



**Vessel Tracking Monitoring System  
(V.T.M.S.)  
User Guide**

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## **1. Introduction**

Vessel Tracking Monitoring System (VTMS) is a service tailored to the needs of shipping companies for tracking their vessels around the globe. It takes advantage of the capabilities of Google Earth, an application which combines satellite imagery and maps to put world's geographic information at one's fingertips. The user can download it from:

<http://earth.google.com/downloads.html>

Before using VTMS the user should have an account for using the service. The account includes a username and a password for security reasons, which is provided by OTESAT-Maritel.

The positions of a vessel are received via the already established Inmarsat-C terminal. For the vessel to be included in the VTMS service the terminal needs to be programmed, so that it can transmit periodically the position of the vessel to OTESAT-Maritel, thus enabling the position of the vessel around the world to be stored and displayed at the VTMS.

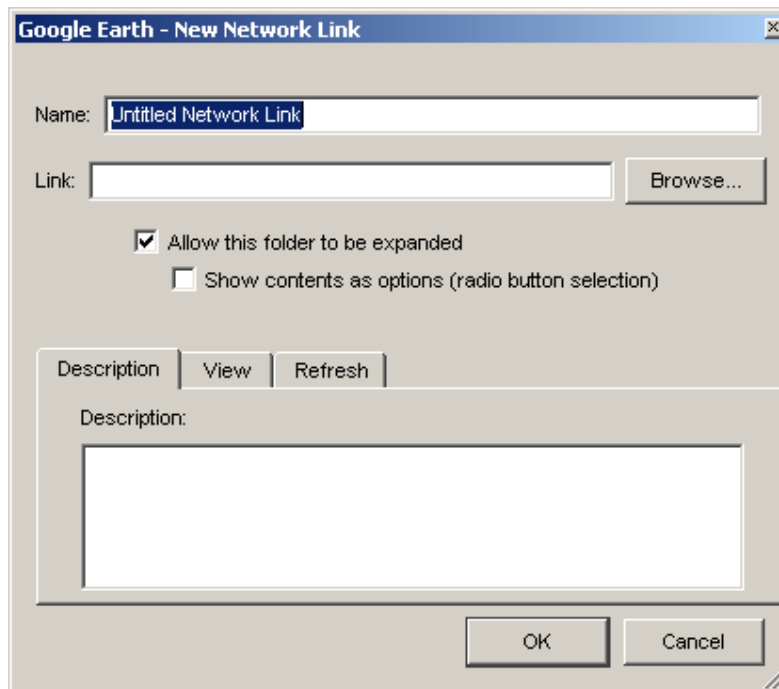
## 2. First Time User

First time VTMS user is required to import the appropriate data into Google Earth. The data is displayed onto the '*Places*' panel which is located on the left hand side of the VTMS.

First the user should click on the menu bar the option '*Add*'. From there the option '*Network Link*' should be selected as follows:



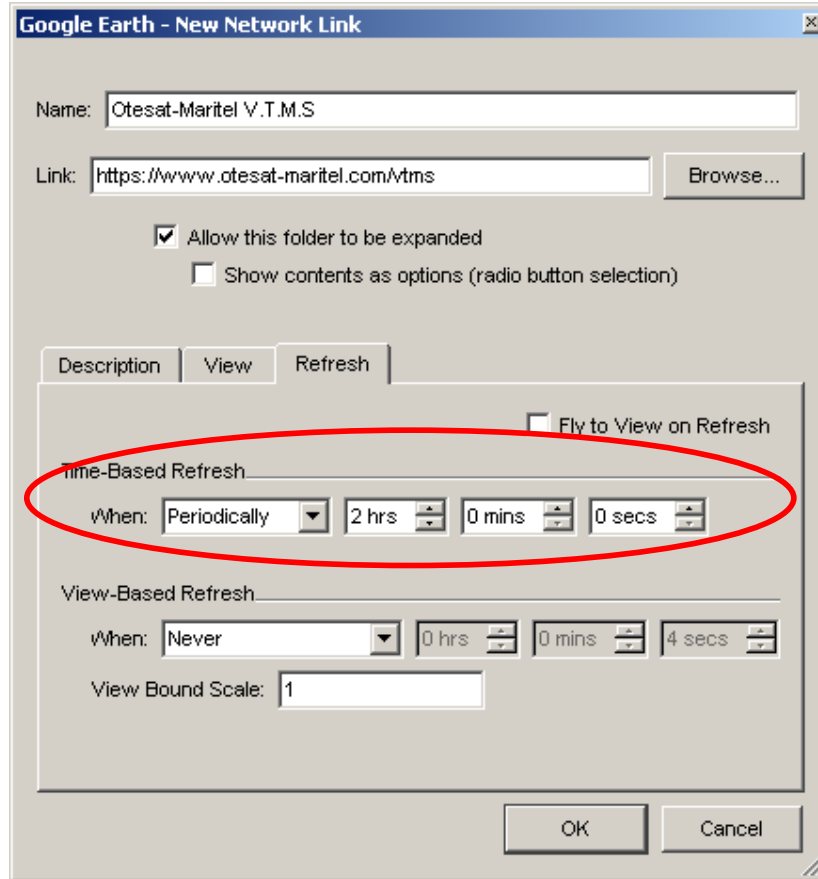
Consequently the following screen is displayed:



