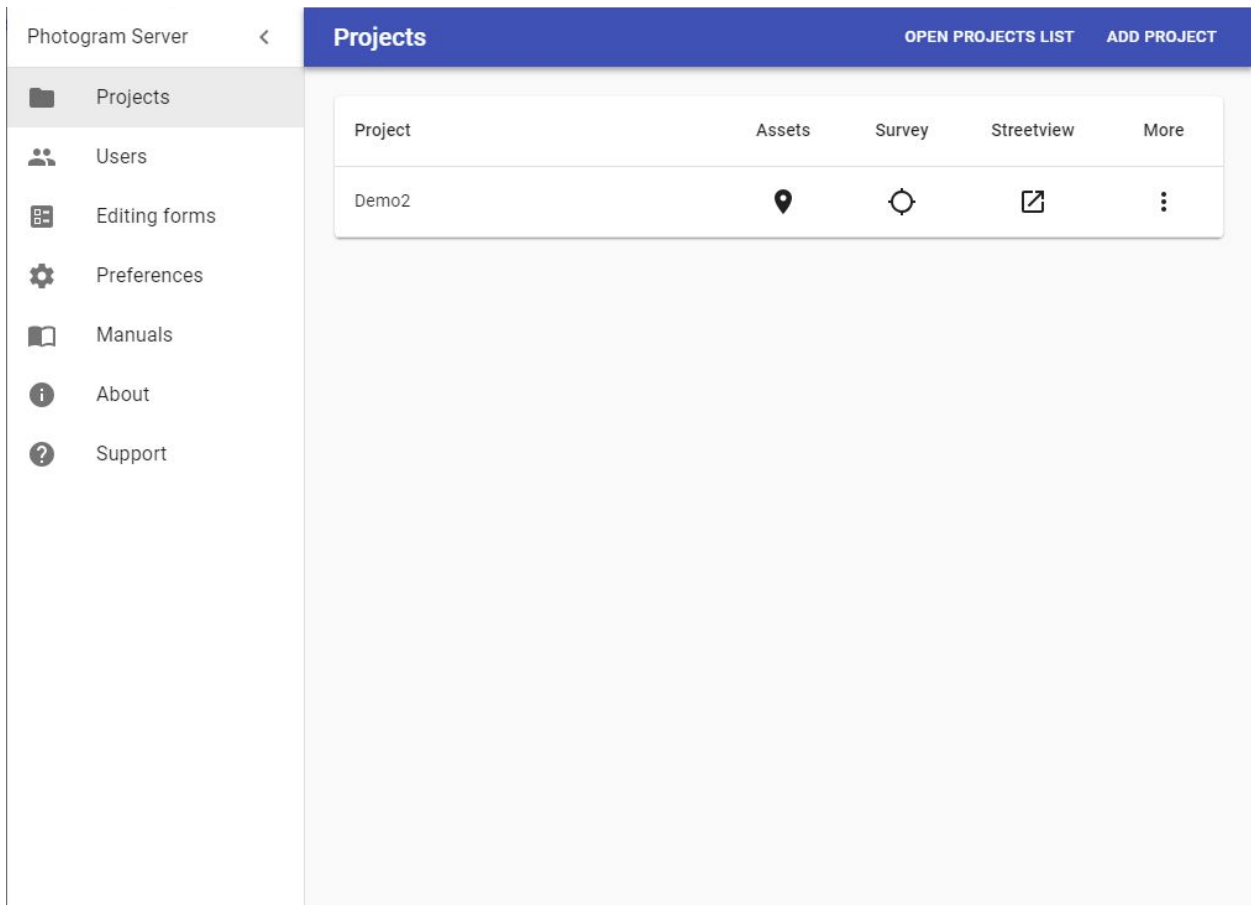




Photogram Server

Manual
for release 1.6.1



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Overview

Photogram is a client/server application to geo-reference and measure in your streetviews:

- A point: Latitude, Longitude, Altitude.
- A length: The distance between two points, in the same streetview.
- The size of rectangles formed by four points, in the same streetview.

Many users can access your Photogram Server with their browser at the same time to work with the data.

There is no need to copy any data to the users PC or to install any programs.

Measurement can be made, saved and exported. Individually or all at once.

Photogram is meant for closed user groups.

User accounts must be created.

Access to individual projects must be granted to the users.

Manuals

This manual is meant for the administrator of the Photogram Server.

The newest release is available here:

<http://updates.applied-streetview.com/photogram-server/newest.php?file=manual>

The manual for the end-users for the Photogram Client (browser):

<http://updates.applied-streetview.com/photogram-server/newest.php?file=manual-client>

Administrator tasks

First task is to create at least one **Admin** user account.
To be named Admin, Admin-02, Admin-03 etc.

