

TAVL application user manual

V3.1

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1. Introduction

TAVL application is software used to connect to the server and retrieve and display information that FM4 stores there.

TAVL user manual provides information needed to fully understand and operate TAVL application. Here you will find application installation guide, interface, reports, configuration and event description, operation list. Note, that some operations or functions can be enabled or disabled and may not be available in application.

2. Getting started

2.1 PC requirements

TAVL application runs on a PC with MS Windows XP or MS Windows Vista with latest service packs. MS .NET Framework v2.0 and Crystal Reports are also necessary components.

TAVL application supports MS MapPoint (copyright © 2008 Microsoft) or any MapX (copyright © 2008 MapInfo Corporation) maps (additional maps have to be installed on users PC).

2.2 .NET Framework installation

Download .NET Framework 2.0 from Microsoft website and install it (url: <http://www.microsoft.com/downloads/thankyou.aspx?familyId=0856EACB-4362-4B0D-8EDD-AAB15C5E04F5&displayLang=en>). If the download doesn't start automatically, click on the "Start Download" button.

2.3 Crystal Reports installation

Download and install Crystal Reports for .NET Framework (url: http://213.226.139.30/Downloads/tavl/Tavl%5FClient/Crystal%20Reports%20Runtime/CRRedist2005_x86.zip).

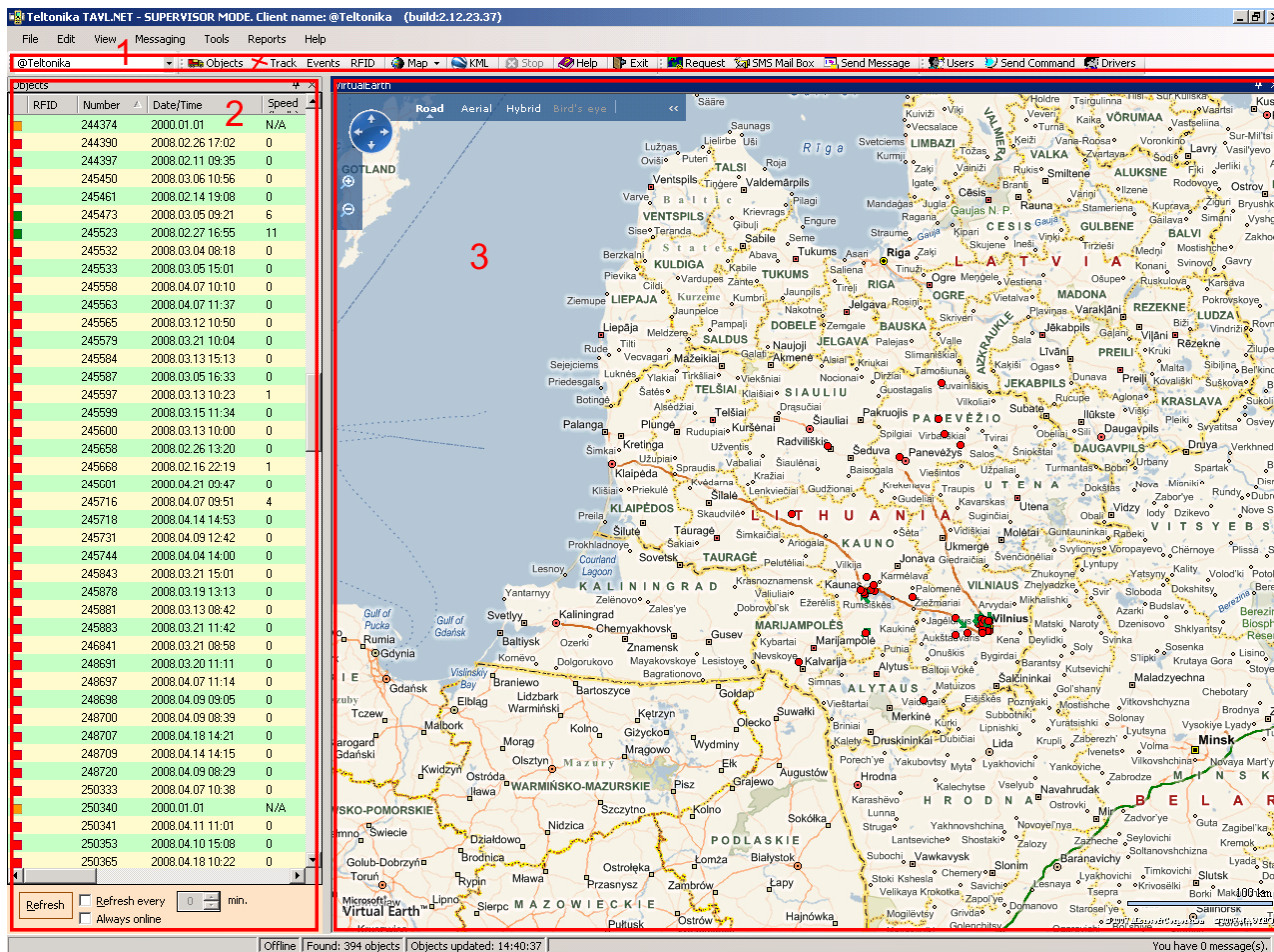
2.4 TAVL application installation

Downloads and extract latest available version of TAVL application (url: <http://213.226.139.30/Downloads/tavl/Tavl%5FClient/>).

2.5 Launching TAVL application

Launch tavl.exe. Enter your login name and password. Additional settings can be found after clicking  button: client name, destination server and language.

3. Interface



TAVL application consists of three basic parts:

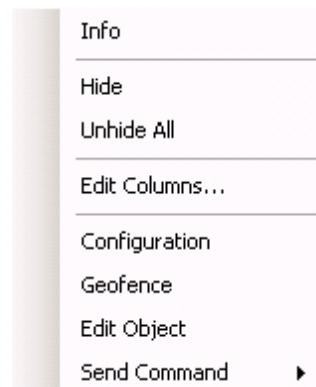
1. Toolbar;
2. Object window (may contain track or event window);
3. Map window.

3.1 Objects

	Number	Date/Time	Speed (km/h)	FM4 GSM Signal Level	A [V]	B [V]	FM4 Current Profile	GPS Power
■	263337	2008.04.22 16:04	0	4	13.6	9.4	1	1
■	263338	2008.04.24 14:50	0	5	13.5	9.3	3	1
■	263341	2008.04.22 16:20	0	4	13.5	9.5	1	1
■	263342	2008.04.25 15:23	0	3	25.8	9.3	1	1
■	263345	2008.04.22 16:46	1	4	13.5	9.3	3	1
■	263382	2008.04.24 10:24	3	4	13.5	9.6	1	1
■	263585	2008.04.21 16:43	0	5	14.3	9.4	1	1
■	263586	2008.04.28 14:31	61	3	27.9	9.2	1	1
■	263593	2008.04.22 10:50	0	5	13.6	9.6	1	1
■	263594	2008.04.24 14:39	0	5	13.5	9.7	1	1

Object window contains a list of all available objects that are available for the client. Red color indicates idle state, green – moving. Date column shows timestamp for the latest coordinate received from device along with other additional properties (if any). After clicking 'Objects' in toolbar, TAVL displays them on a map. Left-click on the object in the list centers view on that object. Right-click on the object displays the following menu:

- Info – displays object information entered in database
- Hide – hides current object from visible list ('Objects' or 'Refresh' has to be clicked to take effect)
- Unhide All – reveals all hidden objects
- Edit Columns – ability to set up available columns – order, size, etc.
- Configuration – opens object configuration menu (see below)
- GeoFence - opens FM GeoFence menu
- Edit Object – ability to modify object number and comments
- Send Command – displays available SMS commands for FM



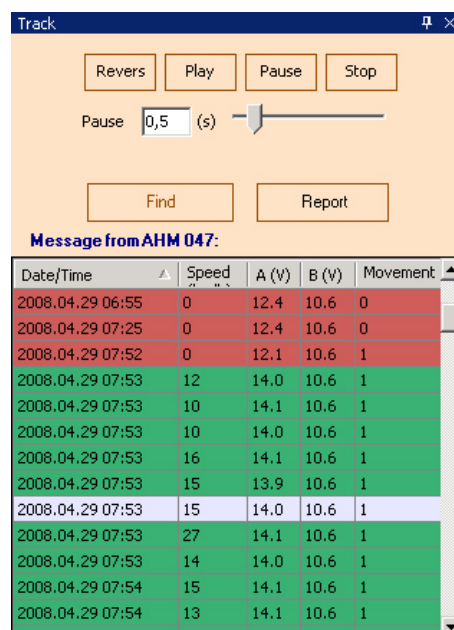
'Refresh' button displays the latest information available on server. Option 'Refresh Every' allows you to enter time interval in minutes for automatic refresh function. 'Always Online' refreshes data every 15 seconds.

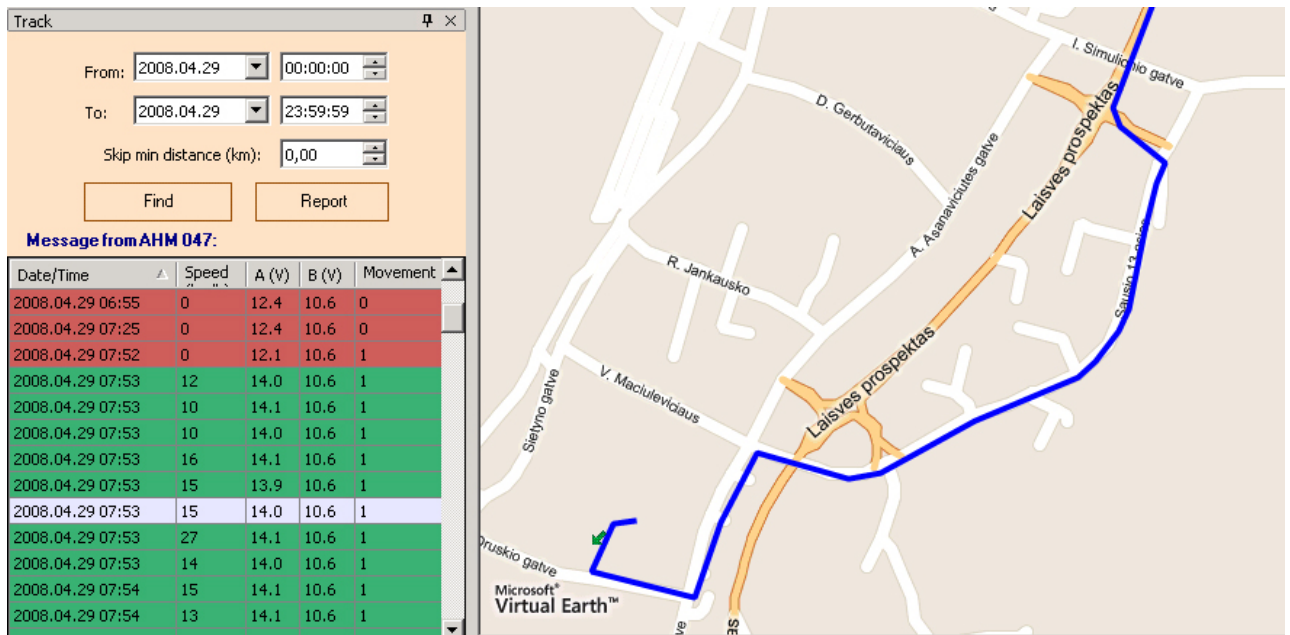
3.2 Track

'Track' button in toolbar displays additional track window in object list. Choose an object, set time interval and click 'Find' to see the track of the object for that period. All additional properties are displayed as well for every timestamp. 'Skip Min Distance' is used to discard records that are too close to each other – you can enter minimum distance between coordinates to be displayed. Left-click on the list centers the map on that record. Right-click allows to modify columns and to switch to 'Replay' mode. If two coordinates are selected while holding 'Ctrl' key, application calculates distance between them and (if available) fuel consumption for that period.

