SmartPTT Plus

User Guide

Version 8.4

elcomplus

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Introduction

SmartPTT is a software package designed to manage dispatch communication between linear-extended and geographically-distributed objects where it is necessary to facilitate voice and data transmission between remote control stations of the radio network.

SmartPTT implements all benefits of the MOTOTRBO digital platform.

SmartPTT architecture manages subscriber networks of any size and topology, using both digital functions of MOTOTRBO radio stations and analog mode to facilitate a gradual upgrade to the new radio communication standard. It is also possible to use a "mixed" mode when some sites operate in the analog mode and others in the digital mode.

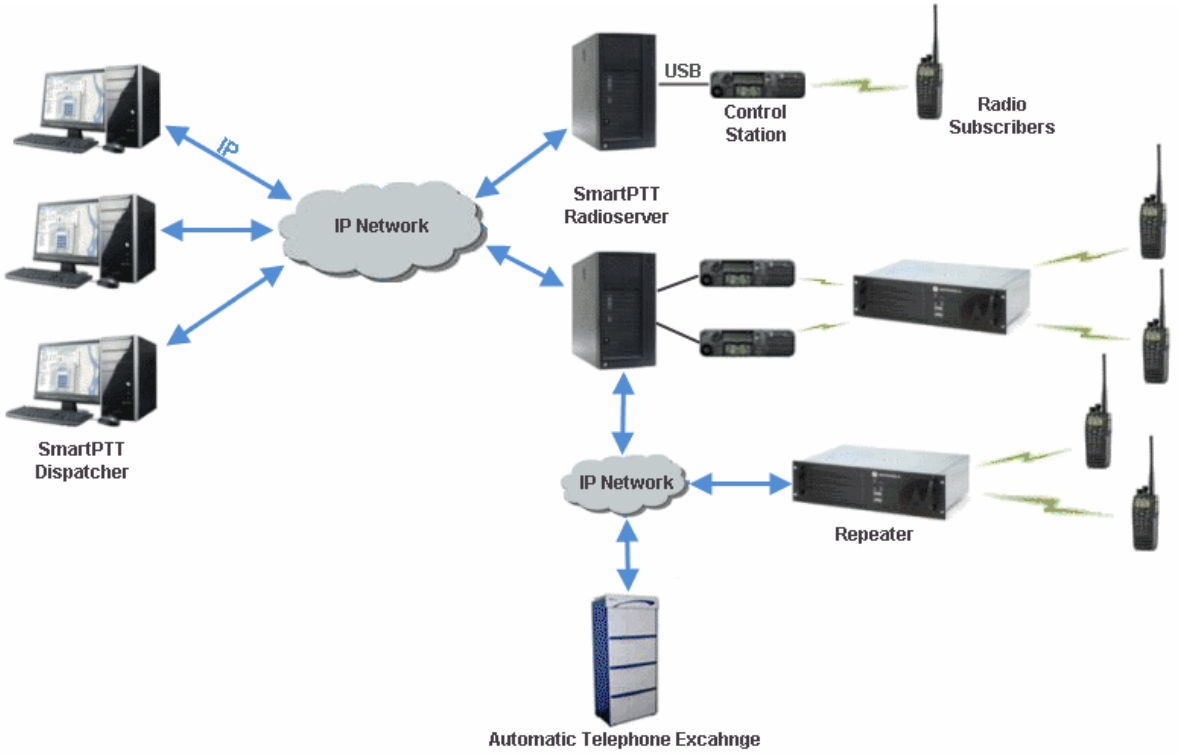
SmartPTT architecture consists of three segments:

- Management segment (dispatcher network administrators)
- Base segment, including radioservers connected to stationary radios (mobile MOTOTRBO stations as control stations) and repeaters.
- User segment or subscribers (mobile and portable radios)

The management segment implements control and monitoring functions – data management (telemetry, telemechanics), human resources management and industrial process control – via access to the base segment. The dispatcher has either full or partial access to the system radioserver, that is software installed on PCs. SmartPTT software enables various MOTOTRBO platform functions, which form the basis of the system.

Radioservers are linked to fixed stations, which are control stations for the system , and repeaters. All repeaters are interconnected via IP network and enable subscriber roaming and formation of a common, geographically distributed communication network. Communication zones can be both adjacent and separated. The number of radioserver and dispatcher seats is unlimited.

The radioserver database stores radio station pool data. When the MOTOTRBO subscriber digital radio station enters the SmartPTT network coverage zone, it sends a request to the radioserver and, in the event of successful authentication, it is registered automatically.



Using SmartPTT dispatchers can easily perform their daily functions, i.e., organize radio communication, monitor subscribers and communicate data to subscribers. As for radio subscribers, they can take advantage of all the features of MOTOTRBO radios. The number of subscribers per radioserver is unlimited.

SmartPTT Dispatcher

Main Features

SmartPTT includes a number of functions, each designed for a specific task.

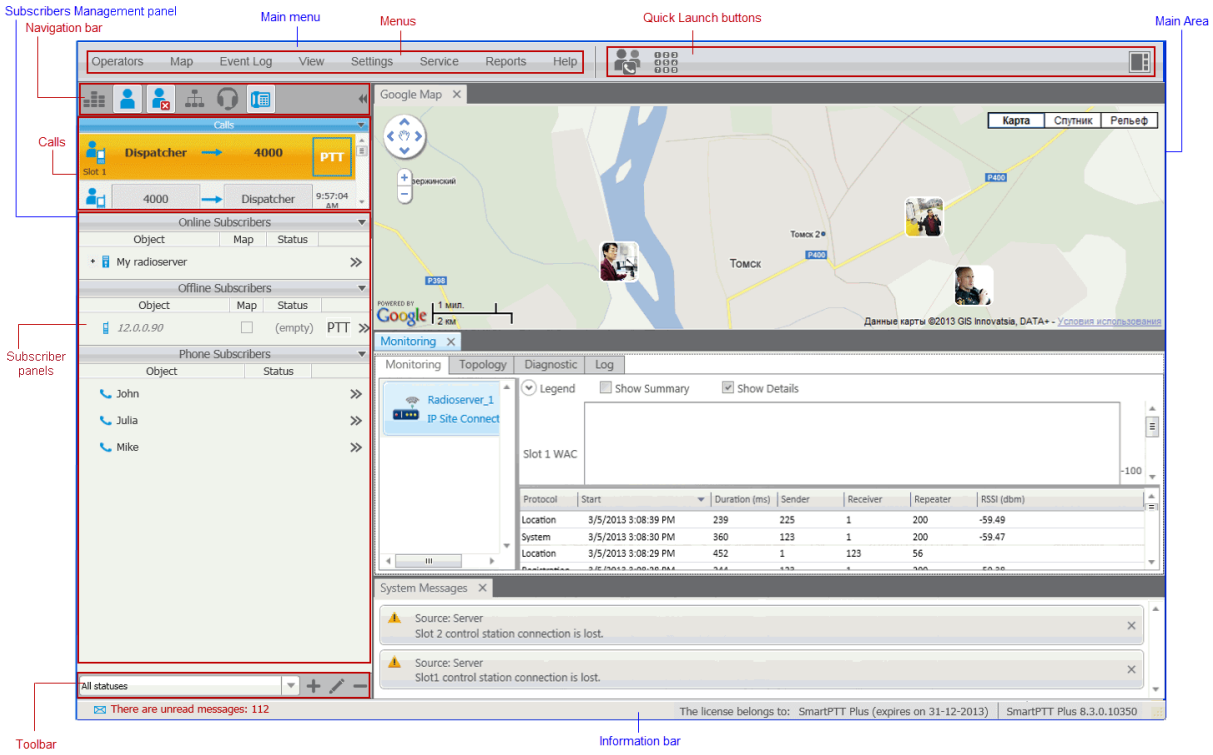
Here is a brief list of the main functions SmartPTT software has to offer:

1. Dispatcher voice communication. SmartPTT Dispatcher supports 4 subscriber types for dispatcher communication:
    - MOTOTRBO radios
    - Analog radios
    - Telephone subscribers, including iPhone subscribers
    - Other SmartPTT Dispatcher consoles
2. Voice call recording. All voice calls, even private calls between subscribers, can be recorded in MP3 files and stored both on the radioserver and in the dispatcher console.
3. Subscriber location tracking (AVL). Real-time GPS-based fleet management system provides constant tracking of subscriber location, keeps the track log, controls subscriber movement via pre-set rules on several types of maps.
4. Subscriber location tracking indoors. Indoor Tracking allows dispatchers to monitor radio subscribers' location inside buildings.
5. Integration with telephone networks via VoIP. SmartPTT Dispatcher implements Telephone Interconnect Gateway to make calls between MOTOTRBO or analog radios and telephone subscribers. A phone call can be initiated by a radio subscriber, a dispatcher or a telephone subscriber.
6. Radio network bridging. SmartPTT Routing Service allows call patching between multiple radio networks of the same or different types type (IP Site Connect, Capacity Plus, digital conventional, and analog conventional networks), as well as between multiple SmartPTT Radioservers. Unique dynamic intelligent routing of private and group calls is based on the information about the subscriber registration in the network.
7. Text message and data transfer. SmartPTT Dispatcher allows exchanging text messages between radio

subscribers, supports subscriber statuses, native MOTOTRBO telemetry features. Gateways to E-mail and GSM provide opportunity for MOTOTRBO subscribers to exchange text messages with e-mail boxes and mobile phones correspondingly.

8. Real-time network monitoring. SmartPTT provides graphical representation of MOTOTRBO infrastructure, information about type of data transferred by repeaters, hardware failures logging, coverage map drawing, and more.

SmartPTT Dispatcher Interface



SmartPTT Dispatcher interface can be divided into the following sections:

1. **Main Menu** bar which can be further divided into:
   - Menu section
   - Quick Launch button section

2. **Subscribers Management** panel which contains:
    - Navigation bar
    - Calls section
    - Subscriber panels
    - Toolbar
3. **Main area**
4. **Information bar**

Main Menu Bar

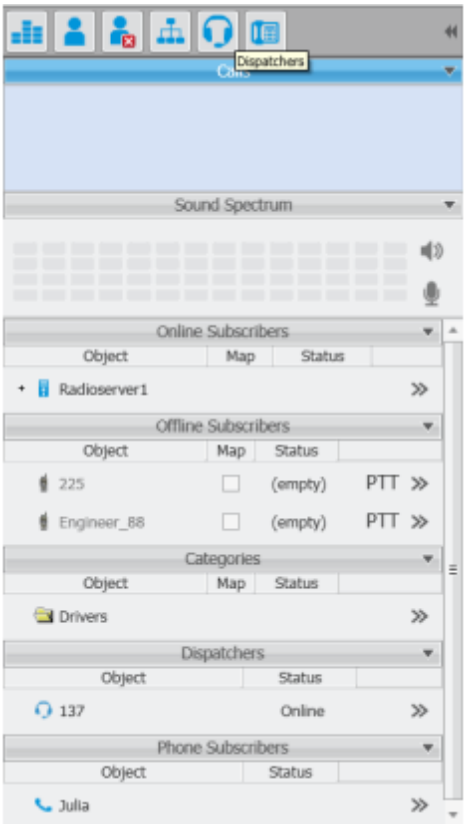
The **Main Menu** bar is full of options and commands which allows you to carry out the majority of the functions available in the application. It also gives you the ability to adjust the application settings to your liking.
The **Quick Launch** buttons are used to allow you to get access to some functionality of the application in no time. Currently, there are three **Quick Launch** buttons.

The **Conference Call** button opens the special window where you can hold conference calls. For more information about this function see Conference Calls.

The **Dial Pad** button opens a telephone keypad which allows you to make calls to telephone subscribers from SmartPTT Dispatcher.

The **Window Configurations** button is very useful as it allows the dispatcher to keep configuration of the opened windows. Thus, next time the dispatcher opens the application, he or she won't need to open the windows all over again. The dispatcher can simply click the **Window Configurations** button and select the one he or she used earlier. For more information see Window Configurations.

