

CoGIS Server

Installing and setting

Manual on installing and setting GIS server of CoGIS platform

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1. Preamble

1.1. CoGIS 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;
- **CoGIS Server** – a GIS server for publishing data and tools as web services.

CoGIS Server components

- Sever components provided for publishing of services and arranging web access to these services via REST API;
- Web console **CoGIS Server Manager** with graphic interface for publishing GIS services and setting GIS server.

The given manual provides instructions on installing and setting GIS server and managing users.

The complete list of available manuals is provided in section **Ошибка! Источник ссылки не найден..**

1.2. System requirements

CoGIS Server can be installed with the following operating systems:

- Windows Server 2012 R2+
- Linux:
 - Astra
 - Alpine: 3.10+
 - Debian: 9+
 - Ubuntu: 16.04+
 - Fedora: 29+
 - CentOS: 7+
 - RHEL: 6+
 - openSUSE: 15+
 - SUSE Enterprise Linux (SLES): 12 SP2+.

Web servers required for working with **CoGIS Server**: NGINX, Apache, IIS.

DBMS used by **CoGIS Server** as data source can be:

- PostgreSQL 9.6+ / PostGIS 3+
- Microsoft SQL Server 2008 R2+.

Compute requirements for installation of **CoGIS Server** are provided in Table 1.

Table 1 – Compute requirements

Parameter		Small projects for demonstration purposes, testing, piloting	Systems put into operation	Systems put into operation with high load
Processor	Clock frequency, GHz	>= 2,8	>= 2,8	>= 2,8
	Number of cores	4	8–12	>= 16
RAM, Gb		8-12	32	64–128
Disk	Type	HDD	SSD or HDD	both SSD, and HDD
	Size, Gb	200-500	1000	SSD – 1000 HDD – 4000

1.3.Additional information

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

- General description of CoGIS platform, including description of CoGIS Server;
- Manual on CoGIS Server - publishing GIS services;
- Manual on CoGIS Server - installing and setting;
- Manual on CoGIS Server - creating map projects in QGIS;
- Manual on CoGIS Portal - creating map applications;
- Manual on CoGIS Mobile - working in mobile applications.

2. Installing CoGIS Server

2.1.Installing on Windows OS

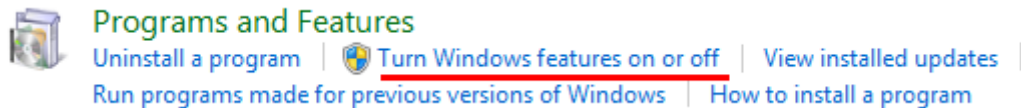
2.1.1. Preliminary system setup

2.1.1.1. Internet Information Services (IIS)

For work of CoGIS Server 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.

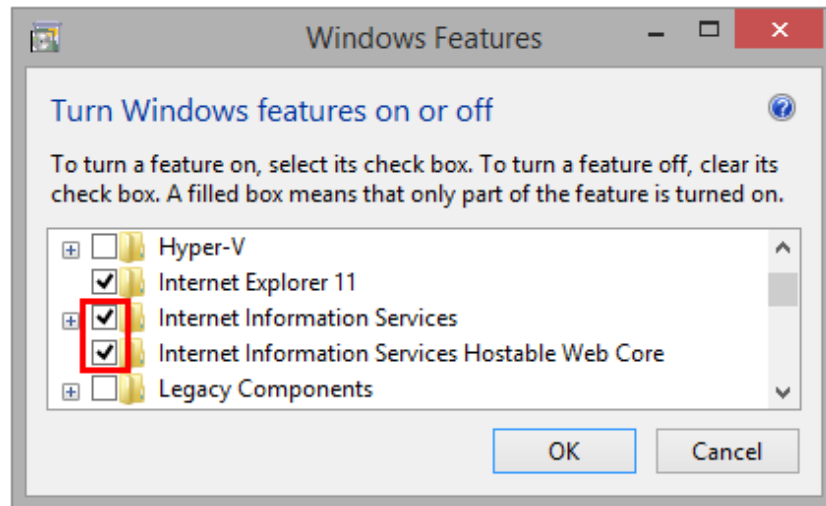


Figure 1 – Turning on IIS program components

Then press OK. The program components will be installed.

2.1.1.2. .NET Core 6.0

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.

ASP.NET Core Runtime 6.0.16

The ASP.NET Core Runtime enables you to run existing web/server applications. On Windows, we recommend installing the Hosting Bundle, which includes the .NET Runtime and IIS support.

IIS runtime support (ASP.NET Core Module v2)
16.0.23083.16

OS	Installers	Binaries
Linux	Package manager instructions	Arm32 Arm32 Alpine Arm64 Arm64 Alpine x64 x64 Alpine
macOS		Arm64 x64
Windows	Hosting Bundle x64 x86 winget instructions	Arm64 x64 x86

Figure 2 – Downloading .Net Core 6.0 installer

Now install .Net 6.0 (Hosting bundle).

2.1.2. Running installer

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

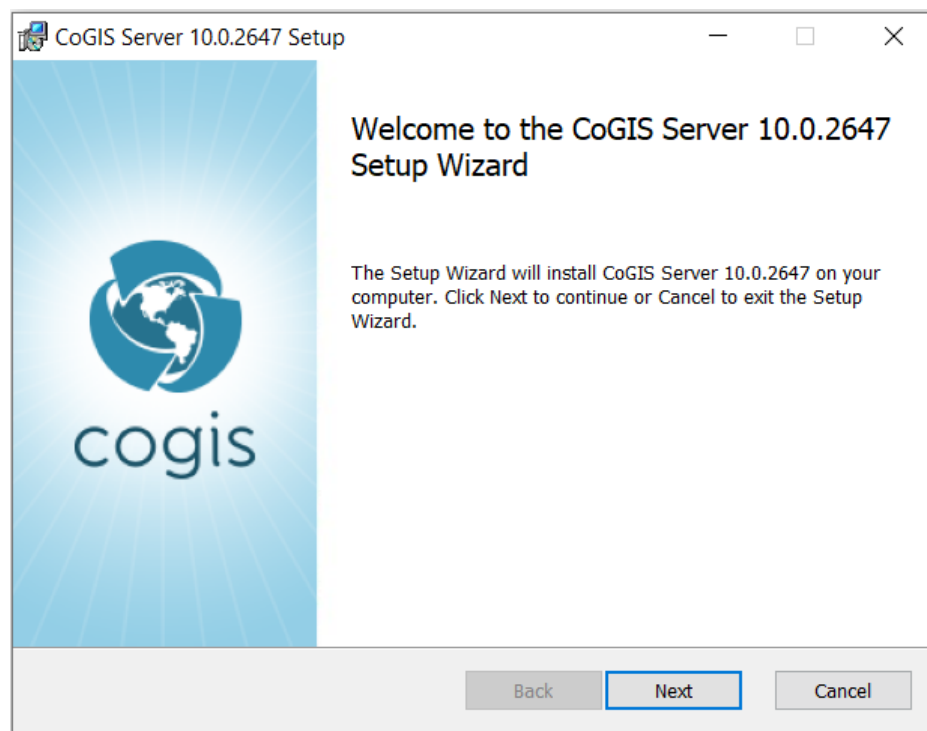


Figure 3 – Starting installer

2.1.3. End-user license agreement

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

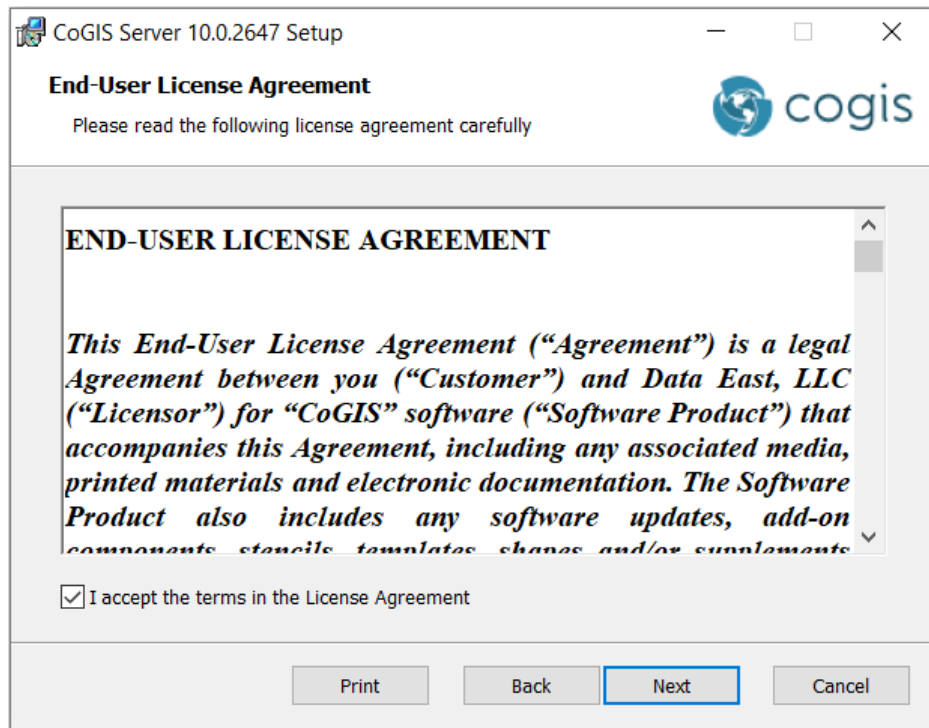


Figure 4 – End-user license agreement

2.1.4. Installation folder

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

You can press *Next* to install to the default installation folder, or *Change*, to select the other folder, see Figure 5.

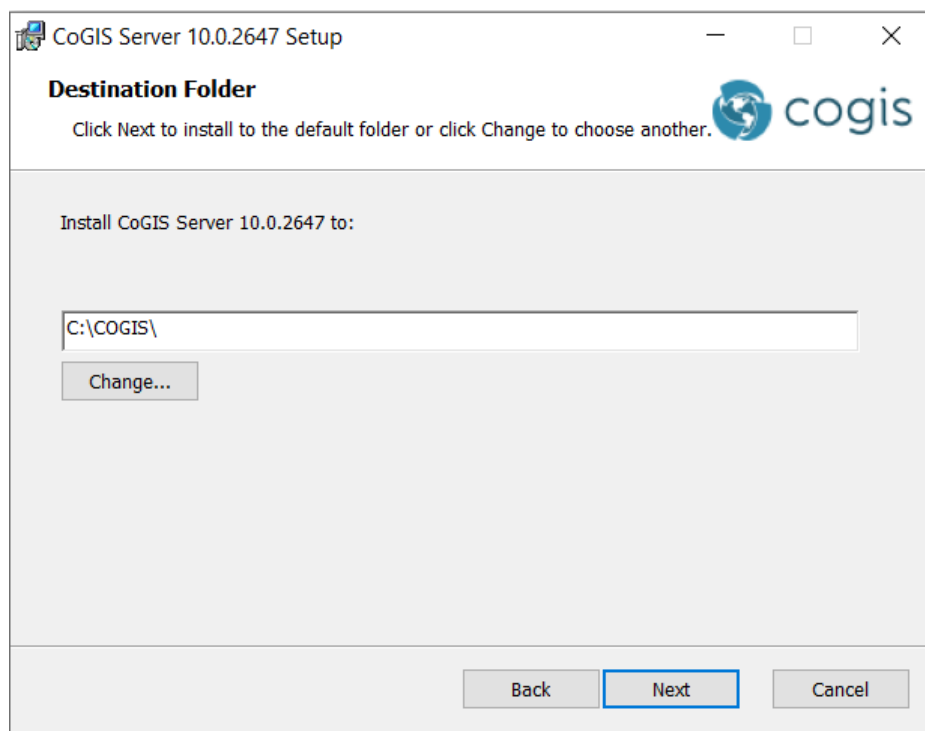


Figure 5 – Installation folder

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

2.1.5. Applications parameters for IIS

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

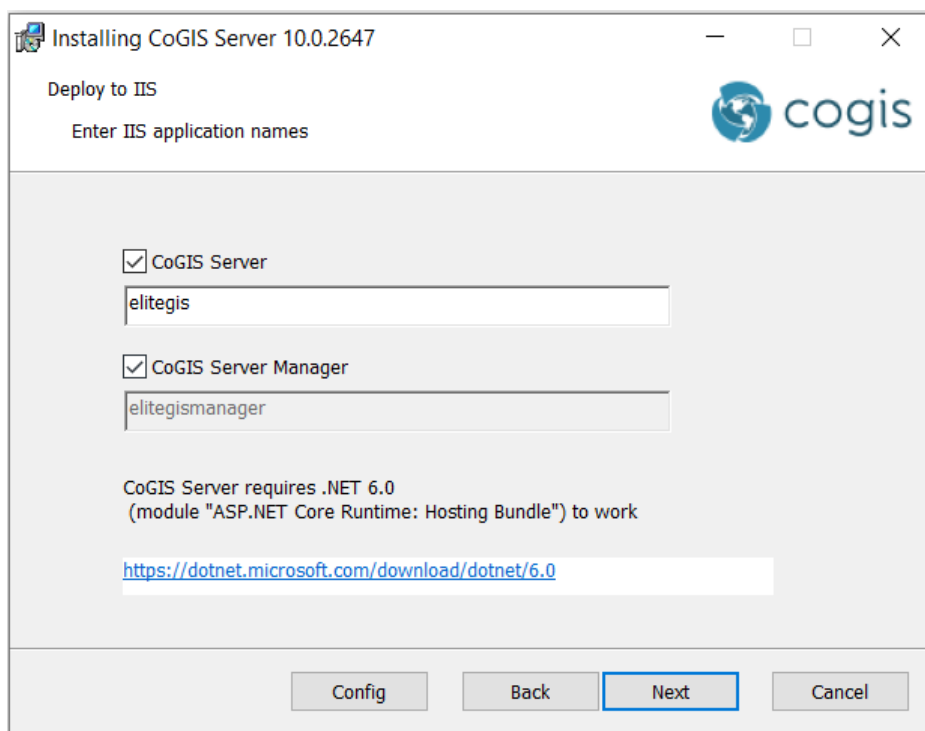


Figure 6 – Applications parameters for IIS

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

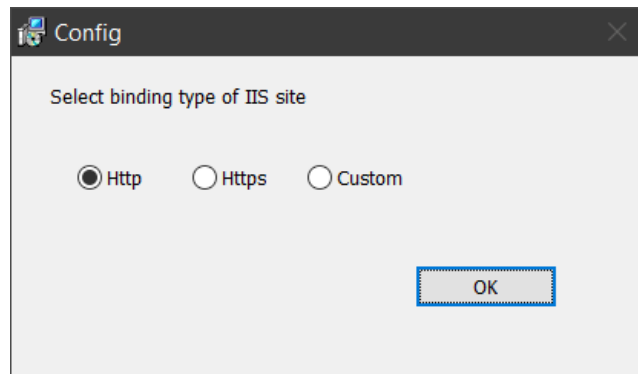


Figure 7 – Site binding

Press *Next* to get to the next step.

2.1.6. Installation

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

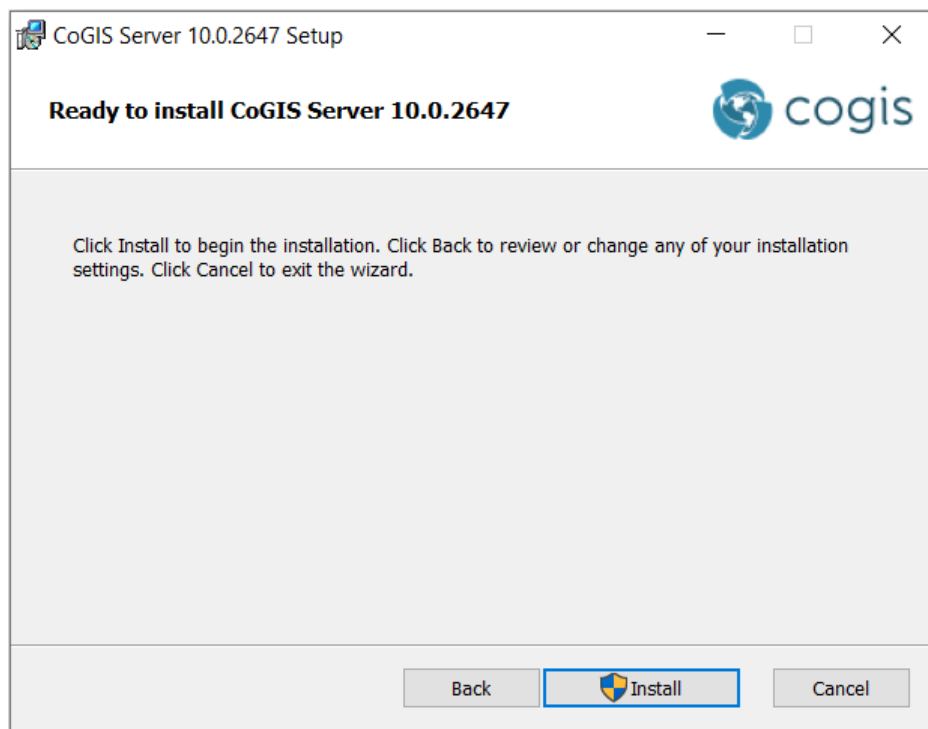


Figure 8 – Starting CoGIS Server installation process

The progress bar showing the installation process.