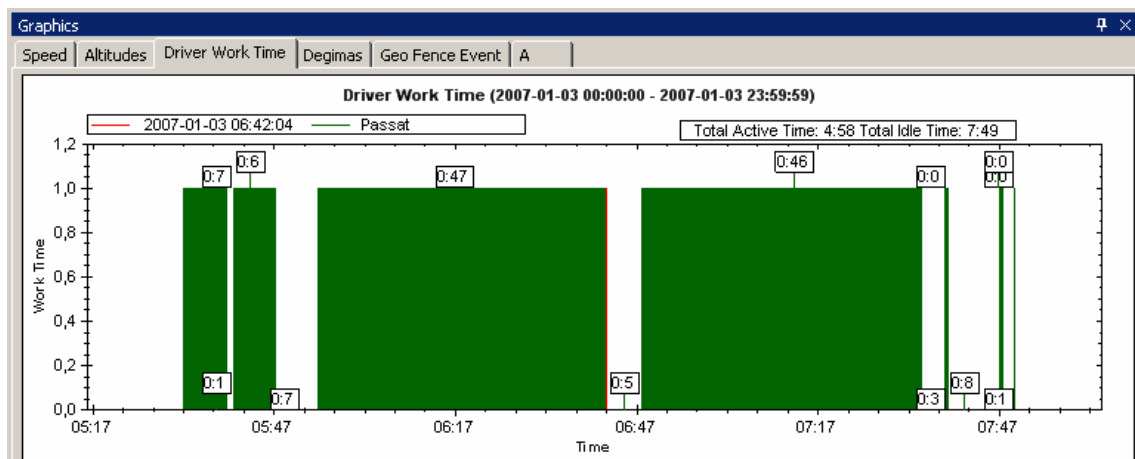
Replay mode displays each coordinate for defined time interval in 'Pause' field creating a live review the track. 'Play', 'Pause' and 'Stop' buttons are used to start, hold and stop preview, while 'Reverse' button replays track from the end to beginning.

'Reports' button is explained in 'Graphic Reports' chapter (see below).





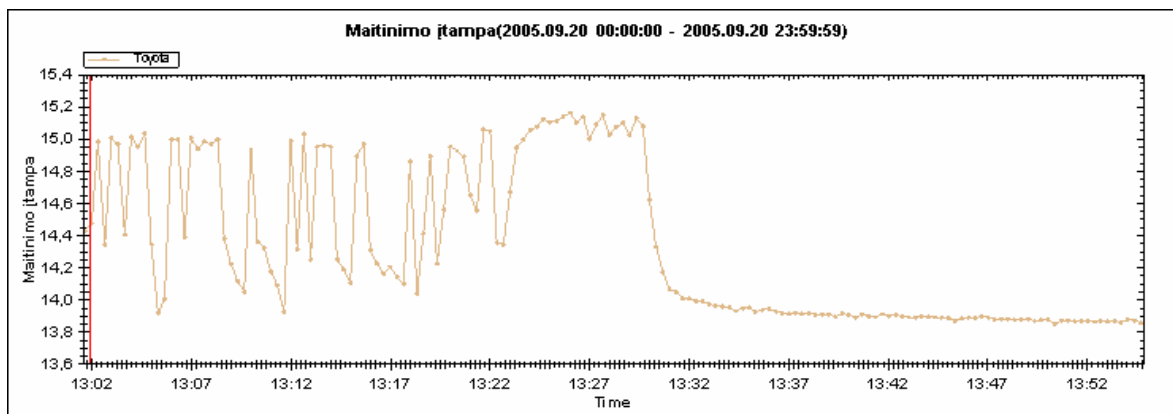
3.3 Graphic Reports



After clicking 'Track' button and generating a track of the object a 'Reports' button appears. This opens a new window with all properties changes in time scale graphics – speed, power voltage, CAN bus information, etc. Information provided here is same as displayed in 'Track' window, except that it is in graphic mode. Left-click on a record in 'Track' window shows a vertical line on a graph at specified timestamp.

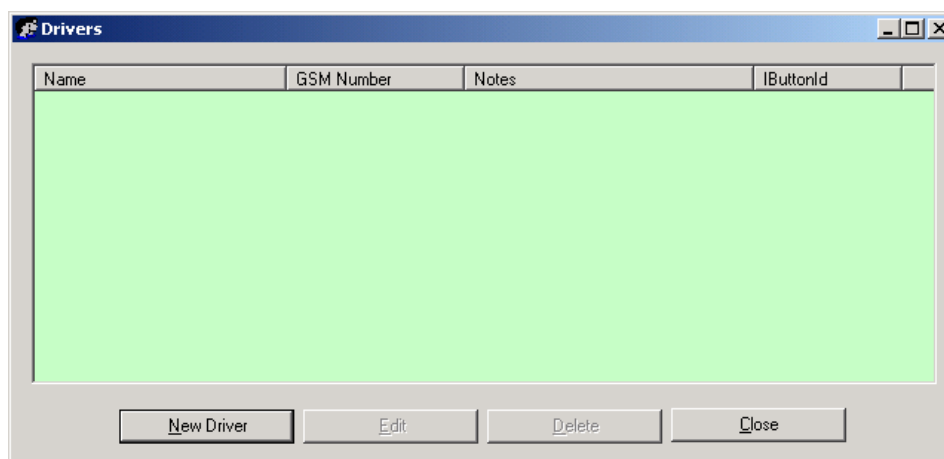
Some functions to manipulate the view of graphics are available. Middle button of a mouse increases or decreases the scale of timeline, right-click displays a view settings menu. Image can be copied to clipboard, saved as picture format or sent to printer. It is also possible to choose point symbols and size for them as well as line filling options. 'Set Scale To Default' is used to set back to default view.

- Copy
- Save Image As...
- Page Setup...
- Print...
- ✓ Show Point Values
- Un-Zoom
- Undo All Zoom/Pan
- Set Scale to Default
- Line
- Symbol



3.4 SMS operations

SMS operations have several buttons dedicated: 'SMS mailbox', 'Send Message', 'Send Command' and 'Drivers'.



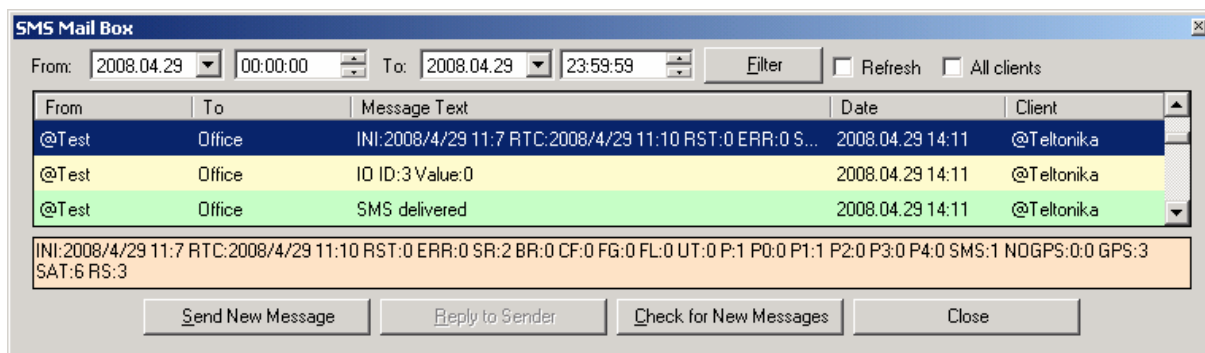
'Drivers' allows a user to create virtual SMS receivers. These receivers are used in following cases:

1. To enter a vehicle driver name and GSM number for a possibility to send SMS from TAVL application;
2. To enter a device number and GSM number for a possibility to send FM commands to the unit;
3. To enter object number or driver name and iButton ID for identification.

'Send Command' allows a user to send predefined commands to FM unit. Commands are entered on database using Management interface (see 'TAVL Management User Manual'). Choose an object, choose a command from a list and click 'Send' to send a command.

'Send Message' allows a user to send any text message to receiver defined in 'Drivers' menu. These can include configuration messages for FM unit, simple text messages for drivers, or any other SMS message.

'SMS Mailbox' provides a simple SMS monitoring tool for sent and received messages. Some configuration messages request certain information from FM units which is usually sent by SMS. This information can be seen in SMS mailbox window along with delivery reports (if activated). A time interval for sent and received messages can be set. 'Refresh' option allows periodic update of SMS mailbox window, 'All Clients' allow to see all messages from all available clients on the server.



3.5 Other operations

'Map' button allows turning on or off available maps on TAVL application.

After clicking 'KML' button, TAVL application launches Google Earth (copyright © 2008 Google) application and exports current view of map – all objects or track of selected object. Note that Google Earth has to be installed on a PC for this option to be available. Same can be done by clicking 'File -> Export -> To KML File'.

'Stop' button cancels current job – object or track loading.

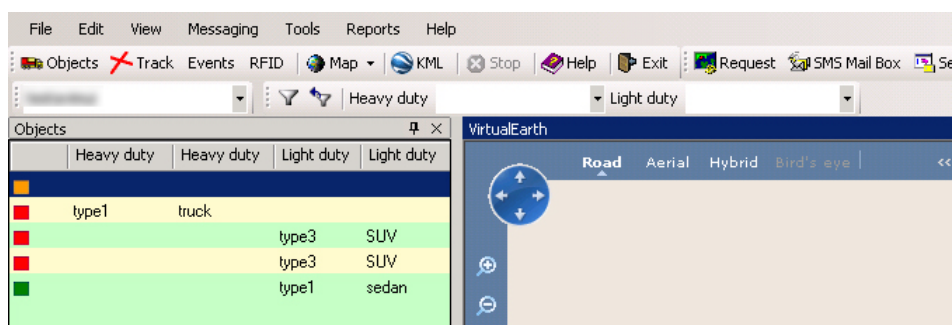
'Users' allows creating a new TAVL application login for active client. Enter new username and password and choose available functions. Currently logged in user is able to change the settings of account using 'Edit' -> 'Login' menu.

