Mimer **ıllı** SoftRadio

Connecting radios all over the world

How to setup

Mimer MapView

Server and Client software

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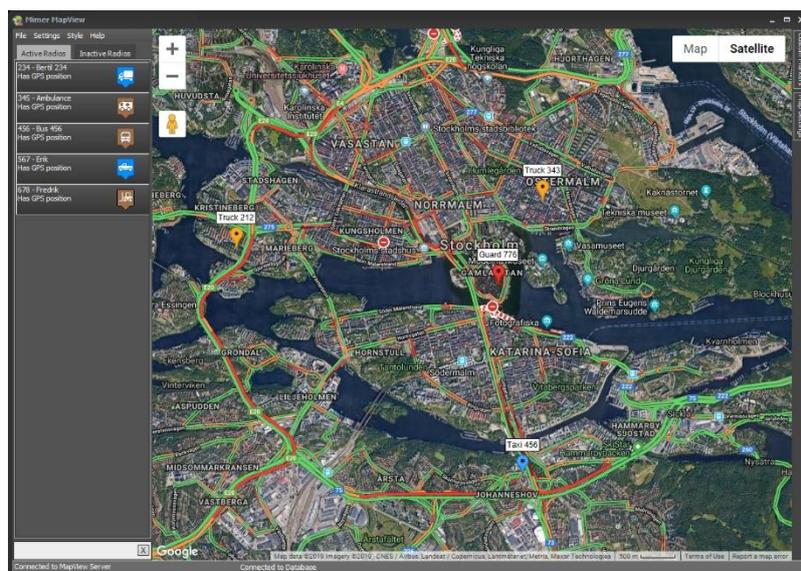
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This guide will help with the setup of your Mimer MapView system.
Mimer MapView consists of two separate programs:

- Mimer MapView Server
- Mimer MapView (Client)

This document describes installation and set-up of both these programs. Please also refer to the Mimer MapView Client Users Guide, to the Mimer SoftRadio setup manual and to the web page www.lse.se.

The SoftRadio FAQ also has a section for MapView: www.lse.se/faq

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1   General

Mimer MapView is a component in the Mimer family of products for network operated 2-way radios.

Together with the **Mimer MapView Server** it presents the position of GPS equipped radios using Google Maps or OpenStreetMap.
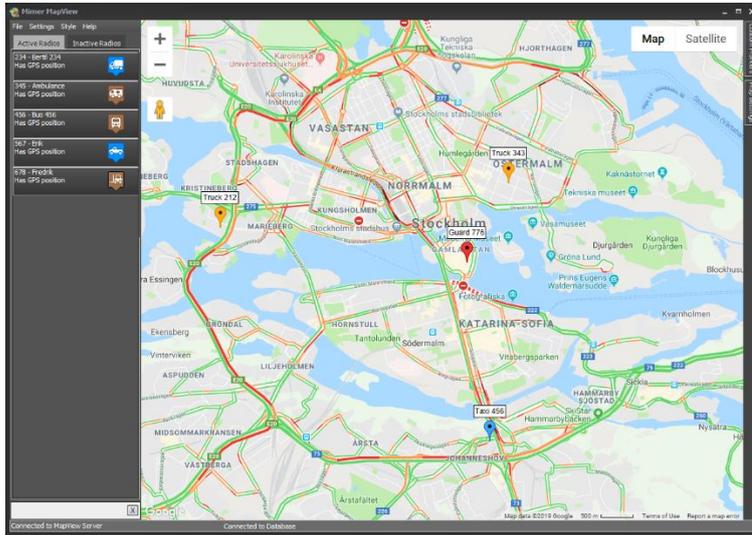
Example of a MapView window

1.1   Mimer MapView Server

The MapView Server is typically installed on a separate Server Computer together with the Database Engine.

However, it can also run on the Client computer. In this case there is a limitation to how the connection to the position source radio can be made: Please see the chapter about position sources.

The MapView Server maintains a database of all radios in the system and their last reported positions and states.

1.2   Mimer MapView

The MapView Client program has a GUI where the radios are shown in a list and the positions of them are displayed on a map.

The MapView Client is designed to run together with Mimer SoftRadio so that a call in SoftRadio can automatically be initiated by clicking on a radio in MapView.

