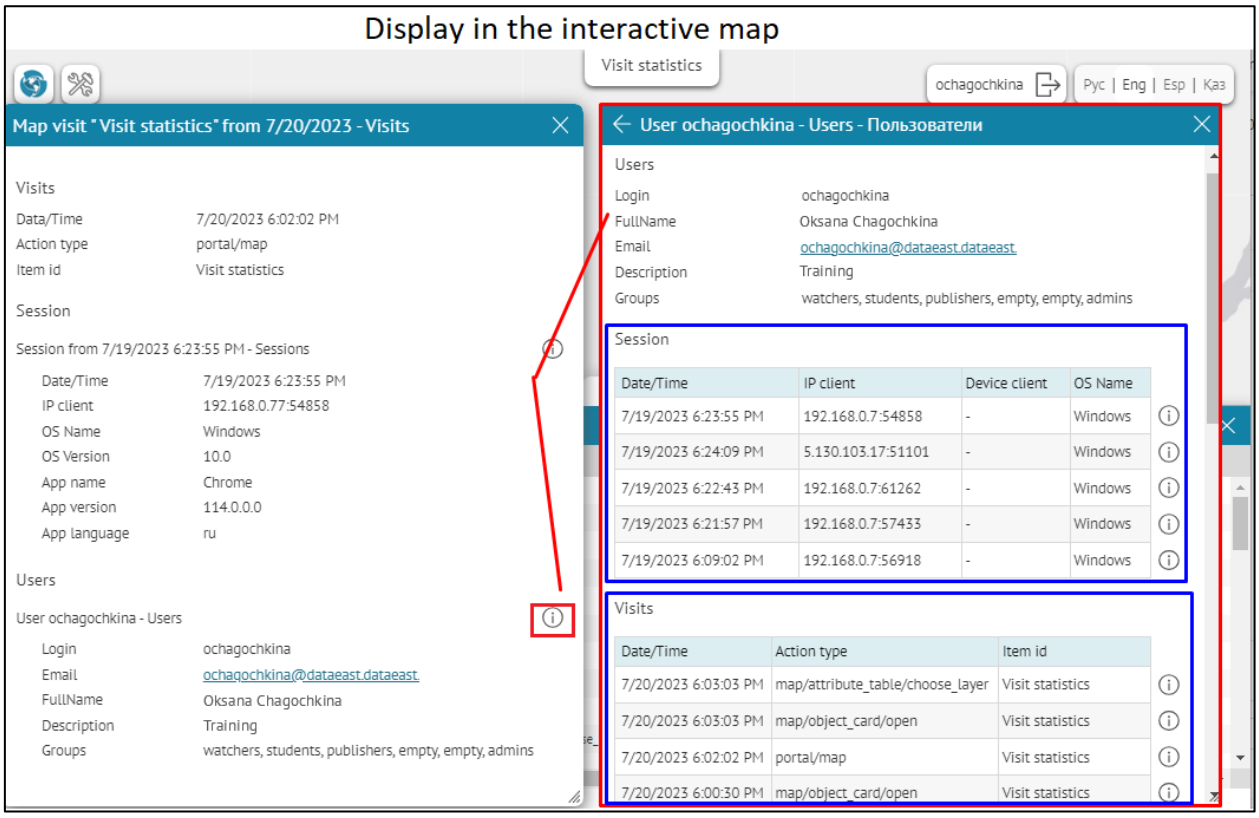

Figure 36 – Example of interactive map Visit statistics with custom map service based on logging data

4.5.Certificates

To add technical certificates, go to Administration menu - Settings – Certificates, press Add button , see Figure 37, and specify the required settings:

- *Certificate public key file in PEM format*
- *Certificate private key file in PEM format*
- If needed, enter *Private key password (if set).*

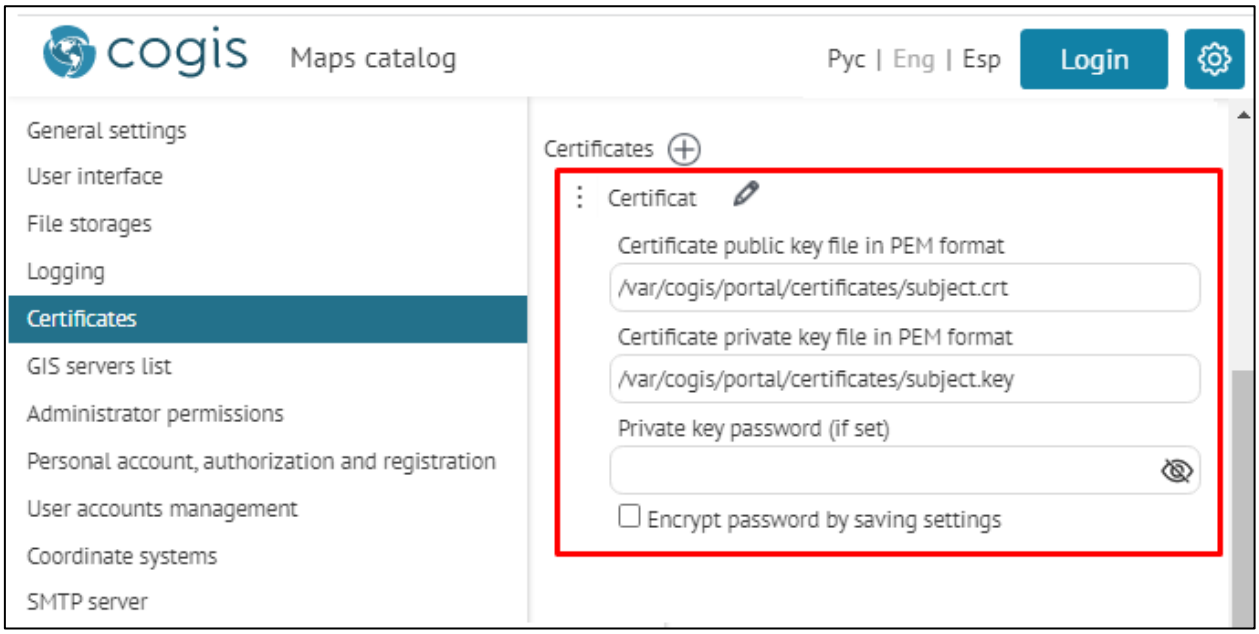

Figure 37 – Example of added certificate in Settings - Certificate tab

If you need to add a technical certificate with a digital signature key when generating reports for specific layers of map services, then in the Report tab, near the Certificate option, specify the required available certificate, see example on Figure 38, mode details are in section *5.7 Reports* of the *CoGIS - Creating map applications* manual.

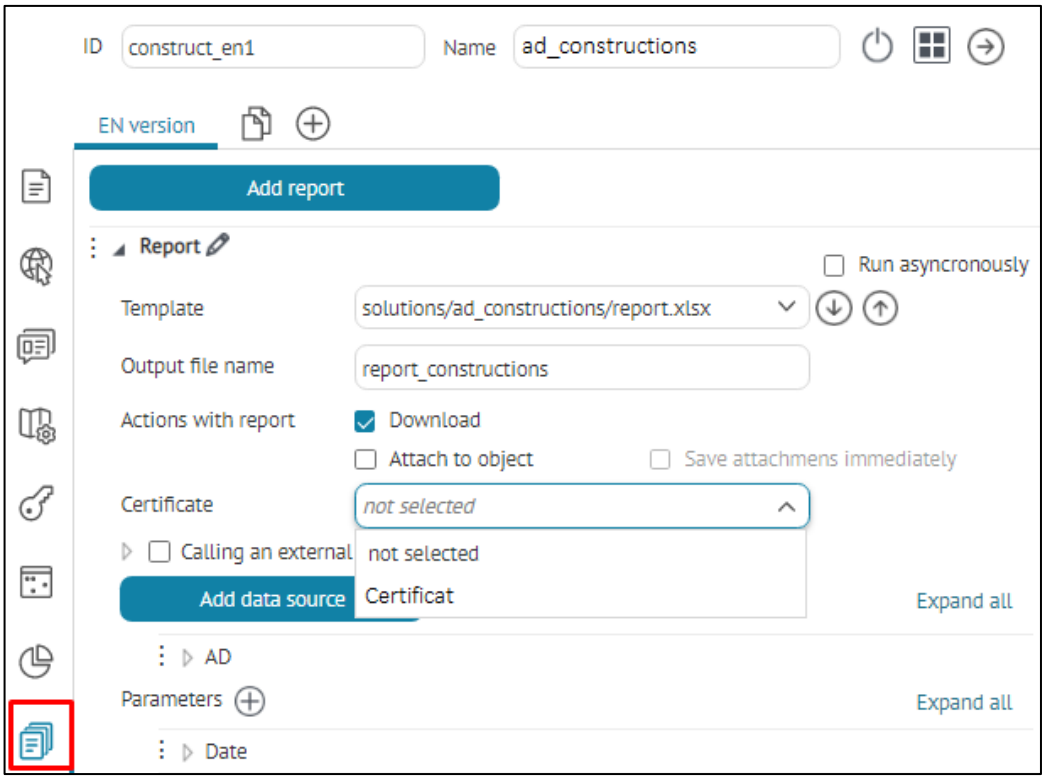

Figure 38 – Example of setting certificate in Report tab

4.6. Giving web access to web server files

Sometimes during work you need to get access to web server files or folders. For example, to create offline maps, CMF2 files are used. During web portal debugging it is convenient to view log

files straightaway. Report on selected thematic layers of online map is made in XLSX format. As a rule, all these files are stored on web server. Besides, in CoGIS Portal you can download files and use them for information purposes, for example, create the link provided for automatic file download.

Prior to setting access privileges to web server folders, make sure that full access to these folders is allowed for your account. Then, in CoGIS Portal in *General settings* tab, in *File storages* section specify folder location and its name that will be displayed to users. The folder content will be available for update and download in the *Files* section of *Administration* menu.

For example, Figure 39 shows location of web server folders and how they are displayed in the *Files* section. If you want to allow web access to files for all users, check the *Allow downloading via web* option for the folder where these files are stored.

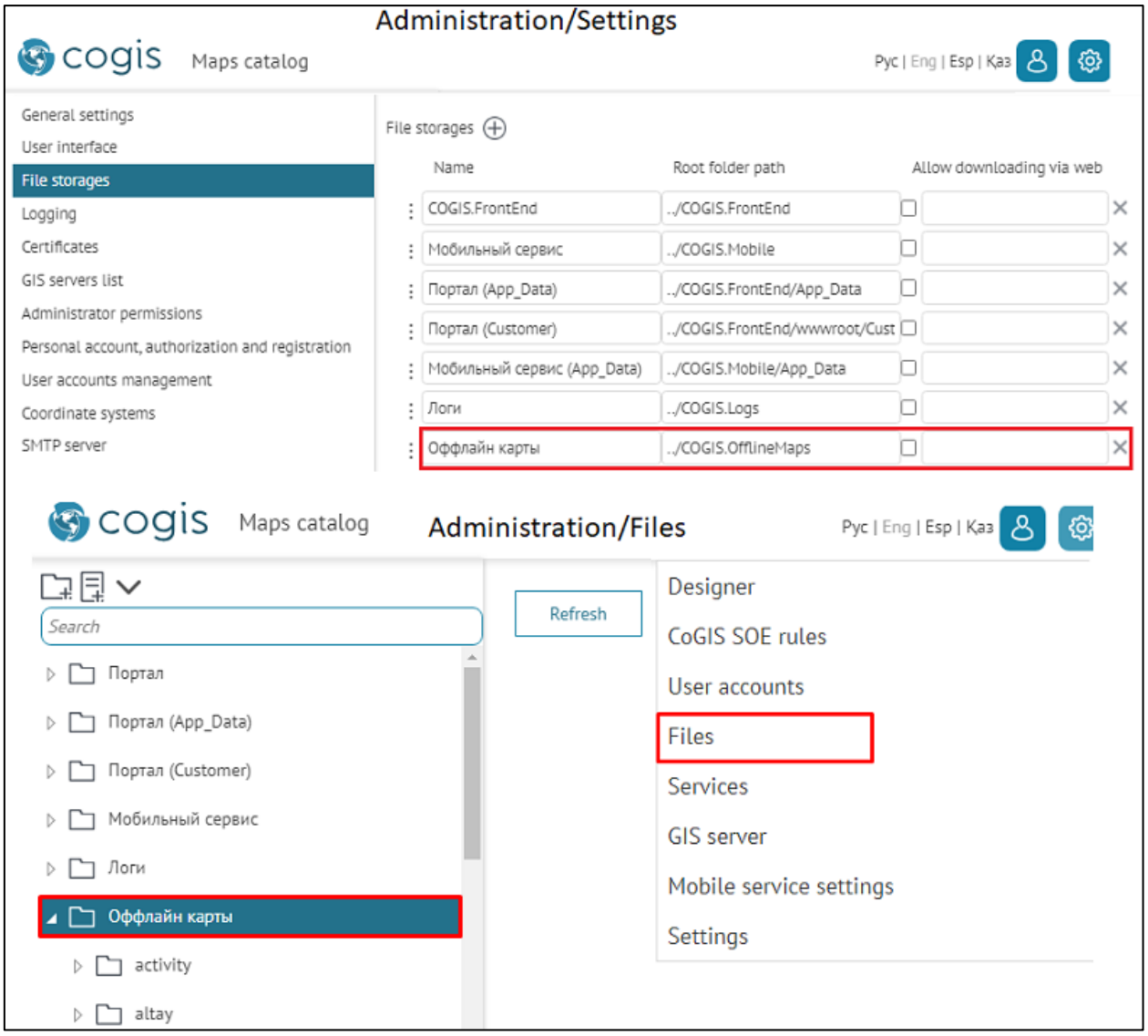

Figure 39 – Setting access to web server folders

4.7. User interface

4.7.1. General information

In User interface tab, you can specify the following interface settings, see Figure 40:

- Select interface language;
- Specify welcome page;
- Edit menu;
- Download logo;
- Specify page title in browser;
- Set color palette;
- Specify footer content;
- Set input templates (regex).

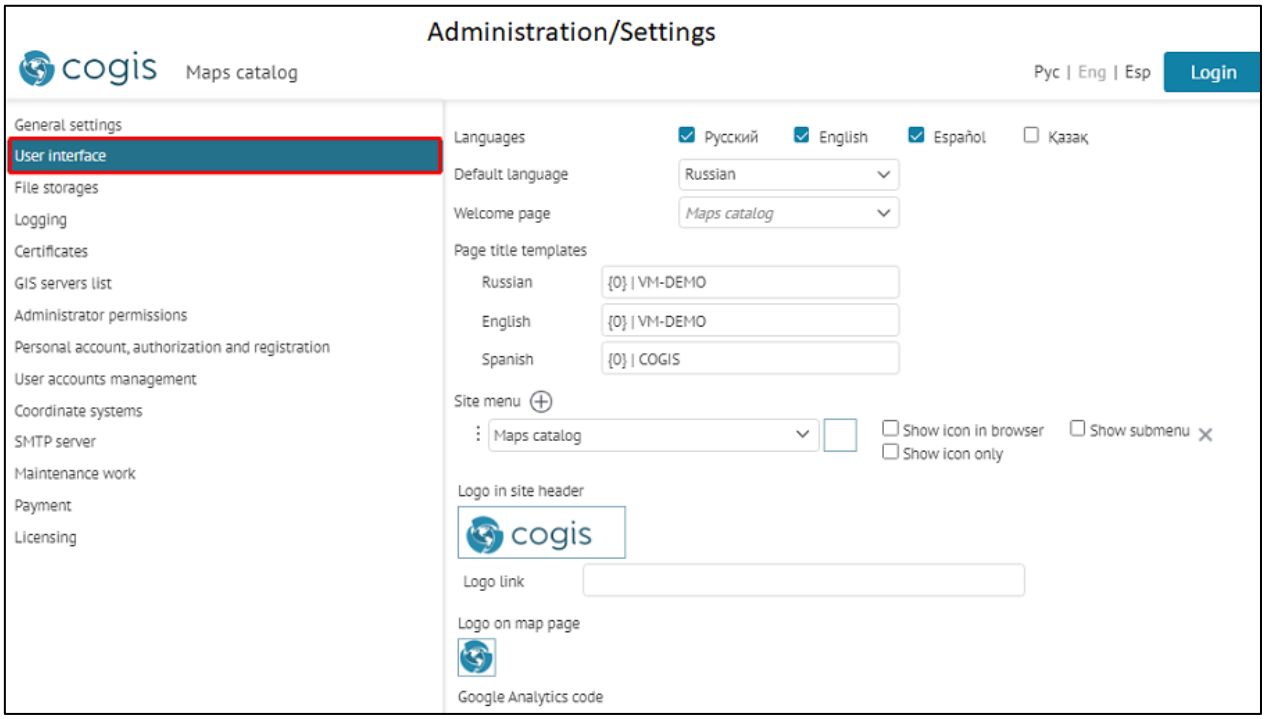

Figure 40 – General settings, User interface tab

4.7.2. Language

The interface language is set in *User interface* tab shown on Figure 41.

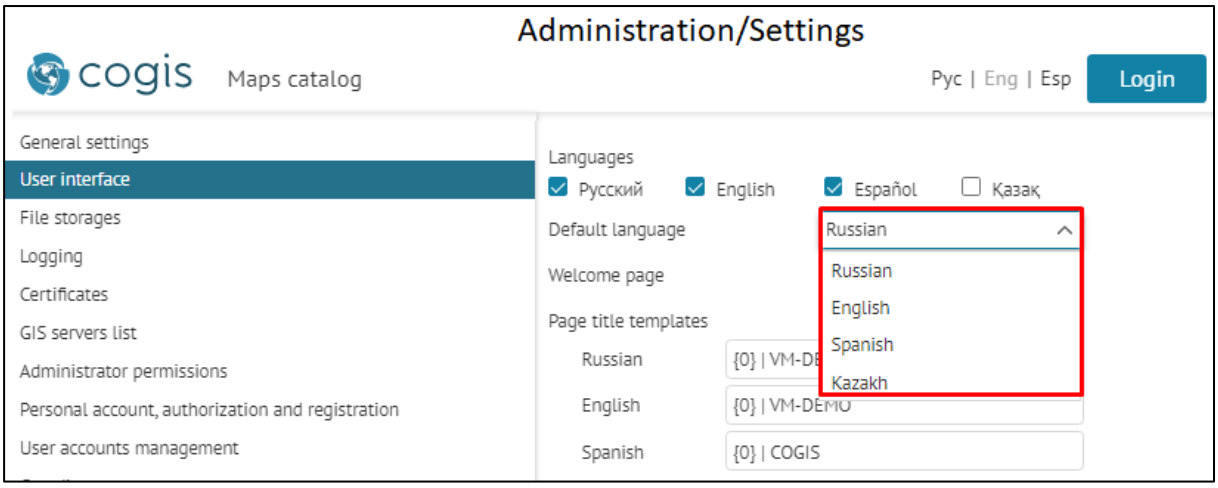

Figure 41 – Selecting interface language

At the moment English, Russian, Spanish and Kazakh are available. Select the default language.

4.7.3. Start page

By default the start page is *Map catalog* page described in the *Setting map catalog* section of the *CoGIS - Creating map applications* manual. To redefine the start page, select any other portal element, for example, page or online map from the drop-down list of Welcome page, see Figure 42.

