



CROWD/4ACCESS

Guide on how to collect footpath images using Mapillary

Version 1.0



Insight SFI Research Centre for Data Analytics

October 2020



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This is a how-to guide created for the Crowd4Access project on how to take pictures of footpaths using the Mapillary service.

In order to use this how-to you will need a smartphone with:

- Android or iOS (an iphone)
- a camera with reasonable quality
- GPS location
- Wi-fi connection to the Internet

If you have arrived at this how-to and would like to know more about the Crowd4Access project, please visit <http://www.crowd4access.insight-centre.org>

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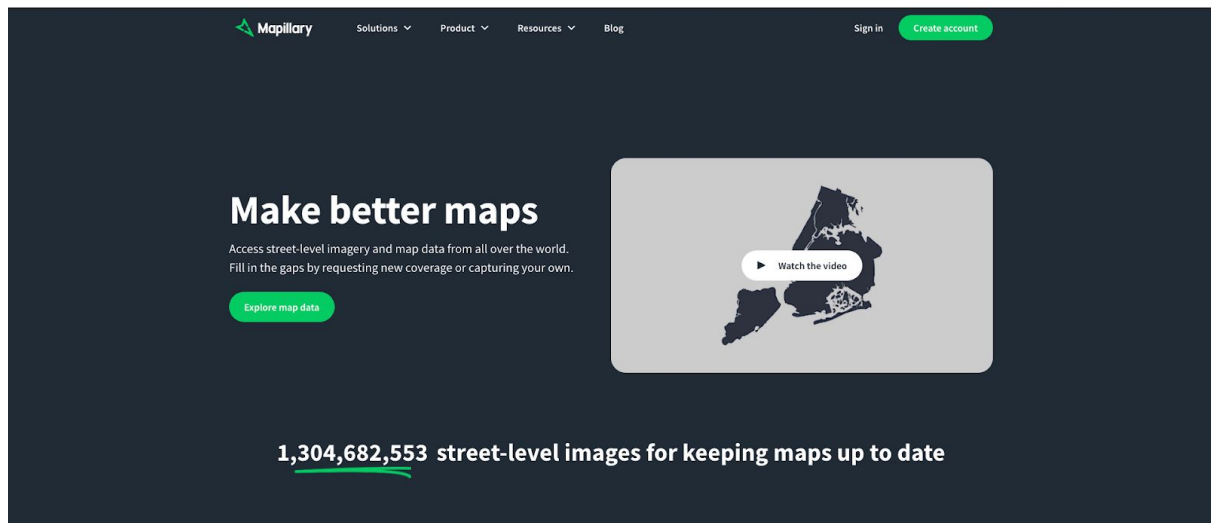
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1. Creating a Mapillary account

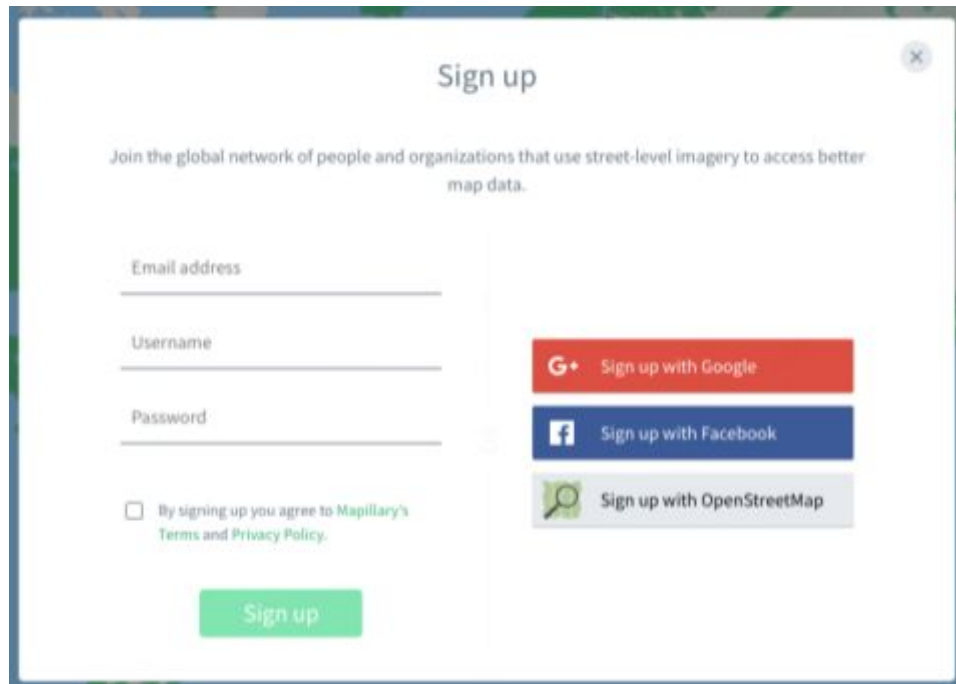
- Visit the Mapillary website <https://www.mapillary.com/>



- Click in the button "Create account" in the upper right corner.



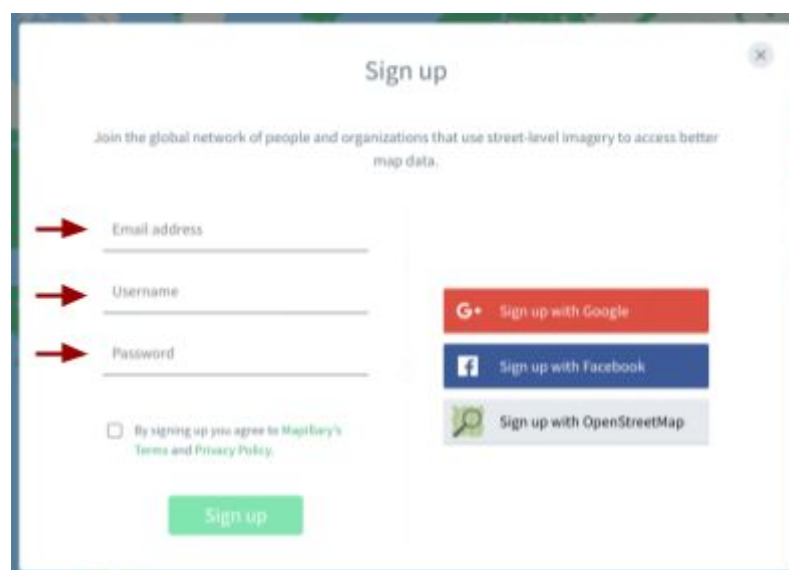
- Sign up using your favorite mode for login: Google, Facebook, OpenStreetMap or email).



The screenshot shows a 'Sign up' modal window. At the top, it says 'Sign up' with a close button. Below that, a subtitle reads: 'Join the global network of people and organizations that use street-level imagery to access better map data.' The form contains three input fields: 'Email address', 'Username', and 'Password'. Below these fields is a checkbox with the text 'By signing up you agree to Mapillary's Terms and Privacy Policy.' To the right of the form are three buttons: 'Sign up with Google' (red), 'Sign up with Facebook' (blue), and 'Sign up with OpenStreetMap' (grey). At the bottom of the form is a green 'Sign up' button.

1.1 Using your email address

- If you choose to sign up using your own email address, just add your email address, a username of your choice, and a password of your choice.



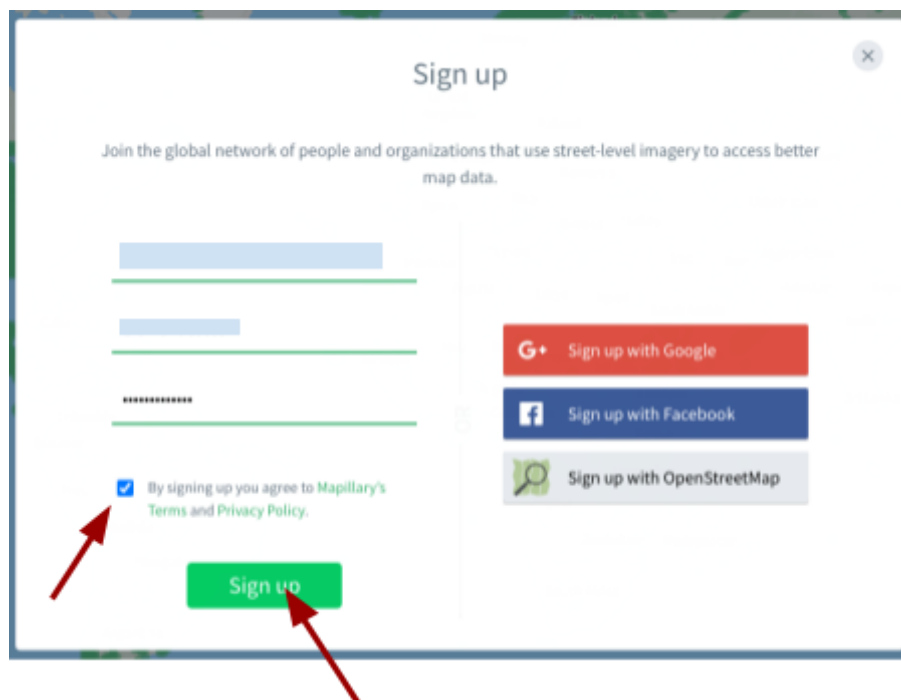
This screenshot is identical to the one above, but with three red arrows pointing to the 'Email address', 'Username', and 'Password' input fields to highlight them.



- Please make sure you have read the Mapillary's Terms and Privacy Policy and you agree with them.

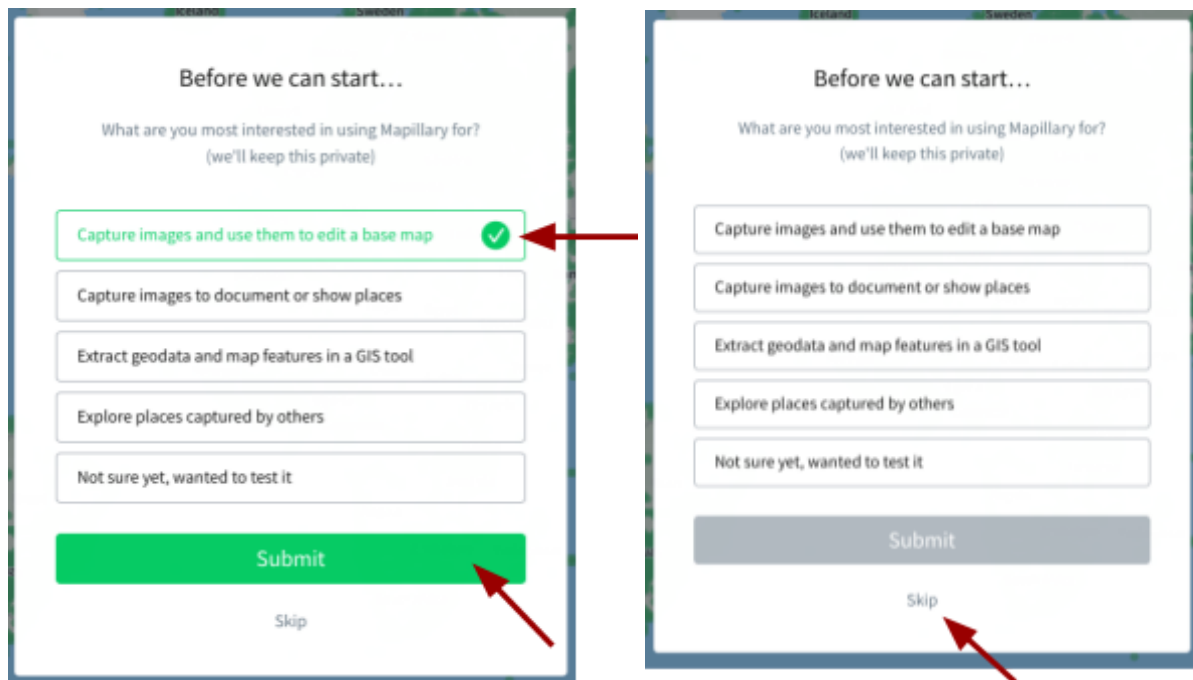


- If you agree with the terms and privacy policy then tick the box and click in the "Sign up" button.