2.1.7. Installing license via command line

Activate **CoGIS Server** license. There are two ways to do it:

1. If there is Internet connection use fast activation via following command, using activation key:

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

2. If there is no Internet connection you need to know hardware identifier with following command:

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

Send the hardware identifier and purchasing information to seller and request manual activation process. The seller sends activated license file. Install the received file with following command:

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

Restart **CoGIS Server**.

2.1.8. Installing license via CoGIS Server Manager

To install license via **CoGIS Server Manager** open web browser and go to **CoGIS Server Manager**.

<https://<SERVER>/elitegismanager>

Open License tab in CoGIS Server Manager and click Activate button.

Type activation key or multiline activated license file and click Activate. If you use short activation key, select CoGIS version in the next dialog window.

2.1.9. Primary setting and performance testing

2.1.9.1. Starting IIS

For primary setting and testing CoGIS Server 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 24.

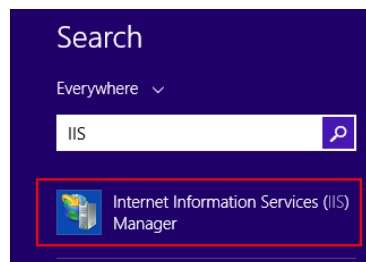


Figure 9 – Running IIS

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

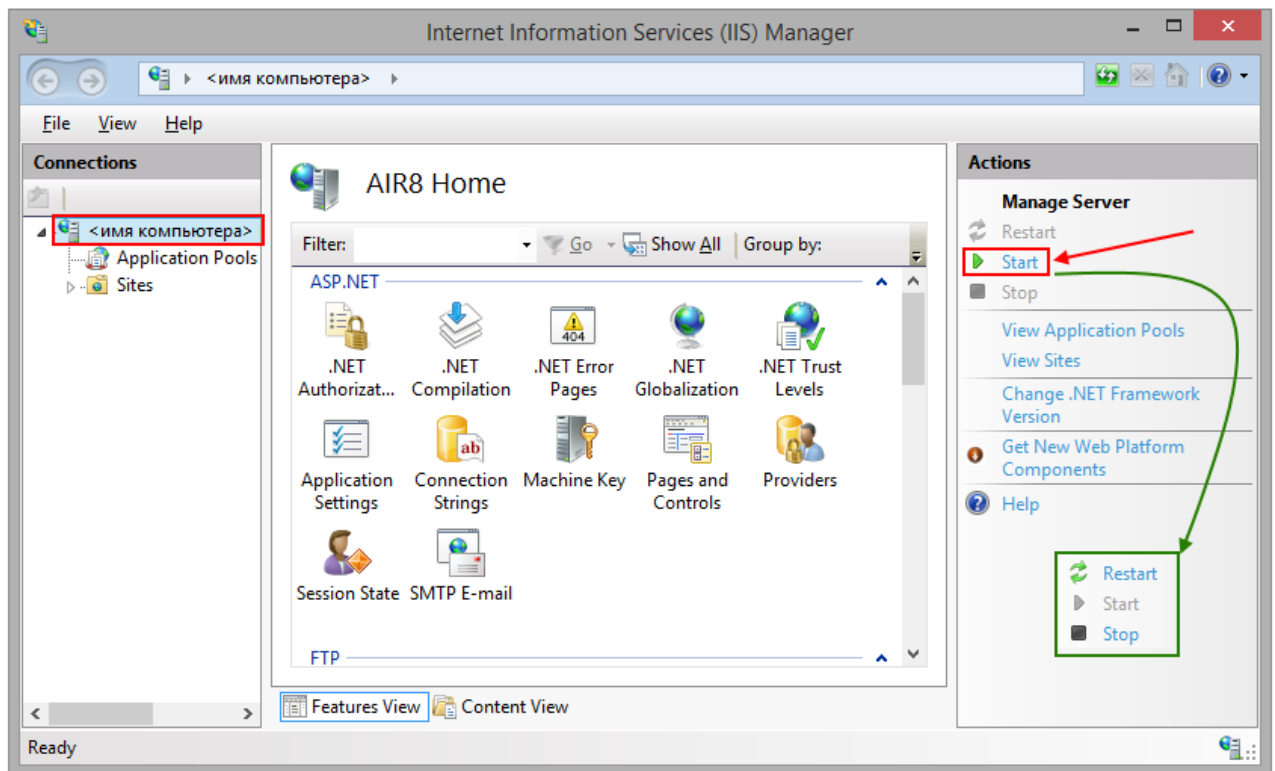


Figure 10 – Starting IIS server

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

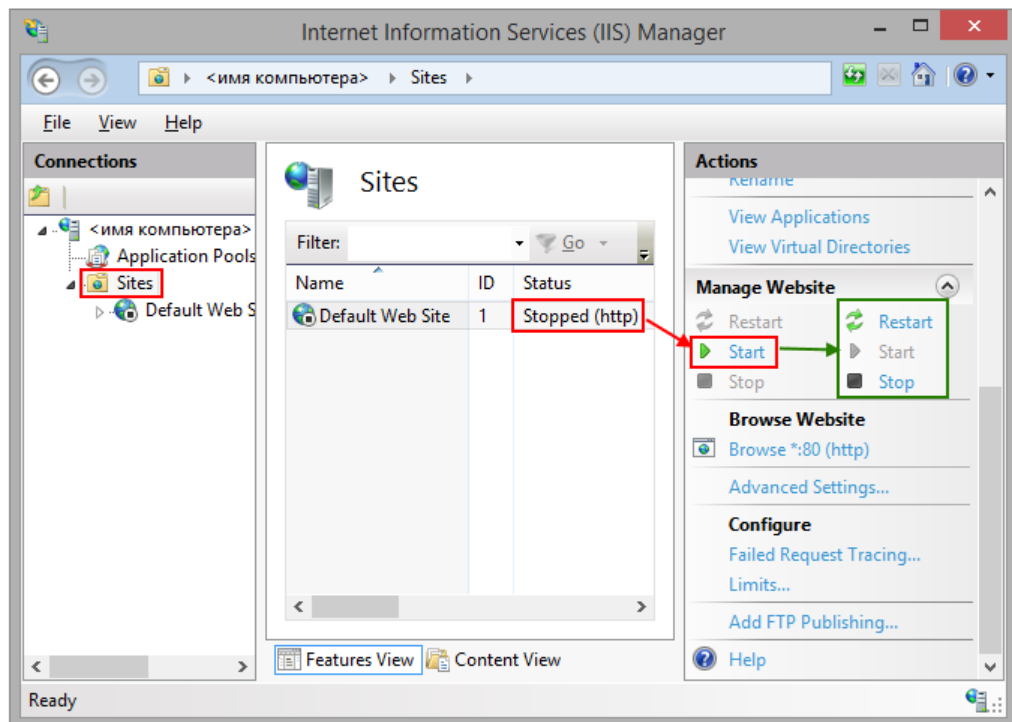


Figure 11 – Starting Default Web Site

2.1.9.2. Setting and testing CoGIS Server

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

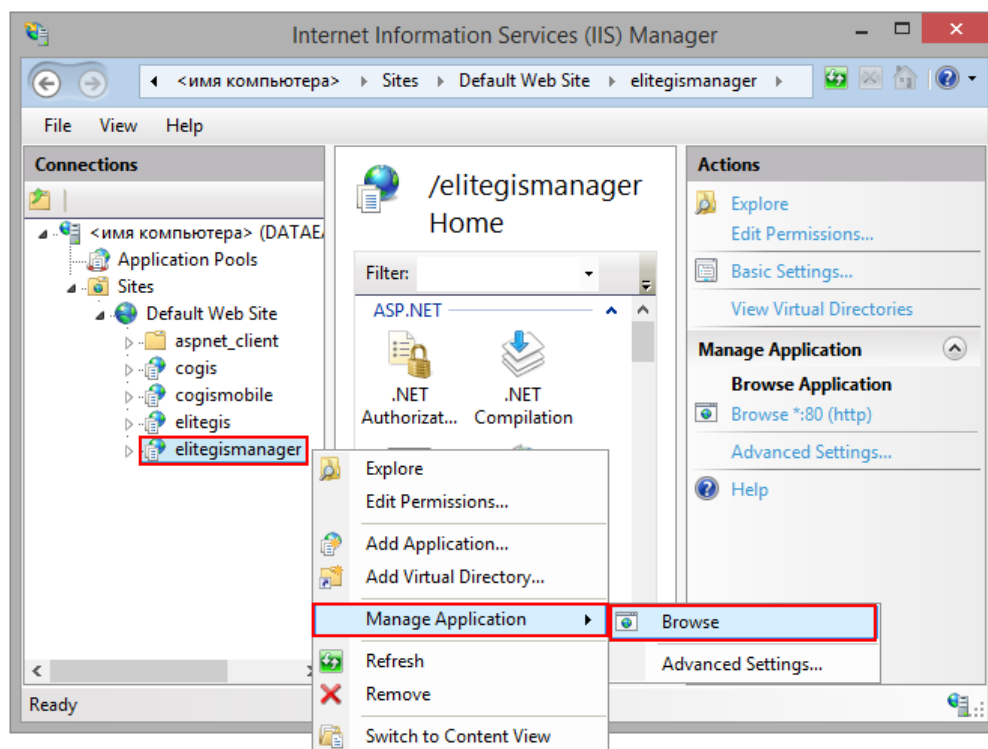


Figure 12 – Starting CoGIS Server Manager from Internet Information Services (IIS) Manager
Now (at <http://localhost/elitegismanager>) CoGIS Server Manager tab will open. Enter login and password as admin/admin, see **Ошибка! Источник ссылки не найден.**, and press *Login*.

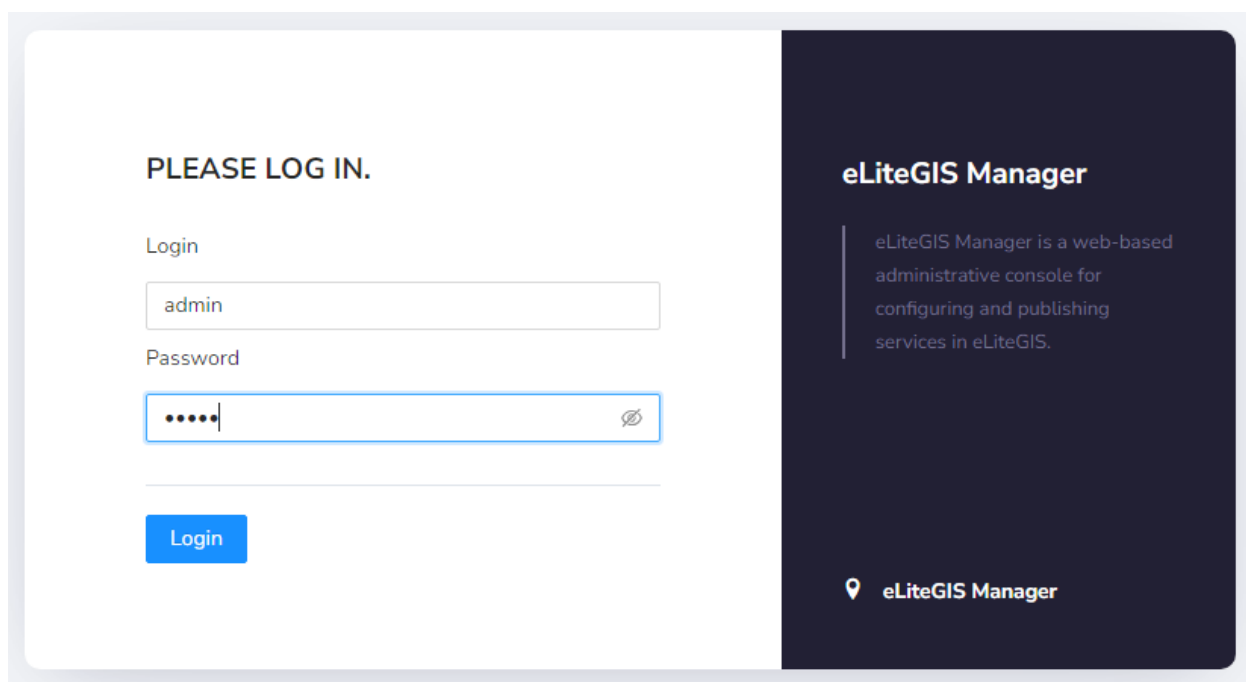


Figure 13 – Starting CoGIS Server Manager

Now go to *Settings* and in *Web access, Public root URL to GIS Server* enter **Ошибка! Недопустимый объект гиперссылки..**

Save changes, see Figure 14.

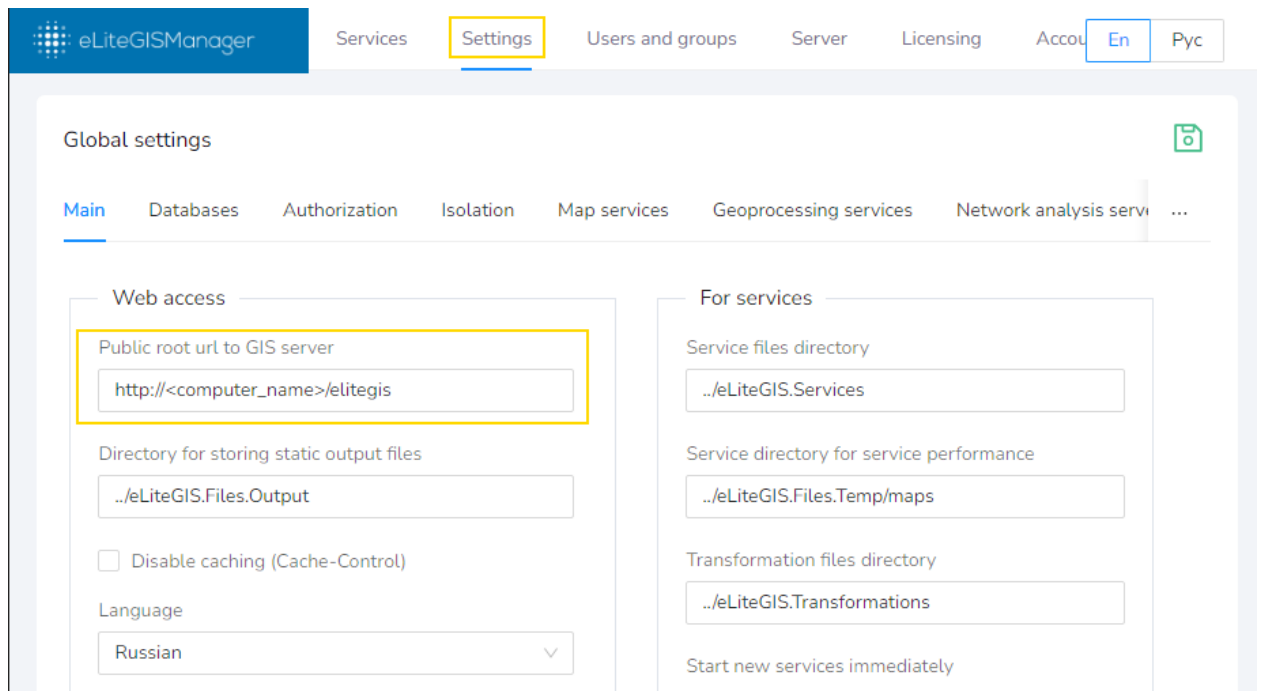


Figure 14 – Primary setting CoGIS Server

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 15.