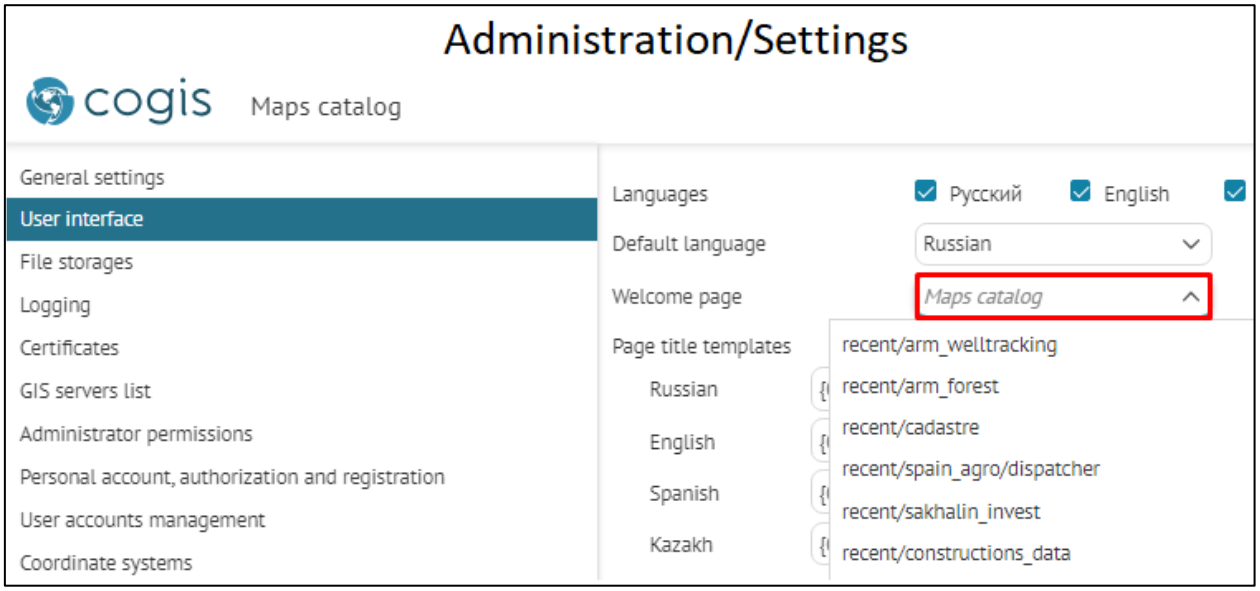

Figure 42 – Selecting start page

4.7.4. Menu

You can edit menu adding new items and specifying their representation. Any CoGIS Portal element can be selected as the menu item. Go to *User interface* tab to start editing menu. In the *Menu* select the element from the list that should be added as menu item, for example, as shown on Figure 43.

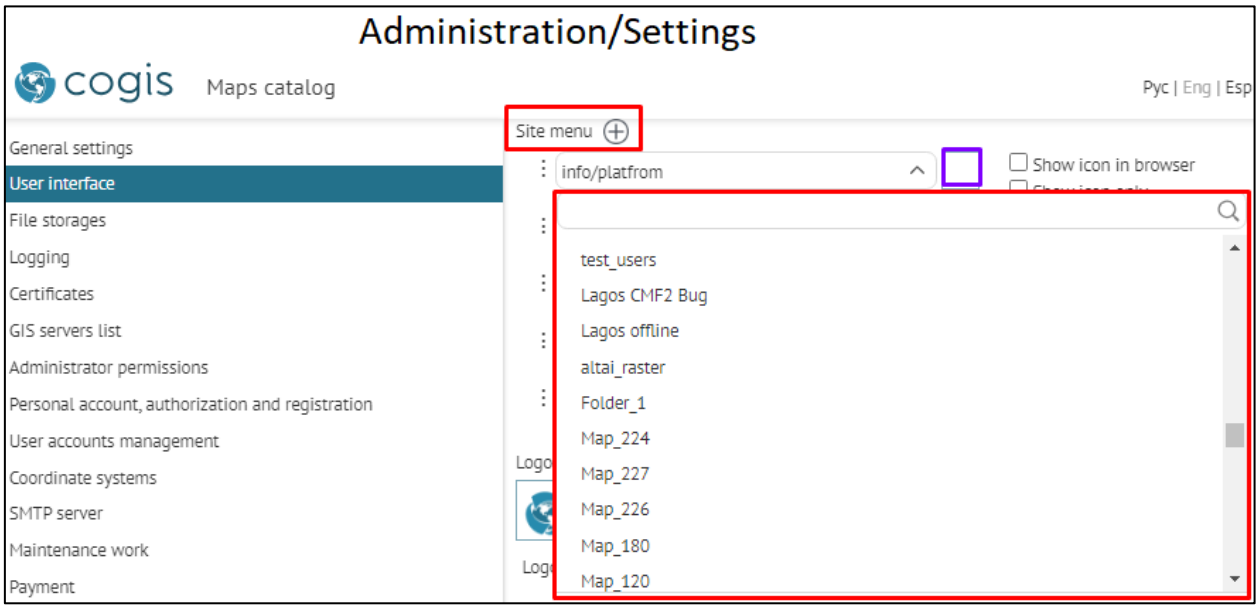

Figure 43 – Setting web portal menu

If you select folder as the menu item, you can set its display method as drop down list of child elements. To do so, check the *Show submenu* option.

Menu items can be displayed as following:

- Name;
- Name with icon;
- Icon.

To download icon, press the button shown on Figure 43 above. After that, check the *Show icon in browser* or *Show icon only* options, respectively. The menu item name is set in *CoGIS Designer, General settings* tab.

Elements are displayed based on access rights set in the *Access permissions* tab and described in section *Permissions for access to element*. If after menu editing the selected element has not been displayed as the menu item, it means that your settings do not correlate with set access rights for elements. For example, if for the element English language has been selected and the default language is Russian, the element would not be displayed. Or, if you hide some element from user, the menu item made from this hidden element will also not be displayed.

4.7.5. Logo

Download logos, one of which will be displayed in the CoGIS Portal menu, and the other on online map. Logo on online map is the button for going to *Map catalog* tab. Web portal logo is the button for going to URL address specified in the *Logo link* field. See Figure 44 to learn where settings are specified and how they are displayed.

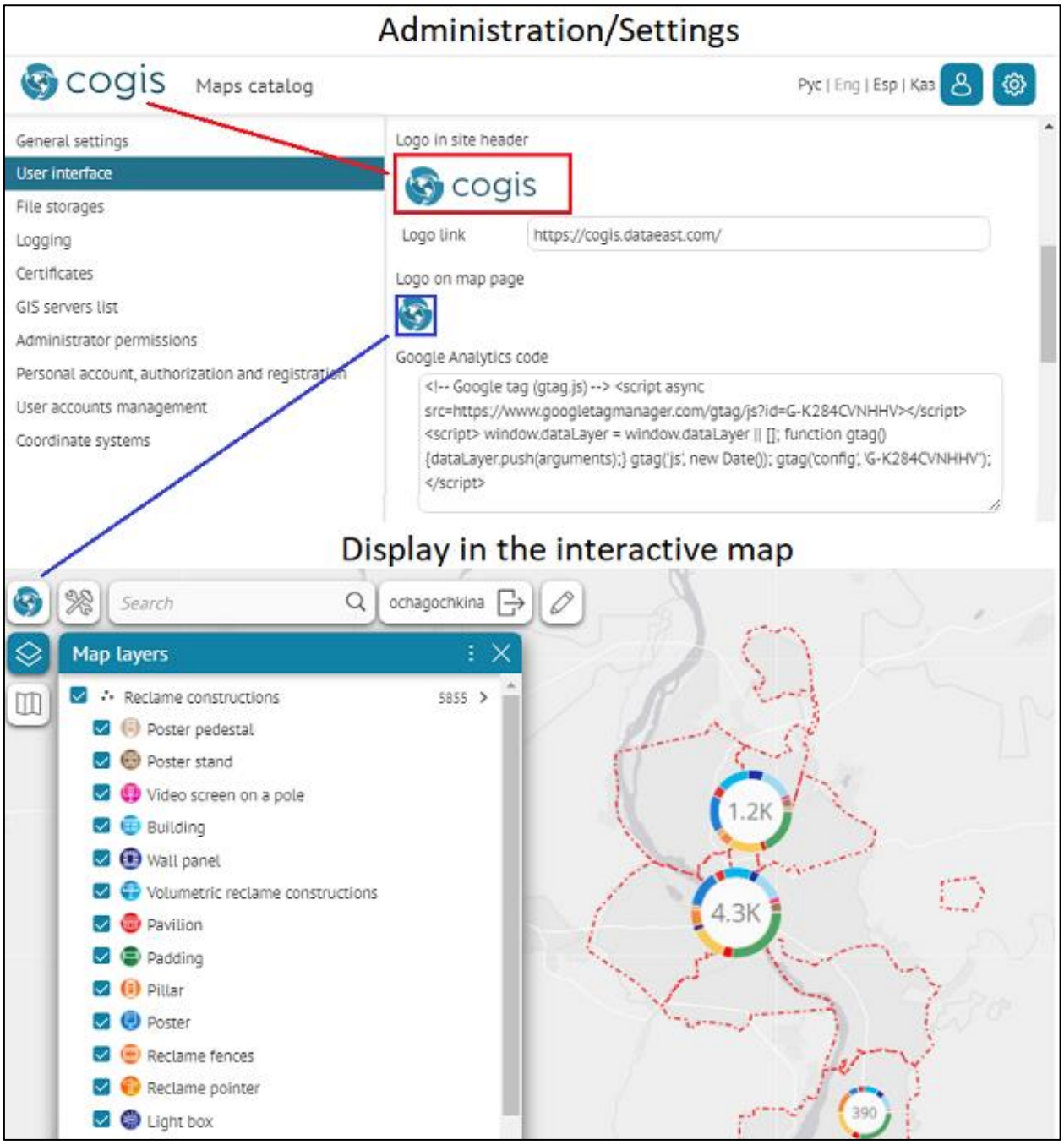

Figure 44 – Setting logo display

4.7.6. Page title in browser

Page title is set in the *Page title templates*. Enter the title in the field correspondent to selected interface language. For example, if you enter <{0} | Your title>, then instead of {0} the title of the current page *Settings* will be displayed, as shown on Figure 45.

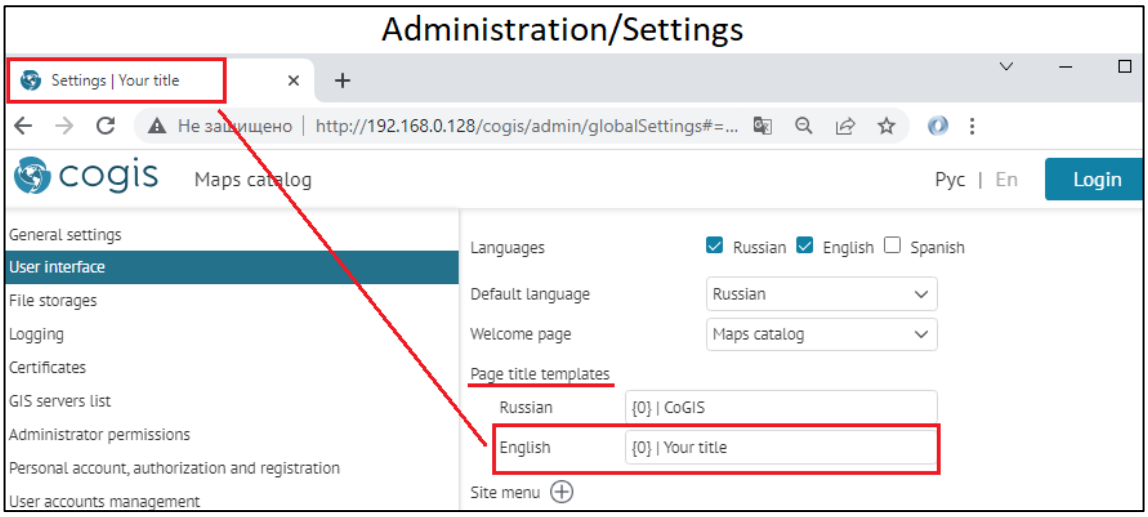

Figure 45 – Page title

4.7.7. Additional information. Page footer.

In the lower part of the CoGIS Portal pages and in Maps catalog you can locate useful information such as copyright, terms of using website content, contact details, information about developer, etc. To add this information to the page footer, enter text or HTML code in the *Maps catalog footer* section of the *User interface* tab, see Figure 46.

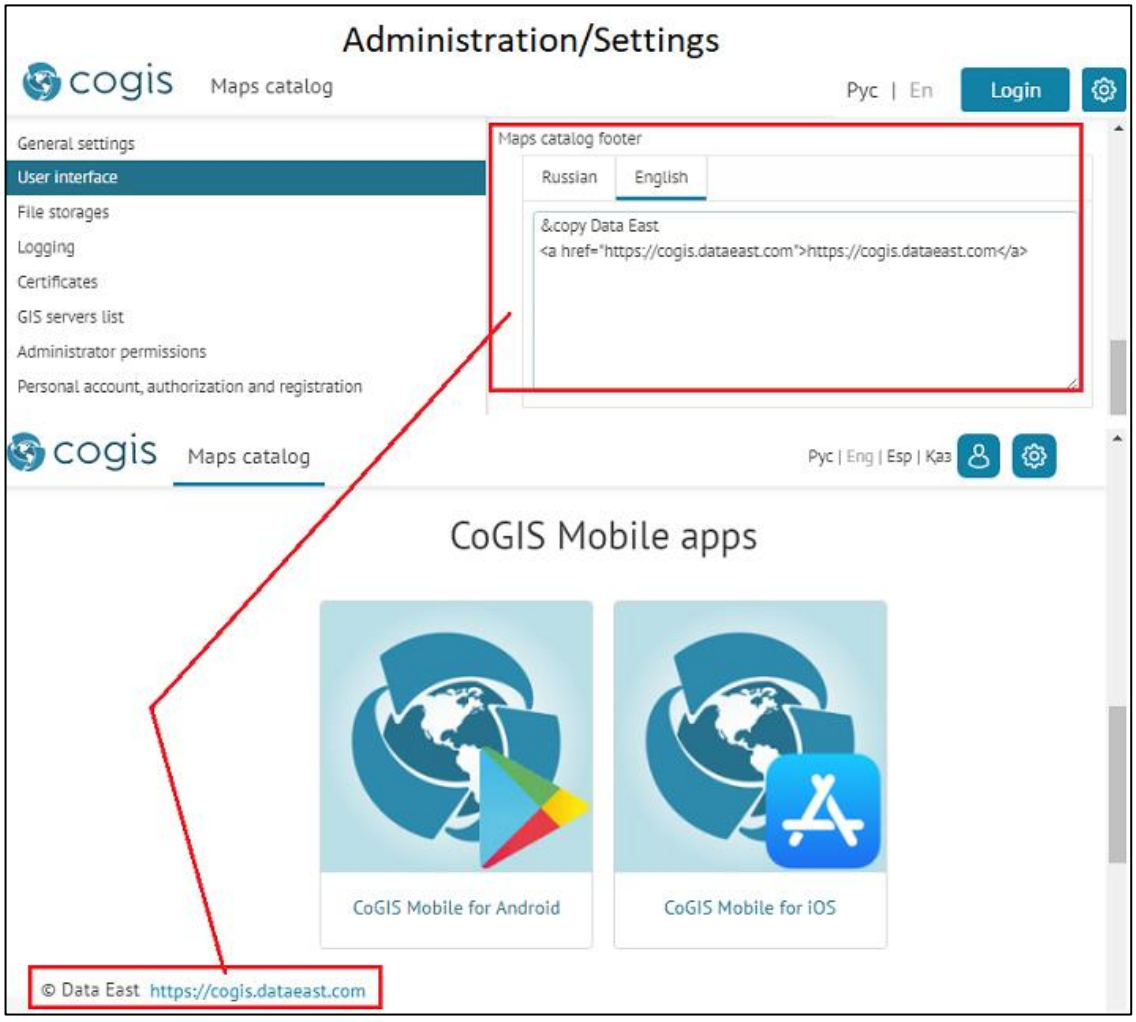

Figure 46 – Maps catalog footer

4.7.8. Designing interface

In the Settings/User interface section, the set color palette option is disabled by default. To change the default user interface design of the CoGIS Portal, enable the Override colors and styles option and select the needed parameters. The made changes are shown in the Preview window, see Figure 47.

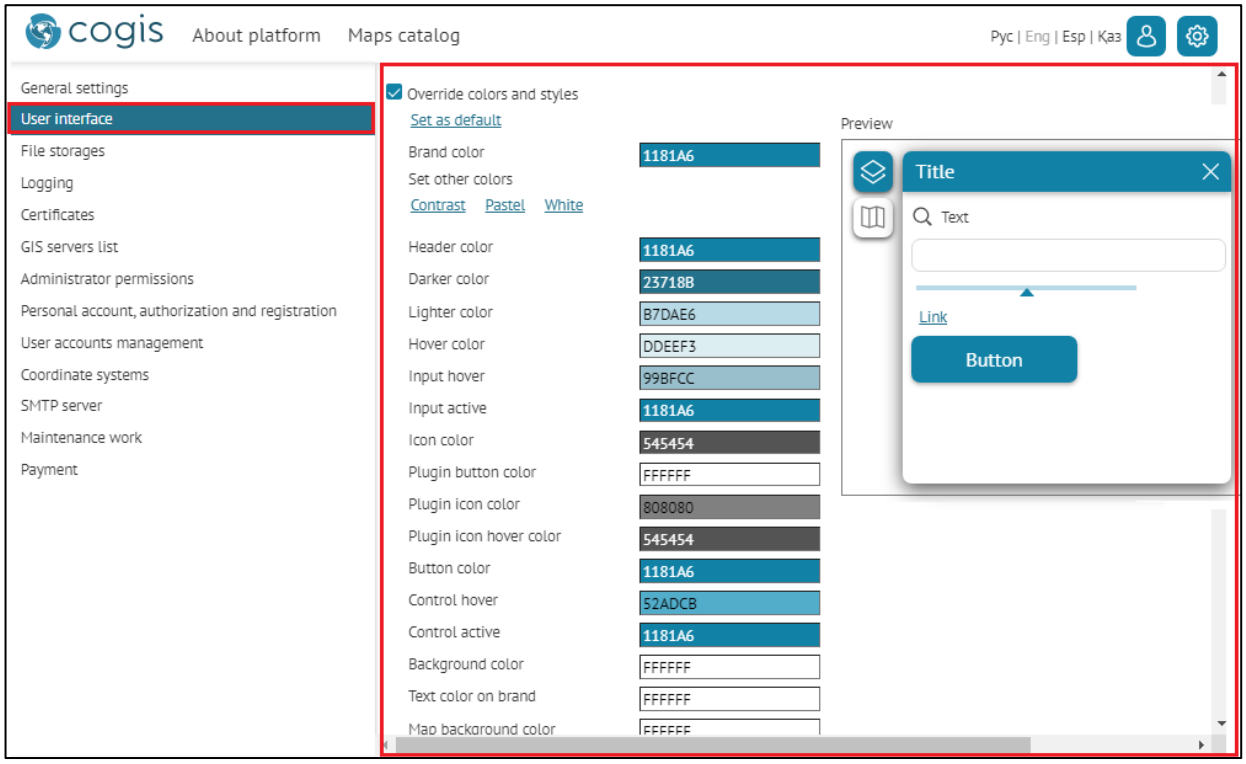

Figure 47 – Interface design of CoGIS Portal set by default

If needed, the default background color of the map can be changed to white FFFFFF with the *Map background color* option, see Figure 48.

