



Maps

Getting Started with Detective

Open geo-coordinates on the built-in maps to visualize the user's movements and to determine frequently visited places. Use multiple layers on a map to compare many users' whereabouts.

Oxygen Forensic software extracts geo coordinates from mobile devices, call detail records, and cloud services. Detective collects geo data from various sources including photo and video EXIF headers, web connections information, and applications databases. The full list of geo points can be found on the Geo Timeline tab in the Timeline section. Oxygen Forensic Maps can also be opened from this section to view the coordinates overlaid on a rich view map.

The screenshot displays the Oxygen Forensic Maps application interface. The main map area shows a satellite view of a city with a green route overlaid, marked with numbered points (1, 2, 4, 6, 9, 25). A timeline at the top of the map shows data from 27 May 2014 to 19 March 2018. The interface is divided into several sections:

- BOX 1:** A list of data sources on the left side, including "Apple iPhone 7 Plus - Timeline - 450 75th Ave NE" (1 item), "Apple iPhone 7 Plus - Timeline - Home" (1 item), "Apple iPhone 7 Plus - Timeline - Work" (1 item), "Apple iPhone 7 Plus - Timeline" (469 items), "Apple iPhone 7 Plus - Timeline - 09/24/2017" (1 item), "Apple iPhone 7 Plus - Timeline - 09/22/2017" (1 item), and "Apple iPhone 7 Plus - Timeline - 09/28/2017" (20 items). Below this list are sections for "Common locations: 250 ft, 3 min (3 items) 27 May 2014 - 19 Mar 2018" and "Common locations: 50 ft, 3 min (3 items) 27 May 2014 - 19 Mar 2018".
- BOX 2:** A detailed view of a location on the bottom left, showing a timestamp of "16 Feb 2018 13:40:04 UTC-6" and coordinates "N 45.104089, W 93.260091". The type is "Uber ride reservation" and the source is "Uber". The time stamp is "02/16/2018 08:40:04 PM (UTC+1)", the destination title is "450 75th Ave NE", and the destination address is "Fridley, MN".
- BOX 3:** A search filter section at the bottom right, titled "Common locations: 250 ft, 3 min (3 items)". It includes a search bar with the text "Enter maximum distance and maximum time interval between points to search common locations." and input fields for "Distance (feet): 250" and "Time (minutes): 3". A blue "Identify locations" button is present. Below the search bar, it shows "3 locations found" with a time period of "19 Mar 2018 14:38:35 UTC-5" and a shortest distance of "0 ft (0 sec)".
- BOX 4:** A navigation and export section at the bottom right, showing "1 / 3" and an "Export to PDF..." button.

There are several ways to enter into the Oxygen Forensic Maps tool.

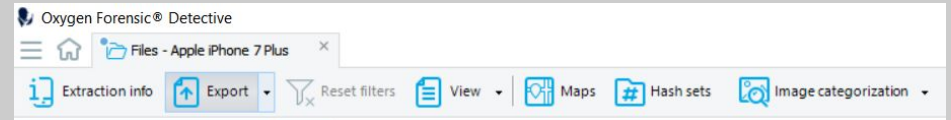


Oxygen Forensic® Maps

Run Oxygen Forensic® Maps to work with geodata

On the home screen, navigate to the Oxygen Forensic Maps section under your list of tools in the center of the screen.

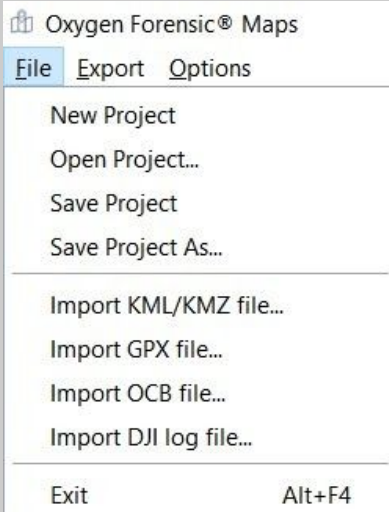
From this point you can import your files to view them on the Map. You may also open an existing project.



In most sections, either on a device level or a case level, you will see a Maps button on the top of the screen. When the Maps button is greyed out, it is an indicator that there is no geo locational data available in this section to view on the OxyMaps. If the button is blue, you may now navigate to the maps to see all geo data plotted on your map.

