# Installing and setting CoGIS

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

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# 1. Preamble

## 1.1. Platform components

CoGIS platform consists of the following software components:

- CoGIS Designer – a constructor for creation of interactive maps and fully functional web map applications based on map services, geoprocessing and analyses tools;
- CoGIS SOE (SOE, an abbreviation for Server Object Extension) – a module providing support for advanced methods to work with the map services layers and objects;
- CoGIS Portal – a geoportal consisting of catalog of published interactive maps and map apps, tools for searching and navigation, and web pages with reference information which structure and content are set in accordance with the users' needs;
- CoGIS Mobile – mobile applications for work with interactive maps and map apps on iOS and Android devices and mobile service for operation of these applications;
- eLiteGIS – a GIS server for publishing data and tools as web services.

This manual contains instructions on installing and primary setting of CoGIS Designer, CoGIS Portal, CoGIS SOE and mobile service for work of CoGIS Mobile[1] applications.

Instructions on installing and primary setting of GIS server eLiteGIS, a part of CoGIS platform, are provided in the Installing and setting eLiteGIS manual.

Complete list of instructions on work with platform components is provided in section 1.3 below.

## 1.2. System requirements

For proper work of CoGIS components on Windows OS, the following needs to be installed:

- *Internet Information Services* and/or *Internet Information Services Hostable Web Core*;
- *.Net Core 2.2* (*ASP.NET Core/.NET Core: Runtime & Hosting Bundle*).

For proper work of CoGIS on Linux OS, the web server (NGINX, for example) needs to be installed.

More details about preparing system for CoGIS installation see in sections below.

## 1.3. Additional information

Additional information about CoGIS platform can be viewed in the following documents and manuals:

- General description of CoGIS platform, including description of GIS server eLiteGIS;
- Manual on publishing GIS services in eLiteGIS;
- Manual on installing and setting eLiteGIS;
- Manual on creating map projects in QGIS;
- Manual on creating map applications in CoGIS;

[1] Since installation of CoGIS Designer, CoGIS Portal, CoGIS SOE and service for work of mobile applications CoGIS Mobile is done based on a single installation package, in this document the generalized term CoGIS will be used for all these components.

- Manual on working in mobile applications CoGIS Mobile.

# 2. Installing CoGIS

## 2.1. Installing on Windows OS

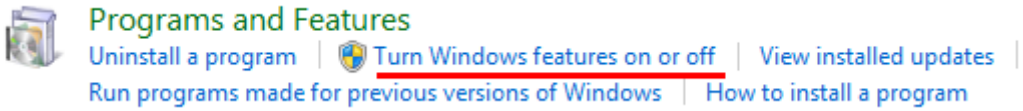
### 2.1.1. Preliminary system setup

#### 2.1.1.1. Internet Information Services (IIS)

For work of CoGIS 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.

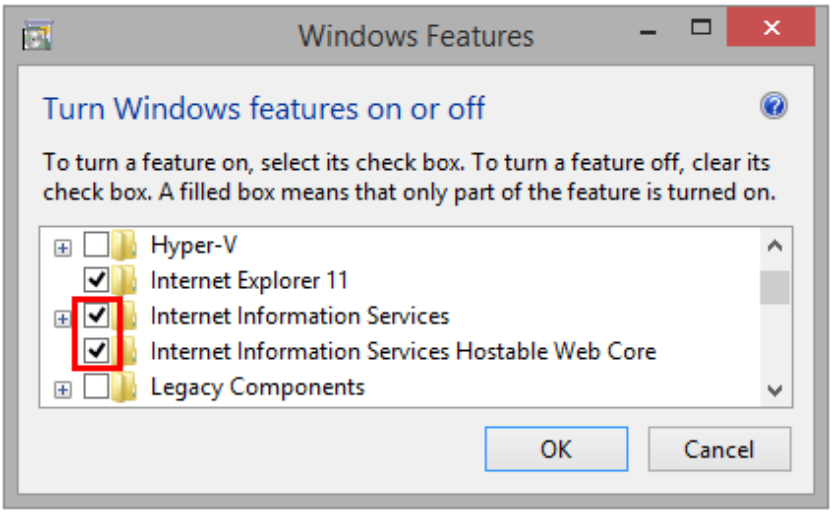



Figure 1 – Turning on IIS program components

Then press OK. The program components will be installed.

#### 2.1.1.2. .NET Core 3.1

For work of CoGIS you also need to install .Net Core 3.1 (module *ASP.NET Core/.NET Core: Runtime & Hosting Bundle*).

To do so, follow the link at https://dotnet.microsoft.com/download/dotnet-core/3.1 and download the installer as shown on Figure 2 below.

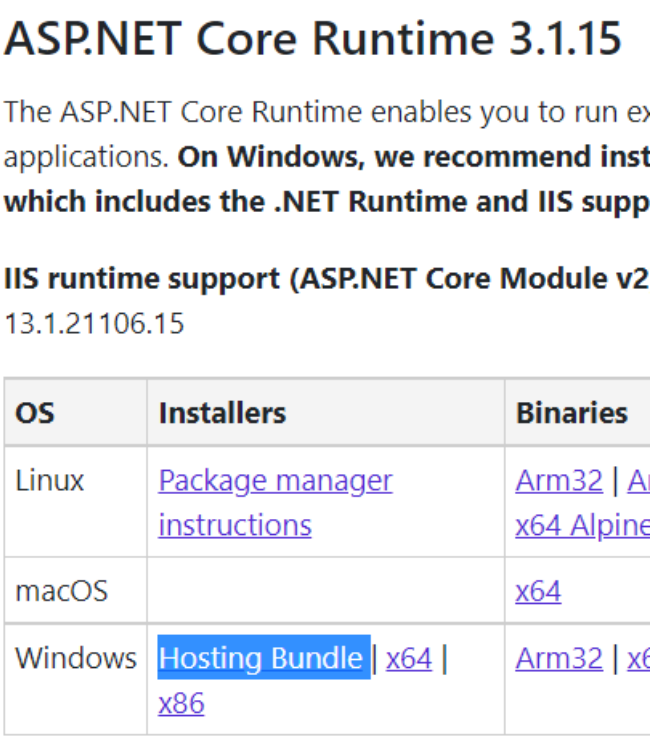



Figure 2 – Downloading .Net Core 2.2 installer

Now install *dotnet-hosting-3.1.15-win.exe*, as shown on figures below, Figure 3-Figure 5.

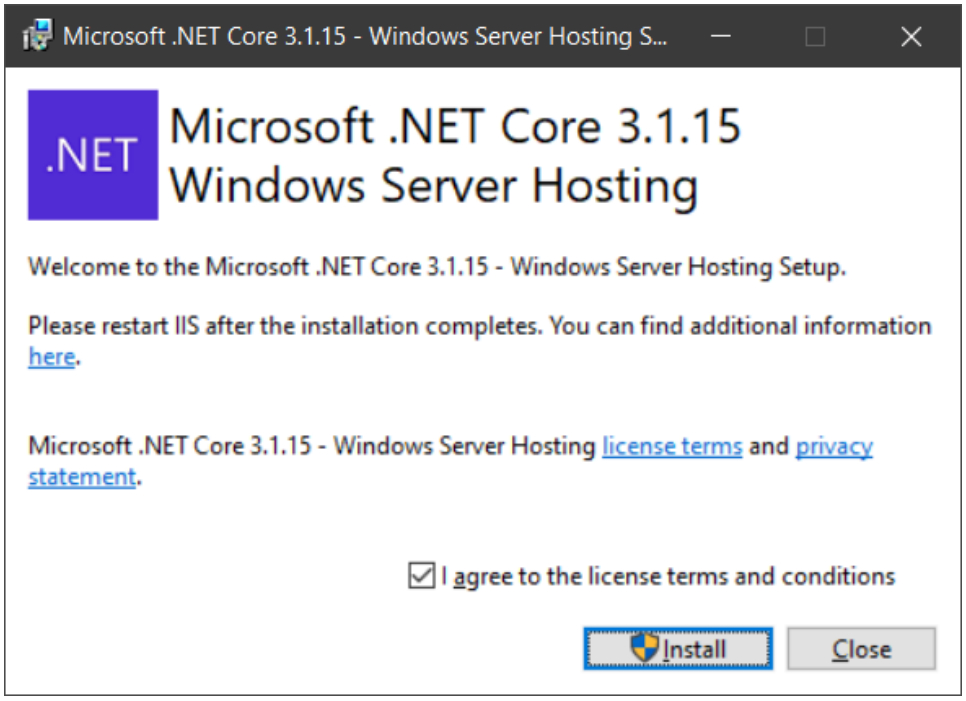



Figure 3 – Installing .Net Core 3.1 – step 1

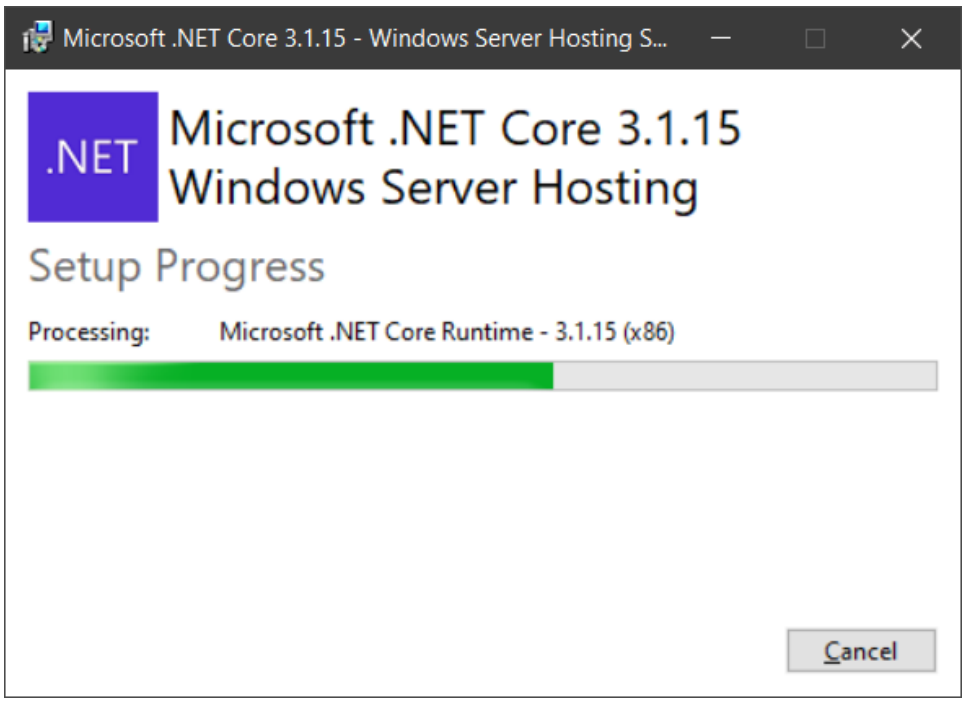



Figure 4 – Installing .Net Core 3.1 – step 2

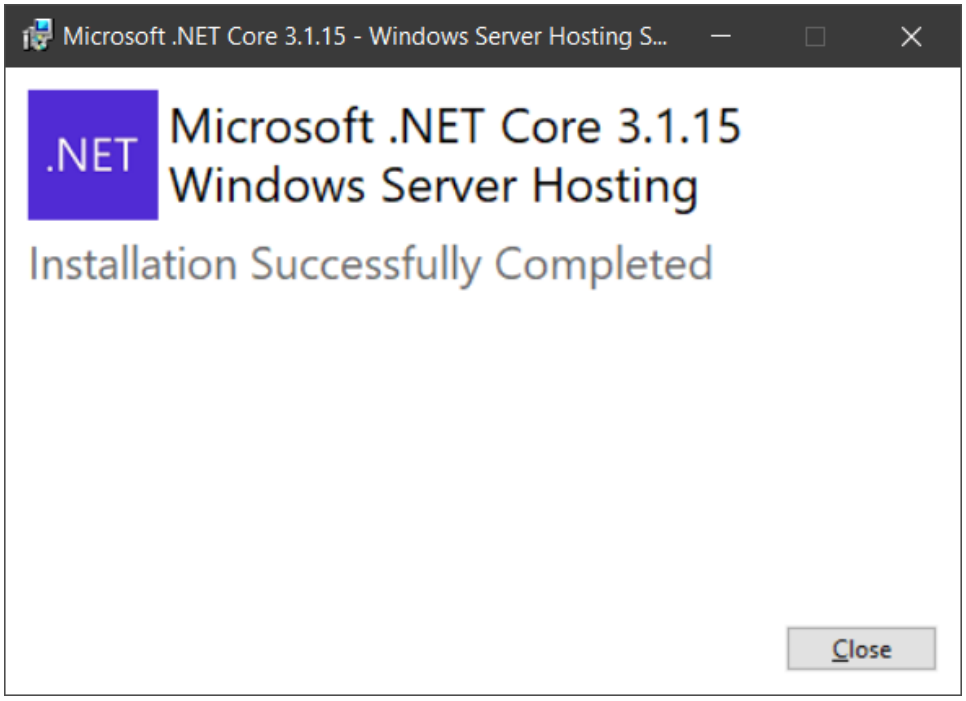



Figure 5 – Installing .Net Core 3.1 – step 3

### 2.1.2. Running installer

After setting up system for CoGIS installation you can proceed with the installation itself. To do so, start *COGIS.Installer.ru.8.0.msi,* and press *Next*, see Figure 6.


Figure 6 – Starting CoGIS installer

### 2.1.3. End-user license agreement

At the next step of CoGIS installation you need to read the End-user license agreement, check the box to accept its terms and conditions and press Next, see Figure 7.


Figure 7 – End-user license agreement

### 2.1.4. Installation folder

At this step you need to specify installation folder for CoGIS.

You can press *Next* to install CoGIS to the default installation folder, or *Change*, to select the other folder, see Figure 8.

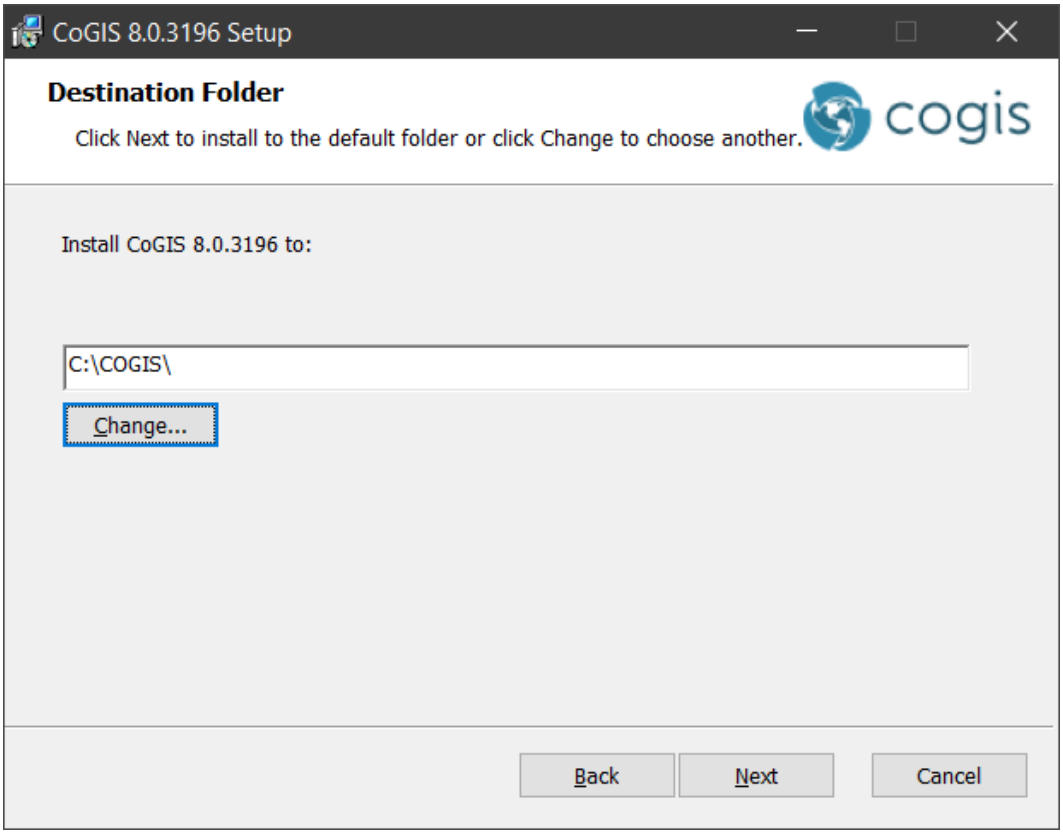



Figure 8 – Installation folder

*Note: For your convenience you can install eLiteGIS and CoGIS to one directory, for example, C:\COGISEnterprise\.*

### 2.1.5. Applications parameters for IIS

At this step of CoGIS installation you need to specify applications names for Internet Information Services or keep the default names, see Figure 9.

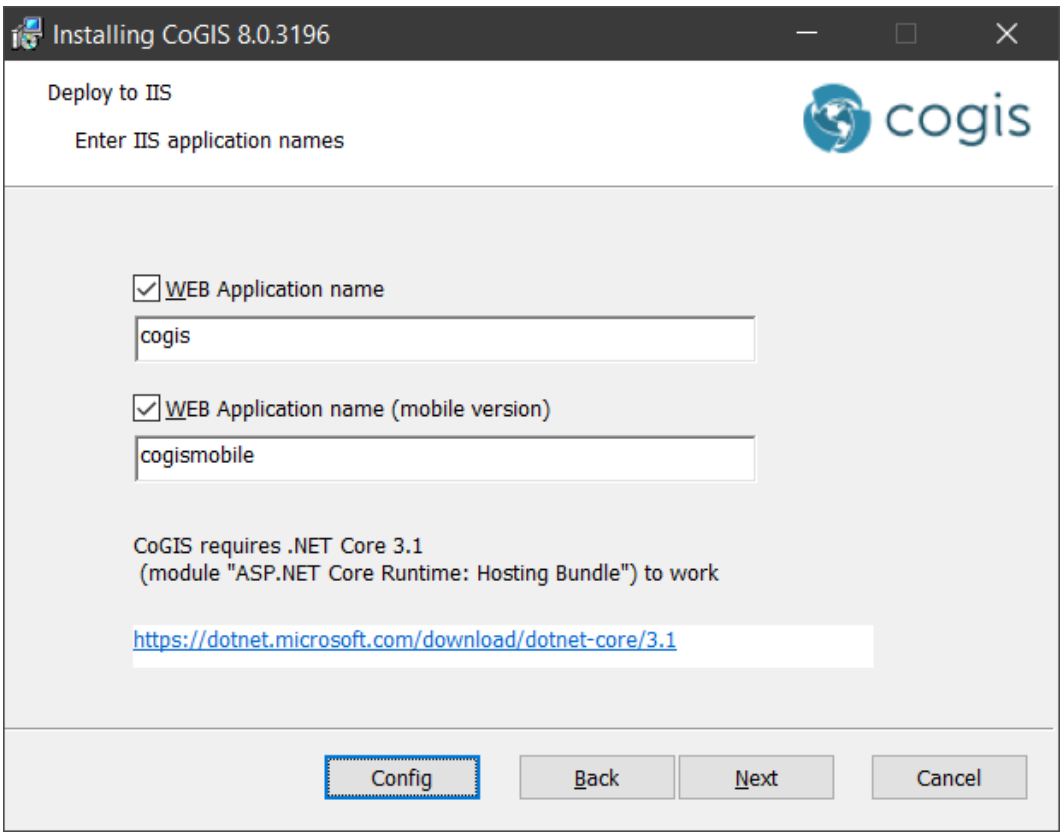



Figure 9 – Applications parameters for IIS

If needed, you can press *Config* to select site binding and press OK. By default, the Http option is selected, see Figure 10.

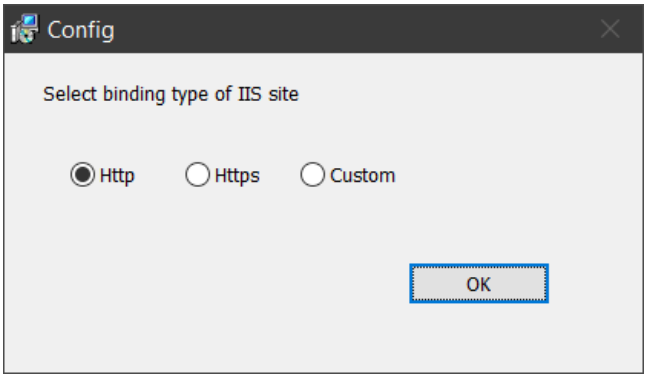



Figure 10 – Site binding

Press *Next* to get to the next step, see Figure 11.

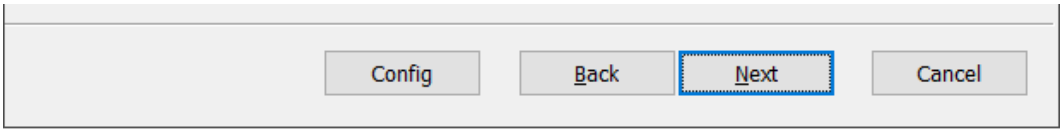



Figure 11 – Proceeding to installation

### 2.1.6. Installation

At this step, the CoGIS installation will be done. Press *Install* as shown on Figure 12 to start the process.

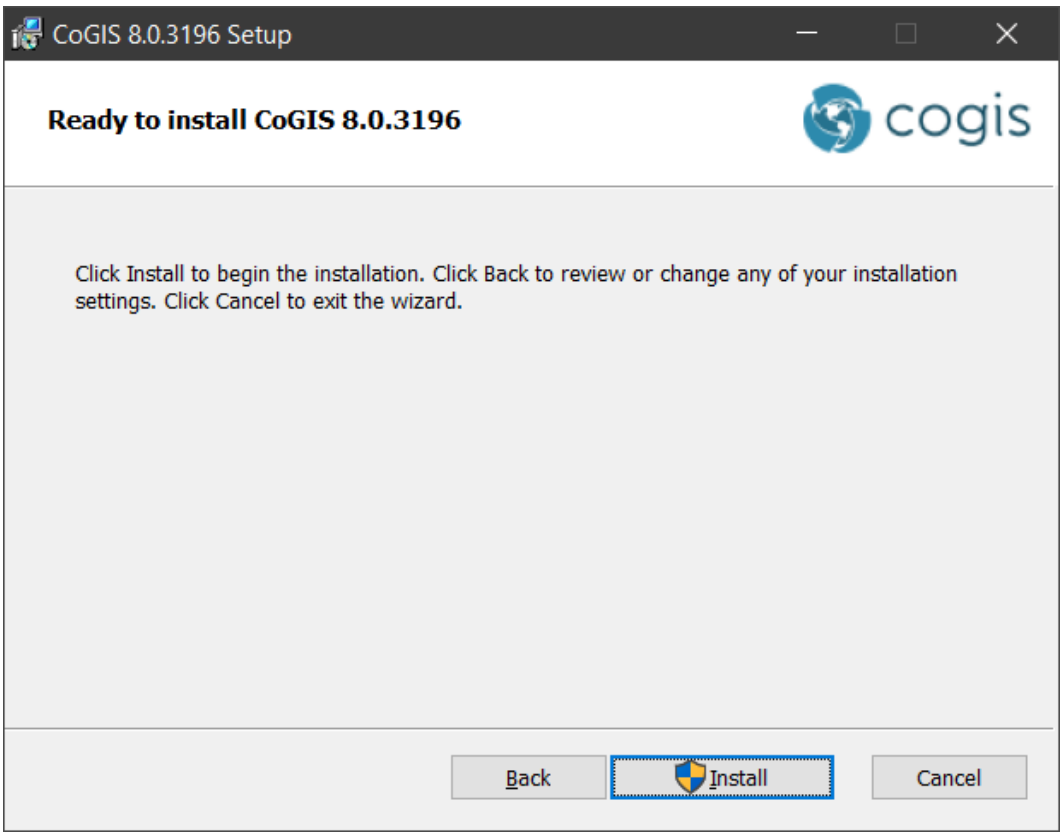



Figure 12 – Staring CoGIS installation process

The progress bar showing the installation process will appear, see Figure 13.