- Mapillary may display a short questionnaire asking why you want to use Mapillary. You can choose whatever answer you want or just click in "Skip".





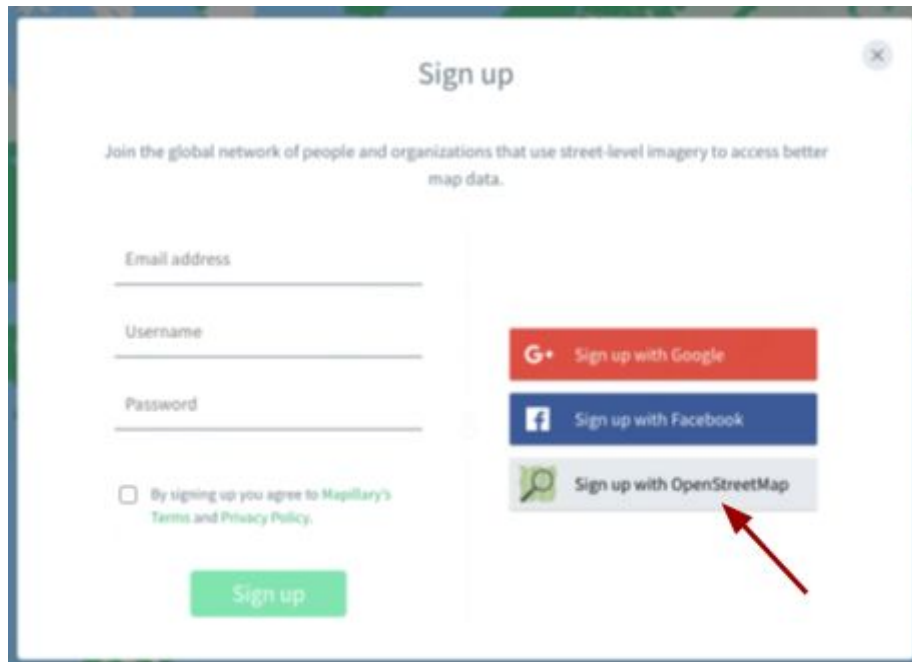
- Mapillary will send you an email confirming the creation of your Mapillary account. It may take a few minutes.

1.2. Using OpenStreetMap, Google or Facebook account

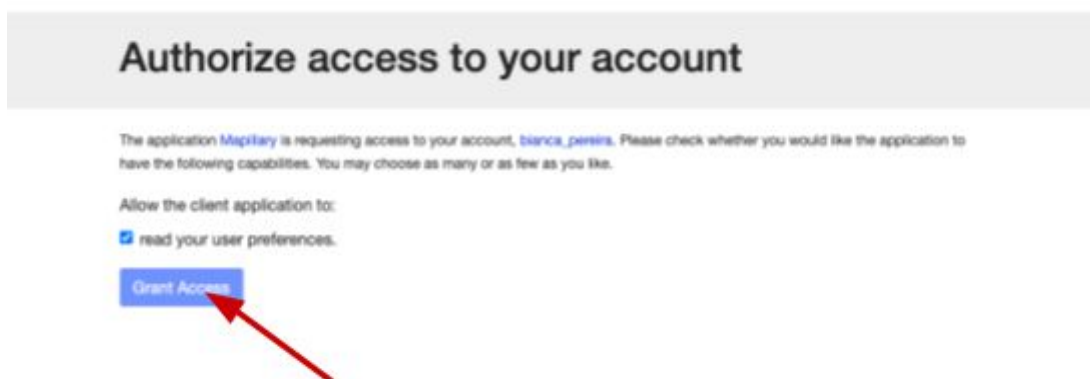
- If you choose to sign up using OpenStreetMap, Google or Facebook then you need to grant access to the application.

Choosing to sign up with any of these applications means that you can use your Google, Facebook, or OpenStreetMap account to log into Mapillary. In this way you will not need to remember a new password just to log into Mapillary, you can use the accounts (Google, Facebook, or OpenStreetMap) you already have.





- In the context of Crowd4Access, we suggest using your OpenStreetMap accounts. If you choose to sign up using OpenStreetMap, you should see the following screen. Make sure you click in the "Grant Access" button if you agree to link your OpenStreetMap account to your Mapillary account.



- Mapillary will request that you choose a new username and an email account to link to your Mapillary account.

You can invent any username you wish, just please note this username will be publicly visible.

For the email field, please add an email address that you already have.



Sign up

Signed in with OpenStreetMap

Please choose a username and email address for your Mapillary account. It can (but doesn't have to) be the same as what you're using for your OpenStreetMap account.

Username min. 3 characters

Email address

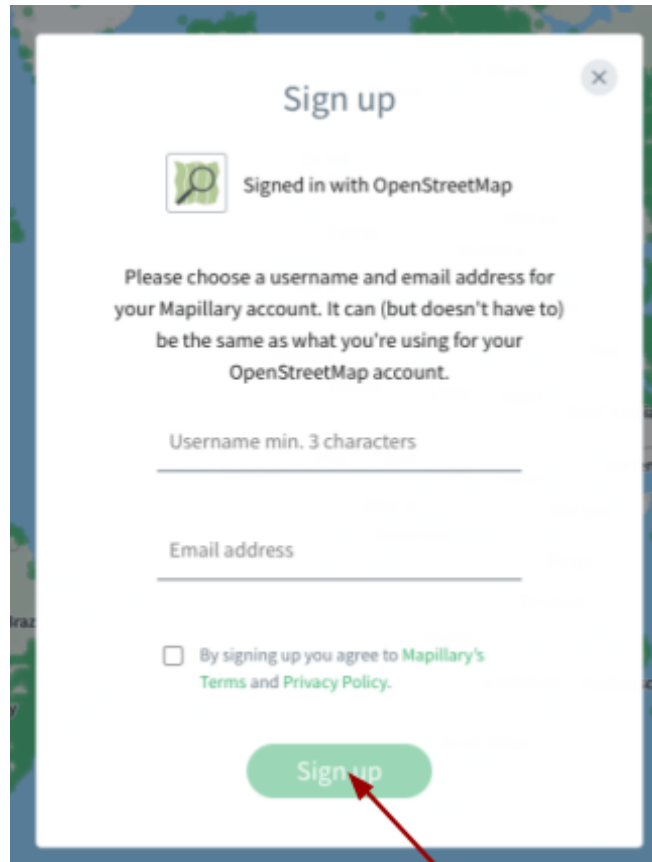
☐ By signing up you agree to Mapillary's Terms and Privacy Policy.

Sign up

- Please make sure you have read the Mapillary's Terms and Privacy Policy and you agree with them.



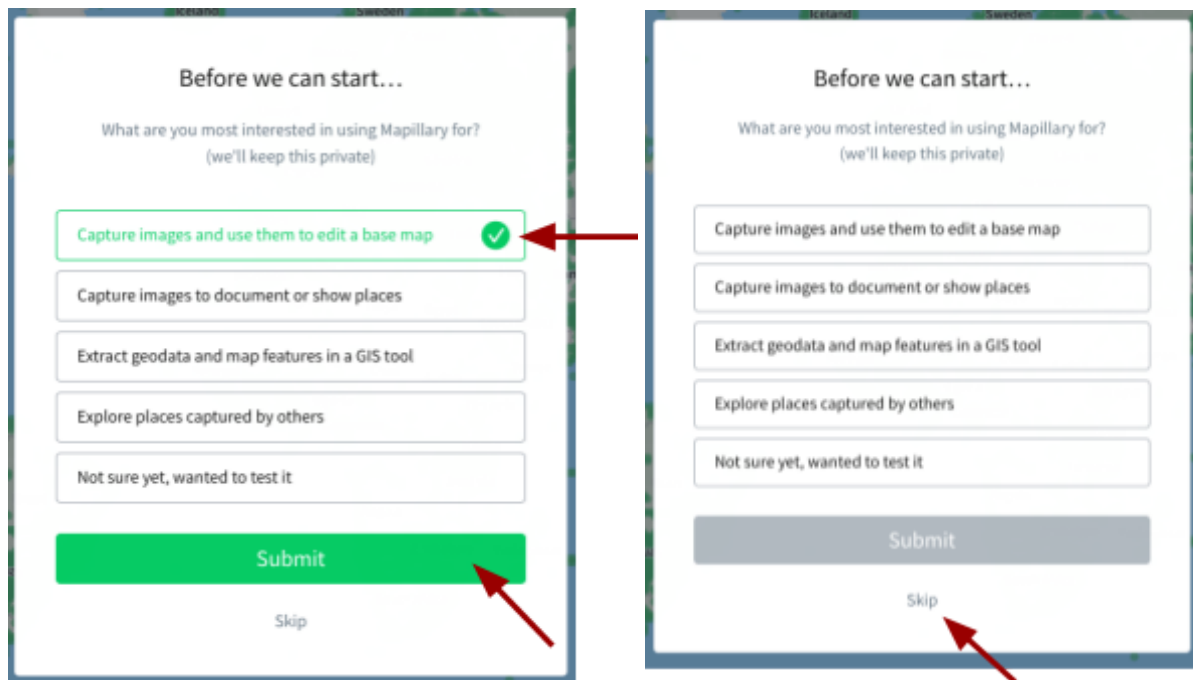
- If you agree with the terms and privacy policy then tick the box and click in the "Sign up" button.

A screenshot of the Mapillary sign-up form. The form is titled "Sign up" and has a close button (X) in the top right corner. It shows a "Signed in with OpenStreetMap" status with a magnifying glass icon. The instructions state: "Please choose a username and email address for your Mapillary account. It can (but doesn't have to) be the same as what you're using for your OpenStreetMap account." There are two input fields: "Username min. 3 characters" and "Email address". Below these is a checkbox labeled "By signing up you agree to Mapillary's Terms and Privacy Policy." At the bottom is a green "Sign up" button, which is pointed to by a red arrow.