Type	Time stamp (Brussels)	Description
Uber location	09/28/2017 05:39:34 PM (UTC+2)	N 45.1528293, W 93.2666281 N 45.1528293, W
Uber location	09/28/2017 05:40:14 PM (UTC+2)	N 45.1535180, W 93.2716424 N 45.1535180, W
Uber location	09/28/2017 05:40:54 PM (UTC+2)	N 45.1538135, W 93.2728873 N 45.1538135, W
Uber location	09/28/2017 05:41:34 PM (UTC+2)	N 45.1522976, W 93.2745863 N 45.1522976, W
Uber location	09/28/2017 05:42:14 PM (UTC+2)	N 45.1508570, W 93.2738060 N 45.1508570, W
Uber location	09/28/2017 05:42:54 PM (UTC+2)	N 45.1417182, W 93.2703815 N 45.1417182, W
Uber location	09/28/2017 05:43:33 PM (UTC+2)	N 45.1319574, W 93.2702529 N 45.1319574, W
Uber location	09/28/2017 05:44:13 PM (UTC+2)	N 45.1259109, W 93.2651409 N 45.1259109, W
Uber location	09/28/2017 05:44:53 PM (UTC+2)	N 45.1192397, W 93.2637812 N 45.1192397, W
Uber location	09/28/2017 05:52:02 PM (UTC+2)	N 45.1180343, W 93.2634077 N 45.1180343, W
Reminder	02/28/2018 12:24:28 PM (UTC+1)	N 44.8836374, W 93.2113874 com.delta.iphone.
Reminder	02/14/2015 07:11:33 AM (UTC+1)	N 45.1272710, W 93.2597390 com.apple.reminder

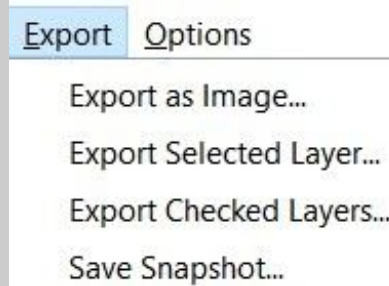
As seen above, This information has geo locations attached to this application and also to a couple of reminders. Any place you see a latitude and longitude, you can click the lat/long hyperlink and it will send that particular coordinate to the Map. When you want to view all of the data on the Map, you will simply click the Maps button which will then plot all points associated with the section you are viewing.



Under your file dropdown menu is where you can open an existing map project, save a project, or start a new one.

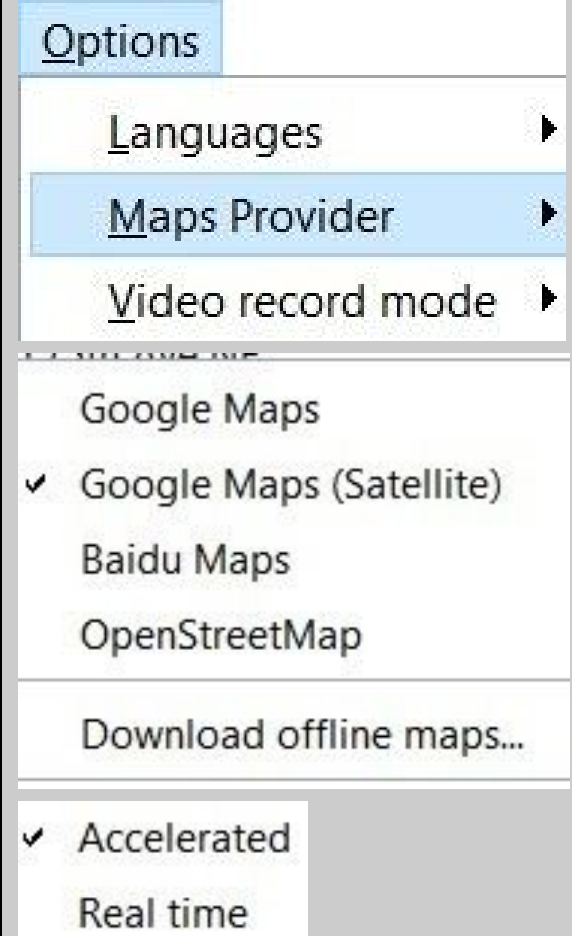
This is where you can import files to be plotted on the Map. You can overlay several maps to join into one project where all data can be researched and compared.

You can import KML/KMZ, GPX (Garmin), OCB, And DJI (Drone files).