In the text box under '*Name*', the user should type "*Otesat – Maritel V.T.M.S.*". In the text box under '*Link*', the user should type the following internet address given by OTESAT-Maritel, which contains the appropriate data:

<https://www.otesat-maritel.com/vtms>

The user should also specify how often the map is to be refreshed with new data. This can be achieved by clicking on the “Refresh” tab. In this tab and under the title ‘**Time-Based Refresh**’ the user should specify that the map is to be refreshed periodically every 2 hours as follows:



After the ‘**OK**’ button is clicked, the following window pops up where the user can type in the username and the password of his account (already allocated by OTESAT-Maritel):



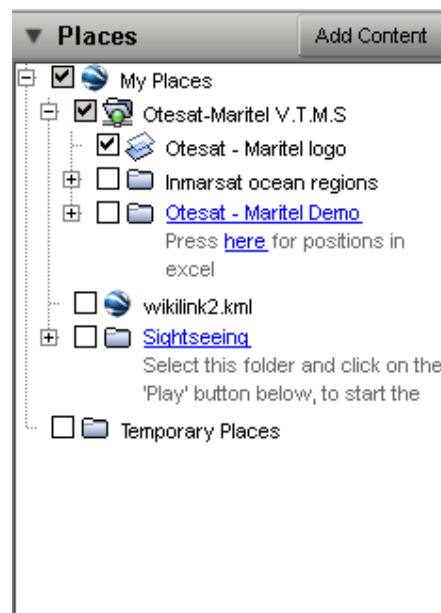
As soon as the '**OK**' button is clicked, the data is added on the '**Places**' panel. If the user restarts the application, the data remains on the '**Places**' panel but the user is asked again for a username and password for security reasons.

### 3. Recommended Settings



For best viewing and performance results, the following settings should be specified in the VTMS.

#### 3.1 Panels

The user should have only the '**Places**' panel on view. The other two panels "**Search**" and "**Layers**" on top and bottom can be collapsed by clicking on vertical arrow next to their name so the right side should look like the one below:

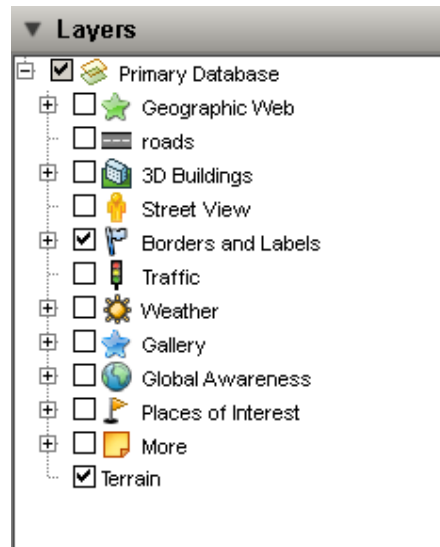


#### 3.2 Navigation mode

When clicking on the map the user should see the icon  on the map, which is associated to the default operation of the mouse on the map. Clicking and holding the left mouse button anywhere on the map the user can move around. Also by clicking anywhere on the map using the right mouse button the following icon appears  and moving the mouse up and down the user can zoom in or zoom out at this specific point.