Subscriber Management panel

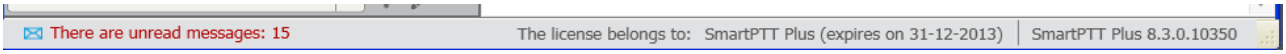


The **Subscriber Management panel** is one of the most important sections of the application. You can see all the subscribers and their status, make private and group calls, carry out the majority of actions addressed to subscribers and many other things. For more information about the section see Subscriber Management Panel.

Main Area

The **Main area** is a central area of the application window and is used for opening functional windows and panels when operating in the application.

Information bar



The **Information bar** was designed to give the user information about the number of unread messages, the owner of the license and the application version.

Subscriber Management Panel

The **Subscriber Management** panel in the left-hand area of the application window is one of the most important parts of the application. It is the navigation tool of the application and it allows reaching subscribers and dispatchers easily and in no time.

The **Subscriber Management** panel includes the following sections:

1. Navigation bar
2. Calls
3. Subscriber panels
4. Toolbar

Navigation Bar

The navigation bar is situated at the top of the **Subscriber Management** panel.

The main function of the navigation bar is to allow dispatchers to move between the lists of different subscriber types and to organize the main area to the liking of the dispatcher.

The navigation bar includes the following items:

Equalizer opens a window with an equalizer.

Online Subscribers opens the list of radio subscribers who are currently online.

Offline Subscribers opens the list of radio subscribers who are currently not available, that is offline.

Categories opens the list of subscribers divided into categories.

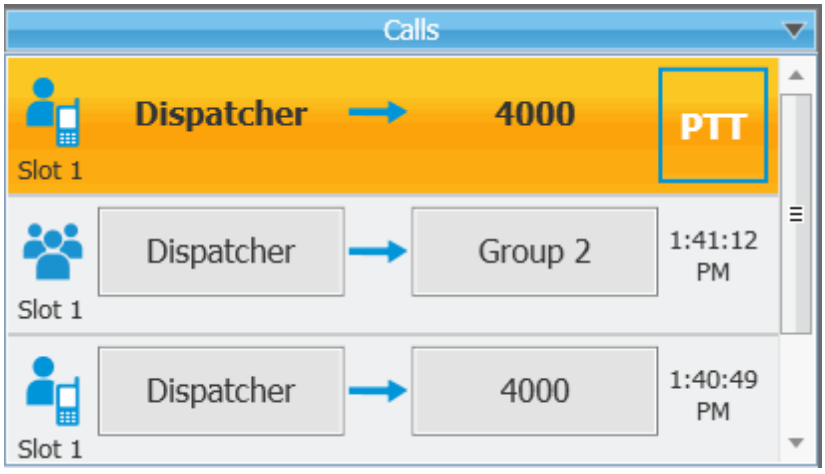
Dispatchers opens the list of added online and offline dispatchers.

Telephone Subscribers opens the list of added telephone subscribers.

Collapses or expands the **Subscriber Management** panel.

When the buttons are dark gray, it means that the corresponding windows are closed.

Calls Section

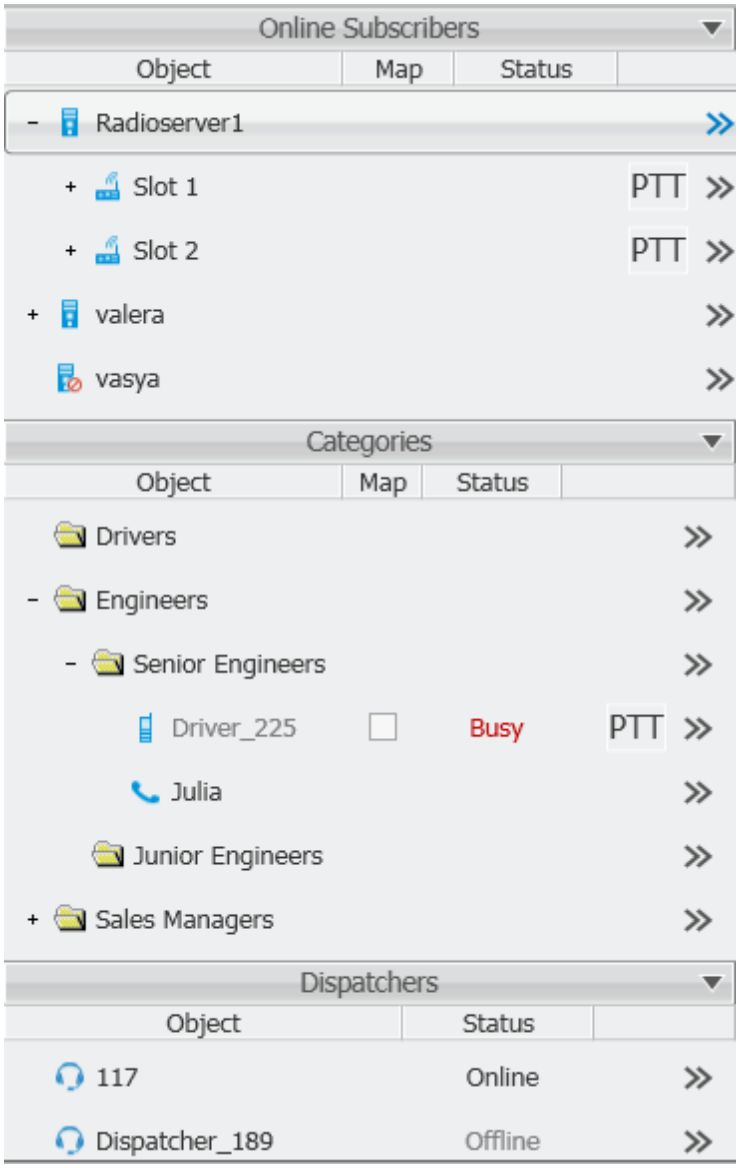


The **Calls** section displays call activity. The dispatcher can answer to the call from this area by clicking **PTT**, see the ongoing call activity, and see the call history.

To call a radio subscriber, select the subscriber from the **Online Subscribers** list and click **PTT** next to the

subscriber name or press the **Space** key. **PTT** becomes yellow. When the subscriber responds, **PTT** turns green. To end communication, click **PTT** or the **Space** key once more.

Subscriber Panels



The **Subscriber panels** display panels represented in the navigation bar. It also allows making calls to subscribers.

The **Online/Offline subscribers** and **Categories** panels display available radioservers with control stations, talkgroups and radio subscribers. The sections include the following columns:

1. Object
2. Map
3. Status
4. PTT
5. Action List

The **Object** field shows the subscriber or radioserver name.

Note: For easier search of the subscribers in the list, use searching by name. To do it, place the mouse cursor in any of the subscriber panels on the left and type his or her name used in the system. At that, if any match of letters occurs, the system focuses on the subscriber.

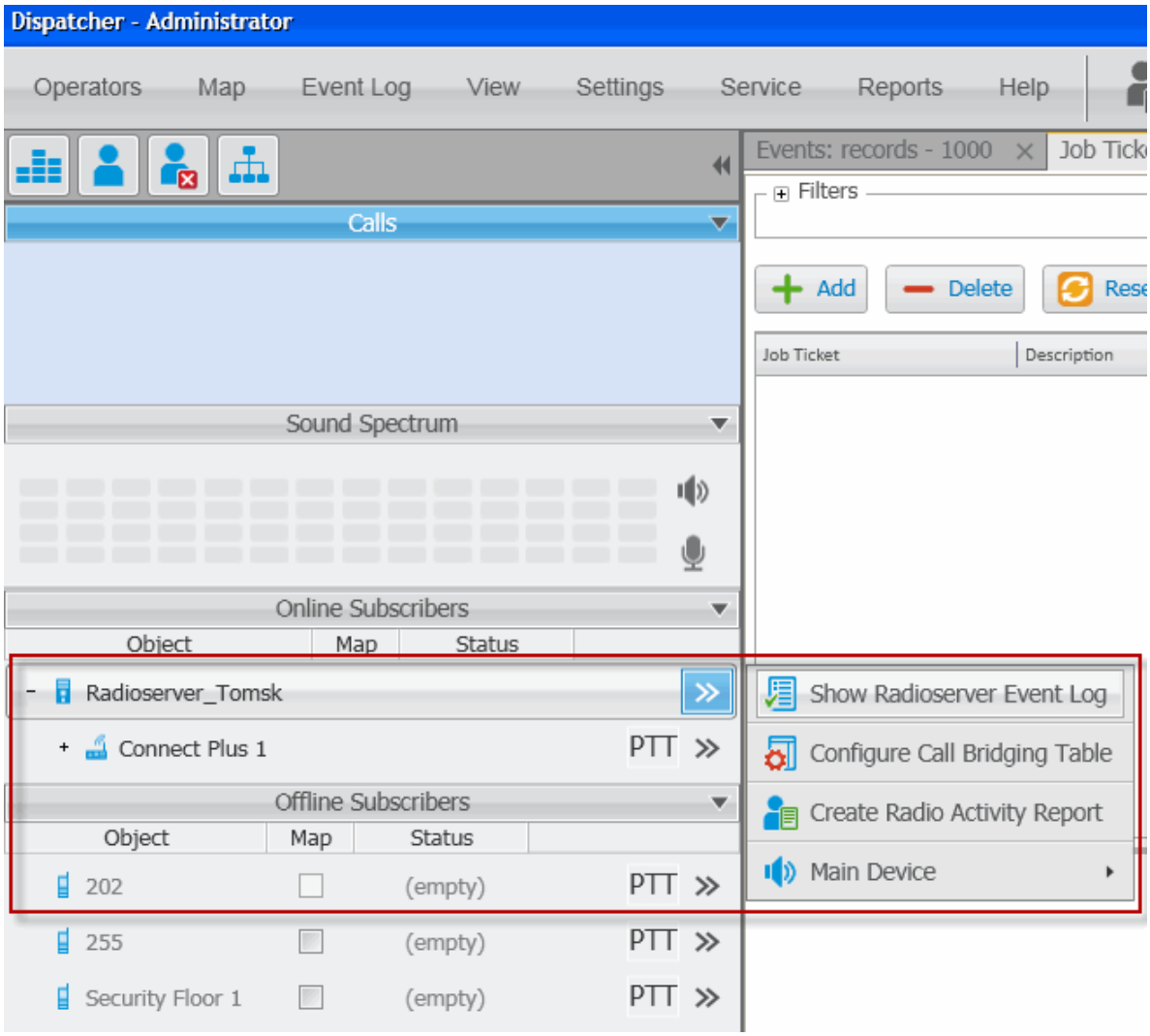
The **Map** checkbox turns on/off the display of the subscriber location on the map (applicable to radio subscribers only).

The **Status** field displays the status of the subscribers or dispatchers.

PTT initiates a call.