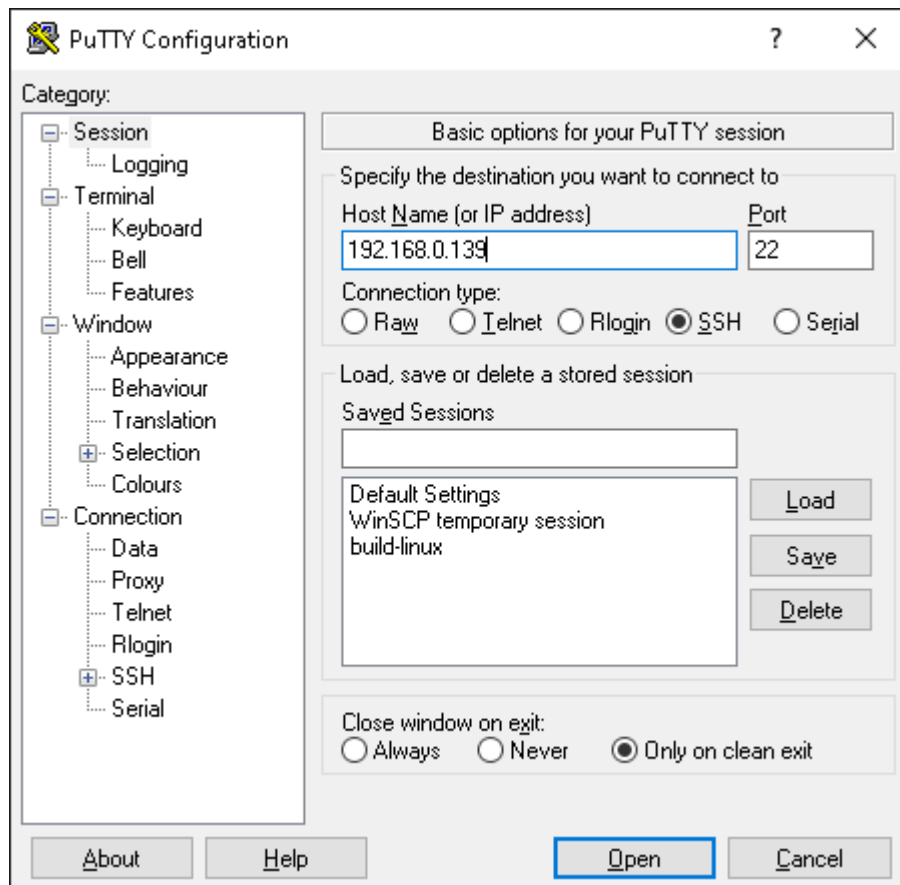


Figure 15 – Creating new connection to Linux in PuTTY

To open connection press *Open* and enter login and password in the appeared window, see Figure 16 and Figure 17.



Figure 16 – Opening connection in PuTTY: entering login

```
dataeast@vm-cogis-ubuntu: ~  
dataeast@192.168.0.139's password:  
Welcome to Ubuntu 18.04.3 LTS (GNU/Linux 4.15.0-96-generic x86_64)  
  
* Documentation:  https://help.ubuntu.com  
* Management:    https://landscape.canonical.com  
* Support:       https://ubuntu.com/advantage  
  
System information as of Mon Apr 20 12:09:57 UTC 2020  
  
System load:  0.0      Processes:            122  
Usage of /:   1.5% of 392.72GB   Users logged in:     0  
Memory usage: 2%      IP address for eth0: 192.168.0.139  
Swap usage:   0%  
  
63 packages can be updated.  
0 updates are security updates.  
  
Last login: Mon Apr 20 10:12:00 2020 from 192.168.0.49  
To run a command as administrator (user "root"), use "sudo <command>".  
See "man sudo_root" for details.  
  
dataeast@vm-cogis-ubuntu:~$
```

Figure 17 – Opening connection in PuTTY: entering password

Same way connect to Linux via WinSCP, see Figure 18 and Figure 19.

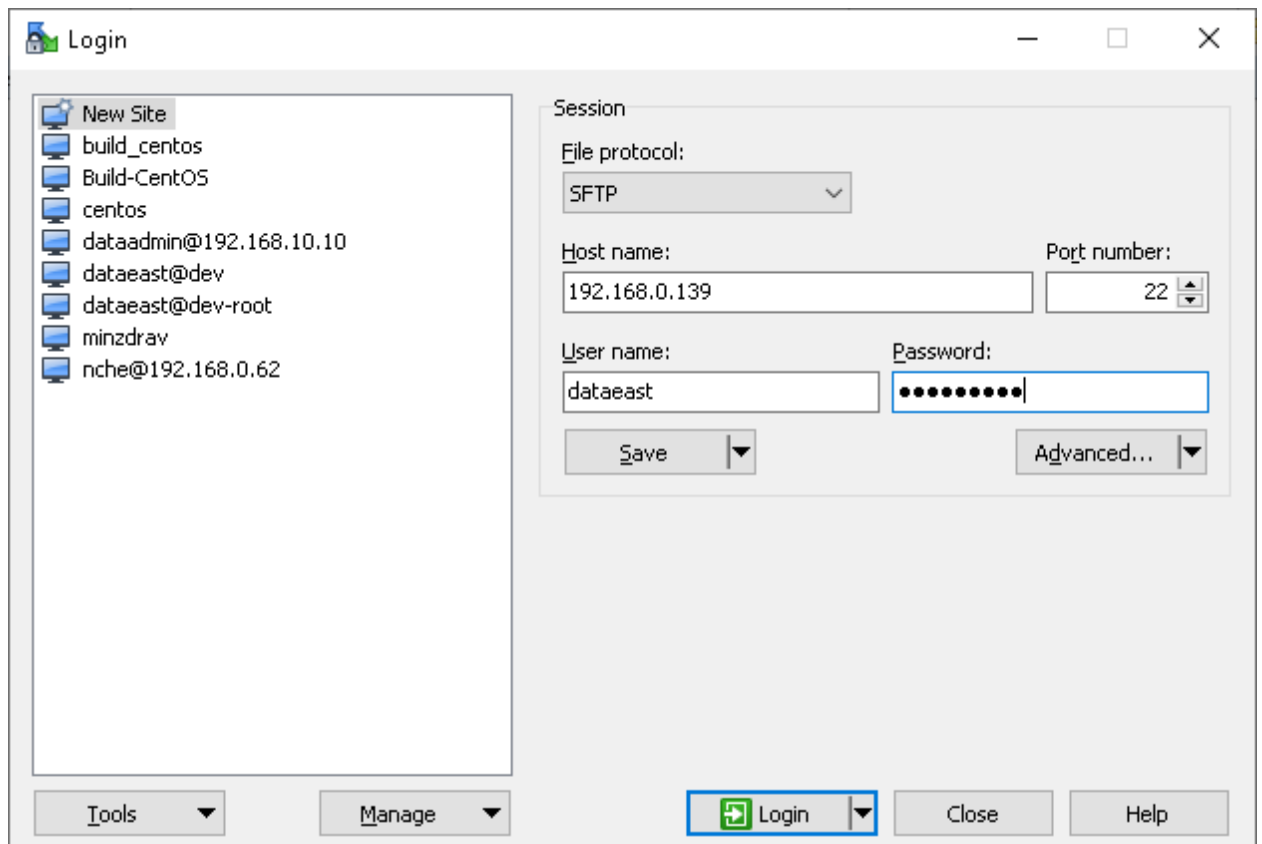


Figure 18 – Connecting to Linux via WinSCP (1)

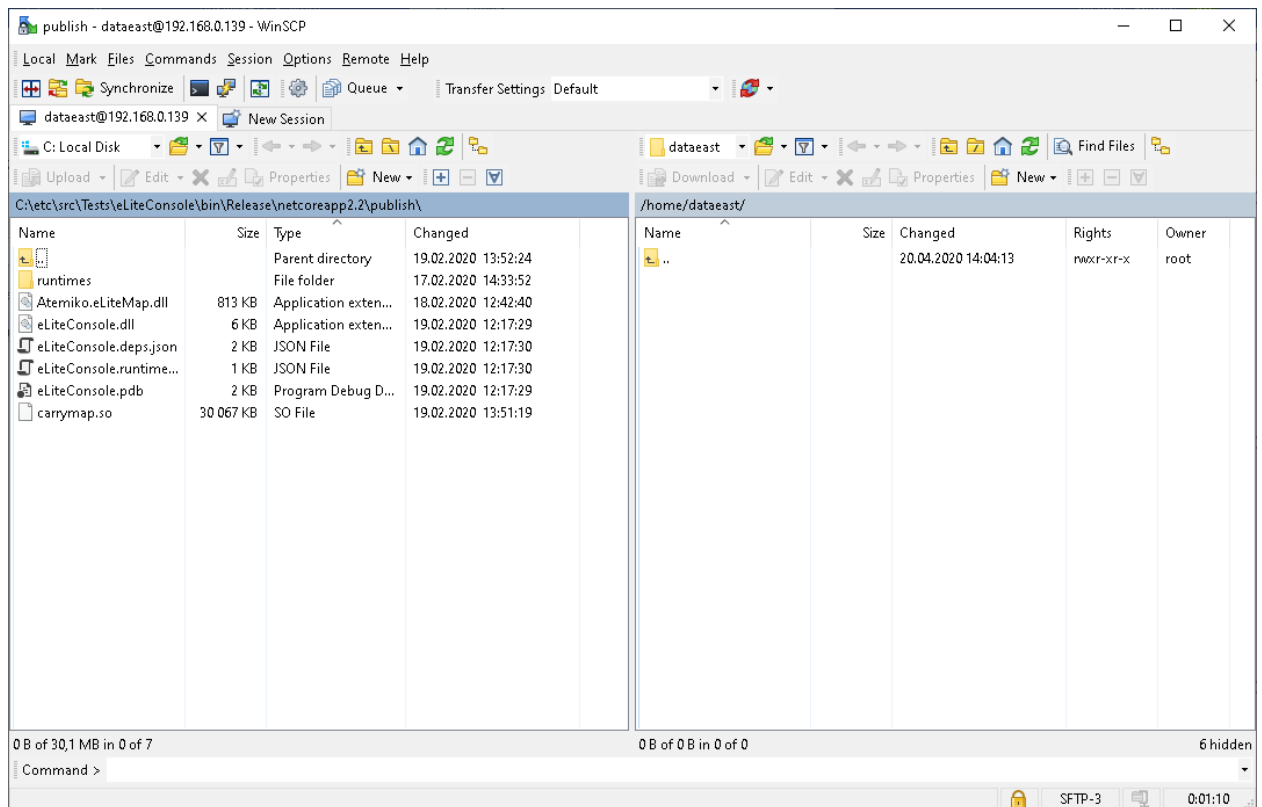


Figure 19 – Connecting to Linux via WinSCP (2)

2.2.2. Setting up Linux before installing CoGIS Server

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

Update system in Ubuntu / Debian / Astra Linux / Alt Linux:

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

Update system in CentOS 7 / Red OS:

```
sudo yum update
```

Update system in CentOS Stream 8 / CentOS Stream 9:

```
sudo dnf update
```

2.2.3. Installing ASP.NET Core Runtime

Install dotnet core runtime in Ubuntu 22.04:

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

Install dotnet 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
```

Install dotnet 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
```

Install **dotnet core runtime** in CentOS Stream 8 / CentOS Stream 9:

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

Install **dotnet 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
```

Install **dotnet core runtime** in Alt Linux / Alt Server:

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

Install **dotnet core runtime** in Red OS:

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

2.2.4. Installing PostgreSQL / PostGIS

Install **PostgreSQL and PostGIS** in Ubuntu / Astra / Alt Linux:

```
sudo apt-get install postgresql-14 postgresql-14-postgis-3
```

Install **PostgreSQL and PostGIS** in CentOS 7:

```
sudo yum -y install  
https://download.postgresql.org/pub/repos/yum/repорpms/EL-7-x86_64/pgdg-  
redhat-repo-latest.noarch.rpm  
sudo yum update  
sudo yum install postgresql14 postgis33_14
```

Install **установки PostgreSQL and PostGIS** in CentOS Stream 8:

```
sudo yum -y install  
https://download.postgresql.org/pub/repos/yum/repорpms/EL-8-x86_64/pgdg-  
redhat-repo-latest.noarch.rpm  
sudo dnf update  
sudo dnf -qy module disable postgresql  
sudo dnf install postgresql14 postgis33_14  
sudo systemctl start postgresql-14  
sudo systemctl enable postgresql-14
```

Install **PostgreSQL and PostGIS** in CentOS Stream 9:

```
sudo yum -y install  
https://download.postgresql.org/pub/repos/yum/repорpms/EL-9-x86_64/pgdg-  
redhat-repo-latest.noarch.rpm  
sudo dnf update  
sudo dnf -qy module disable postgresql  
sudo dnf install postgresql14 postgis33_14  
sudo systemctl start postgresql-14  
sudo systemctl enable postgresql-14
```

Install **PostgreSQL and PostGIS** in Red OS:

```
sudo yum install postgresql postgis
```

Change password for PostgreSQL performing the following commands:

```
sudo -i -u postgres
psql
alter user postgres with password '<PASSWORD>';
exit
exit
```

Set up PostgreSQL for remote connections.

Note: This step can be omitted for 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 20), 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
```

```
dataeast@vm-cogis-ubuntu: ~
GNU nano 2.9.3 /etc/postgresql/10/main/pg_hba.conf Modified

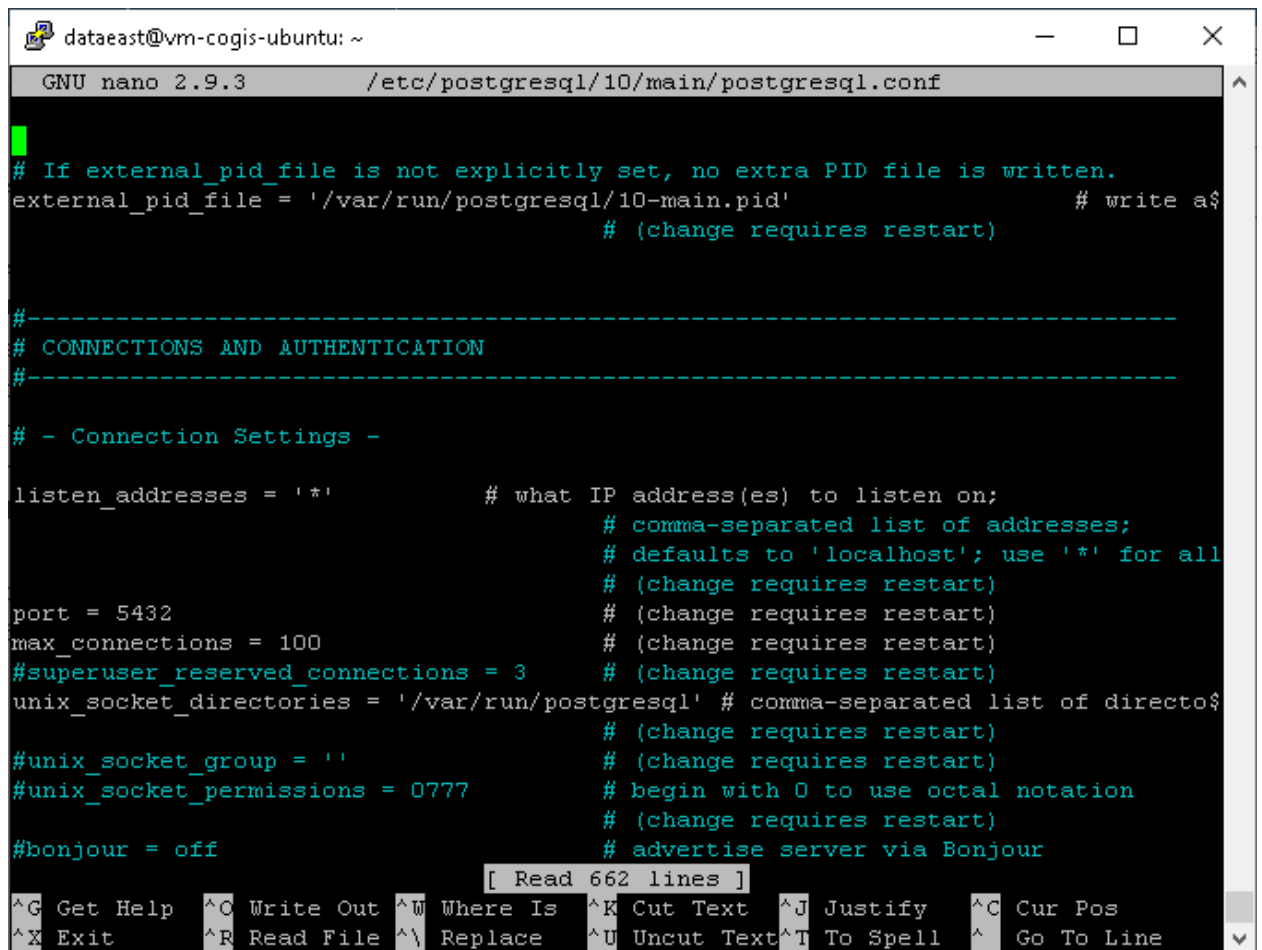
# TYPE DATABASE USER ADDRESS METHOD
# "local" is for Unix domain socket connections only
local all all md5
host all all 0.0.0.0/0 md5
# IPv4 local connections:
host all all 127.0.0.1/32 md5
# IPv6 local connections:
host all all ::1/128 md5
# Allow replication connections from localhost, by a user with the
# replication privilege.
local replication all md5
host replication all 127.0.0.1/32 md5
host replication all ::1/128 md5

^G Get Help ^O Write Out ^W Where Is ^K Cut Text ^J Justify ^C Cur Pos
^X Exit ^R Read File ^\ Replace ^U Uncut Text ^T To Spell ^_ Go To Line
```