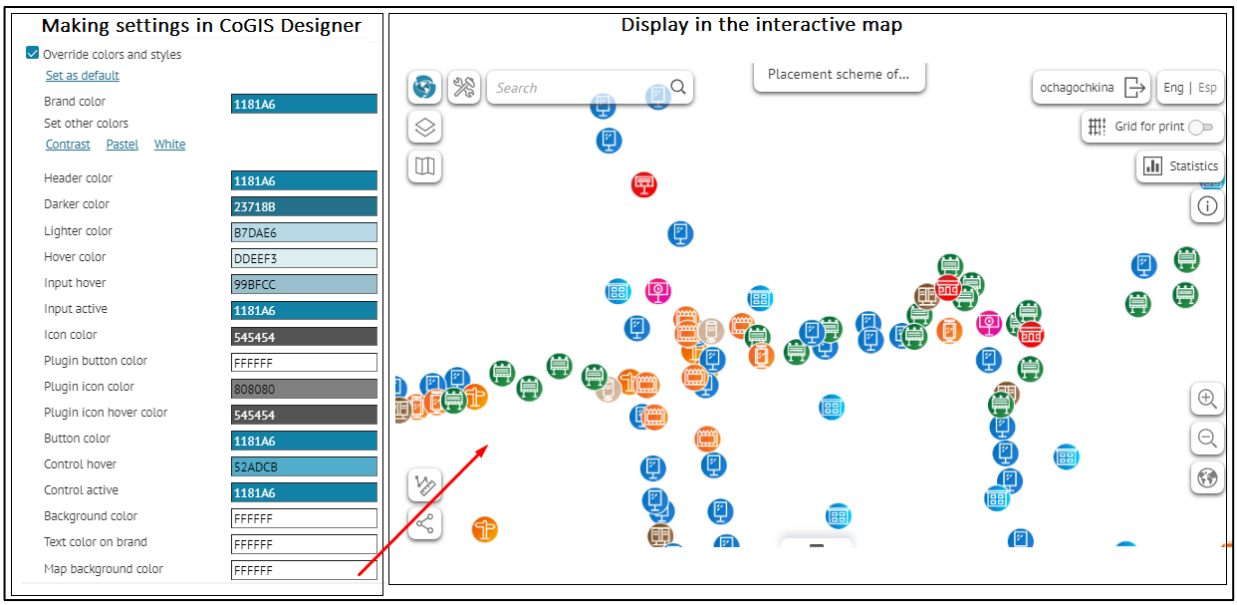

Figure 48 – Default map background color

4.7.9. Input templates

In *Settings/User interface*, in the *Input templates* option you can create and configure the often used input templates (regex), for example for correct input of http(s), url, email etc., see example on Figure 49. Specified input templates can be further applied to the attribute field of the layer, in this case by creating/editing object in the Identification card, the user will see the prompts with the correct attribute information, see Figure 50, see details in section *Map/Services/SOE for map service/Editing*, section *Set fields editing* of the *CoGIS - Creating map applications* manual.

To add a new input template, press Add ⊕ near the *Input templates* option and enter the needed data.

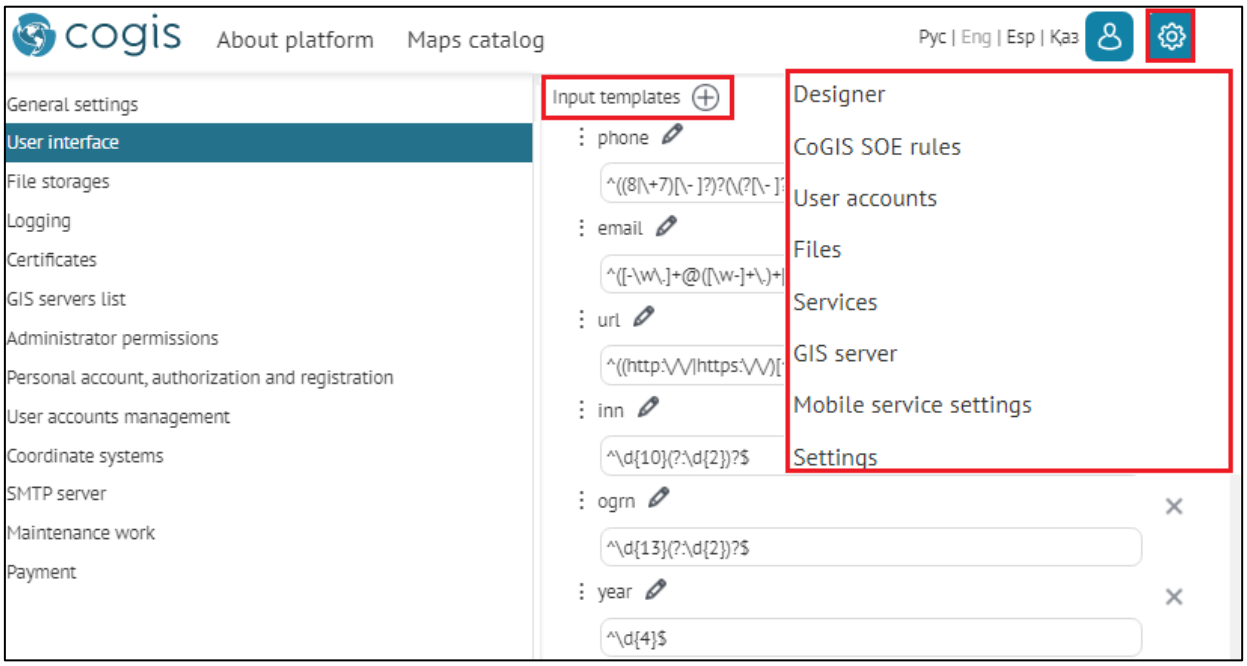

Figure 49 – Example of set input templates in Settings/User interface

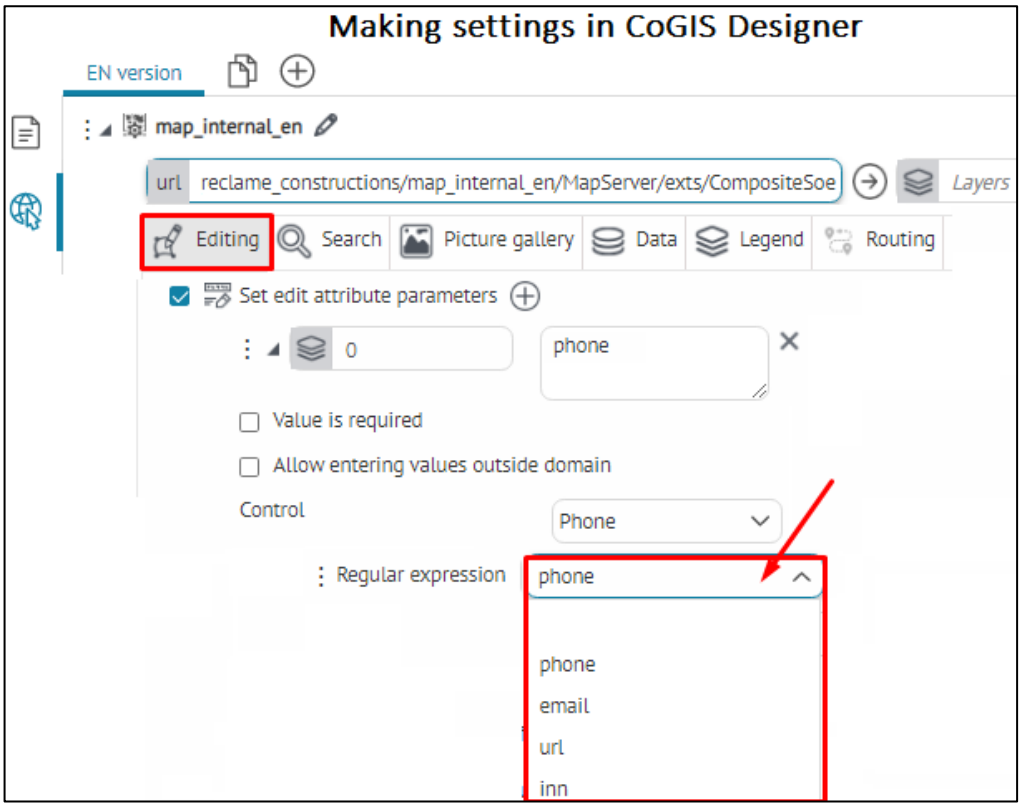

Figure 50 – Example of setting the input template for email by creating object in the Identification card

4.8. Preparing for users authorization and their accounts management

For users to be able to login on web portal and for you to be able to manage their accounts, the following is required to be done:

- Publish table with list of user accounts as map service.
- Establish connection with map service.

The table should contain the following attribute fields of specific type and length, see Table 3.

Table 3 – Table with user accounts

Attribute field name	Type	Length
OBJECTID	OID	–
Login	String	255
PasswordHash	String	255
PhoneNumber	String	8
Email	String	255

Attribute field name	Type	Length
FullName	String	255
Description	String	255
ID	String	255
IsConfirmed	SmallInteger	—
IsBlocked	SmallInteger	—

After publishing table as map service, connection to this map service needs to be established. To do so, go to *User accounts management* tab. Check *Store user information in table* option. Enter map service address and specify layer number. Note, that the map service address part should coincide with GIS server address specified in *GIS servers list* tab, as shown on Figure 51, for example.

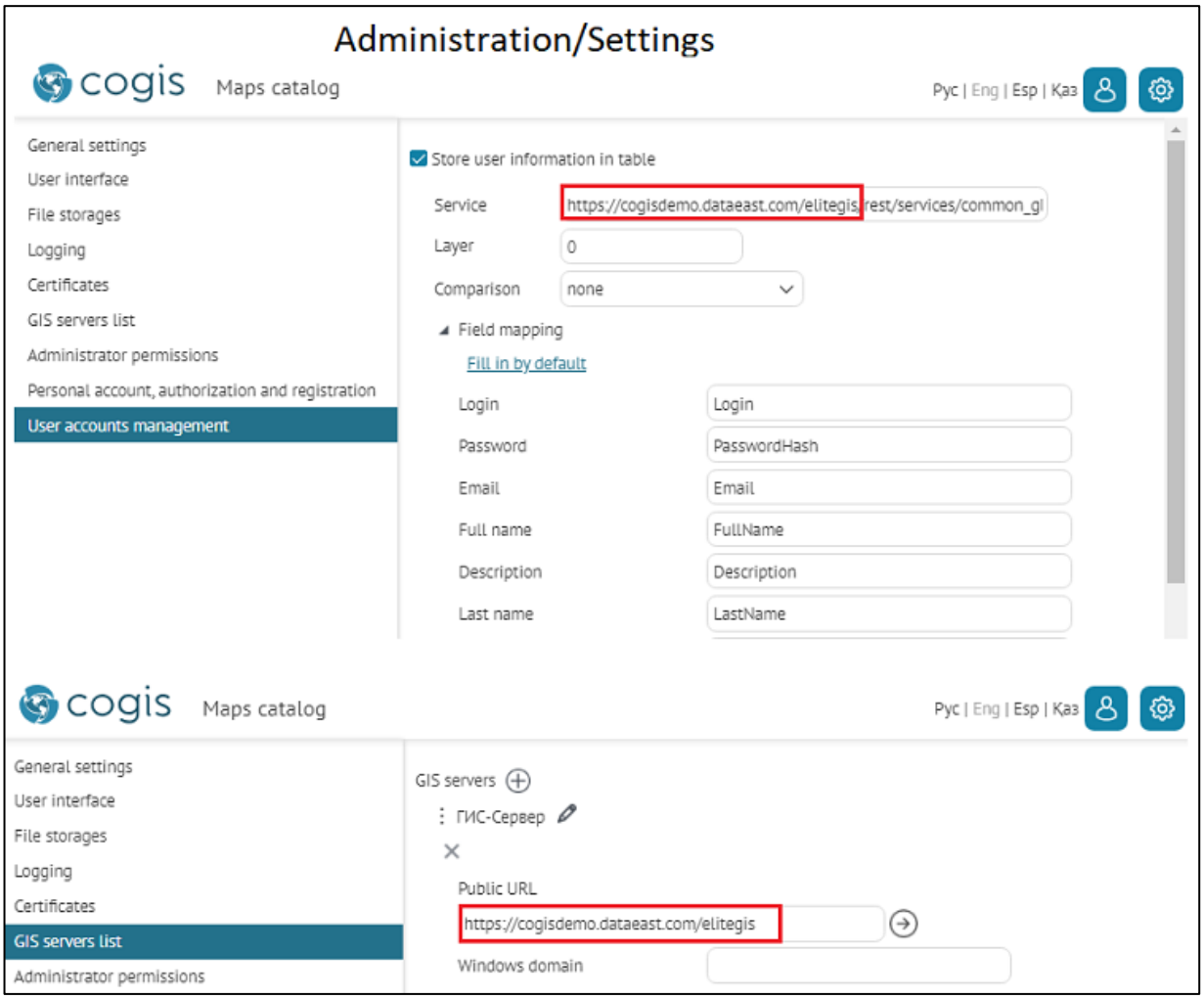

Figure 51 – Managing user accounts

One user will be able to login differently if you set multiple authorization options as described in section 4.9 below. If you need that the page for managing user accounts provided login options for the user, in *Comparison* field select parameter that will be used for user's authentication, for example, by email.

4.9.Setting users login and authorization

4.9.1. Setting users login and authorization. General information.

Authorization and registration of new users are set on *Personal account, authorization and registration* tab.

4.9.2. Setting users registration

4.9.2.1. Setting users registration. General information.

To allow users to register on web portal, check *By login/password* and *Registration* options. Using list of macros shown in Table 4 below, you can create template for registration confirmation letter.

Table 4 – Macros

Macro	Value
{Login}	Login used to register
{FullName}	Full name specified by registration
{Email}	Email
{SiteLink}	Link to CoGIS Portal
{SubmitRegistrationLink}	Email confirmation link

Figure 52 below shows example of template for registration confirmation letter.

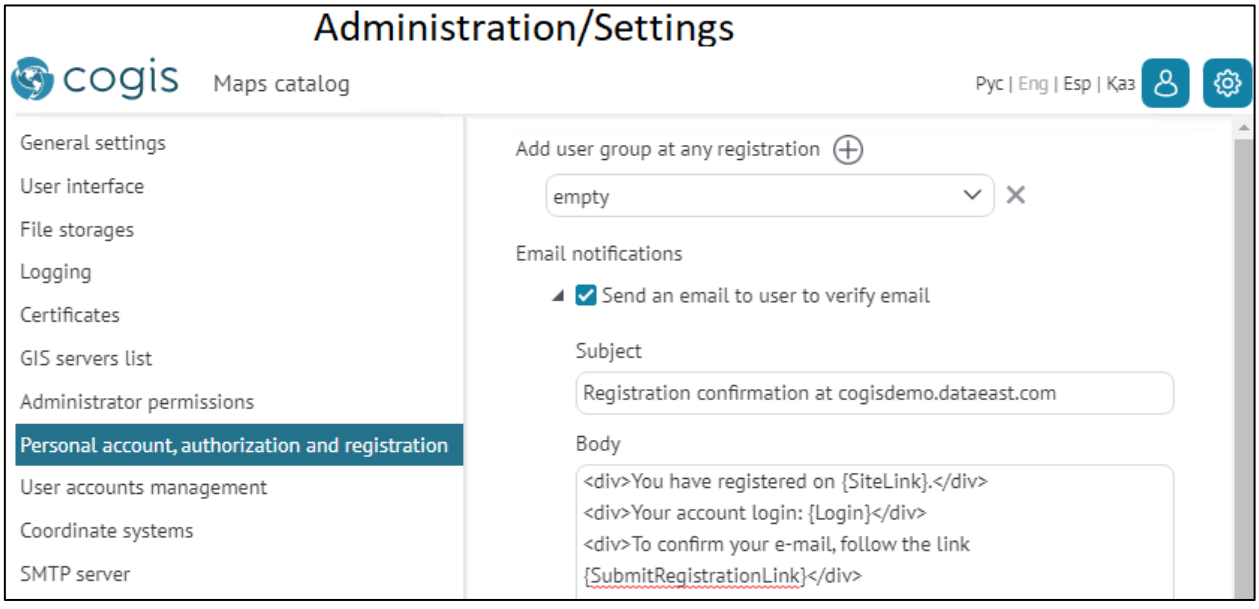

Figure 52 – Example of template for registration confirmation letter

4.9.2.2. Sending automatic letters to users

For automatic sending of registration confirmation to specified user's email, set connection parameters for SMTP server. For setting of automatic letters to registered users, go to *SMTP server* tab, see Figure 53.

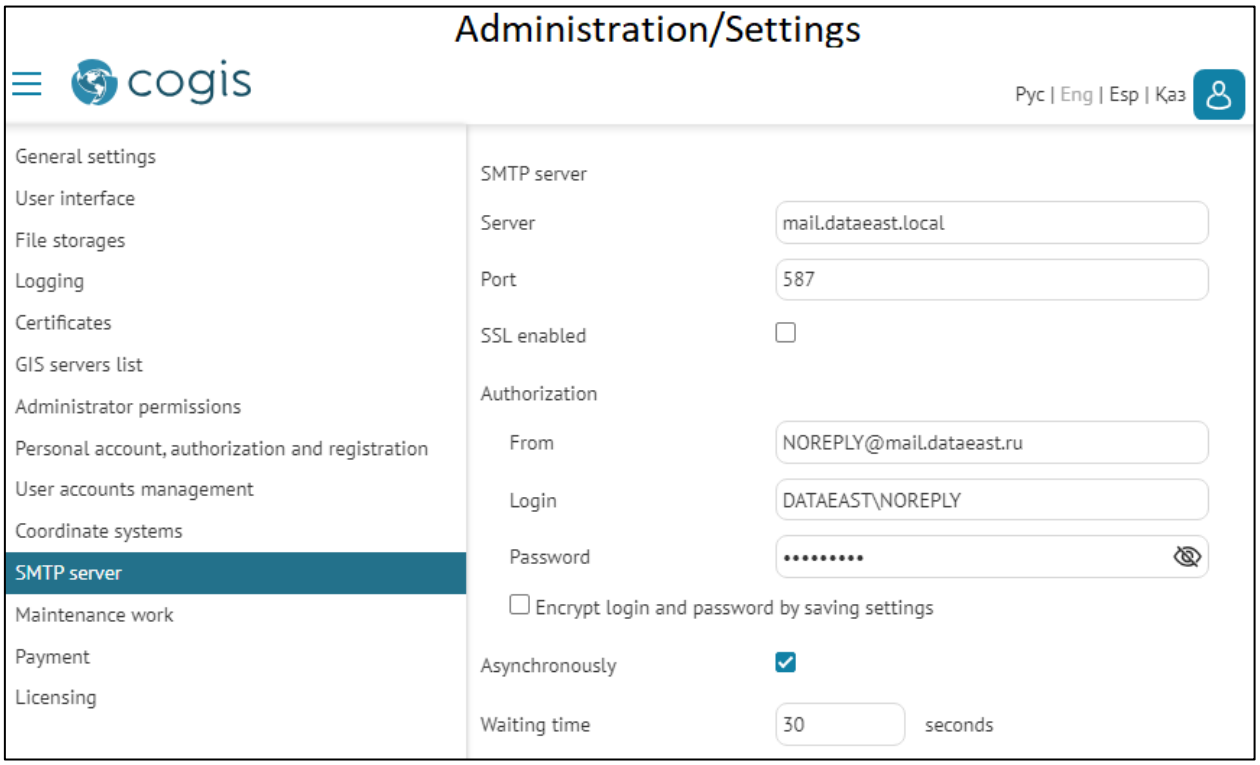

Figure 53 – Connecting to SMTP server

Enter server name, port, email, login and password. If you need that login and password used for sender's authentication would not explicitly be displayed on this tab and would not be saved, encrypt them checking *Encrypt password by saving settings* option.

Information about users registered on CoGIS Portal is transferred to GIS server.