If you do not agree with the terms and privacy policy then you should not sign up to Mapillary. Unfortunately, you will not be able to use the service then, but you can still participate in the mapping workshops by adding information into OpenStreetMaps.

- Mapillary may display a short questionnaire asking why you want to use Mapillary. You can choose whatever answer you want or just click in "Skip".





- Mapillary will send you an email confirming the creation of your Mapillary account. It may take a few minutes.

2. Accessing your Mapillary account

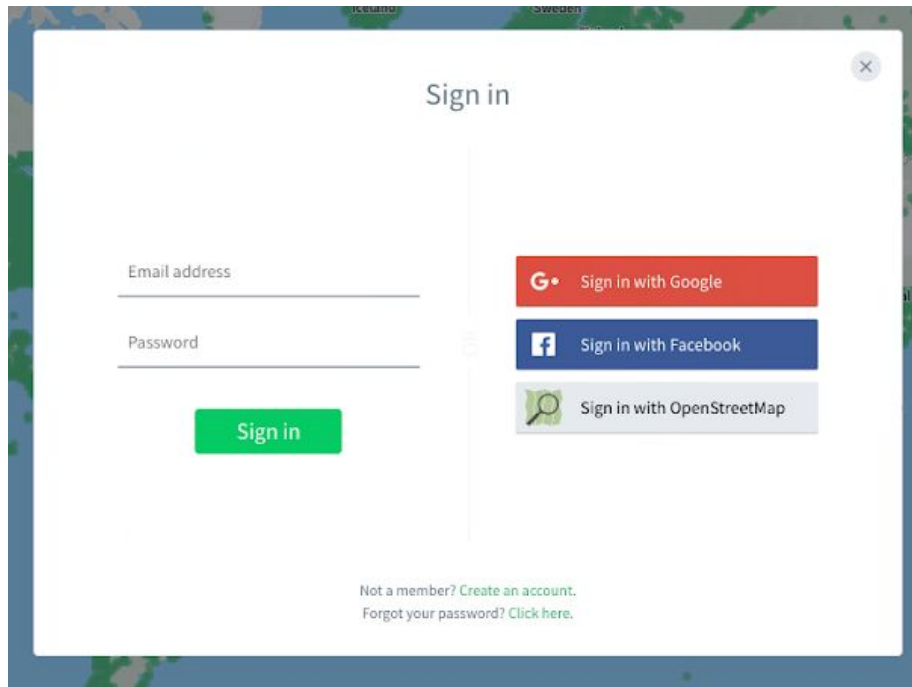
If you have already created a Mapillary account, you should be able to access your account using the following steps.

- Visit the Mapillary website <https://www.mapillary.com/>
- Click in the button "Sign in" in the upper right corner.

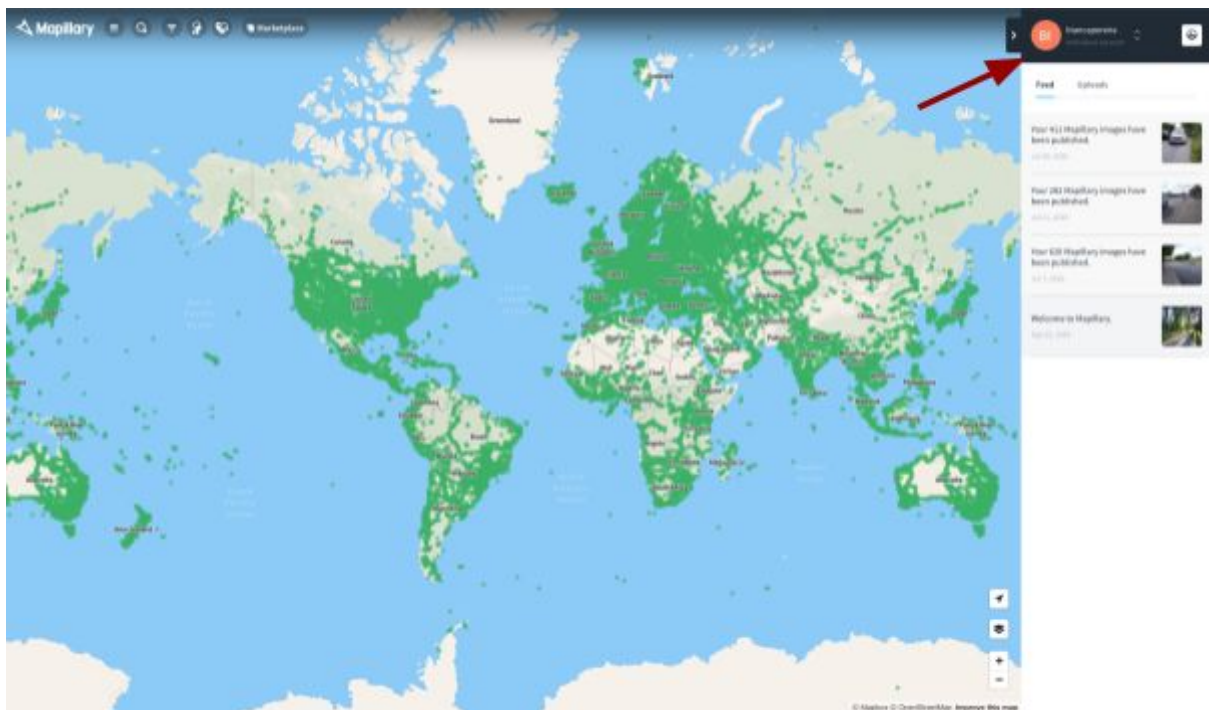


- Use the same sign-in method that you used when creating your Mapillary account (Google, Facebook, OpenStreetMap or email).





- You should see a screen similar to the one below but with your own username appearing on the upper right corner.



At the moment your account has no much information, but all your pictures will appear here when you have added them to Mapillary later. For now, let's learn more about how to join the Crowd4Access in mapping footpaths in Ireland.



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3. Join Crowd4Access group in Mapillary

To join the Crowd4Access group in Mapillary, please make sure you have created a Mapillary account and that you remember your username. Send us your email and Mapillary's username via this form:

<https://forms.gle/nGu9GrvpmqqPvDuM8>

It may take us up to 1 week to add you to the Crowd4Access group in Mapillary. As soon as we have done it we will send you an email. After you are included as a member of the Crowd4Access group, you can start contributing your pictures.

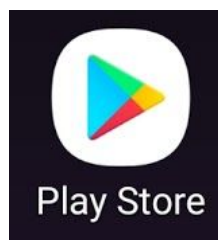
4. Install the Mapillary app in your phone

To install the Mapillary app you will need a smartphone with:

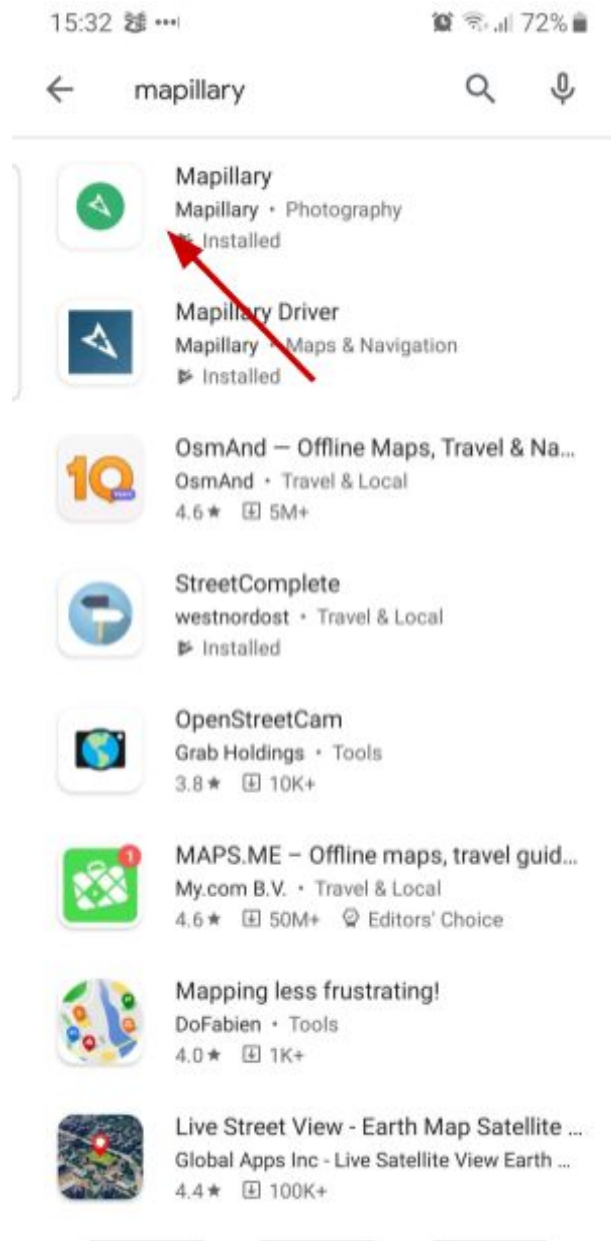
- Android or iOS (iphone)
- Internet connection in your phone (either via Wi-fi or 4G)
- Enough space available on the phone to install a new app

4.1 Install Mapillary via Play Store

- Open the Google Play Store

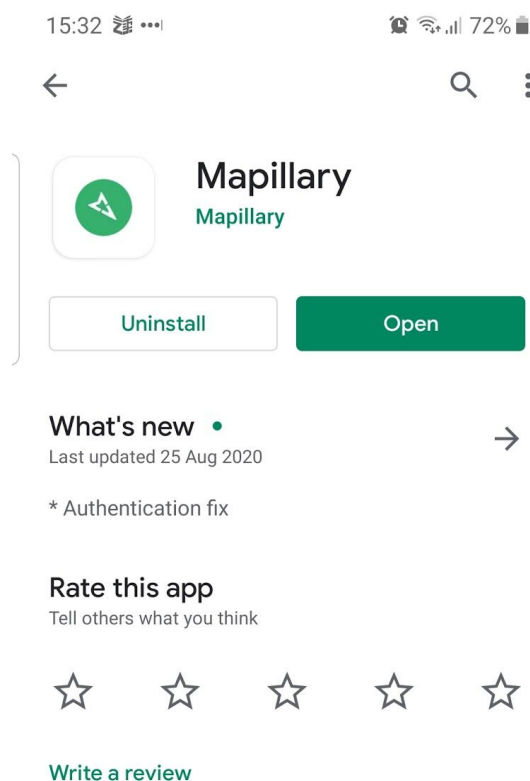


- Search for "mapillary"

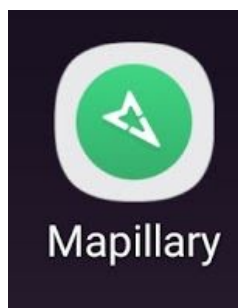


- Select the option in which the producer of the app is also called "Mapillary". After finding the app, click in the "Install" button. When the application is installed, the install button should change into an "Open" button.