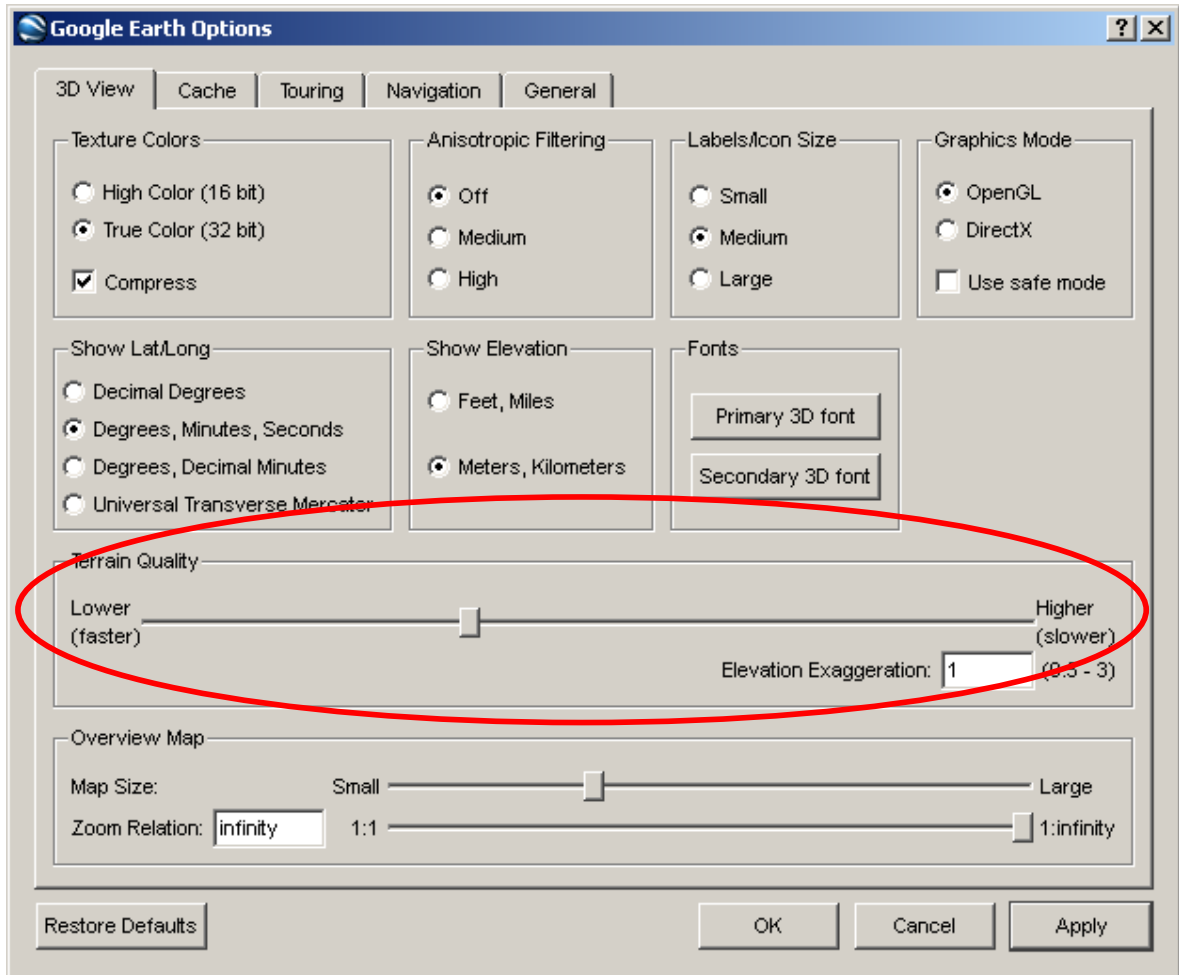
### 3.3 Viewing

The user should have the following options checked for better viewing geographical information on the map. These are located at the bottom of the map.



### 3.4 Detail Area

The default detail area of Google Earth is medium (512x512). The user can increase that for better viewing results. This is done by clicking on the menu bar the option 'Tools'. From there the option 'Options' is selected and the following window opens up:



By clicking on the '*3D View*' bar and under the title '*Terrain Quality*', the user can move the bar towards the right side (Higher) if he has a fast graphics card. This greatly improves visual detail and is better for taking screenshots, but it slows down performance.

