



## Why georegistration and how to set it?

Get objects' speed and acceleration, use safety analysis, calculate headways and much more!

In case you want to **get speed and acceleration** of objects in km/h or mi/h and export **raw telemetry data, gap time and time to follow, turning movement counts, traffic region data, action region data** including velocity information in km/h (mi/h), velocity visualization (km/h, mi/h), acceleration (m/s-2, ft/s-2), **heatmap** and **headway** visualization or work with **safety analysis** you should perform georegistration. By this step you add the scale to your video and can access all the results in real-world coordinates.

Remember that georegistration might be set in both videos processed by SWISSTRAFFIC.ai SCOUT and SWISSTRAFFIC.ai DRONE, it is just necessary to keep in mind that some views from low-positioned cameras are not suitable for the extraction of accurate speed or distance data. SWISSTRAFFIC.ai wants to provide you accurate data and for that, we do strongly recommend you follow our guidelines for shooting the video from low positioned cameras, suitable for the **SWISSTRAFFIC.ai SCOUT** service, and from drones, suitable for the **SWISSTRAFFIC.ai DRONE** service.

### There are two ways of setting up georegistration:

1. We are happy to set the georegistration for you. To do that, request it in the platform under the "Task" section or [contact our team](#) and share exact GPS coordinates of where the video was shot (a link to Google maps is sufficient). This service is paid according to the **valid pricelist**.
2. Set your own georegistration in our **SWISSTRAFFIC.ai Viewer**.

### What is the difference?

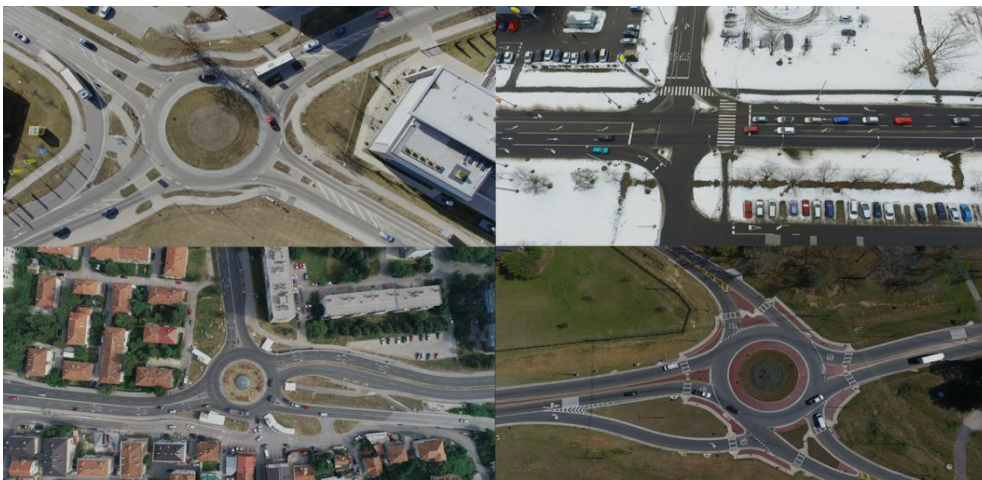
When the georegistration is done by our team, we do make special stabilization of the video that makes sure camera movements are minimized, then we can set georegistration per each frame of the video (if necessary) to be sure that location, speed, and distance data are precise. Then the results are sent back to you for further **processing**.

In case you decide to process your own georegistration, the automated stabilization is applied to your video as well (but without manual corrections that are sometimes needed). Then you can set your own georegistration for one “referring frame” of the video (the first one), so you cannot influence movements of the camera which can lead to lower accuracy.