- Click in the "Open" button or find the new icon in your list of apps.



5. Change settings in Mapillary phone app

Mapillary comes pre-configured to take pictures from cars. However, it is not so easy to take pictures of footpaths from within cars, in particular when there are cars parked in between the road and the footpaths.

We will need to change the settings of the app to suit our mapping while we move around the footpath.



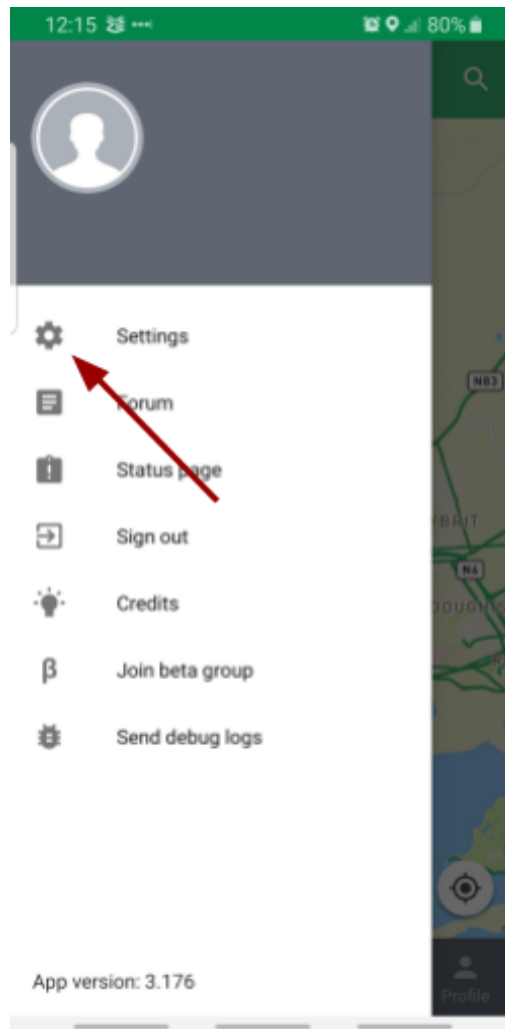
5.1 Changing from distance-based to time-based photo capture

After you choose to start capturing photos, Mapillary will take the pictures automatically without you having to click for each picture. The default option is to take pictures each 5 meters. However, 5 meters is a too long distance for capturing features of footpaths. Instead, we will change it to capture images based on time.

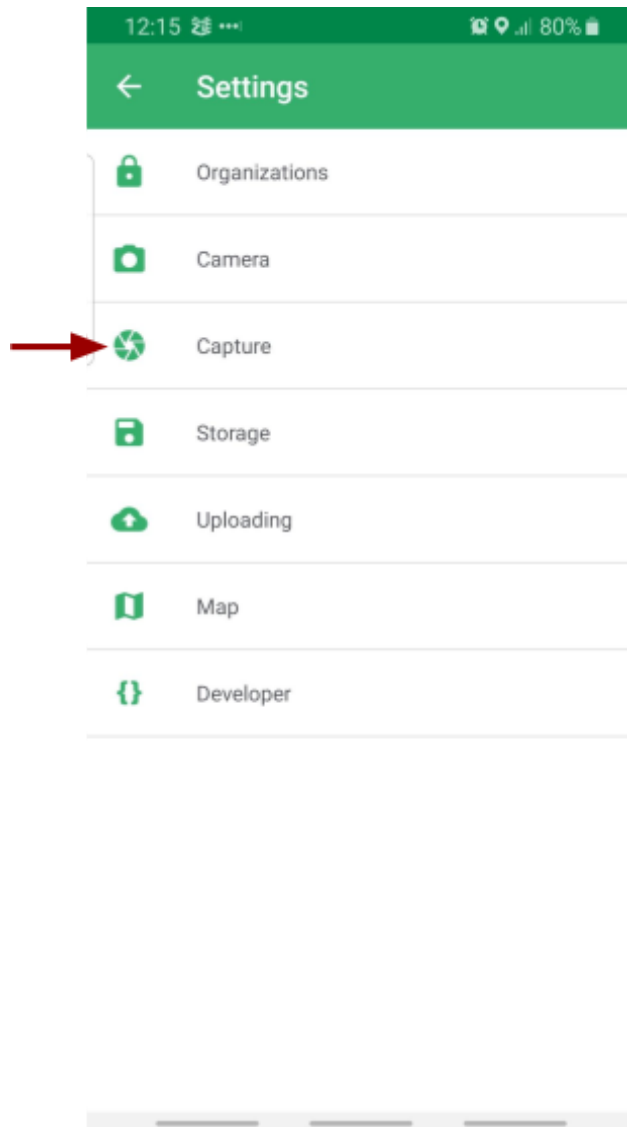
- Tap the three bars image on the top left corner to open the menu of options.



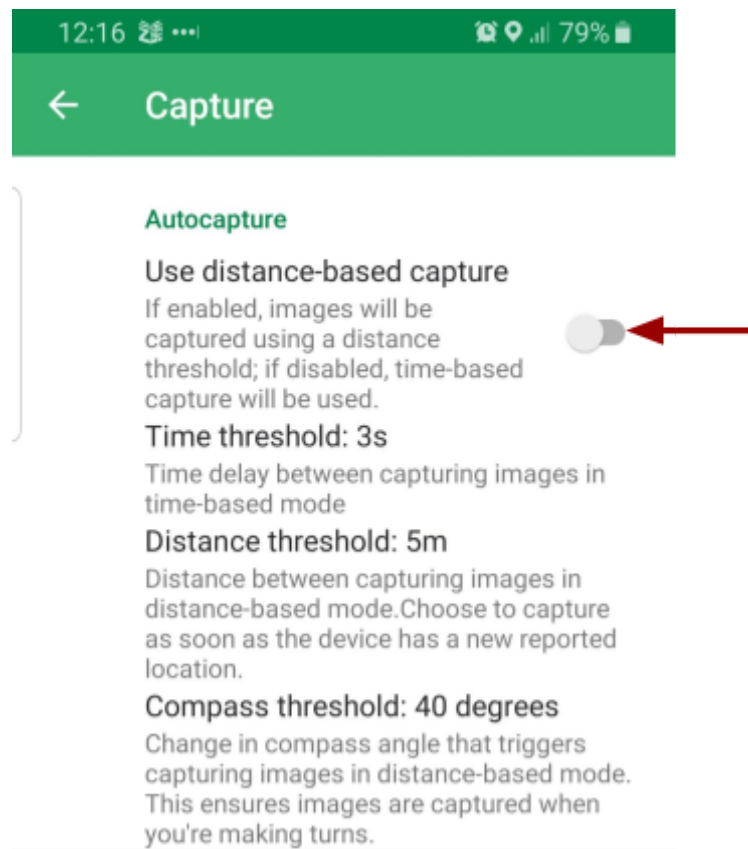
- Tap the "Settings" option



- Choose the "Capture" option



- Disable distance-based capture (the button should change from blue to gray)



- Choose your time threshold by tapping at the "Time threshold" option.

The time between two pictures depends on how fast you move. Here are just some guidelines, but feel free to adjust to your pace:

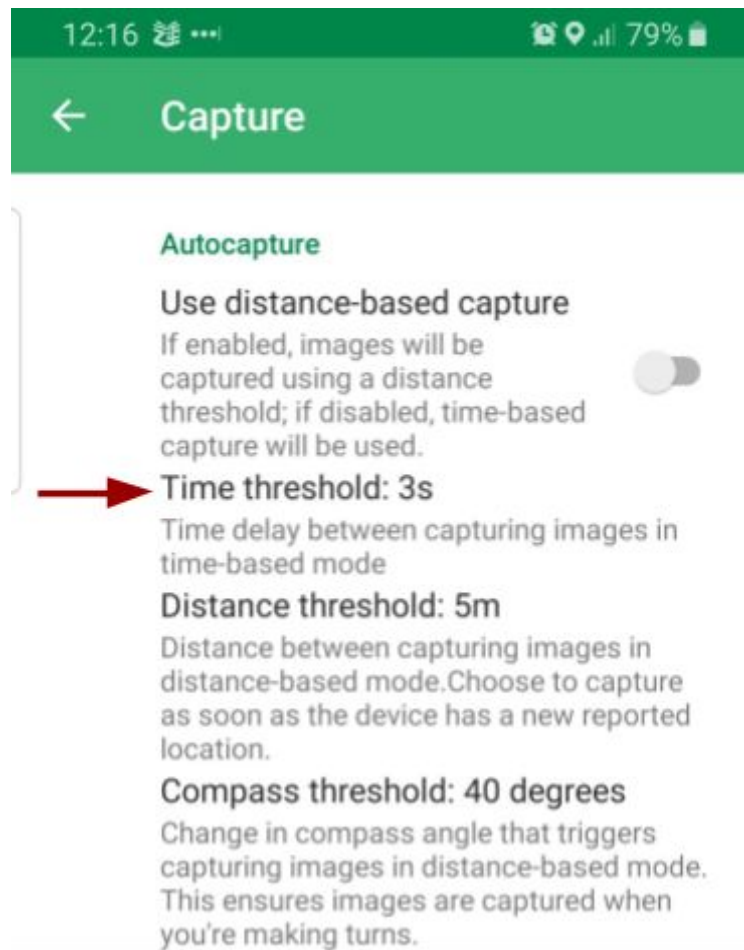
Runners: 1s

Joggers, fast walkers and wheelchair users: 3s

Slow walkers: 5s

Careful walkers and users of crutches: 7s





- Feel free to take a look at all other settings and change it to what may suit you best.

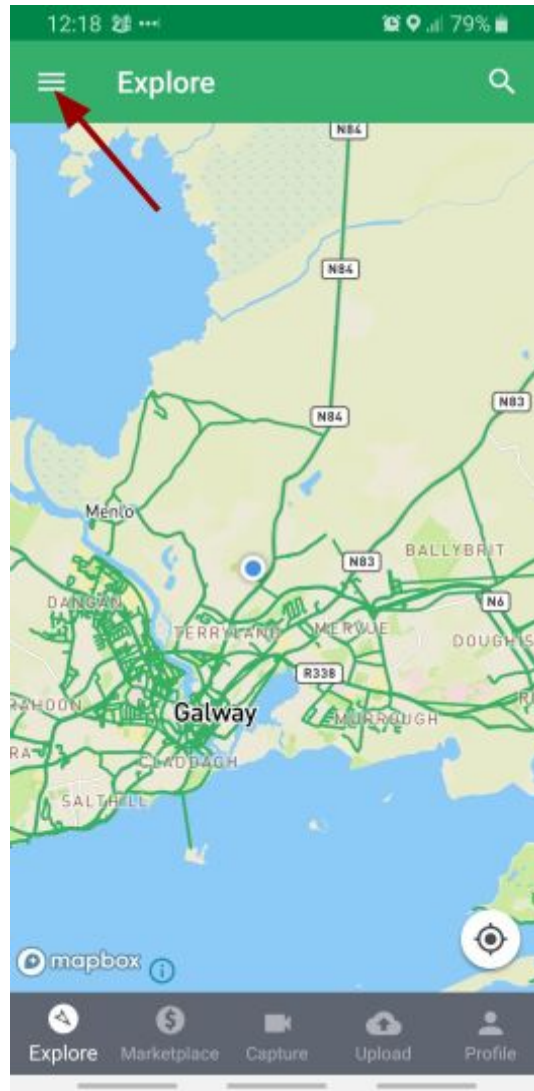
5.2 Connecting to the Crowd4Access group in Mapillary

Your pictures will only appear as part of the Crowd4Access contributions if you have captured them as part of the Crowd4Access organisation. Note that when the images are published, they will still be published under your Mapillary username.