Admins should have access to all projects. This is needed to check and set the **Survey** and **Streetview** functionality for existing and newly added projects.
There are no other differences to end-user accounts.

The Photogram Server program itself has no password protection. Anyone with access to the Server or PC has total control.

Typical administrator tasks are:

- Add new users.
- Set what projects a user can access.
Default setting:
Newly added users have no access to projects.
Email the projects list address to a new user.
E.g. **photogram.yourcompany.com/projects** or **192.168.1.28:12035/projects**
- Tell the new user how to get support.
- Add new projects.
Default setting:
No one has access to newly added projects.
- Answer users support requests.
- Maintain the server and network for space, performance and security.

Hardware Requirements

- Windows Server 2016 or 2019 or a Windows 10 PC
- Fast internet access.
- Additionally for the **On-the-fly** mode:
A NVIDIA graphics card with a minimum compute capability of 5.2 and minimum 4GB VRAM is required. More info at <https://en.wikipedia.org/wiki/CUDA>.
We recommend the NVIDIA RTX 2060 graphics card.
- For the **serve** mode:
No NVIDIA graphics card is needed. Projects must be fully processed with the Creator program.

Operation Modes

On-the-fly mode

A project is configured only with **Creator 3** or **5**. But no streetviews are created.

Streetviews are rendered on-the fly by Photogram.

Streetviews are cached to be reused.

A NVIDIA graphics card with a minimum compute capability of 5.2 is required.

More info at <https://en.wikipedia.org/wiki/CUDA>.

We recommend the NVIDIA RTX 2060 graphics card.

CUDA 10.0 is required.

<https://developer.nvidia.com/cuda-10.0-download-archive>

Serve mode

A project is configured **and processed** with **Creator 3** or **5**.

This might need some time for large projects.

The streetviews are served only by Photogram.

No graphics card is needed by the Photogram Server.

Platforms

PC

A Windows 10 PC.

Access the Photogram Server with a browser from other PCs in your office.

Hint:

You even can run both the server and the client on the same PC. It would be the smallest possible set-up.

Server

Windows Server 2016 or 2019

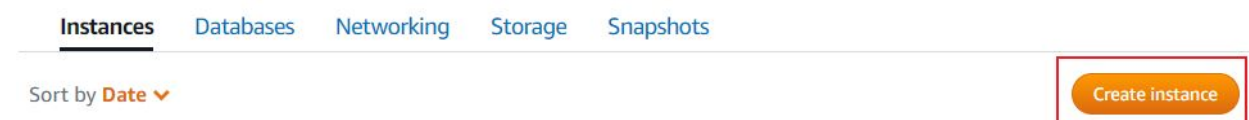
Install it on your own server hardware.

Amazon lightsail + Serve mode

Create a new instance

Go to <https://lightsail.aws.amazon.com/lis/webapp/home/instances>

Click on **Create instance**



Instance location: Choose a location closest to your viewers

Select a platform: Microsoft Windows

Select a blueprint: OS Only, Windows Server 2016

Choose your instance plan: For testing choose an instance with at least 1 GB of memory and for production at least 2 GB of memory.

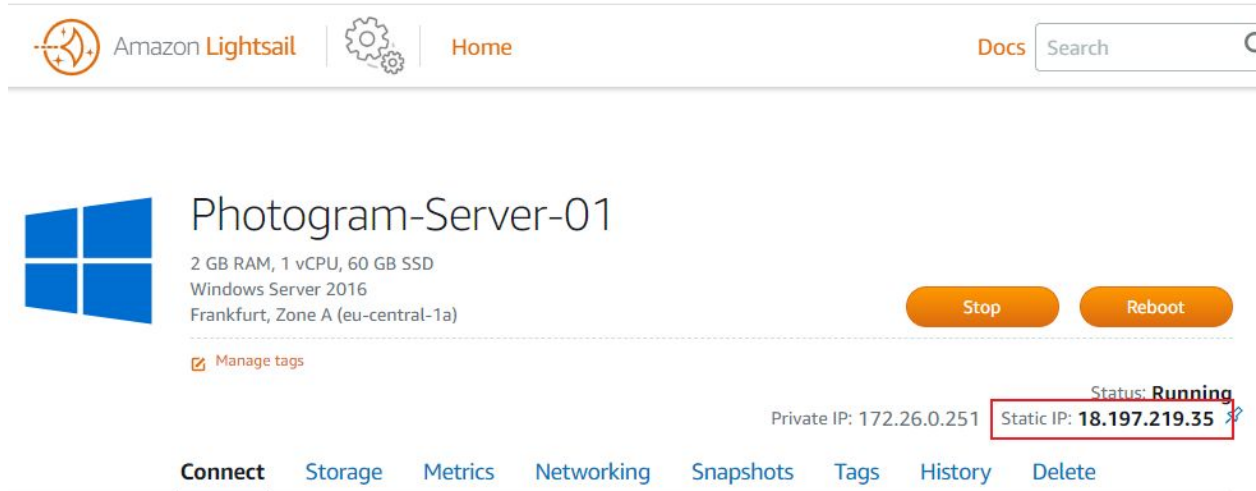
Identify your instance: Choose a name to identify your instance.