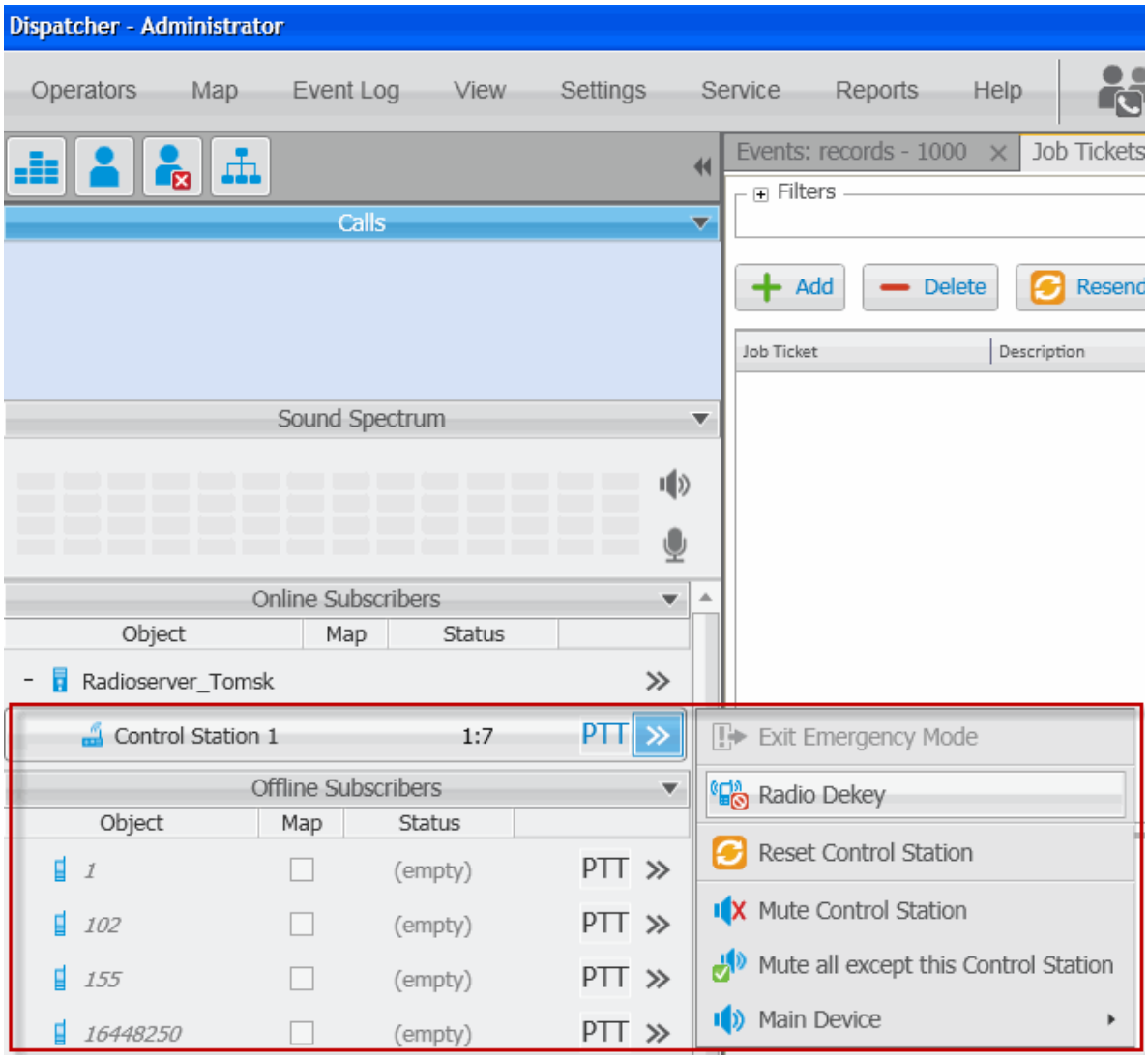
The **Action List** includes a list of actions which can be applied to a radio subscriber, the radioserver, a control station and a talkgroup.

1. The **Action List** for the radioserver:



- **Show Radioserver Event Log** – displays the radioserver event log for the specified period of time. For more information on the event log see Radioserver Event Log.
- **Configure Call Bridging Table** – redirects to the routing configuration window.
- **Create Radio Activity Report** – redirects to the **Radio Activity Report** window.
- **Main Device** – shows what audio output device is currently used for the radioserver. You can also change to another device.

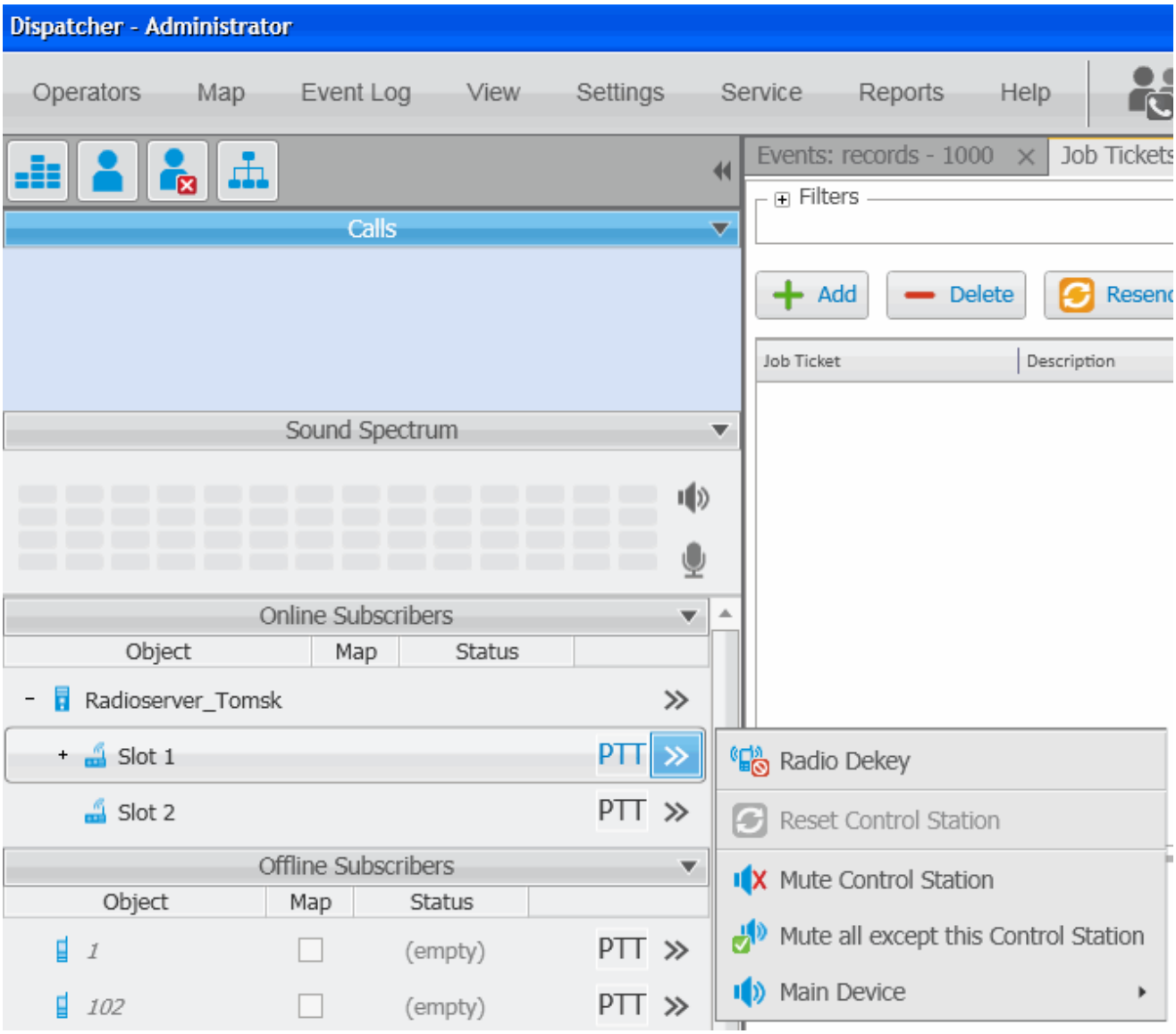
2. The **Action List** for a hardware control station:



- **Exit Emergency Mode** – disables emergency mode.
- **Radio Dekey** – forced interruption of calls on the channel. This option is available only for hardware control stations and in IP Site Connect network.
- **Reset Control Station** – resets the control station. Only hardware control stations can be reset.
- **Mute Control Station/Control Station Sound On** – turns off/on the control station mute mode.
- **Mute All Except This Control Station** – leaves sound on only for this control station; other control stations are muted.
- **Main Device** – shows what audio output device is currently used for the control station. You can also

change to another device, you can select a specific output device or select the **Inherited device**, i.e., the device selected for the higher level, in this case, for the radioserver.

3. The **Action List** for a virtual control station:



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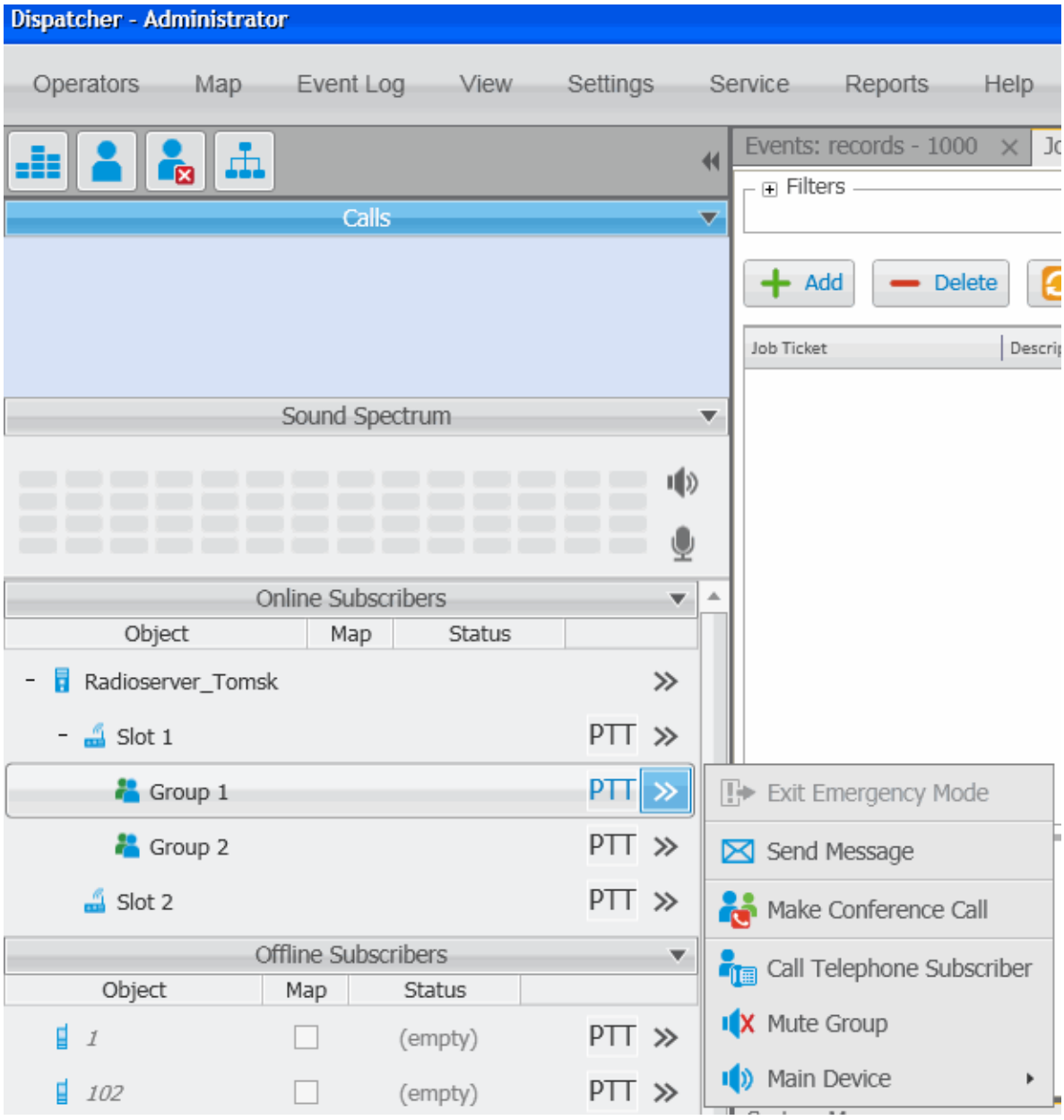
- **Mute Control Station/Control Station Sound On** – turns off/on the control station mute mode.
- **Mute All Except This Control Station** – leaves sound on only for this control station; other control stations are muted.
- **Main Device** – shows what audio output device is currently used for the control station. You can also change to another, you can select a specific output device or select the **Inherited device**, i.e. the device selected for the higher level, in this case, for the radioserver.