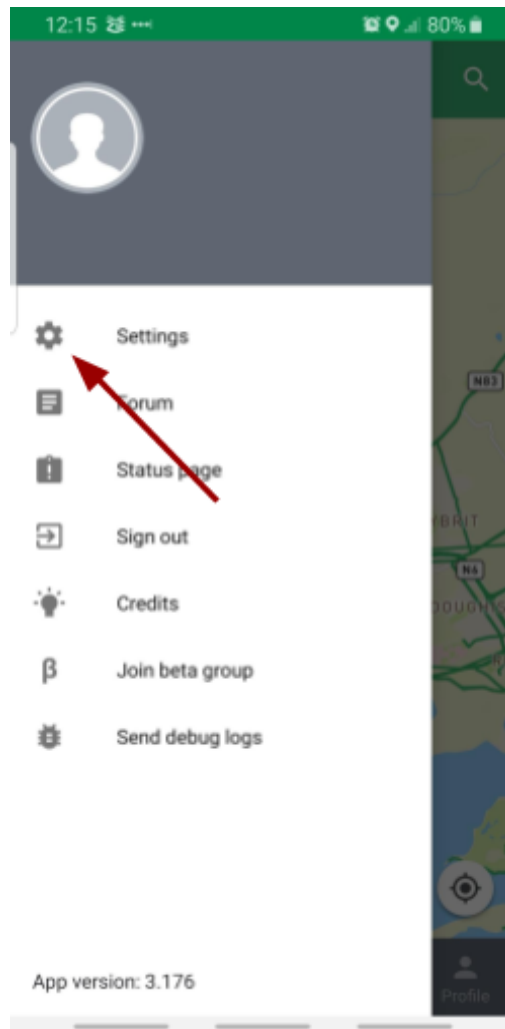
To have your pictures contributed to Crowd4Access, change the following settings:



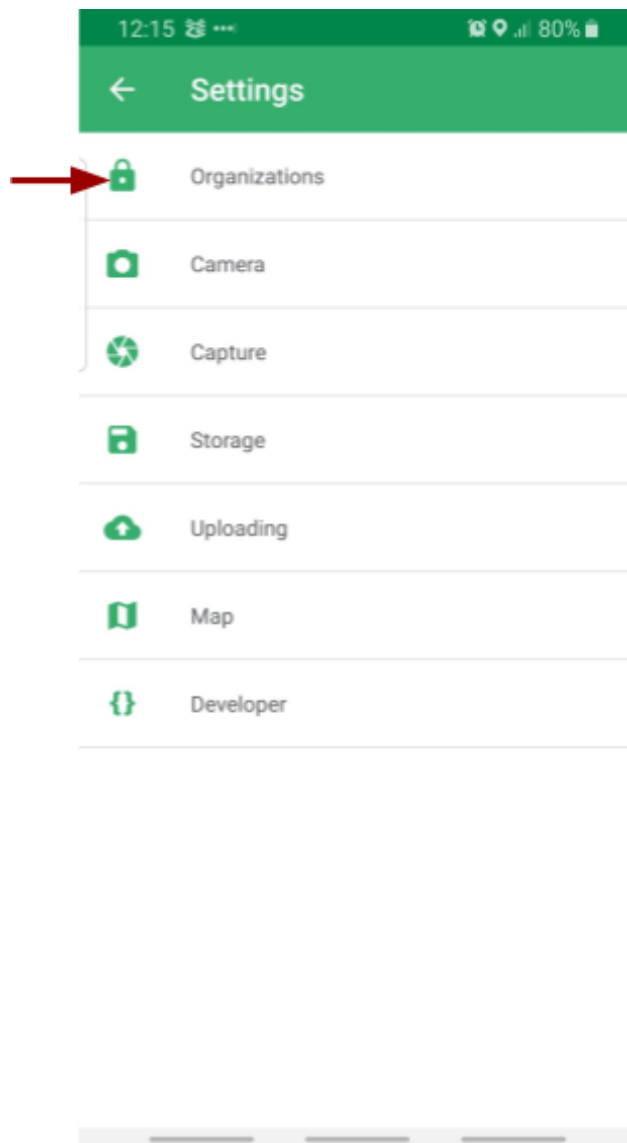
- Tap the three bars image on the top left corner to open the menu of options.



- The tap the "Settings" option



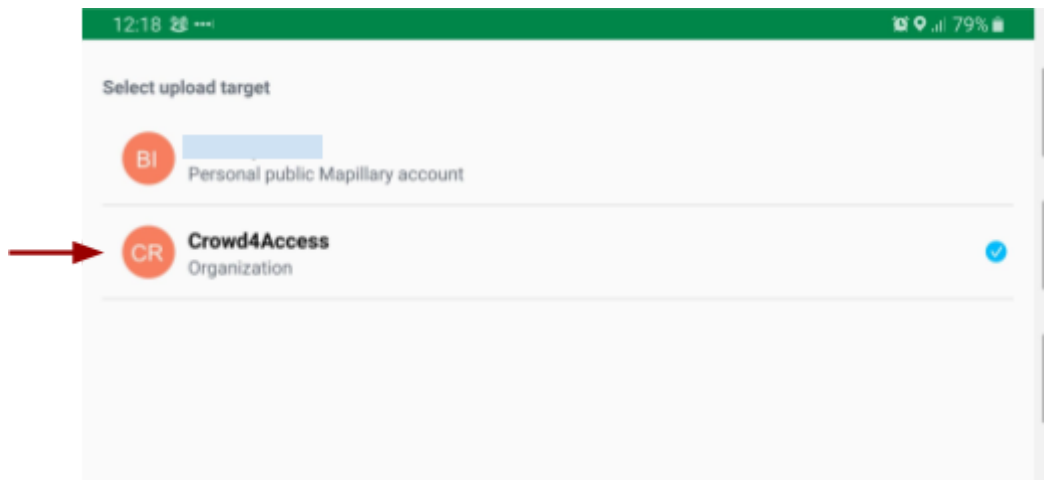
- Choose the "Organizations" option



- Choose the Crowd4Access option.

If there is no Crowd4Access option appearing for you, you will need to register as a member of Crowd4Access in Mapillary. See how to do that in [step 3](#) in this document.





- Now you are ready to contribute with pictures to the Crowd4Access group in Mapillary.

6. How to take pictures

When registering pictures of public spaces we need to keep in mind a set of basic rules to respect the privacy and safety of other road users and protect our own privacy. Before taking any picture using the Mapillary app take note of the following:

Protect yourself:

- **Only go outdoors if it is safe to do so.**
With the covid-19 virus pandemic as well as storms or strong weather conditions, please ensure it is safe for you to go out if you wish to start mapping. Also, go only to places where it is safe to do so. Do not put yourself in risk at any moment.
- **Do not look at your phone when moving.**
It may be tempting to look at your phone to ensure the pictures are being captured properly. Please, if you need to look at your phone, stop at a safe location first. Moving while looking at the phone can cause accidents to you and others. Be safe.
- **Do not start recording pictures in front of your house or place of work**
Although your username may not reveal your identity, if you always start recording your trip from the front of your house then it becomes easier to trace



who you are. Protect your privacy and anonymity by starting your recording at different places.

Protect others:

- **Avoid taking close-up pictures of other people.**

Mapillary will blur people's faces but our goal is to map footpaths while protecting other people's privacy.

- **Avoid taking pictures of accidents or people in embarrassing circumstances**

Although uncommon, road accidents or people falling at the footpath may happen. Please, respect the dignity of others by not capturing them in your pictures.

- **Avoid taking pictures of kids**

Although our images are captured and used with fair purposes in mind, it is important to remember these images will be made public. By revealing the place where kids usually congregate we may be putting them in danger. In this case, try to remove the kids from the angle of your camera or prefer to capture pictures from that location at another time.

- **Avoid taking pictures of the inside of cars**

It is common to automatically capture the inside of cars when we are waiting to cross a street, for instance. Although Mapillary blurs car plates and people's faces in general, our goal is to map the public space not the interior of someone's property. Also, these types of pictures tend to not display our item of interest: the footpath.

- **Only map public footpaths**

You may need written permission to map private footpaths. In some locations, e.g. some places at the Docklands in Dublin, you may be intercepted by security personnel for taking pictures in a private area. Please, focus only on public footpaths as part of this project.

- **Do not take pictures targeted at people's houses**

Although it is ok for the facade of houses to appear in all of our pictures, avoid aiming your camera at people's houses or windows. It is important to focus only on the public aspect of the footpath rather than in people's private properties or private areas.



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- **Do not take pictures indoors**

Although there are public buildings, the goal of this mapping exercise is to map only outdoor environments.

Do not worry if you have captured any undesired pictures. You will have the opportunity to delete them before uploading to Mapillary.

Also, if you have faced any situation that is not in the list above and you believe it puts someone in danger or breaches anyone's privacy, please let us know (see [our contact](#) at the end of the document).

Having these basic rules in mind, let us discuss how to take footpath pictures using the Mapillary app.