Click on **Create instance**

Connect to the instance via RDP

Click on the instance name.

Take a note of the server IP address.

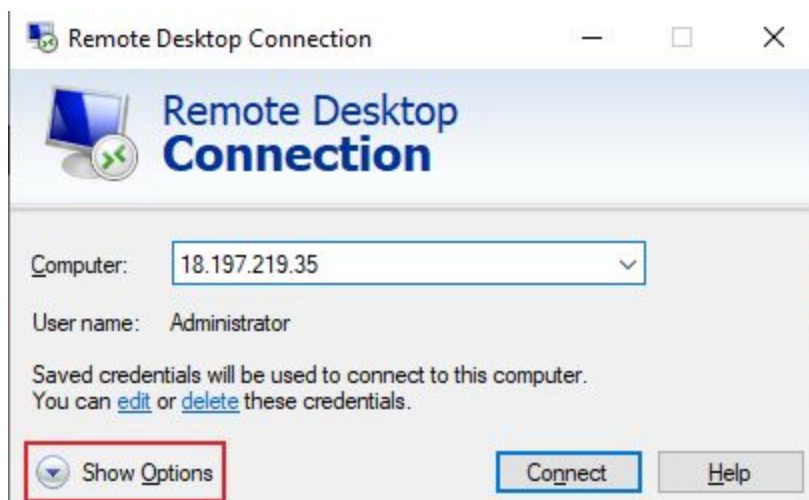


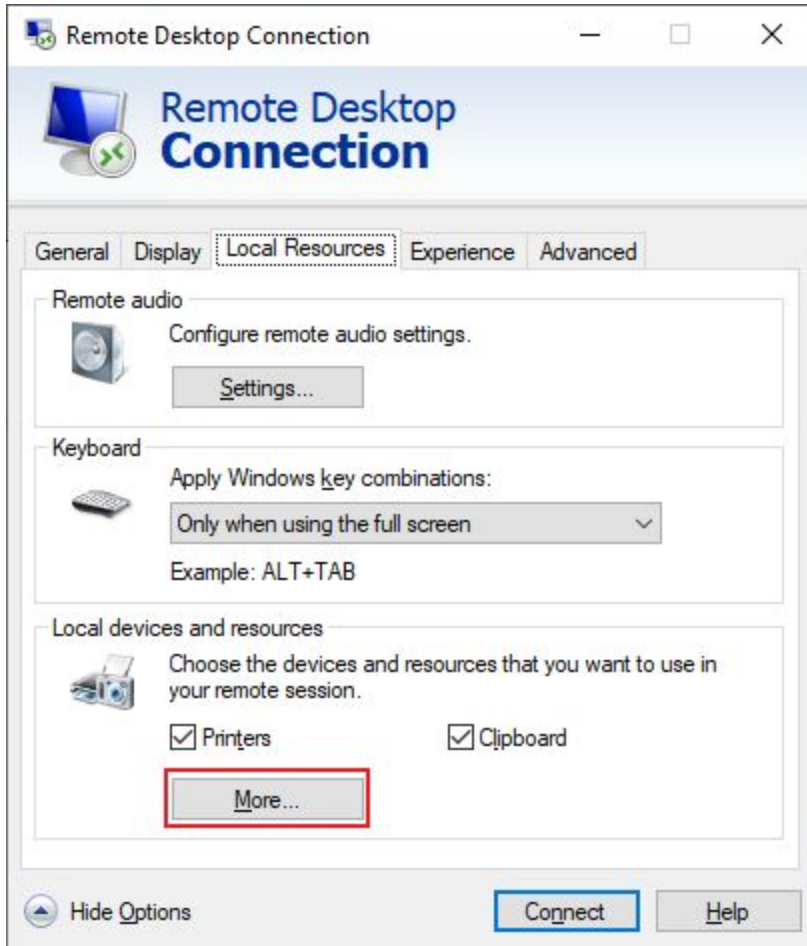
The screenshot shows the Amazon Lightsail console interface. At the top, there is a navigation bar with the Amazon Lightsail logo, a gear icon, and the word 'Home'. To the right, there are 'Docs' and a search box. Below the navigation bar, the main content area displays the details for an instance named 'Photogram-Server-01'. The instance specifications are listed as '2 GB RAM, 1 vCPU, 60 GB SSD', 'Windows Server 2016', and 'Frankfurt, Zone A (eu-central-1a)'. There are two orange buttons: 'Stop' and 'Reboot'. Below the instance name, there is a 'Manage tags' link. The status is shown as 'Running' in red text. The private IP is '172.26.0.251' and the static IP is '18.197.219.35', which is highlighted with a red box. At the bottom, there is a menu with options: 'Connect', 'Storage', 'Metrics', 'Networking', 'Snapshots', 'Tags', 'History', and 'Delete'.