4.9.2.3. Additional information in the registration window

If you want that in the lower part of the registration window the additional information is shown, for example, Privacy policy, go to *User interface* tab, select the required field in the *Registration window footer* section and enter text or HTML code, as shown on Figure 54 for example.

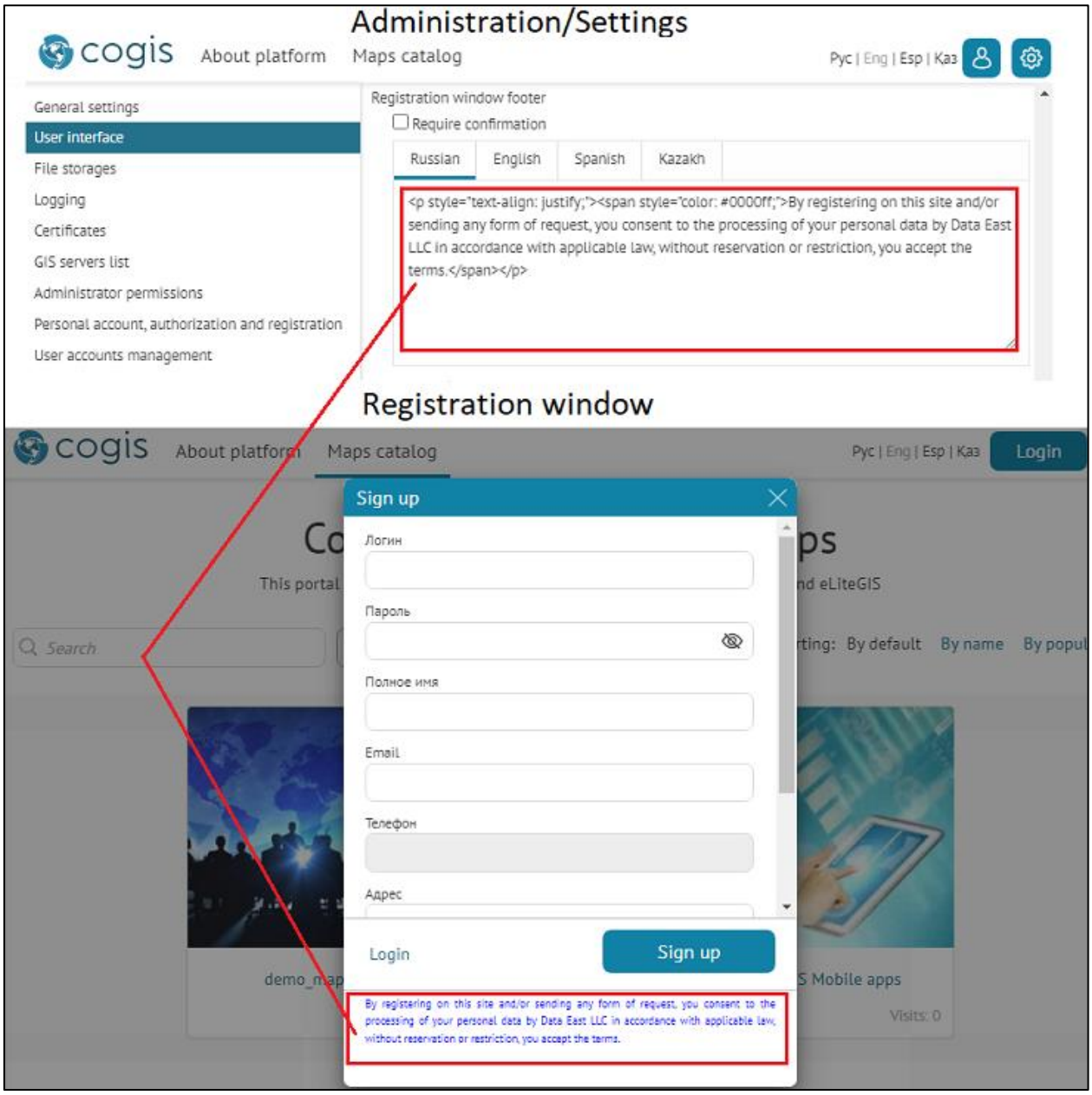

Figure 54 – Additional information in the Registration window

4.9.2.4. Registration with confirmation

If you want to get confirmation from users registering in CoGIS Portal, for example, their agreement with the privacy policy, go to *User interface* tab. In the *Registration window footer* section check *Require confirmation* option and enter the appropriate text or HTML code. In this case the user registering in CoGIS Portal will need to first read the Privacy policy text and agree with its terms, after that the *Register* button will be enabled. The settings example and *Registration* window view are shown on Figure 55.

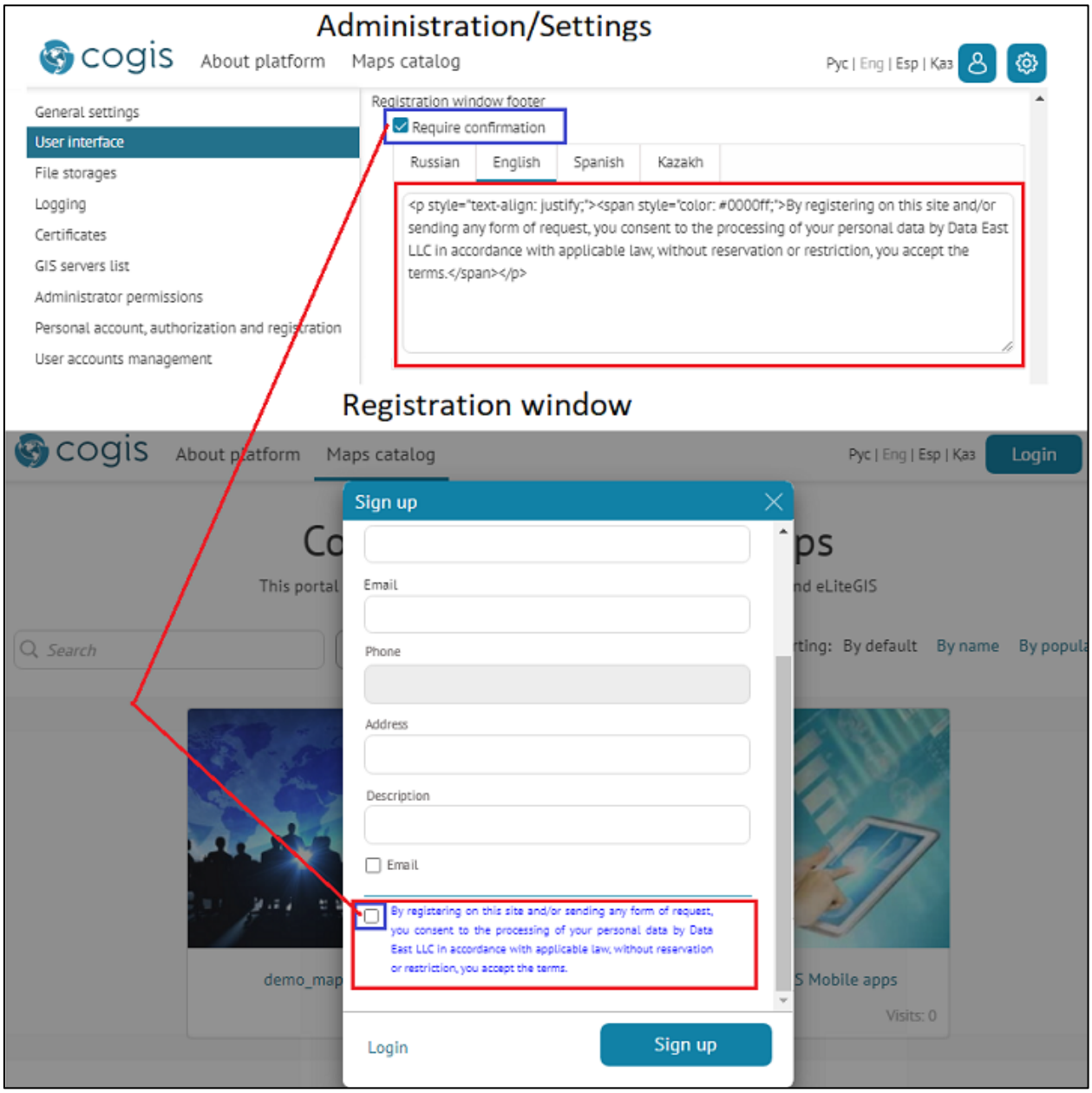

Figure 55 – Registration with confirmation

Without sending agreement to process personal data, the user will not be able to register in CoGIS Portal, as the *Register* button will be disabled.

4.9.3. Setting users authorization

4.9.3.1. Setting users authorization. General information.

You can set authorization of users registered:

- on GIS server, to do so, check *By login/password* option.
- via social networks, to do so, select network in the list and enter requested parameters.

4.9.3.2. Setting users authorization via social networks

For setting users via social networks select social network from the provided list and enter the requested parameters.

- Facebook

Enter the application ID to *app_id* field. The app ID can be obtained at https://developers.facebook.com/. Go to the website, login or authorize. Go to *My applications* and select *Add new application.* Fill in the form shown on Figure 56.

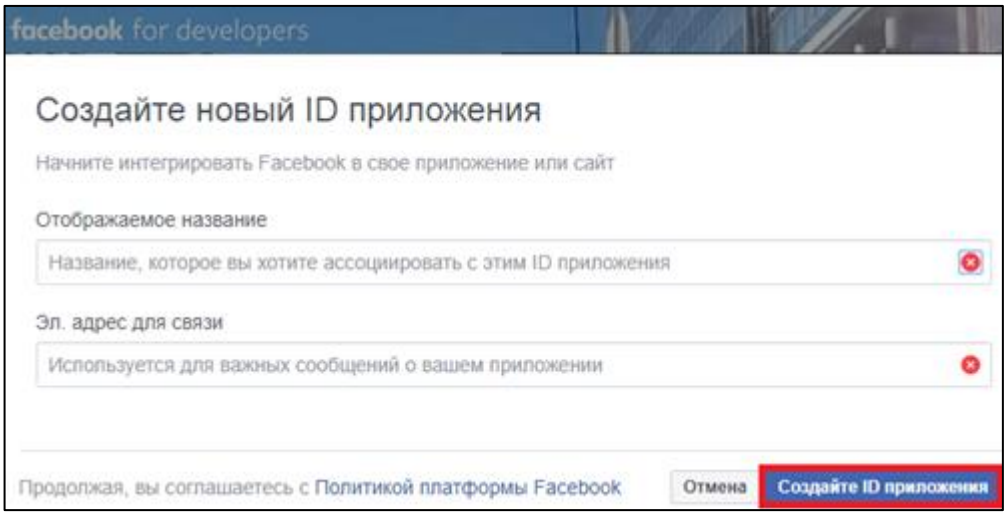

Figure 56 – Creating application ID

Press *Create application ID*, after that the app ID will be shown on the page, see example on Figure 57. This value should be entered to *app_id* field.

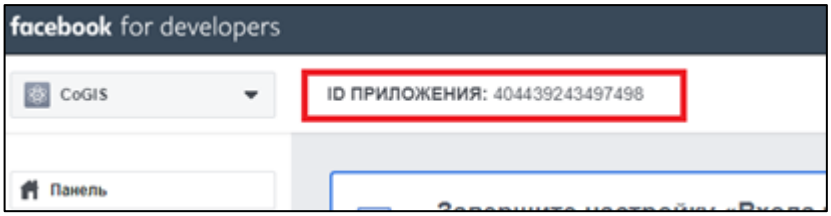

Figure 57 – Application ID

- Instagram

For setting authorization via Instagram, enter Client ID and Client Secret values to *api_key* and *clientSecret*, respectively. To obtain these values, go to https://www.instagram.com/developer. Sing in or authorize. Go to *Manage Clients* and select *Register a New Client*. Fill in the form and after that you will get Client ID and Client Secret.

Setting authorization parameters via other social networks is done the same way.

4.9.3.3. Additional information. Authorization window footer.

In the lower part of the authorization window you can locate any additional information. To do so, go to *User interface* tab, select the required field in the *Authorization window footer* and enter the text or HTML code, as shown on Figure 58, for example.

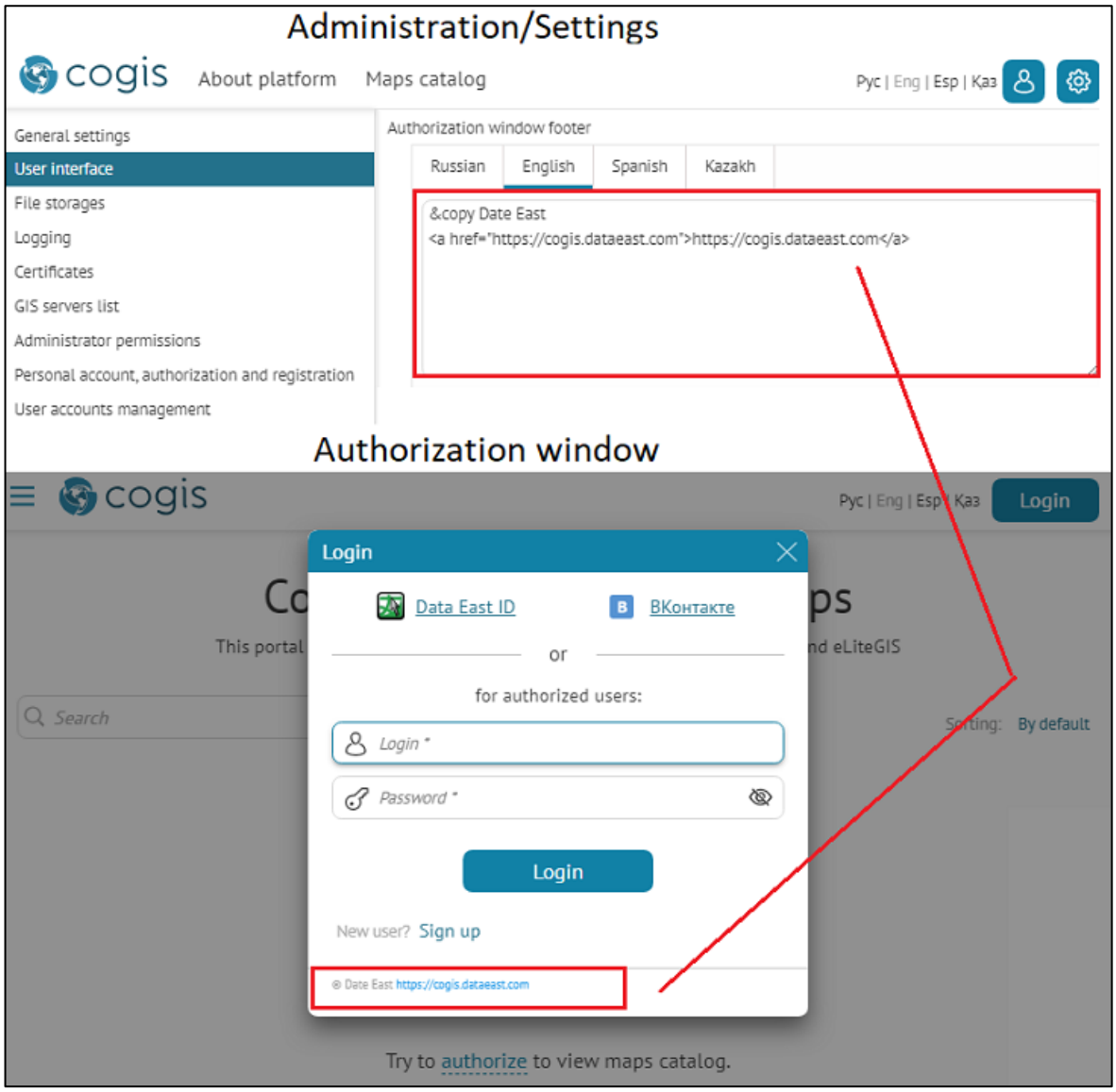

Figure 58 – Additional information in the authorization window

4.10. Personal account

The view of the *Personal account* window is shown on Figure 59.

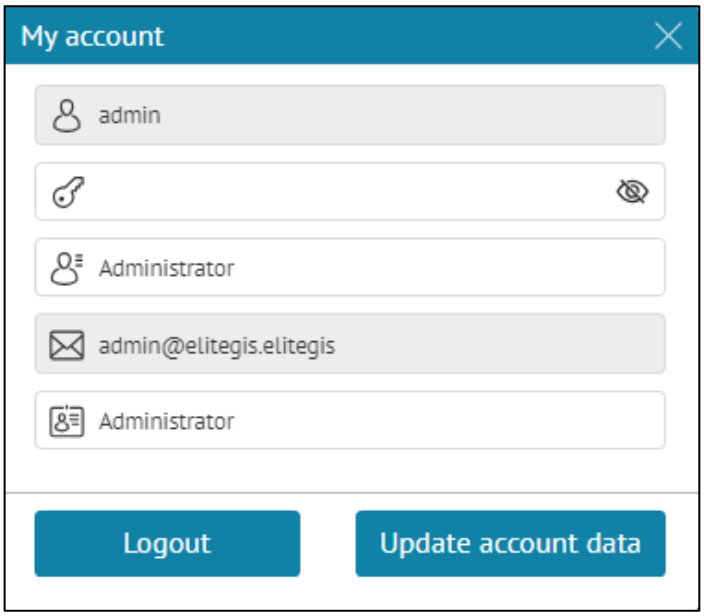

Figure 59 – Personal account window

In the lower part of the personal account window you can locate any additional information, for example, the copyright sign. To do so, go to *User interface* tab, select the required field in the *Personal account window* footer and enter the text or HTML code, as shown on Figure 60, for example.

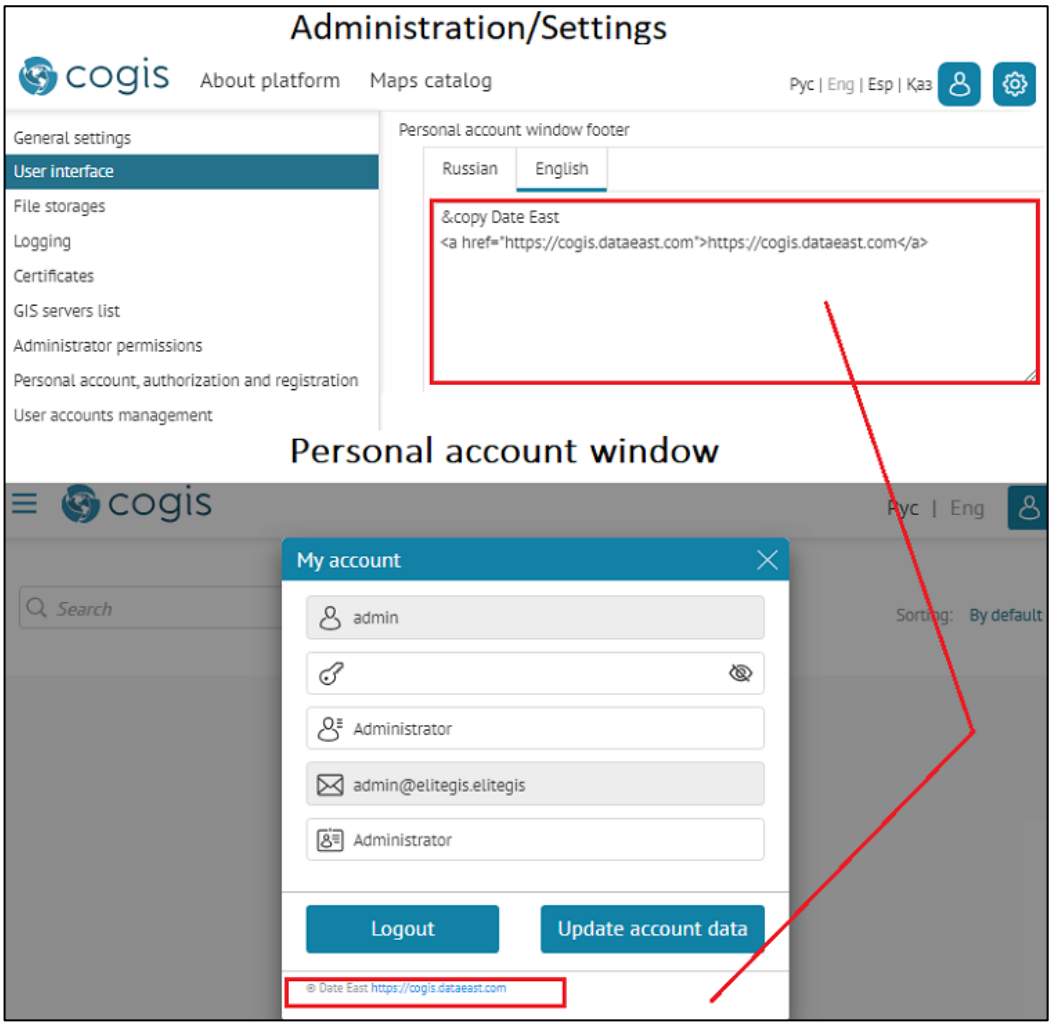

Figure 60 – Additional information in the Personal account window

In order to set additional items of your personal account, go to *Settings/ User accounts management* and specify the required parameters. The sample of additional settings is shown on Figure 61 and Figure 62.