## When is it good to set georegistration in your video?

### SWISSTRAFFIC.ai DRONE

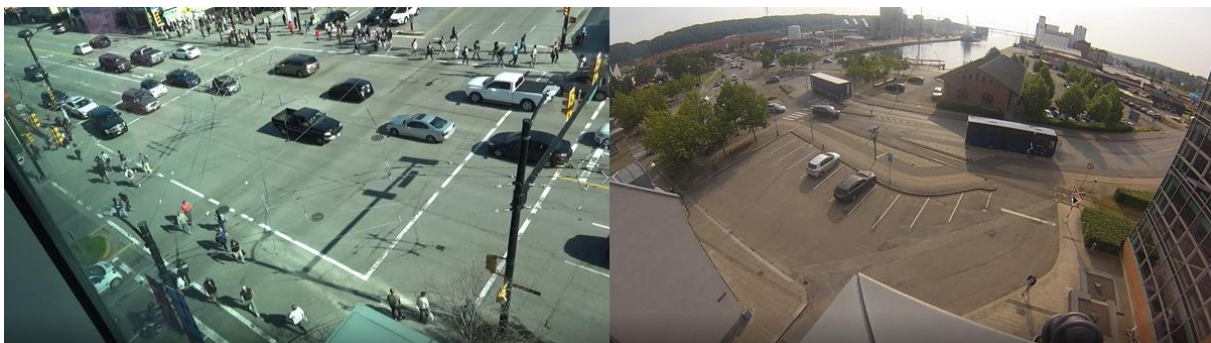
If you want to get as much accurate information as possible, try to reach the top-down view if possible and always follow our **article with recommendations**. Views suitable for the georegistrations are following:



### SWISSTRAFFIC.ai SCOUT

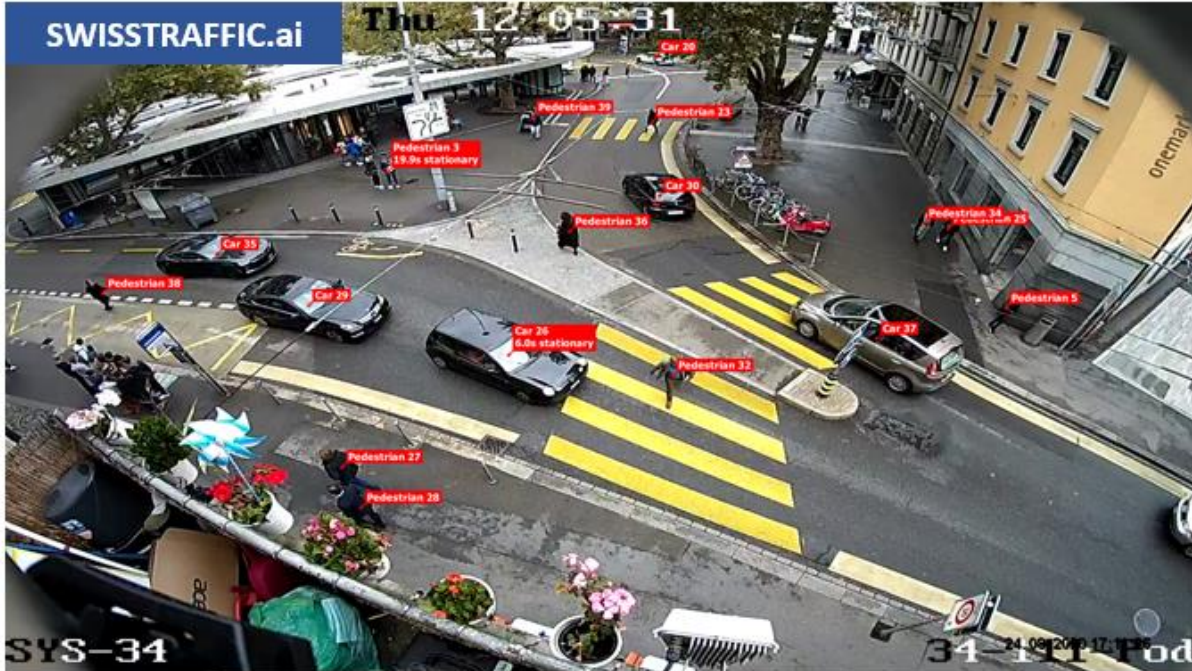
In some cases, georegistration in a low-positioned camera video might be useful. For these cases, we have prepared an overview of use cases, where georegistration in SWISSTRAFFIC.ai SCOUT might be used and data output might be sufficient for your analysis.