Press the windows key and type "remote", in search the "Remote Desktop Connection" program should appear. Click on it.

In the **Computer** field type in the server IP address.

Then select **Show options - Local resources** tab and click the **More...** button in the **Local devices and resources** section.





From here select **Drivers** and select the drive with the processed project.

Click the **Connect** button.

When connecting you will be prompted to provide credentials.

Default username: **Administrator**

For the password go to Lightsail then click on the instance name. Go to the Connect tab and then click on the **Show default password** link. This will display your password, use it in the Remote Desktop Connection program.

To access Photogram from the internet

Install Photogram

Download the latest version of [Photogam](#) and copy the installer from the attached network drive to a local folder on the instance, then run it. Follow the onscreen instructions.

Copy project

Copy the project output folder from the attached network drive to a local folder on the instance.

Start setting up your projects as described in the [Projects](#) section.

Enable Internet access

Enable the port once:

In Lightsail click on the instance name.

Go to the **Networking** tab. In the Firewall section click on **Add another**.

Add a new entry:

Application - **Custom**

Protocol - **TCP**

Port range - **12045**

Application	Protocol	Port range	
SSH	TCP	22	×
HTTP	TCP	80	×
RDP	TCP	3389	×
Custom	TCP	12045	×

Click the **Save** button.

Connect to the instance via RDP.

1. Open the **Start** menu, type **WF.msc**, and open it.
2. In the **Windows Firewall with Advanced Security**, in the left pane, right-click **Inbound Rules**, and then click **New Rule** in the action pane (upper right corner).

3. In the Rule Type dialog box, select **Port**, and then click **Next**.
4. In the Protocol and Ports dialog box, select **TCP**. Select Specific local ports, and then type the port number which is **12045**. Click **Next**.
5. In the Action dialog box, select **Allow the connection**, and then click **Next**.
6. In the Profile dialog box, click **Next**.
7. In the Name dialog box, type "**Photogram 12045 Inbound**" and for a description put in the same. Then click **Finish**.

To access Photogram from the internet replace the local IP address in the URL with the Server IP address used to connect via RDP, make sure to keep the port.

Typical URLs look like this:

Project page

<http://12.345.678.901:12045/projects>

Survey

<http://12.345.678.901:12045/0d1c4e53-e1f7-429c-a83d-849d71f8/photogram/survey/>

Streetview Player

<http://12.345.678.901:12045/0d1c4e53-e1f7-429c-a83d-849d71f8/player/>

The three URLs above are examples and do not work!

Google Cloud


1. Go to <https://console.cloud.google.com/compute/instances>
2. Click on **CREATE INSTANCE**
3. In **Machine type** click **customize**
4. Set **Cores** to 8 and **Memory** to 8 GB
5. **Serve mode**: At least 1 vCPU and 4 GB RAM.
6. **On-the-fly mode**: In the **GPUs** section set **Number of GPUs** to 1 and **GPU type** to NVIDIA Tesla P100 or V100. V100 is about 80% faster for creating streetview tiles.
7. Click on **Boot disk** and select Windows Server 2019 Datacenter. Then set **Boot disk type** to SSD persistent disk.
8. Click **Create**

Machine type

Customize to select cores, memory and GPUs.

[Basic view](#)

Cores

 8 vCPU 1 - 96

Memory

 8 GB 7.2 - 52

Extend memory [?](#)

CPU platform [?](#)

Automatic [▼](#)

GPUs

The number of GPU dies is linked to the number of CPU cores and memory selected for this instance. For this machine type, you can select no fewer than 1 GPU die. [Learn more](#)

Number of GPUs [▼](#) 1 **GPU type** [▼](#) NVIDIA Tesla P100


i Machines with GPUs can't migrate on host maintenance

[Choosing a machine type](#) [↗](#)

Container [?](#)

Deploy a container image to this VM instance. [Learn more](#)

Boot disk [?](#)

 New 50 GB SSD persistent disk
Image
Windows Server 2019 Datacenter [Change](#)

After connecting to the instance:

1. Download and install [CUDA 10](#)
2. Download and install [Photogram](#)
3. Exclude the **in** and **out** Creator 3 folders from Windows Security.
<https://support.microsoft.com/en-us/help/4028485/windows-10-add-an-exclusion-to-windows-security>