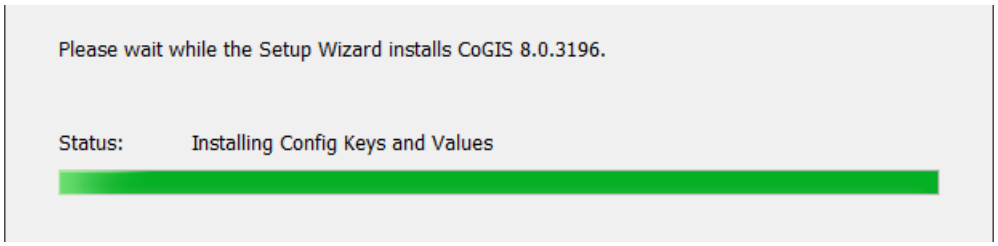



Figure 13 – Installing CoGIS

### 2.1.7. Installation completion

Upon CoGIS installation completion, the appropriate message will appear, see Figure 14.

Check the box for *Enter license key* to register the product and press *Finish*.


Figure 14 – Installation completion

### 2.1.8. Installing license

The dialog of *License manager* will appear, press *Install new license*, see Figure 15.

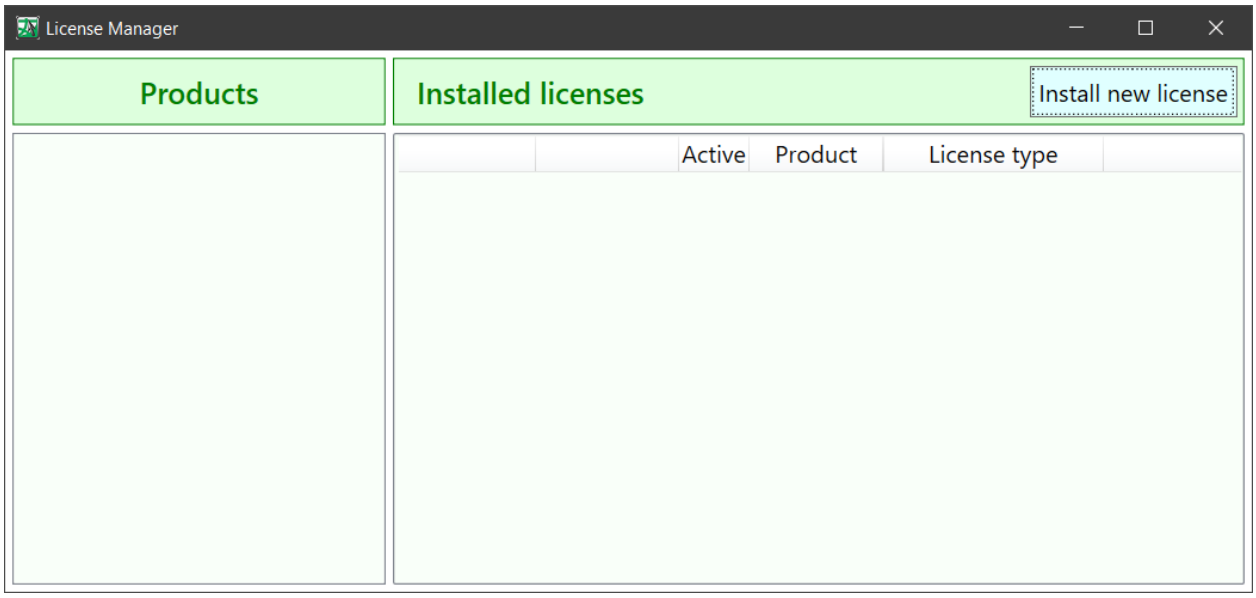



Figure 15 – License manager

In the appeared dialog *Product registration* select the product registration type and press *Next*, see Figure 16.

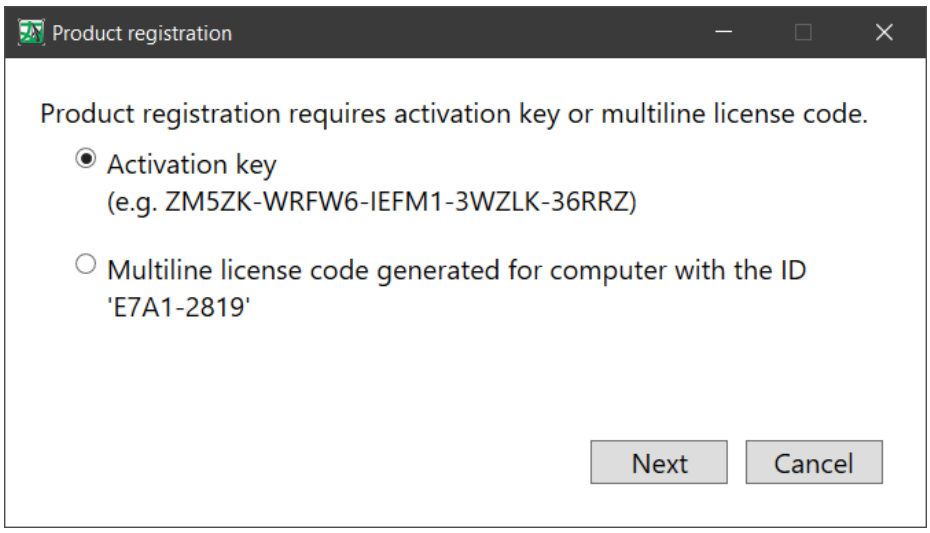



Figure 16 – Selecting product registration type

If the *Activation key* option is selected, enter the respective activation key as shown on Figure 17, and press *Next*.

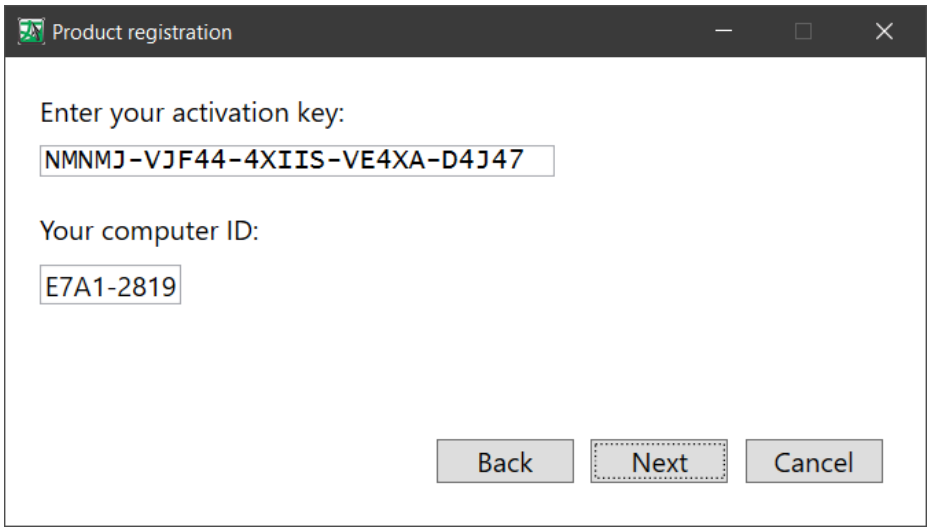



Figure 17 – Entering activation key

If *Multiline license code* option is selected, which is generated by computer ID, enter the respective code, see Figure 18, and press *Next*.

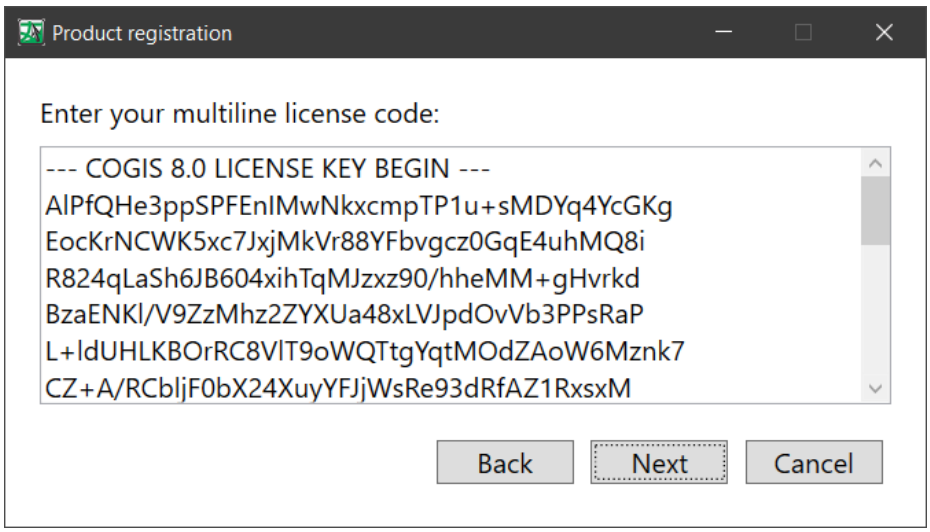



Figure 18 – Entering multiline license key

In the appeared dialog select *Activate now by Internet*, see Figure 19, and press *Next*.

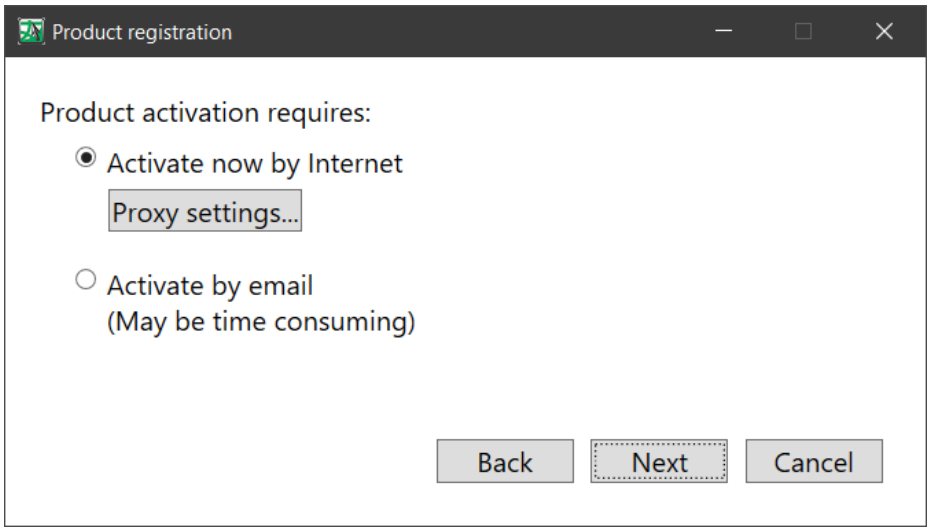



Figure 19 – Activating license

*Note: if you are not connected to Internet, you can activate your license via email, but this may take some time.*

Now select product version that needs to be registered, see Figure 20, and press *Next*.

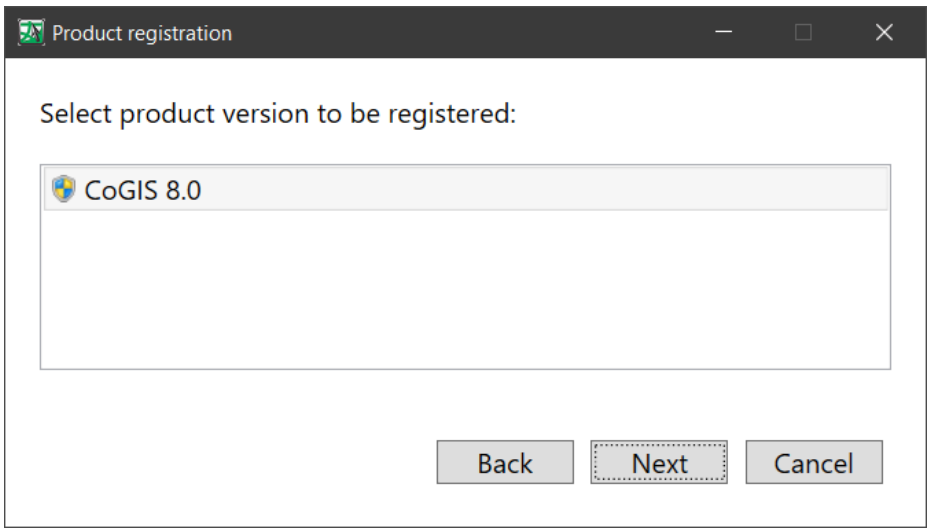



Figure 20 – Selecting product version

The message saying about successful product registration will appear, see Figure 21.

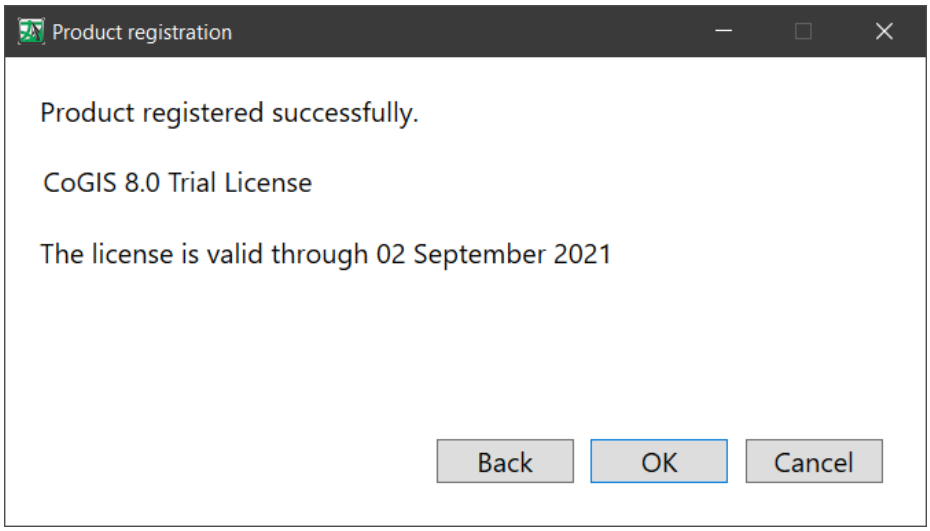



Figure 21 – Registration completion

Press *OK*.

The installed license will appear in the *License manager*, see Figure 22.

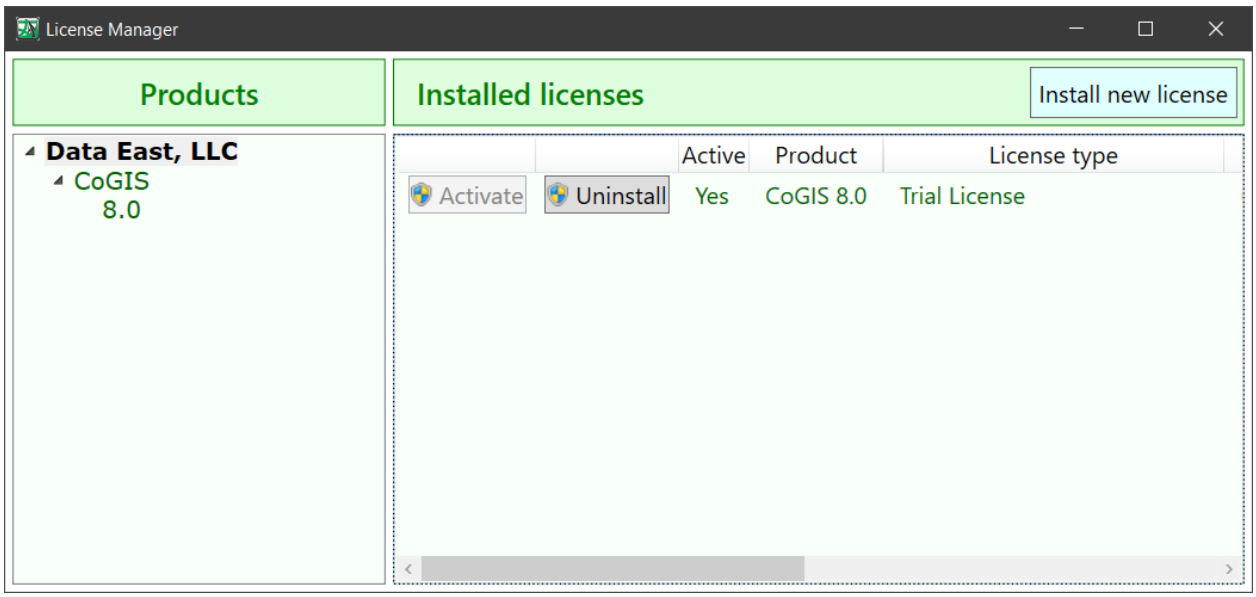



Figure 22 – Installed license

Close *License manager*, CoGIS installation and registration are completed.

### 2.1.9. Primary setting and performance testing

#### 2.1.9.1. Starting IIS

For primary setting and testing CoGIS 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 23.

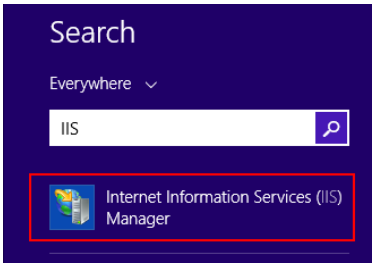



Figure 23 – Running IIS

Now make sure that server is started, otherwise, press *Start*, see Figure 24.

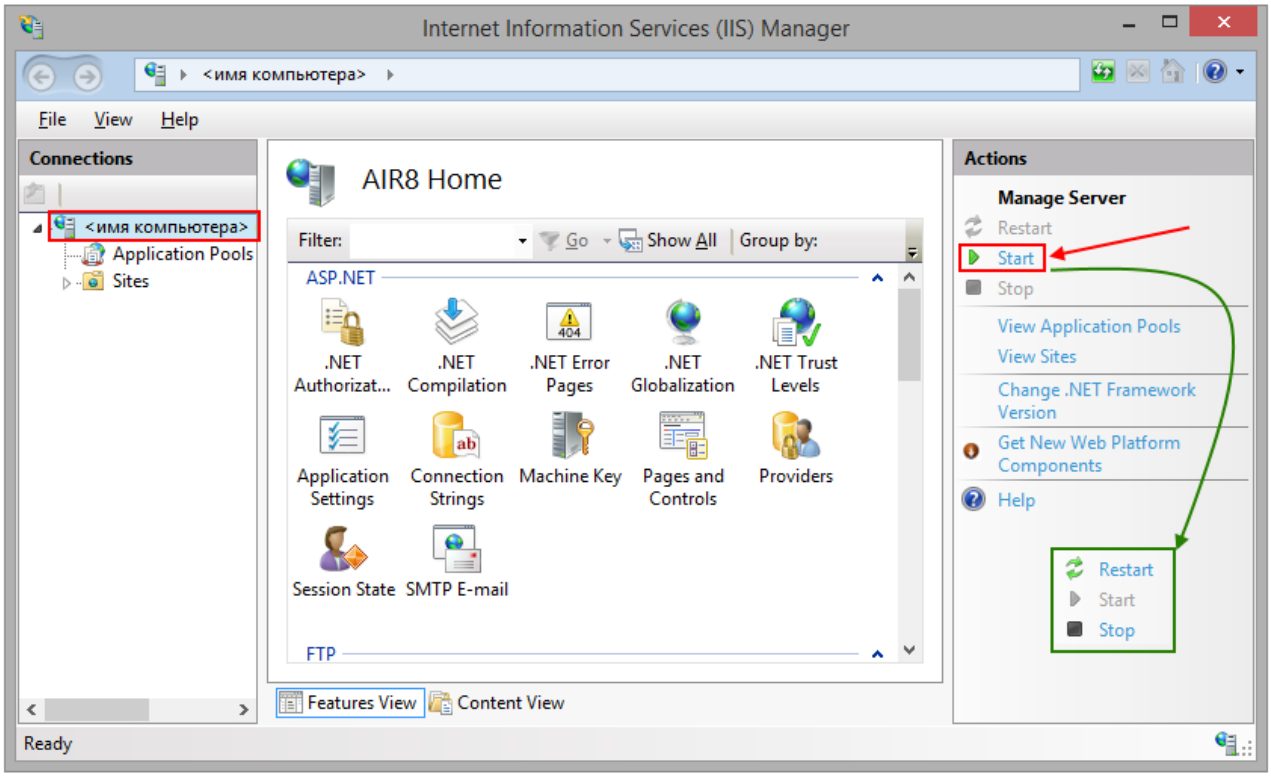



Figure 24 – Starting IIS server

Now make sure that Default Web Site is started, otherwise press *Start*, see Figure 25.

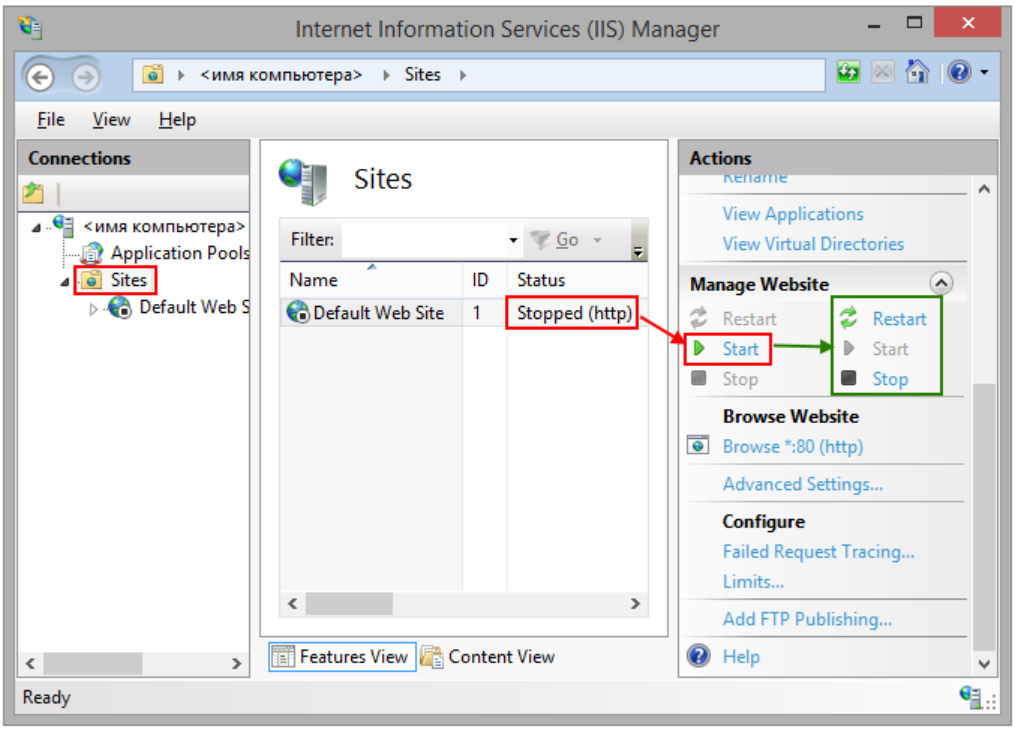



Figure 25 – Starting Default Web Site

#### 2.1.9.2. Setting and testing CoGIS

For setting and testing CoGIS open CoGIS Portal from Internet Information Services (IIS) Manager, see Figure 26.