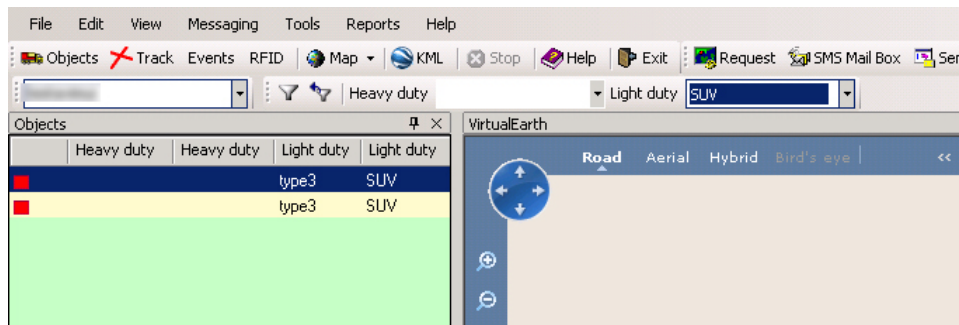
'Events' displays a new window with preconfigured events. They can be received for a defined period of time from selected or all objects available for the client. Event configuration is explained in configuration chapter (see below).

All data (object list with subscribed properties or track information) can be exported to .CSV file. Click 'File -> Export -> To CSV File' and choose a folder to save it.

3.6 Advanced filtering

TAVL application has ability to set certain categories for every client. These categories can have different sub-categories that can be attached for every object. If this functionality is enabled, TAVL application has additional filter settings in toolbar. Vehicle identification to certain category or sub-category is done using TAVL application.



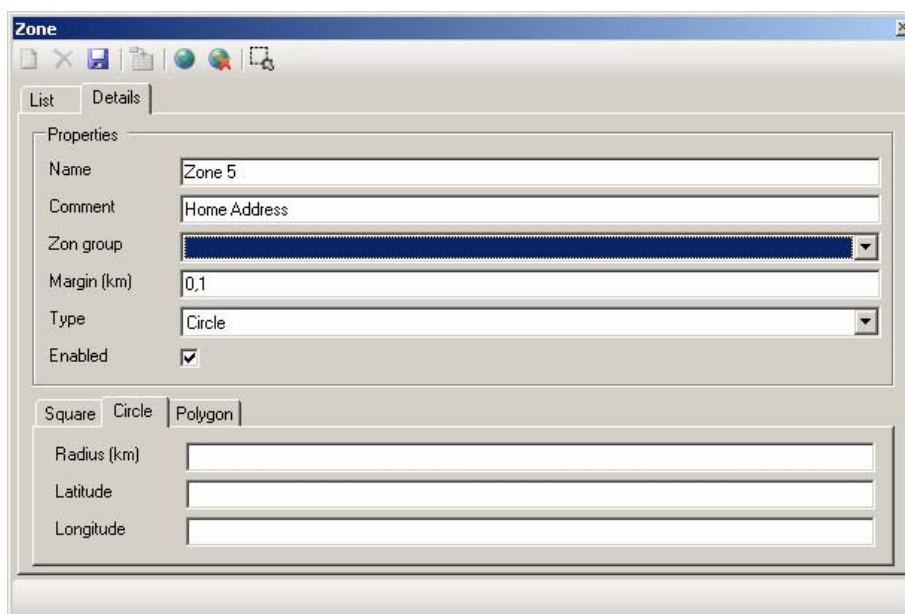


4. Operations

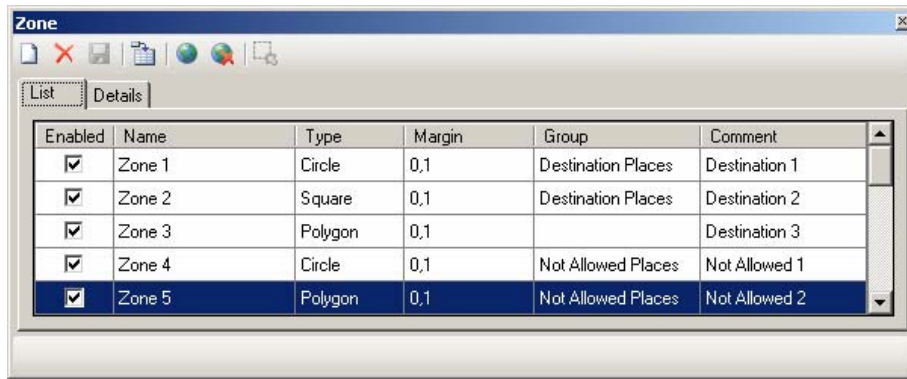
4.1 GeoFence

When coordinates are sent to the server, they are proceeded using application's algorithms. If coordinate is in the specified area, a notification is sent.

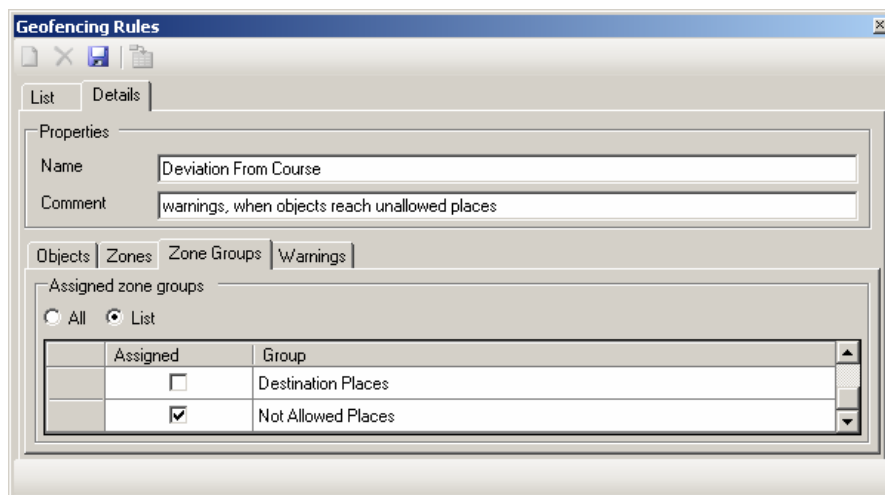
In the toolbar click "Tools" –>'Geofencing'.



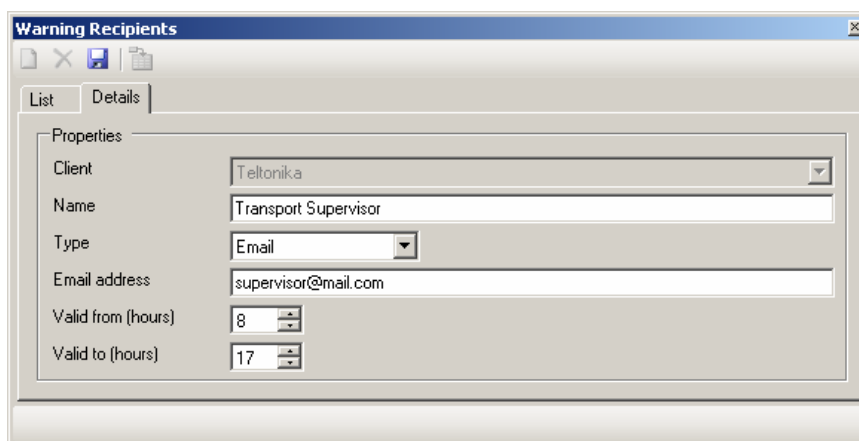
'Zones' menu allows you to create new, edit or view existing zones, which can be in shape of quadrangle, circle or polygon. To create new area, click . Enter name, attach to the zone group (optional) and specify coordinates by entering them in the fields or click  and choose the area on the map window. For quadrangle two corner points are required, for circle - center and radius. If you choose the polygon, double click while selecting last point and application will automatically connect first and last points specified.

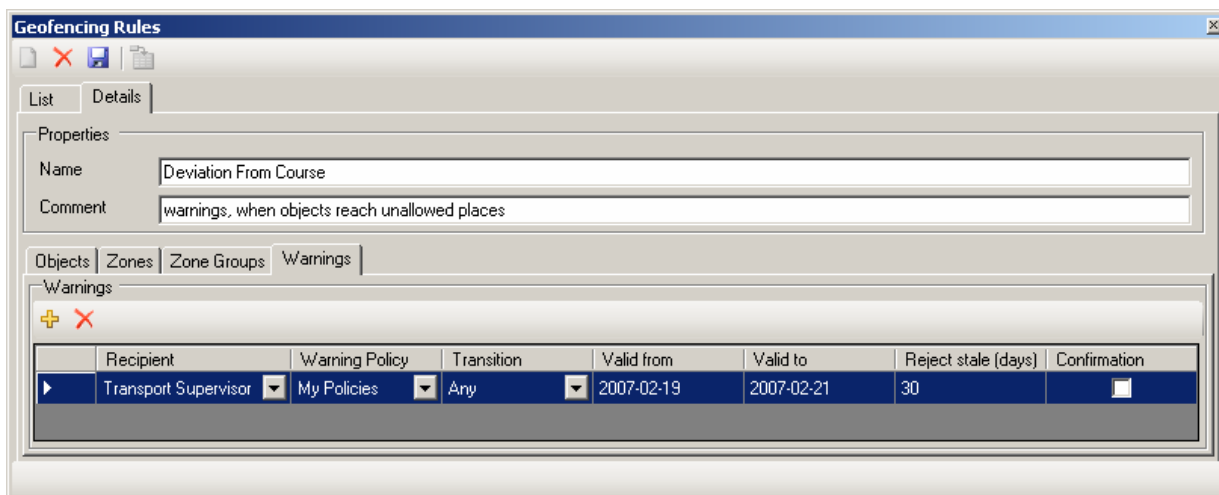


When you click 'Zone Groups' you will be able to attach zones to groups. This makes object management more easy, because you can specify groups as destination addresses, not allowed places, checkpoints and set different messages to be sent for each group.



When you are setting Geofencing rules, you can choose which objects to monitor and specify included zones or zone groups. Click 'Warnings' and choose recipients and message sending policies. These two are specified in Warnings menu (click 'Tools' -> 'Warnings' -> 'Warning Recipients'). Also set parameter in 'Transition' field for message sending when objects enters or leaves (or both) area, specify oldest possible warning message in 'Reject State' field and set if messages require user confirmation in 'Confirmation' field.





The 'Geofencing Rules' window shows a 'Details' tab with the following properties:

- Name: Deviation From Course
- Comment: warnings, when objects reach unallowed places

Below the properties, there are tabs for 'Objects', 'Zones', 'Zone Groups', and 'Warnings'. The 'Warnings' tab is active, showing a table with the following data:

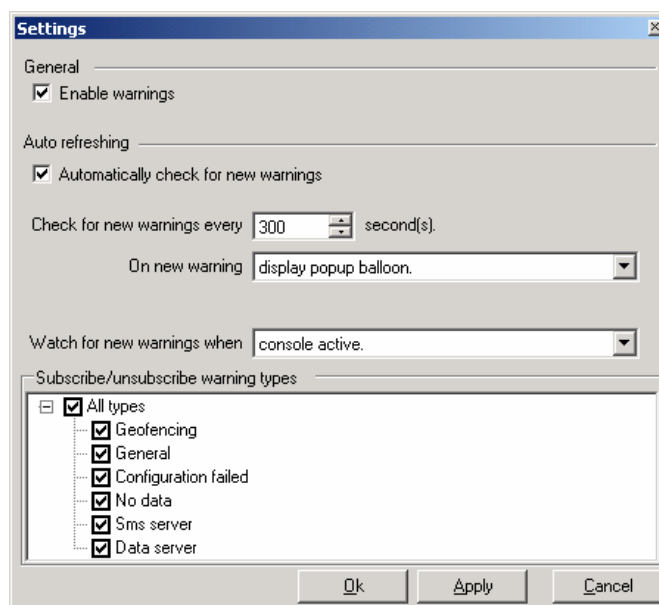
	Recipient	Warning Policy	Transition	Valid from	Valid to	Reject stale (days)	Confirmation
▶	Transport Supervisor	My Policies	Any	2007-02-19	2007-02-21	30	☐

If you want to view messages in TAVL application, click 'View' -> 'Warning Console'. In the new window Geofence warning along with other generated warning can be viewed. Settings, how information should be displayed are made in 'Settings' window – click  to open it. You can define which messages should be displayed, time interval to check for new messages and how should they be displayed (more detailed explanation in chapter below).