2 MapView Server installation

2.1 Needed for the setup
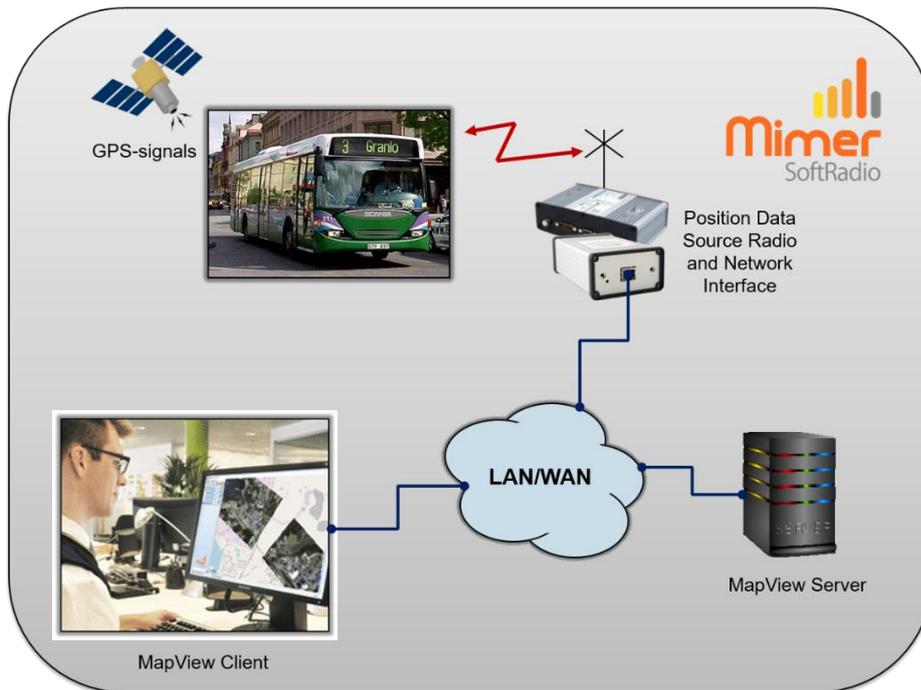
Typical setup of MapView system with one radio and one operator

2.1.1 Server PC

The server software is preferably installed on a separate server computer, but can also run on the same operator PC where the MapView Client is running.

The server shall run either Windows 10, or Windows server 2012 or higher.

2.1.2 Client PC(s)

One or more operators can connect to the server and display the same information.

The client PC shall run Windows 10.

2.1.3 Radio(s) for collecting position data

MapView Server creates a connection to one or more radios that are used as position sources to receive position data from remote portable or mobile radios.

This is mostly a separate radio only used as position source, but it can also be one of the radios used for voice communication in the Mimer SoftRadio system. However, beware that depending on the system, a radio may not be able to receive position data and/or emergency alarms at the same time as it is handling voice communication.

2.1.4 Mimer SoftRadio system

In order for the operator to be able to make private calls and send text messages directly from the MapView client to the mobile and portable radios the client needs to be connected to a standard Mimer SoftRadio system with at least one radio of the same type as the ones used for MapView.

Mimer SoftRadio needs to be version 3.3.18.0 or higher for interaction with MapView.

2.2 Installation

Install the MapView Server software package from the delivered installation media. The set-up will install the MapView Server and a MariaDB Database server that stores the radio information.

Follow the instructions during the install. When prompted choose "Full installation with MySQL Database".

We use MariaDB that is free and fully compatible with MySQL.
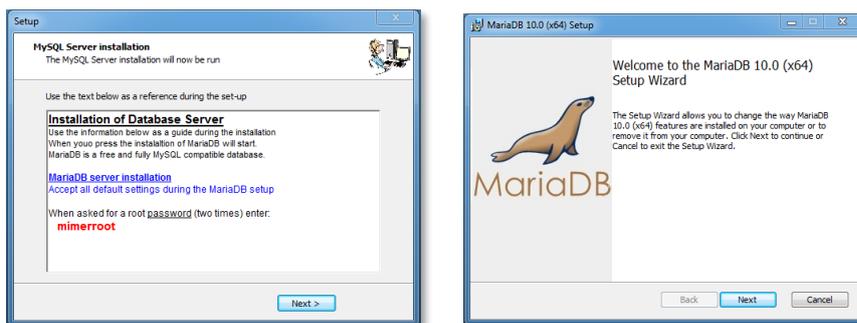
Pictures from the data base installation

2.3 Autostart

The database will install itself as a service on the server. Therefore, it will autostart in the background as soon as the server is running without the need for a login.

We recommend that the MapView Server software is placed in the autostart/startup folder so that it also starts up automatic when the server is rebooted.

We also recommend that the whole server is set up for automatic booting if there has been a power failure and it has been restored. This is usually a BIOS setting in the machine.

3 MapView Position Sources

Under the menu Position Sources you will find two selections.
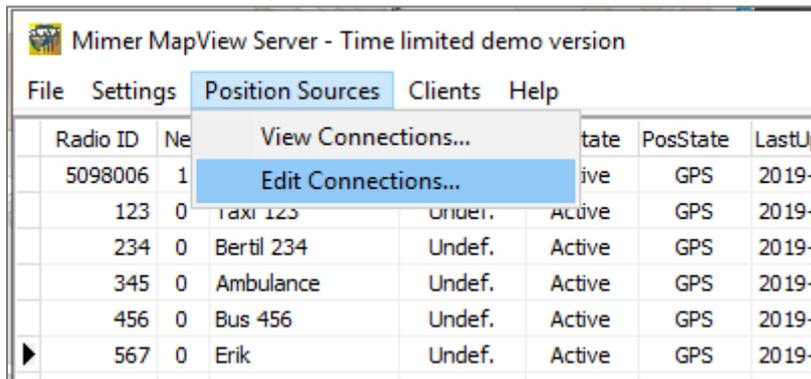
3.1 Edit Connections

MapView Server uses one or more connections to radios acting as Position Data Sources.