#### 4. Useful controls

There are several controls to make it easier for the user to use the VTMS. These are:

##### Mouse controls

Once the mouse is over the map the following mouse controls apply:

- By turning the mouse wheel front and backwards, the user can zoom in and zoom out the map. This is also accomplished by clicking on the map with the right hand mouse button, holding it and moving front and backwards.
- By clicking on the map with the left mouse button and holding it, the user can rotate the globe and move around the map.
- By clicking on the map with the right mouse button the moving the mouse up and down the user can zoom in or zoom out at that specific point.

- By double clicking on a point on the map, the user can zoom in to that point of the map

Once the mouse is over the '*Places*' panel the following mouse controls apply:

- By turning the mouse wheel front and backwards, the user can move around the nodes. This is also accomplished by clicking on the scrolling bar and holding it while moving the mouse front and backwards.

### Map in full screen

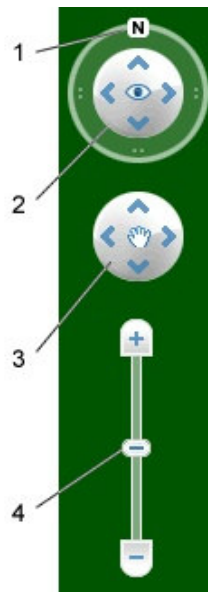
The user can view the map in full screen by pressing the '*F11*' button from the keyboard. To change back to normal size of the map the '*F11*' button should be pressed again. Another way to do this is from the menu bar by clicking the option '*View*' and then the option '*Full Screen*'.

### Latitude/Longitude

The user can view the Latitude/Longitude grid of the map by clicking on the menu bar the option '*View*' and then the option '*Grid*'.

## 4.1 Navigating around the map

All necessary controls for navigating around the map are shown below:



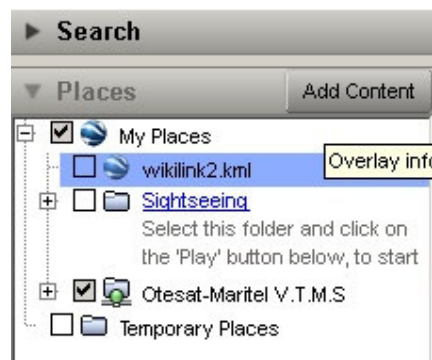
1. Click the north up button to reset the view so that north is at the top of the screen. Click and drag the ring to rotate your view.
2. Use the Look joystick to look around from a single vantage point, as if you were turning your head. Click an arrow to look in that direction or continue to press down on the mouse button to change your view. After clicking an arrow, move the mouse around on the joystick to change the direction of motion.
3. Use the Move joystick to move your position from one place to another. Click an arrow to look in that direction or continue to press down on the mouse

button to change your view. After clicking an arrow, move the mouse around on the joystick to change the direction of motion.

4. Use the zoom slider to zoom in or out (+ to zoom in, - to zoom out) or click the icons at the end of the slider. As you move closer to the ground, Google Earth swoops (tilts) to change your viewing angle to be parallel to the Earth's surface. You can turn off this automatic tilt (Tools > Options > Navigation > Navigation controls; Mac: Google Earth > Preferences > Navigation > Navigation controls).

## 5. Viewing data on the map

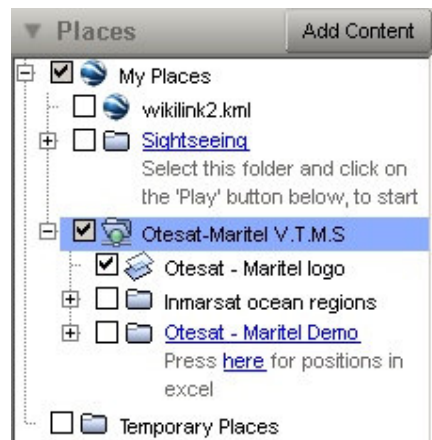
After having successfully imported the data into the VTMS, the '*Places*' panel may look like that:



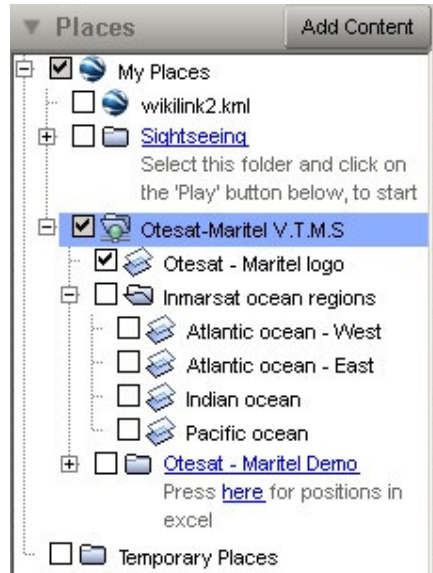
As it is seen, under '*Places*' a node with name '*Otesat-Maritel V.T.M.S.*' exists. Next to this on the left, there is a check box and a plus sign. Their functionalities are:

- The plus sign indicates that the current node can be expanded. When clicking on it, more nodes are displayed underneath in a tree like structure and the arrow points downwards. This functionality applies to every node with an arrow next to it.
- The check box can be checked and the corresponding data of the node is displayed on the map. If next to the check box there is a plus sign as well, by checking the check box all nodes underneath are automatically checked and their corresponding data is displayed on the map.

When clicking on the plus sign to expand the node the following data structure shows up:



The node '*Otesat – Maritel logo*' is checked so that the logo of **OTESAT-Maritel** is shown on the upper right hand side of the map. The node '*Inmarsat ocean regions*' is for displaying on the map the oceanic regions covered by Inmarsat. By clicking on the plus sign the four oceanic regions are shown on the '*Places*' panel as follows:



The user may check any of the four check boxes to see the corresponding Inmarsat coverage on the map otherwise by clicking on the node '*Inmarsat ocean regions*' all four nodes below are automatically checked.

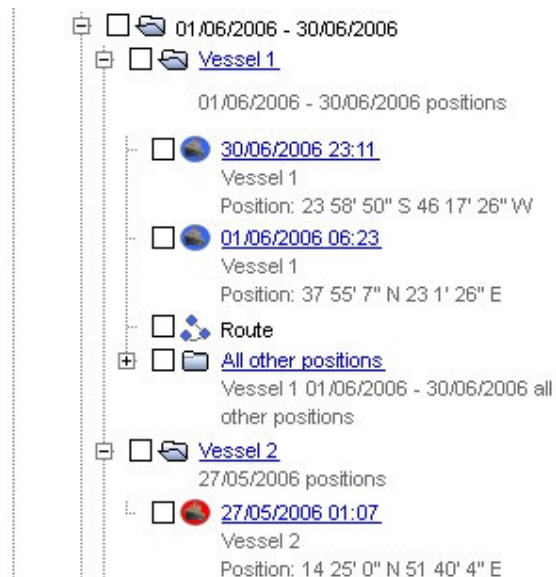
The node '*Otesat – Maritel Demo*' is used for holding the name of the shipping company. When expanded, it contains all necessary data that is of interest for the shipping company. Under the node there is also the line "*Press here for positions in excel*". The user may click the word '*here*' and export information on the vessel's positions in Microsoft Excel format. This functionality is described in section 7. When clicking on the node to expand it the following data structure shows up:



At this layer there are three nodes indicating three time periods with duration of one month each, supposing there are data existing for three months. The maximum amount of months that are kept by the system for reference is 3 months. Under each of these nodes all vessels owned by the shipping company are displayed as follows:



If the user checks the node **'01/06/2006 – 30/06/2006'** then all nodes underneath are automatically checked and the corresponding data is displayed on the map. By clicking on any node, the following data structure shows up:



As can be seen the vessels are listed in different colour. Under the node **'Vessel 1'** the following information exists:

- First node indicates the most current position of the vessel within the specified time period.

- Second node indicates the first position of the vessel that was recorded since the start of the specified time period.
- Third node indicates the route covered by the vessel during the specified time period. This is shown by a line which connects the most current position of the vessel with the first position of it. The line is formed by the points of the intermediate positions of the vessel.
- Fourth node indicates all intermediate positions of the vessel between the first and the most current position of the vessel.