Amazon EC2

1. Go to e.g. <https://eu-central-1.console.aws.amazon.com/ec2>
2. Click on **Launch Instance**
3. Step 1: Choose an Amazon Machine Image (AMI): Choose **Microsoft Windows Server 2019 Base**
4. Step 2, **Serve mode**: At least 1 vCPU and 4 GB RAM.
5. Step 2, **On-the-fly mode**: Choose an Instance Type: Choose **p3.2xlarge** - 1 x V100 GPU.
6. **Review and Launch**

After connecting to the instance:

1. Download and install [CUDA 10](#)
2. Download and install [Photogram](#)
3. Exclude the **in** and **out** Creator 3 folders from Windows Security.
<https://support.microsoft.com/en-us/help/4028485/windows-10-add-an-exclusion-to-windows-security>

Microsoft Azure

1. Go to e.g.
<https://portal.azure.com/#blade/HubsExtension/Resources/resourceType/Microsoft.Compute%2FVirtualMachines>
2. Click on **Add**
3. Image: **Windows Server 2019 Datacenter**
4. Size, **Serve mode**: At least 1 vCPU and 4 GB RAM.
5. Size, **On-the-fly mode**: Standard NV6
6. **Review + create**

After connecting to the instance:

1. Download and install [CUDA 10](#)
2. Download and install [Photogram](#)
3. Exclude the **in** and **out** Creator 3 folders from Windows Security.
<https://support.microsoft.com/en-us/help/4028485/windows-10-add-an-exclusion-to-windows-security>

Workflow

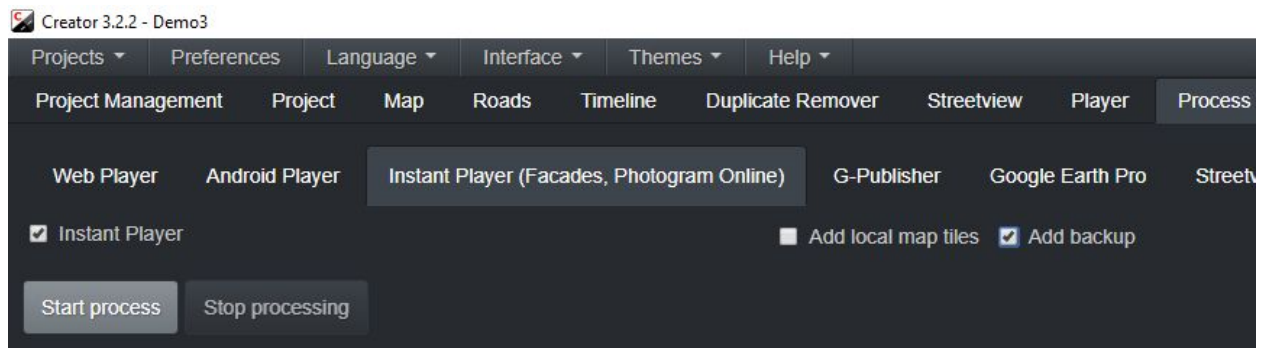
Creator 3

On-the-fly mode

A project must be configured only with **Creator 3.2.0** or above.
No need to process any images.

All existing projects can be exported for Photogram without any additional work.
No streetviews are created. Creating the Photogram configuration is very fast.

Set the options as shown in this
Process -> Instant Player (Facades, **Photogram**)
screenshot:



Click the **Start process** button.

Serve mode

A project must be configured, and the streetview-tiles must be created with **Creator 3.2.0** or above.

All existing projects can be exported for the Photogram without any additional work. Streetviews are created. This might need some time.

Click

Interface -> Advanced,

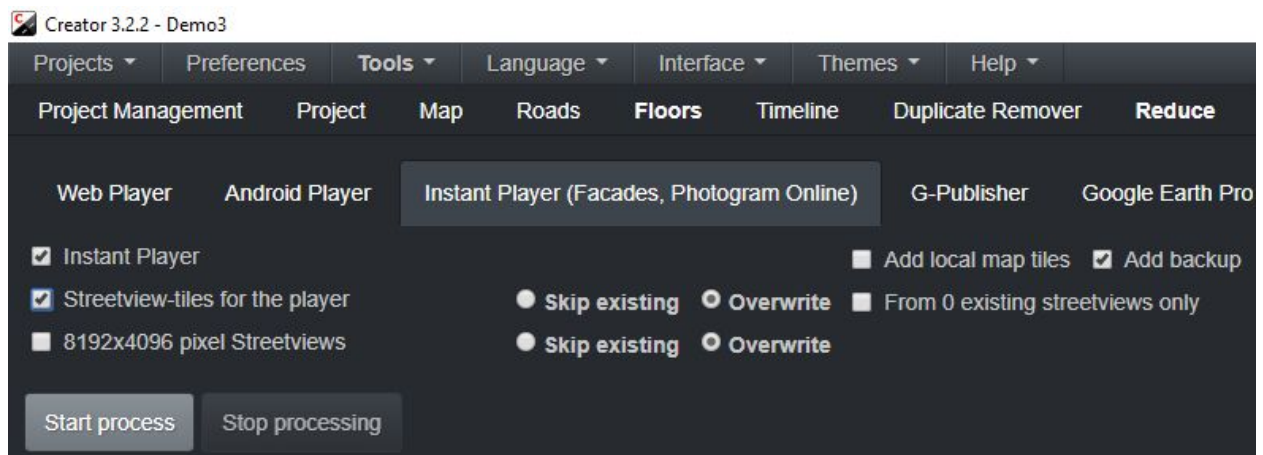
then

Process -> Instant Player(Facades, **Photogram**)