In the example below two different sources are defined.
The connection type can be set to "Local UDP" or to "TCP".

IMPORTANT !!!
If the MapView Server is running on a computer where a Mimer SoftRadio client is also running, only TCP should be used. If you select "Local UDP" in this case it is likely that there will be malfunctions because several applications cannot safely listen to the same UDP Port in Windows.
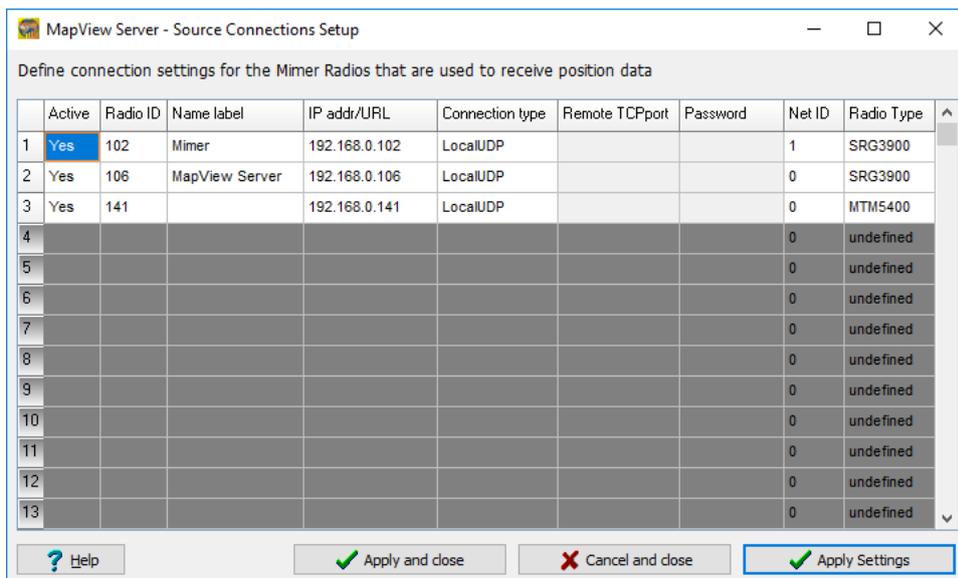
MapView Server – Source Connections Setup

In "Source Connections Setup" you can add one or more sources. These settings are very similar to the connection settings in the Mimer SoftRadio Client.

The additions are "Net ID" and "Radio Type".

Net ID:

Net ID defines the Radio Net for this Position Data Source Radio.

Se the chapter "6 - The NetID" below, for more information about Net ID´s.

In many cases you only have one radio net, and then this parameter is of no importance.

Radio Type:

For certain commands in future releases of MapView it will be important to know the type and manufacturer of the radio used as a Position Source. In the current release this value is not used and may be set to "undefined".

3.2   View Connections

The active sources can be shown by selecting the menu item "Position Sources…" and then "View Connections"
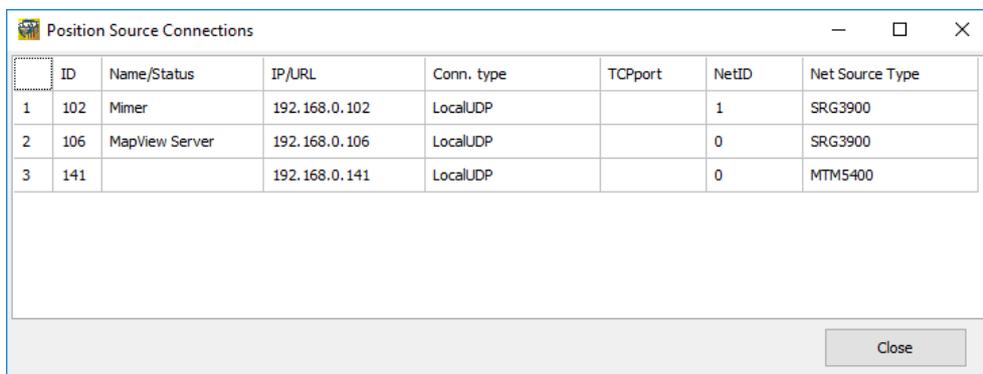
	ID	Name/Status	IP/URL	Conn. type	TCPport	NetID	Net Source Type
1	102	Mimer	192.168.0.102	LocalUDP		1	SRG3900
2	106	MapView Server	192.168.0.106	LocalUDP		0	SRG3900
3	141		192.168.0.141	LocalUDP		0	MTM5400

Example showing three Position Data Source Radios connected to the server.