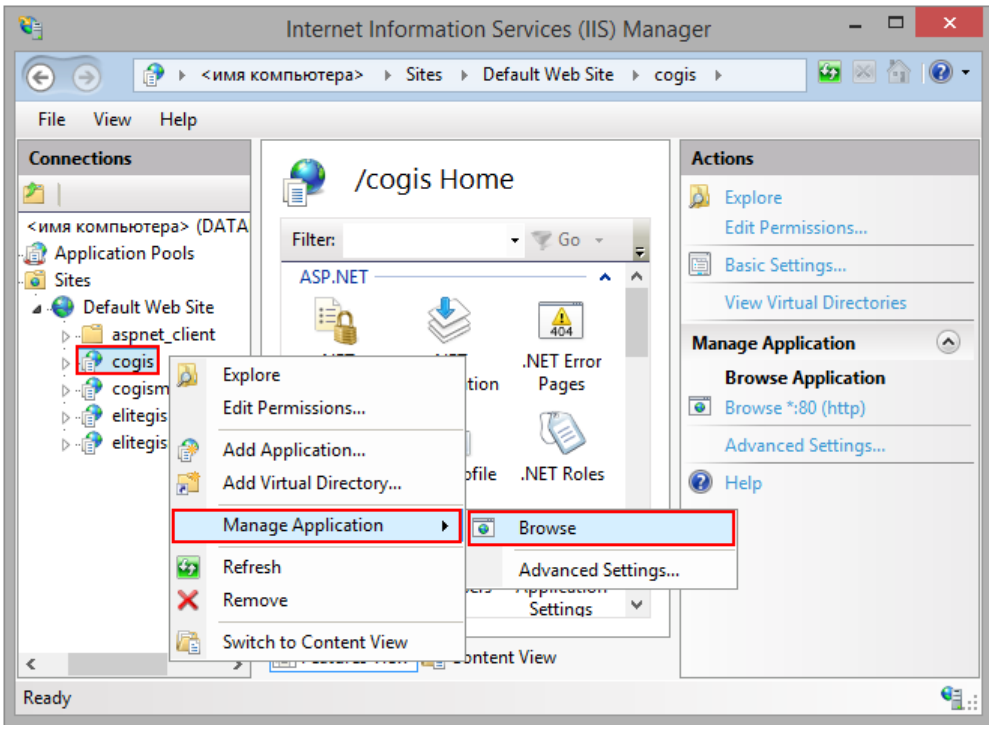



Figure 26 – Starting CoGIS from Internet Information Services (IIS) Manager

Now (at http://localhost/cogis) CoGIS Portal tab will open. Press *Administration* and select *Settings* item in the drop down list, see Figure 27.

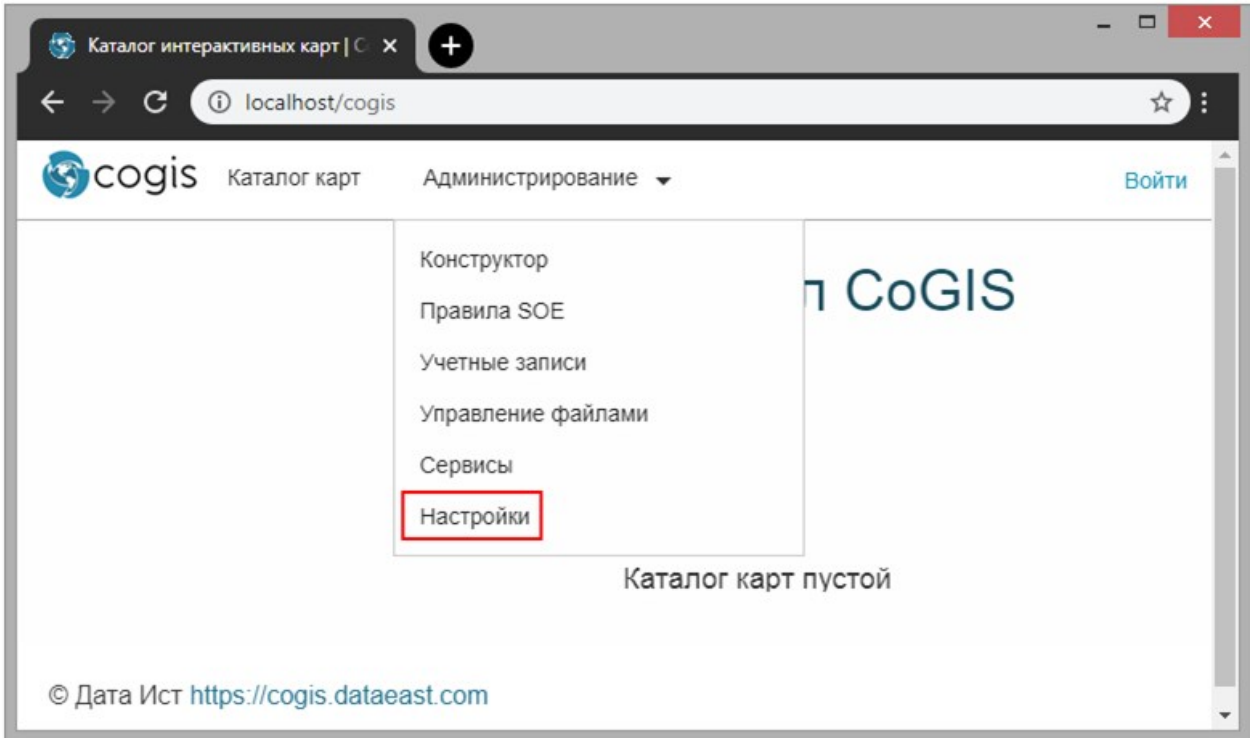



Figure 27 – Starting CoGIS Portal

In the *General settings* tab specify path to /eLiteGIS.SOE folder from directory with installed eLiteGIS, see Figure 28.

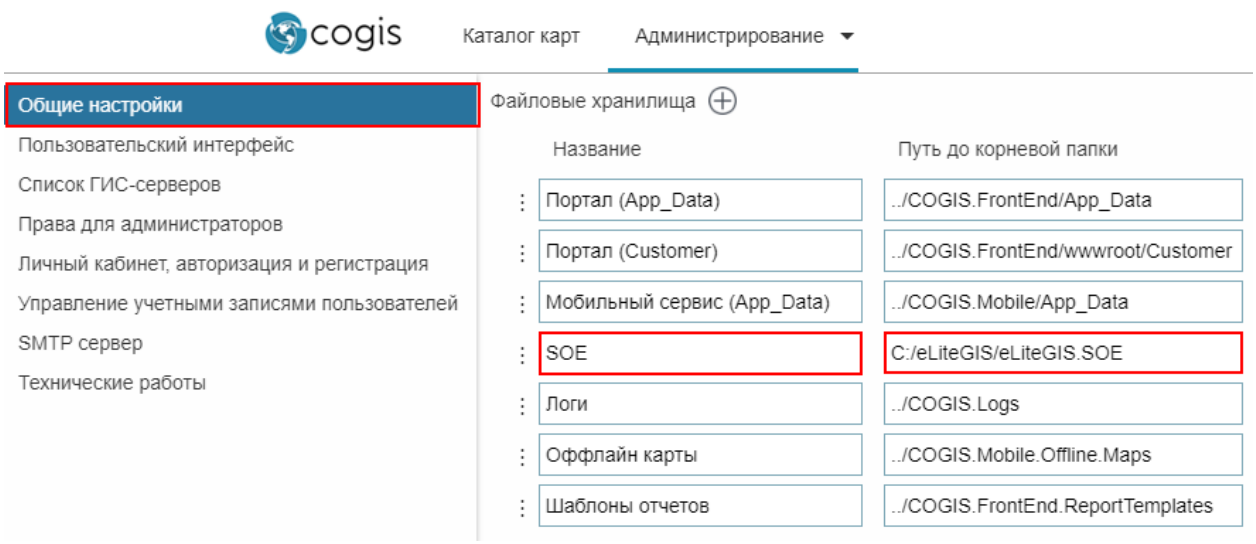



Figure 28 – Setting CoGIS (1)

In the *GIS servers list* tab fill in the appropriate fields, see Figure 29:

- Public URL: http://<имя_компьютера>/elitegis
- URL: http://localhost/elitegis
- Login: admin
- Password: admin.

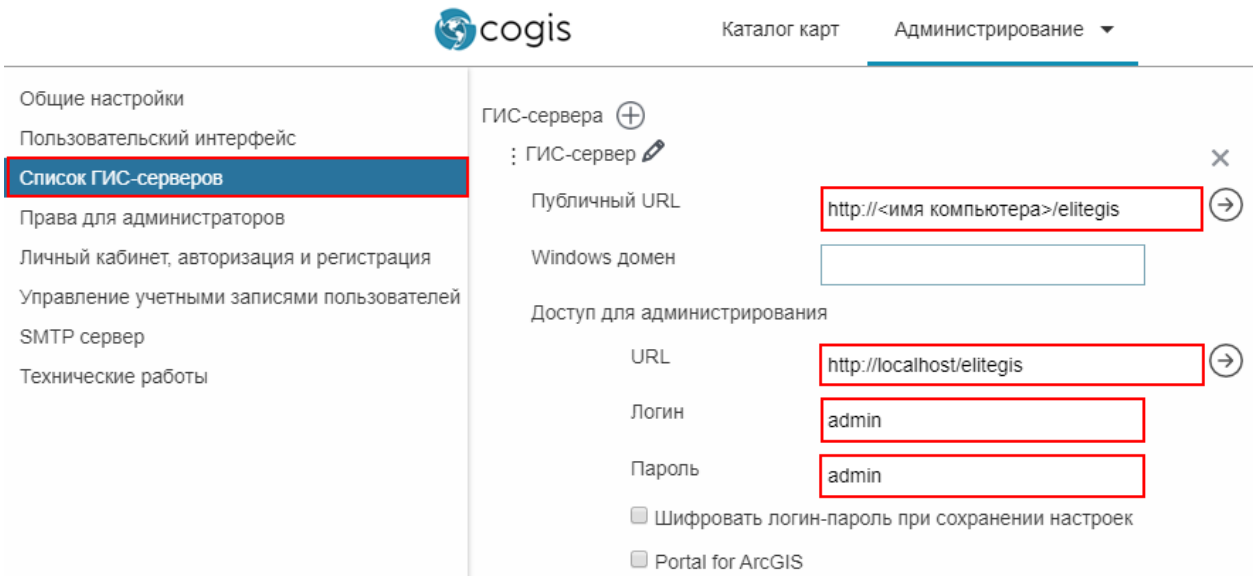



Figure 29 – Setting CoGIS (2)

## 2.2. Installing on Linux OS

### 2.2.1. 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 30.

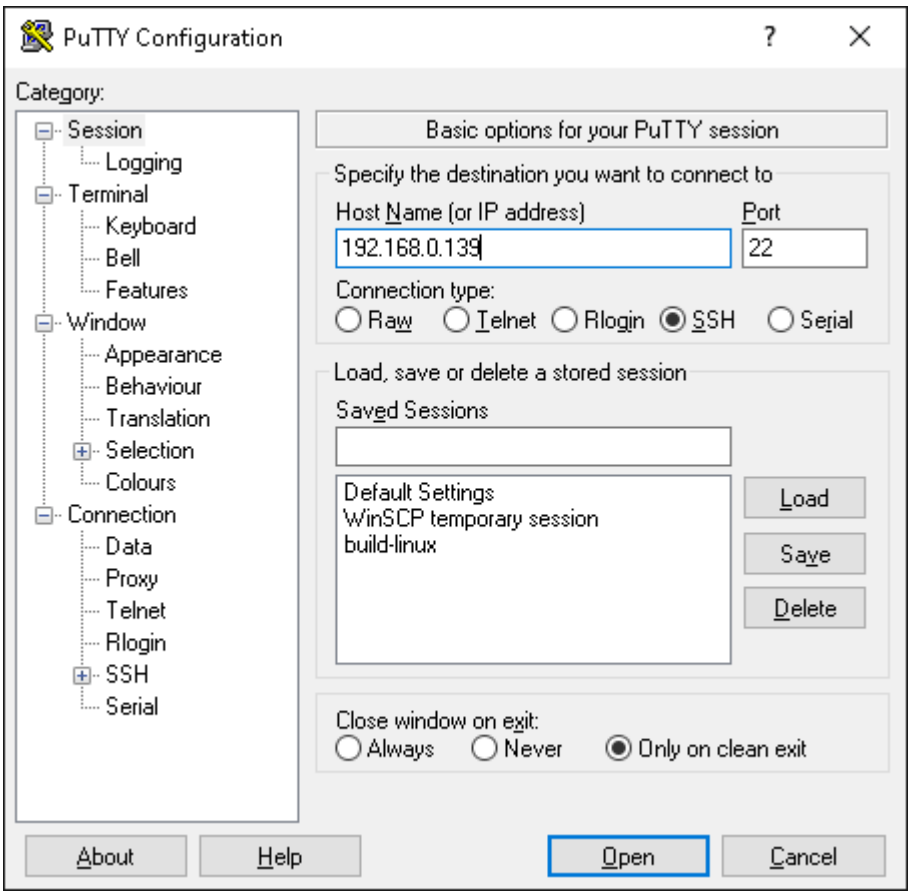



Figure 30 – Creating new connection to Linux in PuTTY

To open connection press *Open* and enter login and password in the appeared window, see Figure 31 and Figure 32.


Figure 31 – Opening connection in PuTTY: entering login

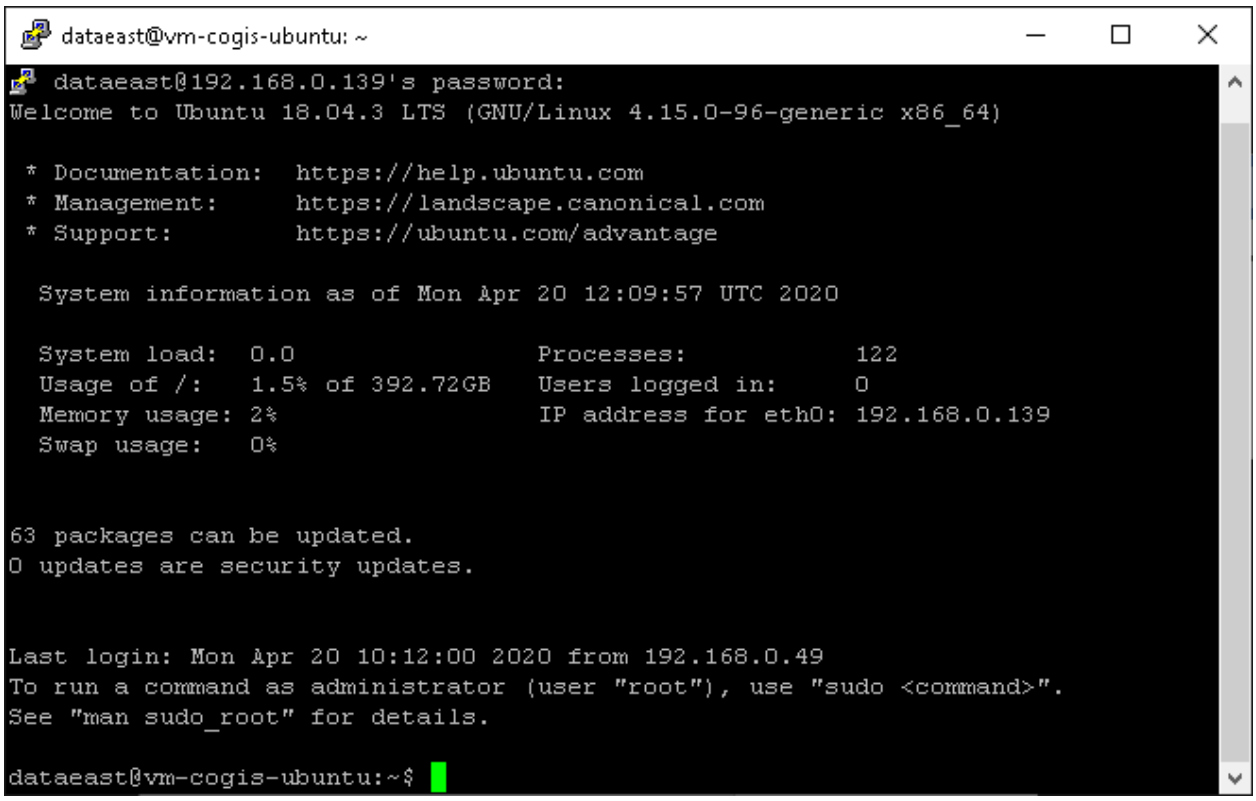



Figure 32 – Opening connection in PuTTY: entering password

Same way connect to Linux via WinSCP, see Figure 33 and Figure 34.

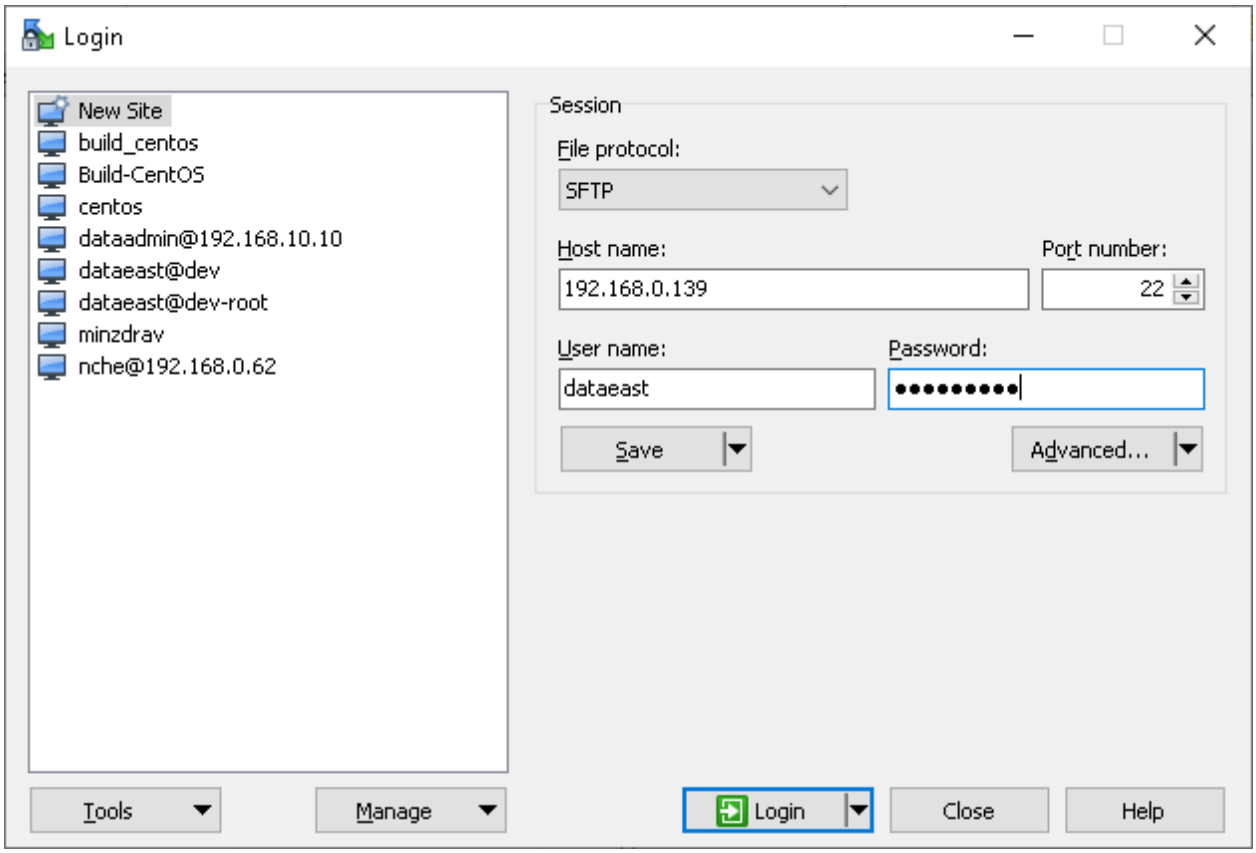



Figure 33 – Connecting to Linux via WinSCP (1)

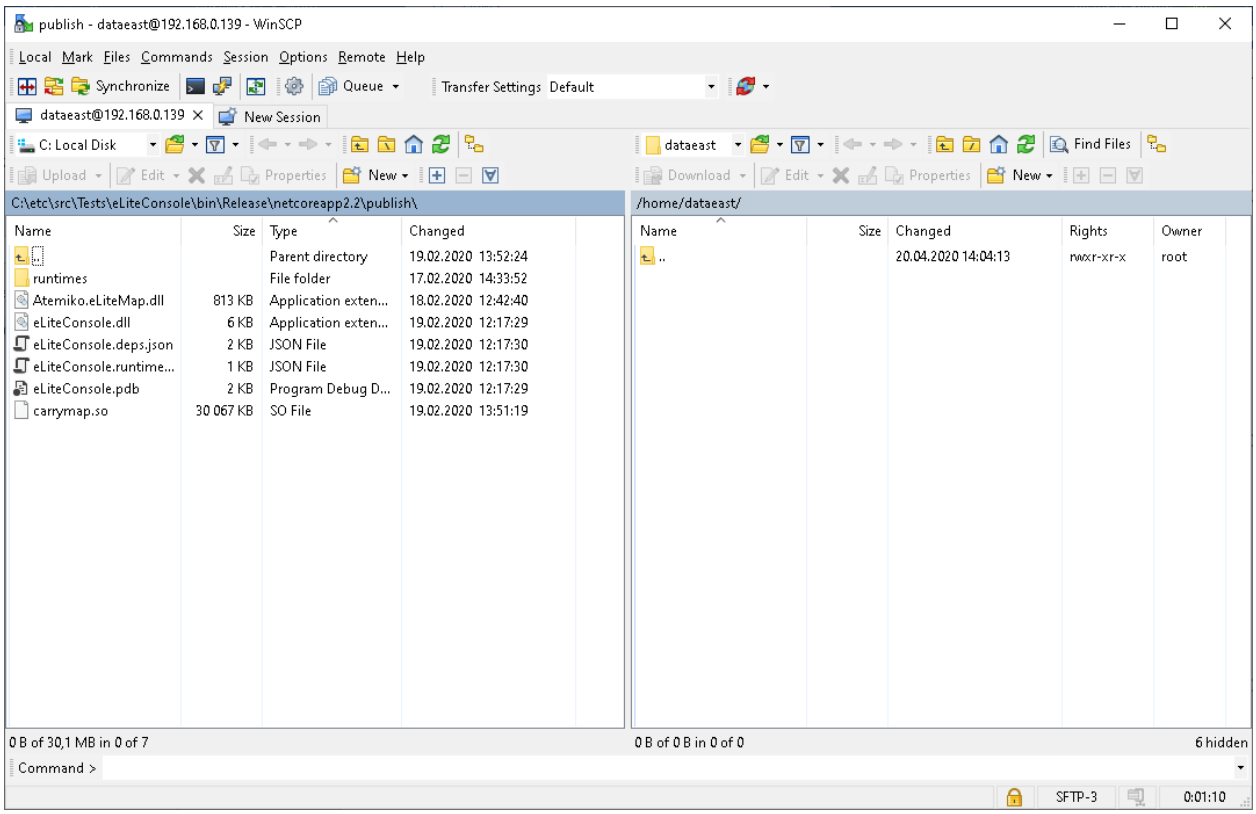



Figure 34 – Connecting to Linux via WinSCP (2)

### 2.2.2. Setting up Linux before installing CoGIS

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

Update system performing the following commands:

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

Install dotnet core runtime performing the following commands:

```
wget https://packages.microsoft.com/config/ubuntu/18.04/packages-
microsoft-prod.deb -O packages-microsoft-prod.deb
sudo dpkg -i packages-microsoft-prod.deb
sudo add-apt-repository universe
sudo apt-get update
sudo apt-get install apt-transport-https
sudo apt-get update
sudo apt-get install aspnetcore-runtime-2.2
```

In the last command the version number is specified.

Install NGINX performing the following command:

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

Install PostgreSQL и PostGIS performing the following command:

```
sudo apt install postgresql postgis
```

*Note: At the time of writing this instruction, version 10.12 and PostGIS 2.4 are installed.*

Change password for PostgreSQL performing the following commands:

```
sudo su - postgres
psql -c “alter user postgres with password ‘1’”
exit
```

Set up PostgreSQL for remote connections.