Under the export tab is where you can form a report by either selecting "Export Selected Layer" or "Export Checked Layers" This will produce a pdf of the information you have chosen to export.

Look at Box 1 for all layers checked and which layer is highlighted to control and determine what you will be exporting.



Under the options dropdown menu is where you can control which maps you will view your data on, including a satellite view.

If you operate on a computer where policy will not allow an internet connection, this is where you can access and download your offline maps. Keep in mind, this is a large file.

Video record mode can also be found here.

BOX 1

- Apple iPhone 7 Plus - Timeline - 450 75th Ave NE 1
- Apple iPhone 7 Plus - Timeline - Home 1
- Apple iPhone 7 Plus - Timeline - Work 1
- Apple iPhone 7 Plus - Timeline 469
- Apple iPhone 7 Plus - Timeline - 09/24/2017 1
- Apple iPhone 7 Plus - Timeline - 09/22/2017 1
- Apple iPhone 7 Plus - Timeline - 09/28/2017 20

Common locations: 250 ft, 3 min (3 items)
27 May 2014 - 19 Mar 2018

Common locations: 50 ft, 3 min (3 items)
27 May 2014 - 19 Mar 2018

BOX 1

In Box 1, you can view all layers that you have imported or created. In this example, several layers have been plotted on the map. You will have the choice to include all layers or view one or many at a time by checking the boxes to the left of the layer name. On the right of the layer are the numbers indicating how many points have been plotted within this layer.

Under the imported layers, you will see all layers that you have created by using the Places, Routes, and Common Locations filters. You have control over which, if any, you would like to view in conjunction with the selected layers that you have imported.

BOX 2

16 Feb 2018 13:40:04 UTC-6
N 45.104089, W 93.260091

Type: Uber ride reservation

Details

Source: Uber

Time stamp: 02/16/2018 08:40:04 PM (UTC+1)

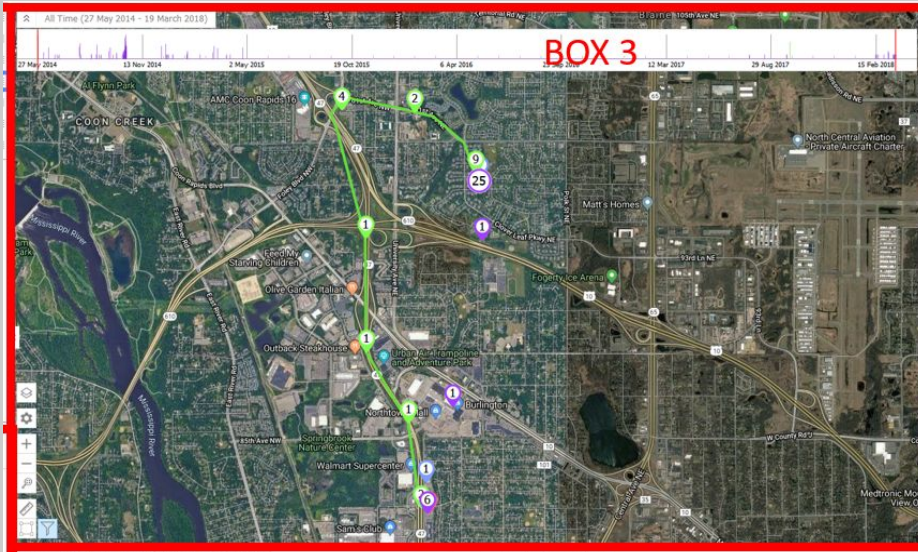
Destination title: 450 75th Ave NE

Destination address: Fridley, MN

BOX 2

Box 2 is your details pane that will display information that is unique to the plotted coordinate that you have chosen on the map. This may include information such as timestamps, EXIF data, and the source file.

BOX 3



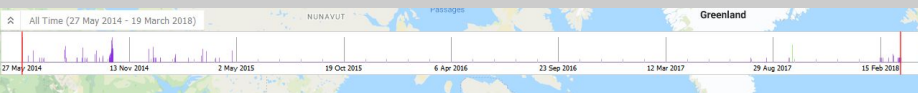
Box 3 is your Map. You can view your data plotted on several types of maps including Google Maps, Google Satellite Maps, Baidu Maps, and OpenStreetMap. You can also download the maps if you work offline.