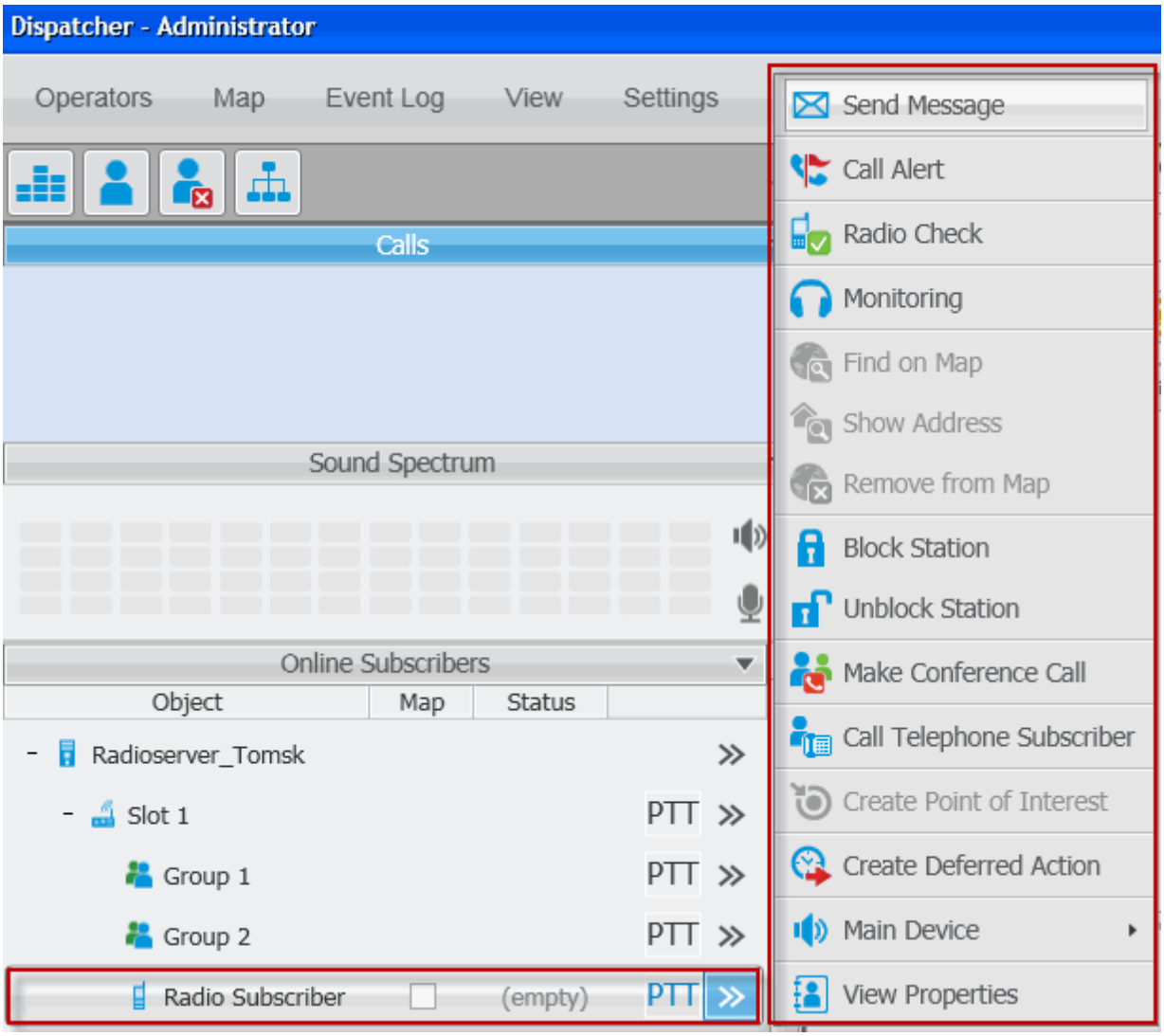
4. The **Action List** for a talkgroup:



- **Exit Emergency Mode** – disables emergency mode.
- **Send Message** – opens a window for creating and sending messages.
- **Make Conference Call** – opens the **Conference Call** window and starts the conference call.
- **Call Telephone Subscriber** – opens the window with the list of registered telephone subscribers.

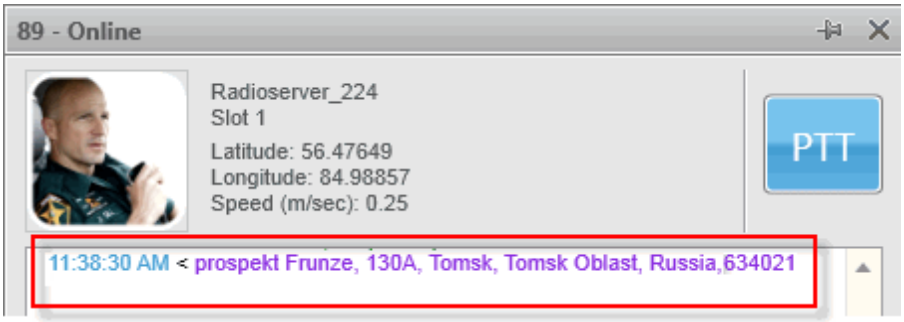
- **Mute Group/Group Sound On** – turns on/off mute mode for this group.
- **Main Device** – shows what audio output device is currently used for the talkgroup. You can also change to another device, you can select a specific output device or select the **Inherited device**, i.e., the device selected for the higher level, in this case, for the slot.

5. The **Action List** for a radio subscriber:



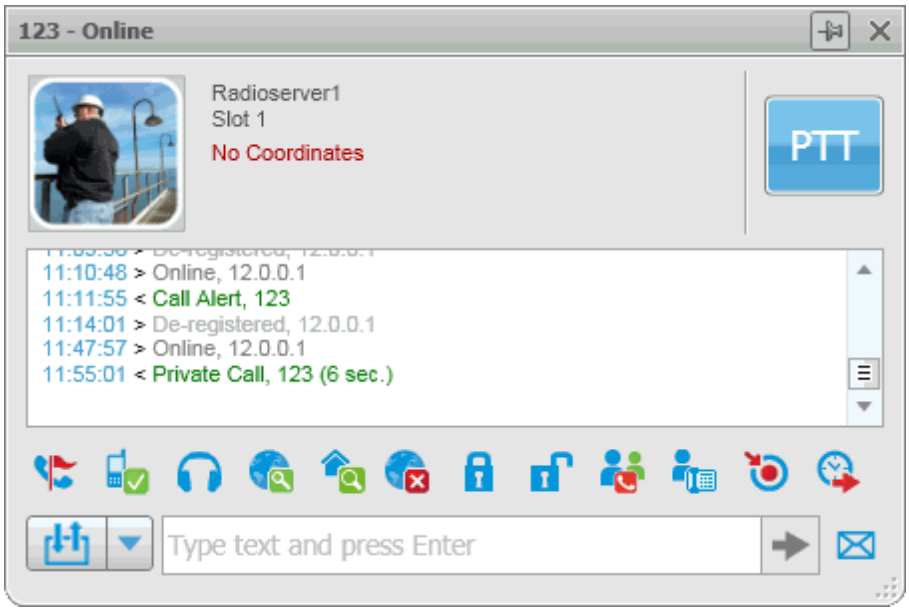
- **Send Message** – opens a window for creating and sending messages.
- **Send Call Alert** – sends a call alert to the subscriber.
- **Radio Check** – sends the radio check command to the subscriber radio.
- **Monitoring** – allows to listen to the radio subscribers without their awareness.

- **Find on Map** – shows the subscriber on the map.
- **Show Address** – displays in the **Call window** the subscriber address based on the current GPS coordinates. When you reopen **Call Window** (after it was closed), previously received information on the address is not displayed.

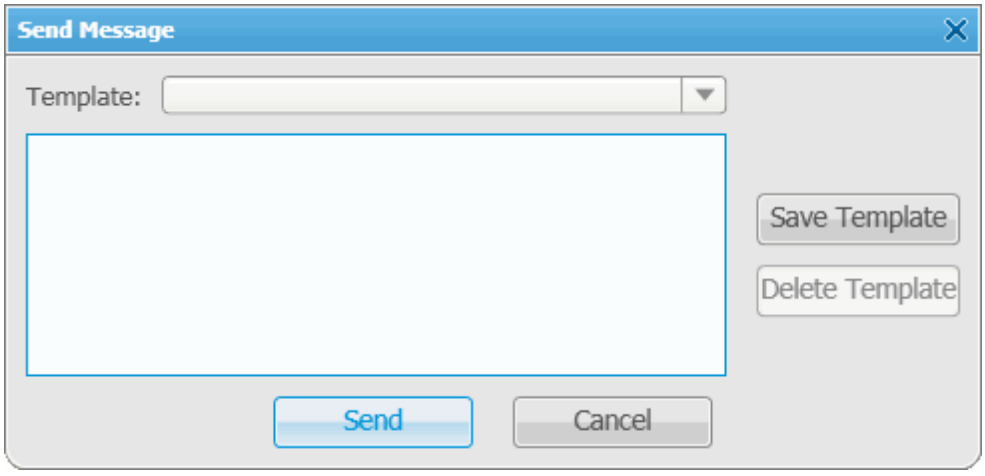


- **Remove from Map** – removes from the map.
- **Block Radio** – sends the Block Radio command to the subscriber radio.
- **Unblock Radio** – sends the Unlock Radio command to the subscriber radio.
- **Make Conference Call** – opens the **Conference Call** window and starts the conference call.
- **Call Telephone Subscriber** – opens the window with the list of registered telephone subscribers.
- **Create Point of Interest** – create POI at the current place of the subscriber. If there are no coordinates, the system uses the latest coordinates received from the radio. If coordinates are absent altogether, nothing happens.
- **Create Deferred Action** – opens a window for creation of the deferred action.
- **Main Device** – shows what audio output device is currently used for this radio subscriber. You can also change to another device select a specific output device or select the **Inherited device**, i.e., the device selected for the higher level, in this case, for the talkgroup.
- **View Properties** – opens the subscriber's **Properties** window.

The same list of actions can be found in the **Call Window**. The main function of the **Call Window** is to give the ability to apply actions to the radio subscriber and to view the action log. To open the window, double-click on the subscriber.



How to send messages



When you choose to send a message to a subscriber, click **Send Message**.

Save Template – saves the typed message as a template.

Delete Template – deletes a template selected in the list of templates.

Send – sends the typed message to the subscriber

Cancel – the **Text Message** window closes and the message is not sent.

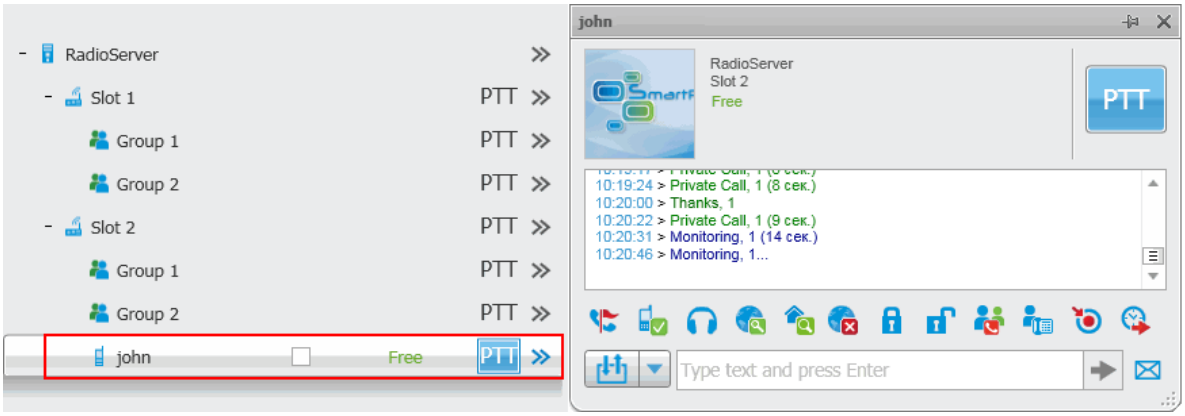
You can also send a message using the **Type text and press Enter** field.