3.3   Network Interface

The Network Interface that is connected to the Position Data Source Radio is set up using the program "Mimer Interface Setup" that comes with the standard SoftRadio system.

Read more in the SoftRadio setup manual.

4 MapView Server Settings

Under the Settings menu you will find three selections.
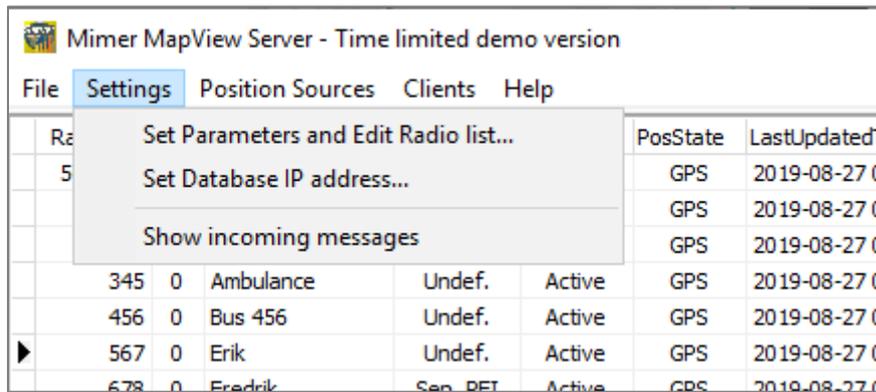
4.1 Set Parameters and Edit Radio list

The first selection opens a window with several tabs accessing different settings pages.

4.1.1 Tab: General parameters

Settings that affects the whole system.
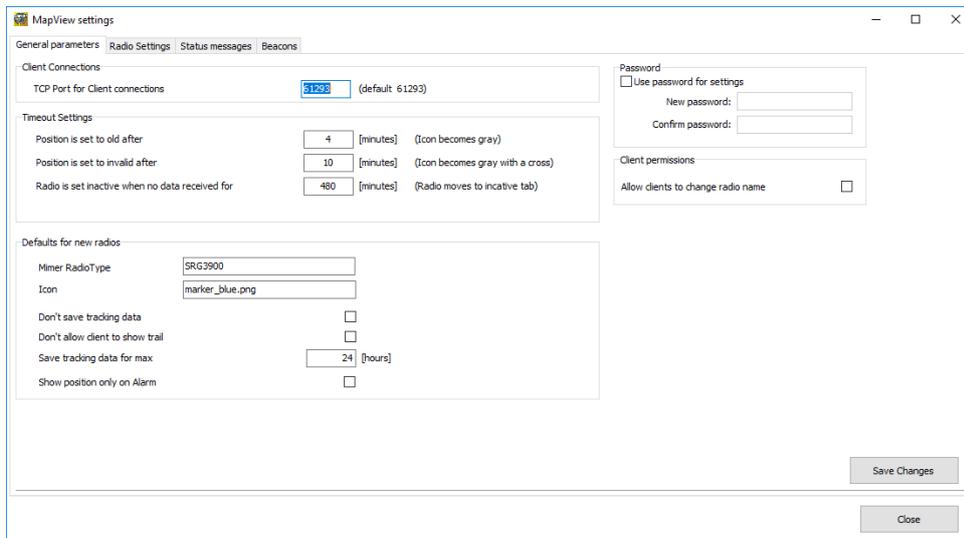
General Parameter's settings page

Client Connections

TCP Port for Connections:
The MapView Clients connect to the server in order to get notifications about updated data, etc. This connection will be done to the TCP port in the server that is entered here. Use the default value unless you have a very specific reason to change it.

Timeout Settings

There are three timeout setting that will affect the state of the radios.

Position is set to old after:
If no position messages are received for this amount of time or messages are received but the GPS receiver in the radio has no satellite connections the Position will be indicated as Old, and the Icon will be changed to a grey colour.

Position is set to invalid after:
If no position messages are received for this amount of time or messages are received but the GPS receiver in the radio has no satellite connections the Position will be set as invalid and the Icon will be changed to a grey colour with a cross over. The position of the radio will no longer be displayed on the map. The radio will still be active and remain in the list of active radios until the time limit for "Radio is set inactive" is reached.

Radio is set inactive after…:
If no data is received from a radio for a long time it will be set as inactive. This means it will be listed on the "Inactive Radios" tab in MapView and it will not be shown on the map. The timeout until this happens is set here.

Defaults for new radios

The server maintains a list of all defined radios. If a position message is received from a radio that is not previously defined it will automatically be added to the radio-list.

When a radio is automatically added a set of default values will be used. The defaults are also used when a new radio is manually added. The default values listed below are stored for each radio. This makes it possible to later change them individually for each listed radio.