Figure 20 – Setting up remote connections to PostgreSQL (1)

Open access for external connections. Here you can also edit maximal number of connections, see Figure 21:

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



```
dataeast@vm-cogis-ubuntu: ~
GNU nano 2.9.3 /etc/postgresql/10/main/postgresql.conf

# If external_pid_file is not explicitly set, no extra PID file is written.
external_pid_file = '/var/run/postgresql/10-main.pid'           # write a$
                        # (change requires restart)

#-----
# CONNECTIONS AND AUTHENTICATION
#-----

# - Connection Settings -

listen_addresses = '*'          # what IP address(es) to listen on;
                                # comma-separated list of addresses;
                                # defaults to 'localhost'; use '*' for all
                                # (change requires restart)
port = 5432                     # (change requires restart)
max_connections = 100           # (change requires restart)
#superuser_reserved_connections = 3 # (change requires restart)
unix_socket_directories = '/var/run/postgresql' # comma-separated list of directo$
                                # (change requires restart)
#unix_socket_group = ''         # (change requires restart)
#unix_socket_permissions = 0777 # begin with 0 to use octal notation
                                # (change requires restart)
#bonjour = off                  # advertise server via Bonjour

[ Read 662 lines ]
^G Get Help  ^O Write Out ^W Where Is  ^K Cut Text  ^J Justify   ^C Cur Pos
^X Exit      ^R Read File ^\ Replace   ^U Uncut Text ^T To Spell  ^_ Go To Line
```

Figure 21 – Setting up remote connections to PostgreSQL (2)

Now restart PostgreSQL with the following command:

```
sudo systemctl restart postgresql
```

2.2.5. Installing NGINX

Install **NGINX** in Ubuntu / Astra / Alt Linux:

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

Install **NGINX** in OC Red OS:

```
sudo yum install nginx
```

Install **NGINX** in CentOS 7:

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

Install **NGINX** in CentOS Stream 8 / CentOS Stream 9:

```
sudo dnf install nginx
```

2.2.6. Setting NGINX

To set *reverse proxy* in NGINX, you need to build configuration and redirect requests to the appropriate CoGIS Server 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 OC Red OS / CentOS 7 / CentOS Stream 8 / CentOS Stream 9 delete or comment **server** section in **/etc/nginx/nginx.conf** and create configuration file:

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

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

```
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 additional file **/etc/nginx/proxy_params** with 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;

```

Copy link to the new configuration in Ubuntu / Astra Linux:

```

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

```

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 OC Red OS / CentOS 7 / CentOS Stream 8 don't copy link to configuration, but **allow nginx to communicate with other services**:

```

setsebool -P httpd_can_network_connect 1

```

Reload NGINX:

```

nginx -s reload

```

2.2.7. Installing CoGIS Server

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

Connect to Linux via WinSCP.

Copy packages as shown on Figure 22.

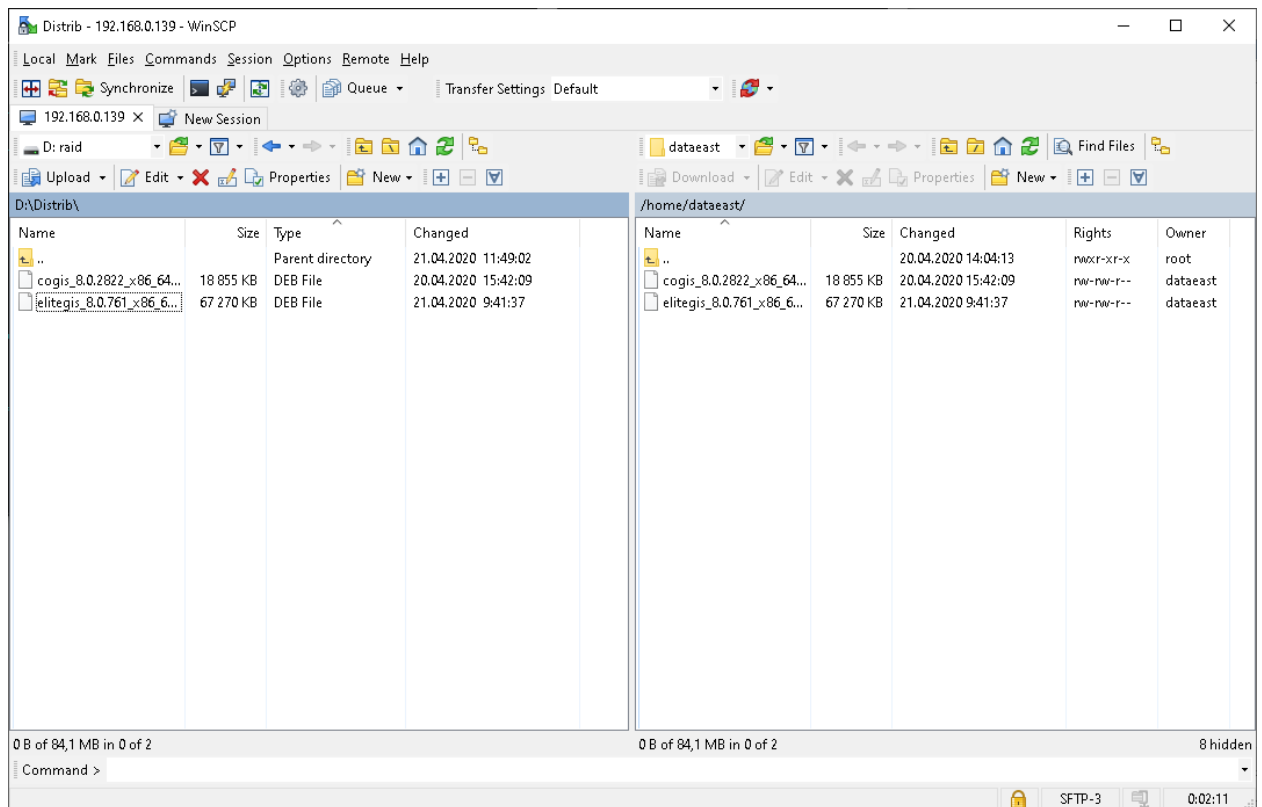


Figure 22 – Copying packages

Go to PuTTY and start installation as following:

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

In OC Alt Linux / Alt Server use additional parameter --force-all to ignore dependencies:

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

Configure CoGIS Server, see Figure 23:

```
sudo /usr/elitegis/server/setup
```

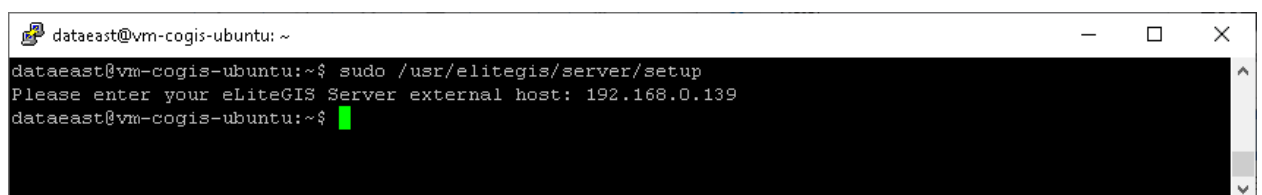


Figure 23 – Configuring CoGIS Server

For fine tuning use the following command:

```
sudo nano /usr/elitegis/server/appsettings.json
```

2.2.8. Installing license via command line

Activate **CoGIS Server** license. There are two ways to do it:

3. If there is Internet connection use fast activation via following command, using activation key:

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

4. If there is no Internet connection you need to know hardware identifier with following command:

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

Send the hardware identifier and purchasing information to seller and request manual activation process. The seller sends activated license file. Install the received file with following command:

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

Restart **CoGIS Server** with following command:

```
sudo systemctl restart cogis.server
```

2.2.9. Installing license via CoGIS Server Manager

To install license via **CoGIS Server Manager** open web browser and go to **CoGIS Server Manager**.

<https://<SERVER>/elitegismanager>

Open License tab in CoGIS Server Manager and click Activate button.

Type activation key or multiline activated license file and click Activate. If you use short activation key, select CoGIS version in the next dialog window.

2.3. Checking out work of the test map

To verify work of the test map, go to CoGIS Server Manager, *Services* tab. Make sure that WorldMap service is started (Status: Started) and follow the service link, see Figure 24.

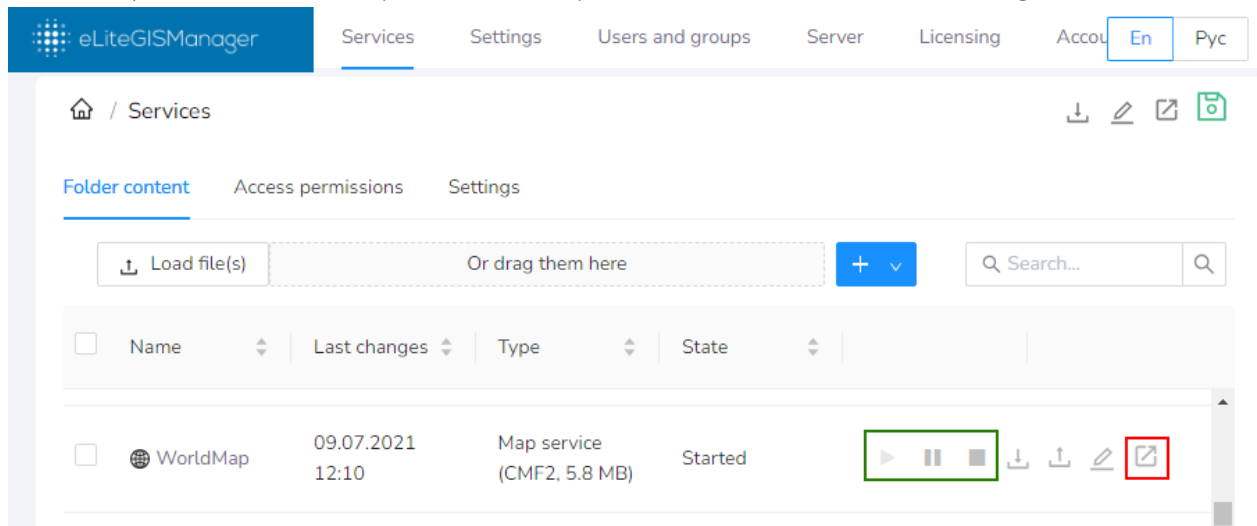
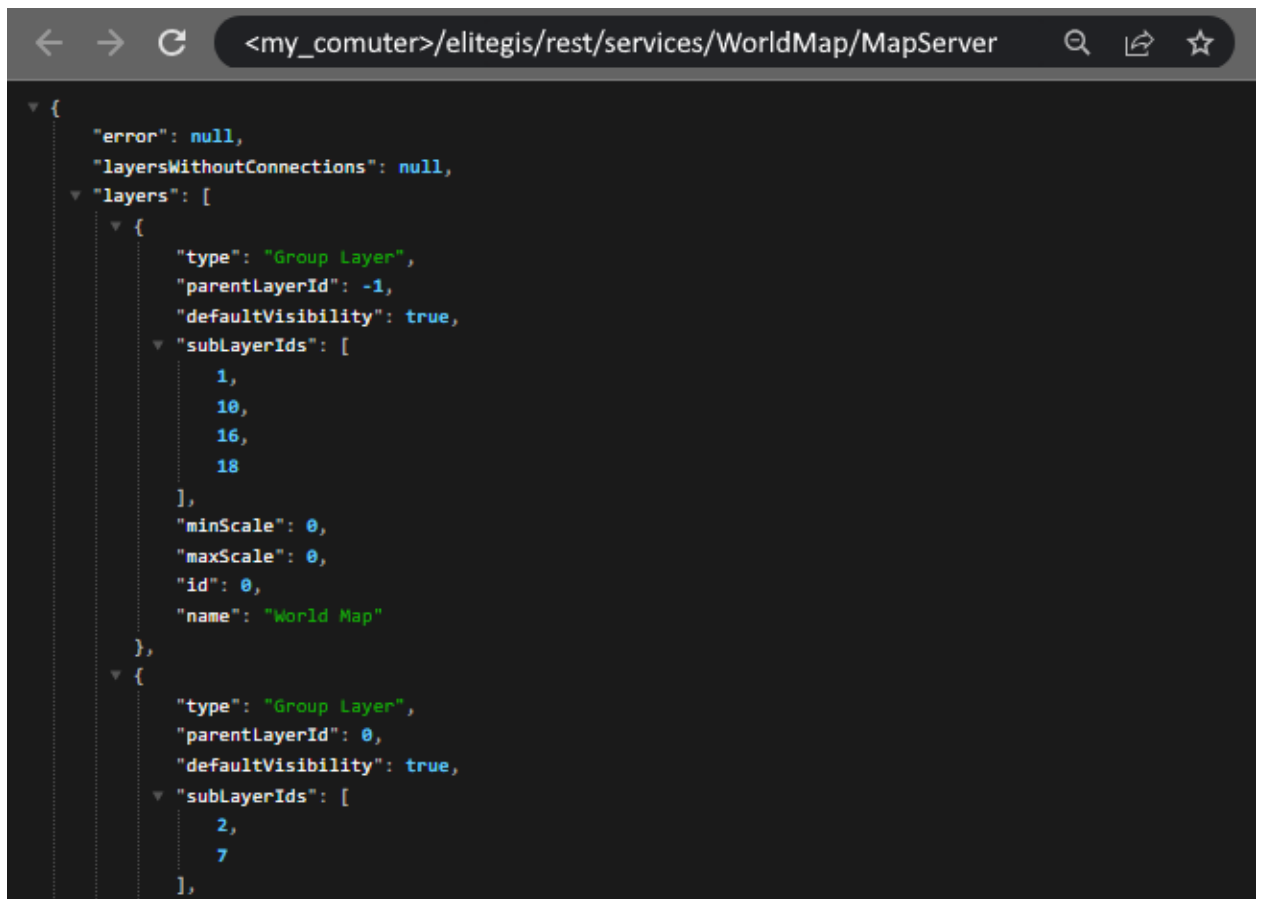


Figure 24 – Getting information about test service

In the new tab of the browser the information about service in JSON format will be shown. Copy address of published service, see Figure 25.



```
{
  "error": null,
  "layersWithoutConnections": null,
  "layers": [
    {
      "type": "Group Layer",
      "parentLayerId": -1,
      "defaultVisibility": true,
      "subLayerIds": [
        1,
        10,
        16,
        18
      ],
      "minScale": 0,
      "maxScale": 0,
      "id": 0,
      "name": "World Map"
    },
    {
      "type": "Group Layer",
      "parentLayerId": 0,
      "defaultVisibility": true,
      "subLayerIds": [
        2,
        7
      ],
    },
  ]
}
```

Figure 25 – Information about service in JSON format

Now check the work of published web map service in CoGIS Portal, see Figure 26:

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

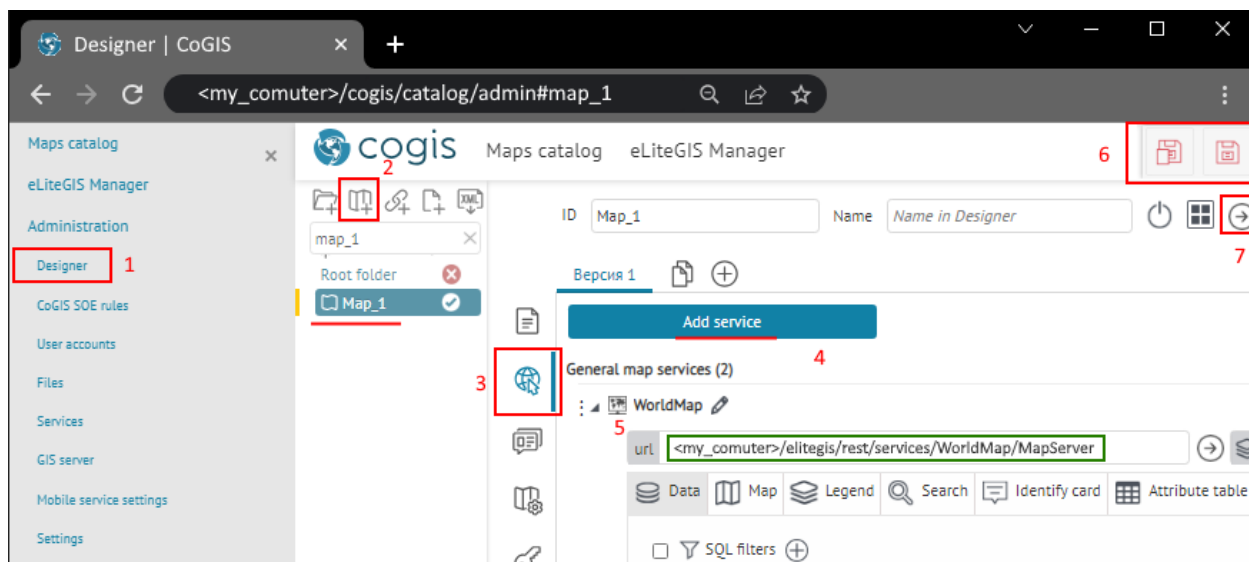


Figure 26 – Opening map based on web map service published in CoGIS Server

Figure 27.