4.2 Events and Warning Console

Events are displayed in separate window, when FM configuration has certain events defined (see Configuration chapter below). If current value of any property exceeds or drops below the defined range, an event is generated.

Warning console is able to display these events if it is enabled. Enter time interval to check for new events, and define what should happen when new event is received. Different type of warnings can be chosen to view.



The 'Settings' window has a 'General' tab with the following settings:

- ☒ Enable warnings
- Auto refreshing:
 - ☒ Automatically check for new warnings
 - Check for new warnings every: 300 second(s).
 - On new warning: display popup balloon.
 - Watch for new warnings when: console active.
- Subscribe/unsubscribe warning types:
 - ☒ All types
 - ☒ Geofencing
 - ☒ General
 - ☒ Configuration failed
 - ☒ No data
 - ☒ Sms server
 - ☒ Data server

Buttons: Ok, Apply, Cancel

4.3 Filtering

Loading lots of objects takes more time and sometimes it can be very confusing. Filtering lets you choose which object you want to view, and hides the rest. When refreshing objects, data is sent only about those that are marked, so it takes less time. In the TAVL toolbar click on 'View' and 'Filter' or hit Ctrl + F. In the new window click on object you want to be displayed and click 'Ok'.

4.4 Options

'Options' allows you to customize TAVL applications settings. In the 'View' menu choose 'Options' or hit F9.

Stop Speed - speed value at which the object is treated as not moving. This is used when coordinates error occurs and object is displayed on new location, it should not be indicated as changing its stopping point.

Events menu – sets a sound used with warnings, sets if passive data is displayed in new window when its state changes or with all data in the objects window. Interval sets the period in seconds when the data is to be refreshed.

GeoFence menu - settings let you specify line colors and width.

Graphic Parameters menu - these settings define same graphic reports parameters as right-clicking on them (see Graphic reports above) - fonts and their sizes, symbol types and sizes, etc. 'Work Time Graphic Min Time' and 'Work Time Graphic Min Speed' define minimum time and speed values at which object's engine is being treated as working.

'Use iButton' – enables iButton column in object and track windows.

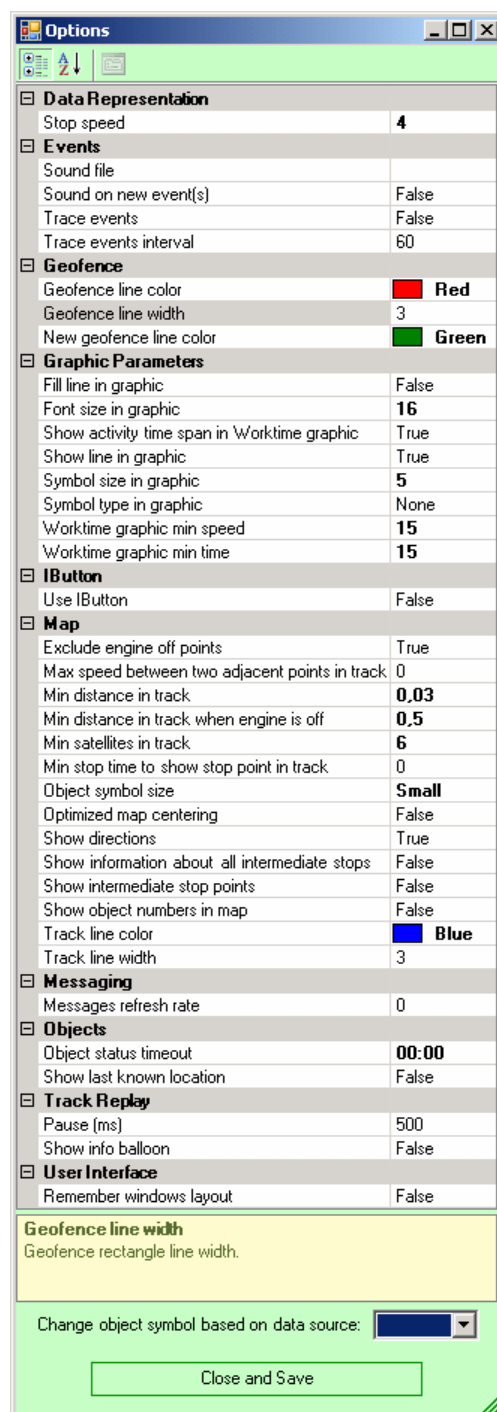
'Map' menu defines visual parameters in the TAVL map window. 'Exclude Engine Off Points' sets object to not moving when engine is turned off. With this parameter 'Min Distance In Track When Engine Is Off' is set in kilometers to indicate how far object can move and still not be treated as moving. 'Min Distance In Track' sets minimum distance from one point to another in the map. 'Min Satellites In Track' specifies how many satellites module should be using when setting its position. Note that minimum four satellites are used, but more - means better accuracy.

'Messages Refresh Rate' - rate at which data is refreshed in mailbox.

'Objects' menu - shows last known good coordination when no GPS satellites are in view.

'Remember Windows Layout' - saves windows layout in TAVL on exit.

It is also possible to set different symbols to represent the object while ignition is on or fuel counters are used.



The screenshot shows the 'Options' dialog box with various settings categorized into sections. The 'Data Representation' section includes 'Stop speed' set to 4. The 'Events' section includes 'Sound file', 'Sound on new event(s)' (False), 'Trace events' (False), and 'Trace events interval' (60). The 'GeoFence' section includes 'GeoFence line color' (Red), 'GeoFence line width' (3), and 'New geoFence line color' (Green). The 'Graphic Parameters' section includes 'Fill line in graphic' (False), 'Font size in graphic' (16), 'Show activity time span in Worktime graphic' (True), 'Show line in graphic' (True), 'Symbol size in graphic' (5), 'Symbol type in graphic' (None), 'Worktime graphic min speed' (15), and 'Worktime graphic min time' (15). The 'iButton' section includes 'Use iButton' (False). The 'Map' section includes 'Exclude engine off points' (True), 'Max speed between two adjacent points in track' (0), 'Min distance in track' (0.03), 'Min distance in track when engine is off' (0.5), 'Min satellites in track' (6), 'Min stop time to show stop point in track' (0), 'Object symbol size' (Small), 'Optimized map centering' (False), 'Show directions' (True), 'Show information about all intermediate stops' (False), 'Show intermediate stop points' (False), 'Show object numbers in map' (False), 'Track line color' (Blue), and 'Track line width' (3). The 'Messaging' section includes 'Messages refresh rate' (0). The 'Objects' section includes 'Object status timeout' (00:00) and 'Show last known location' (False). The 'Track Replay' section includes 'Pause (ms)' (500) and 'Show info balloon' (False). The 'User Interface' section includes 'Remember windows layout' (False). At the bottom, there is a 'GeoFence line width' section with a 'GeoFence rectangle line width' field, a 'Change object symbol based on data source:' dropdown menu, and a 'Close and Save' button.

Section	Parameter	Value
Data Representation	Stop speed	4
	Events	
Events	Sound file	
	Sound on new event(s)	False
	Trace events	False
	Trace events interval	60
GeoFence	GeoFence line color	Red
	GeoFence line width	3
	New geoFence line color	Green
Graphic Parameters	Fill line in graphic	False
	Font size in graphic	16
	Show activity time span in Worktime graphic	True
	Show line in graphic	True
	Symbol size in graphic	5
	Symbol type in graphic	None
	Worktime graphic min speed	15
	Worktime graphic min time	15
iButton	Use iButton	False
Map	Exclude engine off points	True
	Max speed between two adjacent points in track	0
	Min distance in track	0.03
	Min distance in track when engine is off	0.5
	Min satellites in track	6
	Min stop time to show stop point in track	0
	Object symbol size	Small
	Optimized map centering	False
	Show directions	True
	Show information about all intermediate stops	False
	Show intermediate stop points	False
	Show object numbers in map	False
	Track line color	Blue
Track line width	3	
Messaging	Messages refresh rate	0
Objects	Object status timeout	00:00
	Show last known location	False
Track Replay	Pause (ms)	500
	Show info balloon	False
User Interface	Remember windows layout	False

GeoFence line width
GeoFence rectangle line width.

Change object symbol based on data source: [Dropdown Menu]