### 5.1 Controls for viewing vessel's details

By checking the node '*Vessel 1*', all nodes underneath are automatically checked and the route covered by the vessel within the specified time period of one month is displayed on the map. If the user double clicks on the node '*Vessel 1*', the map focuses on the route of the vessel and the following message is shown on the map:



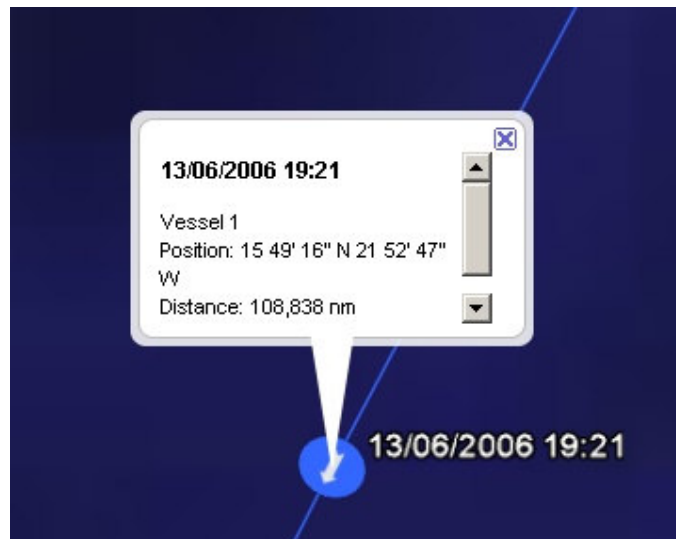
The route is shown by arrows pointing to the direction of the vessel. As the user zooms in to the route on the map, the date and time of the positions of the vessel are shown as follows:



By clicking on an arrow a message with the date and time of the position is displayed as follows:



By double clicking on an arrow, the map zooms in to the position clicked and a message with the date and time of the position is displayed as follows:



As stated before, under the node '*Vessel 1*' there exist four nodes. Their controls are

### 5.1.1 Node with Most Current Position

If the user clicks on the first node a message shows the date and time of the most current position of the vessel and the node becomes checked. A picture of a vessel is shown on the map as well, as follows:



If the user double clicks on the node, the map zooms in to the position of the vessel and a similar message is displayed as above. This is also accomplished by double clicking on the picture of the vessel on the map.

### 5.1.2 Node with First Position

If the user clicks on the second node a message shows the date and time of the first position of the vessel since the beginning of the specified time period as above and the node becomes checked. Once again if the user double clicks on the node, the map zooms in to the position of the vessel and a similar message is displayed as above. This is also accomplished by double clicking on the picture of the vessel on the map.

### 5.1.3 Node with Route

If the user double clicks on the third node, then the route covered by the vessel is displayed on the map. If this is the only node checked, then a line is displayed on the map for the route of the vessel.

### 5.1.4 Node with All Other Positions

If the user clicks on the fourth node the following message is displayed.



By double clicking on it, all intermediate positions of the vessel between the most current and the first one since the beginning of the specified time period are displayed on the map and the above message is shown as well.

As it is seen this node has a plus sign next to it. If expanded, it contains nodes with all intermediate positions of the vessel along with date and time. The user can check and uncheck any of the nodes to see relevant information. By clicking on a node a message is displayed on the map with details about the date and time of the position clicked. The same thing occurs when clicking on a position on the map.

By double clicking on a node, the map zooms in to the position and a message is displayed as well. The same thing occurs when double clicking on a position on the map.

## 6. Other options

There are some options so that the user can carry out some additional operations.

### 6.1 Point coordination and altitude

At the bottom of the map there exists the following panel which contains some useful information:




On the left there is information on the coordinates of the point that has been clicked on the map. As the user clicks with the mouse around the map, these coordinates are automatically updated.

On the right there is information on the distance in miles or kilometers from the surface of the map to the zoom level that has been selected. As the map zooms in to the point, the distance becomes smaller because the user comes closer to the surface of the map.

Finally, on the most-right corner there is information on streaming. This has to do with the downloading of the images on the map. If the user clicks to zoom in to a point on the map, the image on the map is misty at the beginning. But as time passes, streaming increases and the image becomes clearer. In other words streaming is the percentage of completion of the downloading of the image on the map.