*Note: This step can be omitted for the security purposes. But if you plan to work with server remotely, you need to follow the instructions provided below.*

To set up remote connections to PostgreSQL (see Figure 35), edit configuration file: add option to connect externally, add line *host all all 0.0.0.0/0 md5*. Besides, change all authentication methods to md5:

```
sudo nano /etc/postgresql/10/main/pg_hba.conf
```

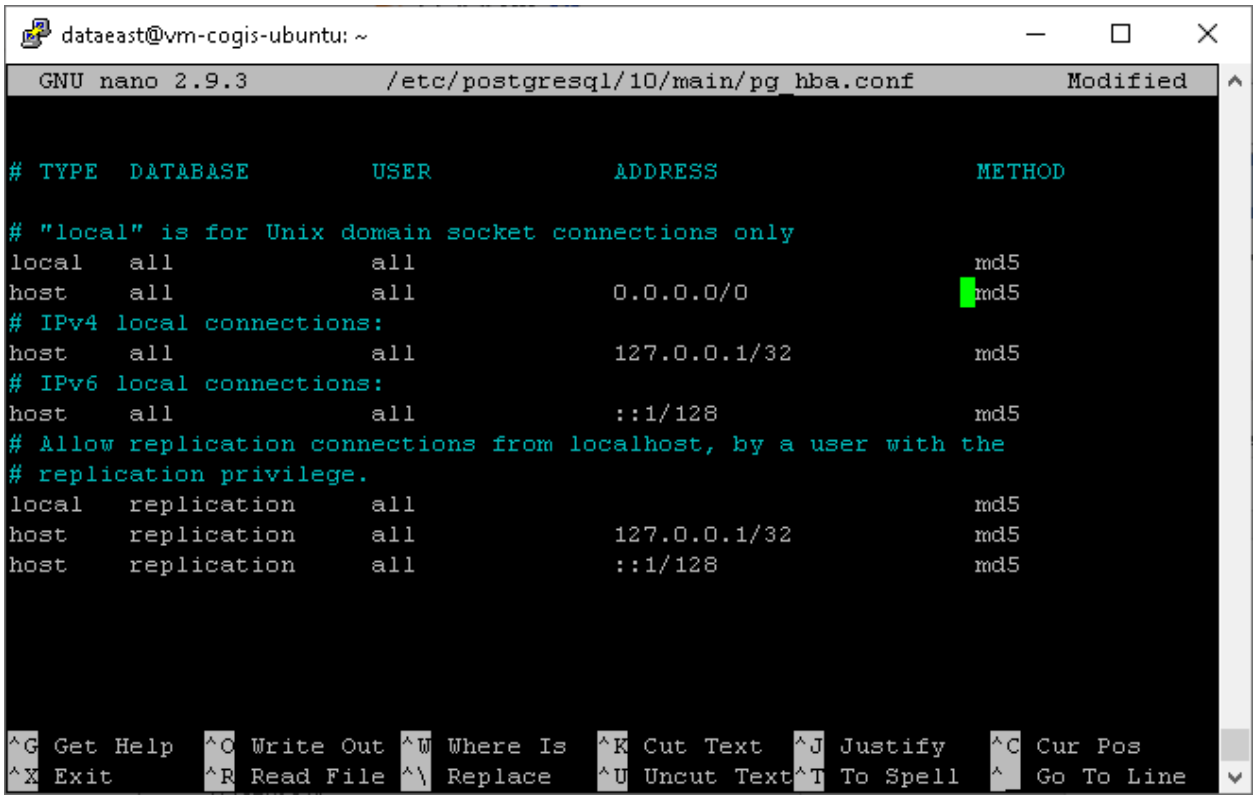



Figure 35 – Setting up remote connections to PostgreSQL (1)

Open access for external connections. Here you can also edit maximal number of connections, see Figure 36:

```
sudo nano /etc/postgresql/10/main/postgresql.conf
```

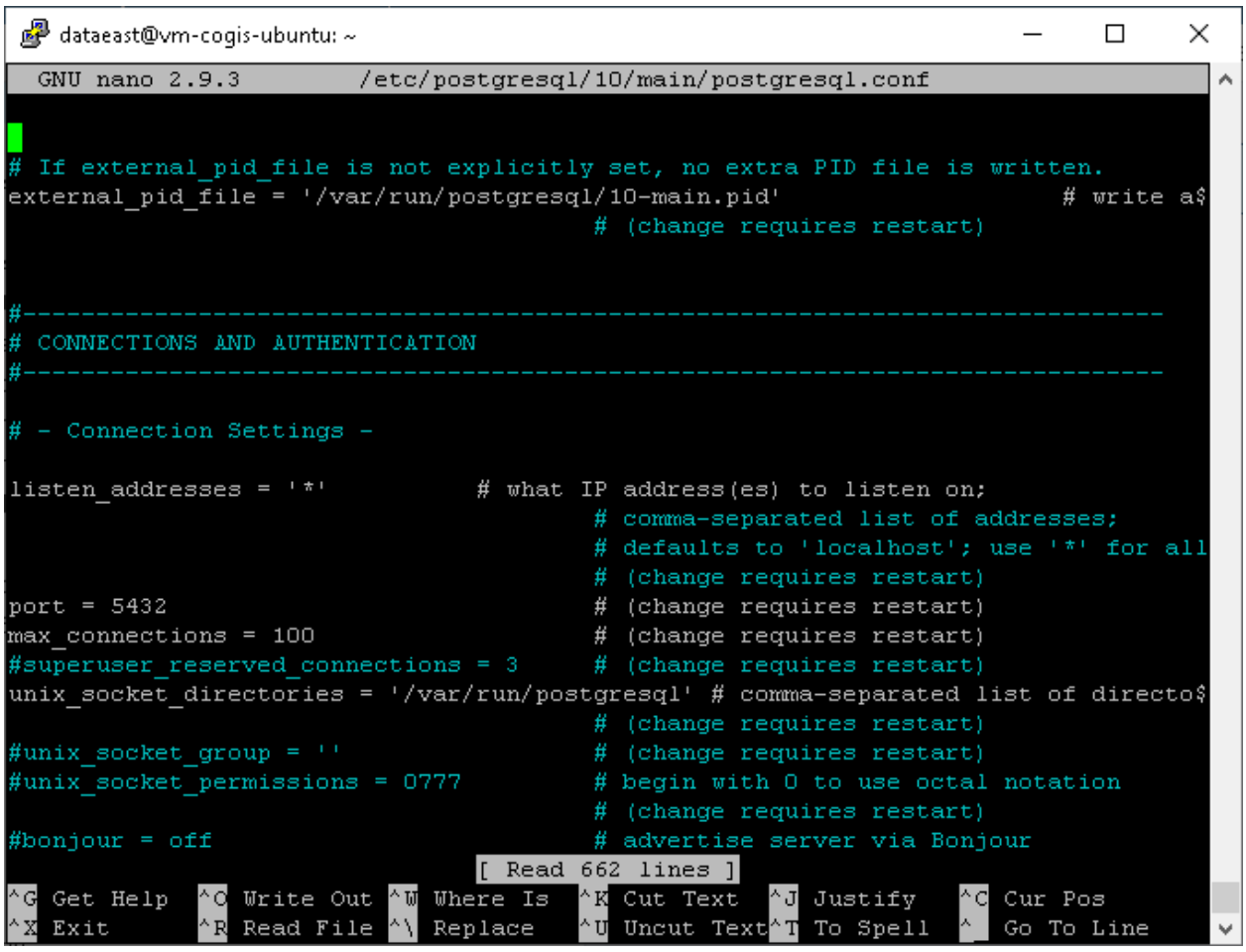



Figure 36 – Setting up remote connections to PostgreSQL (2)

Now restart PostgreSQL with the following command:

```
sudo systemctl restart postgresql
```

Setting up Linux is finished.

### 2.2.3. 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:

Delete the previous settings, performing the following command:

```
unlink /etc/nginx/sites-enabled/default
```

Go to directory of available sites:

```
cd /etc/nginx/sites-available
```

Create configuration:

```
nano reverse-proxy.conf
```

Content of reverse-proxy.conf file is as following:

```
server {
      listen 443;

      access_log /var/log/nginx/reverse-access.log;
```

```
        error_log /var/log/nginx/reverse-error.log;

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

        client_max_body_size 100M;

        location /gis/ {
                proxy_pass http://127.0.0.1:5000/;
        }

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

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

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

Copy link to the new configuration:

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

Reload NGINX:

```
nginx -s reload
```

### 2.2.4. Installing CoGIS

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

Connect to Linux via WinSCP.

Copy packages as shown on Figure 37.

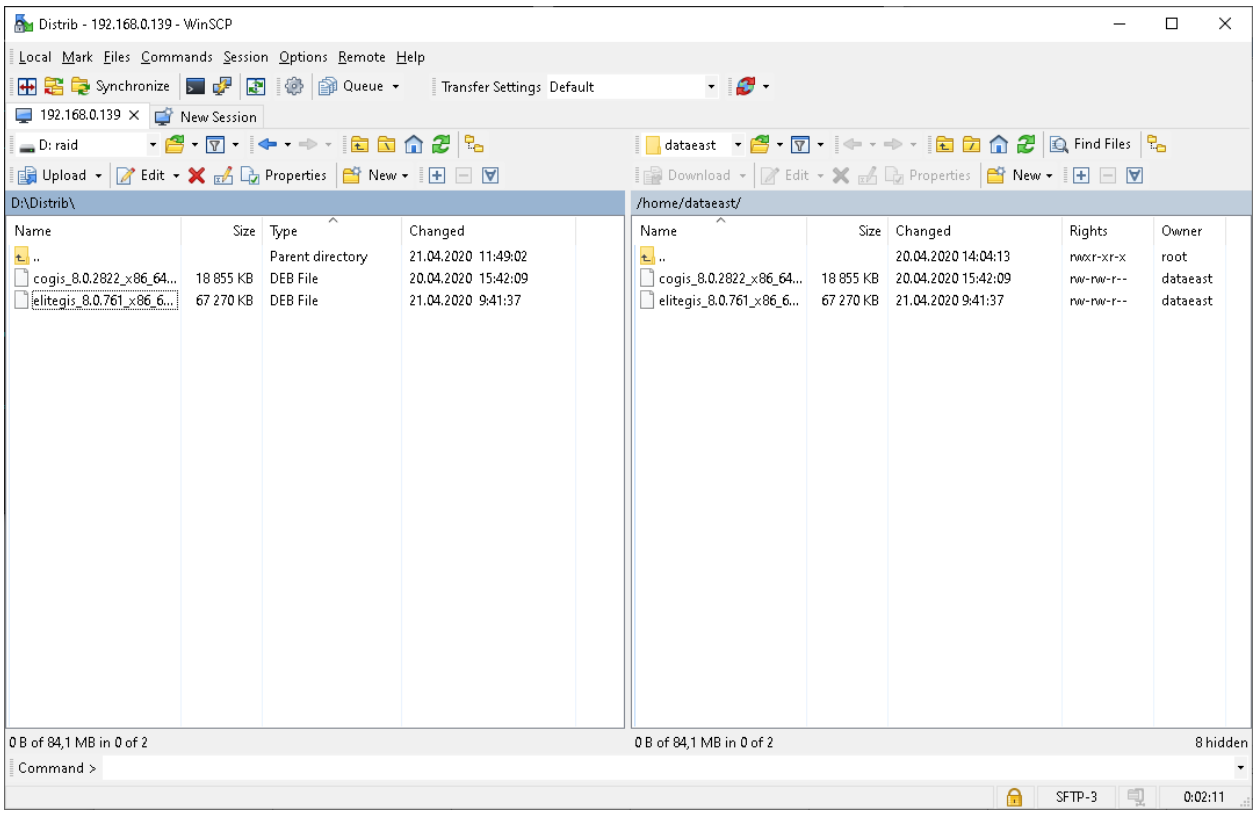



Figure 37 – Copying packages

Go to PuTTY and start installation as following:

```
sudo dpkg -i elitegis_8.0.761_x86_64.deb
```

```
sudo dpkg -i cogis_8.0.2822_x86_64.deb
```

Configure CoGIS, see Figure 38:

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

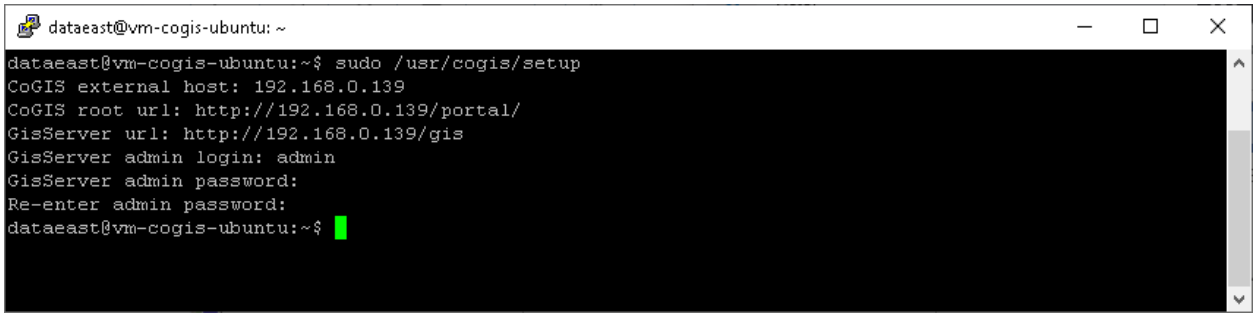



Figure 38 – Configuring CoGIS

For fine tuning use the following command:

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

Now install license performing the following command, see Figure 39:

```
sudo dotnet /usr/cogis/licensing/DataEast.Licensing.Console.Manager.dll
activate -k JAIIS-HJWA2-3EWC2-VYPX9-EK2R9 -a "/usr/cogis/licensing/CoGIS
8.0.appinfo"
```

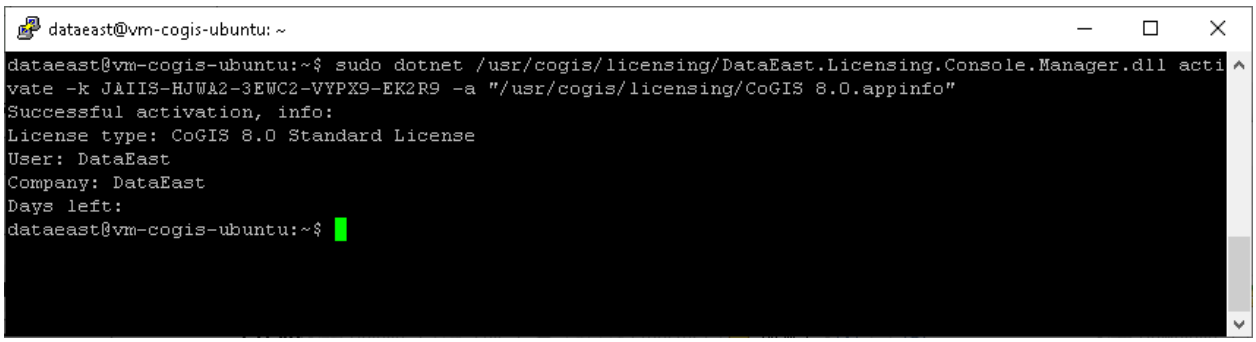



Figure 39 – Installing license

**Restart server** performing the following command:

```
sudo systemctl restart cogis
```

CoGIS is installed.

## 2.3. Checking out work of the test map

In order to verify work of the test map, go to eLiteGIS Manager, *Services* tab. Make sure that WorldMap service is started (Status: запущен) and follow the service link, see Figure 40.

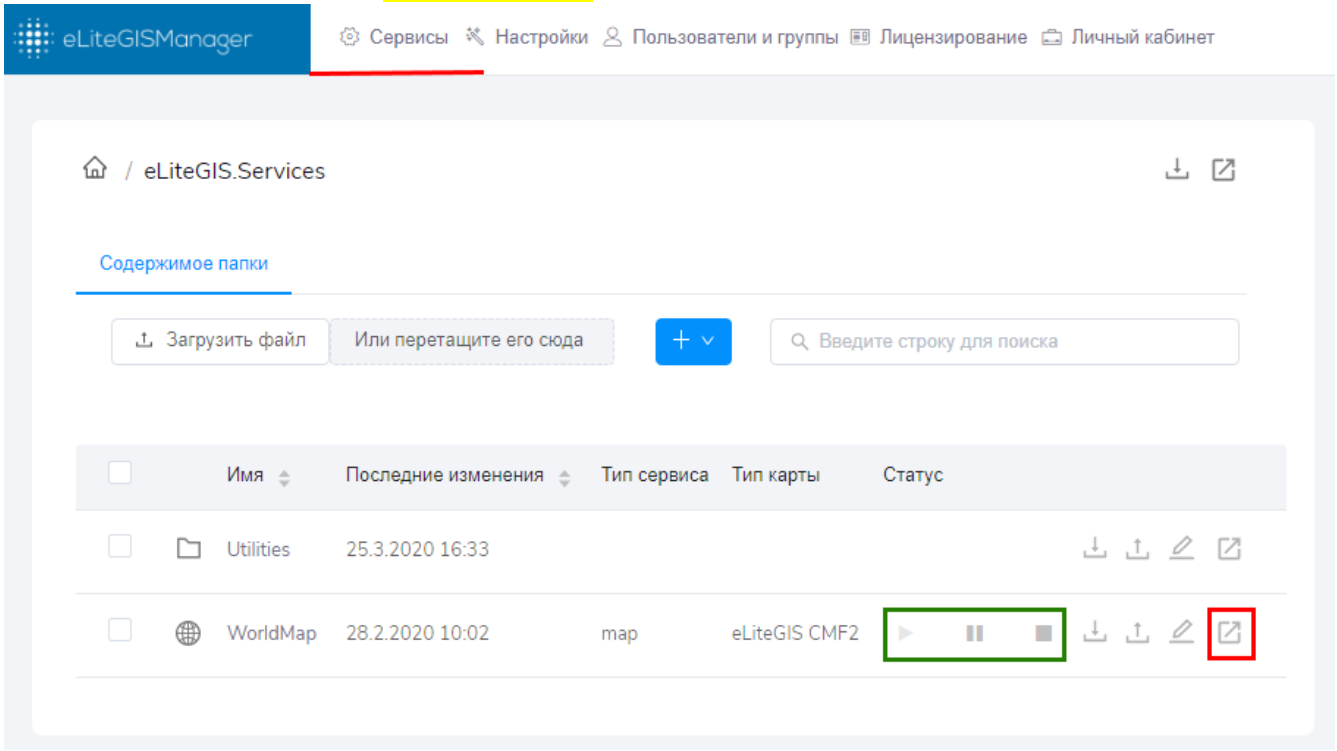



Figure 40 – Getting information about test service

In the new tab of the browser the information about service in JSON format will be shown. Copy address of published service, see Figure 41.


Figure 41 – Information about service in JSON format

Now check the work of published web map service in CoGIS, see Figure 42:

- 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 eLiteGIS Manager (5)
- Save the map (6)
- Open the map (7)

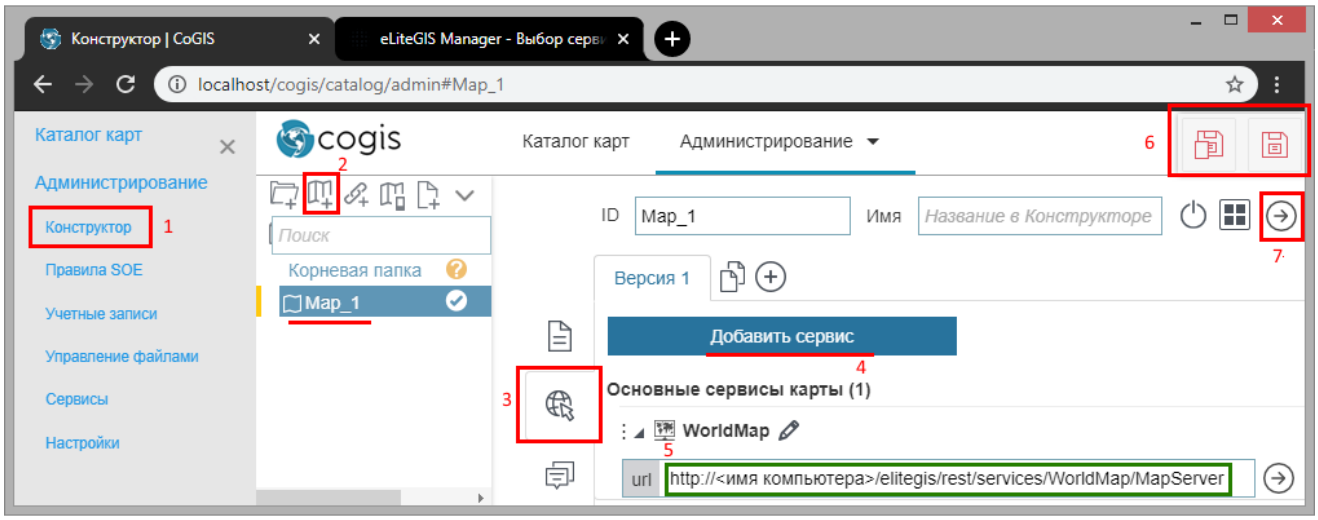



Figure 42 – Opening map based on web map service published in eLiteGIS

Example of correctly opened map is shown on Figure 44.

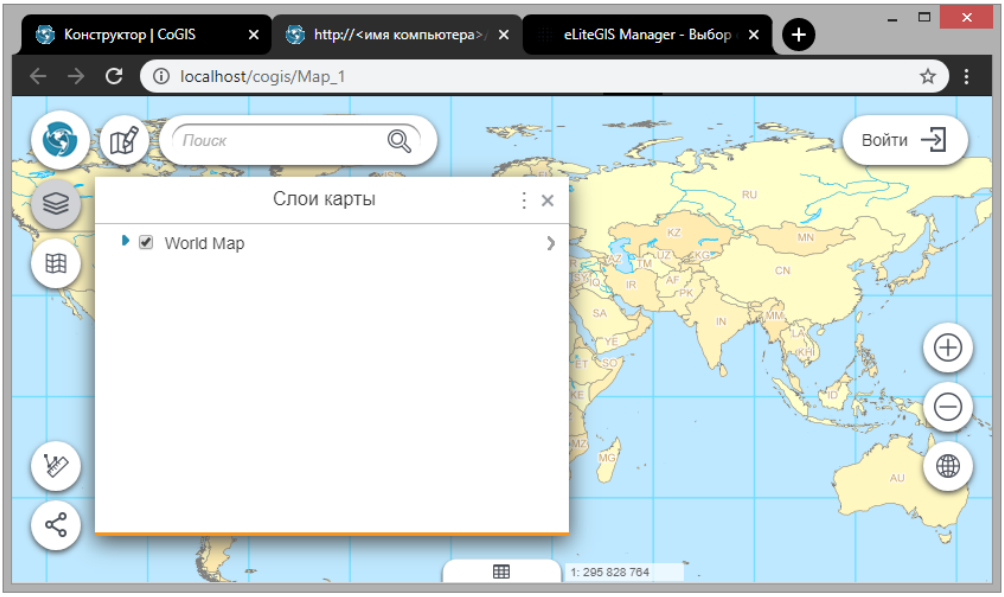



Figure 43 – Viewing published map in web browser

Checking out is finished.

## 2.4. Installing and updating SOE

### 2.4.1. Installing and updating SOE. General information.

SOE is an abbreviation for Server Object Extension that CoGIS uses to extent functionality of map services. SOE is provided to:

1) Create and then update and delete on online map:
   - Objects in map service layer and their values; edit objects geometry; combine objects;
   - Records in attribute tables of map service;
   - Files attached in Identification dialogs or attached to records in attribute tables.
2) Add and delete relationships:
   - One to one. When creating or updating object in layer, it is related with object of another layer by key field.
   - One to many. When creating or updating object in layer, it is related with objects of another layer by key field.
   - Many to many. When creating or updating objects in layer, they are related with objects of another layer by key field.
3) Limit editing by:
   - operations;
   - groups of users;
   - layers;
   - objects values;
   - territory;
   - objects.
4) Run geotriggers:

- creating relations;
- editing related objects;
- updating field;
- geocoding;
- building buffer zone;
- sending messages
- updating topology;
- calculating relations numbers;
- calculating geometry attributes.

*GEOTRIGGERS OPERATE AUTOMATICALLY WHEN PERFORMING OPERATION OF 'EDIT' PLUGIN.*

5) Limit views and requests by:

- groups of users;
- layers;
- objects.

6) Track editing history by operations. Restore object after changes.

7) Download data from file of SHP, XLS, XLSX, CSV, GPX formats to map service layer added to online map.

8) Upload data from map service layer as files of SHP, XLSX, CSV formats.

9) Convert data while download using custom coordinate systems and transformation parameters.

10) Display files attached in Identification dialogs or to records in attribute tables, in Picture gallery, and establish condition to:

- number of files allowed to be attached to object;
- total number of files for layer;
- scale;
- attachment file size.

11) Store files on disk outside database. Work with user attachment attributes.

12) Specify calculation of:

- objects in layer;
- records in table;
- objects considering layer symbology by unique values, by ranges.

*CALCULATION IS MADE BASED ON FILTERS SPECIFIED IN COGIS DESIGNER AND SET BY USERS ON ONLINE MAP.*

13) Perform advanced search for objects, namely:

- quick and flexible search by map service layers;
- search based on filters selected by the user;
- sorting search results by distance;
- search based on restrictions by SQL condition, by territory.

SOE allows to use:

– geotriggers run while performing one of the editing plugin operations;

– requests catcher provided to limit access to data using different criteria.

### 2.4.2. Installing SOE

Installation of SOE depends on operating features of GIS server.

You can install SOE as following:

- By using CoGIS;
  By standard means of *ArcGIS for Server*, to learn more, visit https://enterprise.arcgis.com/en/server/latest/develop/linux/deploying-an-extension.htm and https://resources.arcgis.com/en/help/server-admin-api/registerExtension.html.

To install SOE using CoGIS, go to *Administration* menu and select *Services*. The page shown on figure below, will appear, see Figure 44.

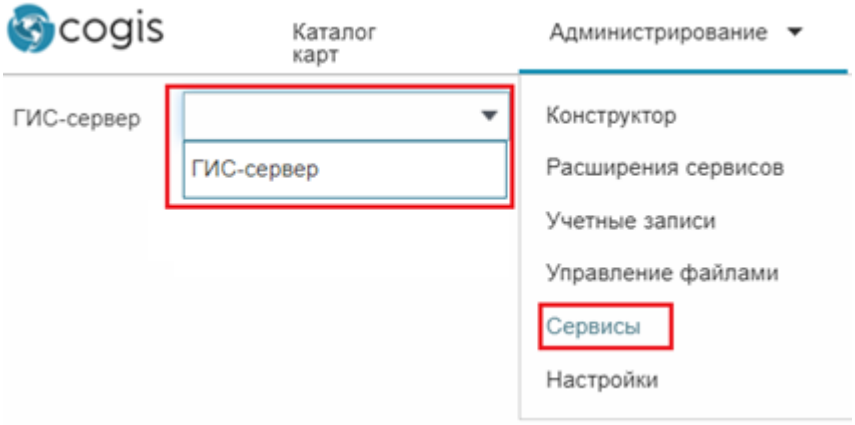



Figure 44 – Installing SOE

This page is provided for managing services of GIS server, with which the connection is established. The process of connection to GIS server is provided below, see section 3.2.1. Select GIS server on which SOE will be installed.

In the lower left corner press *Установка SOE* and select one of the provided variants in the appeared dialog:

- Install from *App_Data\soe*;
- Select file – specify *CoGIS.Core.Soe.CompositeSoe.soe*.

For each map service in CoGIS Designer in *Services* tab establish connection to *CoGIS SOE for map service*, and set its working rules at *Расширения сервисов* page.

### 2.4.3. Updating SOE

Due to some peculiarities in work of ArcGIS for Server (in case if ArcGIS for Server and not eLiteGIS is used as GIS server), the process of updating SOE should be done in several steps. The process should be strictly followed otherwise the proper work of map services is not guaranteed.

- Stop all map services to which SOE has been connected. To do so, press *Batch processing* in the lower left corner of the *Services* page. The window shown on Figure 45 will appear.