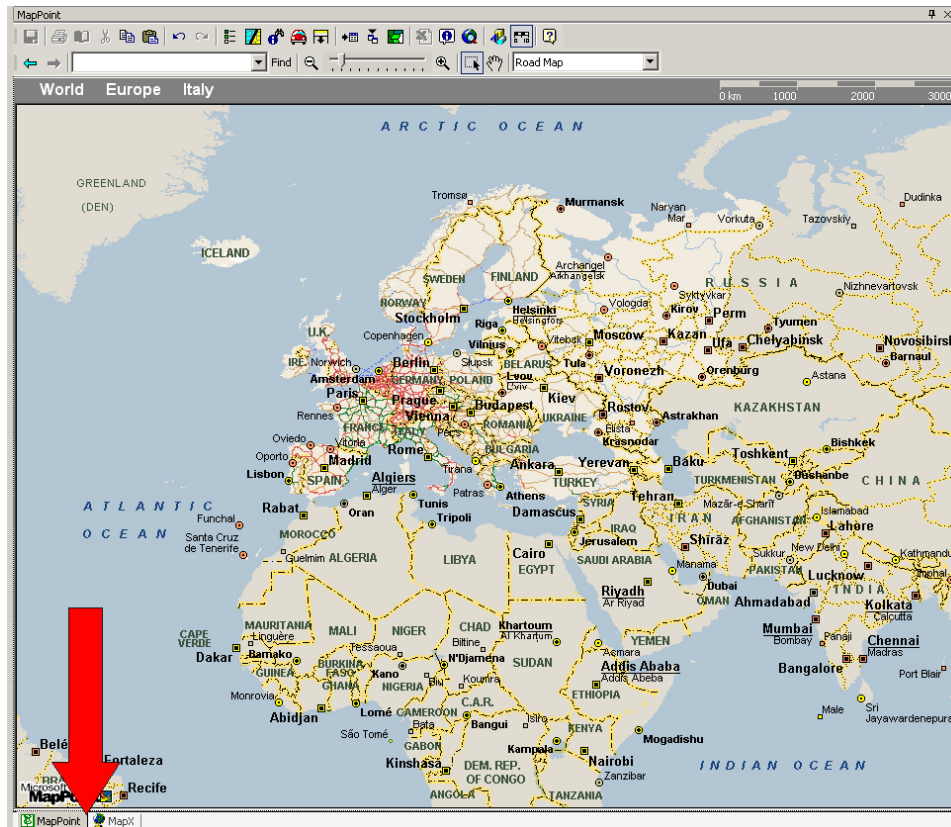
Close and Save

4.5 MapInfo MapX maps integration

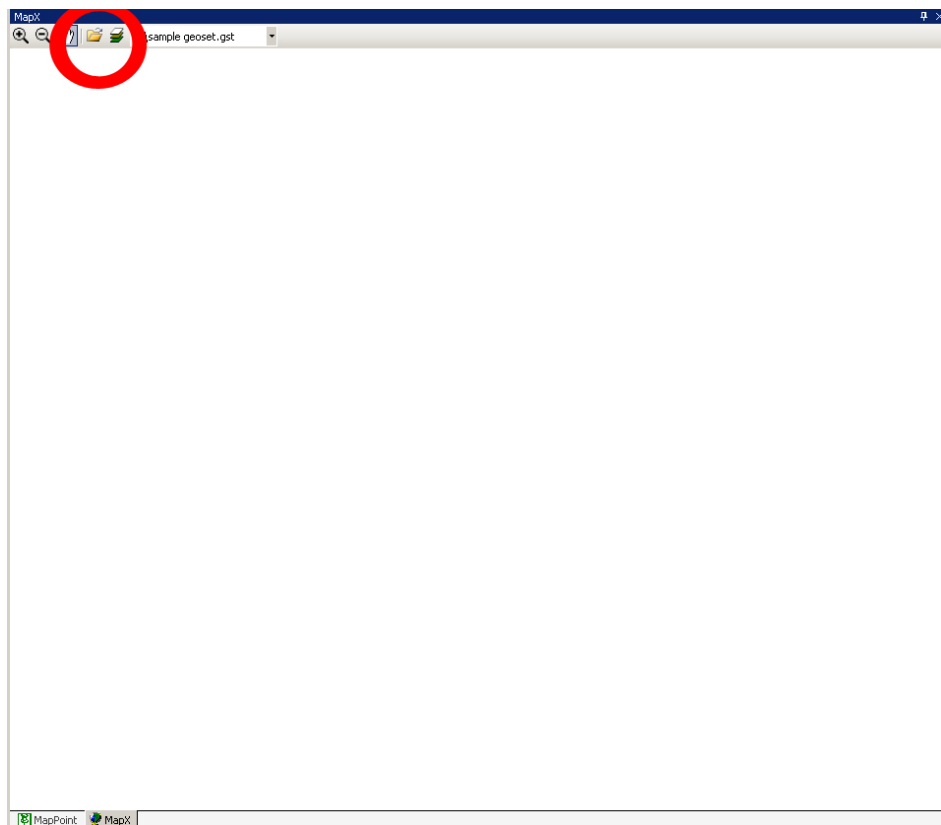
In addition to the standard software packet, MapInfo MapX (copyright © 2008 MapInfo Corporation) should be installed.

TAVL application supports files with .GST extension. These can be compiled using MapInfo MapX packet.

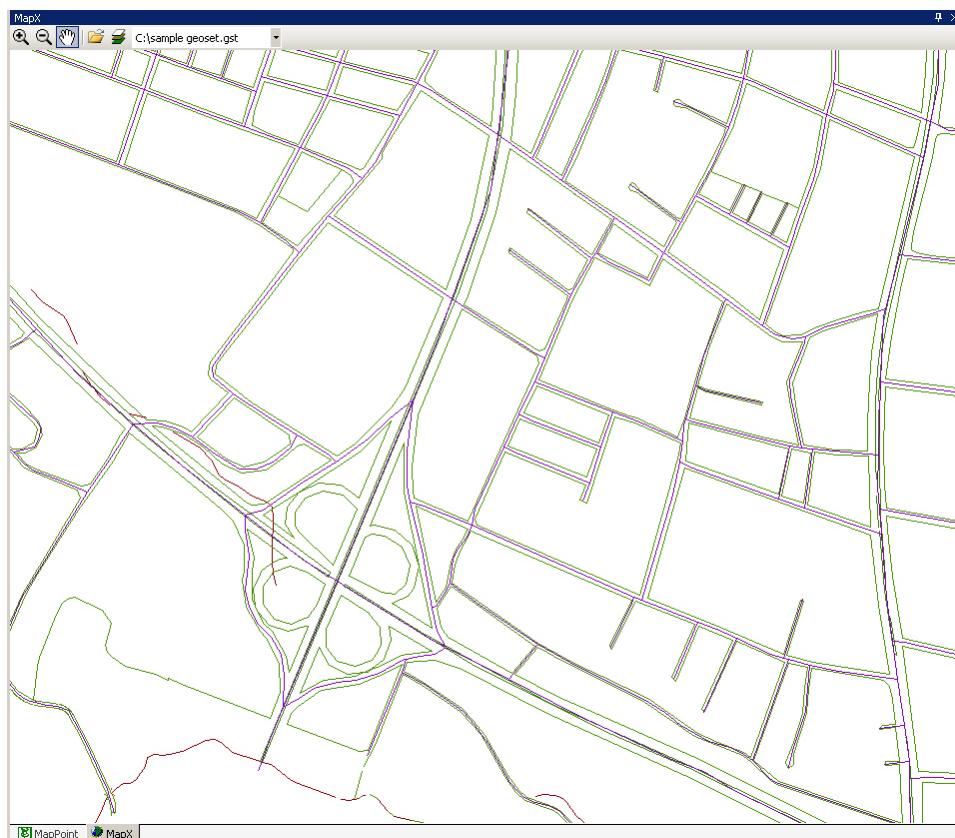
When TAVL is launched, click on MapX icon in the lower left corner near the map window or click on 'Maps' – 'MapX' button on a toolbar.



Click 'Open' and browse to the folder with new geoset (file with .gst extension)



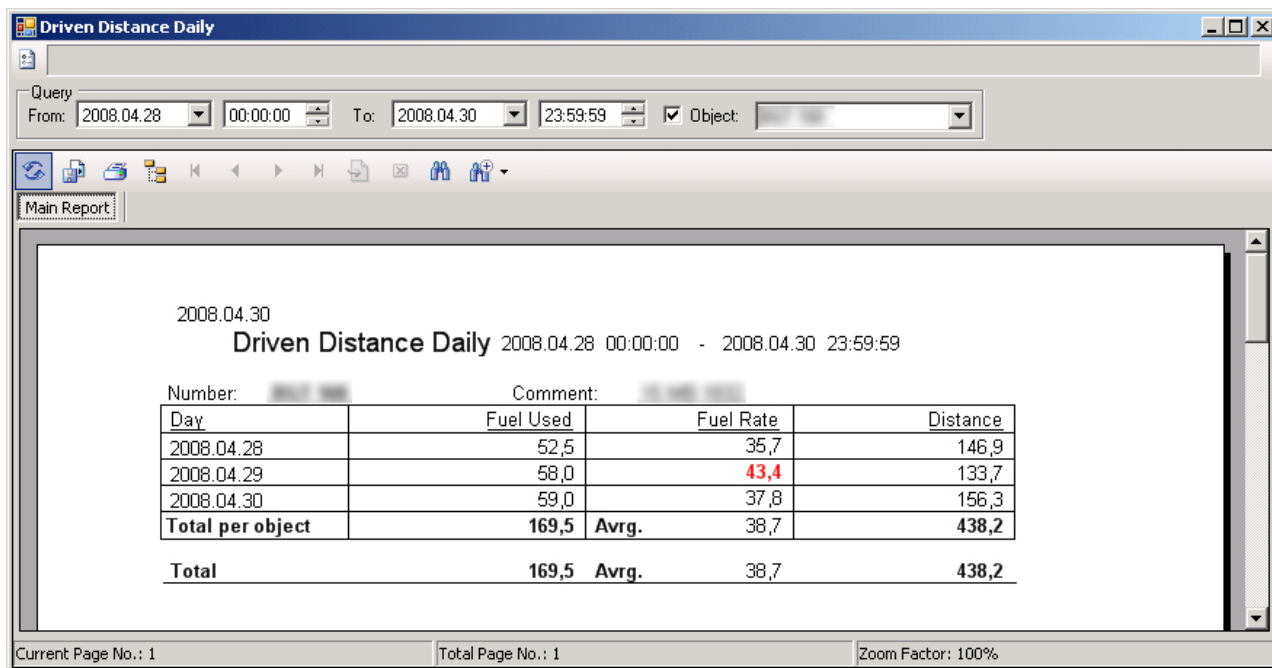
Your new custom maps are ready to use.



5. Statistic reports

TAVL application has ability to generate statistic reports based on GPS data and/or external sensors or properties. These reports can be launched by clicking 'Reports' and choosing one of available.

5.1 Driven Distance



2008.04.30

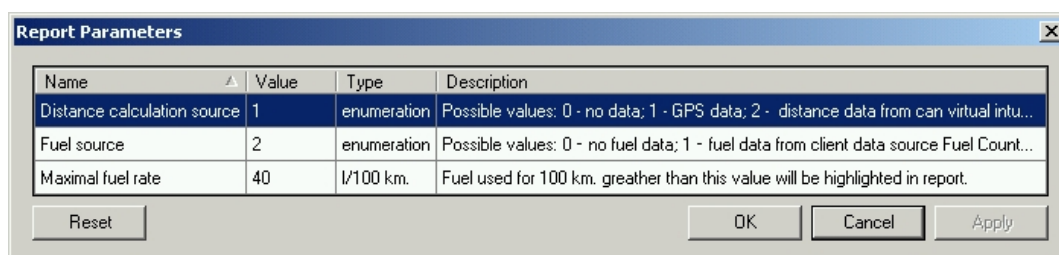
Driven Distance Daily 2008.04.28 00:00:00 - 2008.04.30 23:59:59

Number: [redacted] Comment: [redacted]

Day	Fuel Used	Fuel Rate	Distance
2008.04.28	52,5	35,7	146,9
2008.04.29	58,0	43,4	133,7
2008.04.30	59,0	37,8	156,3
Total per object	169,5	Avrg. 38,7	438,2
Total	169,5	Avrg. 38,7	438,2