Set the options as shown in this

Process -> Instant Player(Facades, **Photogram**)

screenshot:



Click the **Start process** button.

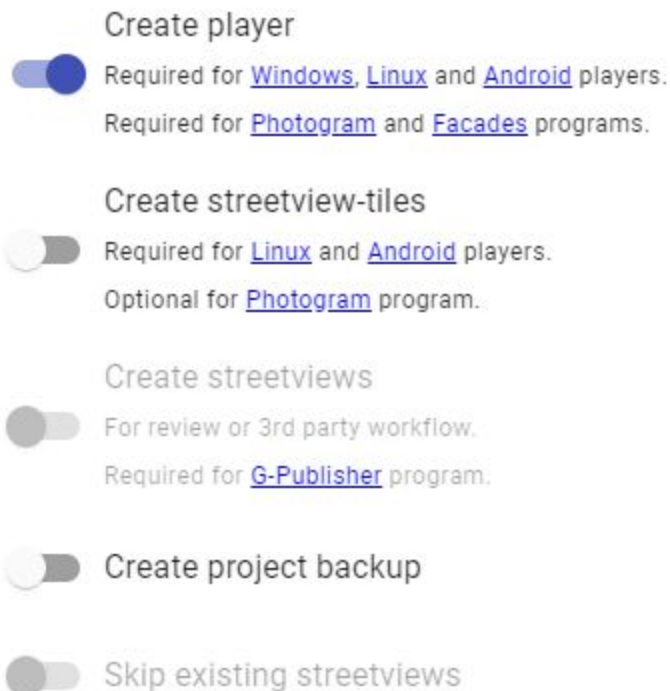
Creator 5

On-the-fly mode

A project must be configured only with **Creator 5.0.0** or above.
No need to process any images.

All existing projects can be exported for Photogram without any additional work.
No streetviews are created. Creating the Photogram configuration is very fast.

Set the options as shown in this
Go to **Publish** then uncheck the **Create streetview-tiles** option.
screenshot:



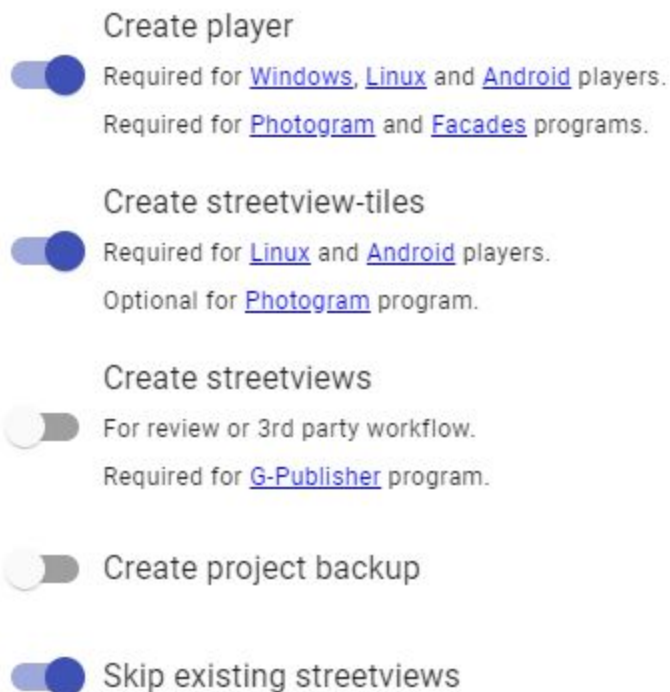
Click the **Start** button.

Serve mode

A project must be configured, and the streetview-tiles must be created with **Creator 5.0.0** or above. We strongly recommend to always use the newest Creator release.

All existing projects can be exported for the Photogram without any additional work. Streetviews are created. This might need some time.

Go to **Publish** then check the **Create streetview-tiles** option.
screenshot:



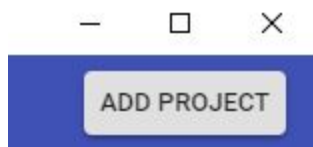
Click the **Start** button.

Projects

Open the **Photogram Server** program.

Click on the **Open Projects list** button to display a list of all the available projects in a new browser window.