How to change subscriber name using radio

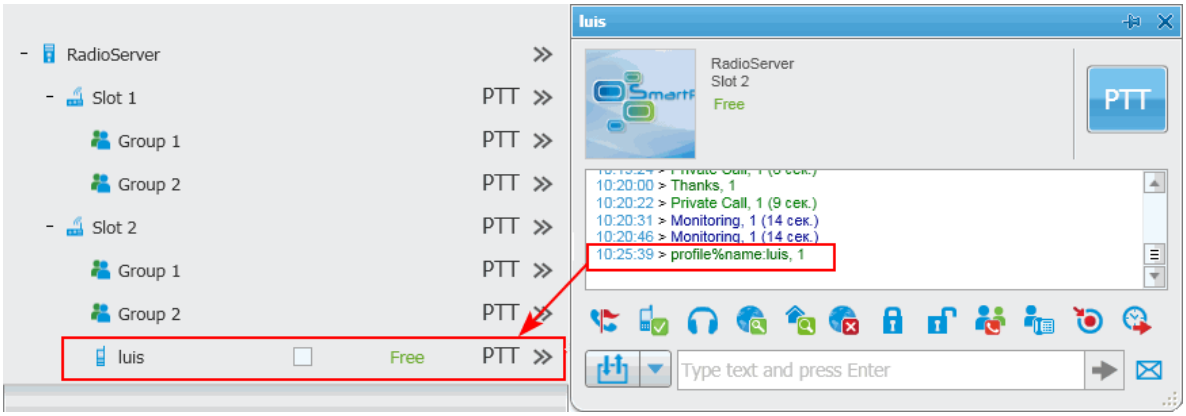
A subscriber can easily change his or her name by using the radio. At that, the new name will appear in the **Subscriber panel**.

To do it, you need to send the text message ***profile%name:<new name>*** to the Slot ID set in your system.

Before sending:



After sending the message:



The **Dispatchers** and **Telephone Subscribers** windows include the following columns:

1. Object
2. Status
3. Action List

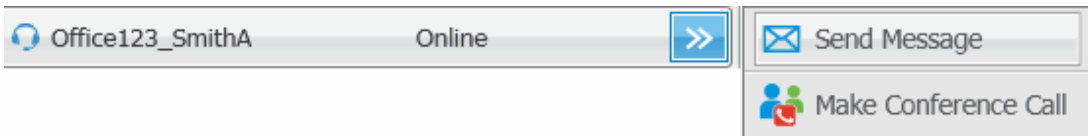
The **Object** field shows the name of the dispatcher or the telephone subscriber.

The **Status** field displays the system status:

- Online
- Offline

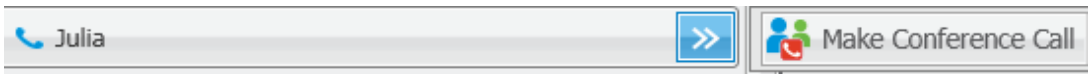
The **Action List** includes a list of actions which can be applied to the telephone subscriber and the dispatcher.

1. The **Action List** for the dispatcher:



- **Send Message**
- **Make Conference Call**

2. The **Action List** for the telephone subscriber:



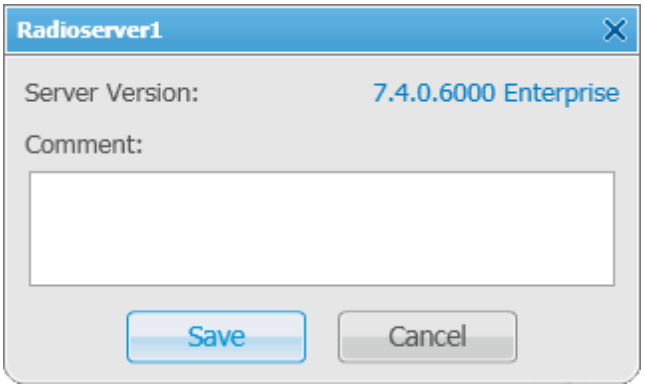
- **Make Conference Call**

The same actions can be made from the **Call Window**.

Apart from the actions in the **Action List**, you can also make a call to the dispatcher and view the activity log.

To open the **Properties** window of the radioserver, control station, talkgroup, radio subscriber, dispatcher or telephone subscriber, right-click on the corresponding item:

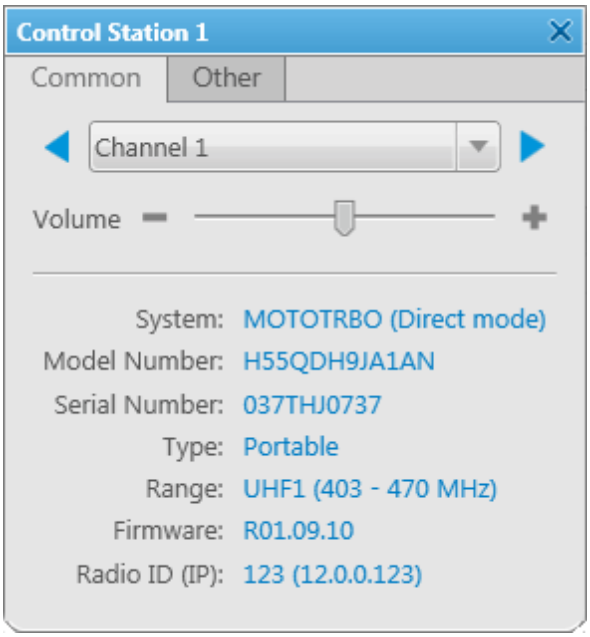
1. The **Properties** window of the radioserver:



Server Version shows the version of the radioserver. If the version of SmartPTT Radioserver does not match the version of SmartPTT Dispatcher, the version number is displayed in red.

Comments – text field for additional information.

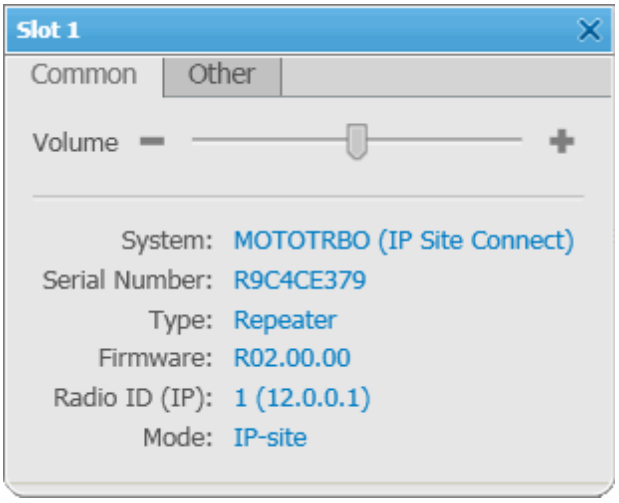
2. The **Properties** window of the hardware control station:



The window displays information on the control station, for example, model number, serial number, control station type, frequency range, firmware version, control station identifier. Also, it allows you to switch the control station

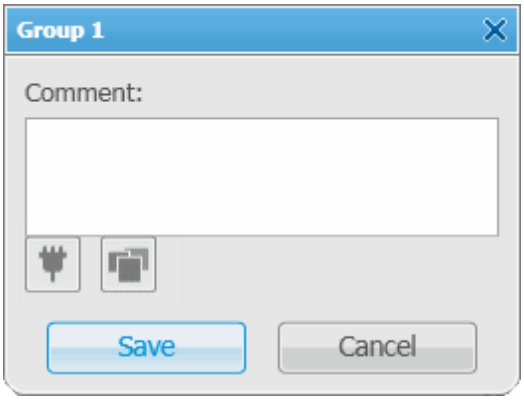
channels (select from the list or using the arrow keys) and to adjust volume level of the selected channel.

3. The **Properties** window of the virtual control station:



The window displays information on the virtual control station, for example, serial number, firmware version, control station identifier, type of network configuration. Also, it allows you to adjust volume level of the selected channel.

4. The **Properties** window of the talkgroup:

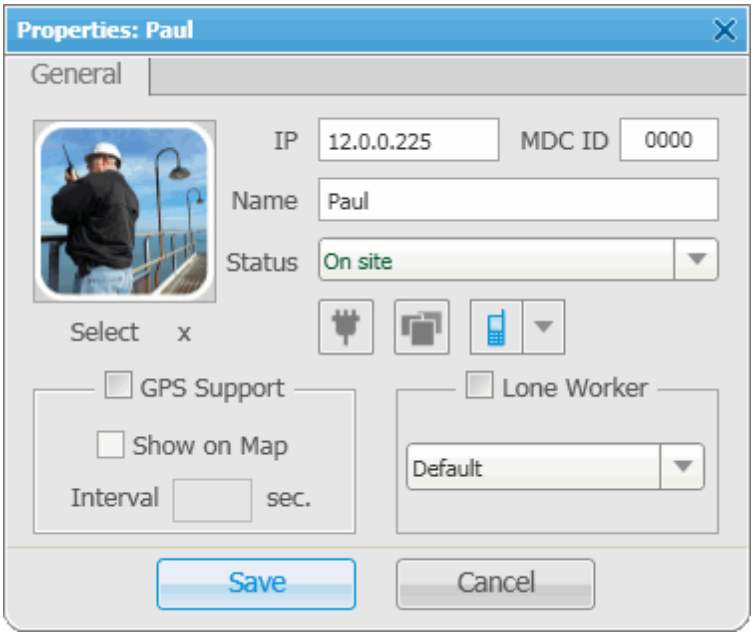


Comments – text field for additional information.

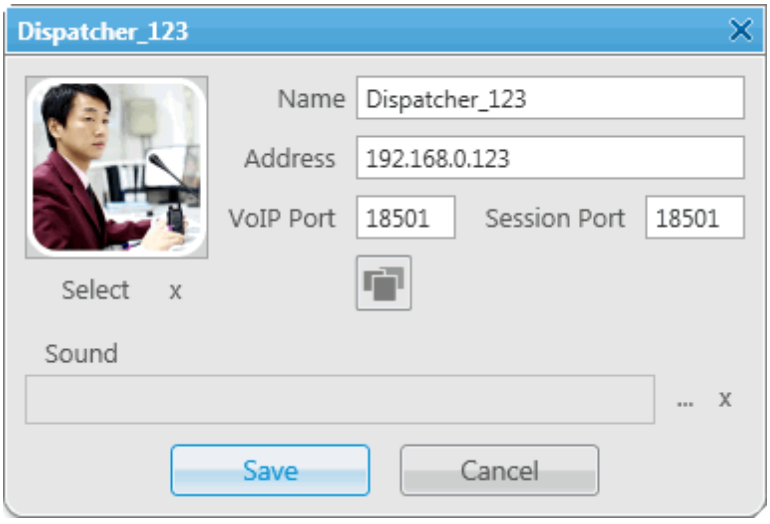
Telemetry – select telemetry command for the talkgroup.

Categories – assign category to the talkgroup.

5. The **Properties** window of the subscriber:



6. The **Properties** window of the dispatcher:



In the **Name** field you can change the dispatcher's name.

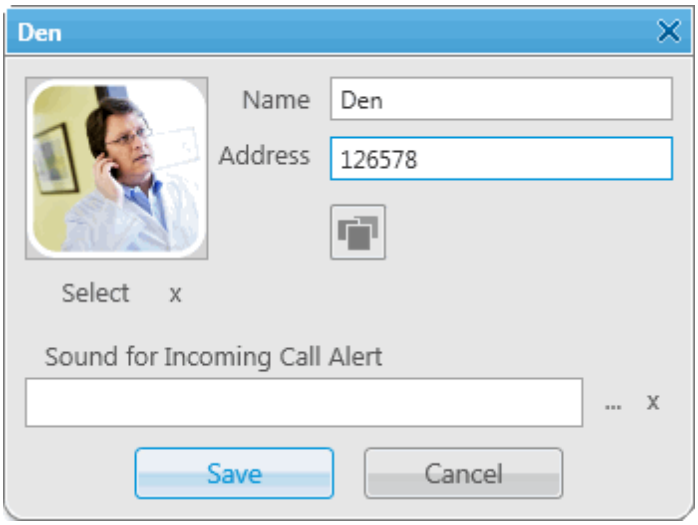
Click the **Categories** button to add the dispatcher to available categories.