Mimer Radio Type:
This parameter is used to tell MapView what type of radio in the Mimer SoftRadio Client that will be used for making private calls and sending text messages when clicking on a radio in the map.

Icon:

The name of the default Icon for a new radio is defined here. Clicking on the field will show a list of available icons.

Don´t save tracking data:

Position history can be stored in MapView. This allows display of a trail on the map up to the current position or to display a track between two selectable points of time in the past.

If these features are not desired, storing position history can be turned off here. (Saves space in the data base)

Don't allow client to show trail:

It may be desirable to not allow the operator to display a trail for a radio, even if position history is stored. This is controlled by this parameter.

Since the track is stored on the server (unless "Don´t save track data" is clicked), if for example, an accident happens, tracks of past positions can still be retrieved by an administrator.

Save tracking data for max:

If position history is stored, you can set a maximum time in hours that the data is saved.

Show position only on Alarm:

If this parameter is checked, the position of a radio will not be shown on the map except if an alarm is received from the radio.

Password

Here you can activate and deactivate a password of your choice. All settings in the server will be blocked without the correct password.

Client Permissions

The function that allows the clients to change a radios name in the database can be allowed/disallowed here.

4.1.2 Tab: Radio Settings

Information about the registered radios in the radio list can be edited under the tab "Radio Settings".

New Radios can be manually added and existing ones can be deleted from the list. Note that if a position message arrives from a radio that is not defined in the list, it will be automatically added.

The most important information to edit here is the "Radio Name".
An automatically added radio will get a name beginning with the word "Radio" followed by the radios identity number (ISSI) (without the leading zeroes). However you may, for example, want to change that to the name of the person using the radio or another more explaining name.
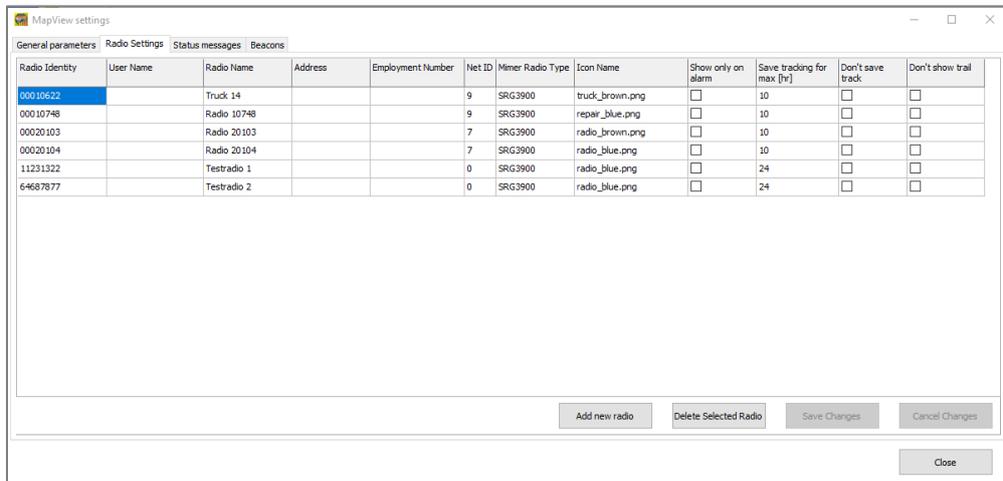
Thera are also fields named "User Name", "Address" and "Employment Number". They are not used in the MapView system at the moment, but might be a help if the database of radios becomes very large.

The Icon used on the map for each radio is most likely something that should be set up by category so that it is easy to see the difference between a car, a truck, a service man etc. when you look at the map.

4.1.3   Status Messages

Different types of status messages can be received and handled by the MapView system. The most common being emergency alarm.
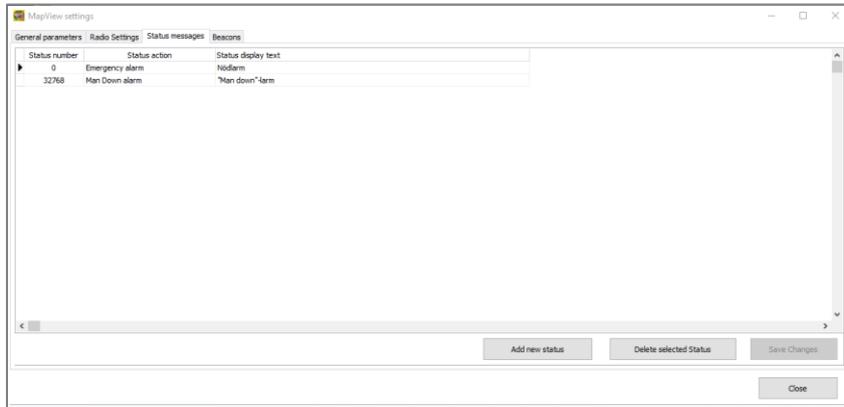
The definition of these status messages is done here with:

Status number:
> This is the status number used in the radio network.