6.1 Starting a photo sequence

Having chosen where you want to start capturing your photos, you can start a photo capture sequence using the following steps:

- Open the Mapillary app in your smartphone.
- Move into capture mode by tapping the "Capture" option in the menu at the bottom of the screen

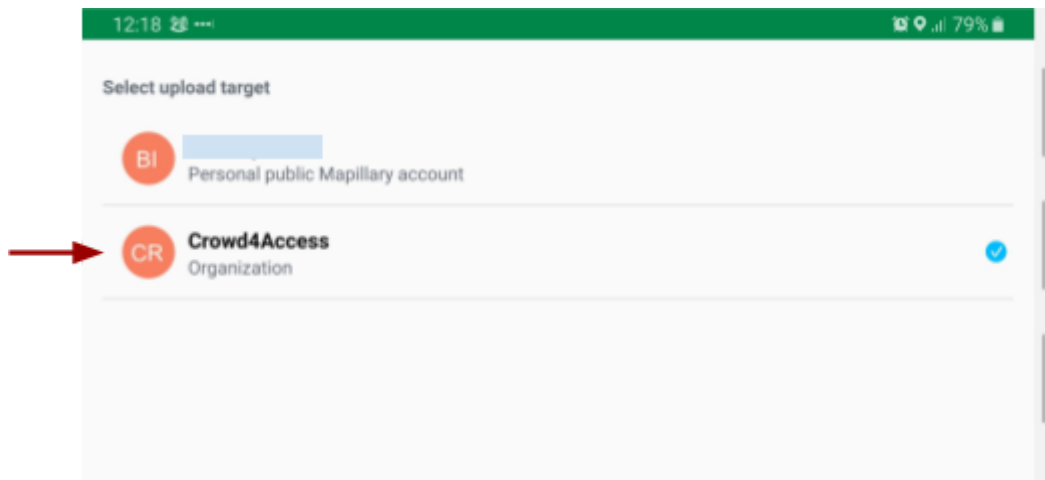




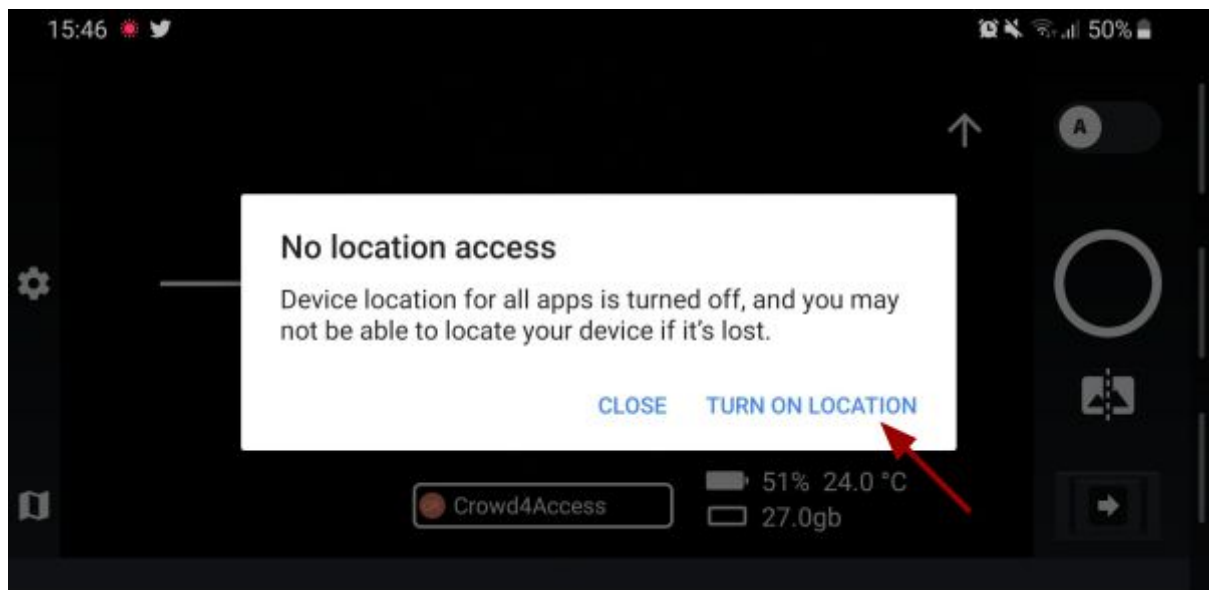
- Choose "Crowd4Access" as the location where your photos will be uploaded later.

If there is no Crowd4Access option appearing for you, you will need to register as a member of Crowd4Access in Mapillary. See how to do that in step 3 in this tutorial document.





- Ensure you have your GPS activated. Otherwise click in "Turn on location".



- The following screen will provide overall information about your phone and will provide buttons to start your photo sequence. Let us take a moment to study what is on this screen.

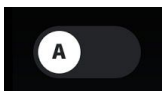




The *settings* icon will bring you to the settings screen discussed in [section 5](#).



The *map* icon will show where you are in the map and if there are already pictures taken there. If you tap on it, tap on the small screen with the image from your camera to go back.



The *A/M selector* is where you choose if the sequence of photos will be taken automatically (A) according to your settings, or they will be taken manually (M). We strongly suggest automatic capture.



The *red button* (when in automatic mode) starts a sequence of photos taken according to your settings (one photo each X seconds).



In manual mode, the *white button* allows you to take one picture only.



The *new sequence* icon allows you to start a new sequence of photos. This is not required, but you can use that to break different streets, for instance, into



different sequences. Also, you can take the picture of the same footpath in both directions by breaking into one sequence for each direction.



The *right arrow* icon brings you to the upload menu.



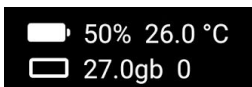
The *up* arrow brings you to a menu to inform where your camera is positioned if you are using a car. We will not be using this information.



The *guiding lines* in the center of the screen help you in centering the camera to what you want to map.



The *username* box informs where these pictures will be uploaded later. Tap on it if you want to change.



The *info* space lets you know how much battery is available in your phone, what the current temperature of your phone is, and how much storage space you have left. Notice that there is one setting in your app that will state that new pictures will not be taken if your phone reaches a minimum battery capacity or space capacity. For more information, check the "Capture" and "Storage" options in your settings.

When you have started an automatic photo sequence, two elements in the screen will change.





The *white button* allows you to take pictures manually within the automatic sequence.



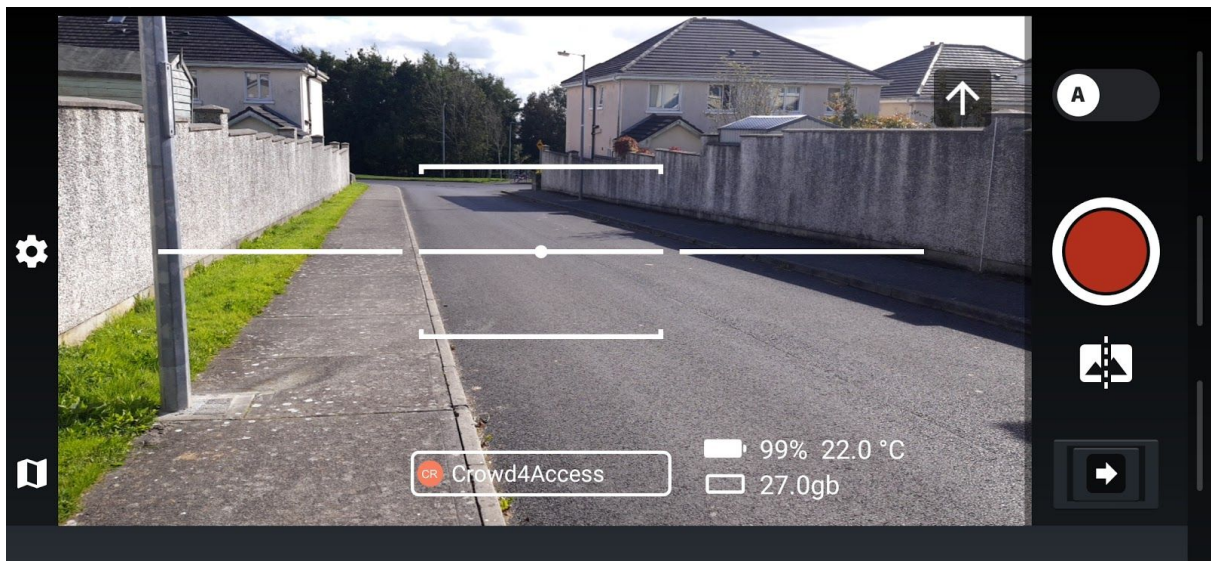
The *red stop* button will stop capturing pictures and will complete that photo sequence.

- The basic settings for our purposes are:
 - Automatic capture
 - Crowd4Access group
 - At least 60% of phone battery
 - Enough space for images
- To start capturing a sequence of pictures, just put your camera in the right position, press the red button and start moving.





- To stop capturing pictures, press the red button and it will stop immediately the picture capture.



6.2 Positioning your camera

When moving around the city, try to keep your camera aligned to the horizon and capture the footpath you are walking at. Here we have a few guidelines on how to position your camera in different situations.



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- Use the middle guiding lines to align with the horizon. The best alignment tends to be putting the horizon in between the top-middle guiding line and the middle guiding line.



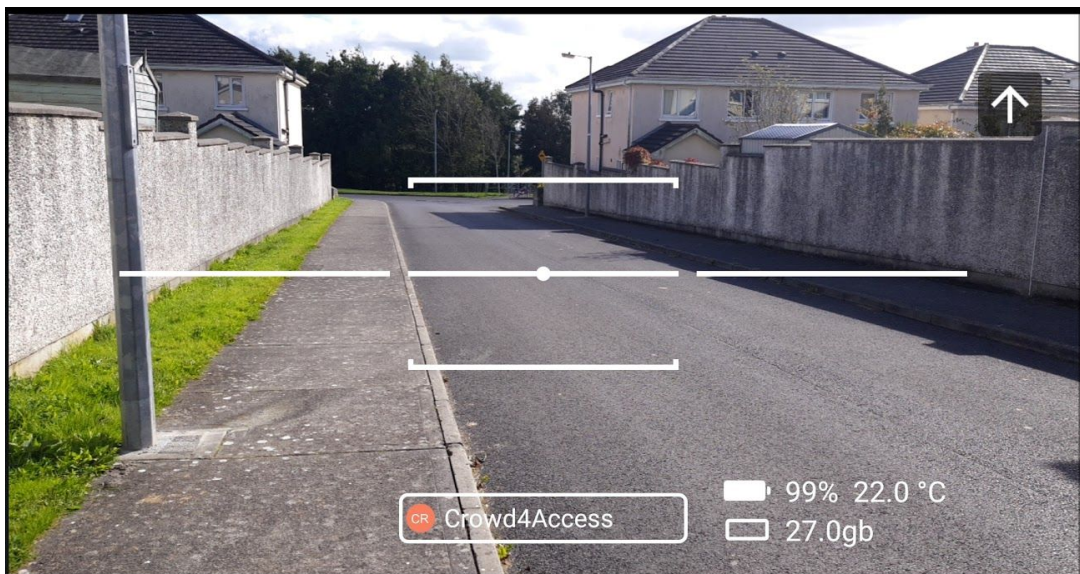
It is ok if it is not totally aligned. As you move around, the alignment may vary slightly, just try to keep it as close to the horizon as you can and within the boundaries of the middle guiding lines.

If you go too far away from the guiding lines, the footpath may not appear at all!