Current Page No.: 1 Total Page No.: 1 Zoom Factor: 100%

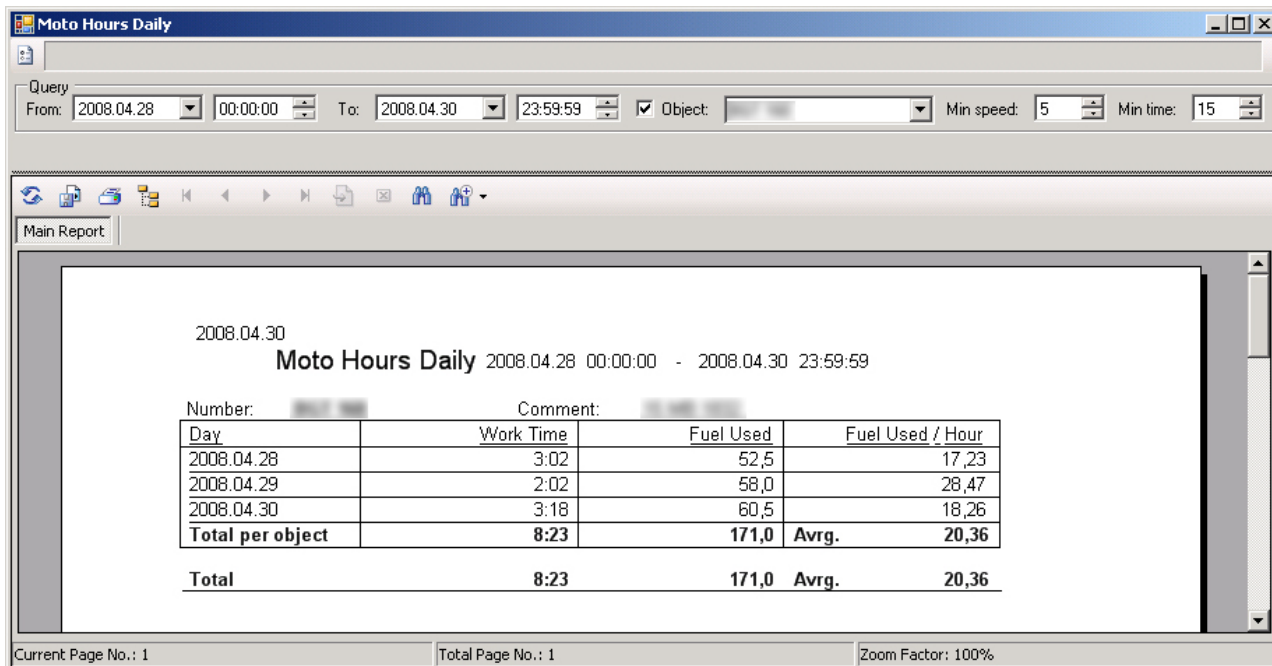
Driven Distance reports contain information about total track for define time interval. If fuel measurement is present for the vehicle, this data is used to calculate total fuel used and fuel rate for 100 km. Click settings to define distance calculation – distance can be calculated using CAN or GPS data, fuel source – CAN or fuel counters information and maximum fuel rate limit, which is displayed highlighted if exceeded.



Name	Value	Type	Description
Distance calculation source	1	enumeration	Possible values: 0 - no data; 1 - GPS data; 2 - distance data from can virtual intu...
Fuel source	2	enumeration	Possible values: 0 - no fuel data; 1 - fuel data from client data source Fuel Count...
Maximal fuel rate	40	l/100 km.	Fuel used for 100 km. greather than this value will be highlighted in report.

Reset OK Cancel Apply

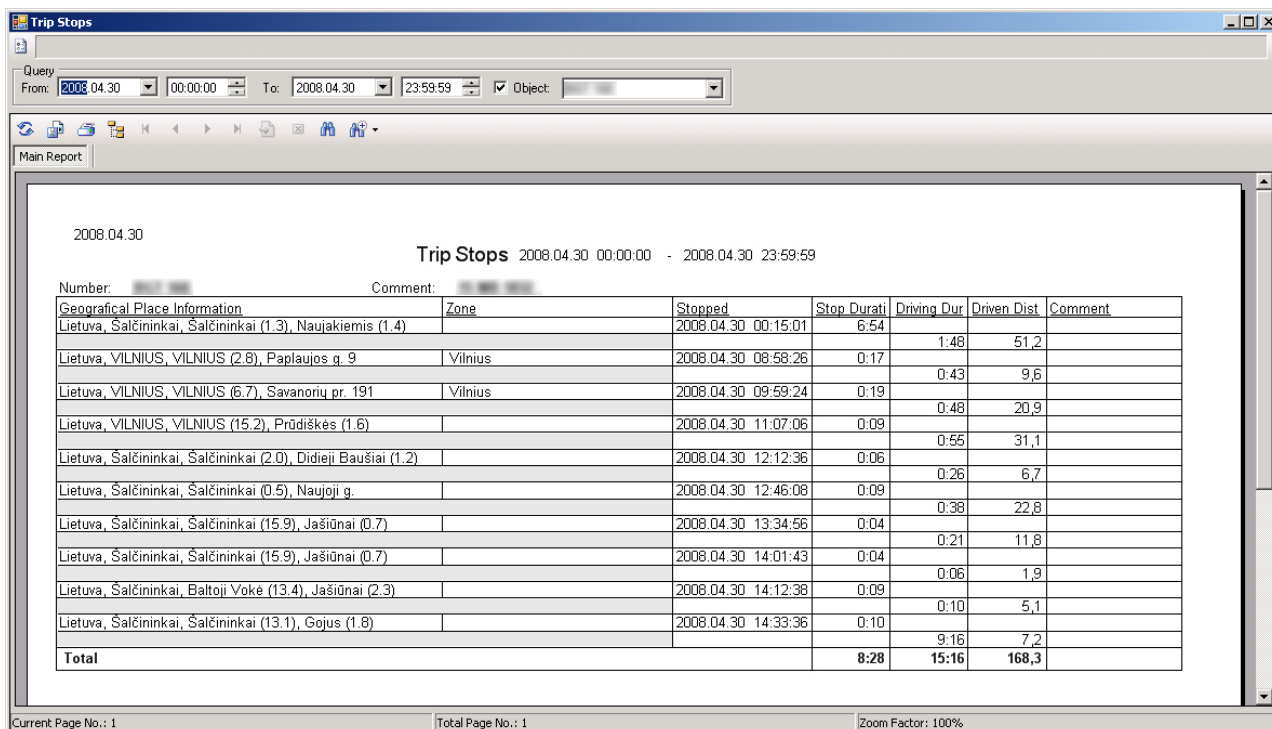
5.2 Moto Hours



Moto Hours report calculates total time spent while driving a vehicle. Work time is calculated when vehicle is moving at greater speed than the one defined in 'Min Speed' field. Additional settings can be made to define fuel source and timeout in case FM is configured not to send data frequently.

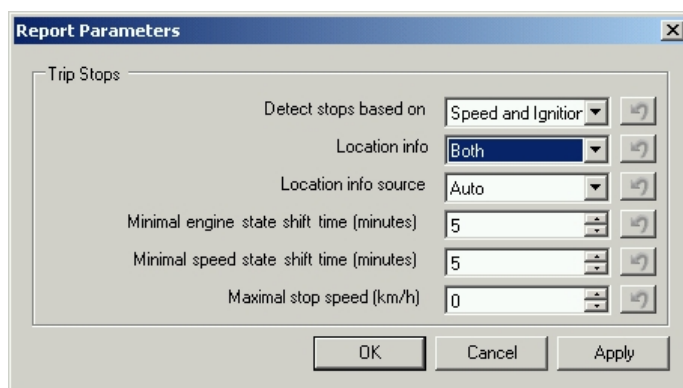
As alternative, Work Time Detailed reports provide same information more detailed.

5.3 Trip Stops



Trip Stops report is used to monitor when, where and for how long vehicle was idle. Settings include:

- 'Detect stops based on' – identifies when vehicle is considered as idle. Stops can be based on ignition (they have to be configured as 'Engine' data source) and/or speed.
- 'Location Info' – reports have ability to show the place where vehicle was idle – either locations from server database and/or location titles used in GeoFence settings.
- 'Location Info Source' – selects between available databases on server.
- 'State shift timeout' – these two fields define time intervals to check for ignition or speed changes. If value has not changed for the period of time, vehicle is considered as idle.
- 'Minimum Stop Speed' – a speed value which identifies vehicle as idle, if it not exceeded.



The screenshot shows a 'Report Parameters' dialog box with a 'Trip Stops' tab. It contains the following settings:

- Detect stops based on: Speed and Ignition
- Location info: Both
- Location info source: Auto
- Minimal engine state shift time (minutes): 5
- Minimal speed state shift time (minutes): 5
- Maximal stop speed (km/h): 0

At the bottom are buttons for OK, Cancel, and Apply.

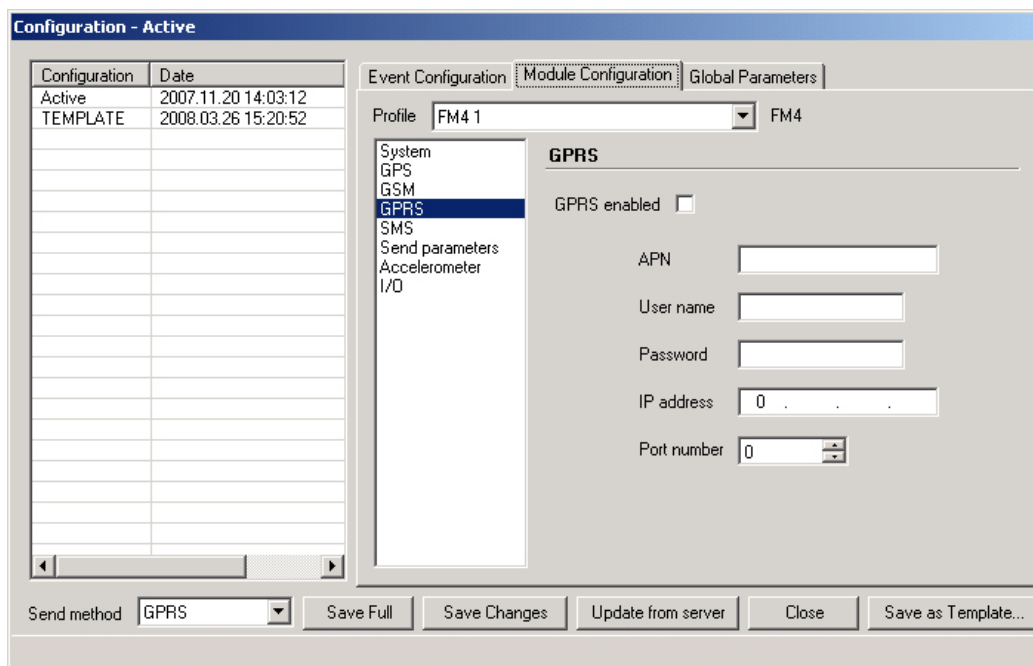
6. Configuration

6.1 Module Configuration

TAVL application has an interface for remote FM configuration via GPRS. Note, that current SMS username and password for FM device must match those entered in database, else all configuration attempts will result in failure. Remote configuration can also be done by sending simple text SMS to the module with special commands (see FM4 user manual for more details). In the object list right-click on the object and choose 'Configuration'.

Configuration interface has a list of available configurations for module. These can be:

- 'Active' – currently available configuration. Note, that when new object is added, server does not receive configuration from FM device and all fields are left blank. 'Active' configuration will show currently used values only when FM device is configured with TAVL application.
- 'Template' – this is a template configuration. 'Template' settings are not stored in FM device, but on server. A selected configuration can be saved as template for one or more modules.
- 'New' – new configuration is displayed when new settings are about to be sent to the device.
- 'Synchronizing' – a configuration that is queued for update. When saving new settings (configuration), new configuration is renamed to 'Synchronizing' until process is successful or time-out expires. If configuration is successful, then 'Synchronizing' is renamed to 'Active' and new date can be seen indicating when it was became available. If configuration is not successful, 'Synchronizing' is renamed to 'Failure'.
- 'Failure' – last unsuccessful configuration.