Always keep in mind that the position of the camera should be as high as possible, so you have an overview of the whole scene. Such as the following examples:

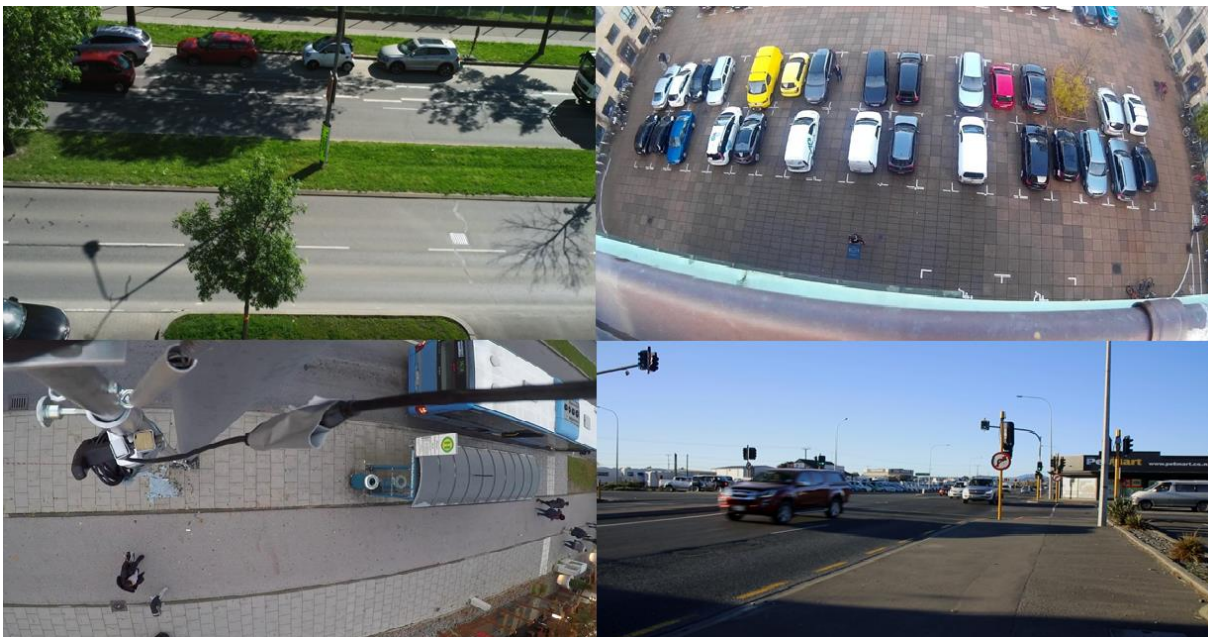


The first picture can provide you good data from the intersection area (without edges), second picture from the parking area.

Or you can use a perpendicular view to the traffic, so the perspective of the whole scene is more suitable for identification of objects and their position.