Status action:
> This defines the action taken by the server when receiving the status number.

Status display text:
> This is the text displayed to the operator of the MapView Client when the status message has been received.

4.2   Set Database IP address

Selecting this menu item opens a window as shown below.

The settings are pre-configured for use of the database on the same PC as the MapView software. You will most likely not need to change it unless you host the database on a different computer.
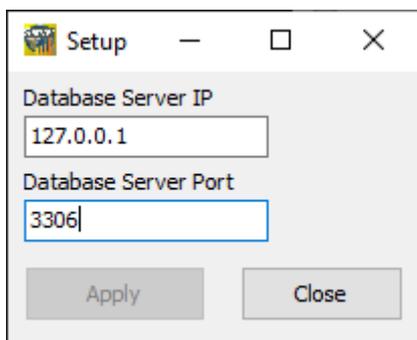
Database Setup dialogue in MapView Server

5   Connected Clients

As a help a list of the IP addresses of the clients that are currently connected to the server can be viewed by clicking "Clients" and then "Show connected clients" in the menu bar.
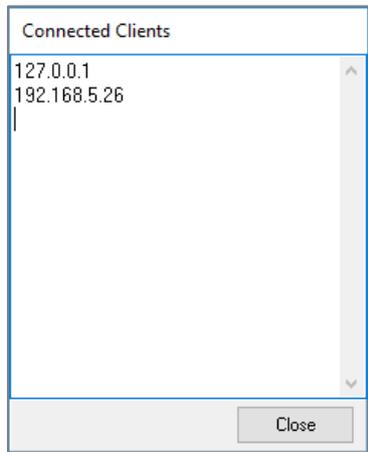
Two connected clients

6   The NetID

6.1   What is NetID?

The MapView Server can be set up to receive GPS information through more than one position source radio and from more than one Radio Net.

To separate the Radio Nets a NetID number is used. The different systems might be several DMR systems or several Tetra systems or a mix of both DMR and Tetra.

When a mobile or portable radio sends in its first position, the radio will be added to the data base with the NetID set up in MapView´s "Source Connection Setup". This NetID defines what Radio Net the radio belongs to and it is later used when an operator wants to make a call or send a text message to the radio.

- If you have several position source radios working in the same radio system, they shall have the same NetID in "Source Connection Setup".
- If you have several position source radios working on different radio systems, they shall have different NetID´s set up.

The NetID number associated with a radio in MapView is used when an operator right-clicks on a radio in the map and selects "Call Radio" or "Send Message to Radio".

When doing so, MapView will send a request to the SoftRadio Client and ask for a call to be made or a message to be sent.

If there are many different radios in SoftRadio, maybe in completely different radio systems, there must be a way to tell which of the Mimer radios to use for calling this particular person. This is where NetID is used.

If the Mimer SoftRadio client has only one radio, or any of the radios it has can be used for a call or a message, the NetID concept is not needed and the settings described below can be ignored.

6.2   Set up NetID in the Mimer SoftRadio clients

When an operator of MapView wants to make a private call or send a text message to a radio by using the functions in MapView, the same client also needs to have Mimer SoftRadio installed. The call or text will be handled by SoftRadio and routed through one of the radios that the Mimer SoftRadio client is attached to. In a small system this can be the same radio that is used as the Position Data Source.

If no particular settings are done the call will be routed to the Mimer Radio where the small red arrow in SoftRadio is pointing at. (The last used radio)

If the SoftRadio system has many radios it is more practical to set up the routing to work automatically. This is when the NetID comes in handy.

For the Mimer SoftRadio client the Radio net ID:s are set in "Advanced Settings" in "Mimer Connections Setup".

Read more in the SoftRadio setup manual.

6.3   NetID Example

Your MapView is set up to receive positions both from a Tetra net and from a DMR net. The Tetra net is given NetID 1 and the DMR net is given NetID 2 in the server source setup.

The operator that is using MapView is also running a SoftRadio client with six radios connected. Three Tetra radios that have ID numbers 101 to 103 in the Mimer SoftRadio system and three DMR radios that have ID numbers 113 to 115 in the Mimer SoftRadio system.

To be able to do private calls from the MapView client through the SoftRadio system, the Radio Net Defines are set up so that NET ID1 points at radio ID 101 and NET ID2 points at Radio ID 113 in the SoftRadio client.

Right clicking on a Tetra radio on the map and then "Call radio" will initiate a call on NetID 1 that is routed to Mimer Radio 101 in the SoftRadio system, and the call is sent to the Tetra radio.

In the same way, if you click on a DMR radio it is associated with NetID 2 and will initiate a call on Mimer Radio 113.

If you have several operators it will be practical that they use different Mimer Radios for these calls, to avoid that another operator already uses the automatically defined radio. So a second operator should route NetID 1 to Mimer Radio 102 and NetID 2 to Mimer Radio 114 in his SoftRadio setup. And so forth for other operators.