### 6.2 Play Tour

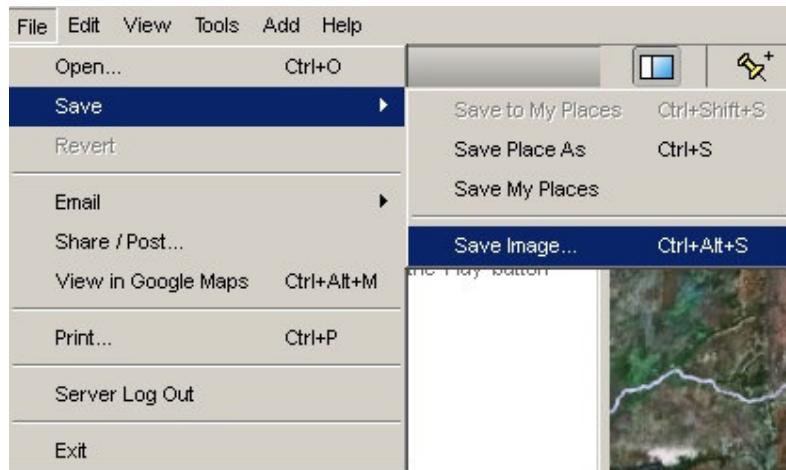
With '*Play Tour*' option, the user can view a series of positions on the map like flying along the route. This option is located at the bottom right hand side of the '*Places*'

panel with the '*Play Tour*' and '*Stop Tour*'  buttons.

First the user needs to have checked a number of nodes having positions. Then by clicking on the '*Play Tour*' button, the user can view all positions on the map like flying over them.

### 6.3 Save screenshots

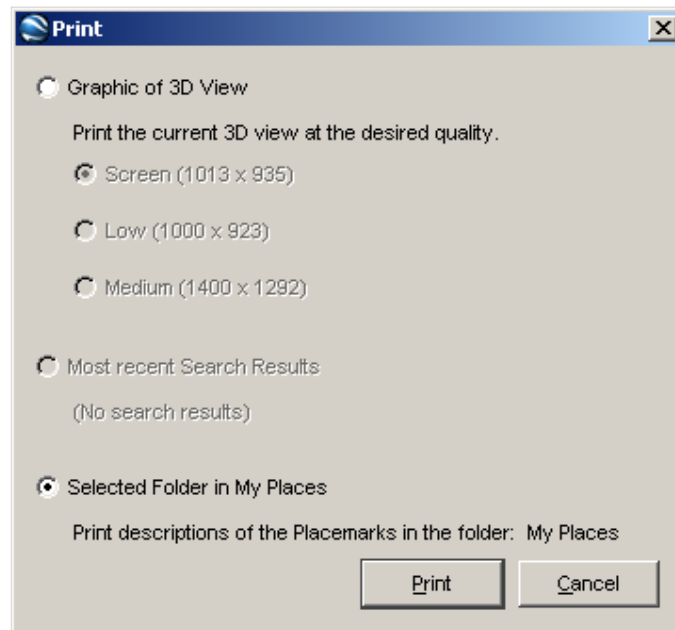
VTMS allows the user to save a screenshot of the map on his computer. This is done by clicking on the menu bar the option '*File*'. From there the option '*Save Image*' can be selected as follows:




Then a save dialog pops up and the user can save the screenshot as an image.

#### 6.4 Print screenshots

The user is able to print a screenshot of the map. This is done by clicking on the menu bar the option '*File*' and from there the option '*Print*' may be selected. After having clicked on this the following form opens up:

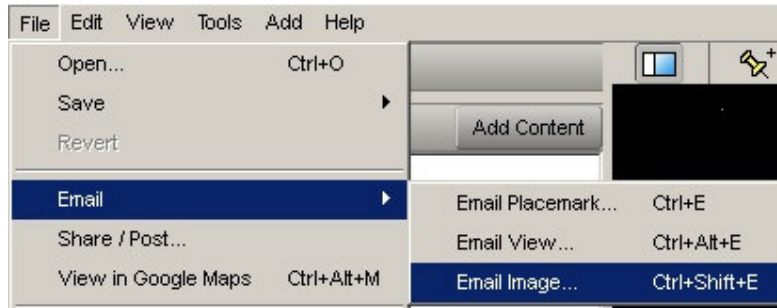


The user can choose one of the three selections and click the '*Print*' button to print. In order for a normal printout in paper the first option needs to be selected. After selecting the first option and clicking the button "**Print**" a new window will come up asking the user to choose the printer and from there the print can be finalised.