New



Click **Add project** to add a new project. It must be processed for the **Instant Player**.

Project folder



Project name

Editing form

Example form

Allow all users to access this project

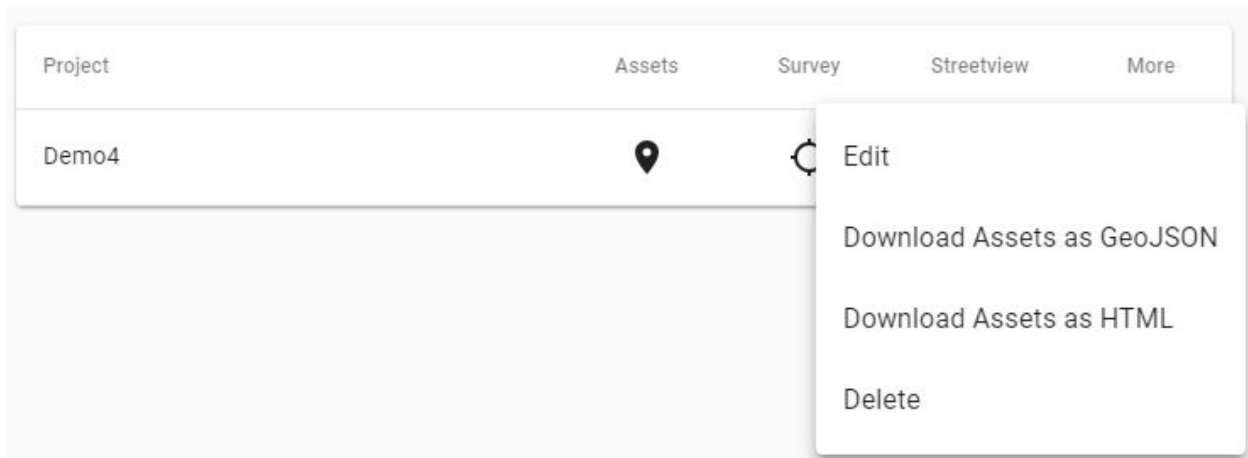
Specify an editing form to be used by the project.

By default nobody has access to the project.

Tick the **Allow all users to access this project** option to grant everyone access, or leave it unticked and on the [Users - Edit](#) page enable access just for specific users.

Pick the project folder and then click **Save**.

Manage



Assets

Opens the Assets URL in a new browser tab.

Survey

Opens the Photogram client URL in a new browser tab.

Streetview

Opens the Player URL in a new browser tab.

More - Edit

Project folder

CHOOSE FOLDER  D:\as\out\Demo2


Project name

Demo2

Editing form

Example form 

Project's source photos

CHOOSE FOLDER 

Streetview tiles URL

Edit project specific preferences:

- Project folder - Photogram Server enabled Creator-project folder
- Project name - Project name
- Editing form - Editing form to be used by the project
- Projects source photos - Set the path to the folder with the source images of the project. Is needed when Photogram runs on a different PC than Creator 3.
- Streetview tiles URL - Update this field to the URL of the 3rd party server that has all the processed tiles. Use this to serve streetview tiles from a CDN.
Example: //aplsv.s3.amazonaws.com/Demo3

More - Download Assets as GeoJSON

Download all the Assets as a GeoJSON file.

More - Download Assets as HTML

Download all the Assets as a list in an HTML file. This file can be added to Instant Player to a Visualizer enabled project.

More - Delete

Delete the selected project from Photogram Server. **No files are deleted.**

Open Projects list



This is the starting point for all end-users. Provide it to the users.

The link looks like this:

photogram.yourcompany.com/projects or **192.168.1.28:12035/projects**

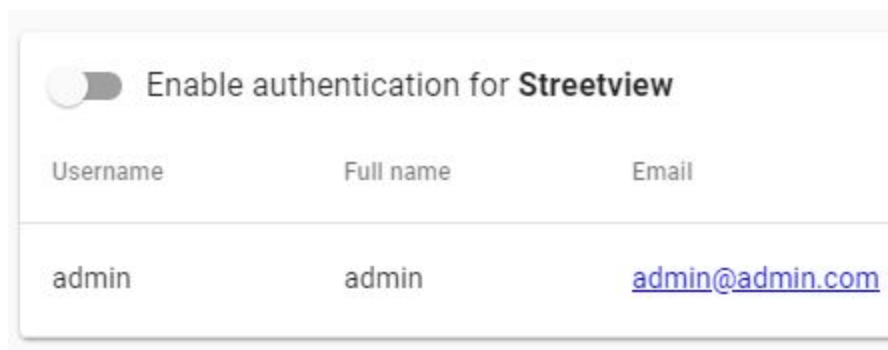
Each user will only see the projects access has been granted for.

Click the **Open Projects list** button in the top right corner, this will open a new Browser window with a list of all the projects.