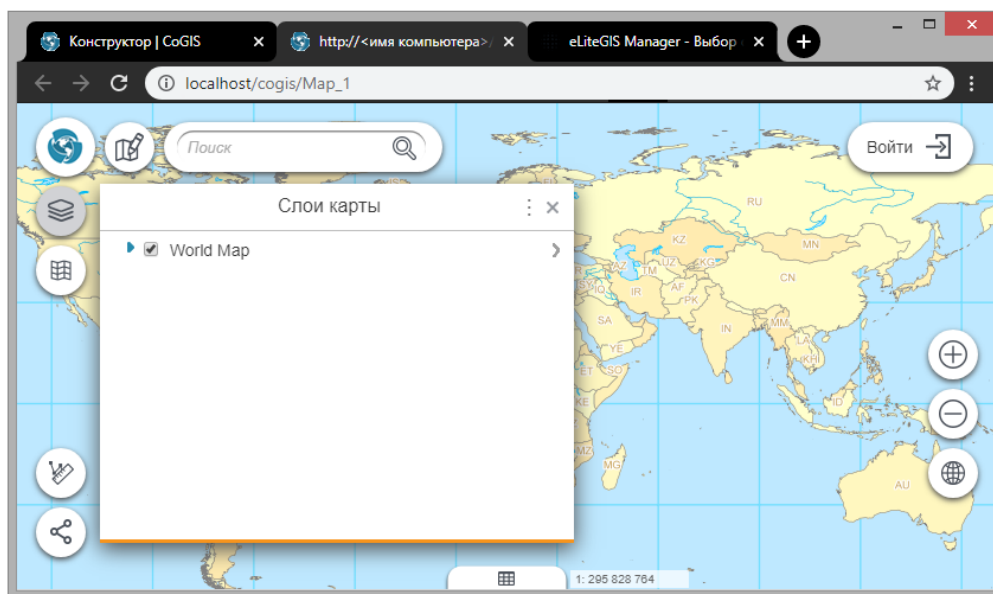


Figure 27 – Viewing published map in web browser

Checking is finished.

3. Setting CoGIS Server

3.1. Getting started with CoGIS Server Manager

To get access to CoGIS Server Manager, you need to be authorized, see Figure 28.

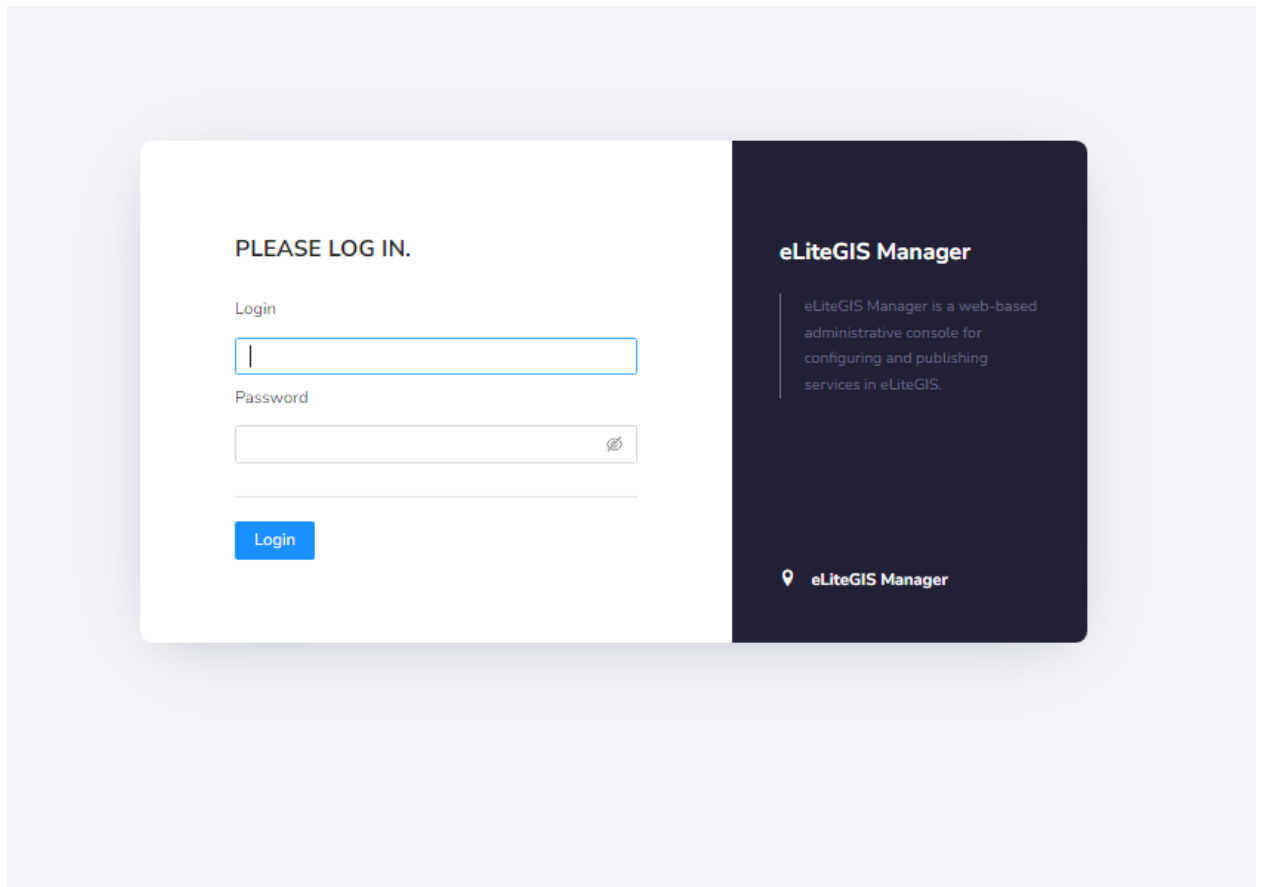


Figure 28 – CoGIS Server Manager authorization window

After authorization, the web console with the following sections will appear, see Figure 29:

- *Services (open by default)* - includes catalog of published services, catalog navigation tools and tools for adding new services. See 'CoGIS Server - Publishing GIS services' manual for more details about Services section.
- *Settings* - includes tools for setting up GIS server, paths to related resources and local directories for saving files, authorization parameters for access to databases, general parameters for publishing of map services, geoprocessing services, OGS services, and other settings. See more details in section 'CoGIS Server global settings'.
- *Users and groups* - includes tools for managing users and user groups. See details in section 3.3 'Managing users'.
- *Licensing* – includes information about CoGIS license. See details in section 3.4 'Licensing'.

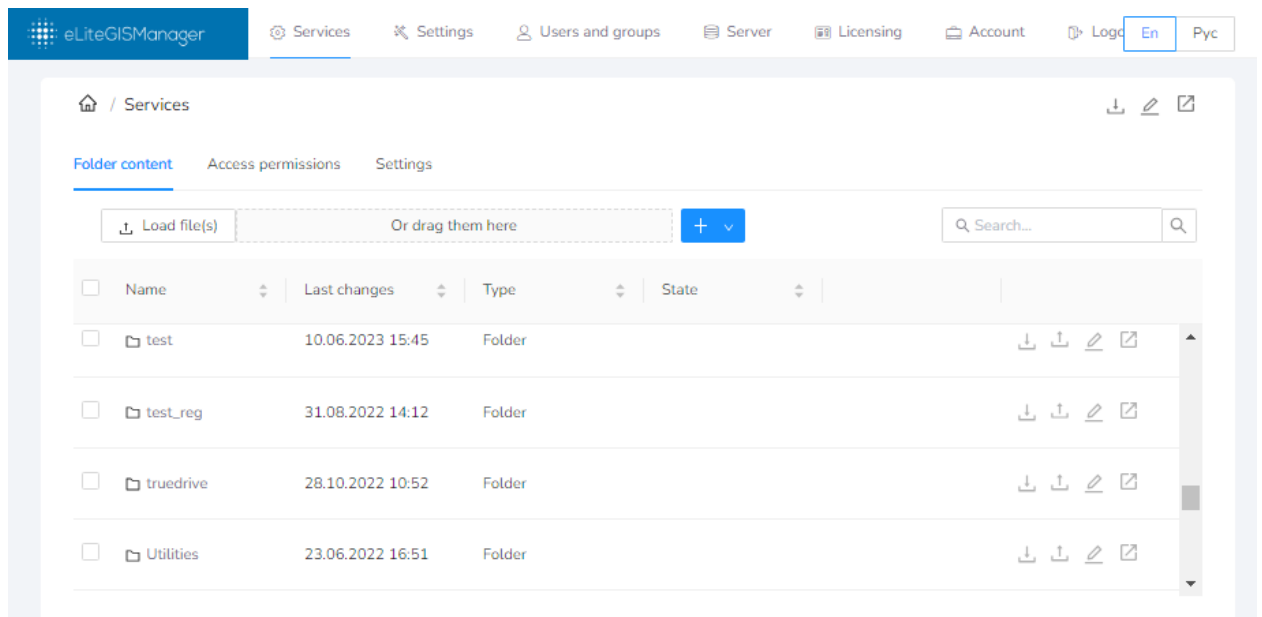


Figure 29 – Services section of CoGIS Server Manager web console



To exit the application, press button located on the panel.

3.2.CoGIS Server global settings

To get to global settings of eLiteGIS, open *Settings* section of CoGIS Server Manager web console. The *Main* tab will be open by default, see Figure 30.

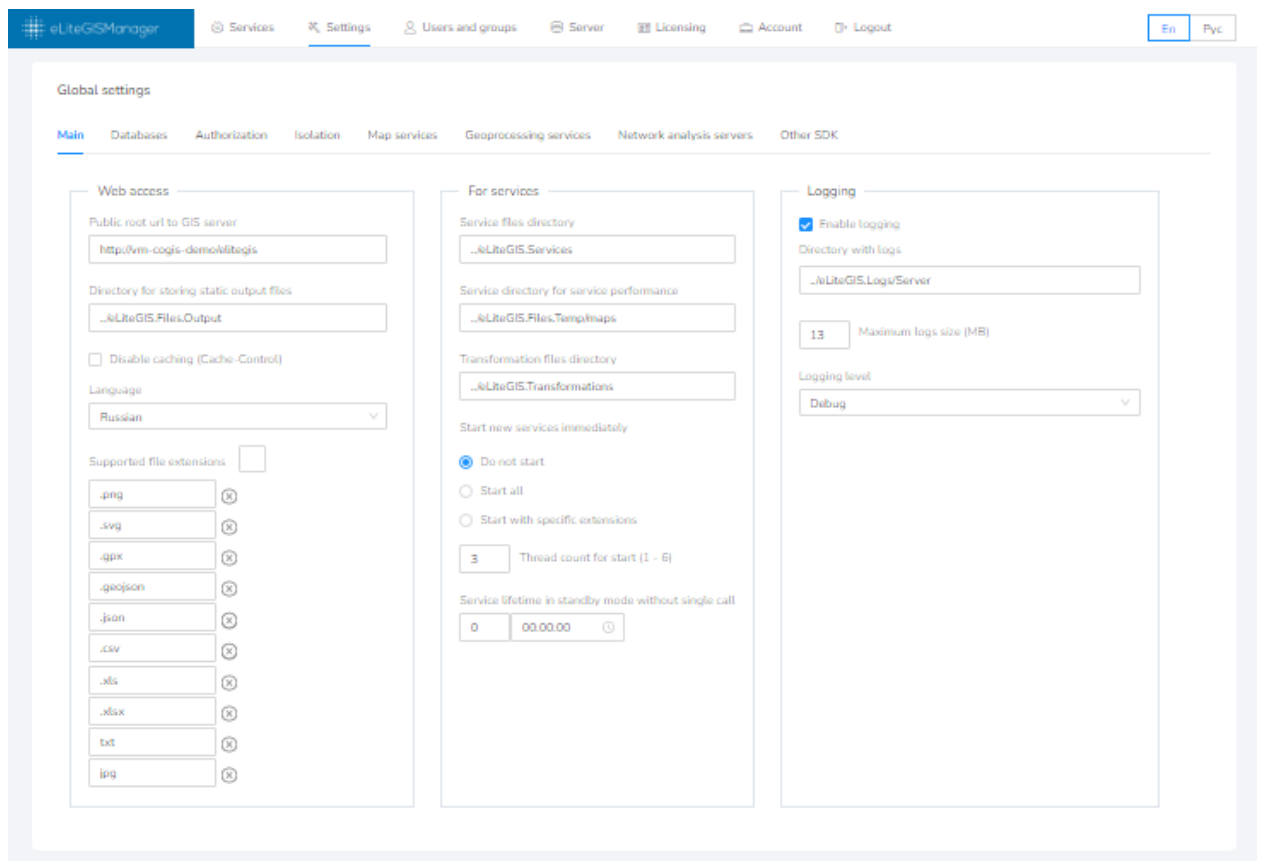



Figure 30 – Settings section of CoGIS Server Manager web console

Settings section consists of the following tabs:

- Main, see section;
- Databases, see section;
- Authorization, see section;
- Map services, see section;
- Geoprocessing services, see section 3.2.5.

After making any changes in the above-mentioned tabs, you will see  button in the upper right corner. Press this button to save made changes.

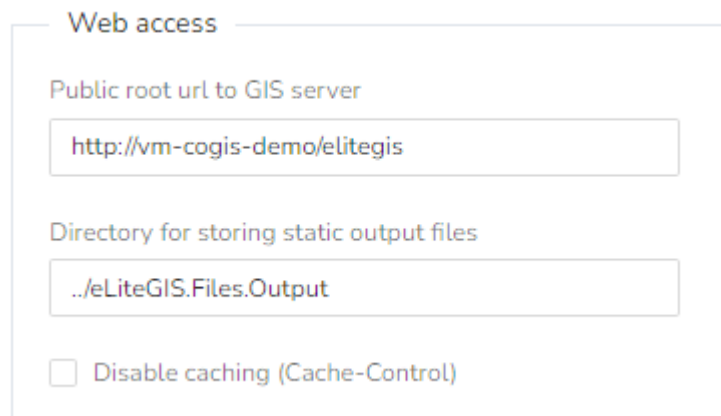
3.2.1. Main tab

Settings of the *Main* tab are grouped to three following blocks, see Figure 30 above:

- Web access;
- For services;
- Logging.

In the *Web access* settings block, see Figure 31, the following parameters need to be set (or you can use the default values):

- Public root url to GIS server;
- Directory for storing static output files;
- Disable caching (Cache-Control).



The image shows a 'Web access' settings block with a light blue border. It contains three settings:

- Public root url to GIS server**: A text input field containing the value `http://vm-cogis-demo/elitegis`.
- Directory for storing static output files**: A text input field containing the value `../eLiteGIS.Files.Output`.
- Disable caching (Cache-Control)**: A checkbox that is currently unchecked.