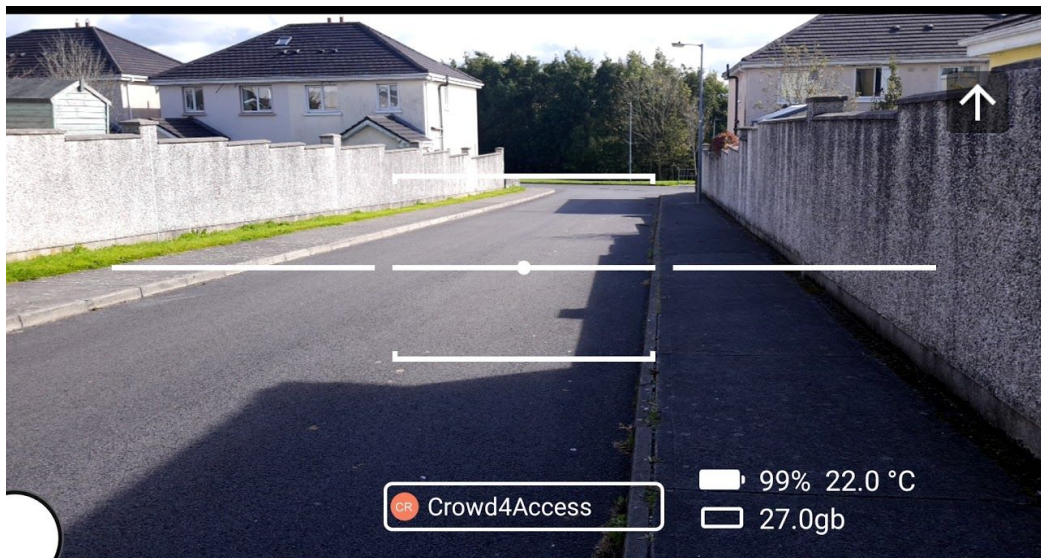


- If you are using the left-side footpath, align the footpath with the left guiding line.



- If you are using the right-side footpath, align the footpath with the right guiding line.





- If you align with the wrong guiding line, the picture will show walls and houses but will not depict the footpaths properly.





- If you are on a footpath that is not adjacent to a street, align the footpath with the middle guiding line.

6.3 Mapping bends

- If you rapidly turn a bend on the footpath you may lose the opportunity to picture some street crossing elements such as tactile paving or dropped kerb. To avoid that, try to make a wider curve when approaching a bend, try walking at the street side of the footpath rather than the side of the buildings.

Important note!! Only walk at the street side of the footpath if it is safe to do so.

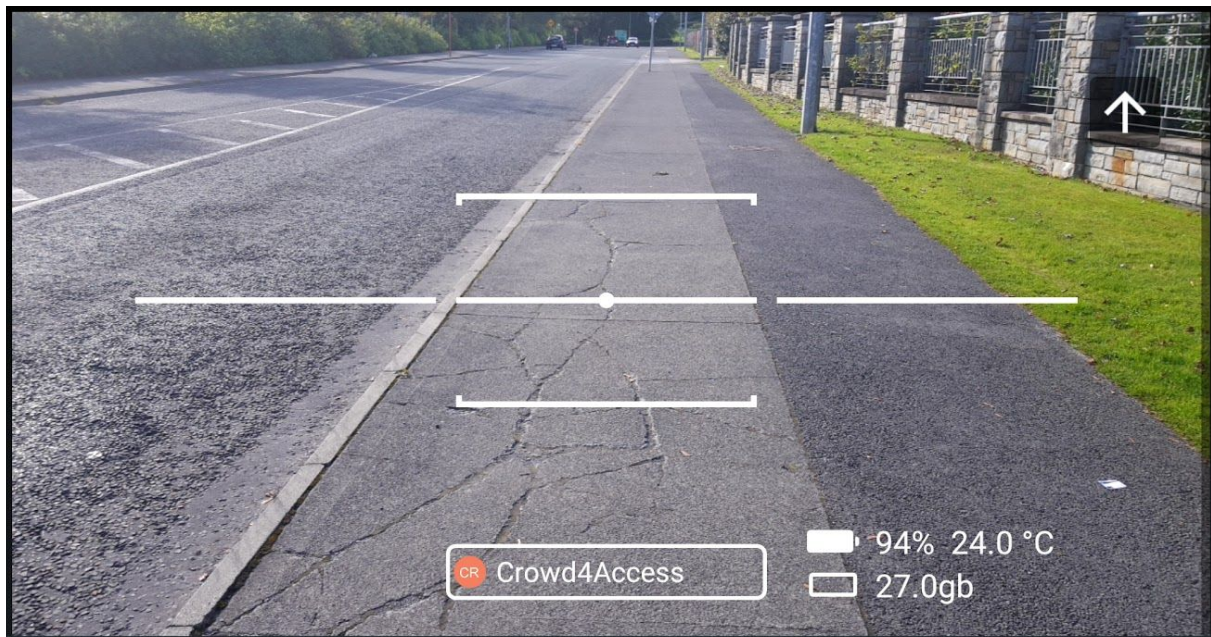




6.4 Focusing on specific features

- If you are stopped at a street crossing, approaching a dropped kerb or tactile paving, or any other footpath feature that you would like to have a closer picture, there are two things you can do..
 - You can just slow down or stop and let Mapillary take the time-based picture of that feature automatically.
- OR
- You can press the white button to take a picture manually and it will be added to your current sequence.
- In case you want to give more focus to a given feature, feel free to position the feature at the centre of your picture. Just make sure that the context around the feature also appears in the photo. **Avoid** taking pictures where only a tactile paving or a crack in the footpath appears but the viewer cannot identify where it appears.





7. Sending your pictures

Having captured one or more sequences of pictures, the next step is to send them to Mapillary. Before uploading, please curate your picture to ensure you are not uploading any improper image or any image that influences other people's privacies (see our basic rules at [section 6](#)).

7.1 Curating your pictures

Curate your pictures and remove those that:

- Break our basic rules ([see section 6](#))
- Have very low quality, are blurred, or do not properly display the footpath.

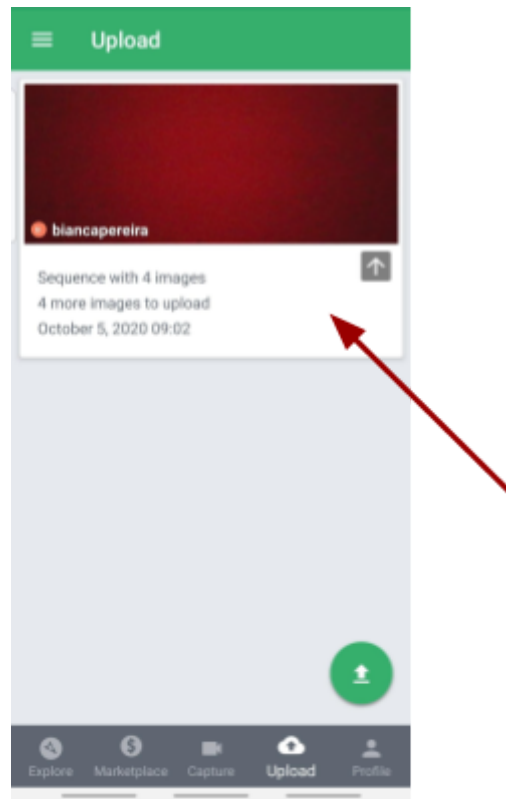
To remove pictures, follow the steps below.



- Open the Mapillary app
- Tap the "Upload" option at the bottom menu

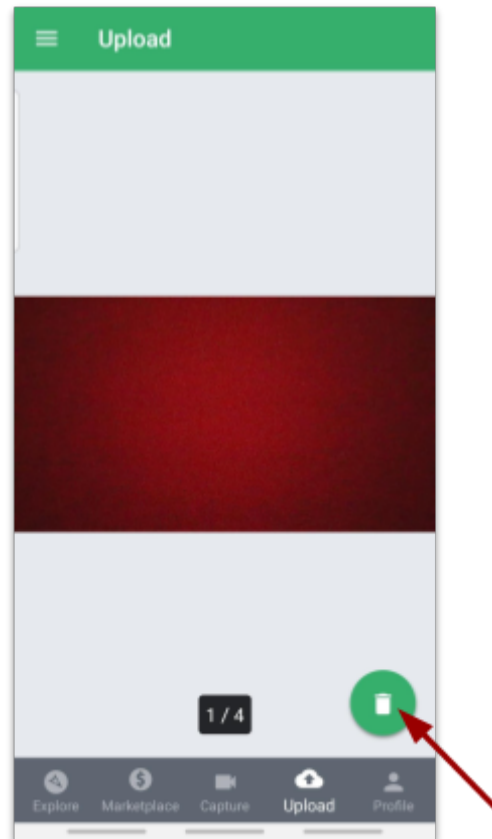


- Choose a sequence to curate by tapping on it.



- A list of pictures will appear. Open any picture you want to verify, if you decide this picture should be deleted, just click on the *rubbish bin* icon.





- Ensure you have curated all your sequences of images before uploading anything.

7.2 Uploading your pictures

WARNING!! Ensure you have curated all the available sequences of pictures before pressing to upload. Mapillary will upload all your sequences at once and will not allow you to curate them anymore.

To upload all your images, follow the steps below.

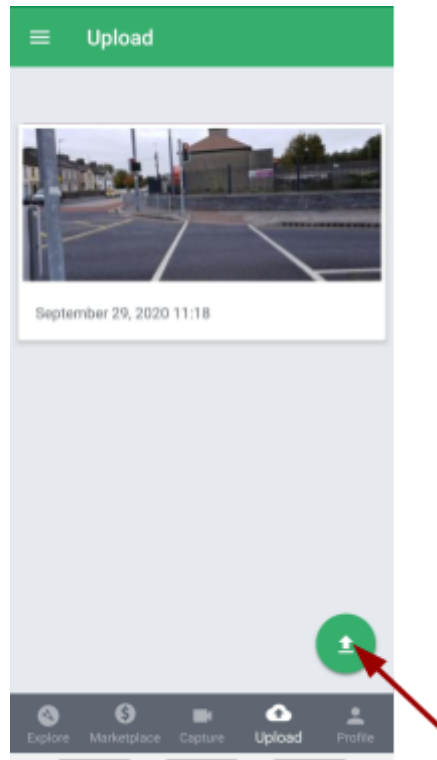
- Ensure you are connected to the internet via Wi-fi.

As pictures may be heavy to upload, it is not indicated to use a 4G connection (otherwise it may cost you too much). Also, Mapillary will not allow you to upload photos via 4G unless you have given permission in the settings.

- Ensure you have enough battery available on your phone, the upload process may take a while to complete.



- Within the "Upload" screen, click in the "up arrow" button



- Mapillary will display a message confirming that the upload is in progress and it will let you know when it finishes.
- When the upload is complete, all images will be automatically deleted from your phone. After some time you will be able to see them online.

8. Checking your pictures on-line

After you upload your pictures, Mapillary will blur all faces and car plates appearing in the pictures. This process may take a while. When the processing of your images is finished, the pictures will appear in the Mapillary app.

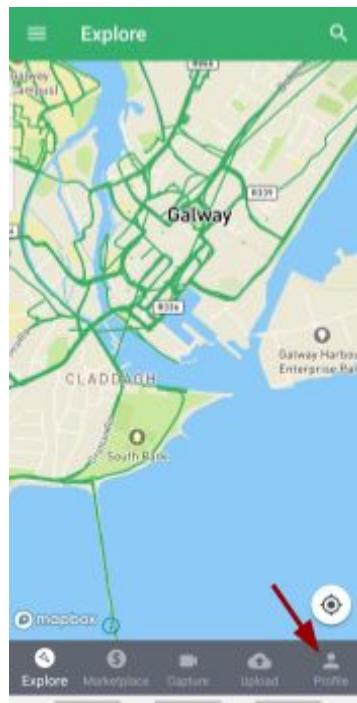
You can visualise your photos in two places: the phone app and the web app.