Users

Only registered users have access to the Photogram server.

Enable authentication for Streetview



Username	Full name	Email
admin	admin	admin@admin.com

If enabled users using the **Streetview** page must authenticate first.

If not activated all users can access the **Streetview** functionality for projects they have access to.

Authentication is always active for **Survey**. It can not be switched off.

Sign in

http://192.168.1.101:12035

Your connection to this site is not private

Username

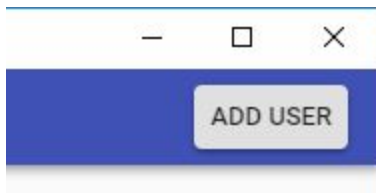
Password

Sign in

Cancel

The authentication popup will be displayed when accessing a project in the browser.

New



Click **Add user** to add a new user.

Username

Test

Full name

Tom Tester

Email

tom2@gmail.com

Password

Confirm password

Enable Statistics access

Allowed projects



All Demo4

Fill in the fields and click **Save** in the top right corner.

By default a user does not have access to any of the projects.

Either select **All** in the **Allowed projects** section to allow user access to all currently available projects, or pick specific projects(s) from the list.

Edit

<input type="checkbox"/> Enable authentication for Review				Users: 1/3	
Username	Full name	Email	Edit	Delete	
test	Tom Tester	tom2@gmail.com			

Edit a users data:

- Username
- Full name
- Email
- Password
- Enable Statistics access - Enable access to /photogram/statistics page.
- Allowed projects - Specify which projects the user can access. By default a user has no access at all.

Username

Test

Full name

Tom Tester

Email

tom2@gmail.com

Password

Confirm password



Enable Statistics access

Allowed projects



All



Demo4

Delete

Delete the selected user from the Photogram Server






















Editing forms

Manage editing forms that are attached to a project for users to fill in when creating a new measurement.


Example form is assigned by default to all new projects.

Form name

Example form

Fields								
Name	Type	Required	Actions					
label	Text	Yes						
number_field	Number	No						
checkbox_field	Checkbox	No						
dropdown_field	Dropdown	No						

Manage forms

Click on **Add form** to create a new form, or on the  button next to the form name to edit an existing form.

Form name - Displayed when assigning a form to a project.

To Delete a form click on the on  button next to the form name.

Manage fields


A form is composed of several fields.


Each field can be one of the following four types:


Text, Number, Checkbox, Dropdown.


Here is how each field looks to the user:

Test	label Area 01
Number	number_field 6
Checkbox	<input checked="" type="checkbox"/> Checked
Dropdown	dropdown_field Option 2

Click on the  button to create a new field.

Enter a name, pick the type, set if the field is required or not, then click the  button.

Click on the  button next to the field name to edit it.

Click on the  button next to the field name to delete it.

Checkbox options

Checkbox fields have a special action button  called options.

For **Checkbox** you can specify the checkbox label as well as what value to write to the database for checked and unchecked values.

checkbox_field

Label

Checked

Unchecked value

0


Checked

1

CANCEL

OK

Dropdown options

Dropdown fields have a special action button  called options.

For **Dropdown** fields you can specify all the available options for selection:

dropdown_field

Value

Label

1

Option 1



2

Option 2



3

Option 3



ADD



CANCEL

OK

Click on the **Add** button to add a new entry.

Click on the  button next to the option to delete it.

Fields order

Click on the  button to move the field up and on the  button to move the field down.

Save

Click on the **Save** button in the top right corner to save all the changes.

Preferences

Language

Change the language. English, German and Romanian are supported.

URL IP address

Internet address to use when creating the player URL. By default Photogram Server will try to auto detect your LAN interface IP address and use it. Change this setting only in case a different interface IP address should be used.

Display projects list when accessing /projects URL

For easy access provide a list of all available projects to the viewers.
Uses only can see projects they have been granted access to.

If this option is disabled a 403 HTTP Forbidden error message will be returned when accessing the **/projects** URL.

After generating the streetview delete it's sources.

After a streetview is generated it's source images in the projects input folder will be deleted. This keeps the amount of data to about the same on the server. No matter how many streetviews are processed on-the-fly when viewed.

WARNING:

Make sure you have a backup of your sources!

Support

Please update first.
Support is provided for the newest Photogram release only.
Maybe your problem has already been solved?

Check

<https://www.applied-streetview.com/products/programs/photogram/>
for a new release.

Contact

Support is available in English.

Helpdesk: support.applied-streetview.com
E-Mail: support@applied-streetview.com
Skype ID: applied-streetview
Phone: +49 6103 - 37 27 494

Consulting

We are available for hire for consulting, custom development and integration.

Please contact:

E-Mail: jan.martin@applied-streetview.com
Skype ID: applied-streetview
Phone: +49 6103 - 37 27 494