Figure 31 – Web access settings block

In the *For services* settings block, see Figure 32, the following parameters need to be set (or you can use the default values):

- Service files directory;
- Service directory for service performance;
- Service lifetime in standby mode without single call.

Note: CoGIS Server supports three working modes – Start, Pause, Stop. Services are available in Start mode only. In Pause mode the project file remains in the server RAM and can be started forcefully under 1 second. In Stop mode the service is stopped. To start service again, the project

file should be downloaded to the server RAM, which may take from 1 second up to several minutes depending on the project.

The service lifetime in standby mode is the period during which the service project file remains in the server RAM in Pause or Start mode. After this period, the project file is uploaded from the GIS server RAM, but the service nominally remains in Pause or Start mode.

See 'CoGIS Server - Publishing GIS services' manual for more details about the services working modes.

The image shows a configuration window titled "For services". It contains several settings:

- Service files directory:** A text box containing the path `../eLiteGIS.Services`.
- Service directory for service performance:** A text box containing the path `../eLiteGIS.Files.Temp/maps`.
- Transformation files directory:** A text box containing the path `../eLiteGIS.Transformations`.
- Start new services immediately:** Three radio buttons: "Do not start" (selected), "Start all", and "Start with specific extensions".
- Thread count for start (1 - 6):** A text box containing the value `3`.
- Service lifetime in standby mode without single call:** A section containing a text box with `0`, a time display `00:00:00`, and a clock icon.

Figure 32 – For services settings block

In the *Logging* settings block, see Figure 33, the following parameters need to be set (or you can use the default values):

- Directory with logs;
- Enable logging;
- Maximum logs size (MB).

Logging

☒ Enable logging

Directory with logs

../eLiteGIS.Logs/Server

13 Maximum logs size (MB)

Logging level

Debug

Figure 33 – Logging settings block

3.2.2. Databases

To get to settings of connection to databases in CoGIS Server, select *Databases* tab of CoGIS Server Manager web console, see Figure 34.

eLiteGISManager Services **Settings** Users and groups Server Licensing Account Logout **En** Pyc


Global settings

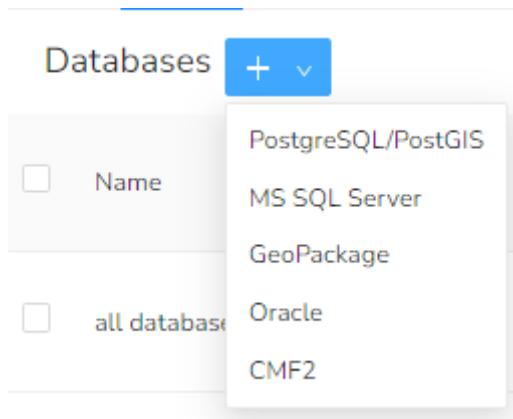
Main **Databases** Authorization Isolation Map services Geoprocessing services Network analysis servers ...

Databases + v

<input type="checkbox"/>	Name	Type	Host	Port	Database name	Account name	
<input type="checkbox"/>	all databases	PostgreSQL	192.168.0.14 5	5432	*	postgres	
<input type="checkbox"/>	all databases	PostgreSQL	localhost	5432	*	postgres	
<input type="checkbox"/>	cadastr	PostgreSQL	192.168.0.14 5	5432	cadastr	postgres	

Figure 34 – Settings for connection to databases

To add new connection, press  button in the upper part of the tab. The drop-down menu with connection types will appear:




Select the needed connection type depending on your database: PostgreSQL/PostGIS, MS SQL Server, GeoPackage Oracle or CMF2.

For the new connection you can specify the database name.

For databases in GeoPackage format it is required to specify the path to the datafile.

For databases in PostgreSQL/PostGIS and MS SQL Server formats it is required to specify the following parameters:

- DBMS host
- DBMS port
- Database name
- User account login
- User account password.

To delete connection, press  button located in the upper right corner of the connection parameters window.

Note: In CoGIS Server it is possible to publish map services based on QGIS map projects. Though, the QGIS map project files may not store user account data (login and password) for connection to the data sources. Setting of connections to databases in CoGIS Server allows to solve this issue.

3.2.3. Authorization

To get to settings of authorization in eLiteGIS, select *Authorization* tab of CoGIS Server Manager web console, see Figure 35.

The authorization settings consist of two blocks:

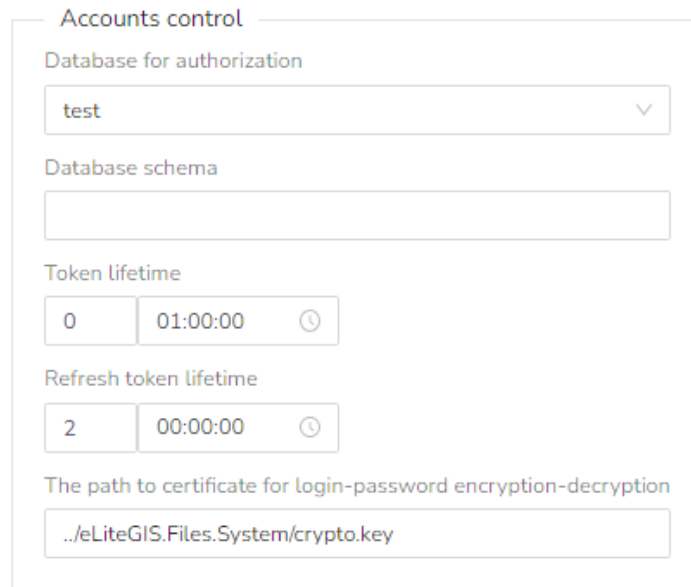
- Accounts control;
- User groups.

Figure 35 – Authorization settings

In the *Accounts control* settings block, see Figure 36, the following parameters need to be set (or you can use the default values):

- *Database for authorization* – select the needed item from the drop down list of databases, to which connections have been established as per section **Ошибка! Источник ссылки не найден..**
- *Token lifetime* – specify the needed values (days, hours, minutes, seconds) for the authorization token. The default value is 1 hour.
- *The path to certificate for login-password encryption-decryption* – this certificate will be used to cipher login and password during authorization.

Note: the certificate file is created automatically during CoGIS Server installation.



Accounts control

Database for authorization

test

Database schema

Token lifetime

0 01:00:00

Refresh token lifetime

2 00:00:00

The path to certificate for login-password encryption-decryption

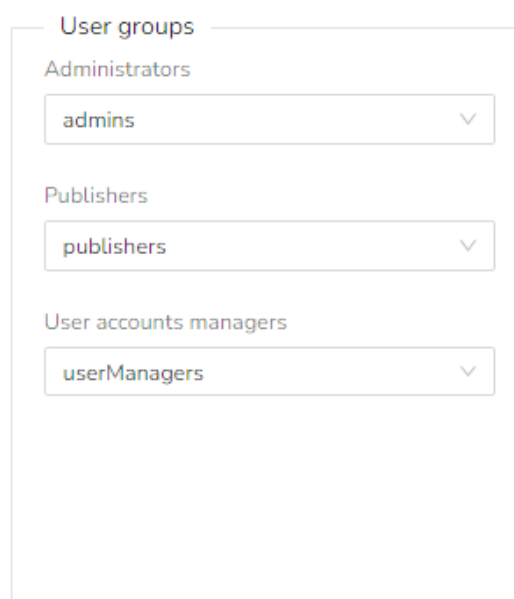
../eLiteGIS.Files.System/crypto.key

Figure 36 – Accounts control settings block

The *User groups* settings block is provided to set groups of users that will have specific roles while working in CoGIS Server:

- *Administrators* – these users will be allowed to access complete CoGIS Server functionality described in the given document and in the ‘CoGIS Server - Publishing GIS services’ manual.
- *Publishers* - these users will be allowed to access the services management functionality (*Services* section) described in ‘CoGIS Server - Publishing GIS services’ manual.
- *User accounts managers* - these users will be allowed to access the user accounts management functionality (*Users and groups* tab) described in section 3.3 of the given document.

You can select one or multiple groups from the list, see Figure 37.



User groups

Administrators

admins

Publishers

publishers

User accounts managers

userManagers

Figure 37 – User groups settings block

3.2.4. Map services

To get to settings of map services in CoGIS Server, select *Map services* tab of CoGIS Server Manager web console. The *Map services* tab consists of the following blocks, see Figure 38:

- CompositeSoe;
- Tile cache storage;
- Adapter for third-party WMS services.

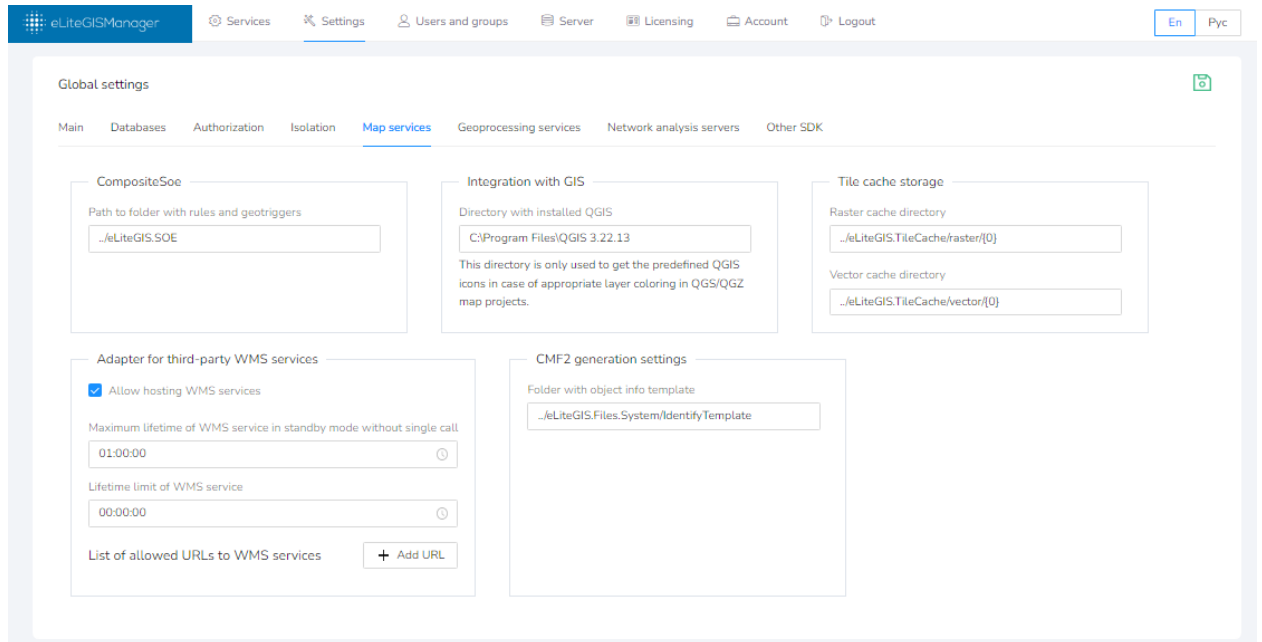


Figure 38 – Settings of the Map services tab

In the *CompositeSoe* block the path to file with CoGIS SOE rules should be specified (or use the default path).

Note: Besides standard methods of creation, deletion and editing of objects and attachments to objects, CoGIS platform provides extended functionality - SOE (Server Object Extension) for work with layers and objects of map service. CoGIS SOE for map service allows performing such operations as topology correction, creation of objects by address, turning on picture gallery for layer, uploading data to file, and more. Setting of SOE rules is done in CoGIS Designer.

In the *Tile cache storage* block the directory for storing raster and vector cache should be specified (or use the default path).

In the *Adapter for third-party WMS services* block you can specify the following settings:

- *Allow hosting WMS services* - check the box near this option, if needed, as it is disabled by default:

☐ Allow hosting WMS services

- *Maximum lifetime of WMS service in standby mode without single call* – enter the period (hours, minutes, seconds), by default the lifetime is unlimited:

00:00:00

- *Lifetime limit of WMS service* - enter the period (hours, minutes, seconds), by default the lifetime is unlimited:

3.2.5. Geoprocessing services

To get to settings of geoprocessing services in CoGIS Server, select *Geoprocessing services* tab of CoGIS Server Manager web console, see Figure 39.

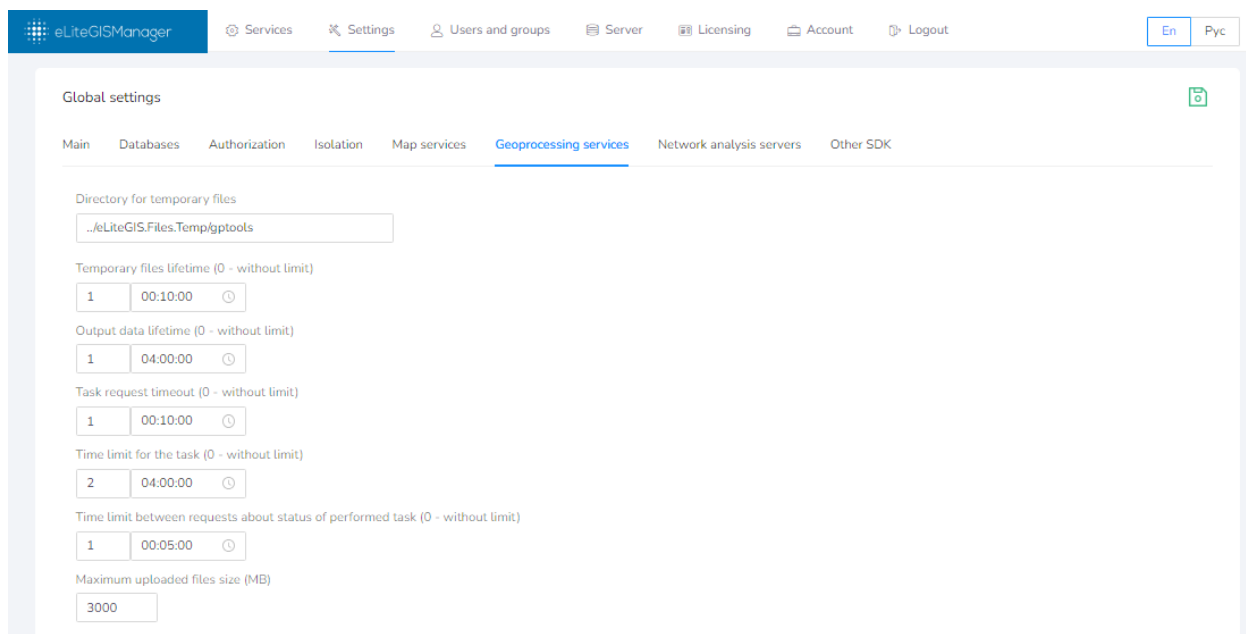


Figure 39 – Geoprocessing services tab

In the *Geoprocessing services* block the following parameters can be specified (or use the default parameters):

- *Directory for temporary files* – enter the path or use the default one:

Directory for temporary files

- *Temporary files lifetime* - enter the period (hours, minutes, seconds), by default the lifetime is 10 minutes:

Temporary files lifetime (0 - without limit)


Note: temporary files are, for example, intermediate results of geoprocessing models work.

- *Output data lifetime* - enter the period (hours, minutes, seconds), by default the lifetime is 4 hours:

Output data lifetime (0 - without limit)


- *Time limit for the task* - enter the period (hours, minutes, seconds), by default the lifetime is 10 minutes:

Time limit for the task (0 - without limit)


- *Task request timeout* - enter the period (hours, minutes, seconds), by default the lifetime is 4 hours:

Task request timeout (0 - without limit)

- *Time limit between requests about status of performed task* - enter the period (hours, minutes, seconds), by default the lifetime is 10 seconds:

Time limit between requests about status of performed task (0 - without limit)

Note: this parameter is recommended to terminate performance of asynchronous tasks that are not requested for a long time.

- *Maximum uploaded files size (MB)* – enter the needed number or use the default size value of 2000 Mb:

Maximum uploaded files size (MB)

3.3.Managing users

Creation, editing and deletion of user accounts and user groups in CoGIS Server is done in the *Users and groups* tab of the CoGIS Server Manager web console, see Figure 40.