8.1 Using the phone app

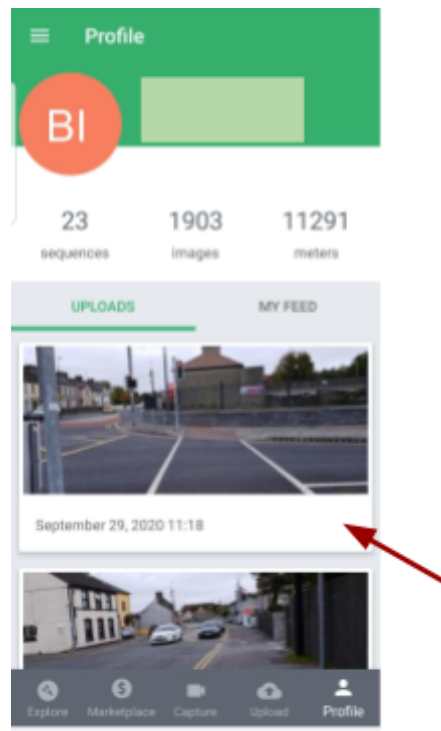
- Open the Mapillary app.



- Tap in the "Profile" option at the bottom menu.



- All your sequences will be available there.



- If you tap into a sequence, it will show you where in the map it appears.






8.2 Using the web app

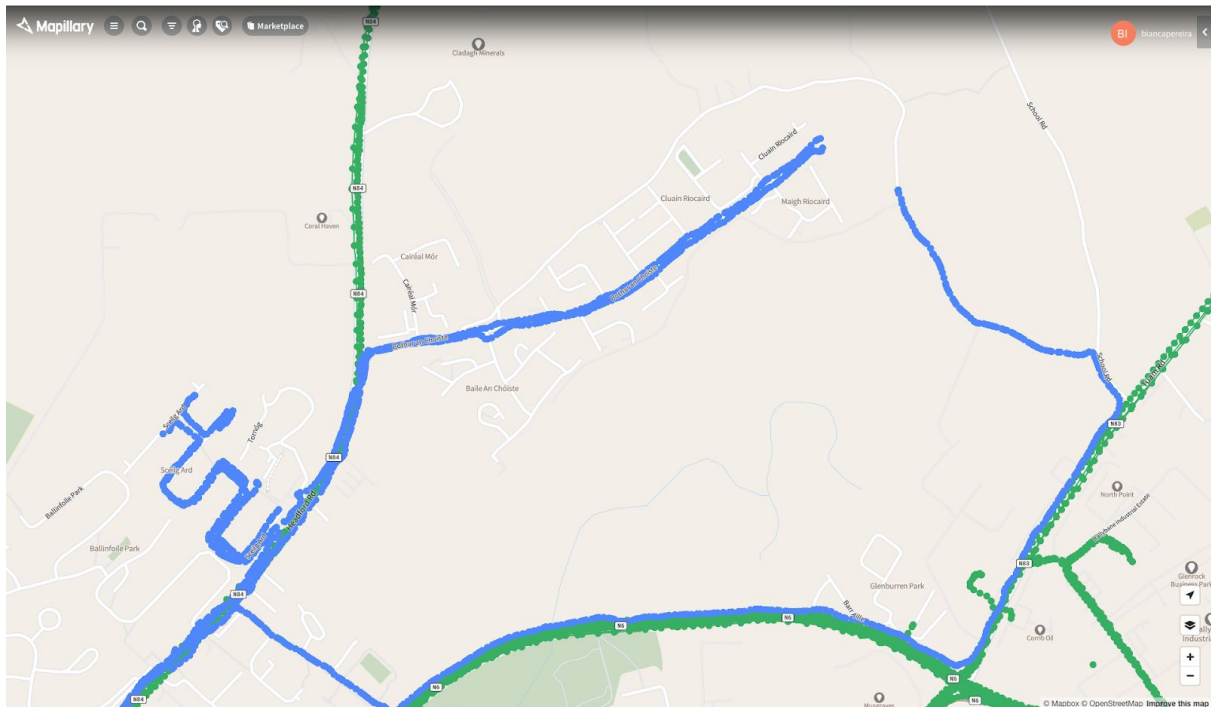
- Visit the Mapillary website <https://www.mapillary.com/>
- Click in the button "Sign in" in the upper right corner.



If you are already logged in, then click at the "Go to app" button at the top right corner.

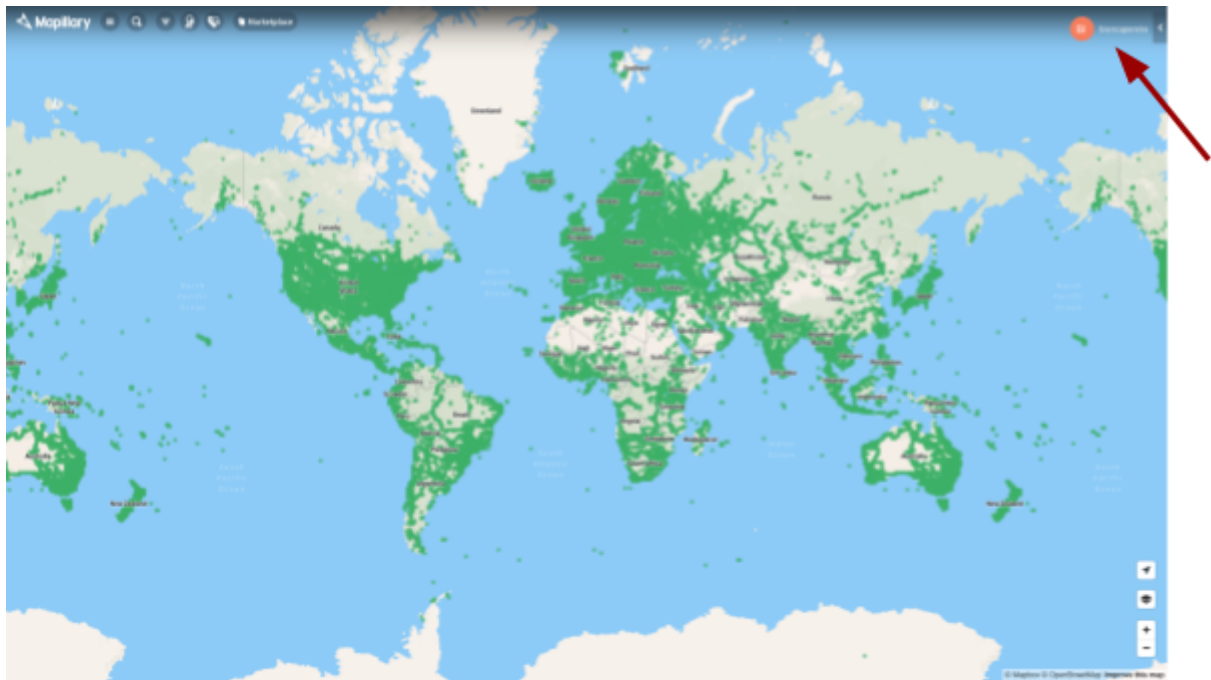


- At the initial screen, zoom at the region you have mapped. You can zoom by clicking in the  icon and you can move the map by dragging and dropping the map.
- The green dots represent all data within Mapillary, the blue dots represent all data you have contributed.

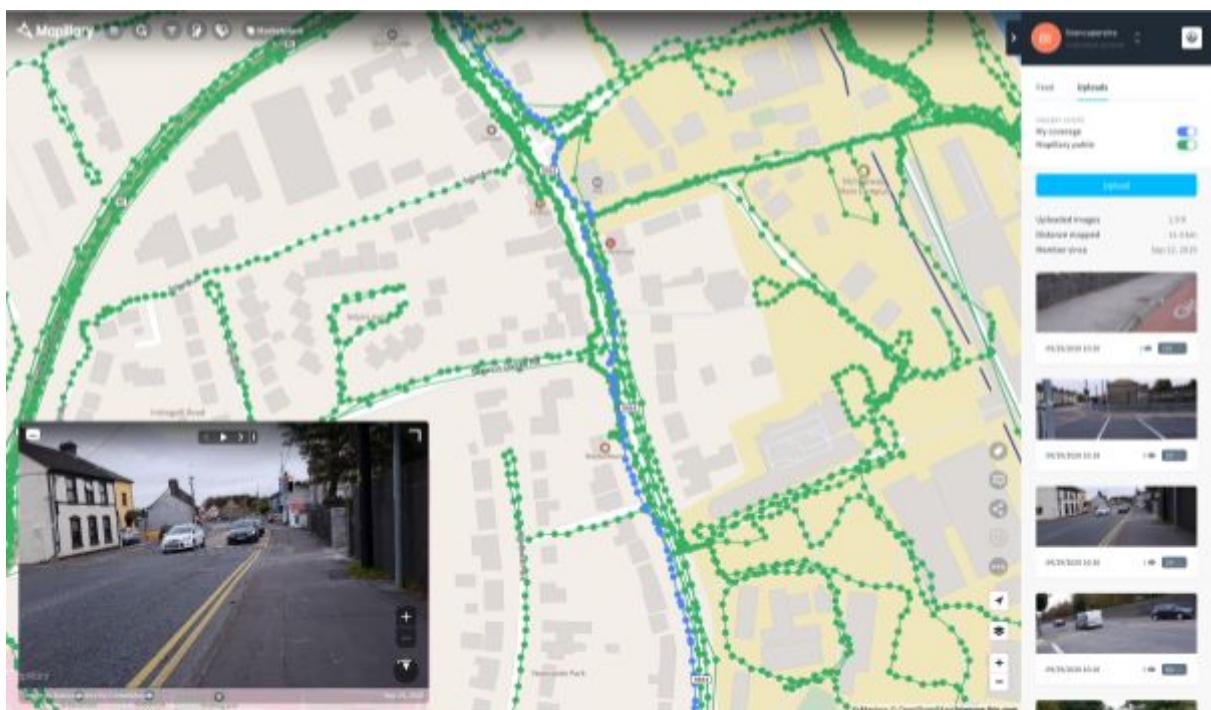


- When you have zoomed in, just click in one of the blue dots and you will be able to visualise the picture, who took that picture and the year the picture was taken.
- You can also see only your pictures by clicking at your username at the top right corner of the screen.





- All your sequences will be available there under the "Uploads" tab.
- Click on a sequence and it will show you where in the map it appears.



Keep in contact

Are there any questions that we did not answer in this how-to guide?

Do you have suggestions on how to improve the mapping?

Would like to know more about the project?

Please, keep in contact with us via:

- email: crowd4access@insight-centre.org
- website: www.crowd4access.insight-centre.org



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Bianca Pereira. Guide on how to collect footpath images using Mapillary. Version 1.0. October, 2020