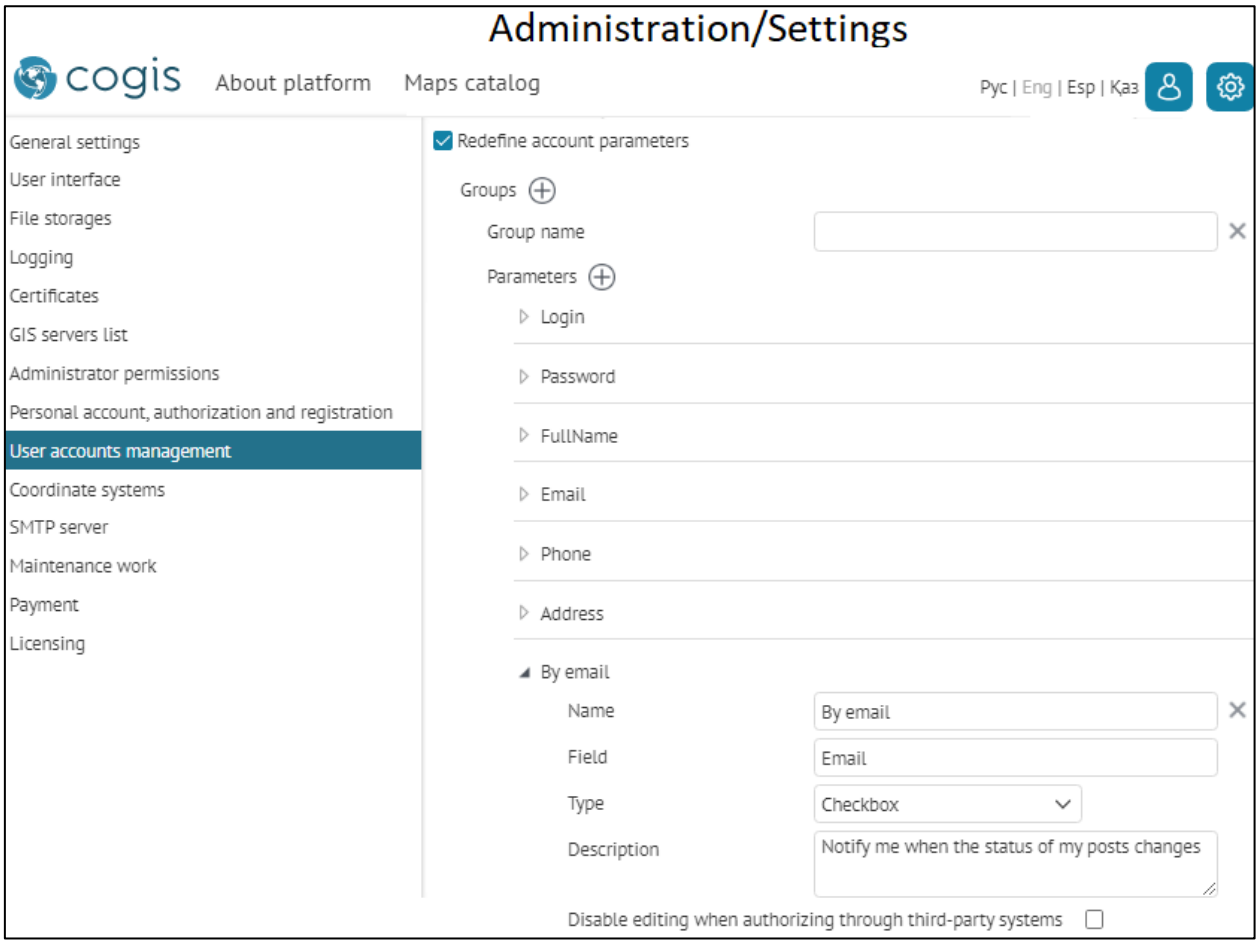

Figure 61 – Setting additional parameters of personal account

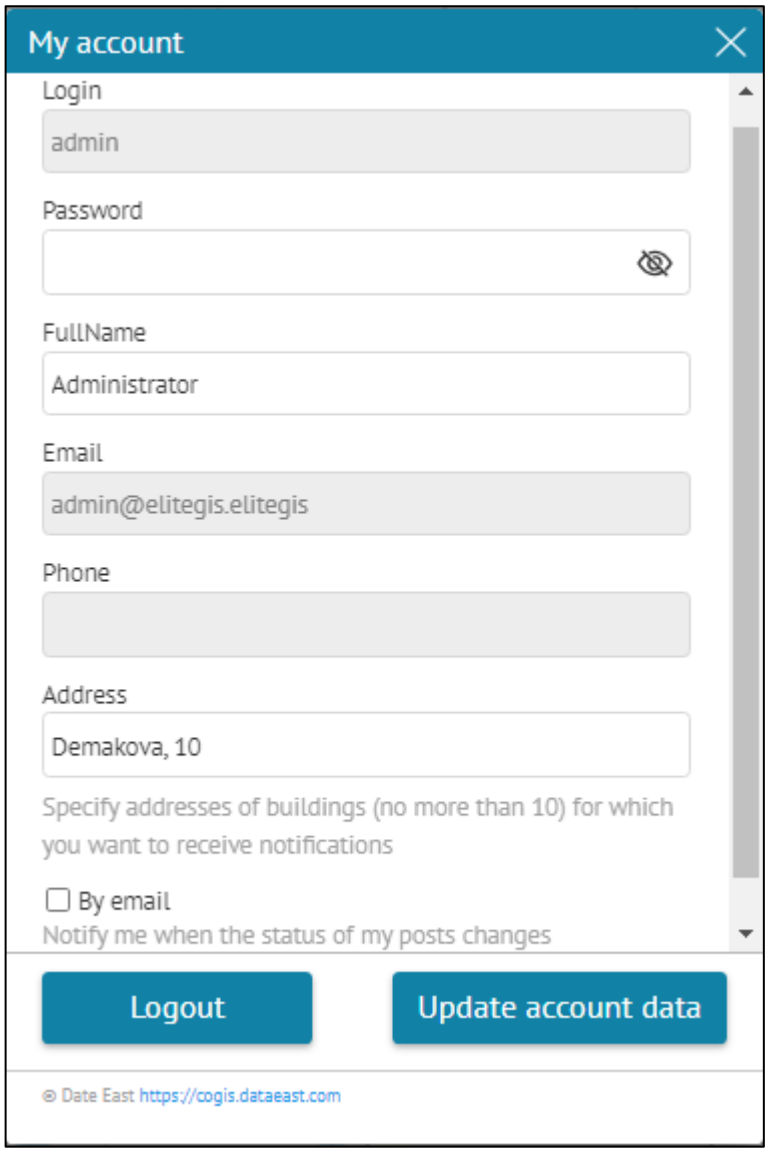

Figure 62 – Additional information

4.11. Maintenance works

During maintence works it is recommended to disable access to *Maps catalog* content and other CoGIS Portal elements for users. In the *Maintenance work* tab create the appropriate message about current maintenance works to be displayed when users will try to open *Maps catalog* content and other CoGIS Portal pages.

To explain reasons of maintenance works to other user, enter the maintenance works name in the *Name* field that will be shown on the current tab only.

Enter the maintenance works name and description, check *Active* option. After saving settings the message *This mode is active now* will appear. All web portal elements will be hidden for users. The Maps catalog and other CoGIS Portal pages will display only the message you have created, for example, as shown on Figure 63.

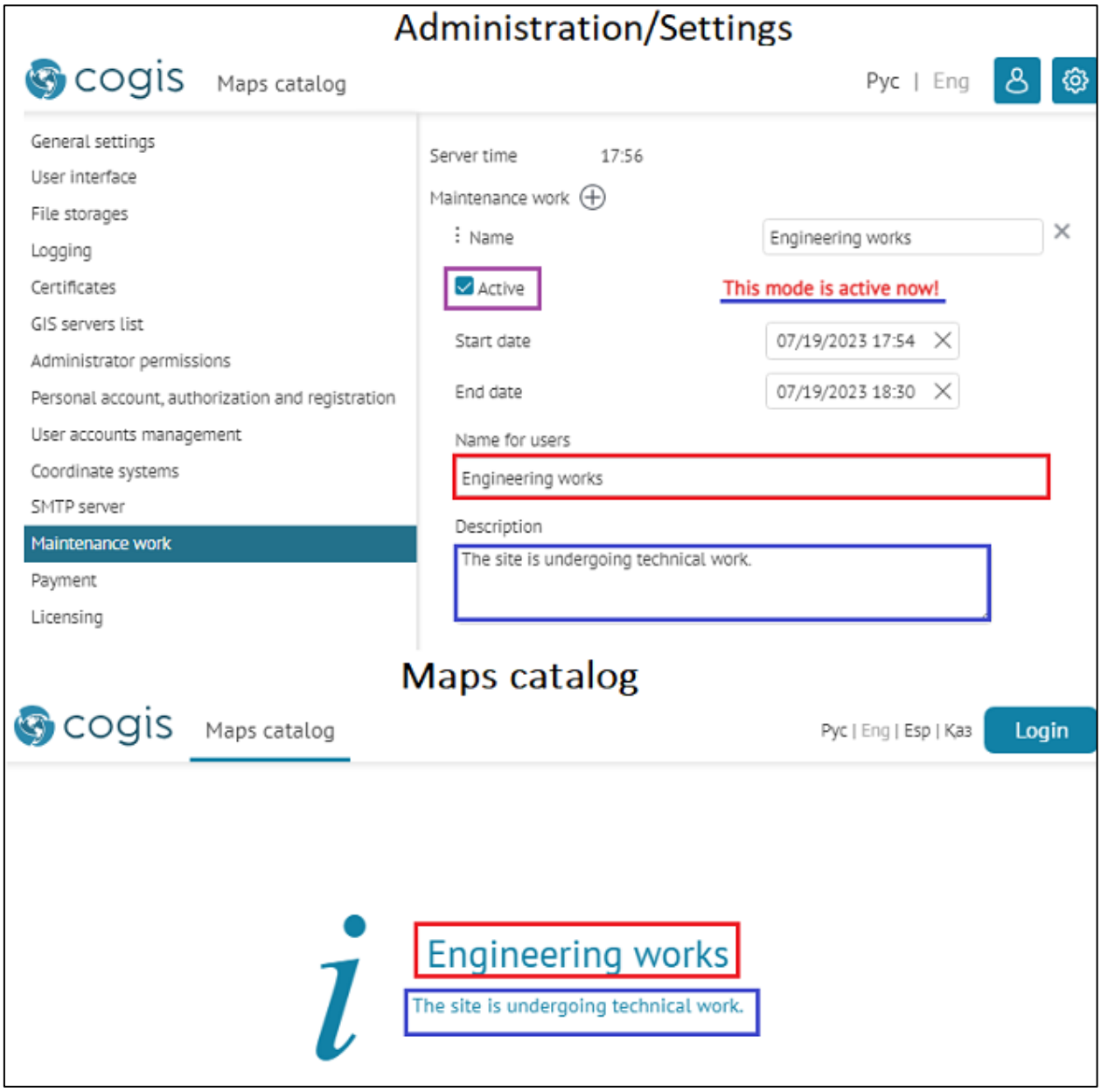

Figure 63 – Preparing for maintenance works

If you know the planned date or time of maintenance works start and end, you can enter this data in the appropriate fields as shown on Figure 64. Please note that server time should be set here. At set time in Maps catalog and on elements Internet pages the message with maintenance works name and description will appear and will be displayed there until the works completion.

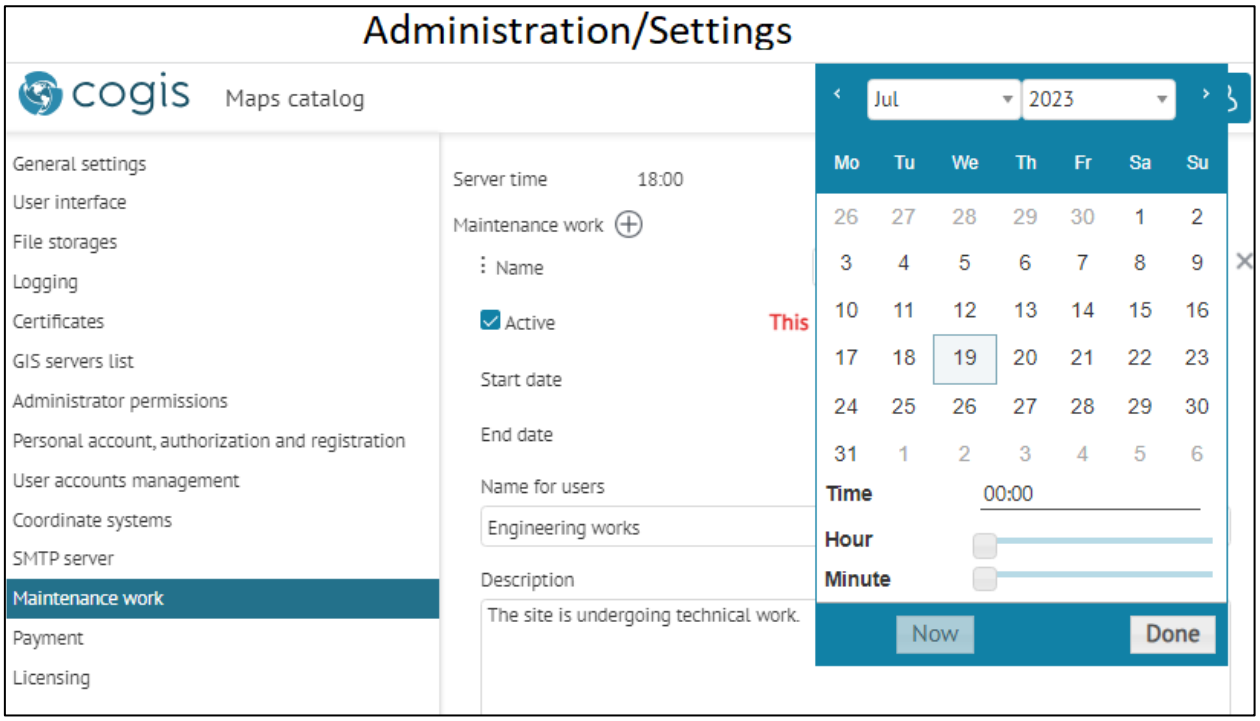

Figure 64 – Setting maintenance works start and finish dates

4.12. Licensing

In *General settings* go to *Licensing* section provided for viewing and activating license, see example on Figure 65. To activate the license, administrator should authorize, press *Activate license* button and enter the activation key or multiline license code.

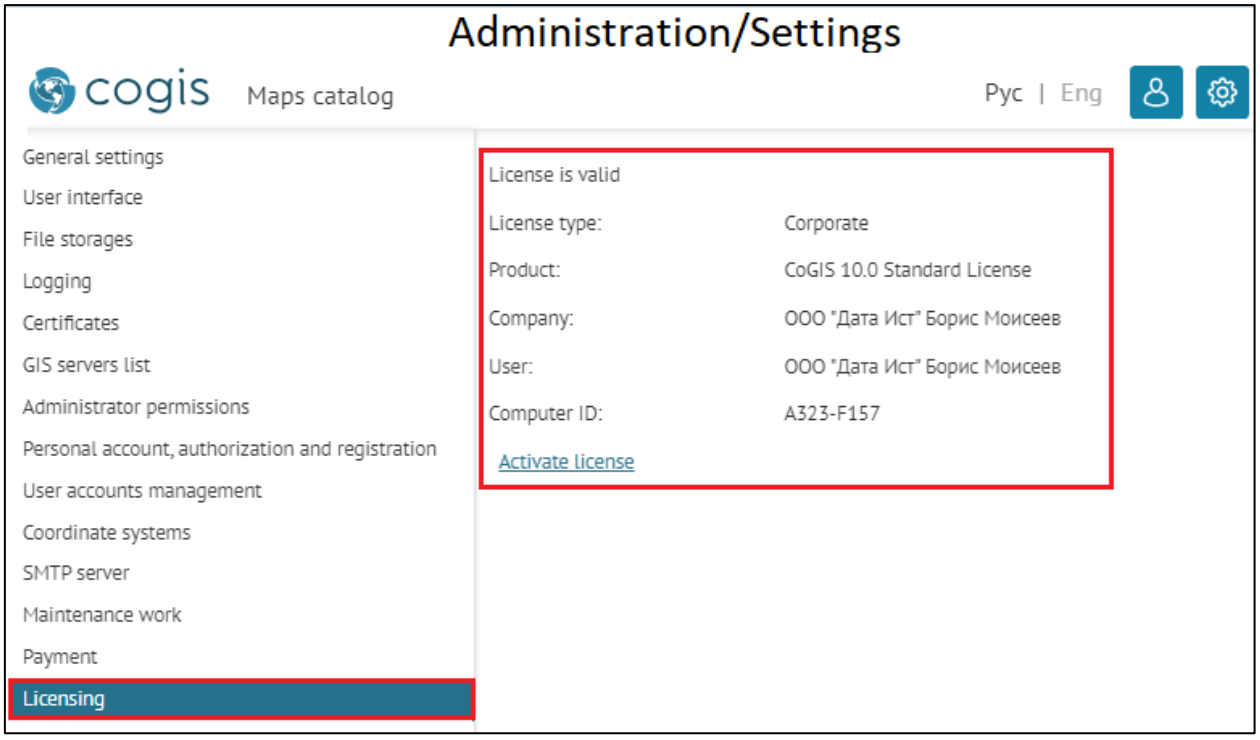

Figure 65 – Example of Licensing section with settings

4.13. Preparing for work with offline and online maps

4.13.1. Preparing for work with offline maps

For further work with offline maps you will need the folder of CMF2 files generation that is usually stored on the web server. To establish connection between the CMF2 files generation folder and CoGIS Portal, go to *File storages* tab, select *Enable support for offline maps* option shown on Figure 66, and specify path to the folder in the *Root folder path* field. Make sure that the access to folder is allowed on the web server.