Configuration	Date
Active	2007.11.20 14:03:12
TEMPLATE	2008.03.26 15:20:52

Event Configuration

Module Configuration

Global Parameters

Profile

FM4 1

System

GPS

GSM

GPRS

SMS

Send parameters

Accelerometer

I/O

GPRS

GPRS enabled ☐

APN

User name

Password

IP address

Port number

Send method

GPRS

Save Full

Save Changes

Update from server

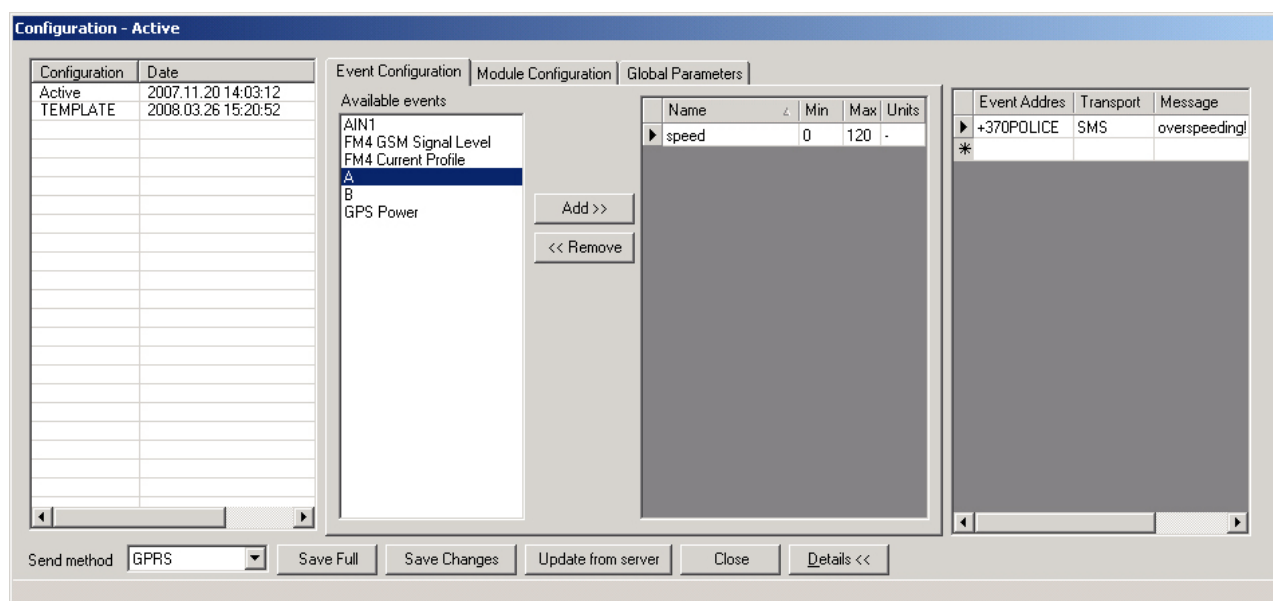
Close

Save as Template...

Another window has 'Event Configuration', 'Module Configuration' and 'Global Parameters'. 'Module Configuration' and 'Global Parameters' have same interface as FM4/FM2 configurator and is described in FM4/FM2 User Manual. Note, that TAVL application interface only allows configuring those IO elements that are enabled in database.

'Send Method' field identifies how configuration should be sent to FM4/FM2 – by GPRS, binary SMS or both. 'Save Full' button saves selected configuration as 'New' and renames it to 'Synchronizing' when server tries to contact module. 'Save Changes' only saves new changes since last active configuration, but have in mind, that first configuration for module always has to be saved using 'Save Full' option. 'Update From Server' refreshes available configurations list. It does not read current configuration from module, only refreshes status of all available configurations. 'Save as Template' saves currently selected configuration as template for one or more objects.

6.2 Event configuration



Configuration	Date
Active	2007.11.20 14:03:12
TEMPLATE	2008.03.26 15:20:52

Event Configuration

Module Configuration

Global Parameters

Available events

AIN1

FM4 GSM Signal Level

FM4 Current Profile

A

B

GPS Power

Add >>

<< Remove

Name	Min	Max	Units
speed	0	120	-

Event Address	Transport	Message
+370POLICE	SMS	overspeeding!

Send method

GPRS

Save Full

Save Changes

Update from server

Close

Details <<

'Event Configuration' menu allows configuring events for IO elements. In the picture a sample is shown how to configure over-speeding event that will send SMS to defined recipient.

Choose an IO element from available in 'Available Events' window (more can be added by enabling IO elements in database) and click 'Add'. Enter minimum and maximum values in the fields 'Min' and 'Max'. When current value of IO elements drops below or raises above defined range, a message will be sent to the recipient entered in 'Event Address' field

7. Localization

TAVL language localization tool is used to build localized (translated) version of TAVL application.

7.1 System Requirements

Download and install .NET Framework SDK v2.0 from:

<http://www.microsoft.com/downloads/thankyou.aspx?familyId=FE6F2099-B7B4-4F47-A244-C96D69C35DEC&displayLang=en>

Download Zeta Resource Editor from:

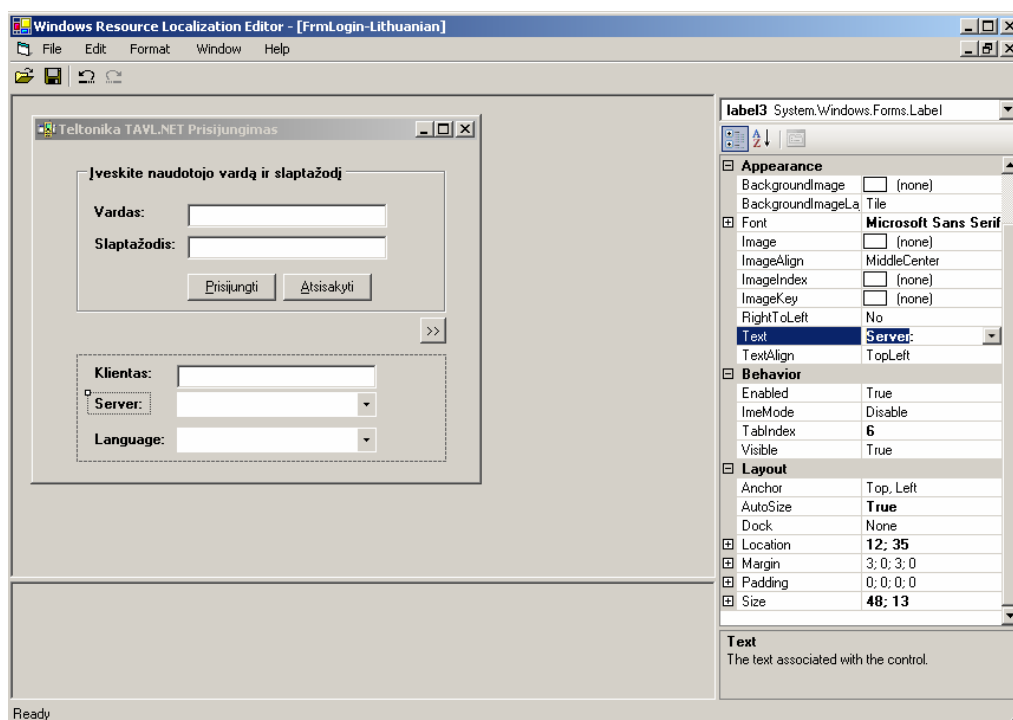
<http://213.226.139.30/Downloads/tavl/Tavl%5FClient/Local/ZetaResourceEditorEx.zip>

Download localization resources from:

<http://213.226.139.30/Downloads/tavl/Tavl%5FClient/Local/Localization.zip>

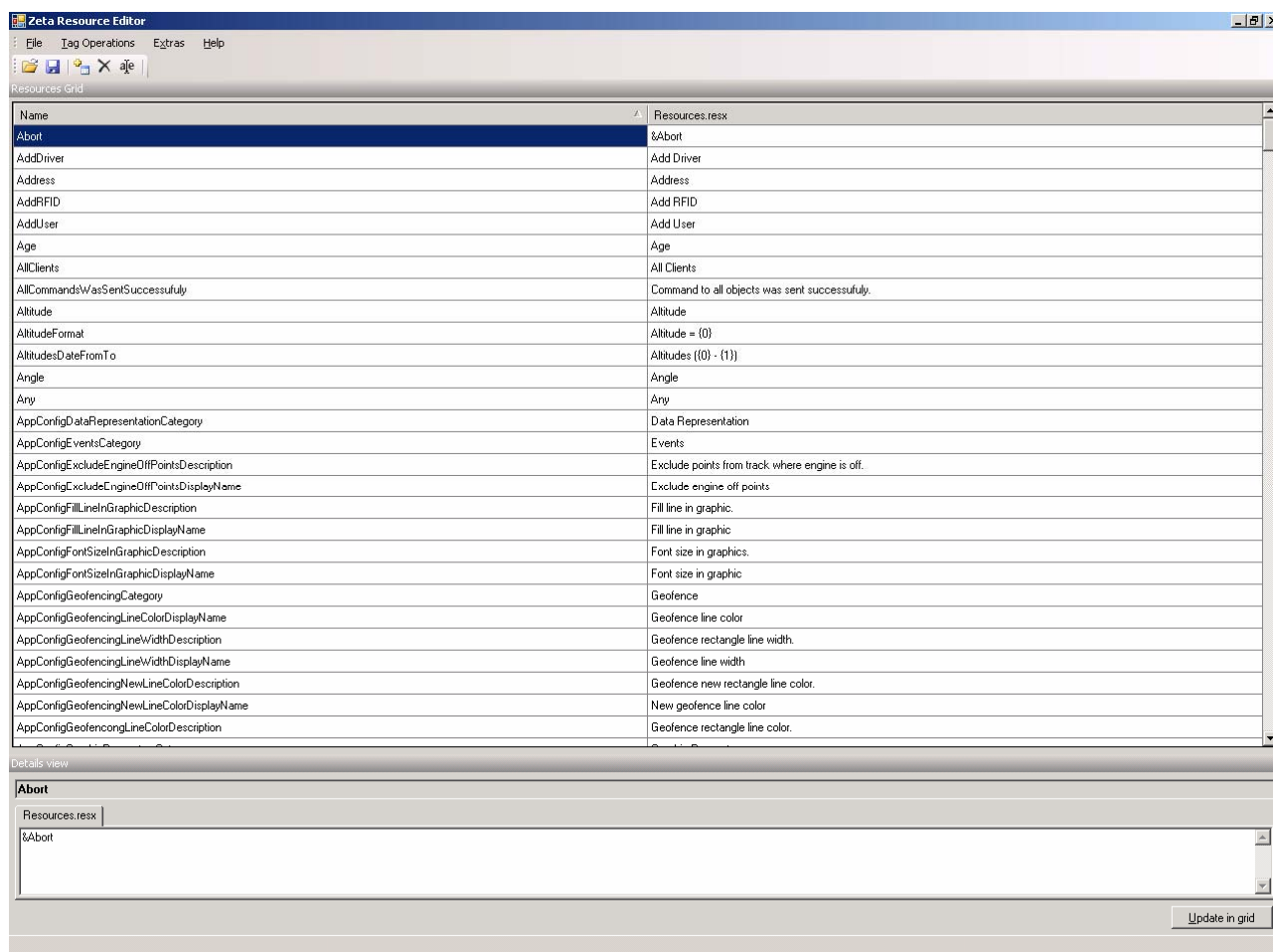
7.2 Modifying Files

Extract Localization.zip and launch WinRes.exe from 'Start' – 'Programs' – 'Microsoft .NET Framework SDK v2.0' – 'Tools' – 'Windows Resource Localization Editor'. Open and modify the .resx files in your folder. If text is too long, nearby fields can be adjusted or moved so it would fit.