7   Option: ST-Protect

This is an option for the MapView Server that will enable positioning by fixed radio beacons, used where GPS positioning is not possible, for example under the ground.

Each beacon will give the radio a zone that it reports instead of the GPS position.

ST-Protect is an add-on in Sepura Tetra networks. The portable radios needs to have this option factory installed. And fixed beacons needs to be installed.

7.1   Software installation

Install the option "ST-Protect" after installing the MapView Server.

7.2   Setup

There shall now be a new tab under settings. Here you enter the ID numbers of the beacons and the Long/Lat where each of them is installed, along with a describing name for that beacon position.

Remember to enter the Long/Lat with a decimal point (.), not a comma (,).
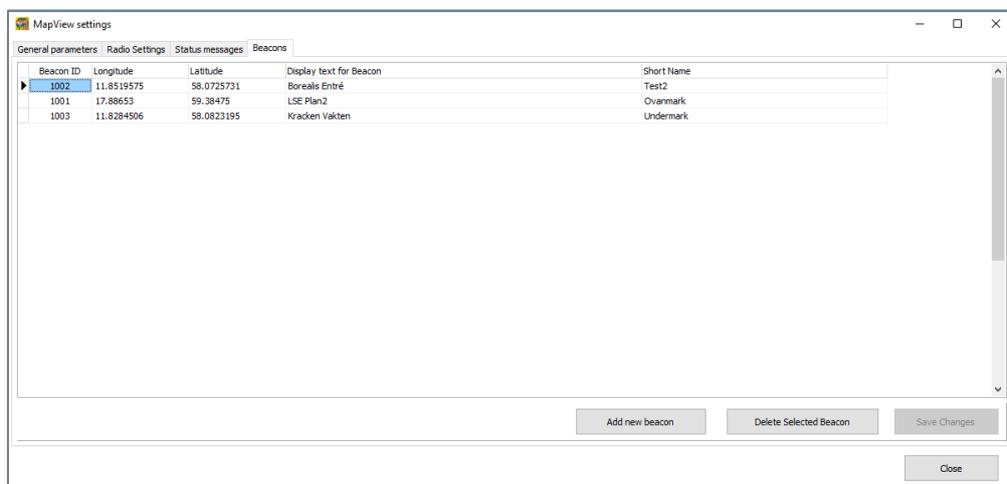
Set-up menu for the radio beacons

When a radio reports its position from such a location it will be displayed as "Beacon position" and with the text from the "Display text for Beacon", entered for that location.

The radio will be shown on the map at the position given for the beacon.

7.3   Set-up tips

Remember that if you have several beacons on different levels in a building or underground, they might have the same lat/long. You then need to separate them by giving them a display text that separates the levels. For example "Building 345, Storage, Level -4".

It is also recommended to give them slightly offset positions so the icons for radios on the map are not stacked exactly on top of each other.
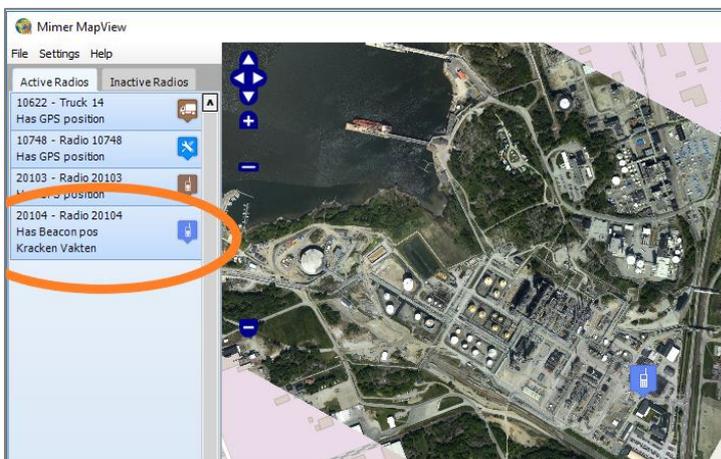
Example of radio with beacon position

8 Installing the Mimer MapView Client

8.1 Software installation

Install by running the delivered "Mimer MapView Setup" software on the client PC.

8.2 Connecting to the server

All settings are preconfigured for use of the MapView and Database on the same PC as the MapView client software. If this is your setup, you will not need to change anything.
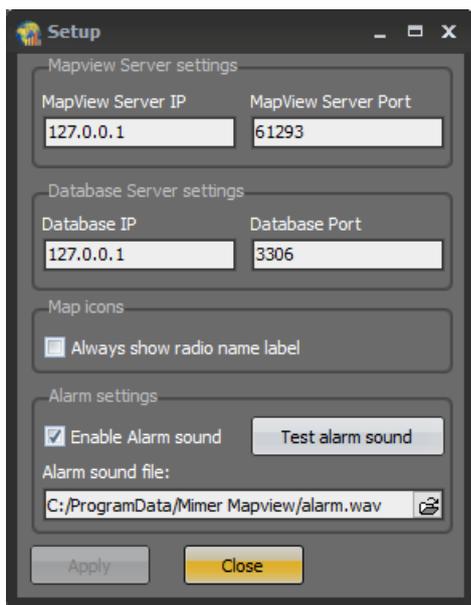
Setup window of the MapView client

If the MapView server is installed on another machine, you will need to enter the IP of that machine for both the server and the database.