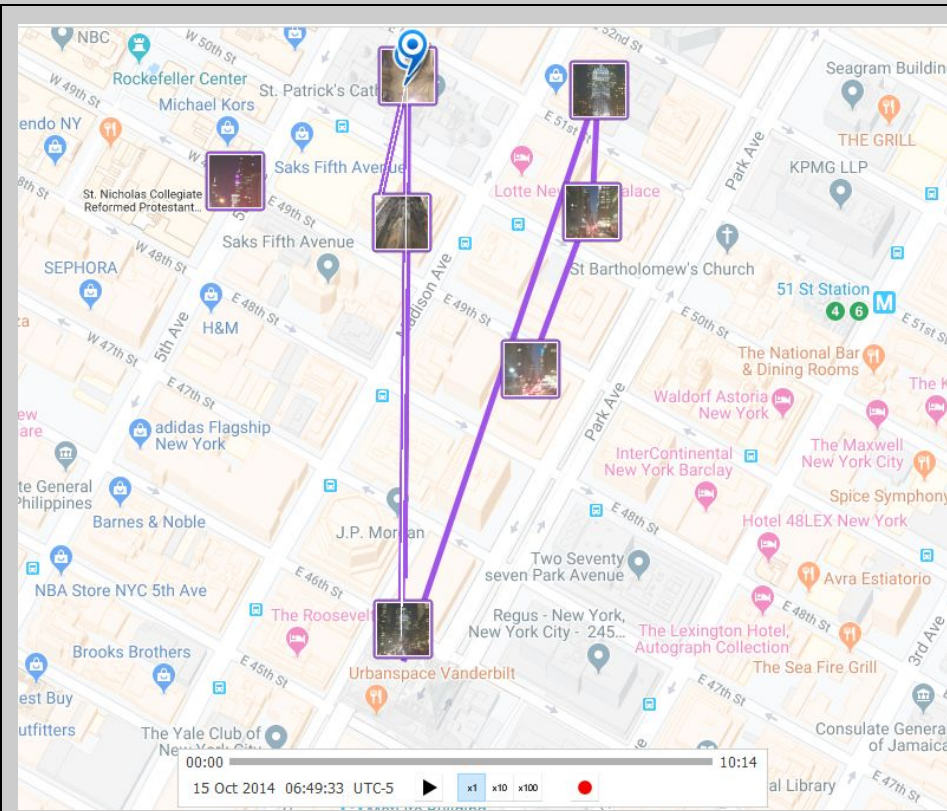
These are your Map tools:

- Show Geo Points or Markers:
- Show Places, Routes, and, Common Locations
- Zoom in
- Zoom out
- Show all geo points
- Ruler for measuring the distance between two or more points.
- Geo fencing/Geo fencing filter to view data only inside your fence.

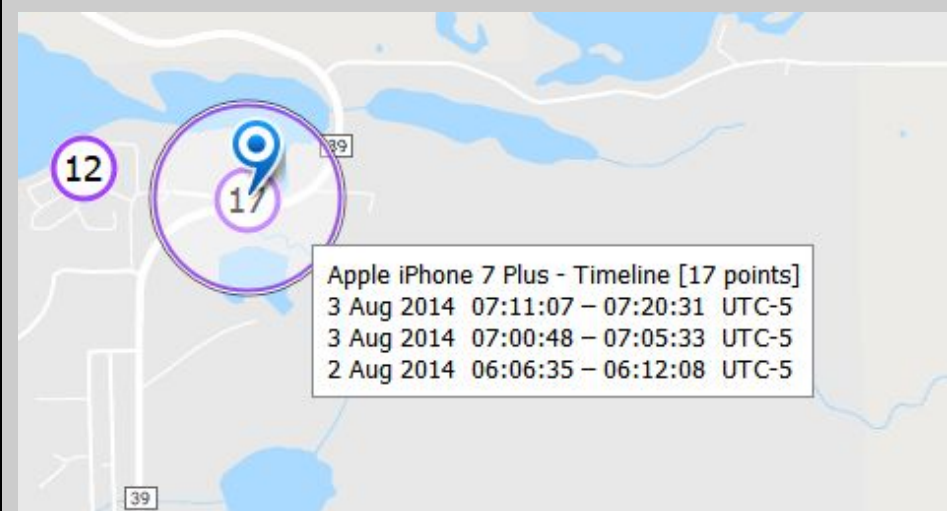
The last three icons represent what you will find in Box 4. See below in Box 4.

This is your Geo Timeline. You can click on any time point and the map will reflect your choice.