Modified files must be saved in form <Original Filename>.<Culture Name>.resx in the same folder (i.e. FrmLogin.resx → FrmLogin.lt.resx) simply by clicking 'Save As...' and choosing your language. Do not change original file name.

Some files do not contain material that is displayable in the tables and can not be edited with Windows Resource Localization Editor. An error "**Error - InvalidDialogMissingName** Valid dialog or user control resource files must be generated by the Visual Studio Form Designer and the Localizable property of the Form must be set to 'true'." is displayed in the window. In such cases, these files have to be edited with Zeta Resource Editor. Open the table – on the right column a list of names available in TAVL application is displayed.



Rename only text in this column and leave brackets and number as they are – changing these values might cause errors in application. Rename necessary fields and save the changes. Later rename the file so it has correct extension (i.e. lt.resx).

7.3 Compiling TAVL Application

After changes were made, TAVL application must be compiled. Run cmd.exe ("Start" - "Run" write "cmd" in the field, press "OK") and go to your localization folder (C:\Documents and Settings\<your user>\Desktop\Localization).

To move between directories in cmd use command "cd":

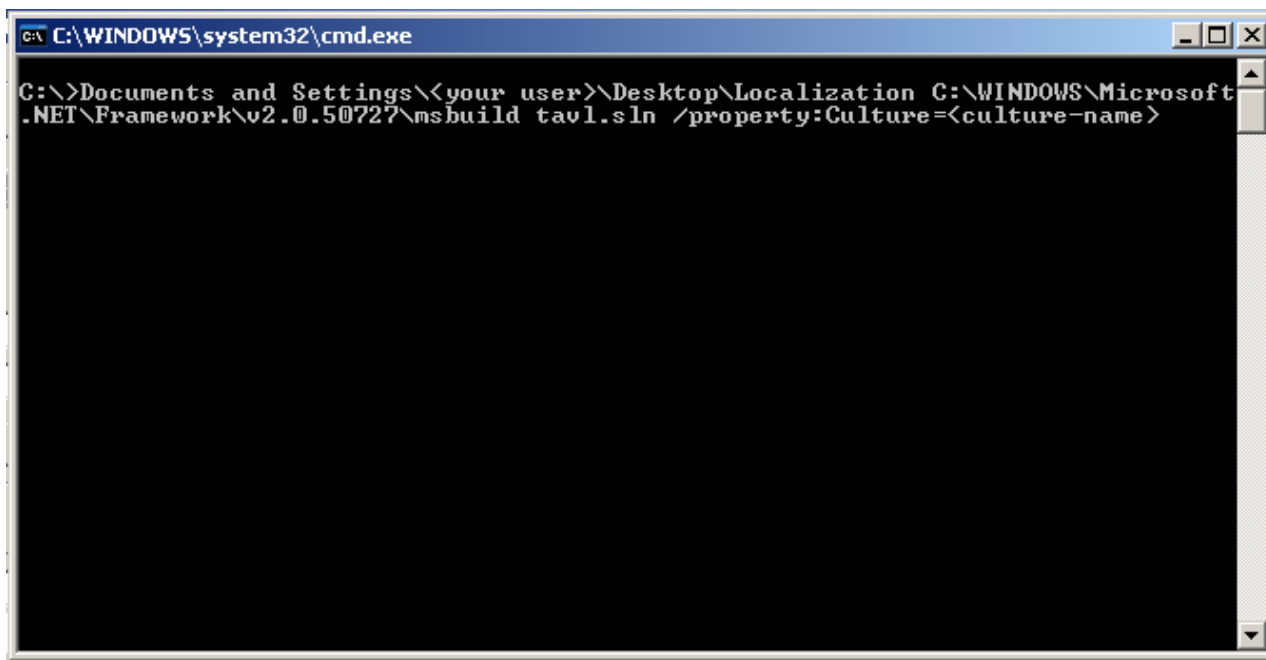
- cd <exact destination> - to move to directory you want.
- cd.. – move one directory back

Next element to type is exact path to your “msbuild.exe” file (C:\WINDOWS\Microsoft.NET\Framework\v2.0.50727\msbuild).

After this you can build solution (builds all projects) or single project.

- To build solution type:
tavl.sln /property:Culture=<culture-name>
e.g.: msbuild tavl.sln /property:Culture=lt
- To build single project type:
<projectName.csproj> /property:Culture=<culture-name>

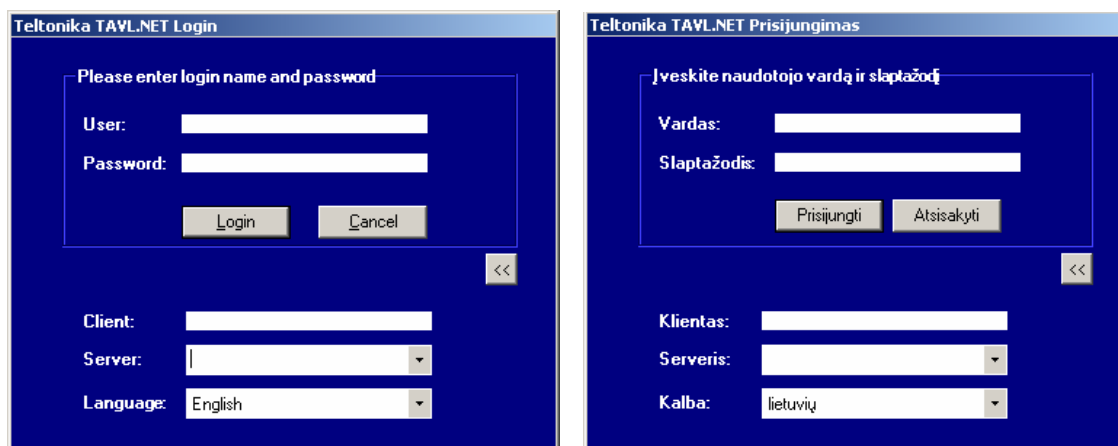
Final command line should look like this:



Note: if you get any errors about missing files during compilation process, launch WinRes.exe again and create missing files.

Copy new satellite assembly files (*.resources.dll) from bin folder to TAVL application folder. Copy entire folder with name corresponding to your language (in this case – folder “lt”) from the directory C:\Documents and settings\<your user>\Desktop\ Localization\tavl\bin\Debug and paste it to TAVL application folder.

Next time when you run the TAVL application, you will be able to set new language.



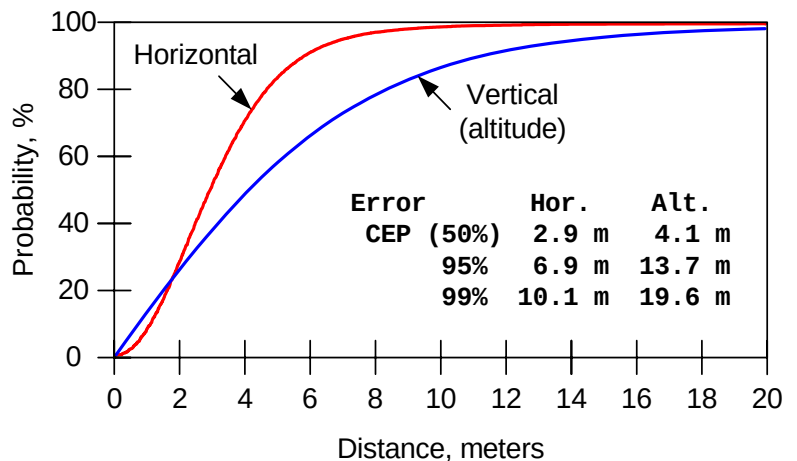
8. Frequently asked questions (FAQ)

1. Why doesn't objects trail match roads that are shown in the map? What is the accuracy of GPS?

Object trail doesn't coincide with roads shown in the maps because of GPS limited accuracy. GPS accuracy depends on location (geographic latitude, longitude), satellites' location and ionosphere's conditions. In perfect conditions (sunny weather, no clouds, in open area, without skyscrapers, woods) accuracy can be about 3 – 5 meters.

Usually accuracy is estimated using statistical method CEP (Circle of Equal Probability). This method allows us to consider, that in probability of 50%, object's coordinates' error does not exceed designated values.

Otherwise, roads in the map not always are defined very precisely (especially considering Eastern Europe). Another possibility is that new roads don't exist in the map.



2. Why do data transfers from server to application take so long?

Duration of data transfers from server to user application depends on amount of data and speed of Internet connectivity. While object registers many parameters very often grows data quantity. Then transfer time for long requested period of time could be very long. So if you want to increase data transfer time you should decrease requested data time period.

One more way to decrease data transfer time is to decrease frequency of object's parameters data (time T_1 should be not 1 minute but 2 – 3 minutes).

3. Why it is impossible to request current object position?

In most cases you are unable to receive information about current object's location, because it is out of GSM coverage (is in the sea, in deep woods, etc.)

4. It's one or two hours since module sent its data. Why is it not refreshed?

Module is sending data to the server at fixed time. If the connection is not possible (there is no GPRS context), the next sending will be at fixed time. Still You can send the request, and get the latest data. Also profile may define data acquirement less often (i.e. every 10 minutes when object is not moving) and setting allow only full packet sending.

5. Why only yesterdays data is shown?

Either module didn't sent data because it's not time to do it or it couldn't send it because of network problems. Solution is to configure module so it sends data at desired time.

6. How can I know objects location if it is not sending data by GPRS?

You can send a request and get the SMS with 24 coordinates (see chapter 4.4.4).

7. Why is object changing its coordinates even when engine is off?

It is because of GPS accuracy. If object is standing between tall buildings or in from of the wall, module doesn't see enough satellites to set its exact coordinates. Then each coordinate is calculated with a slight error. Error depends on number of visible satellites. If object is standing between tall buildings or in front of a wall it may not be enough for module to set its position correctly.

8. I'm receiving incorrect time – it's always same interval ahead or behind current time.

This is happening because of incorrect timezone settings on PC. Please choose matching timezone in windows regional settings.

9. Changes Logsheet

Nr.	Date	New version number	Comments
1	080625	3.1	Localization description revised