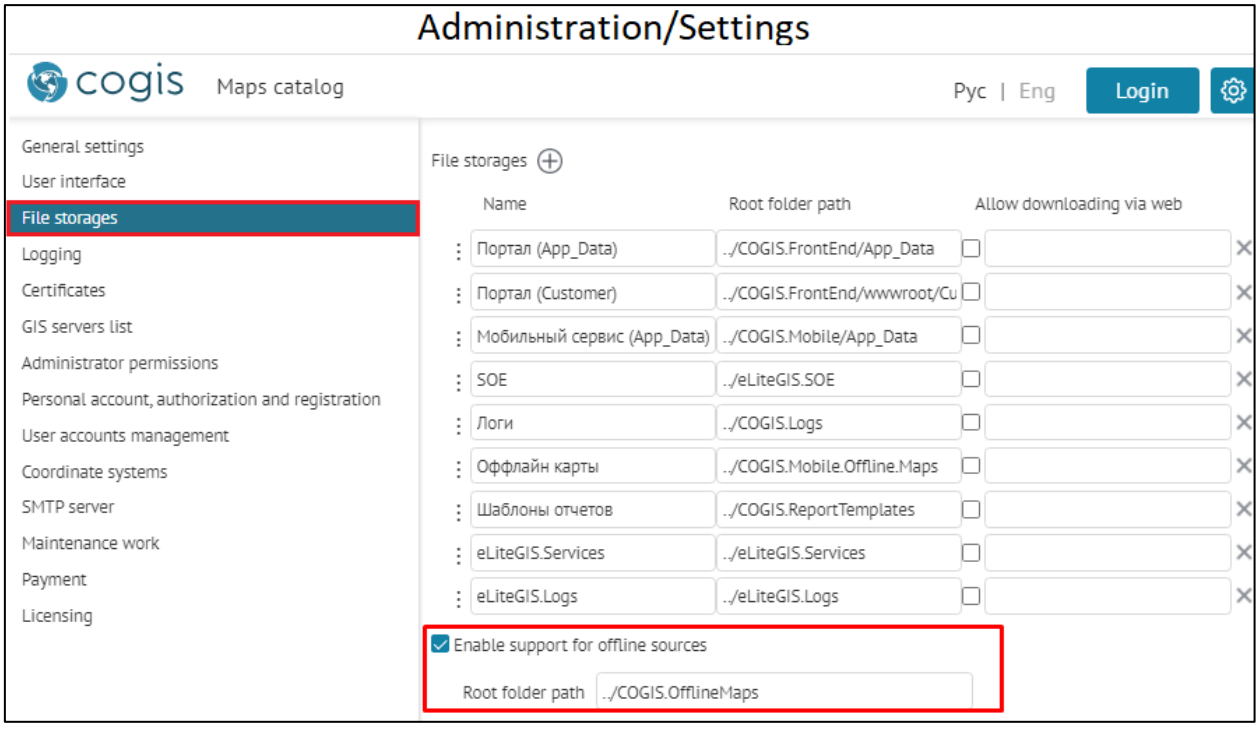

Figure 66 – Enabling support for offline maps

4.13.2. Referencing to coordinate system

For online map, you can specify settings that will allow you to view it without basemap. To be able to define objects location, you need to reference your online map to coordinate system. Specify coordinate system in the *User interface* tab in the *Coordinate systems* section. Specify ID or text representation of the coordinate system, see example on Figure 67.

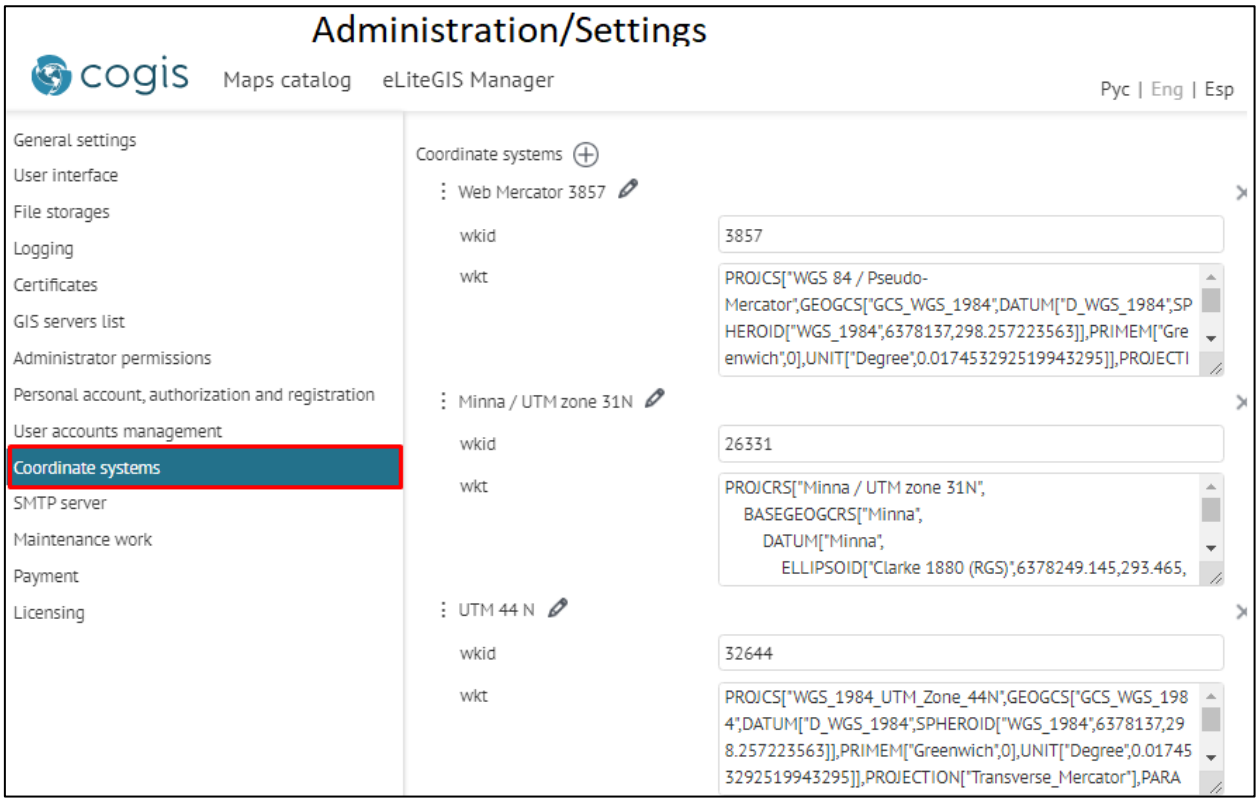

Figure 67 – Example of setting coordinate systems

4.13.3. Link to map

During work with online map, the user can share its current status with other users. For this, the link is provided that can be either client or server one.

The client link is the link generated by default which contains the following information:

- Map extent used at the moment of the link generation;
- Object's identification dialog, identification card, attribute table, if they were open at the moment of the link generation;
- Layer in the attribute table selected at the moment of the link generation.

The server link requires additional settings and has number of benefits as compared with the client link:

- It contains more information about the map;
- It is shorter;
- It is automatically highlighted.

Link to map is generated on pressing *Link to map*. By default the button *Link to map* is shown in the lower left corner of the online map, if other location is not specified in the *Buttons location on map* tab. By pressing the button the *Link to map* dialog will appear containing the client link, the *Add to Favorites* button and the field for entering the link name. The example of the link to map is shown on Figure 68.

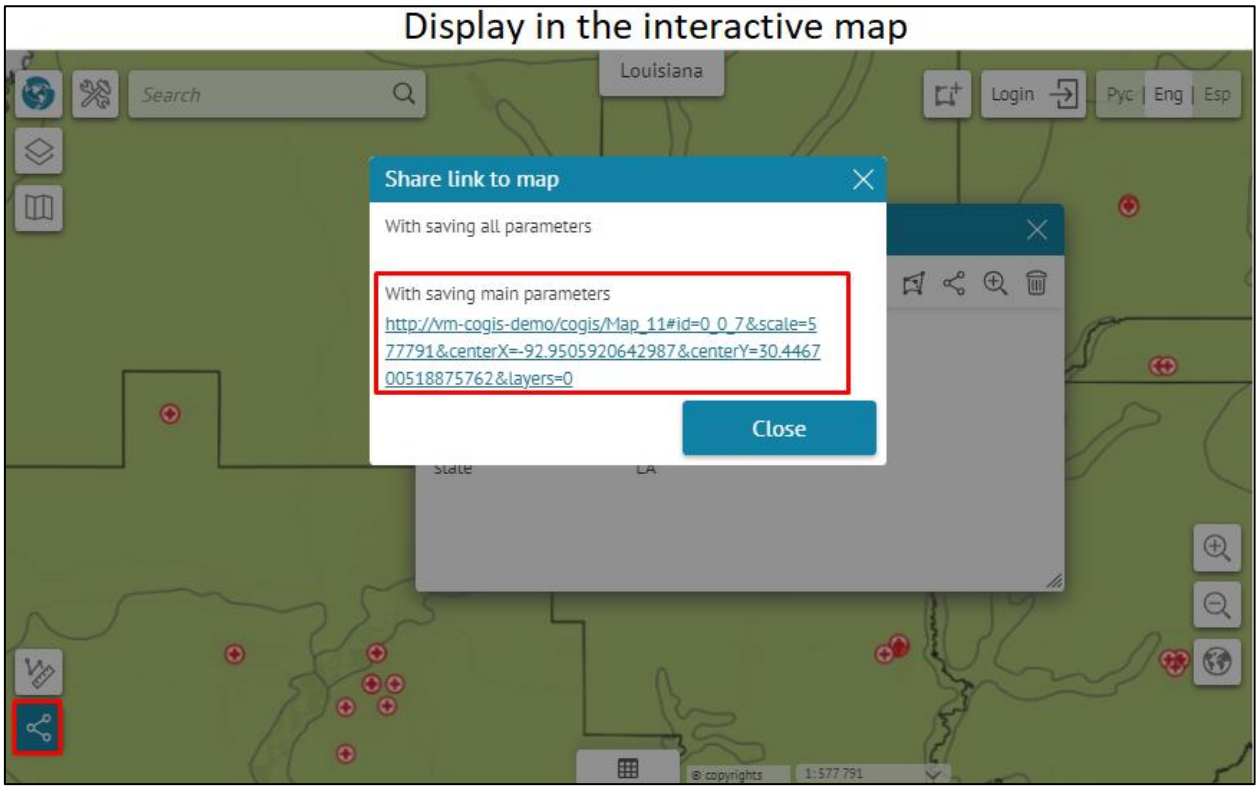

Figure 68 – Client link to map generated by default

Copy the link to share it with other users. You can also save this link to favorites by pressing the same-named button. In this case your link will be displayed in the *Favorites* window with the name you specified in the data input field. By default the link is named by the map name. The *Favorites* window is opened by pressing button. To learn how to add this button on your online map, see *Buttons location on map* section of the *CoGIS - Creating map applications* manual.

On Figure 68 above you can see that the client link looks quite bulky as it contains the list of parameters describing the current map state. In contrast to the client link, the server link looks much shorter, see Figure 69.

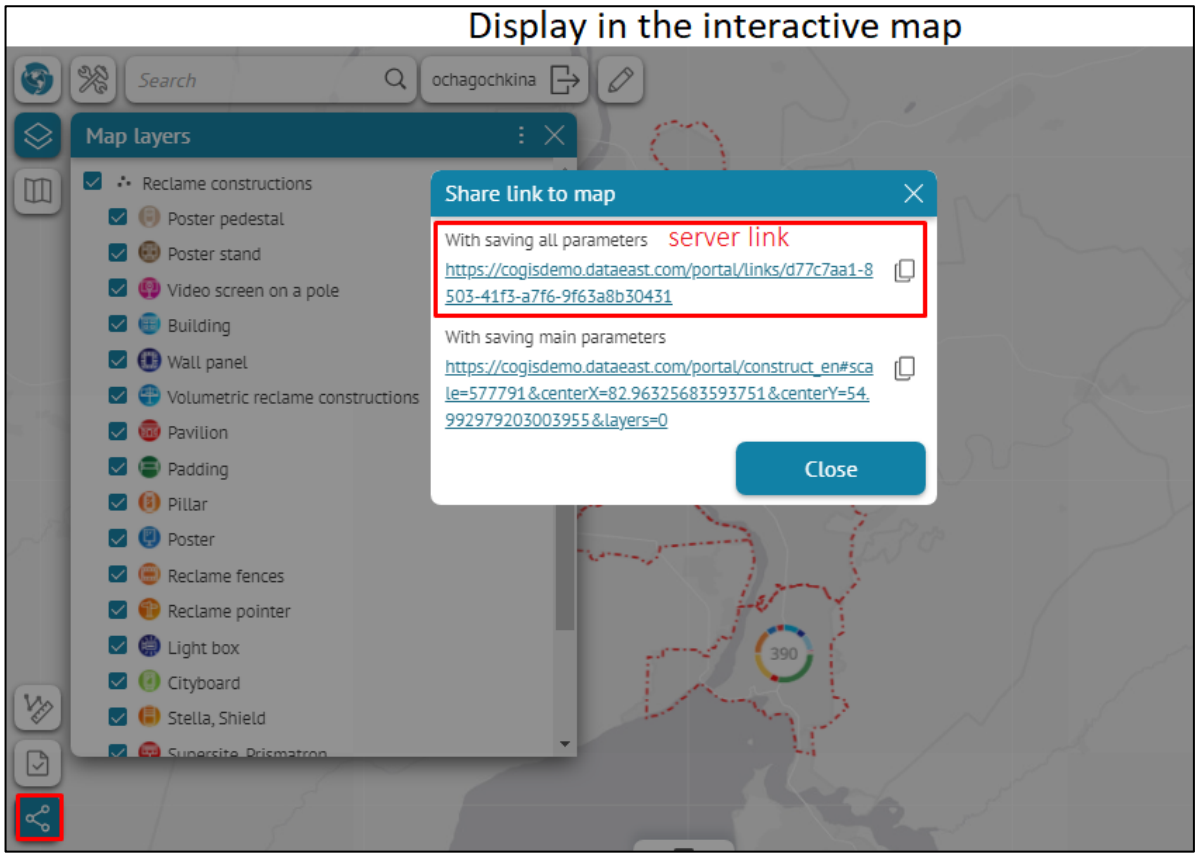

Figure 69 – Server link to map

If you want that by pressing *Link to map* button the server link to your online map is generated, the following needs to be done:

- Create the table with list of parameters describing the current map state;
- Publish this table as the map service;
- Establish connection to map service.

The table should contain the following attribute fields, see Table 5.

Table 5 – Parameters describing current map state for generation of server link to map

Attribute field name	Type	Length
OBJECTID	OID	—
LinkID	String	255
MapName	String	255
UserName	String	255
LinkData	String	1073741822
created_user	String	255
created_date	Date	8
last_edited_user	String	255
last_edited_date	Date	8

Publish the table as map service. After that establish connection to this service on web portal. To do so, go to Administration menu and select Settings. In the appeared settings window in the *General settings* tab establish connection to the map service. Check *Use service to store links from the 'Share link to map' tool* option and enter URL address of the map service to the *Service* field, specify layer number in the *Layer* field. Note that part of the map service address should coincide with the address of the GIS server specified in the *GIS servers list* tab, see Figure 70 for example.

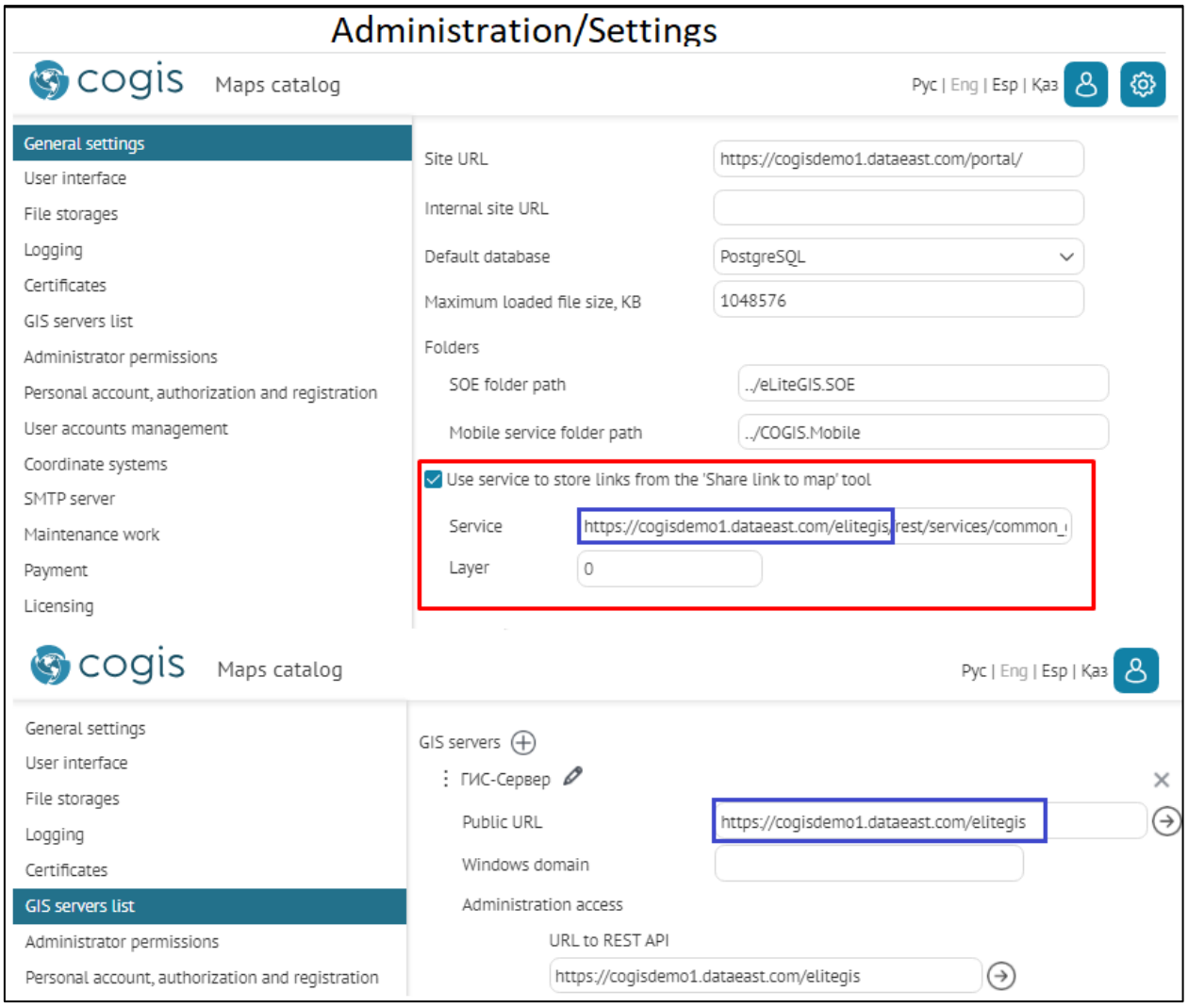

Figure 70 – Connection of service for storing links to maps

In this case the generated link will contain not the parameters list itself, but the list ID, which results in the link shortening.

Besides the current map extent, the object's identification dialog, the identification card, and the attribute table layer opened at the moment of the link generation, the server link contains the following data:

- Selected basemap and specified transparency value, if the *Basemap* window was opened at the moment of the link generation;
- Visibility of layers in the *Legend* window, specified at the moment of the link generation;
- The Tab selected in the *Identification dialog* at the moment of the link generation;
- Attribute table with sorting specified at the moment of the link generation;
- Attribute and spatial filters selected for layers at the moment of the link generation;

- Gallery of images, timeline, if they were open at the moment of the link generation;
- The Tab selected in the *Identification card* at the moment of the link generation;
- Custom layers symbology;
- Objects created by user in the current extent;
- Result of measurement performed at the moment of the link generation;
- Search request and result.