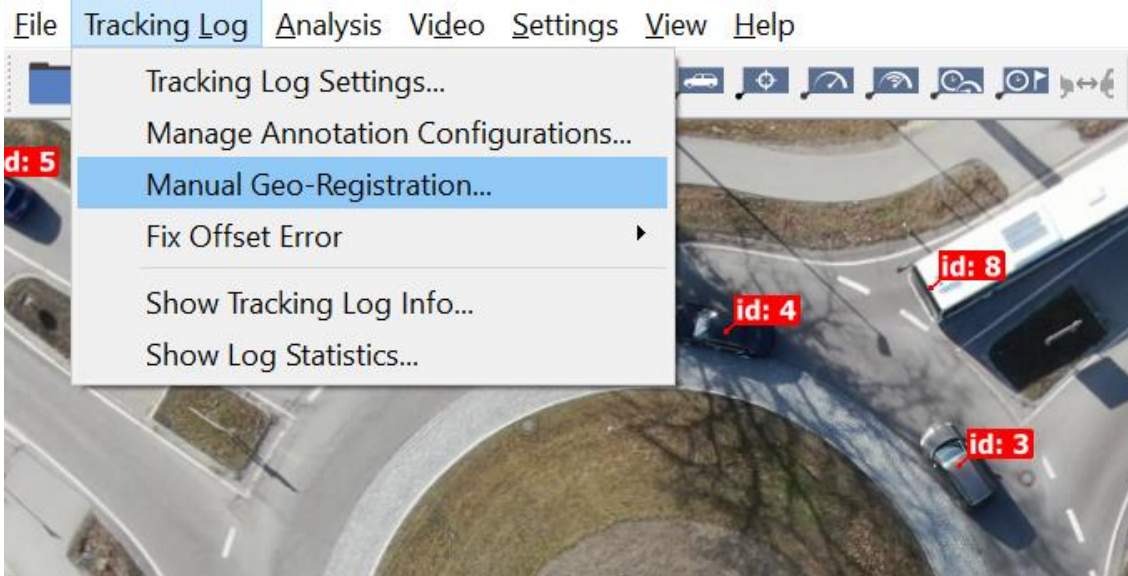


Avoid following views, such as obstacles between the camera and the traffic that might disrupt the trajectory, too wide view that cause distortions at edges of the video, too low camera position, so one vehicle is covered by another one, or in general where you cannot see the horizon, so distortion in the data might be higher.



## How to set your own georegistration in SWISSTRAFFIC.ai Viewer?

To set your own georegistration in the SWISSTRAFFIC.ai Viewer, go to Tracking Log - Manual Geo-Registration...



A new window called Manual Geo-Registration Wizard opens. Follow this manual or read the following text.

Manual Geo-Registration Wizard

**Welcome**  
To the process of georegistration

This Manual Geo-Registration Wizard will guide you through the process of georeferencing your tracking log. Your project is only a few simple steps away:

Point ID	Tag	Latitude (deg)	Longitude (deg)	Image X (px)	Image Y (px)
2	Point 2	47.525364	21.598298	496	538
3	Point 3	47.525936	21.598126	967	609
4		47.525457	21.597897	724	27
5		47.526148	21.598289	1826	577

You need to define at least four ground control points. Distribute them evenly across your area of interest.

4

First, you have to choose the region of interest, where you want to analyse data. By blue polygon mark the area, where objects should be identified.



To set georegistration correctly, you have to set at least **4 reference-points** and you can choose whether to insert coordinates in **UTM** or **WGS-84 system**. These points should be set near places where objects are expected.

You can source the real-world coordinates from **a map** or from **in-situ measurement**. We recommend deploying a RTK GNSS receiver to get the most precise coordinates. Using mobile phones or standard handheld GPS devices is not accurate enough and should be avoided. Sourcing the coordinates in a map might be a better option.

For ground control points, **select visually distinct and stationary features**, such as traffic markings, road boundaries etc.

Inserted values for **WGS-84 system** should look like this:

Point ID	Tag	Latitude [deg]	Longitude [deg]	Image X [px]	Image Y [px]
6	Point 1	48.791598	11.377051	2008	540
7	Point 2	48.791456	11.377662	1178	1568
8	Point 3	48.791728	11.377445	2133	1437
9	Point 4	48.791359	11.377335	1168	832

Point ID	Tag	Latitude [deg]	Longitude [deg]	Image X [px]	Image Y [px]
6	Point 1	48.791598	11.377051	2008	540
7	Point 2	48.791456	11.377662	1178	1568
8	Point 3	48.791728	11.377445	2133	1437
9	Point 4	48.791359	11.377335	1168	832

Please note that WGS-84 coordinates are considered positive for northing and easting readings. For south and west hemispheres use negative values.

If you want to insert position of the video through **UTM system**, insert your **UTM Zone** and **Hemisphere** and insert specific coordinates of each point in the video that you set.

Point ID	Tag	UTM X [m]	UTM Y [m]	Image X [px]	Image Y [px]
6	Point 1	674581.17	5407014.36	2007	540
7	Point 2	674626.54	5406999.98	1177	1567
8	Point 3	674609.66	5407029.72	2133	1436
9	Point 4	674602.86	5406988.45	1168	832

Once you confirm inserted points' values, a new window with **deviation** of values is shown. These values should be as low as possible. We do not define maximum deviation because these values might vary based on the character of the video.



Confirm the georegistration process with the **Finish** button and enjoy **speed and acceleration** data in km/h or mi/h including other related functions!