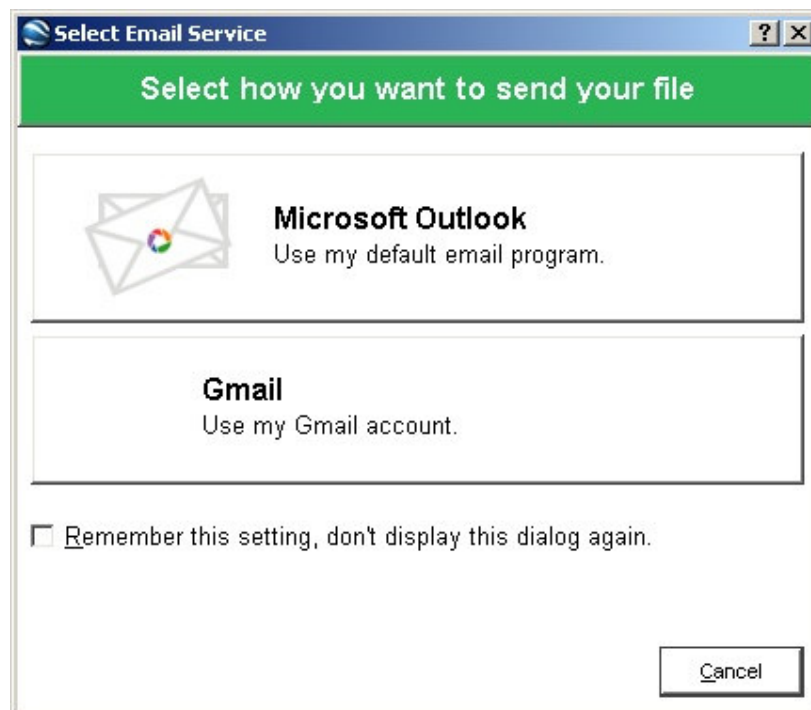
Another way to print images is by clicking on the button , which exists on the upper right hand side of the VTMS. This is mainly as a shortcut and it does not server a different matter.


## 6.5 Email screenshots

A useful operation of the VTMS is e-mailing a screenshot of the map to someone else. This is done by clicking on the menu bar the option '*File*' and from there the option '*Email*' can be selected.



By clicking on the button '*Email Image*', the following form open up for choosing between Microsoft Outlook and Gmail to send the image.



Another way to email images is by clicking on the button , which exists on the upper right hand side of Google Earth, next to the one for printing.

## 7. Export positions in Microsoft Excel

Apart from viewing vessel's positions on the map, the user has the option to export positions in Microsoft Excel application. This can be done by clicking on the link from the '*Places*' panel of the VTMS. This link forwards the user to a web page. Before the web page is opened, the user is asked for the username and password of his account. By entering these and clicking the '*OK*' button the new web page opens up. On the web page there exists the following form from which the user can specify two search criteria before exporting the data.



Please specify your search criteria :

**Vessel:** Vessel 1

**Time Period**  
*From date must be between today and 3 months ago.*

**From:** 04-04-2006 **To:** 22-05-2006

Export to Excel

From the combo box '*Vessel*' the user can specify the vessel he is interested in. The default value is the first vessel, which was shown on the '*Places*' panel of the VTMS. The user may also specify the time period between two dates for getting the corresponding positions. The time period can be set by the edit boxes '*From*' and '*To*' and its maximum value is three months back in time.

As it can be seen both edit boxes have default values. The default value of the edit box '*From*' is the date of the first position of the vessel in the combo box within the three months time period. The default value of the edit box '*To*' is the date of the most current position of the vessel in the combo box.

For setting the dates, the user needs to click on the image next to each edit box. The following form pops up from which the user can select a date.



DateTime Picker - M...

April < 2006 >

April 2006

Su	Mo	Tu	We	Th	Fr	Sa
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

If the user selects a date older than three months ago or a date greater than today's date, a warning message is shown informing him of his incorrect selection when having clicked on the '*Export to Excel*' button.

After having specified the details about the vessel and the time period, the user can click on the button '*Export to Excel*'. A save dialogue pops up for the user to open the file in Microsoft Excel, save it on the computer or cancel the operation.