Sometimes it is needed to generate the link to map so that following this link the user could see the map with specific parameters. Link to map is created based on the following parameters, see Table 6.

Table 6 – Parameters for generating link to map

Parameter	Parameters of map application	Example
URL	URL of the map application	https://cogis.dataeast.com/portal/NSK_Zoo_New
Id onlyZoom	ID of the object to which the map will be zoomed, and which identification card will be opened (order number of the service in the map, number of layer in service and OBJECTID of the object)	id=0_10_1250269 id=!0_10_1250269 (instead of the object's identification card the object's callout will be shown) onlyZoom=true (the map will be zoomed to object, but the object's card will not be shown)
Scale	Zooming scale	scale=8000
layers	Consecutive numbers of layers of all services that need to be turned on in the legend	layers=0.5.8
centerX century coordSys	Coordinates to that the map needs to be zoomed and the coordinate system	centerX=82.89287567138673&centerY=54.98519248891578&
tableServiceUrl tableLayerId tableHeight	Parameters of the attribute table (URL of the service, number of the layer, height of the attribute table)	http://cogis.dataeast.com/portal/NSK_Zoo_New#tableServiceUrl=http://.../MapServer&tableLayerId=1 &tableHeight=42
visibleWidgets	Names of widgets that need to be opened (by name of widget specified in CoGIS Designer)	visibleWidgets=State

Parameter	Parameters of map application	Example
login	Open login form or user account	http://cogis.dataeast.com/portal /NSK_Zoo_New?login=true
auth	Open login form if user is not authorized	http://cogis.dataeast.com/portal /NSK_Zoo_New?auth=true
register	Open registration form if user is not authorized	http://cogis.dataeast.com/portal /NSK_Zoo_New?register=true
hideControls	Hide controls	http://cogis.dataeast.com/portal /NSK_Zoo_New ?hideControls=true
disablePanZoom	Disable changing map extent and scale	http://cogis.dataeast.com/portal /NSK_Zoo_New ?disablePanZoom=true
disableIdentify	Disable objects identification	http://cogis.dataeast.com/portal /NSK_Zoo_New ?disableIdentify=true

5. Setting mobile service for work of CoGIS Mobile applications

5.1. Mobile service settings

Mobile service is provided for work of mobile clients - CoGIS Mobile. To go to server's settings, select *Mobile service settings* in the *Administration* menu, see example on Figure 71.

Mobile service settings contain the following sections:

- General settings
- Logging
- GPS
- Hint
- Notifications
- Push notifications
- Editable layers
- Maps.

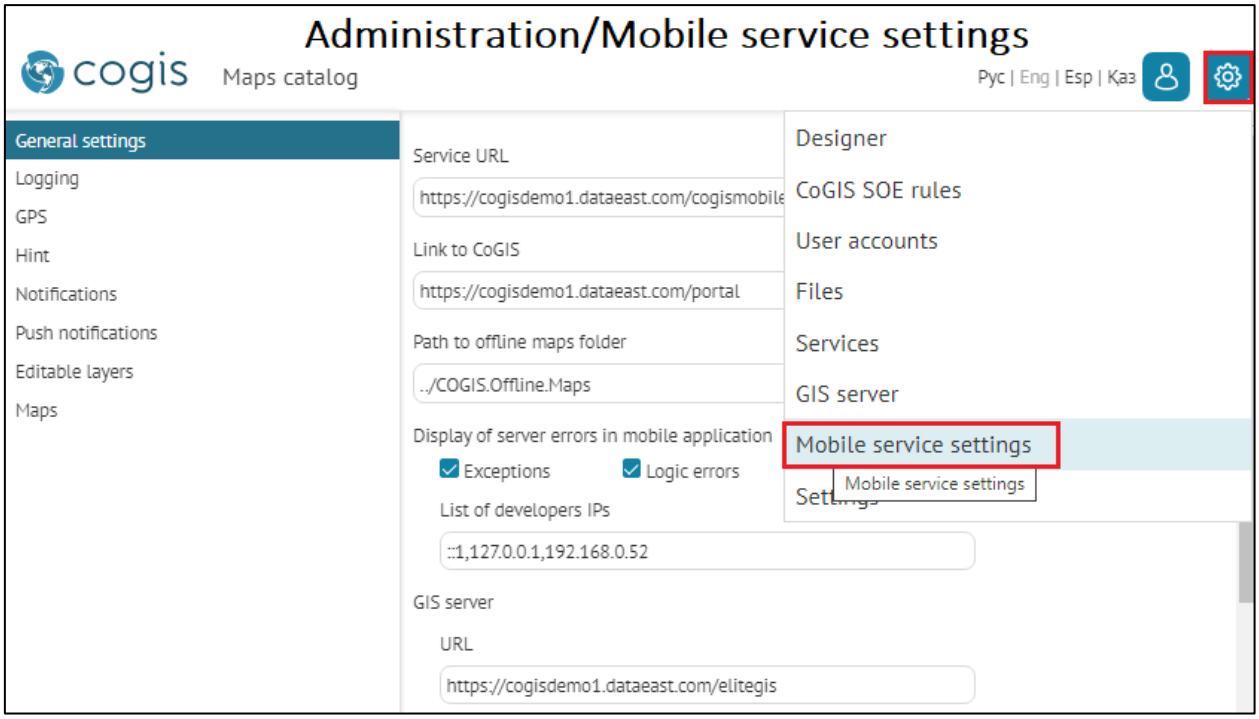

Figure 71 – Administration/Mobile service settings

5.2. Mobile service. General settings.

The view of the *General settings* window is shown below, see Figure 72.

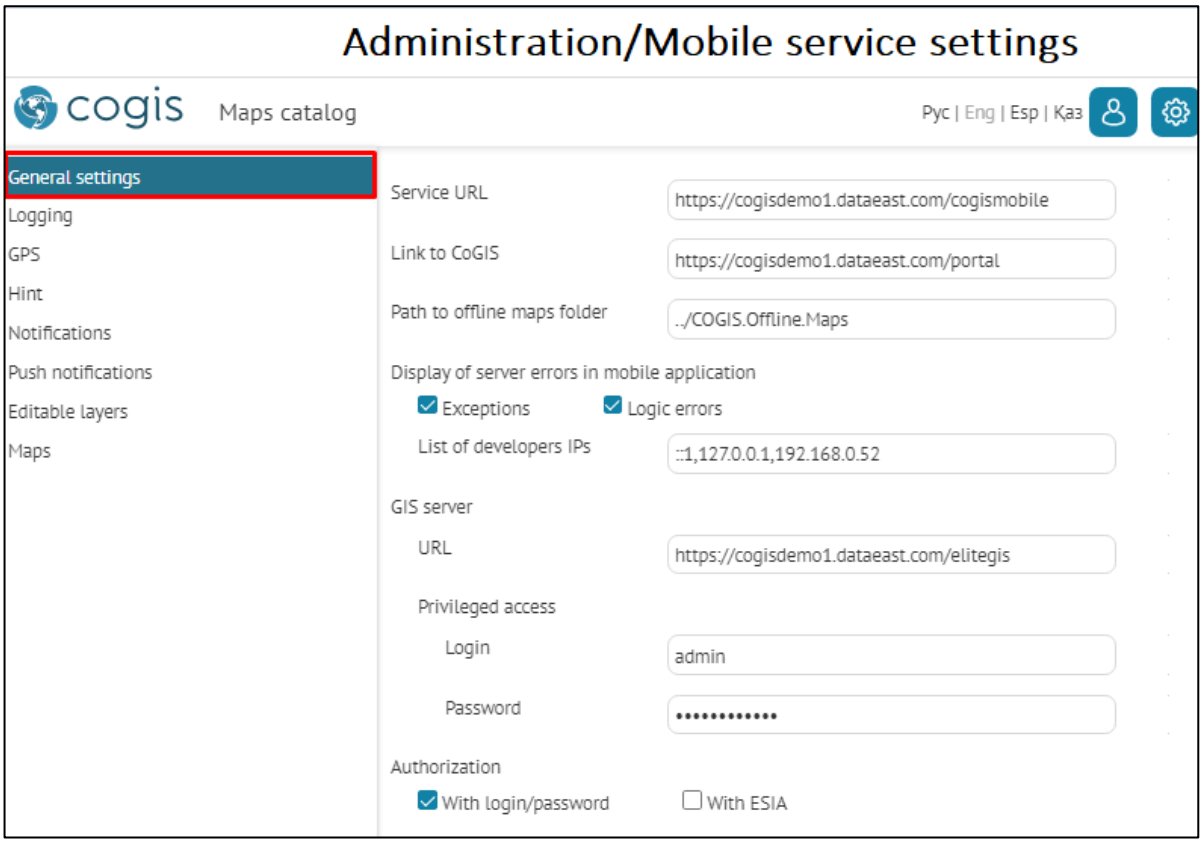

Figure 72 – General settings of mobile service

Specify link to CoGIS Portal with which the mobile client works, and path to folder with offline maps.

Specify which errors should be shown in mobile application, and list of developers' IPs, URL of GIS server, login and password for privileged access.

Specify options of authorization in mobile client.

5.3. Mobile service. Logging.

The view of the *Logging* window is shown below, see Figure 73.

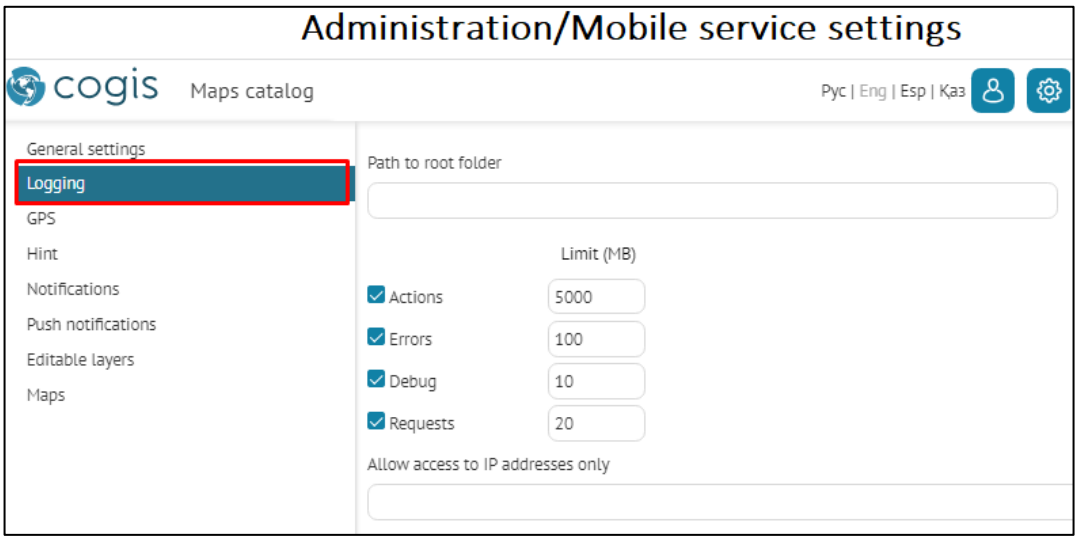

Figure 73 – Logging settings of mobile service

For logging of work of mobile service specify paths to files and maximum size of logging files.

5.4. Mobile service. GPS.

For GPS monitoring, the following parameters need to be specified, see Figure 74:

- Whether you need to store data in offline mode;
- Maximum number of points saved in offline mode;
- Minimum deviation in meters;
- Maximum number of requests to server per hour;
- Group of users for GPS monitoring;
- Restriction by device IP.

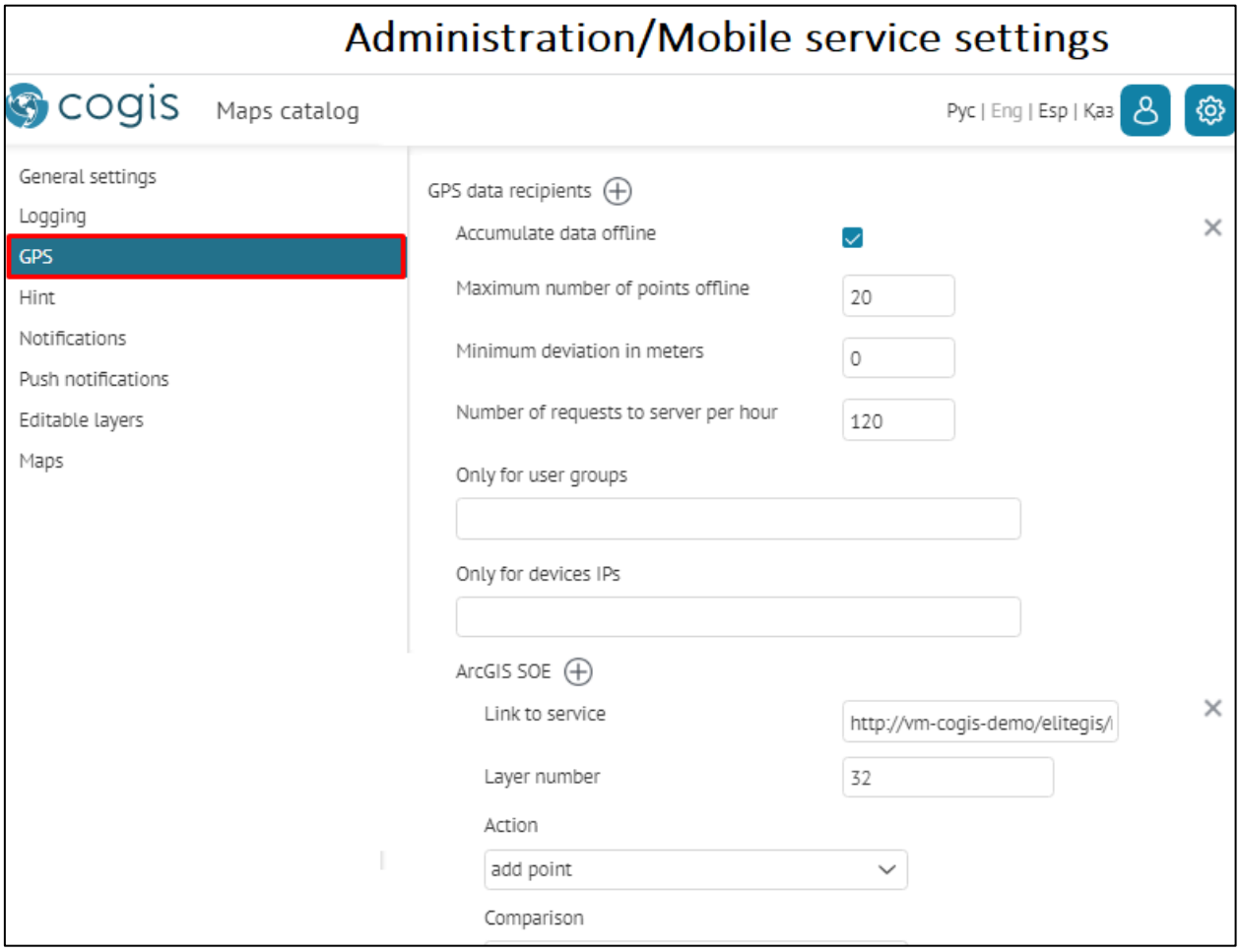

Figure 74 – GPS monitoring settings

Specify SOE link for map service, number of layer for recording results of GPS monitoring and action that needs to be done:

- Update point – the last GPS location of mobile device will be recorded;
- Add point – all locations of mobile device will be recorded;
- Add point to line – the line based on GPS locations of mobile device will be created.

Specify the required fields of map service for recording information, see Figure 75:

- Field with session ID;
- Field with user name;

- Field with data transfer date;
- Field with client date;
- Field with device ID.

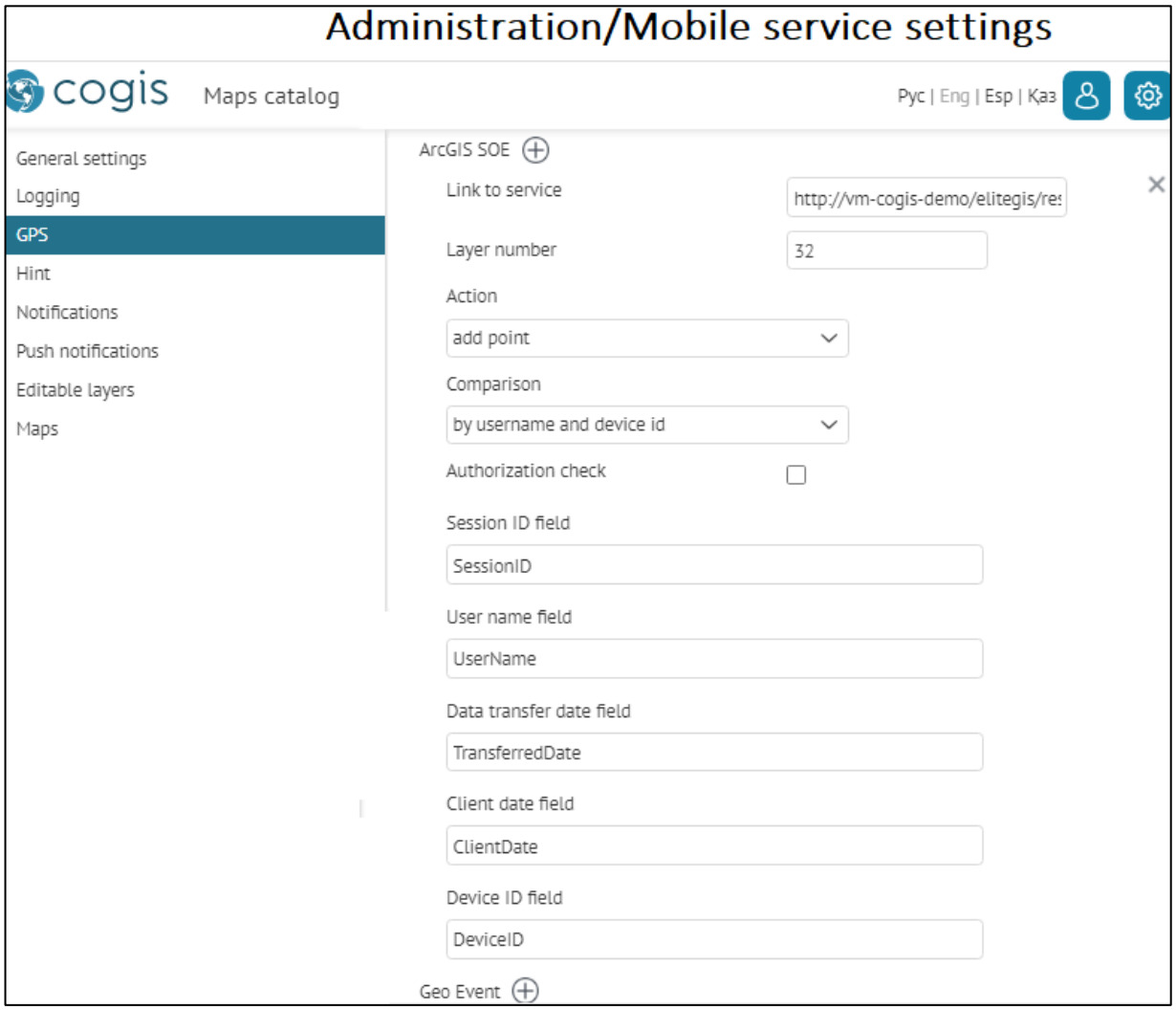

Figure 75 – SOE settings for GPS monitoring

In order to set up GPS monitoring via *GeoEvent,* specify service URL and SOAP template for GPS location data of mobile device, see Figure 76.