8.3 Alarms

8.3.1 Alarm Settings

On the setup window there are also functions related to the alarm sound used when receiving an emergency call.

- Enable Alarm sound on/off
- "Test Alarm sound": The alarm sounds as long as you press the button.
- "Alarm sound file": Sets the file name and the path to the sound file. Shown above is the default file.

8.3.2   Test the alarm

In the right click menu of a radio there is a selection for "Test Alarm". This will set the selected radio to "Alarm state" in the MapView server and all clients will get the alarm.

The alarm shall result in both audio (if set above), red marking of the text, an alarm icon on the map and pan/zoom of the icon to the centre of the map.

To stop the audio, click anywhere. The audio shall stop on all clients.

To reset the alarm state, right click and select "Reset Alarm state". The alarm will then be reset in the server and therefor also on all clients.

9   Installing Custom maps

MapView basically uses internet to fetch map data, but can also use local map files.

The two most popular online map services today are Google Maps and OpenStreetMap. MapView can use both of these and they produce rather similar results for pure street maps, but with slightly different designs of the maps. Google Maps can also show extra information like satellite pictures and a couple of other things like traffic information etc.

When MapView is set to use OpenStreetMap it is also possible to use off-line maps that can be displayed even if no internet connection is available. These maps are simply picture files that are manually calibrated to the world coordinates used by the map engine.

This is useful if the MapView client needs to be run offline and/or when more detail is needed than the online maps can give, for example for an industrial plant.

9.1.1   Adding a custom map

Load the map to use into the directory: C:\Users\Public\Documents\Mimer MapView\Maps (you can also store it in another folder)

The map shall preferably be in .png-format.

Open the Manage Map Images window.
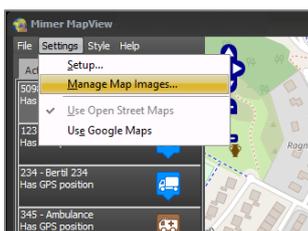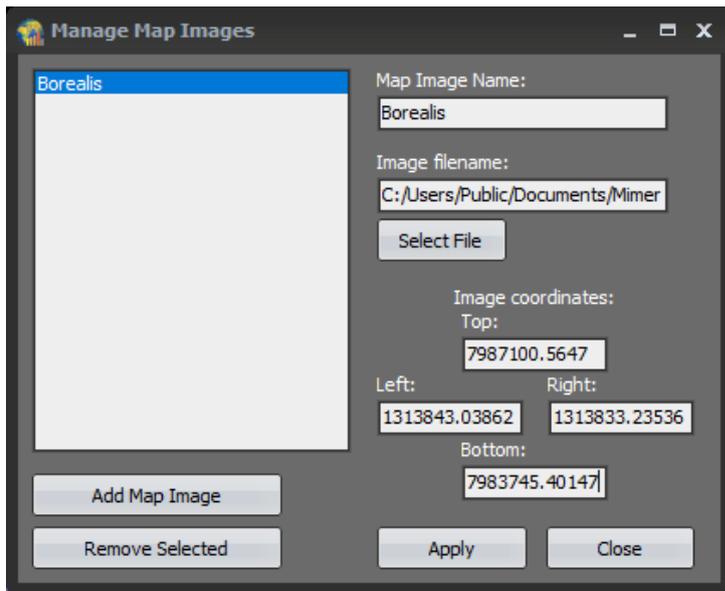
Manage Map Images window

Click the button "Add Map Image".

Give the map image a name and then navigate to where it is saved and select the map file. Then enter the coordinates.

The coordinates used by the map engine "OpenLayers" that we use for the maps from OpenStreetMap, are in X/Y pixels. Finding these for a map requires several steps where the picture coordinate system and the used projection are inputs to a conversion process. LS Elektronik can assist you with this. There are also forums and free tools on the internet that can be helpful to the calibration process.

If it is not positioned exactly the first time you can go back and fine tune the decimals on the coordinates until you see that it fits into the background map from OpenStreetMap.

You can load as many maps in this way as you like.

When done, press Apply.

If you need the same setup of maps in several MapView clients, you can copy and paste the MapImages.json-file from the: C:\Users\Public\Documents\Mimer MapView -folder from one PC to the other.

10 Using Mimer MapView

Learn more in the Mimer MapView Users guide.

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