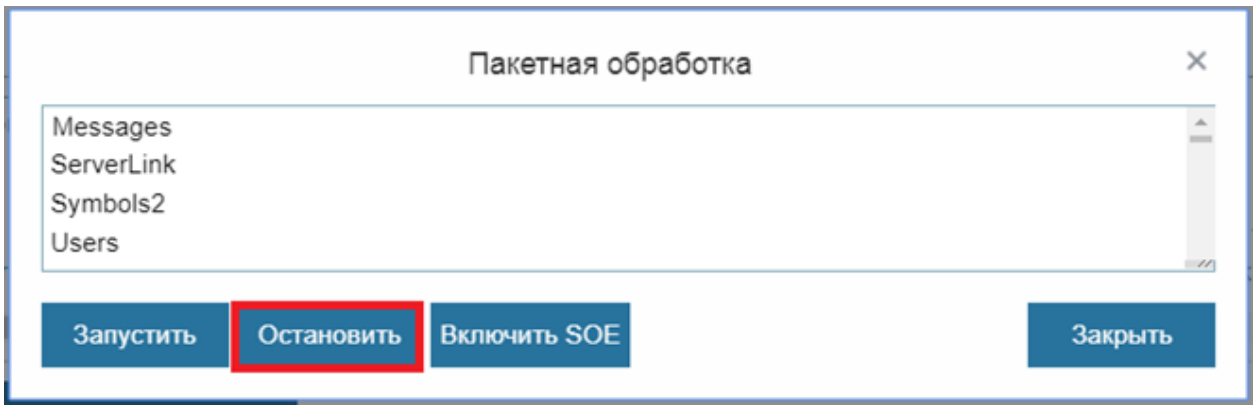



Figure 45 – First step of SOE updating

Select names of all map services to which SOE has been added and press Stop.

1. Stop ArcGIS for Server
2. Delete LOCK-, RLOCK- and WLOCK lock files from C:\arcgisserver directory
3. Run ArcGIS for Server
4. Install SOE as described in section 2.4.2.
5. Repeat Step 2 and 3.

Run all previously stopped map services to which SOE has been added.

# 3. Setting CoGIS

## 3.1. Setting CoGIS. General information.

After installing CoGIS, it should be set. To do so, in Administration menu select General settings. The settings page shown on Figure 46 will appear. The navigation tabs are located in the left part of the settings window. All CoGIS settings are specified on this page.


Figure 46 – CoGIS settings page

## 3.2. Connection to GIS server

### 3.2.1. Connection to GIS server. General information.

You need to establish connection to GIS server where map 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 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 elements' access rules are specified;
- Register CoGIS user on GIS server;
- Change registration parameters of CoGIS 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 47.

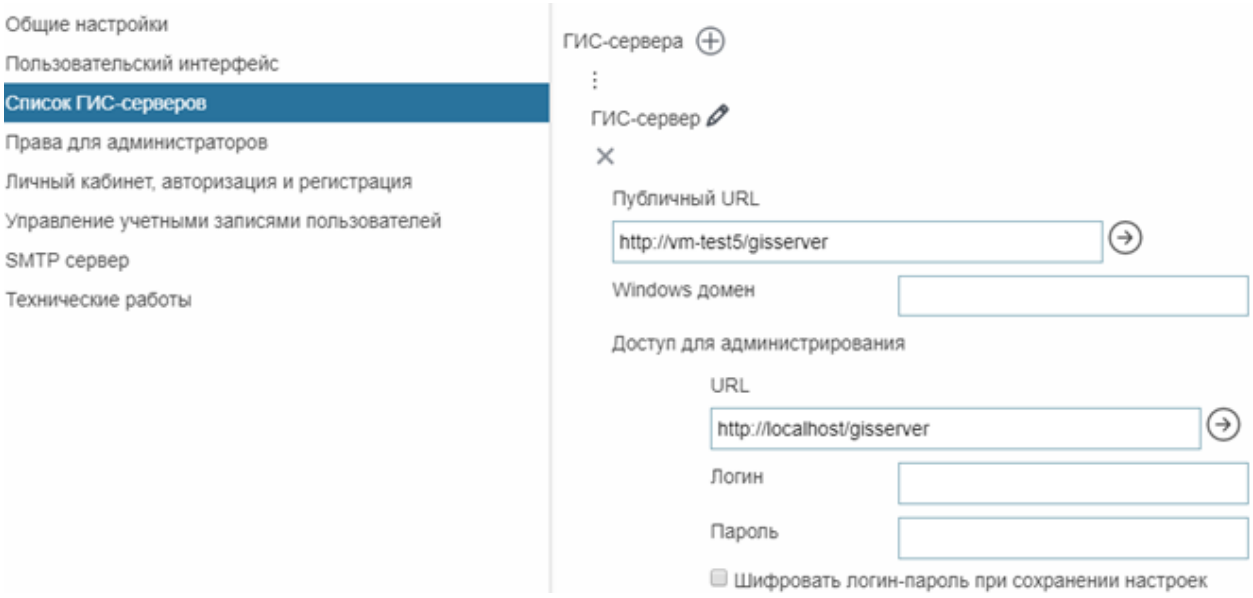



Figure 47 – Connecting to GIS server

Establish connection between web server where CoGIS 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

If GIS server is deployed on same server, where web server is deployed, you can use the following address: http://localhost/<имя_ГИС-сервера>.

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 credentials* option. Encrypted data is stored in XML file of CoGIS 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 48.

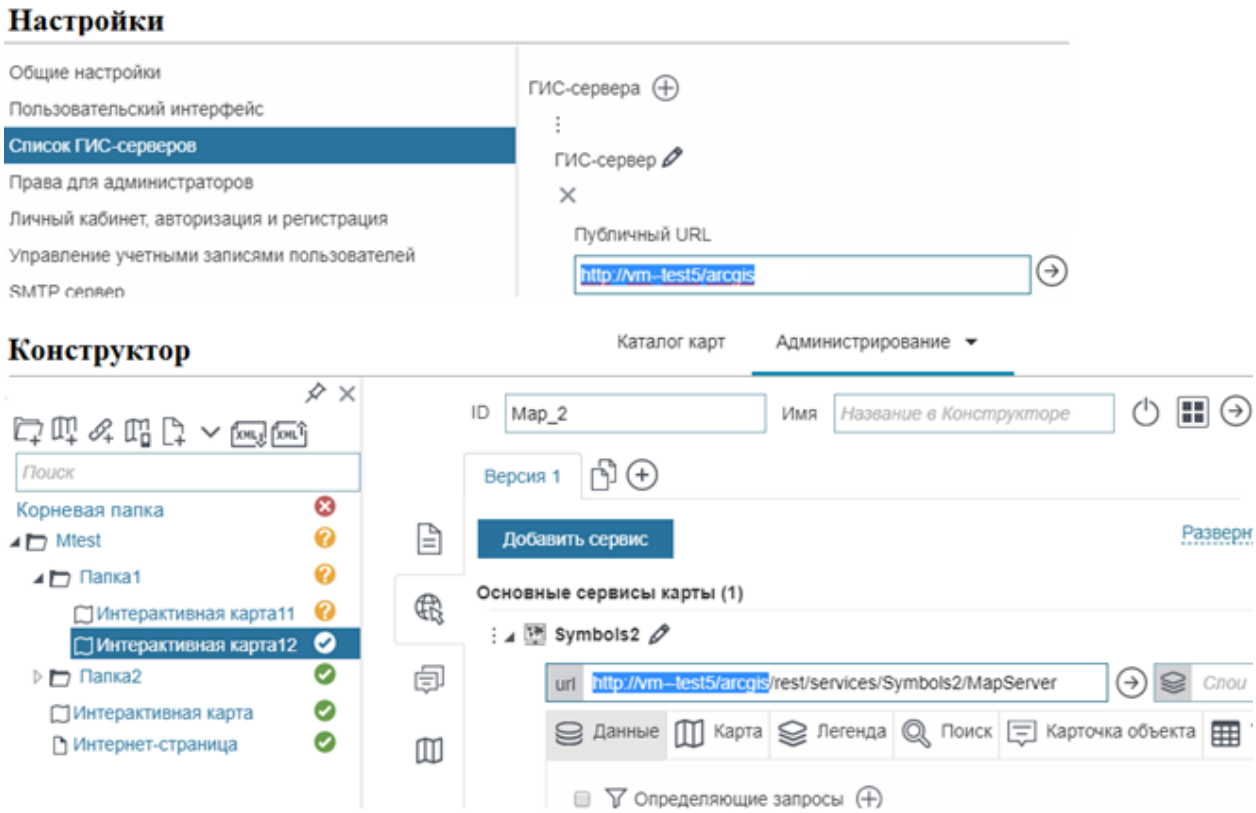



Figure 48 – Including address of GIS server to address of service

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 tabs *Administrator permissions* and *Personal account, authorization and registration* select GIS server in the dropdown list, as shown on Figure 49.

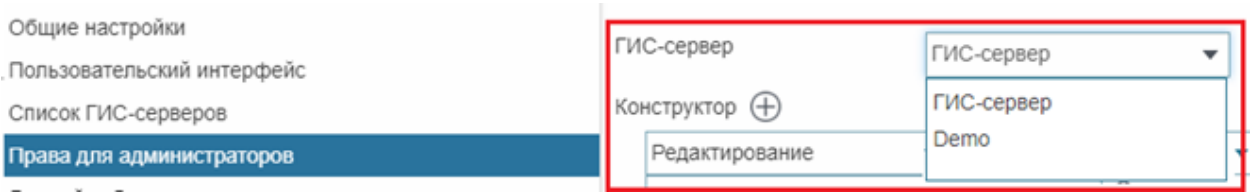



Figure 49 – Selecting GIS server

### 3.2.2. Restoring password for administrator account

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 50 with location of this line.

Delete:

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

Enter:

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


Figure 50 – Restoring password for administrator account

## 3.3. 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 web portal.
- *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.
- *User accounts* – provided for managing accounts of users and user groups.
- *Files*
- *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, on Figure 51 you can view settings, when CoGIS Designer is available for viewing to all authorized user, and editing rights are given to one user only.

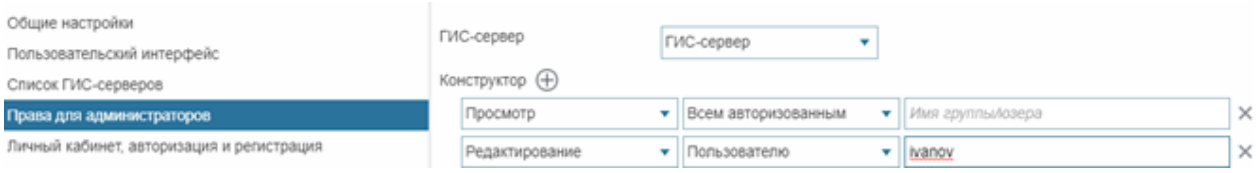



Figure 51 – Setting access rights to Administration menu

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

## 3.4. 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 *Global settings* tab, *Logging* section. Set the file size limitation. 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 is installed.

## 3.5. 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 you can download files and use them for information purposes, for example, create the link provided for automatic file download.

Prior to set access privileges to web server folders, make sure that full access to these folders is allowed for your account. Then, in CoGIS in *Global 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 52 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.

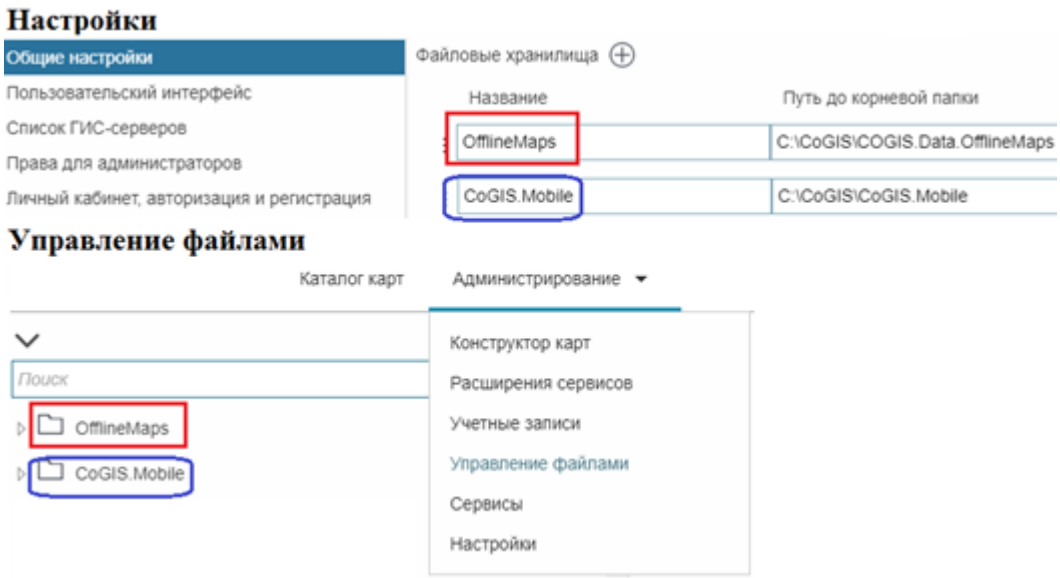



Figure 52 – Setting access to web server folders

## 3.6. Setting interface

### 3.6.1. Setting interface. General information.

You can specify the following interface settings:

- Select interface language;
- Specify welcome page;

- Edit menu;
- Download logo;
- Specify page title in browser;
- Specify footer content.

### 3.6.2. Language

The interface language is set in *General settings* tab shown on Figure 53.

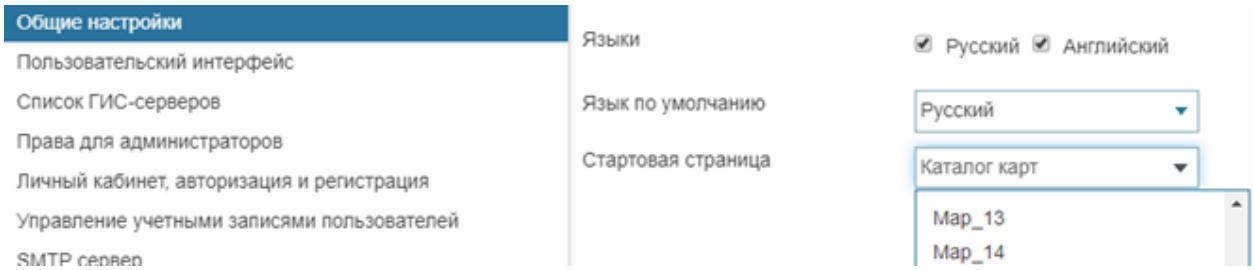



Figure 53 – Selecting interface language

Select interface languages, at the moment English and Russian are available. Select the default language.

### 3.6.3. Start page

By default the start page is *Map catalog* page described in the *Setting map catalog* section. To redefine the start page, select any other portal element, for example, page or online map from the drop-down list, see Figure 54.

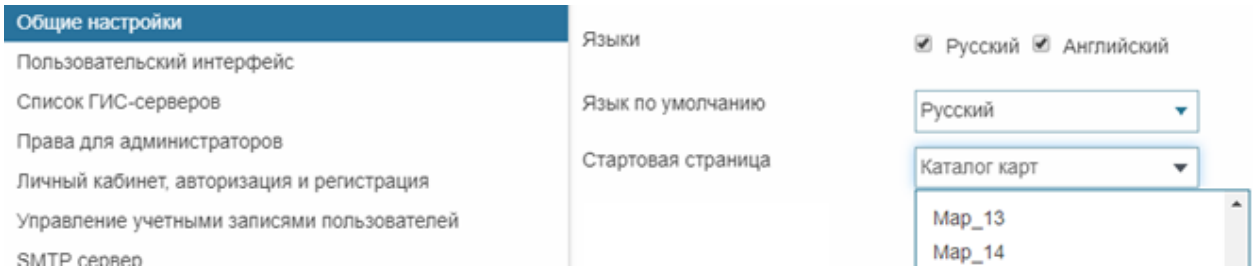



Figure 54 – Selecting start page

### 3.6.4. Menu

You can edit menu adding new items and specifying their representation. Any CoGIS 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 55.

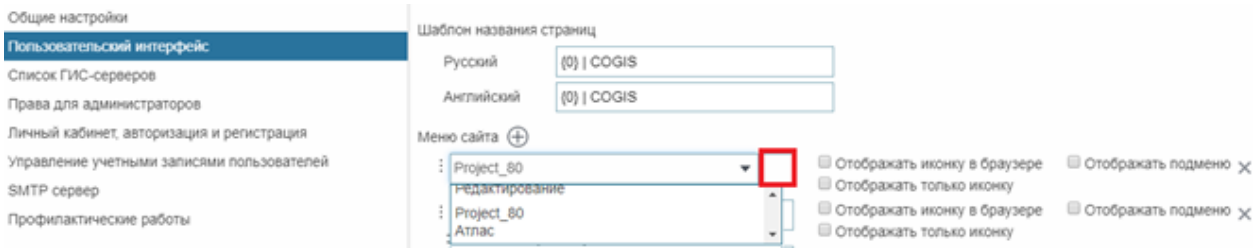



Figure 55 – Setting web portal menu

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 55 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 as per access rights set in the *Access permissions* tab and described in section *Условия доступа к элементу*. 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.

### 3.6.5. Logo

Download logos, one of which will be displayed in the CoGIS 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 56 to learn where settings are specified and how they are displayed.

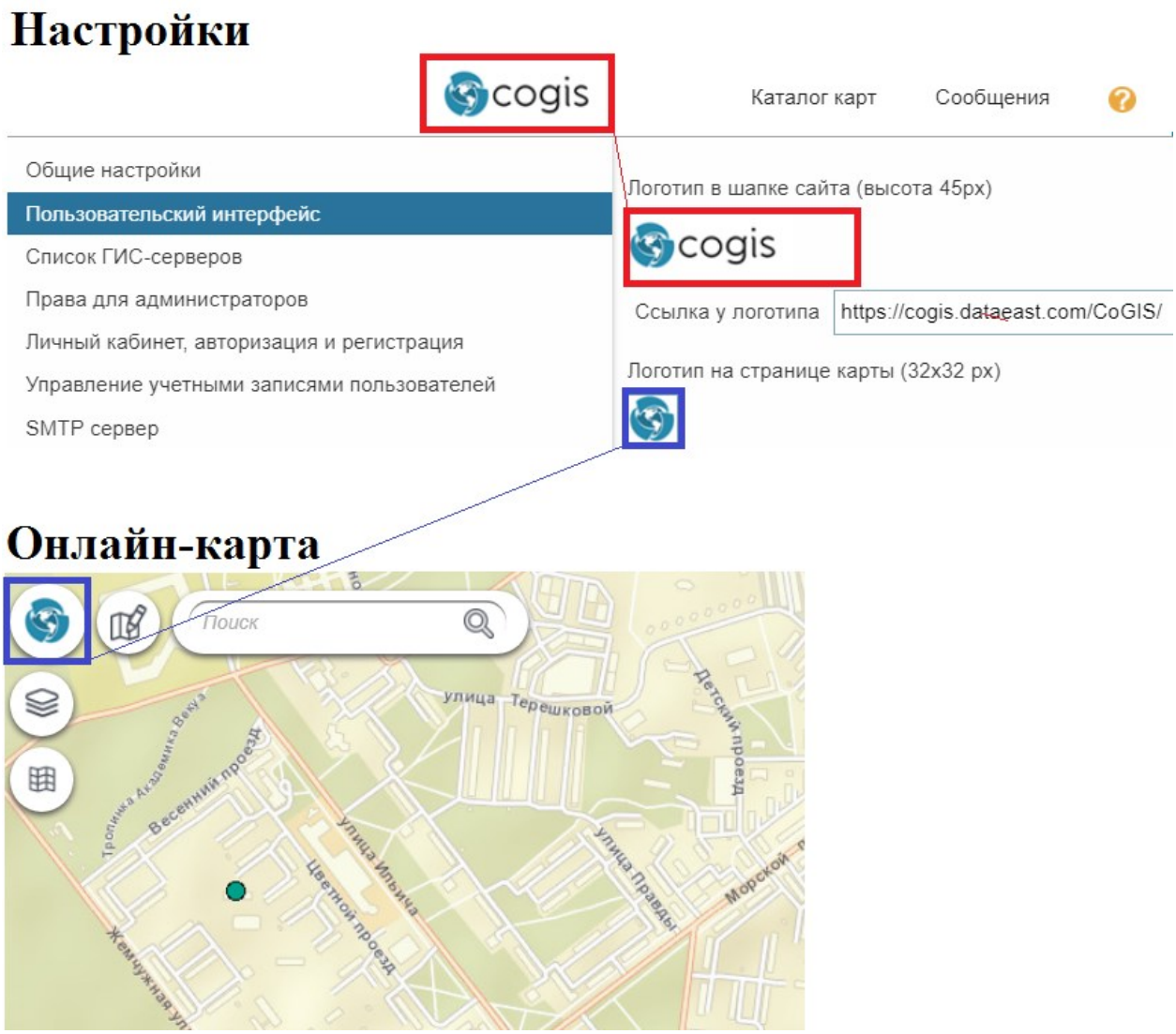