Click **Select** to upload an image.

Upload the **Sound** for incoming call alert by clicking the browse button . To remove the sound, click the button.

To save the changes, click **Save**.

7. The **Properties** window of the telephone subscriber:



In the **Name** field you can change the dispatcher's name.

Click the **Categories** button to add the subscriber to available categories.

Click **Select** to upload an image.

Upload the **Sound** for incoming call alert by clicking the browse button . To remove the sound, click the button.

To save the changes, click **Save**.

Toolbar

The **Toolbar** is situated at the bottom of the **Subscriber Management** panel.

The main function of the toolbar is to add, edit or delete radio subscribers. It also allows dispatchers to filter subscribers by their status.

The **Toolbar** contains the following items:

Allows filtering radio subscribers by their status.

Allows the dispatcher to add a new radio subscriber, edit and delete the existing subscriber.

To add a new radio subscriber:

1. Click the **Add Subscriber** button . At that the empty **Properties** window opens.
2. To identify the subscriber radio, enter:
    - The IP address of the radio subscriber in the **IP** field. Or, if the **IP** field is absent, specify **CAI** and **Radio ID**.
    - **MDC ID**, the identifier used to identify Motorola Data Communication (MDC) messages. You cannot type more than 4 hexadecimal numbers into this field. It is used only in the analog mode.
    - **5 Tone ID**, If the radio works on the analog channel and supports the 5 Tone signaling (SelectV). It must match the **5 Tone Radio ID** in the **General Settings** tab of the radio MOTOTRBO CPS settings. To be set in the range from 0 to 9 or from A to G or R.

Note: Several IDs can be used as the radio identifier. If the radio is used on the analog channel only, just **5 Tone ID** (and **MDC ID** if necessary) must be filled, and the **CAI** and **Radio ID** or **IP** fields must be empty.

3. In the **Name** field enter the subscriber's name.
4. In the **Status** field select subscriber's status.
5. Click **Select** to upload the radio subscriber's image if there is any.
6. Select the **GPS Support** checkbox if the subscriber radio supports GPS.
7. Select the **Show on map** checkbox to see the subscriber on the map.
8. Specify the time interval to send a request for GPS coordinates.

Note: You can set the main time interval for receiving GPS coordinates in the subscriber **Properties** window. The minimum interval for receiving GPS coordinates is set on the radioserver. Therefore, if the interval from the **Properties** window is less than that set on the radioserver, GPS coordinates will be received at an interval set on the radioserver.

9. Select the **Lone Worker** checkbox if it is required and then select the profile of the lone worker to be

used for this subscriber.

Note: You can add lone worker profiles in SmartPTT Dispatcher in the **Settings** menu under Lone Worker Rules.

10. Click the **Telemetry** button to specify telemetry actions, if required.
11. Click the **Categories** button to specify categories, if required.
12. Click to select the icon of the subscriber.
13. Click **Select** to choose your own picture. To delete the selected image of the user, click the cross symbol on the left to **Select**.
14. Click **Save**.

Note: Subscribers not included in the list are automatically displayed in the list of subscribers after a radio station is turned on and registration on the radioserver is successfully completed.

To edit the radio subscriber:

1. Select the radio subscriber to edit and click . At that, the subscriber **Properties** window opens.
2. Make the necessary changes and click **Save**.

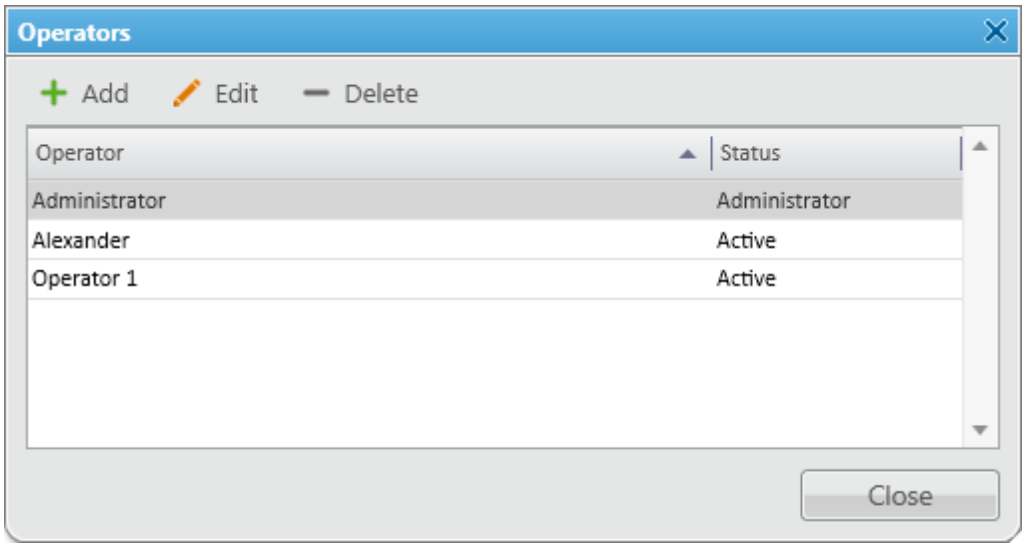
To delete the radio subscriber from the list, select the radio subscriber and click .

Operators

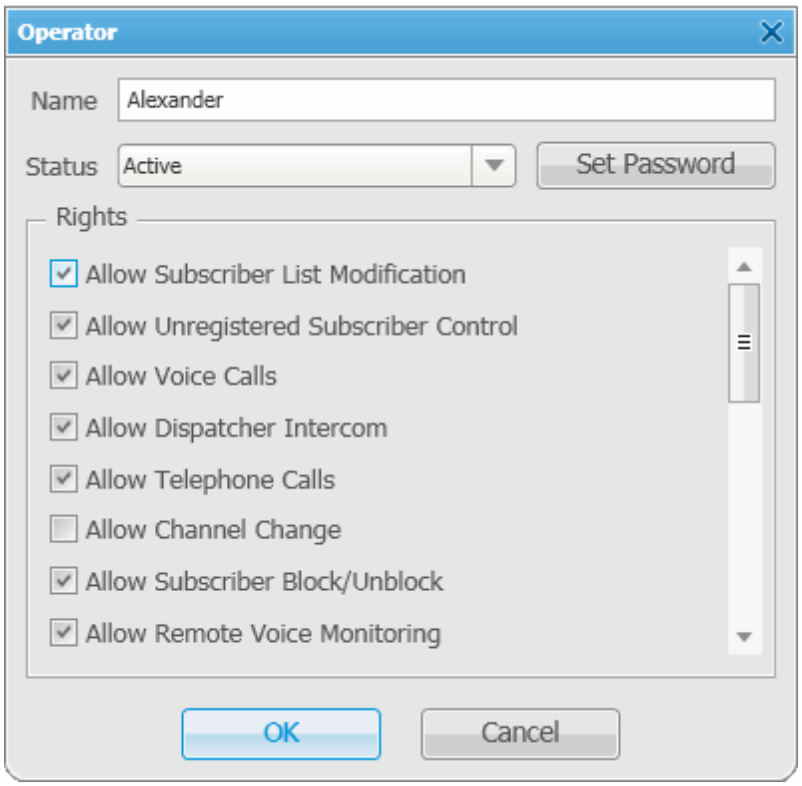
By default an operator with the name **Administrator** and a blank password is created in the SmartPTT Dispatcher application. The Administrator has full access to SmartPTT management functions.

SmartPTT Dispatcher **Administrator** can add new system operators and customize their access to specific functionality. To add a new operator, expand the **Operators** menu in the **Main Menu** bar of the SmartPTT Dispatcher window and select **Operator Settings**.

At that, the **Operators** window is displayed.



To add a new operator, click **Add**. A new window for adding operators opens up.



Name – operator's name.

Status – operator's status ("Active" or "Archive"). Status *in the archive* is used for registered operators which are not used any longer, but cannot be removed from the system as the event log contains entries referring to them.

Rights – a list of permissions which can be selected or cleared for each operator individually.

Here are some of them:

Allow Subscriber List Modification – the permission allows the operator to add, delete subscribers and modify their properties.

Allow Unregistered Subscriber Control – select this property to allow operator to modify unregistered subscribers in the subscriber tree.

Register Subscribers on Selected Control Station – select control stations which will be used to display all registered subscribers. This option is recommended to be set for Capacity Plus systems.

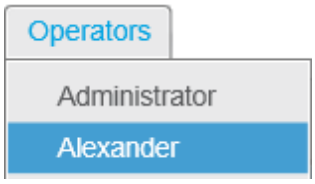
Set/Change Password – set new operator's password or change the old one.

To edit an operator, select it in the list of operators and click **Edit**. The edit window is displayed where you can change **Name**, **Status** and **Password** parameters.

To delete an operator from the operators list, select it and click **Delete**.

Note: You cannot delete the Administrator from the system.

To switch operators, expand the **Operators** menu in the **Main Menu** bar of the SmartPTT Dispatcher window and select the desired operator in the opened list.



At that, the **Log In** window opens. Type the password if applicable and click **OK**.

Map

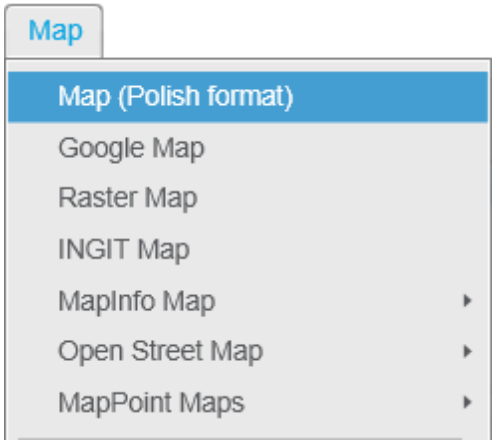
SmartPTT supports different maps, like Google Map, Open Street Map, Raster Map, INGIT Map and many others. Together with many useful tools like showing and animating a track, defining points of interest, maps provide the dispatcher with a better control over subscribers.

There are two types of maps: online and offline maps.

Online maps are always accessible (if you have the Internet connection). They are Google Map and Open Street Map.

The rest of the maps are Offline. They are not available by default and should be opened.

To open an online map or load an offline map, expand the **Map** menu in the **Main Menu** bar.



Just click **Google Map** or **Open Street Map** to open them.

As for the offline maps, select the desired map, indicate its file location in the browse window and click **Open**.

The **Map** tab displays the opened map file.

Raster Map From Database

SmartPTT Dispatcher allows you to work with large raster offline maps with a size of more than 5000x5000 pixels. The functionality is used for displaying SmartPTT system objects located at a long distance from each other. This is done by dividing the original raster image into pieces and storing them in the database.