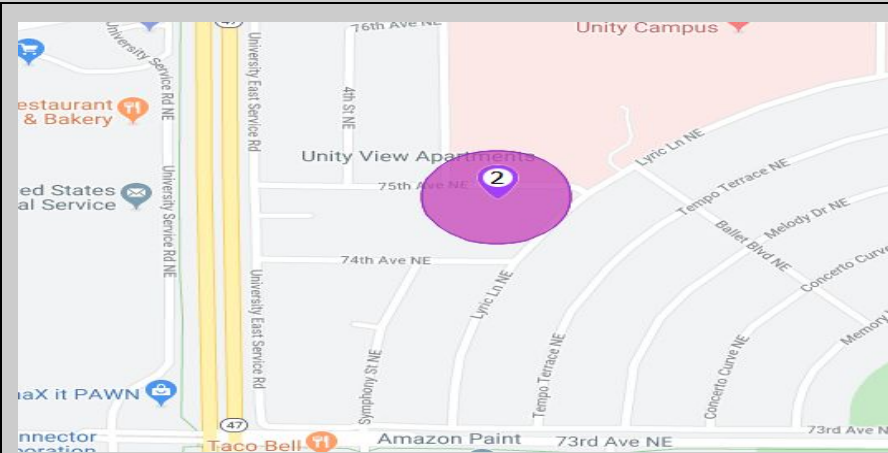




Here is a route and geo points connecting the route. EXIF data from photos were joined from time and distance parameters that you control with Box 4 to form this route. Below the route you will see a play button along with the choice to view the route in action at normal speed, x10, or, x100 speed. You can also record this route in action to include in your report

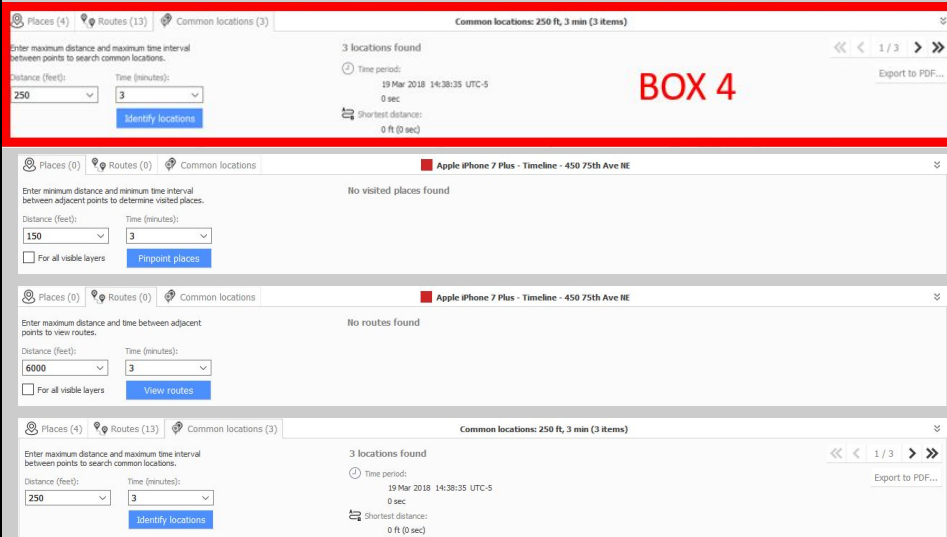


Here is an example of a “Places” hit. In Box 4 you can control the time and distance parameters to showcase places that are commonly visited by your suspect. When you click on the Places hit, the timestamps will appear and list all timeline points in this Place.



To find common locations between two map layers you can control the parameters in box 4 and will see the results in box 3 on your Map. Here you will see that two different layers (suspects) were in the same location at the same time.

BOX 4



- **Places:** Here you can control the time and distance parameters to highlight the locations in which your suspect has visited more than once. Labeling such as a “Place”
- **Routes:** Here you can control the time and distance between two or more points to form a route. For example, you may need to show evidence of a suspect driving down a particular route. You may choose the time and distance parameters to something like “Show all points within 2500 feet of each other that occur within 10 minutes”.
- **Common Locations:** This is where you can pinpoint where multiple devices have been around the same location at around the same time. Again, this is where you will control those time and distance parameters.

On the right hand side of Box 4 you will see how many results were produced from your search parameters. This is also where you can choose to print a PDF of your analysis.

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