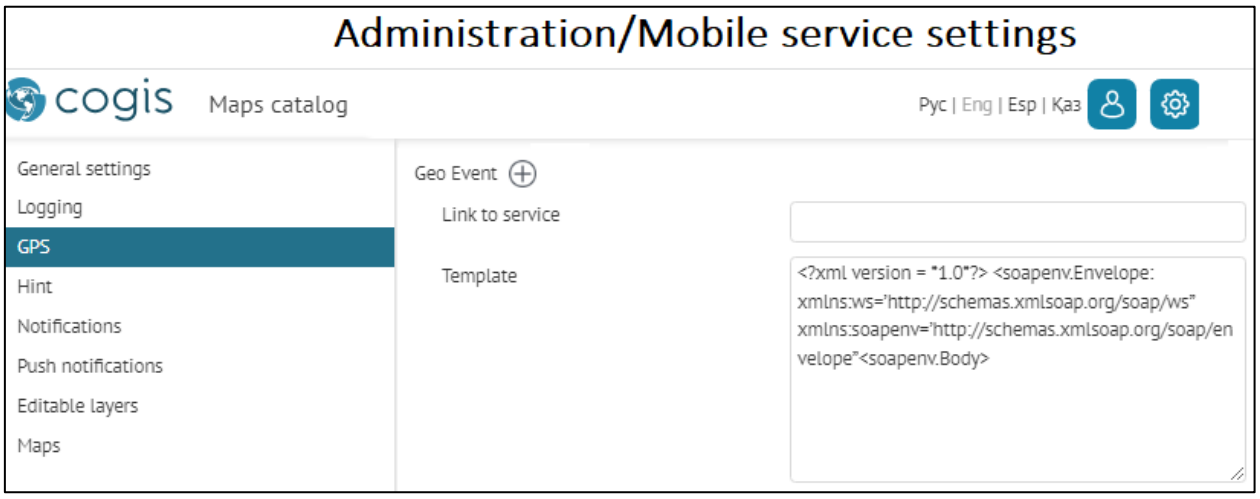

Figure 76 – Setting GeoEvent for GPS monitoring

5.5. Mobile service. Hint.

If you need to set the address prompt by geocoding service, specify *Geocode request template* and ***Reverse geocode request template***, see Figure 77.

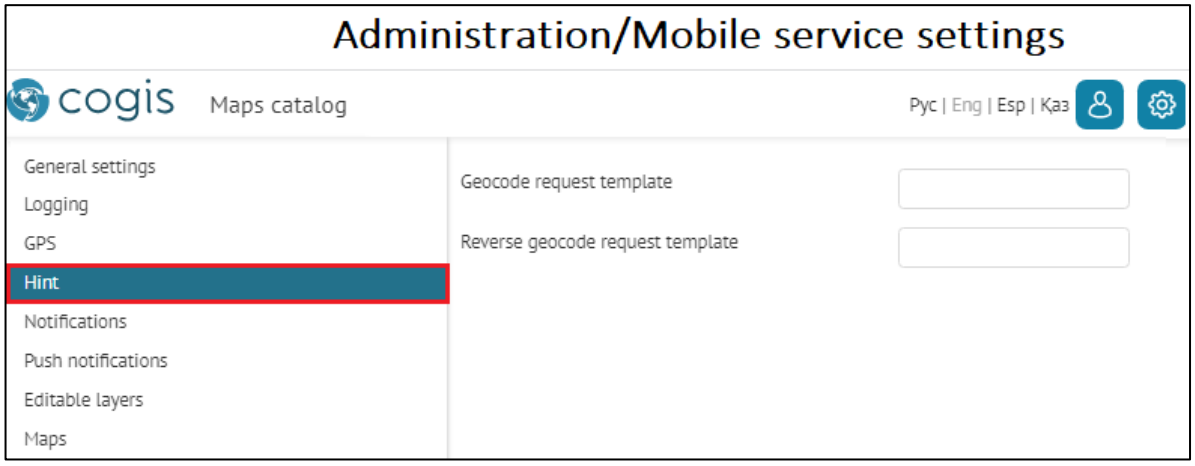

Figure 77 – Setting prompt by address

5.6. Mobile service. Notifications.

In order to enable inner notifications in mobile applications, check *Enable*, specify *Time interval in seconds,* after which the mobile application will search for available notifications. Specify map service, number of layer with notifications, and SQL filter. Specify map service and number of layer with notifications sending rules, see Figure 78.

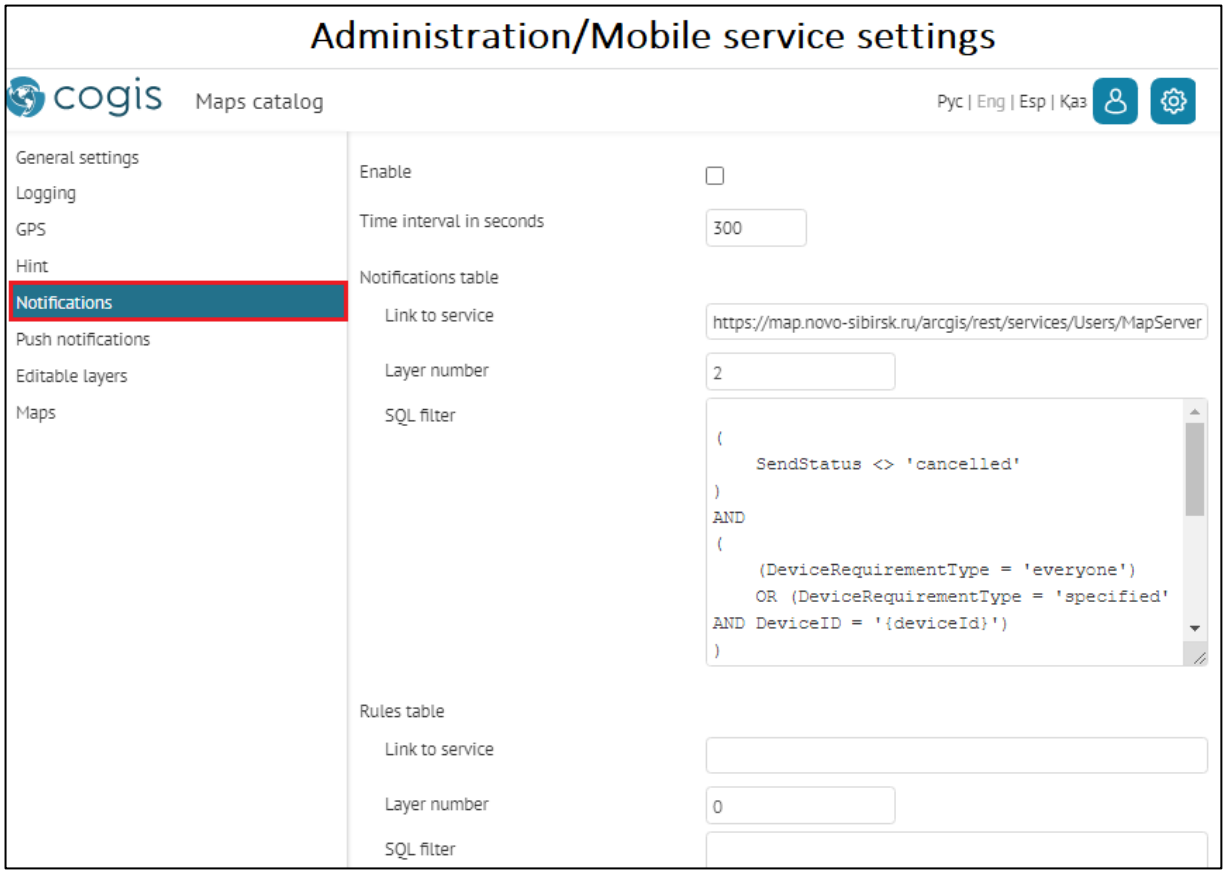

Figure 78 – Setting sending of inner notifications of mobile client

5.7.Mobile service. Push notifications.

In order to enable push notifications, check *Enable*, specify SOE for map service and number of layer for recording of push tokens, see Figure 79.

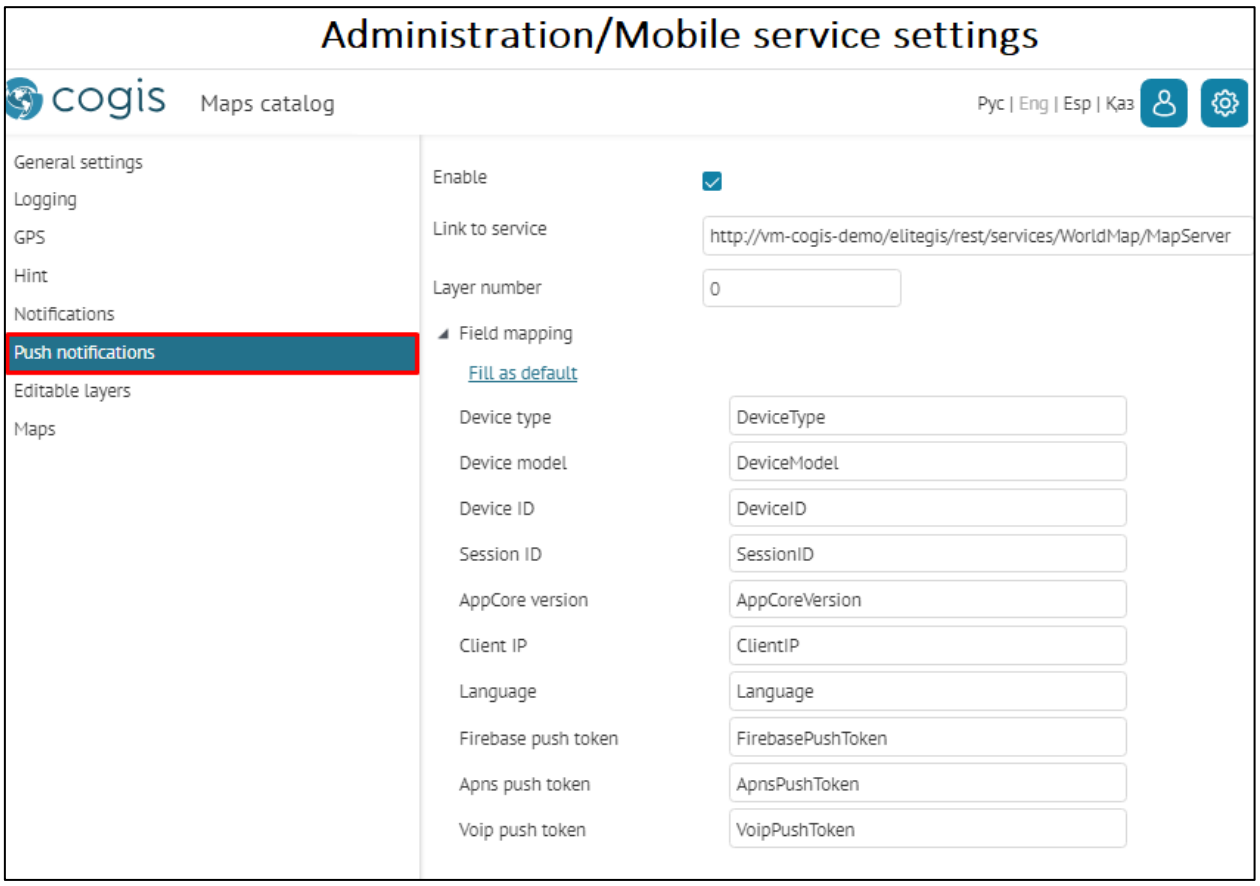

Figure 79 – Settings for sending push notifications

5.8. Mobile service. Editable layers.

Settings of web service on work with mobile applications based on CoGIS Mobile including settings for set maps and map services, are specified in the *Editable layers* tab, see example on Figure 80.

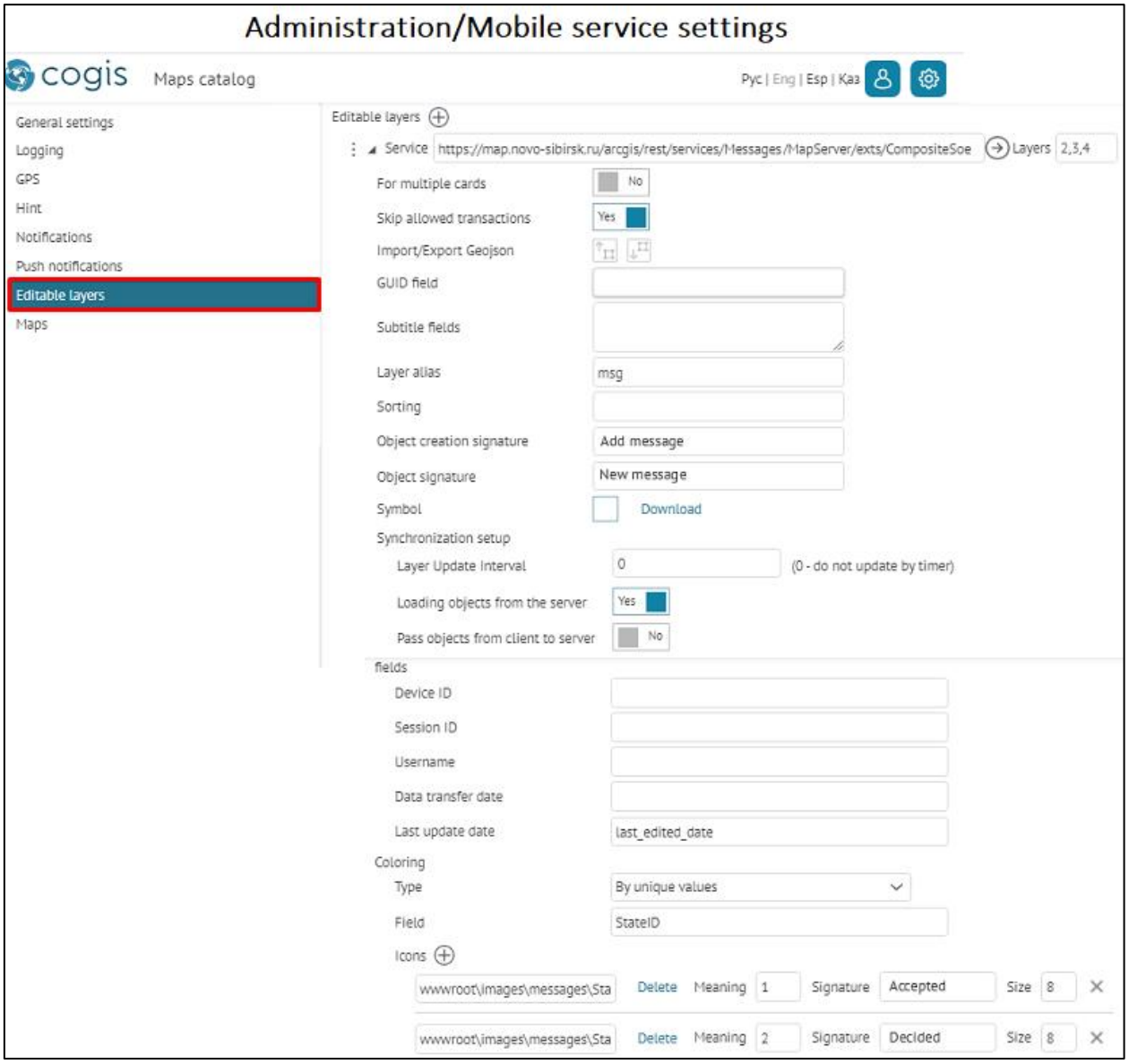

Figure 80 – Example of setting Editable layers tab in Mobile service settings section

5.9. Mobile service. Maps.

Settings of web service on work with mobile applications based on CoGIS Mobile including settings for set maps and map services, are specified in the *Maps* tab, see example Figure 81.

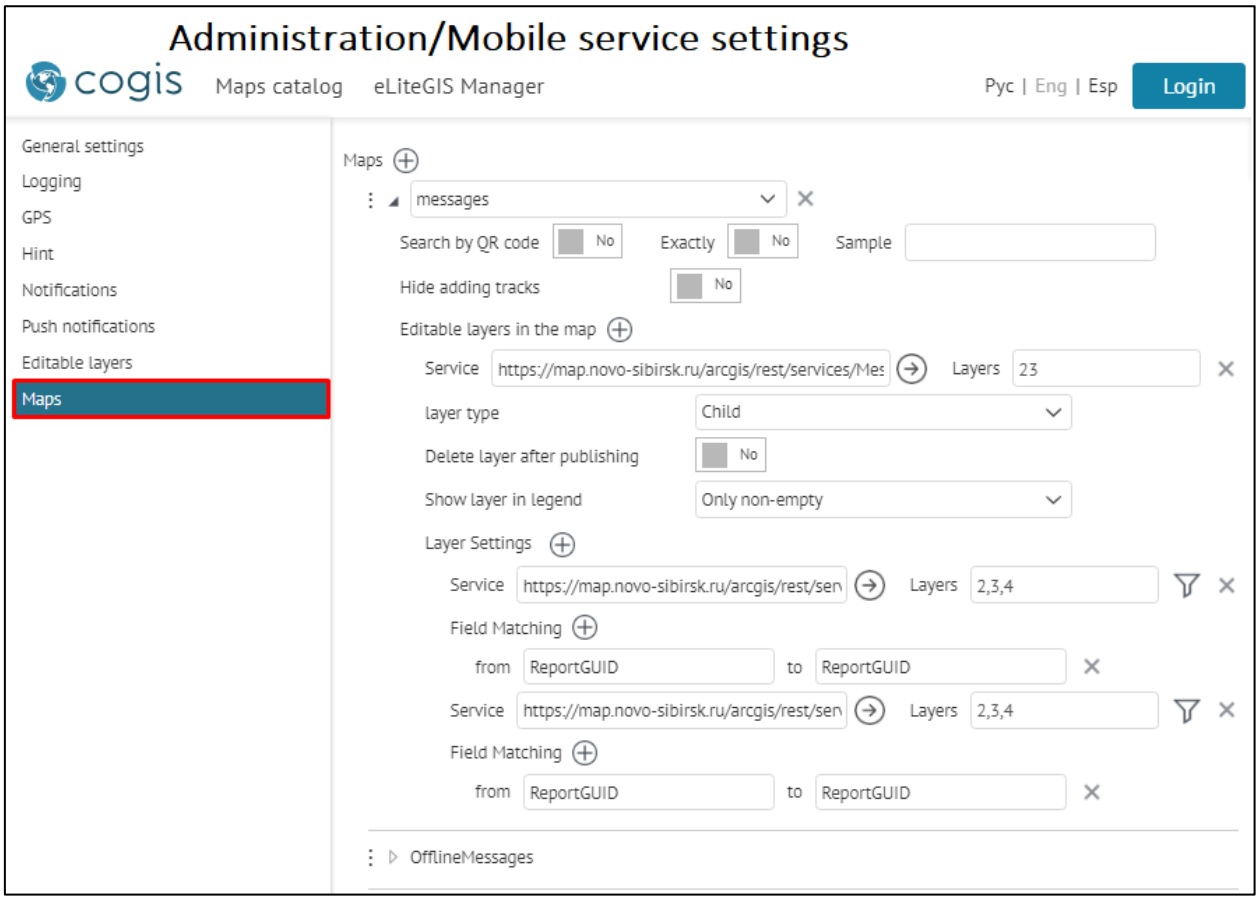

Figure 81 - Example of setting Maps tab in Mobile service settings section