Figure 56 – Setting logo display

### 3.6.6. 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 57.

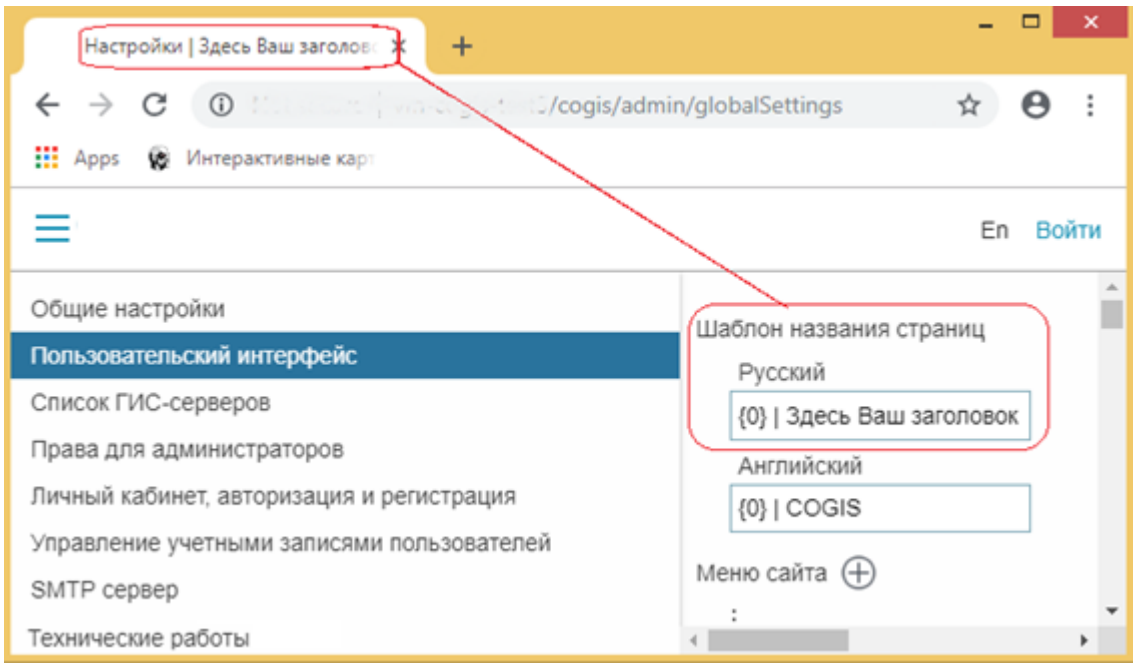



Figure 57 – Page title

### 3.6.7. Additional information. Page footer.

In the lower part of the CoGIS pages and in Map 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 *Map catalog footer* section of the *User interface* tab, see Figure 58.

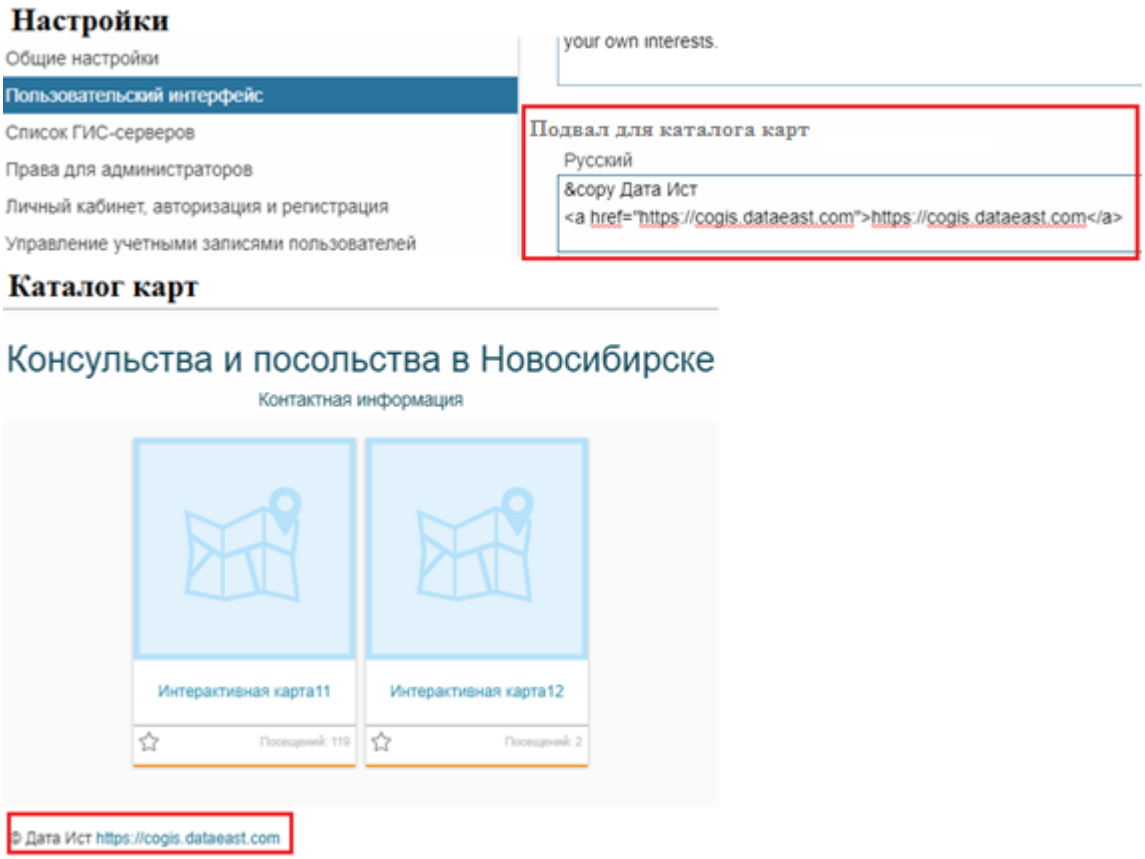



Figure 58 – Map catalog footer

## 3.7. 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 1.

Table 1 – Table with user accounts

| Attribute field name | Type | Length |
|---|---|---|
| OBJECTID | OID | – |
| Login | String | 255 |
| PasswordHash | String | 255 |
| PhoneNumber | String | 8 |
| Email | String | 255 |
| 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 59, for example.

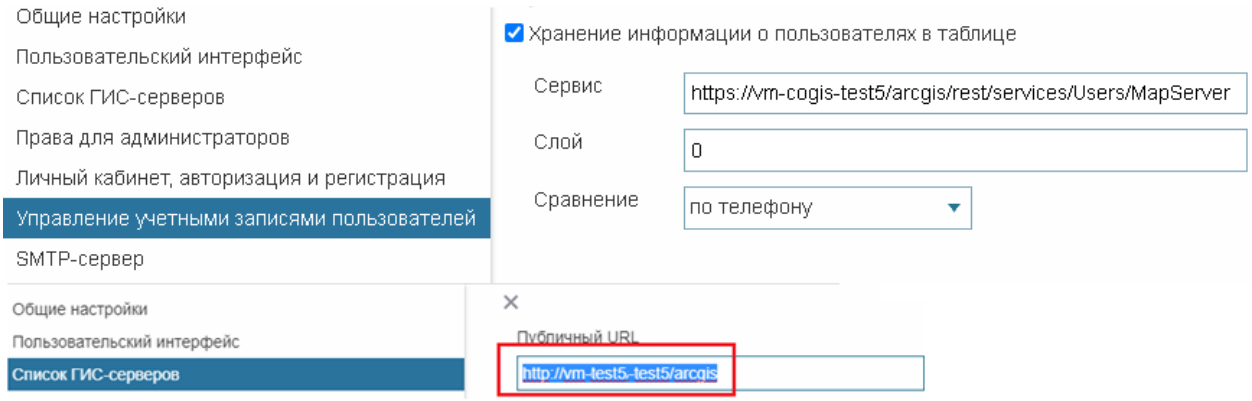



Figure 59 – Managing user accounts

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

## 3.8.Setting users login and authorization

### 3.8.1. Setting users login and authorization. General information.

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

### 3.8.2. Setting users registration

#### 3.8.2.1. 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 2 below, you can create template for registration confirmation letter.

Table 2 – Macros

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

Figure 60 below shows example of template for registration confirmation letter.

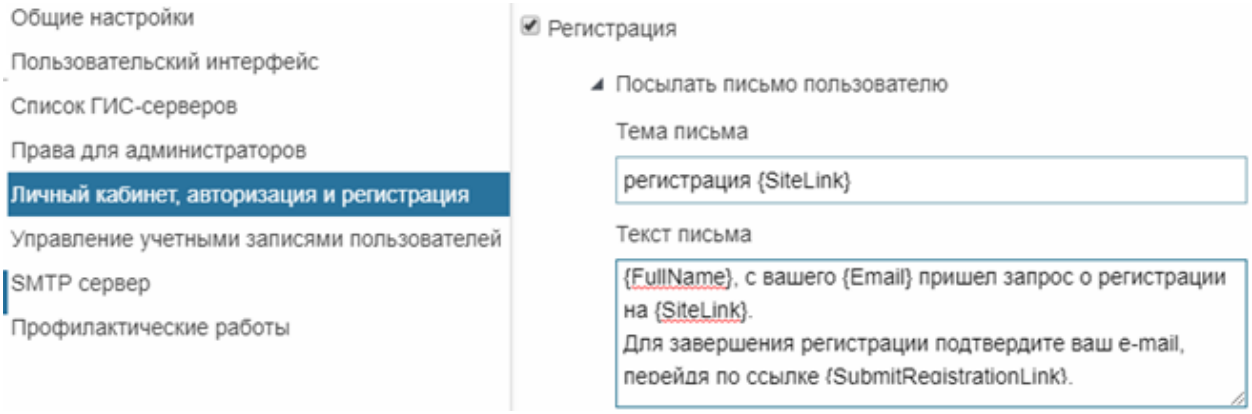



Figure 60 – Example of template for registration confirmation letter

#### 3.8.2.2. 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 61.

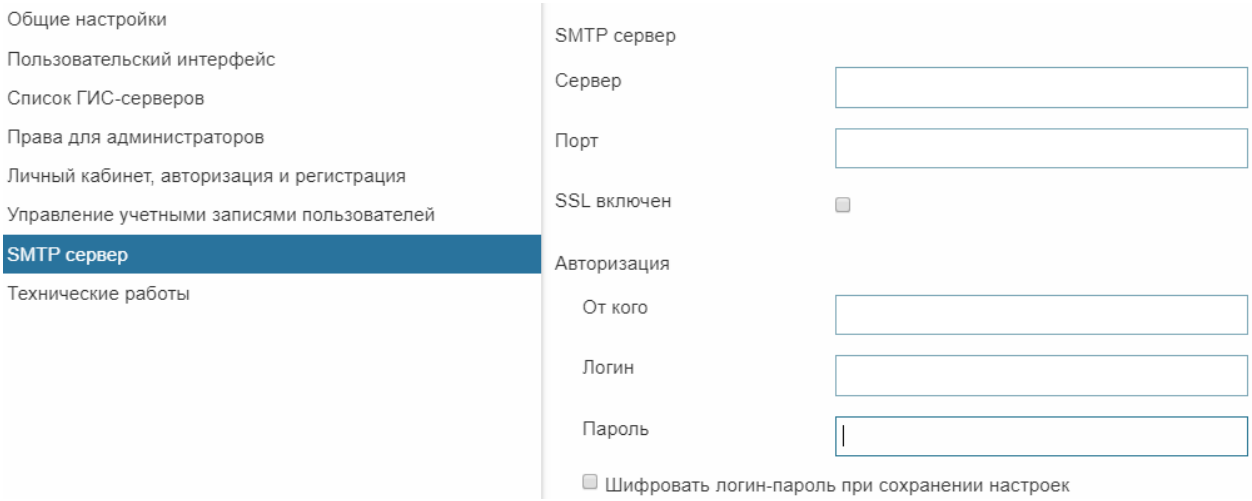



Figure 61 – Connecting to SMTP server

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 is transferred to GIS server.

#### 3.8.2.3. 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 62 for example.

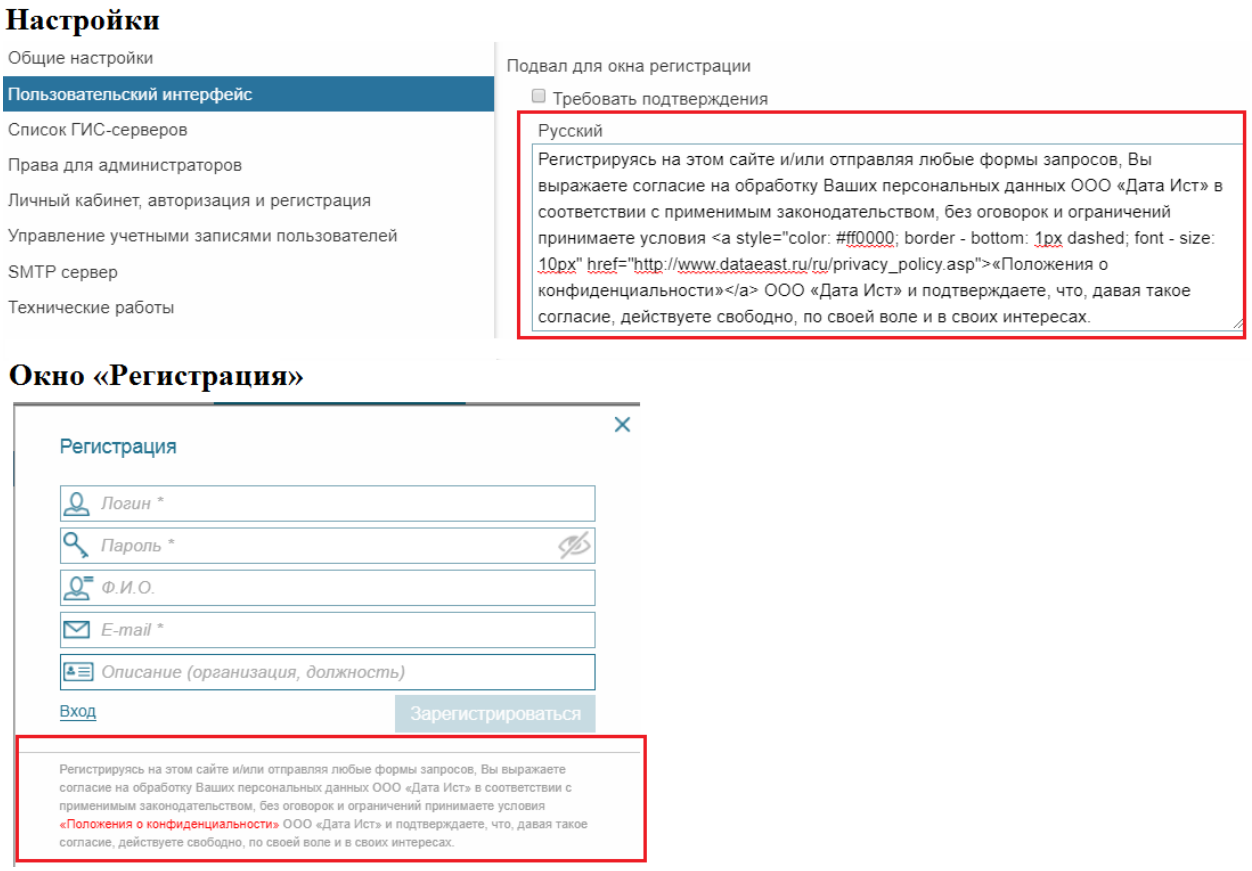



Figure 62 – Additional information in the Registration window

#### 3.8.2.4. Registration with confirmation

If you want to get confirmation from users registering in CoGIS, 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 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 63.

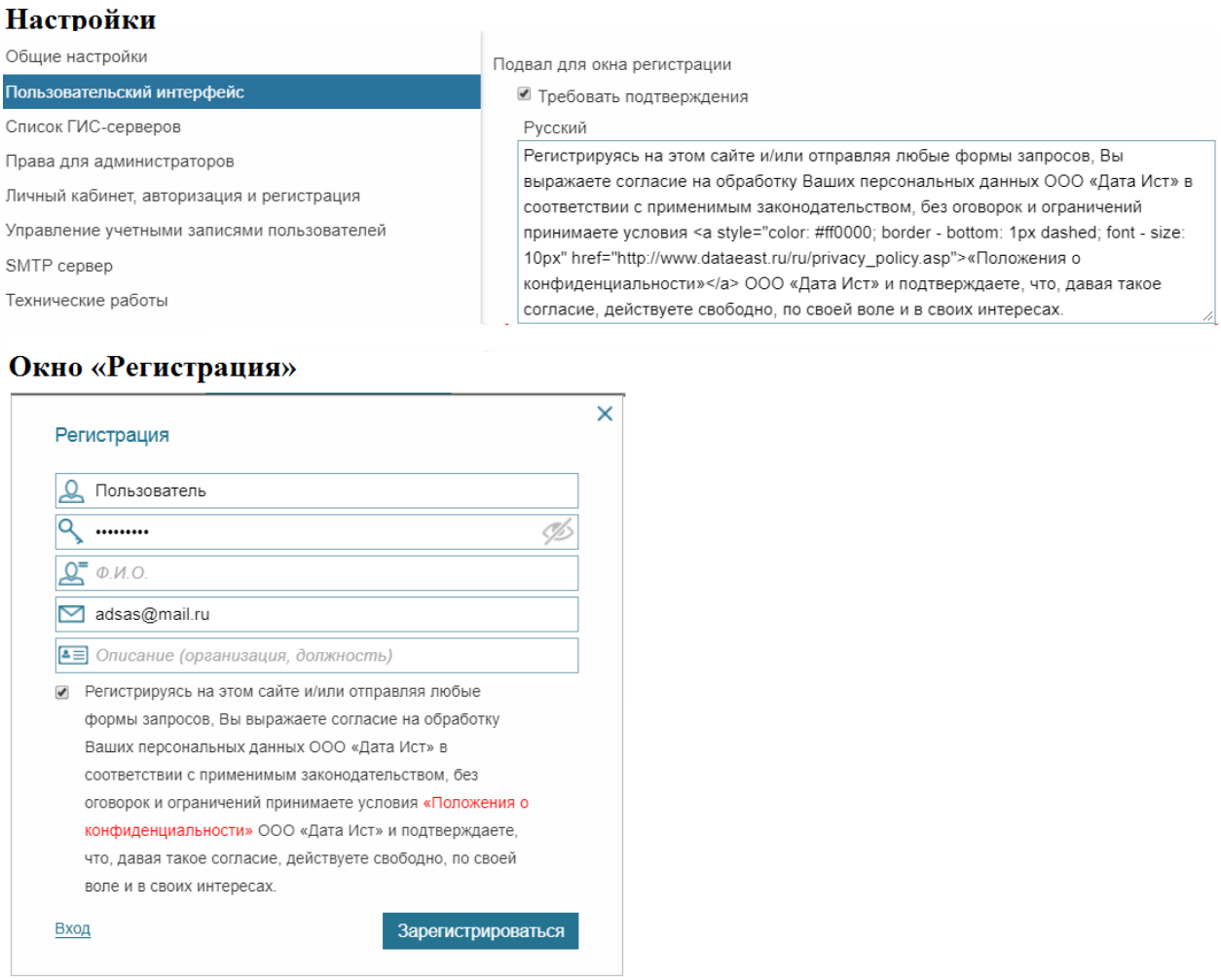



Figure 63 – Registration with confirmation

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

### 3.8.3. Setting users authorization

#### 3.8.3.1. 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.

#### 3.8.3.2. 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 64.

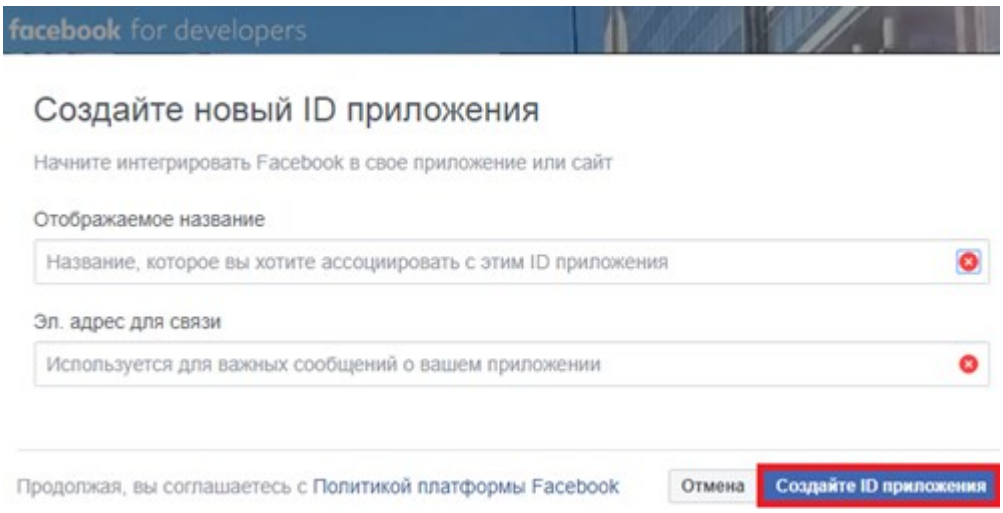



Figure 64 – Creating application ID

Press *Create application ID*, after that the app ID will be shown on the page, see example on Figure 65. This value should be entered to *app_id* field.

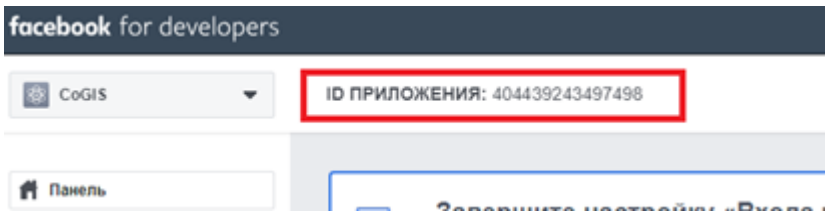



Figure 65 – Application ID

- 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.

#### 3.8.3.3. 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 66, for example.

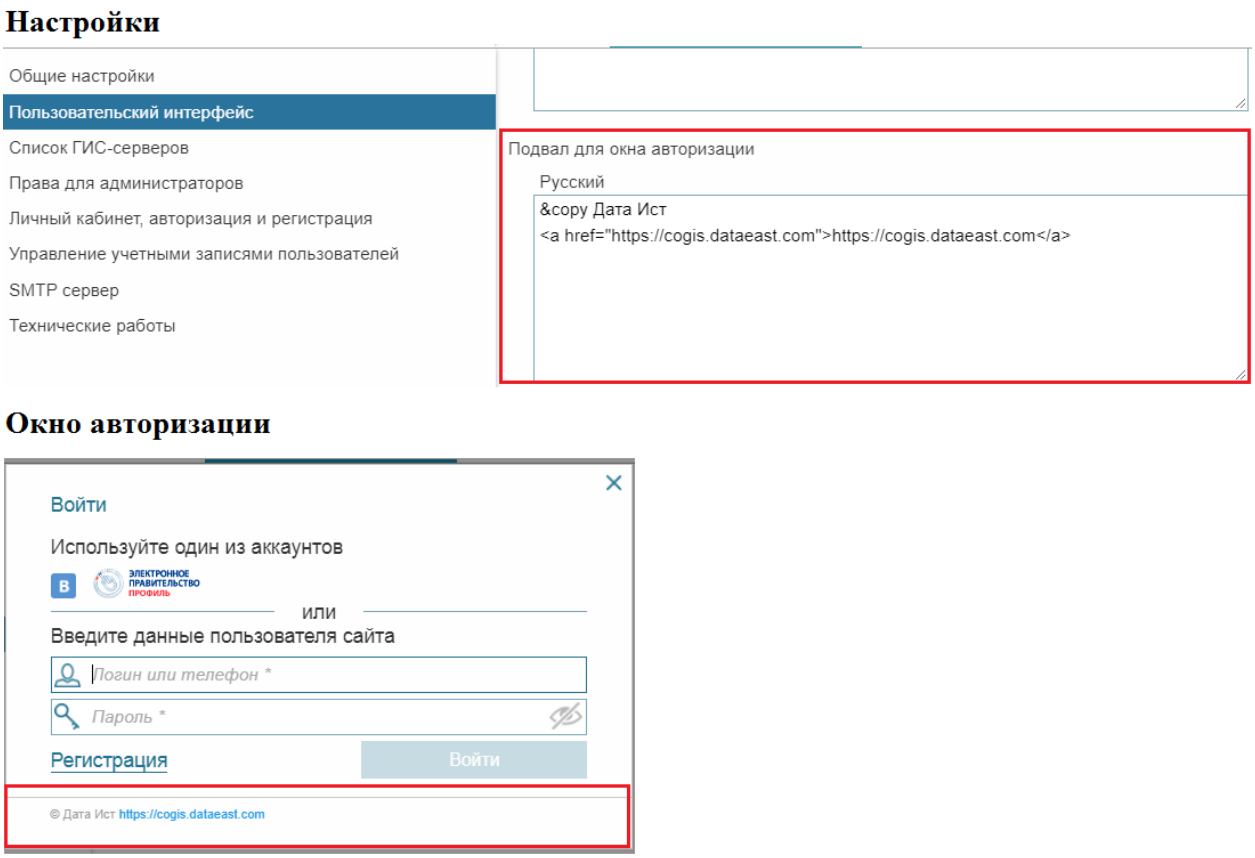



Figure 66 – Additional information in the authorization window

## 3.9. Personal account

The view of the *Personal account* window is shown on Figure 67.

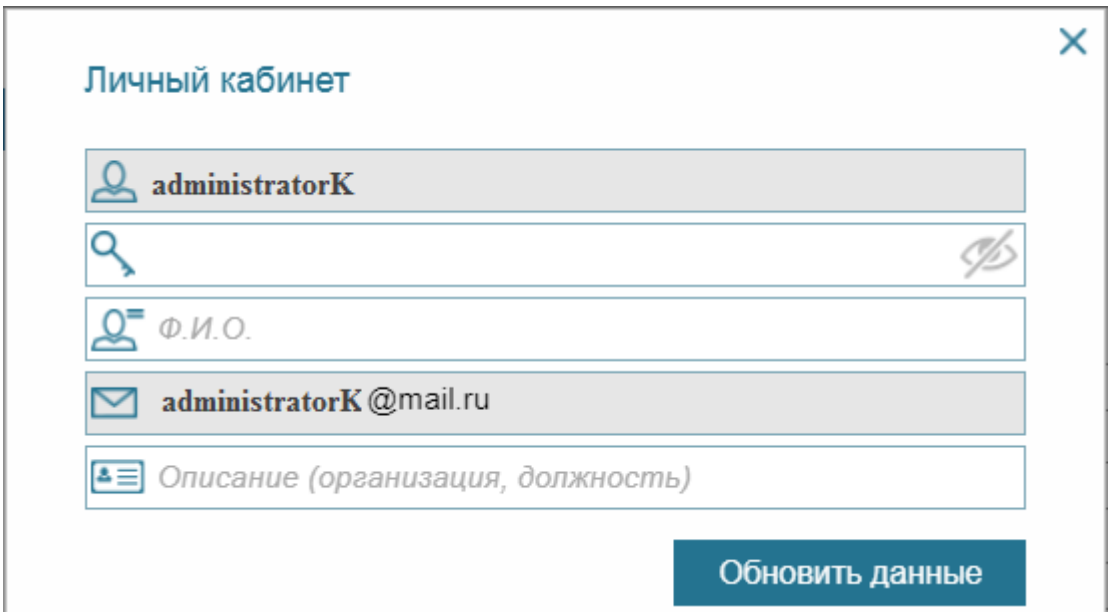



Figure 67 – Personal account window

In the lower part of the Personal account window you can locate any additional information, for example 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 68, for example.

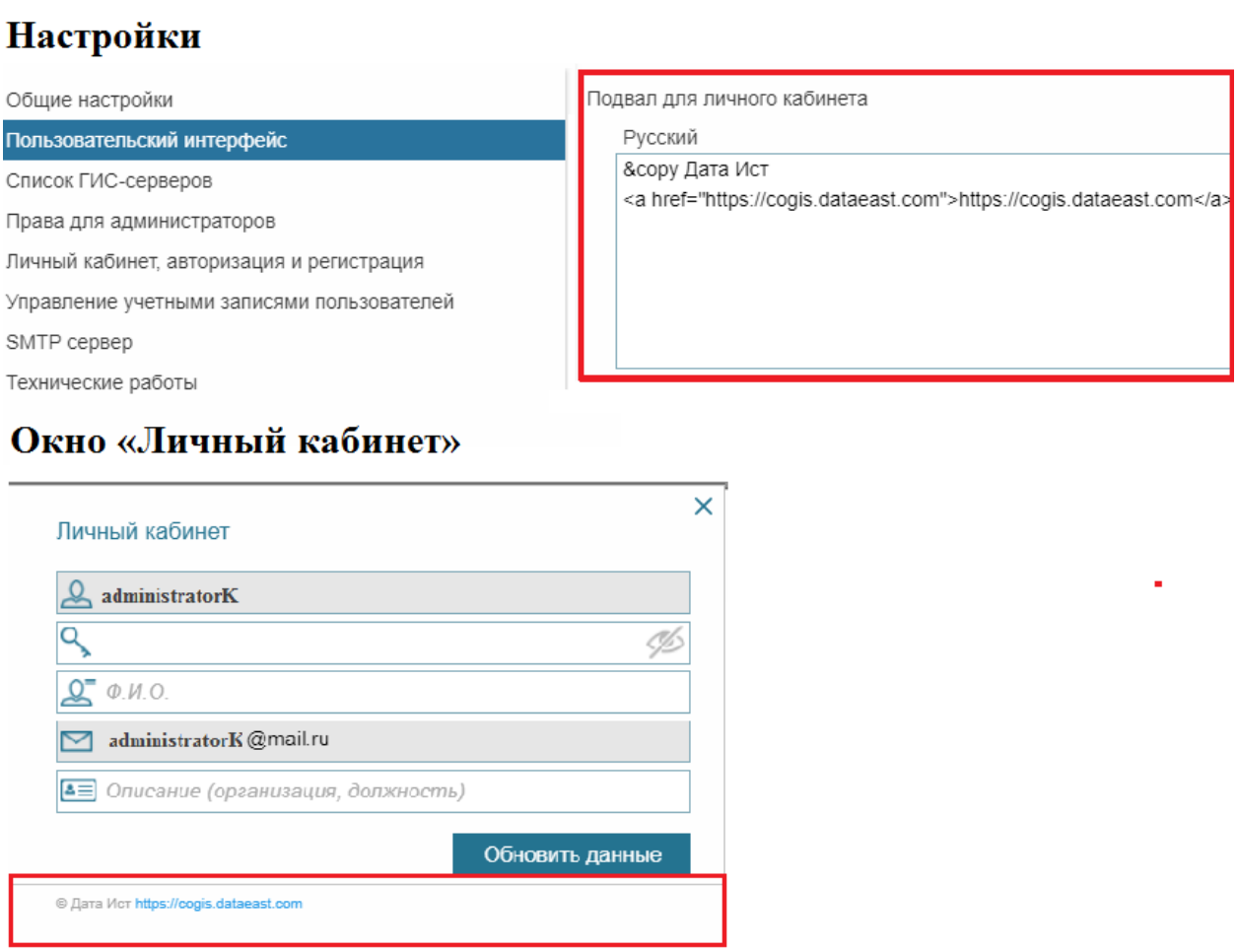



Figure 68 – Additional information in the Personal account window

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 69 and Figure 70.

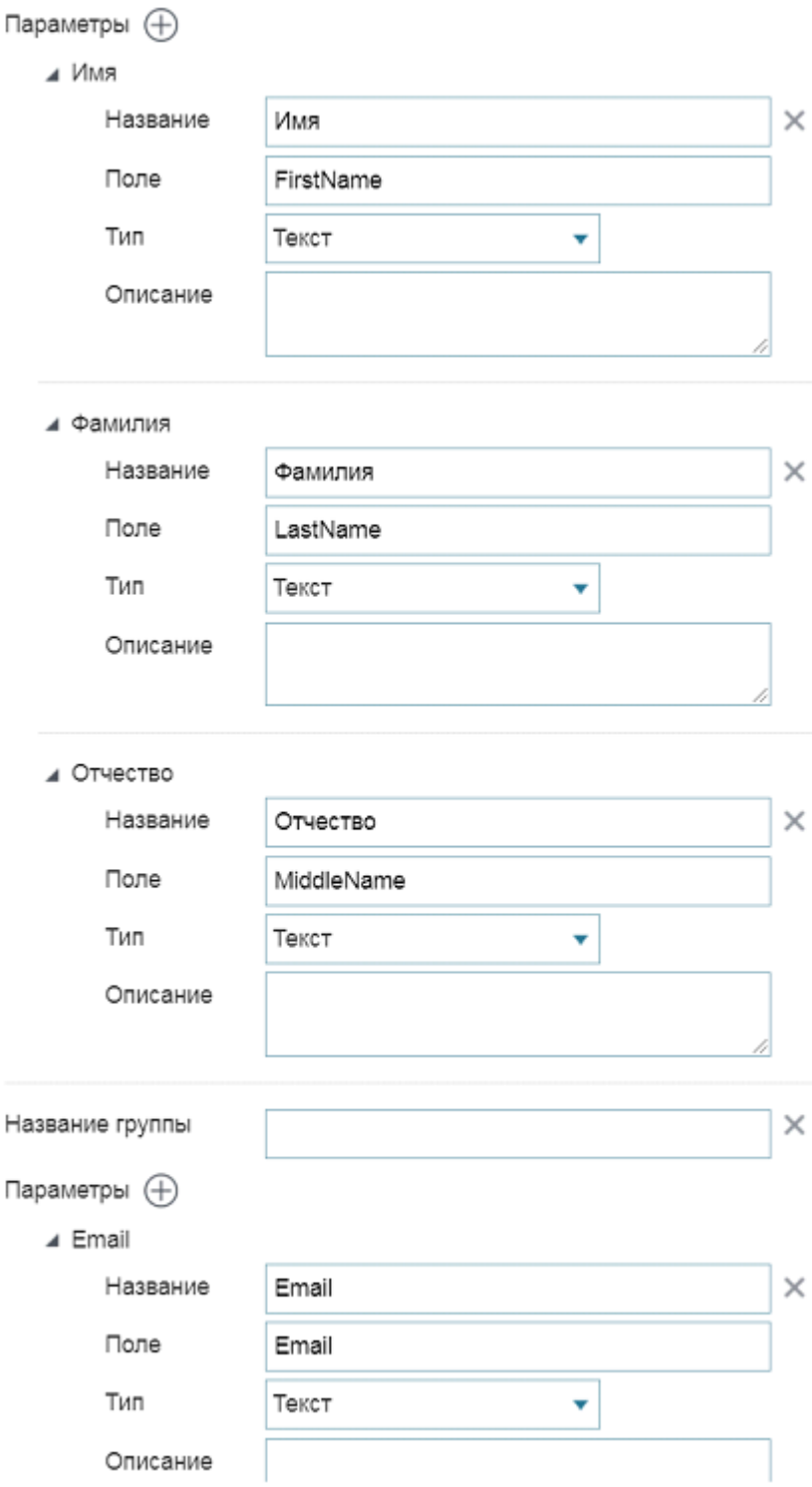



Figure 69 – Setting additional parameters of personal account

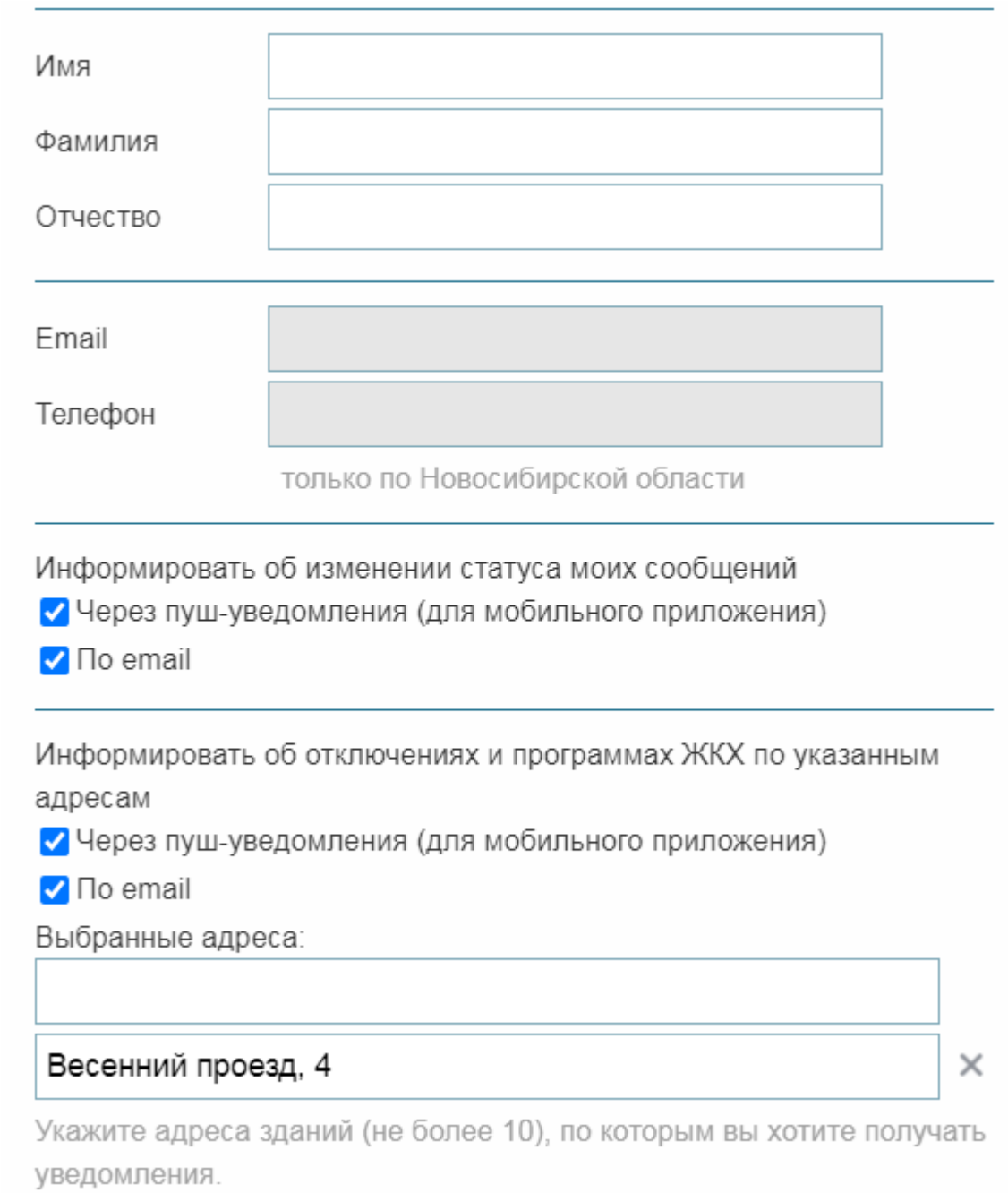



Figure 70 – Additional information

## 3.10. Maintenance works

During maintence works it is recommended to disable access to *Map catalog* content and other CoGIS 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 *Map catalog* content and other CoGIS pages.

To explain reasons of maintenance works to other user, enter the maintenance works name in the field *Name* 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 Map catalog and other CoGIS pages will display only the message you have created, for example, as shown on Figure 71.

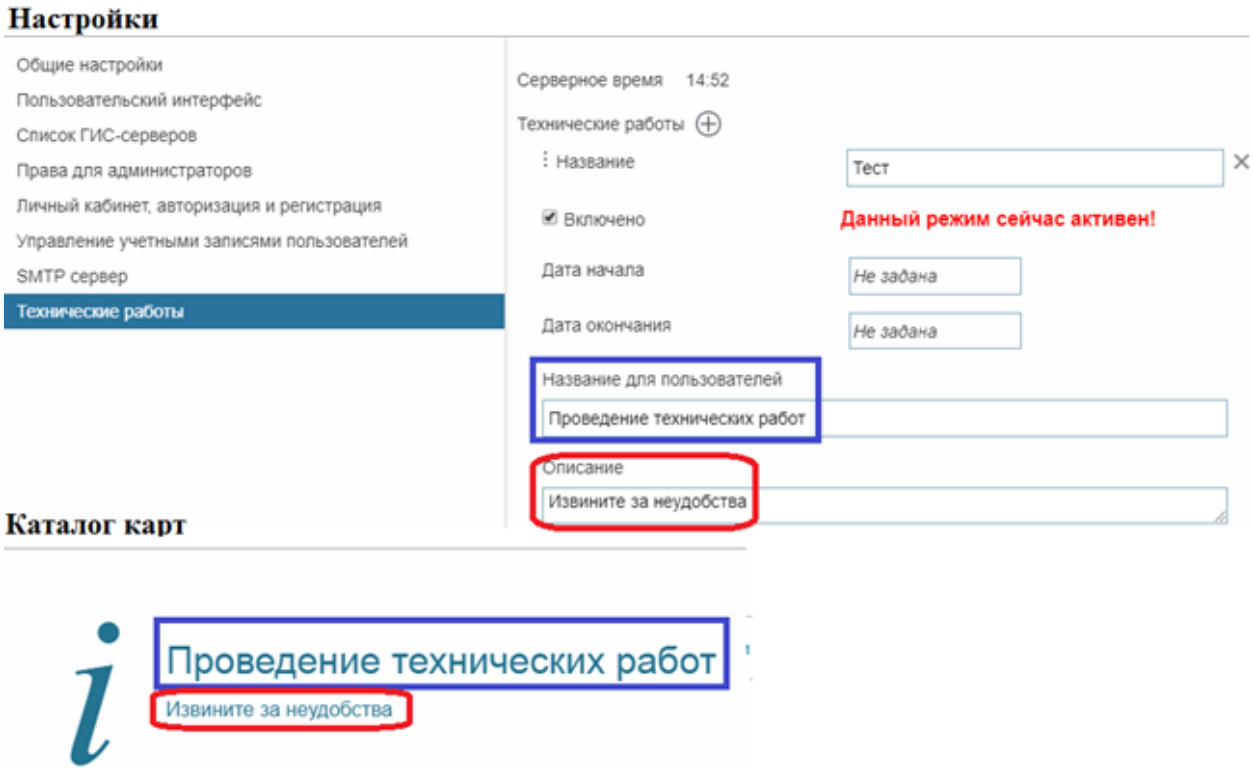



Figure 71 – Preparing for maintenance works

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 72. Please note that here server time should be set. At set time in Map catalog and on elements Internet pages the message with maintenance works name and description will appear and be fixed there until the works completion.

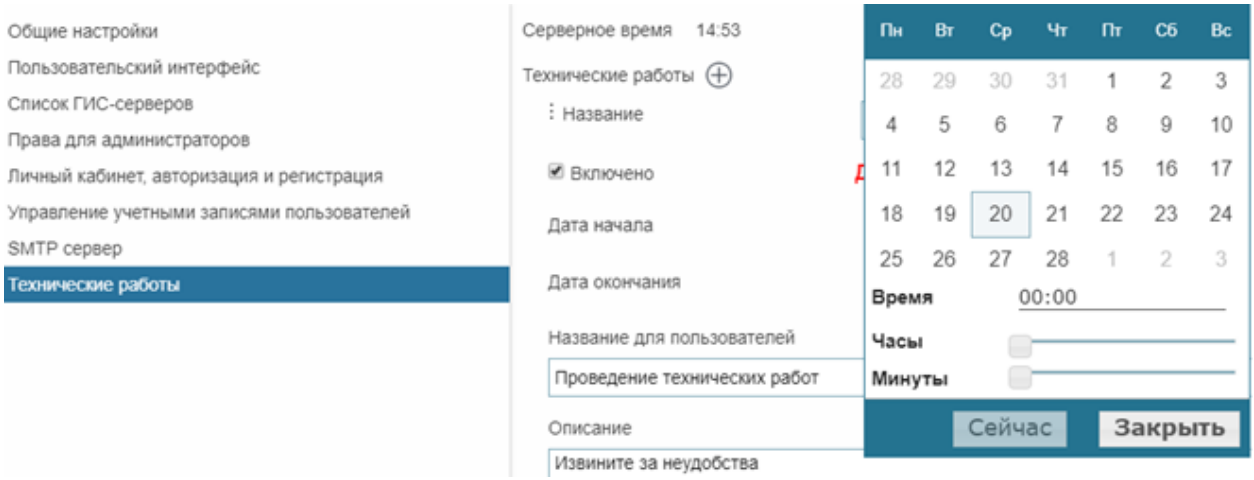



Figure 72 – Setting maintenance works start and finish dates

## 3.11. Preparing for work with offline and online maps

### 3.11.1. 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, go to *General settings* tab, select *Enable support for offline maps* option shown

on figure below, see Figure 73, 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.

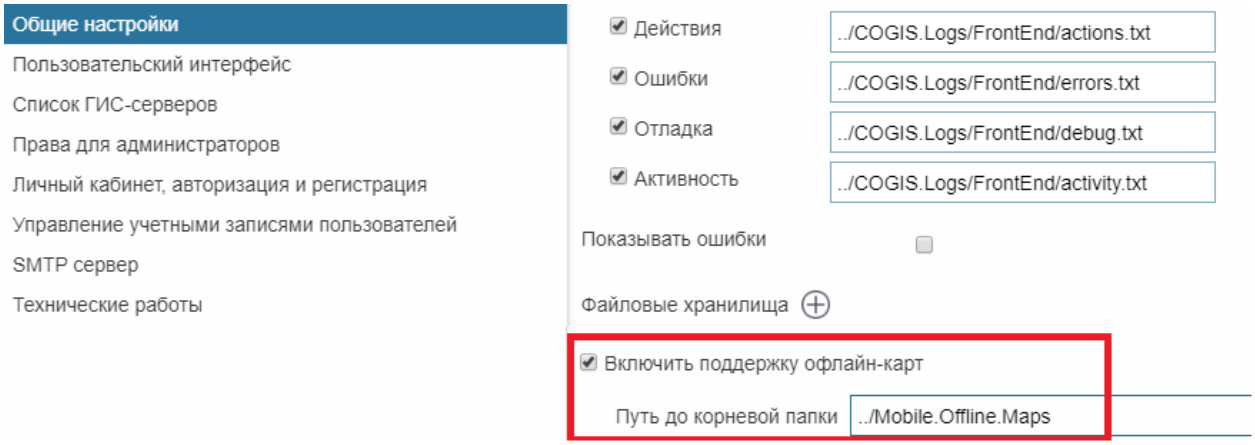



Figure 73 – Enabling support for offline maps

### 3.11.2. Preparing for work with reports

For generation of report during work with online map you will need the folder with report templates that is stored on the web server. To establish connection between templates folder and CoGIS, go to *General settings* tab, select *Enable reports* option shown on figure below, see Figure 74, and specify path to the folder in the *Root folder path* field.