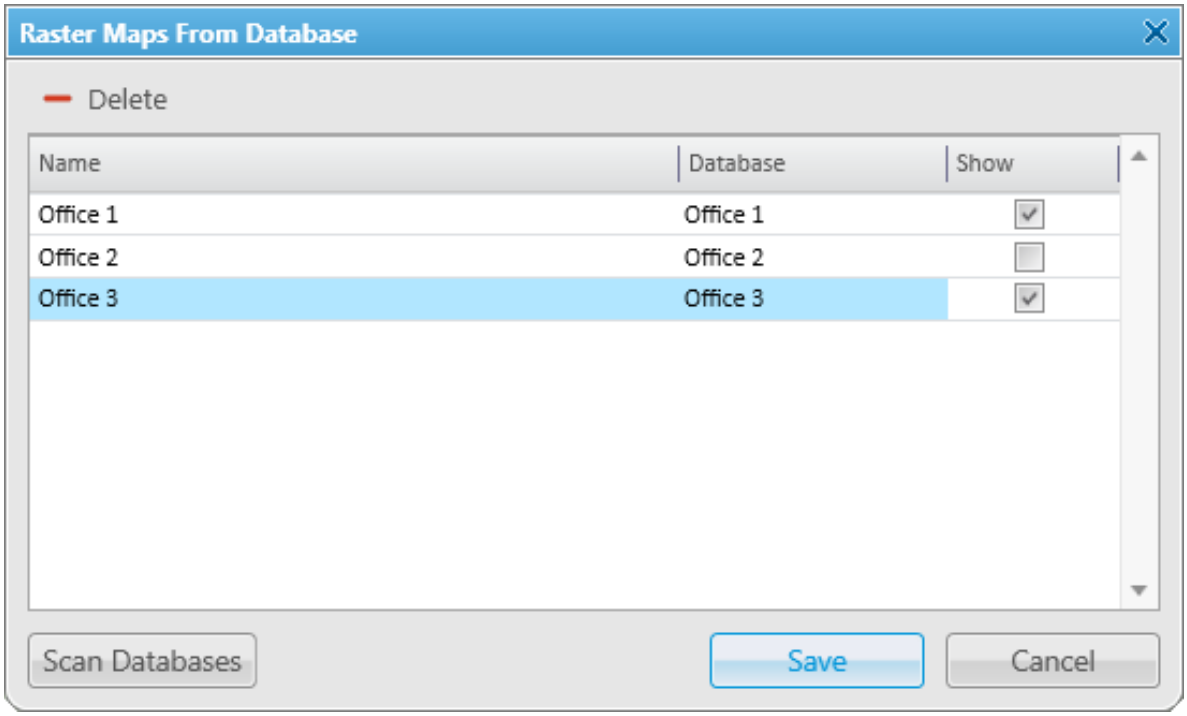
To create the database for the raster map, send your query to our technical support service and attach the raster map image in a JPEG format with the list of geographical positions on the map (e.g., in a TXT or MAP format). Geographical positions are necessary to anchor image points to the geographical coordinates. The list of geographical positions must contain four points at the corners of the map. In response to your request our technical support specialist will provide you the database backup of the map in a BAK format.

Note: If the attachment(s) size exceeds the limit of 50 MB, split the file to several small files using the archiver or file manager, or upload it to the file hosting service. In the latter case include a link to the file in your query

message.

Then restore the database from the received backup. For more information see How to restore from SmartPTT Dispatcher database backup.

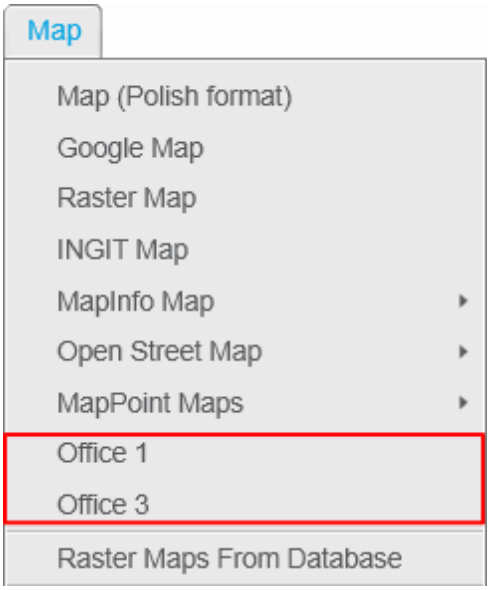
After the database is restored, expand the **Map** menu in the **Main Menu** bar and click **Raster Map From Database**. Click **Scan Database** in the opened window, and you will see a list of all available maps stored in the databases of the selected server (see Database Settings, the **Database Server Name** field).



Name – name of the map stored in the database. To change the name of the map, double-click on the name in the **Name** field and enter a new name.

Database – name of the database.

Show – if the checkbox is selected, the map is available in the **Map** menu. To open the map, select it in the **Map** menu.



To remove the map from the list, select the map and click **Delete**. To save your changes, click **Save**. If you want to undo the last changes, click **Cancel**.

How to Use Maps

To move the map press and hold the left mouse button, and move where necessary. Or use arrow keys to move, this is applicable to the offline map.

To zoom in scroll the mouse wheel forward. To zoom out scroll the mouse wheel back. You can also use the keys "+" and "-" to zoom in and zoom out.

Online maps allow you to display the object address. To do this, right-click at any place on the map – the object address will be shown. This feature is supported by online maps only (Google Map and Open Street Map).

Offline maps provide more opportunities for improvement. Right-click on the offline map. At that, a context menu appears.

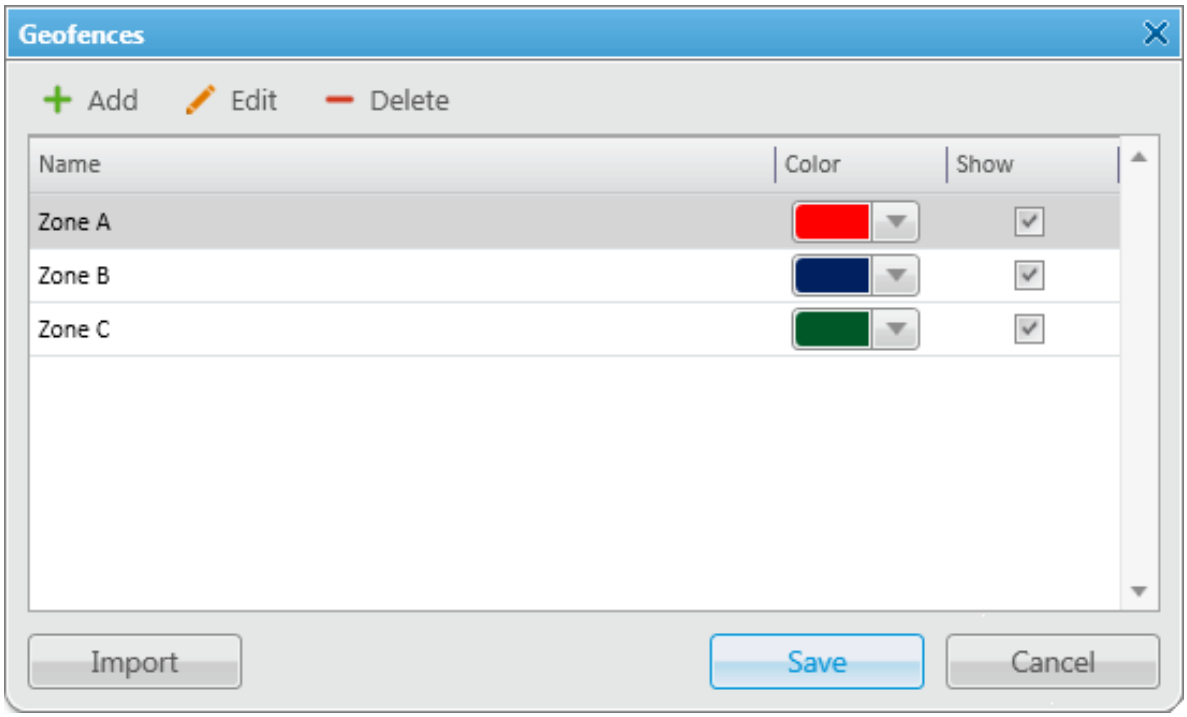
Using this menu you can:

1. Search on the map
2. Select elements to be labeled on the map:
    - Roads
    - Buildings
    - Labels
3. Change the map’s appearance:
    - Add or remove grid
    - Add or remove scale
    - Add or remove coordinates
    - Add or remove detail level
4. Select the map's rendering type:
    - Anti-aliasing
    - Default
    - High quality
    - High speed
    - None

How to Create Geofences

You can add the geofebce by specifying the its longitude and latitude values:

1. Go to the **Map** menu in the **Main Menu** bar and select **Geofences**.



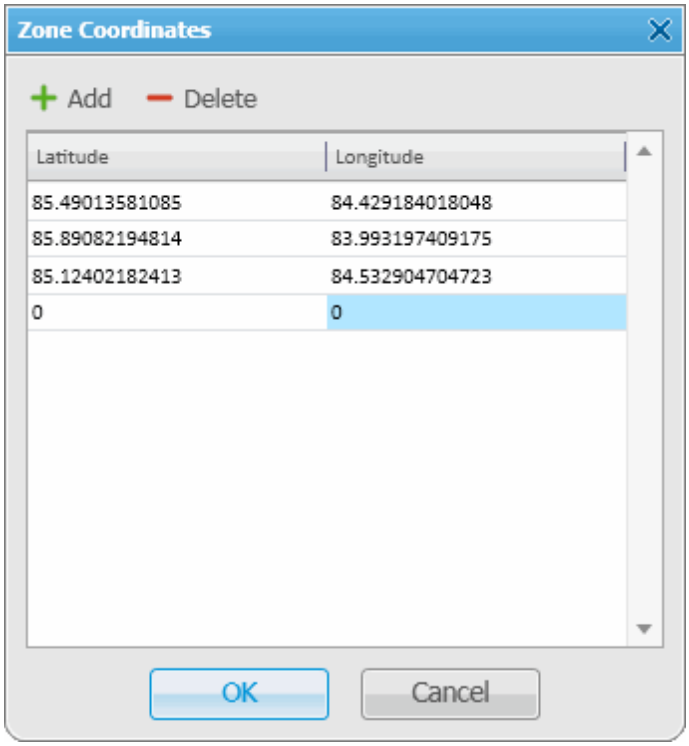
Name – geofence name.

Color – sets the color of the geofence.

Show – enables the option to display the geofence on the map.

Note: Whether the geofence is displayed on the map or not, GPS rules set for the geofence are enabled.

2. In the opened window click **Add**. Add the zone-forming points (pair of longitude and latitude values) of the new zone. To edit the zone-forming points, place the cursor into the fields.



To delete the points, click **Delete**.

Note: You can't create a zone with less than 3 longitude and latitude pairs.

3. Click **OK** to add the zone to the zone list.
4. In the **Geofences** window change the settings of the zone: name, color, and whether it should be displayed on the map.
5. Click **Save**.

You can also create a geofence from the **View** menu. For more information see Geofences Panel.

You can update the geofence points by clicking **Edit**.

To import geofences from other maps, click **Import**. You should specify the map and then select the geofence you want to import. To see the imported geofence, make it active.

To delete the geofence from the list, select the geofence and click **Delete**.

To assign a rule to the geofence, go to GPS Rules.