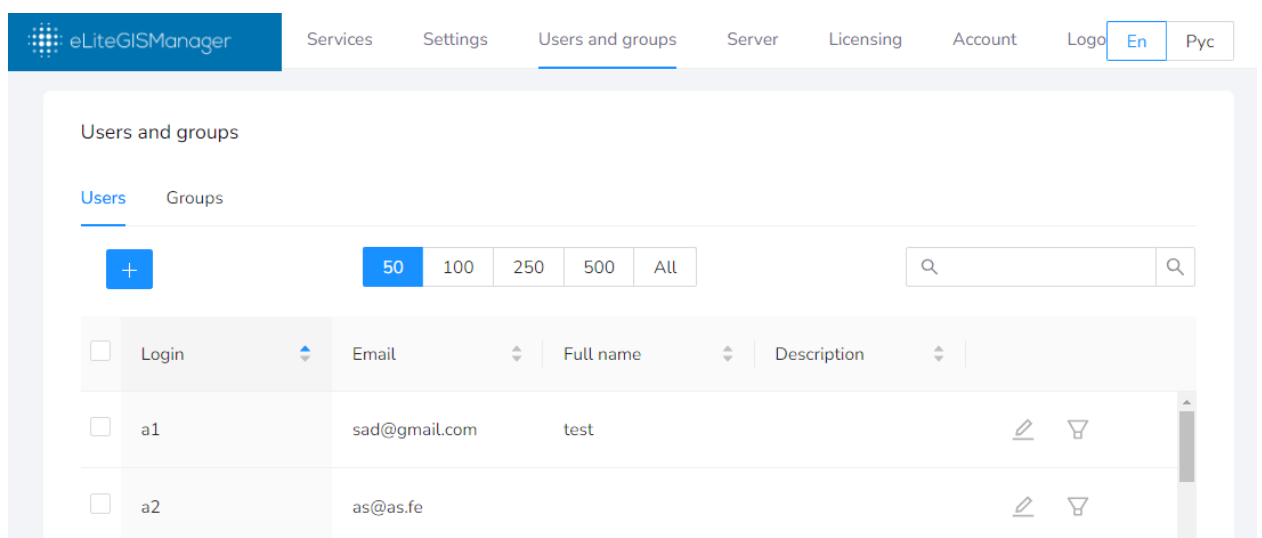


Figure 40 – Users and groups tab of the CoGIS Server Manager web console

The tab has two parts: *Users* and *Groups*. The tools provided in these sub tabs are similar, see sections 3.3.1-3.3.6 for details.

3.3.1. Getting information about users (user groups)

The lists of user accounts and user groups is provided as tables in the respective tabs, see Figure 40 and Figure 41.

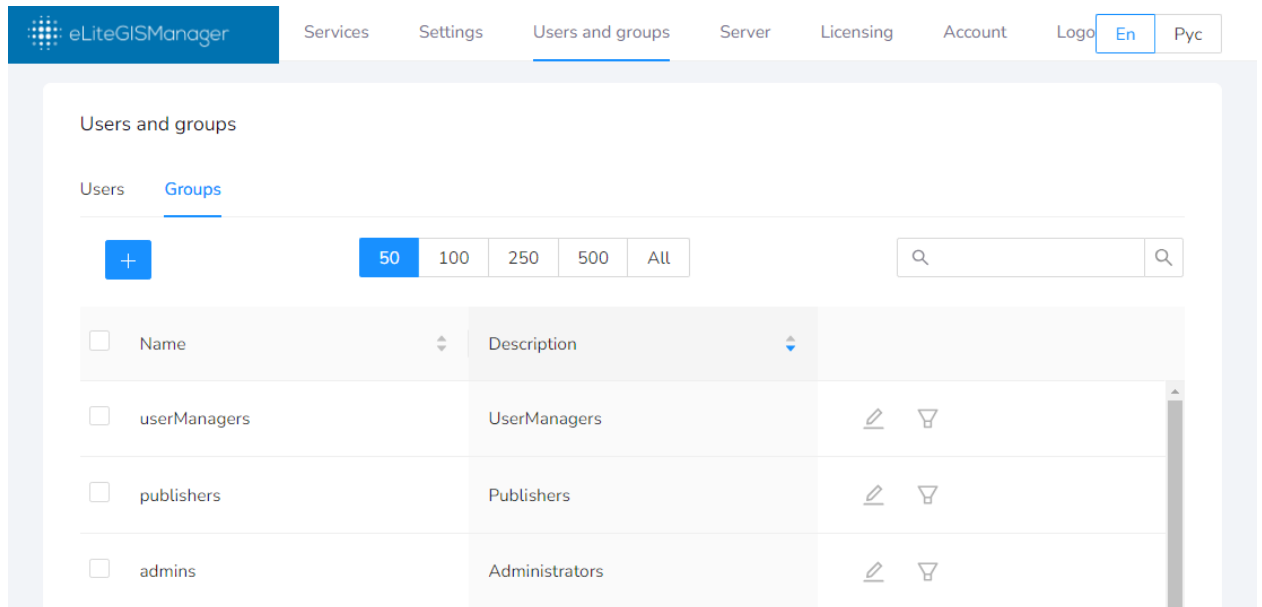


Figure 41 – List of user groups

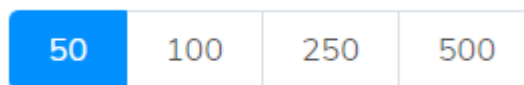
The following data is provided for each user in the table:

- Login;
- Email;
- Name;
- Description.


The following data is provided for each user group in the table:

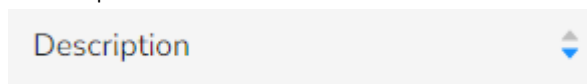
- Name;
- Description.

If you have a lot of users or user groups, you can select the number of records that will be



downloaded by scrolling the list:

The records in tables can be sorted by multiple characteristic, to do so, press  on the right of the required characteristic. The button arrow will be highlighted depending on the sorting order:



3.3.2. Searching for users (user groups)

To search for user or user group, type your search request in the field located in the upper right part of the tab and press Enter.



The search will be done by all characteristics of the user (group), the records in the table will be filtered based on the search request, see below.

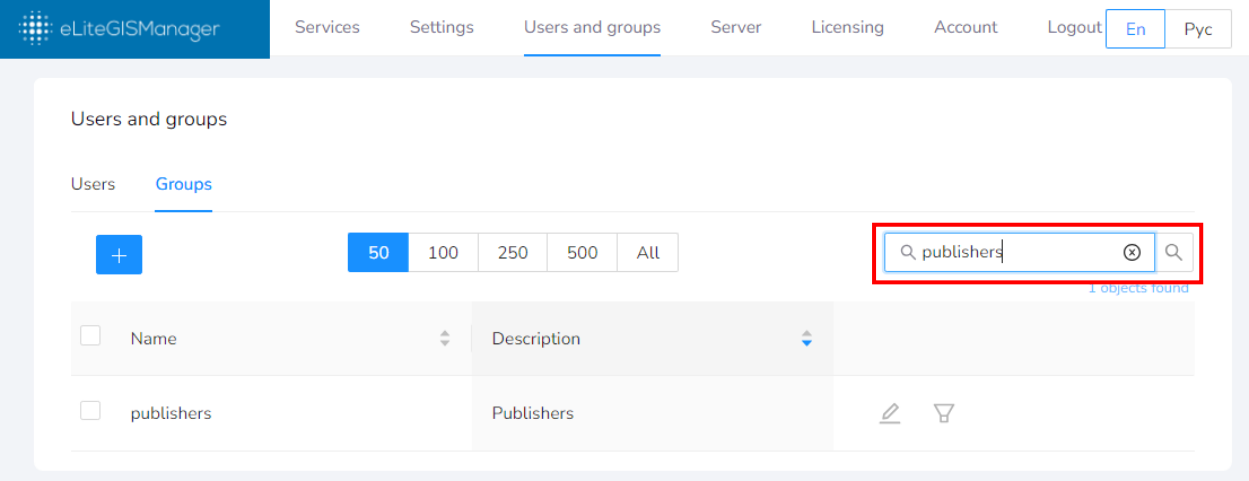


Figure 42 – Searching by list of users (groups)

To clear search filter, press  in the search field.

3.3.3. Editing information about selected user (group)

On the right of each record in the table there is the toolbar with the following tools:



To edit selected record, press  button, see Figure 43.

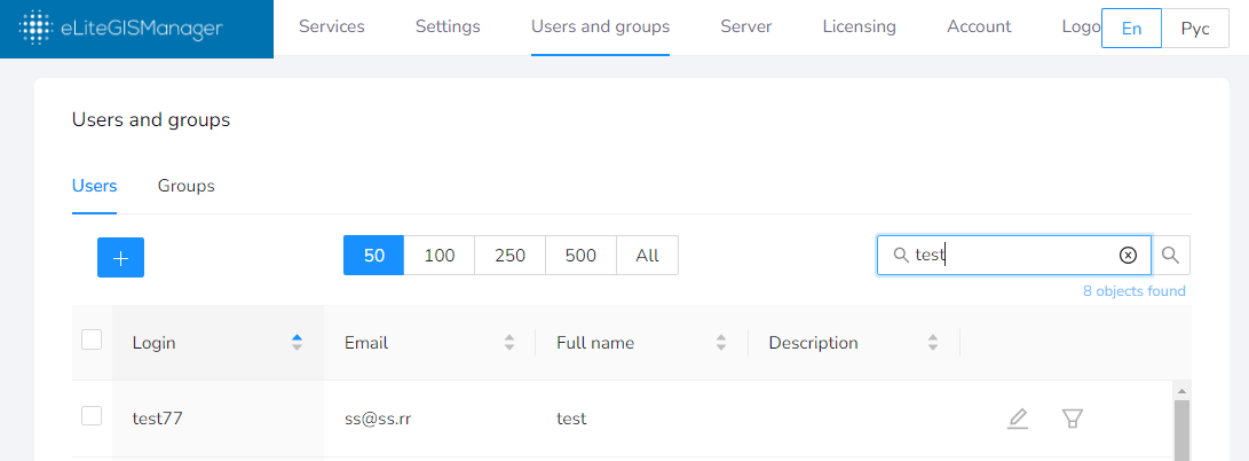
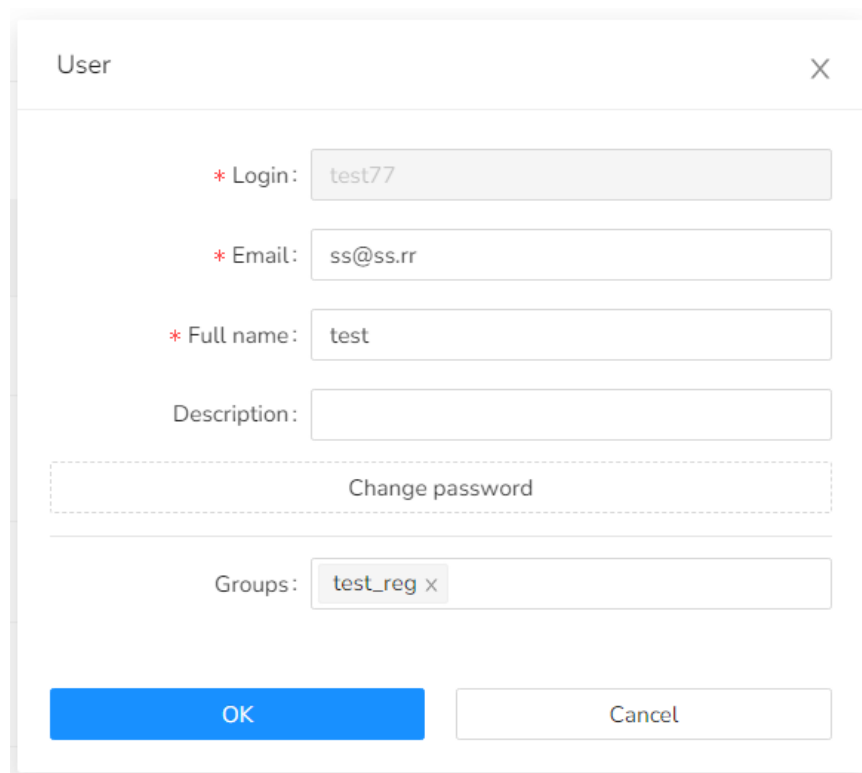


Figure 43 – The tool for editing information about user (group)

The window with information about selected user or group will appear, see Figure 44 and Figure 45.

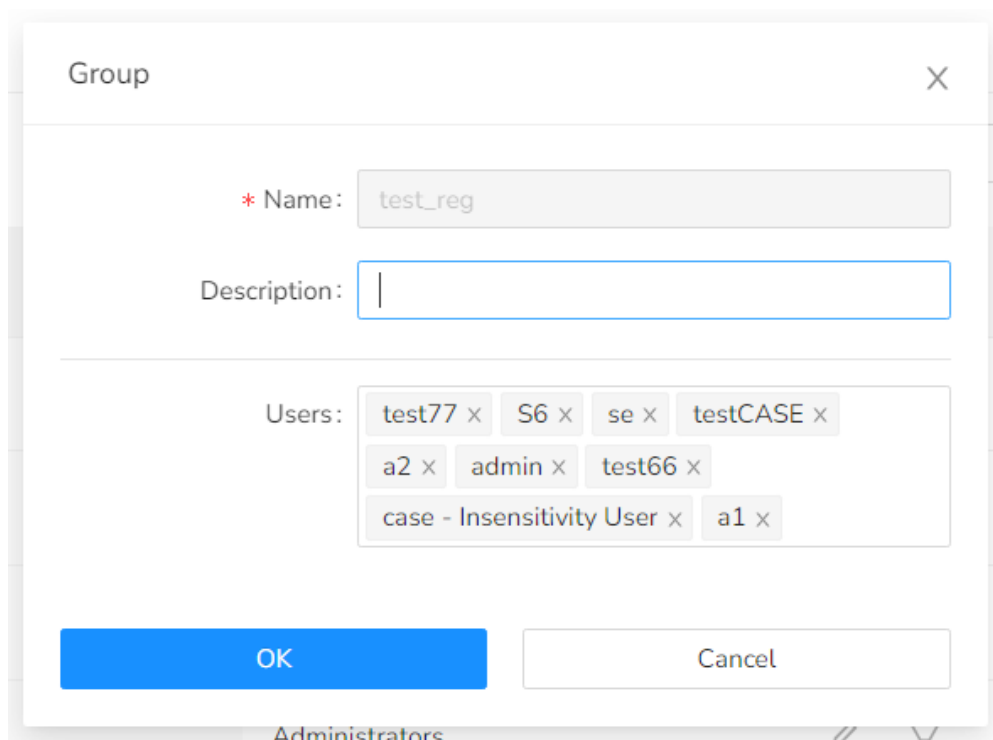


A dialog box titled "User" with a close button (X) in the top right corner. It contains several input fields:

- * Login: test77
- * Email: ss@ss.rr
- * Full name: test
- Description: (empty)
- Change password: (button)
- Groups: test_reg x

 At the bottom are two buttons: "OK" (blue) and "Cancel" (white).

Figure 44 – Editing information about user



A dialog box titled "Group" with a close button (X) in the top right corner. It contains several input fields:

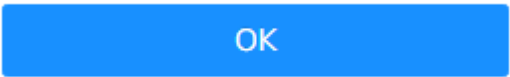
- * Name: test_reg
- Description: (empty)
- Users: (list of users)
 - test77 x
 - S6 x
 - se x
 - testCASE x
 - a2 x
 - admin x
 - test66 x
 - case - Insensitivity User x
 - a1 x

 At the bottom are two buttons: "OK" (blue) and "Cancel" (white).

Figure 45 – Editing information about user group

Mandatory fields are marked with * .

Besides editing data about user or group you can also connect users and groups with each other, selecting the needed parameters in the drop-down lists.



To save made changes, press



To cancel made changes, press

3.3.4. Deleting user (group)

On the right of each record in the table there is the toolbar with the following tools:



To delete the selected record, press . The deletion confirmation window will appear, see Figure 46.