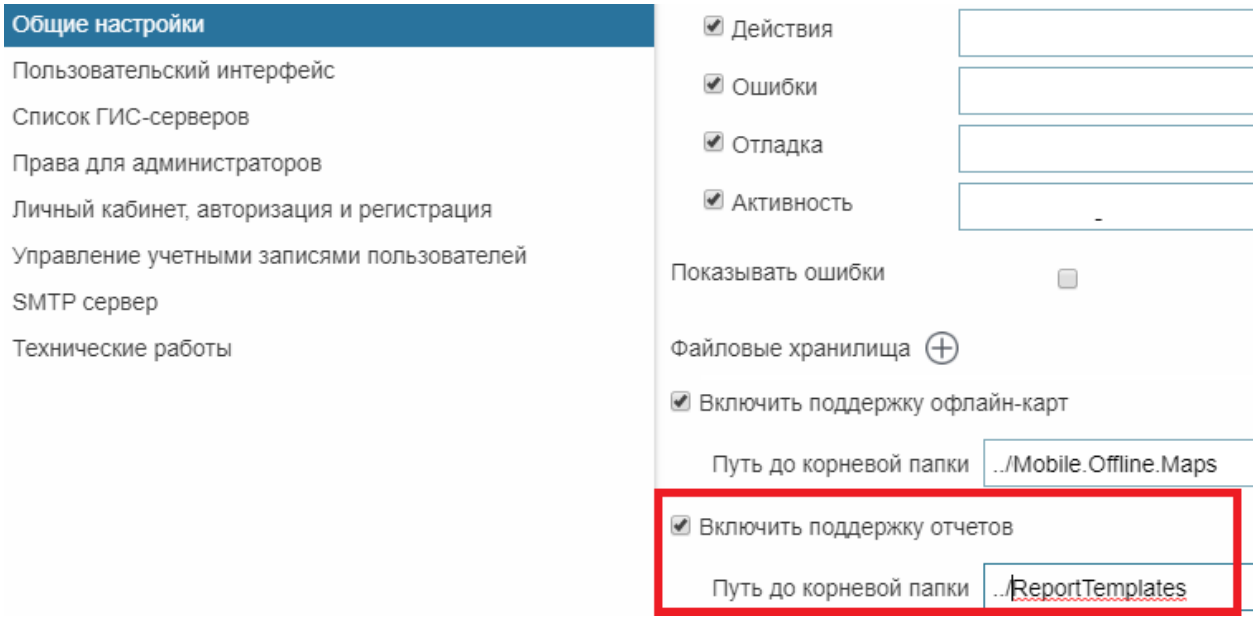



Figure 74 – Enabling support for reports

In order that later, when setting up reports or setting up data upload by templates, the administrator has access to this folder via web interface, you need to enable access to this folder, see *Giving web access to web server files*, section Ошибка! Источник ссылки не найден..

### 3.11.3. Referencing to coordinate system

For online map you can specify settings with which it will be available for viewing 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.

### 3.11.4. 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 75.

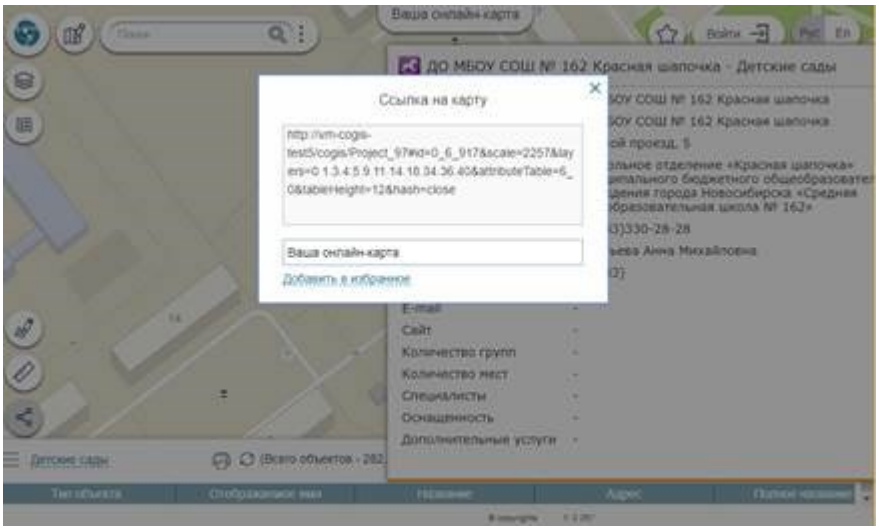



Figure 75 – Client link to map generated by default

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 Creating map applications in CoGIS manual.

On Figure 75 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 76.

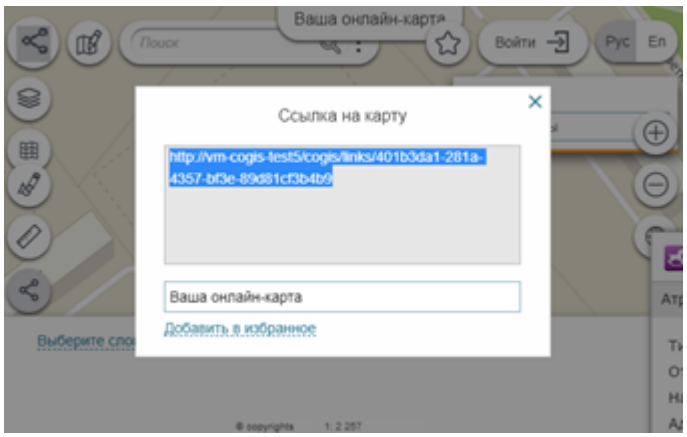



Figure 76 – Server link to map

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 that will contain 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 3.

Table 3 – 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 *Использовать сервис для хранения ссылок из 'Поделиться ссылкой'* 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 77 for example.

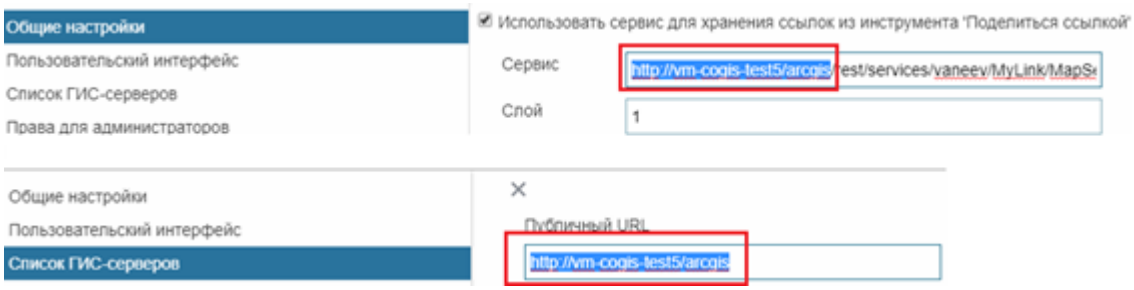



Figure 77 – Connection of service for storing links to maps

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

The server link, 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, 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.

To view parameters containing in the server link, go to the developer's console by pressing F12 and enter `<api.getProject().state>` command.

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 4.

Table 4 – 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<br>onlyZoom | ID of the object to which the map will be | id=0_10_1250269<br>id=!0_10_1250269 (instead of the object's identification card the object's callout will be shown) |

| Parameter | Parameters of map application | Example |
|---|---|---|
| | 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) | 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<br>century<br>coordSys | Coordinates to that the map needs to be zoomed and the coordinate system | centerX=82.89287567138673&centerY=54.98519248891578& |
| tableServiceUrl<br>tableLayerId<br>tableHeight | Parameters of the attribute table (URL of the service, | http://cogis.dataeast.com/portal /NSK_Zoo_New#tableServiceUrl=http://.../MapServer&tableLayerId=1 &tableHeight=42 |

| Parameter | Parameters of map application | Example |
|---|---|---|
| | number of the layer, height of the attribute table) | |
| visibleWidgets | Names of widgets that need to be opened (by name of widget specified in CoGIS Designer) | visibleWidgets=State |
| 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 | http://cogis.dataeast.com/portal /NSK_Zoo_New ?disableIdentify=true |

| Parameter | Parameters of map application | Example |
| --- | --- | --- |
| | identification | |

# 4. Setting mobile service for work of CoGIS Mobile applications

## 4.1. 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.

Mobile service settings contain the following sections:

- General settings;
- Logging;
- GPS;
- Prompt;
- Notifications;
- Push-notifications.

## 4.2. Mobile service. Settings.

The view of the Settings window is shown below, see Figure 78.

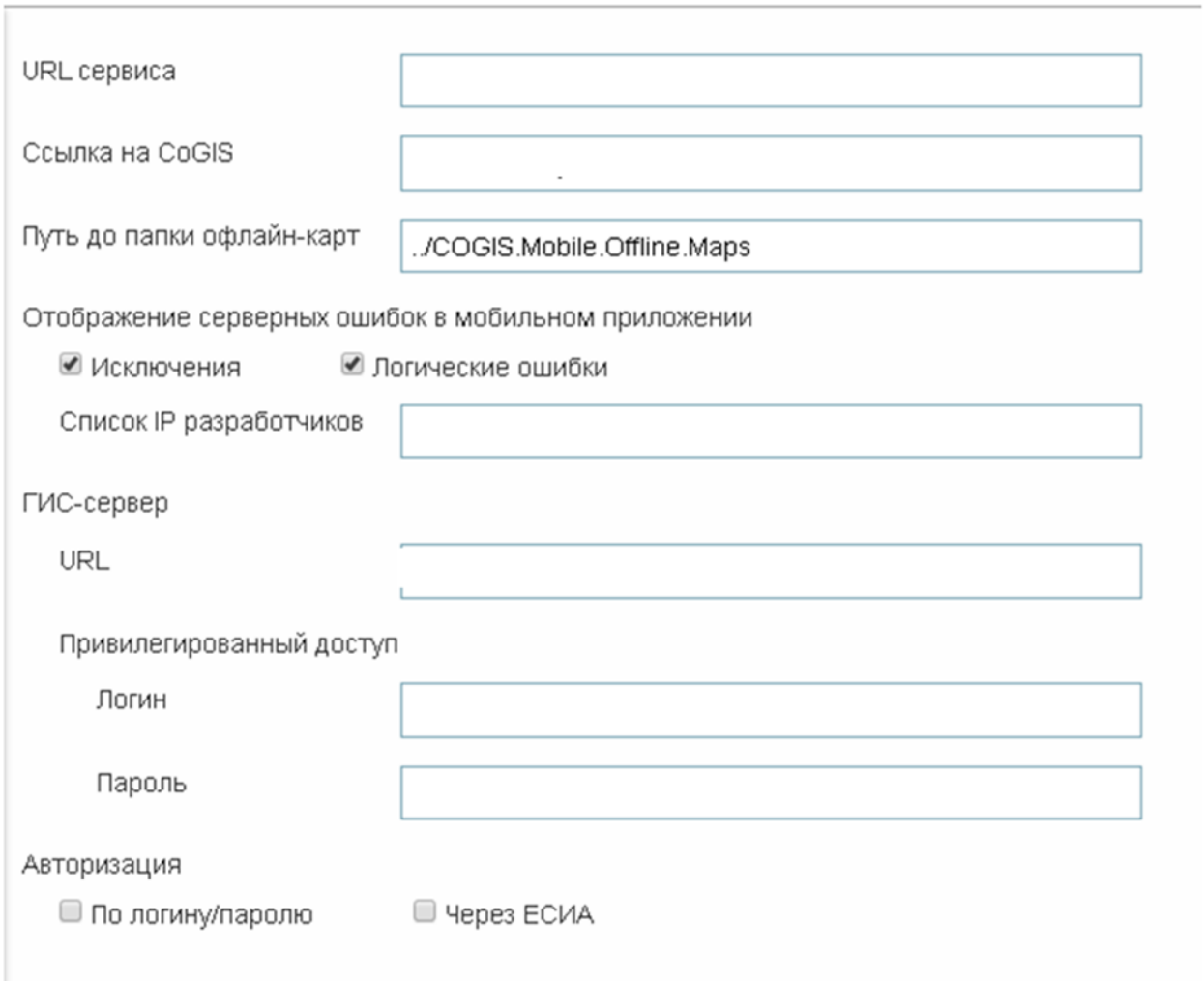



Figure 78 – Settings of mobile service

Specify link to geoportal 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.

## 4.3. Mobile service. Logging.

The view of the Logging window is shown below, see Figure 79.


Figure 79 – Logging settings of mobile service

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

## 4.4. Mobile service. GPS.

For GPS monitoring, the following parameters need to be specified, see Figure 80:

- 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.

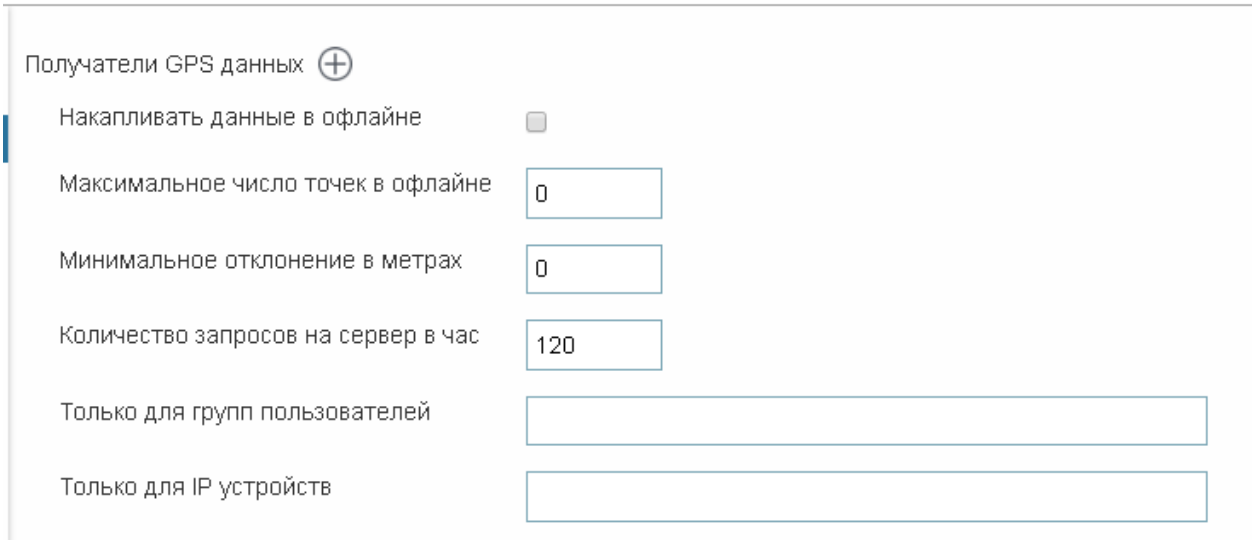



Figure 80 – GPS monitoring settings

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 81:

- Field with session ID;
- Field with user name;
- Field with data transfer date;
- Field with client date;
- Field with device ID.

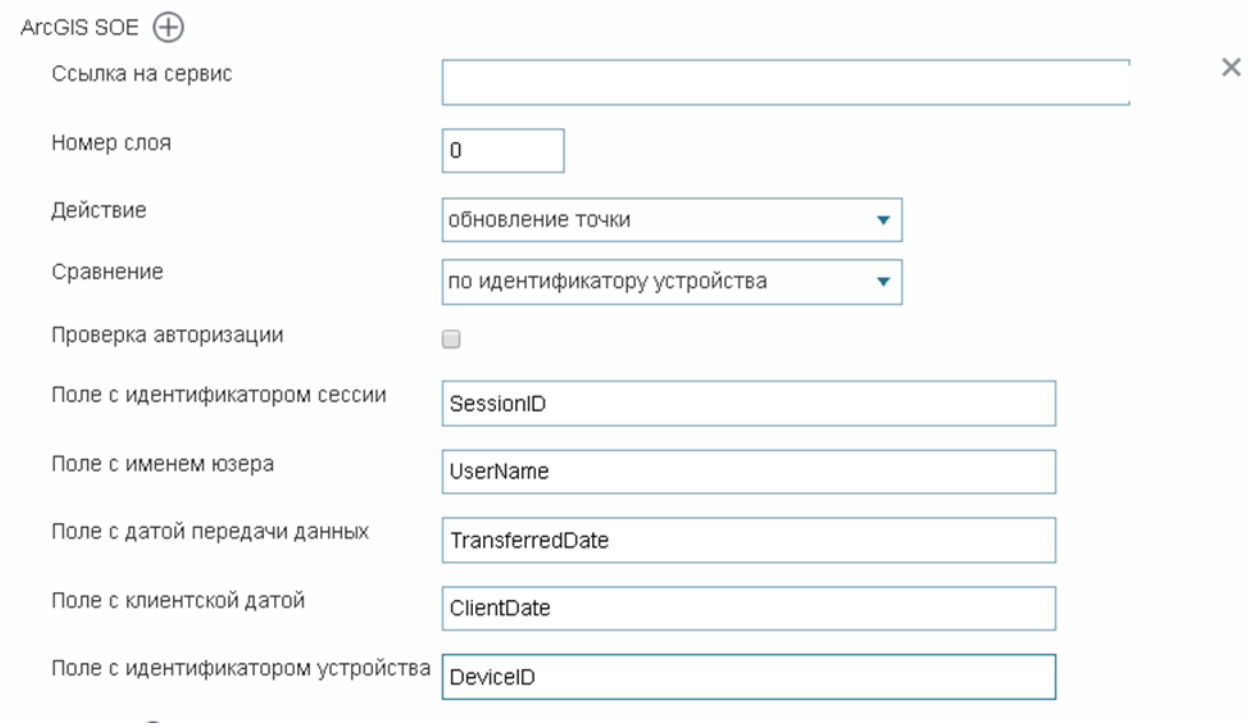



Figure 81 – SOE settings for GPS monitoring

In order to set up GPS monitoring via *GeoEvent,* specify service URL and SOAP template for GPS location data of mobile device, see Figure 82.


Figure 82 – Setting GeoEvent for GPS monitoring

## 4.5. Mobile service. Prompt.

If you need to set the address prompt by geocoding service, specify *Шаблон запроса для геокодирования* and *Шаблон запроса для обратного геокодирования*, see Figure 83.


Figure 83 – Setting prompt by address

## 4.6. Mobile service. Notifications.

In order to enable inner notifications in mobile applications, check *Включить*, specify *Временной интервал в секундах*, 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 84.

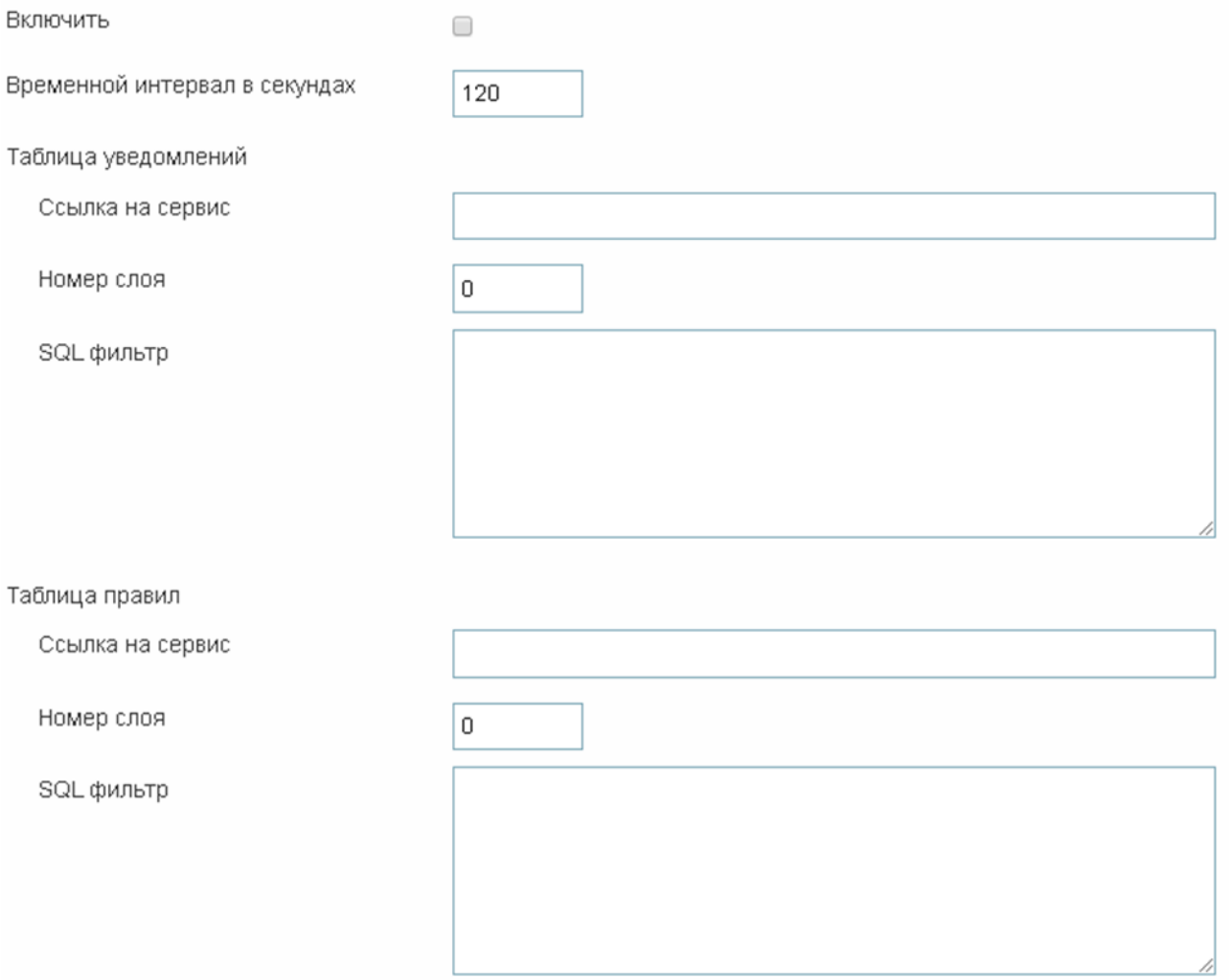



Figure 84 – Setting sending of inner notifications of mobile client

## 4.7. Mobile service. Push notifications.

In order to enable push notifications, check *Включить*, specify SOE for map service and number of layer for recording of push tokens, see Figure 85.


Figure 85 – Settings for sending push notifications