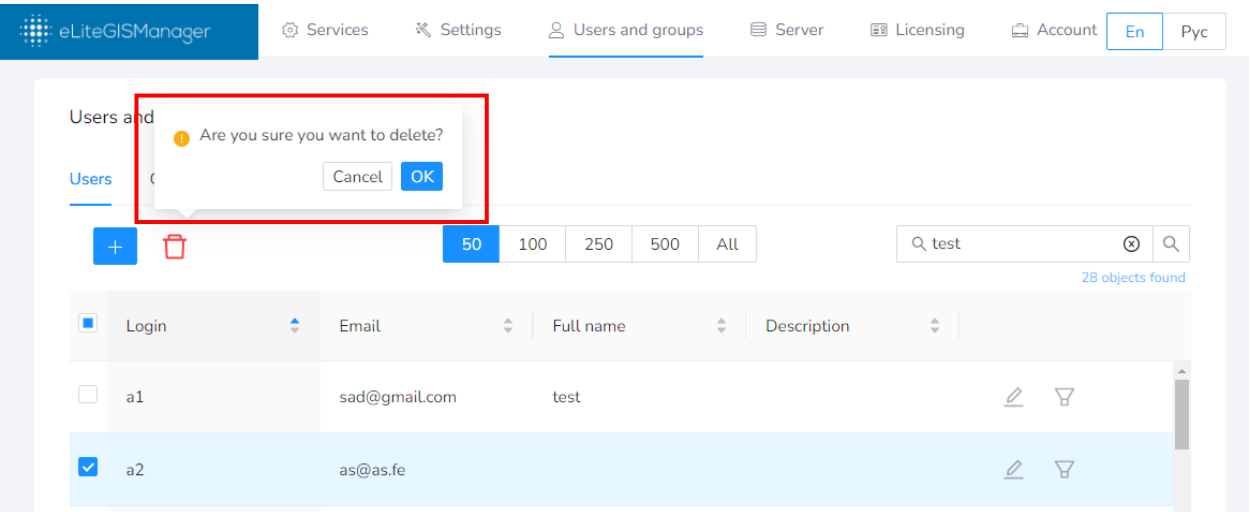


Figure 46 – The tool for deleting user (group)



Confirm deletion by pressing



Cancel deletion by pressing

3.3.5. Viewing related users (groups)

On the right of each record in the table there is the toolbar with the following tools:



When *Users* tab is active, press button to view the list of groups of the selected user, see Figure 47 and Figure 48. In this case the *Groups* tab will be opened automatically and on the left of the search panel the name of user being the filter for the groups list will be shown.

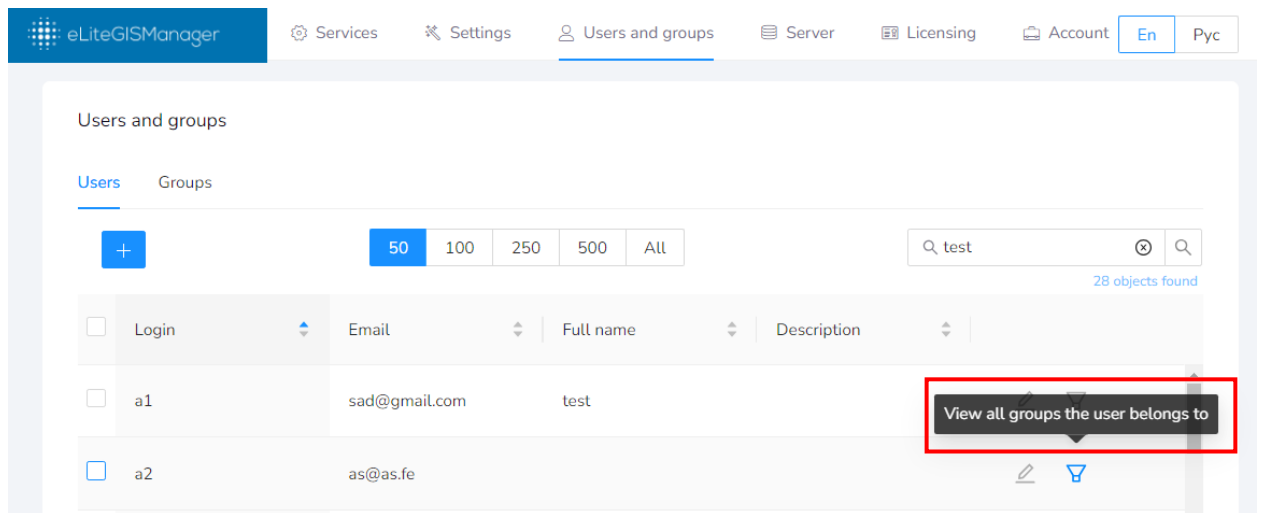


Figure 47 – Tool for viewing groups where the selected user belongs

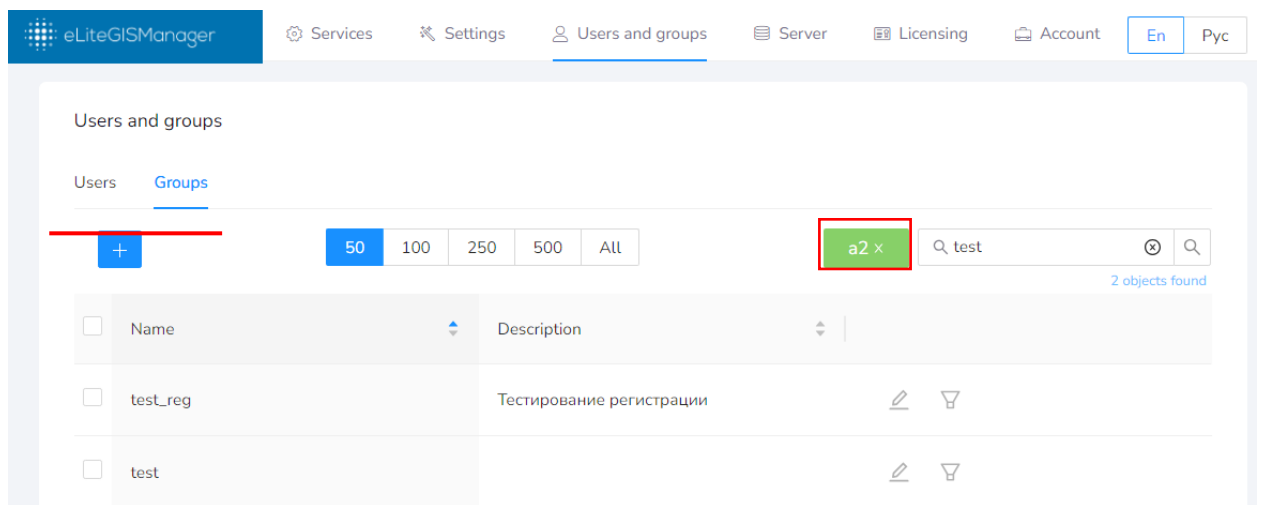



Figure 48 – Viewing list of groups where the selected user belongs

When the *Groups* tab is active, press  to view the list of users who belong to the selected group, see Figure 49 and Figure 50. In this case the *Users* tab will be opened automatically and on the left of the search panel the name of group being the filter for the users list will be shown.

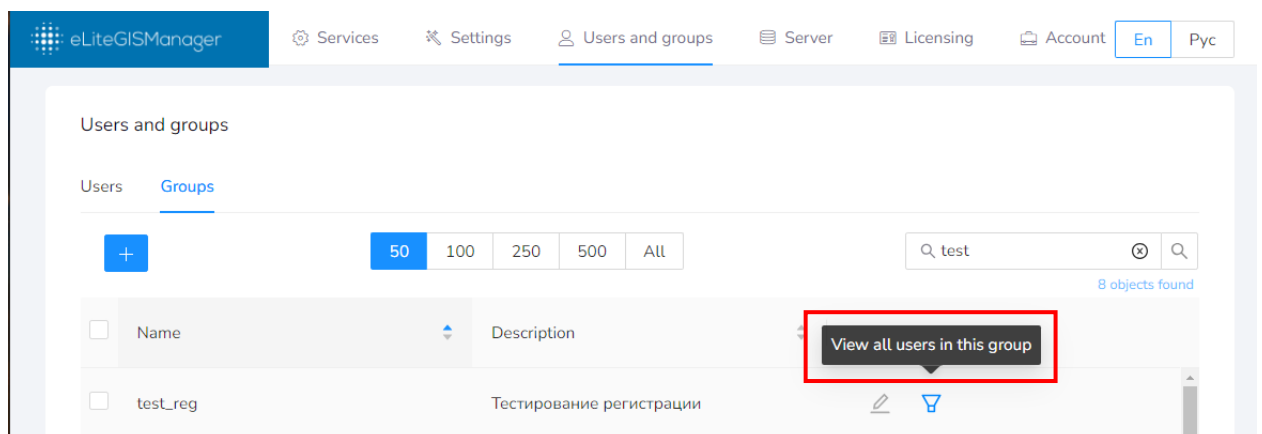


Figure 49 – Tool for viewing list of users who belong to selected group

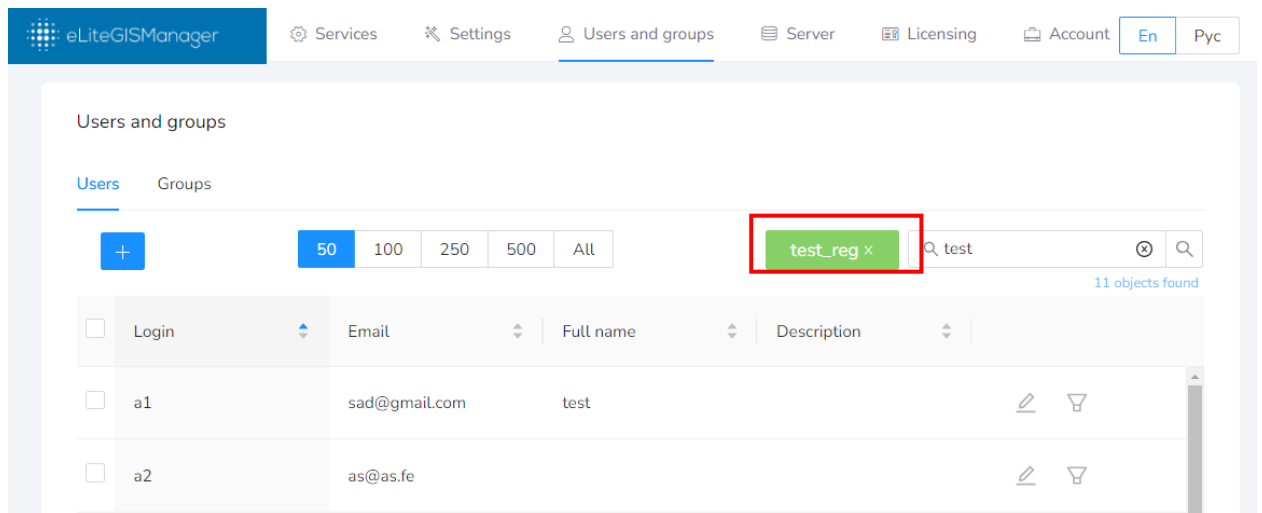


Figure 50 – Viewing list of user who belong to selected group

To cancel the filter, press  near the name of user or group.

3.3.6. Creating new user (group)




To create new user (group), press  located in the upper left part of the tab. The window shown on Figure 51 or Figure 52 will appear.

Figure 51 – Creating new user

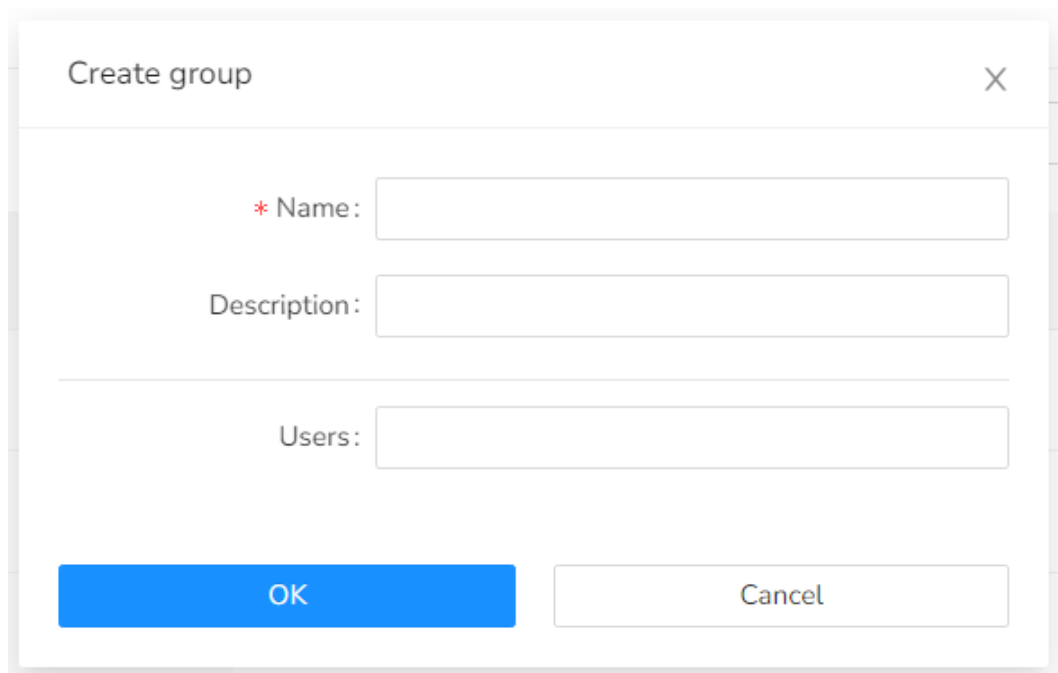
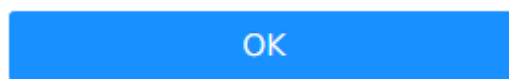
A screenshot of a 'Create group' dialog box. The dialog has a title bar with 'Create group' and a close button (X). Inside, there are three input fields: 'Name:' with a red asterisk indicating it is mandatory, 'Description:', and 'Users:'. Below these fields are two buttons: 'OK' (blue) and 'Cancel' (white with a grey border).

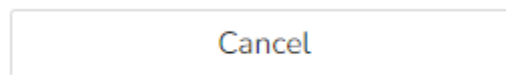
Figure 52 – Creating new group

Mandatory fields are marked with *.

Besides specifying details about user or group, you can also connect users and groups with each other, selecting the needed parameters in the drop-down lists.



To save changes, press



To cancel changes, press

3.4.Licensing

To view information about your CoGIS license, go to *Licensing* tab of CoGIS Server Manager web console, see Figure 53.

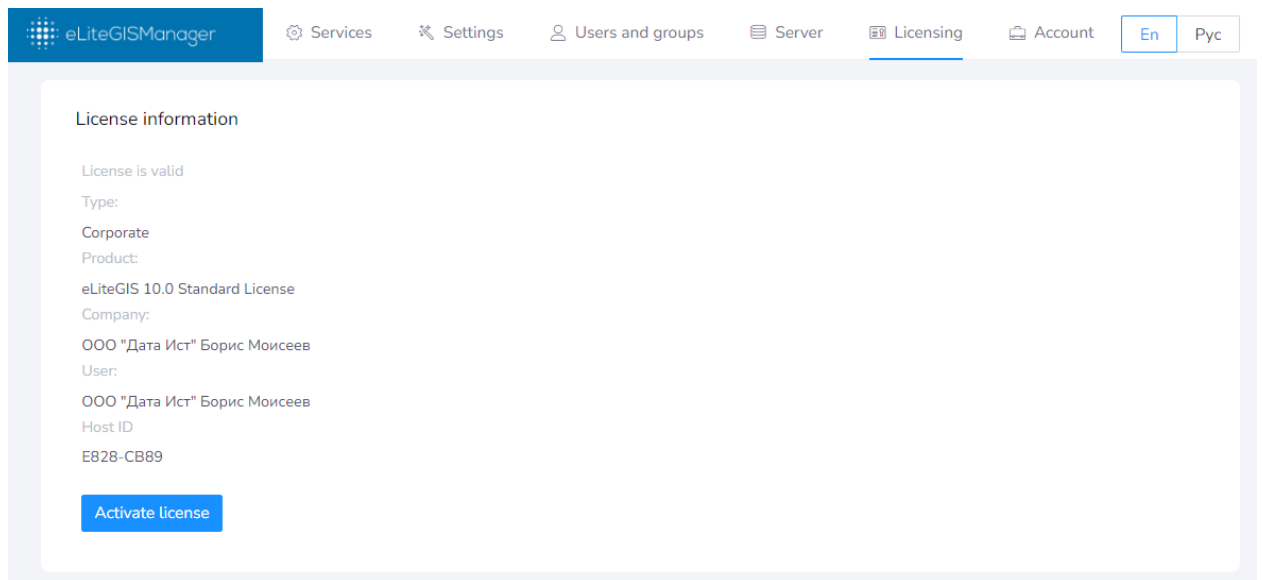


Figure 53 – Licensing tab of CoGIS Server Manager web console

The following CoGIS licensing information is provided in the tab:

- Type of license;
- Product name;
- Company name;
- User name.