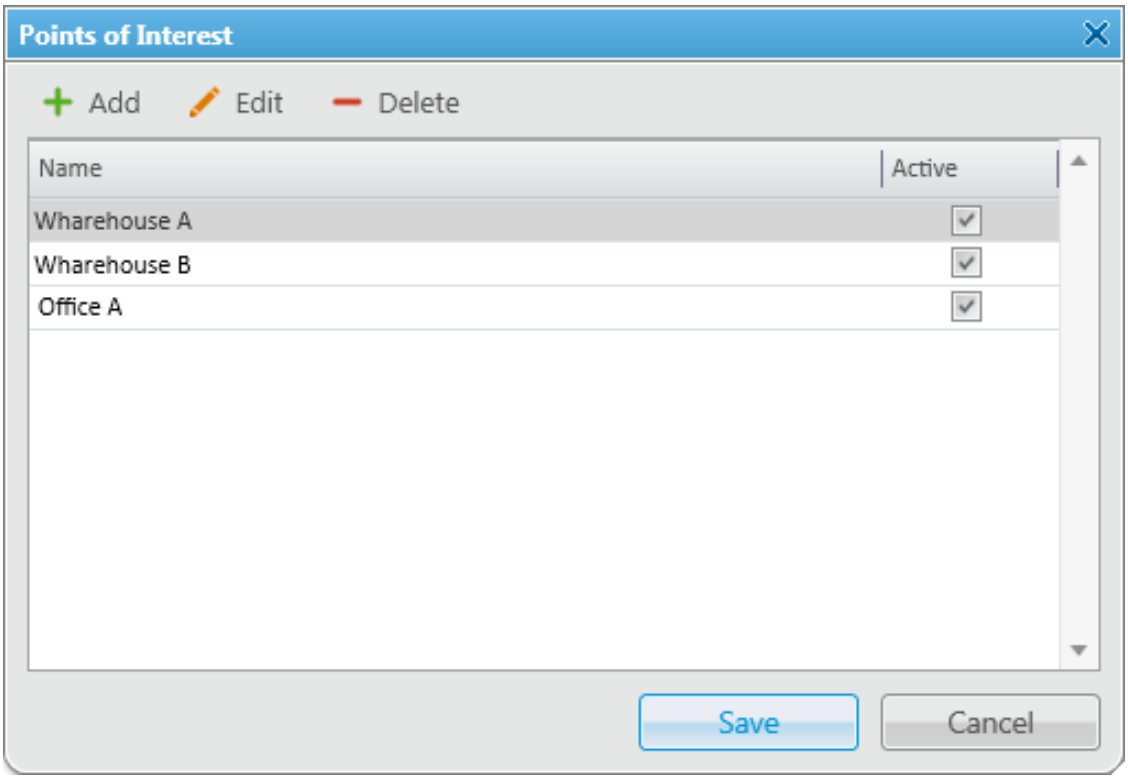
How to Add Points of Interest (POI)

Points of Interest identify location of special interest which are shown on the map and can be quickly found in SmartPTT Dispatcher. A **Point of Interest** consists of the point name, location coordinates and the picture.

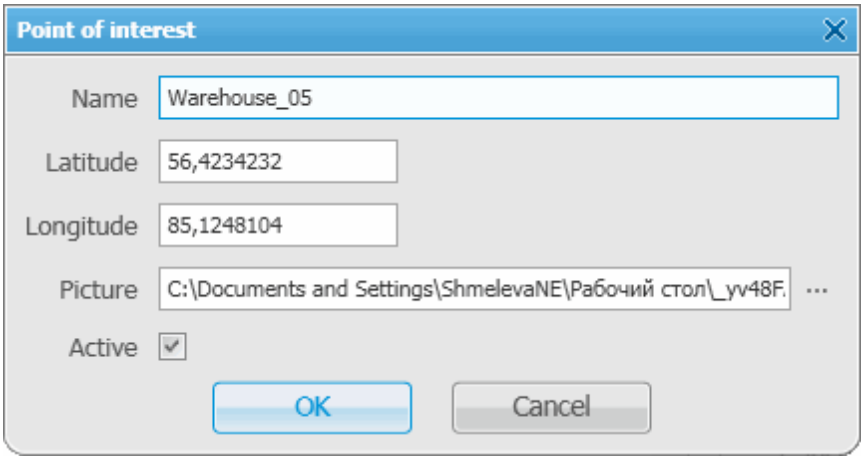
Note: Maximum size of the POI picture is 64×64 pixels. Pictures of the bigger size will be automatically cropped to 64×64.

To add a point of interest:

1. Go to the **Map** menu in the **Main Menu** bar and select **Points of Interest**.



2. Click **Add**.



3. Enter the name of the POI, its longitude and latitude, the image which will represent the POI on the map, and make it active to be displayed on the map. Click **OK**.
4. Modify the name of the new POI.
5. Save the POI by clicking **Save**.

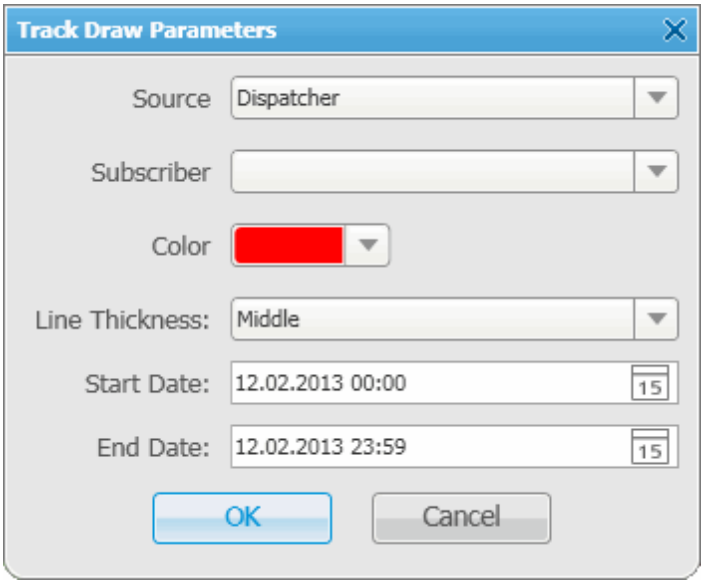
To modify the existing POI, select it and click **Edit**. To delete the POI, select it and click **Delete**.

How to Display and Animate Tracks

To set draw parameters of the track:

1. Expand the **Map** menu in the **Main Menu** bar of the SmartPTT Dispatcher window and click **Show Track**.

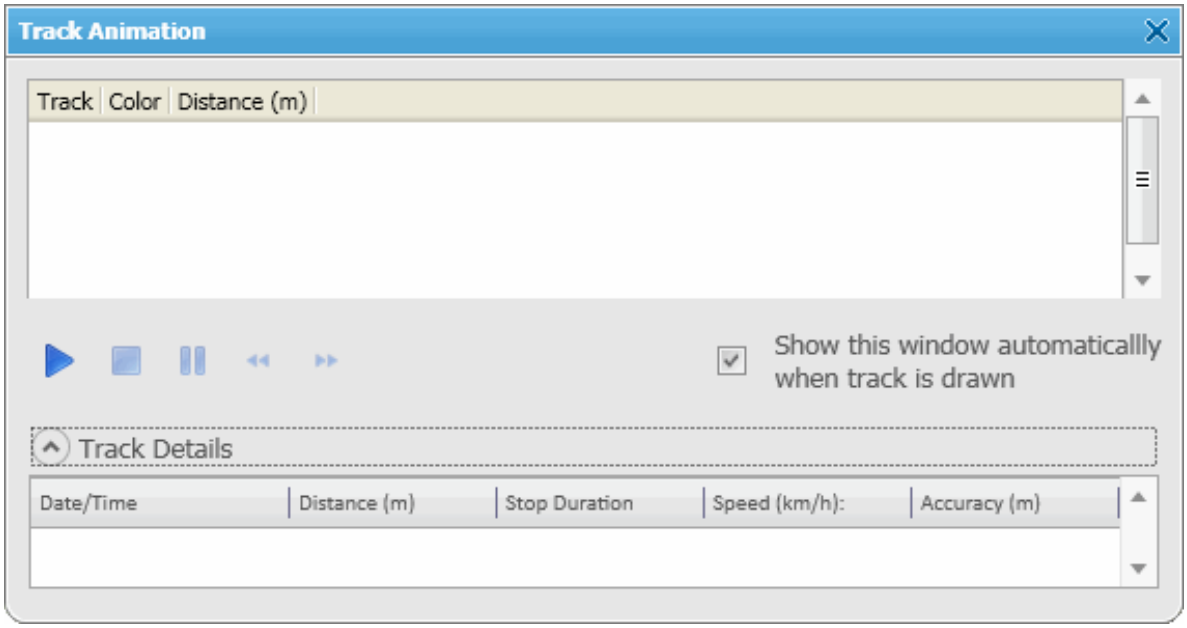
The **Track Draw Parameters** window opens.



2. In the **Source** field select the data source which will be used for drawing the track of the selected subscriber. If *Dispatcher* is selected, the data is taken from the local database. Apart from *Dispatcher*, any available radioserver can be chosen as a data source. In that case all data is taken from the database of the chosen radioserver.
3. In the **Subscriber** field select the subscriber whose track is to be displayed.
4. Set the color of the track.
5. In the **Line Thickness** define how thick the track line will be.
6. Set the **Start** and **End Date** of the track.

To animate displayed tracks, expand the **Map** menu in the **Main Menu** bar of the SmartPTT Dispatcher window and click **Animate Track**.

The **Track Animation** window opens.



Run track animation

Stop track animation

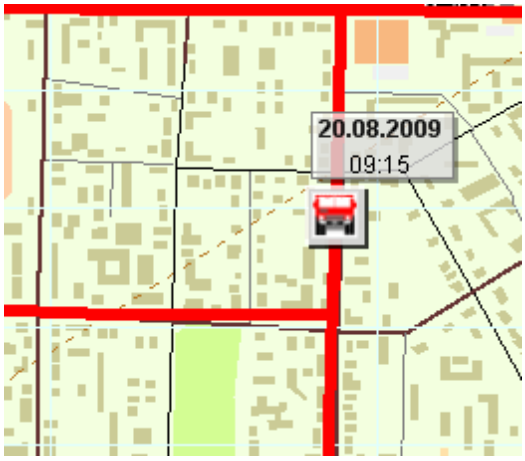
Pause

 Run track animation slower

 Run track animation faster

Note: During track animation you can slow it down or make it faster. The system remembers the last track animation speed and uses it during next track animation.

Here is an image of a sample track on the map.



Note: By default, GPS coordinates are not saved in the database. If you want to save GPS coordinates, open the **GPS Settings** window in the **Settings** menu and select **Save GPS Locations in Database**.

To clear the tracks shown on the current map, expand the **Map** menu in the **Main Menu** of the SmartPTT Dispatcher window and click **Clear Shown Tracks**.

To clear the shown tracks on all maps, expand the **Map** menu in the **Main Menu** of the SmartPTT Dispatcher window and click **Clear Shown Tracks on All Maps**.

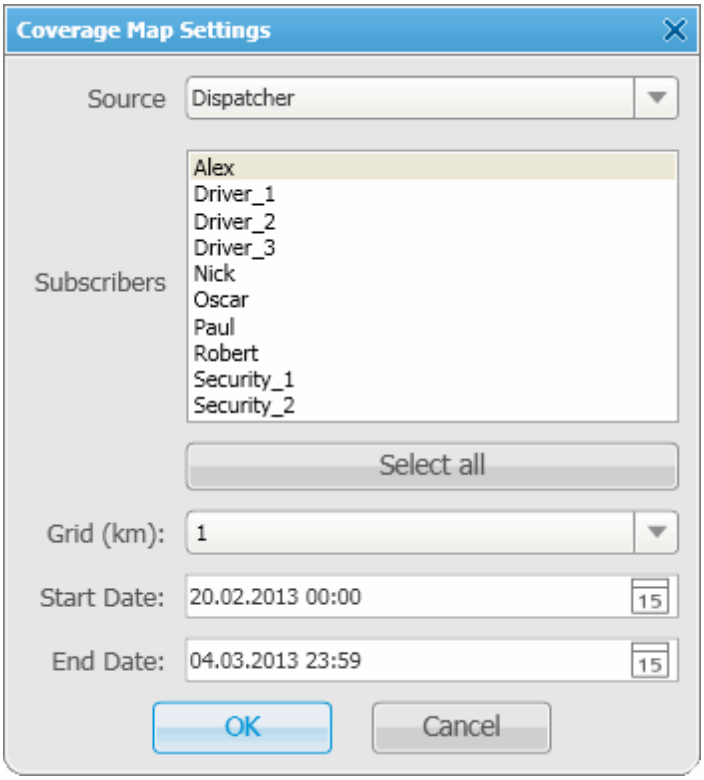
How to Manage Coverage Maps

Coverage maps were designed to give you information about RSSI of a particular radio in a particular place.

To compose this map you need to take the following steps:

1. Expand the **Map** menu in the **Main Menu** bar of the SmartPTT Dispatcher window and click **Show Coverage Map**.

2. In the **Source** field select the data source.

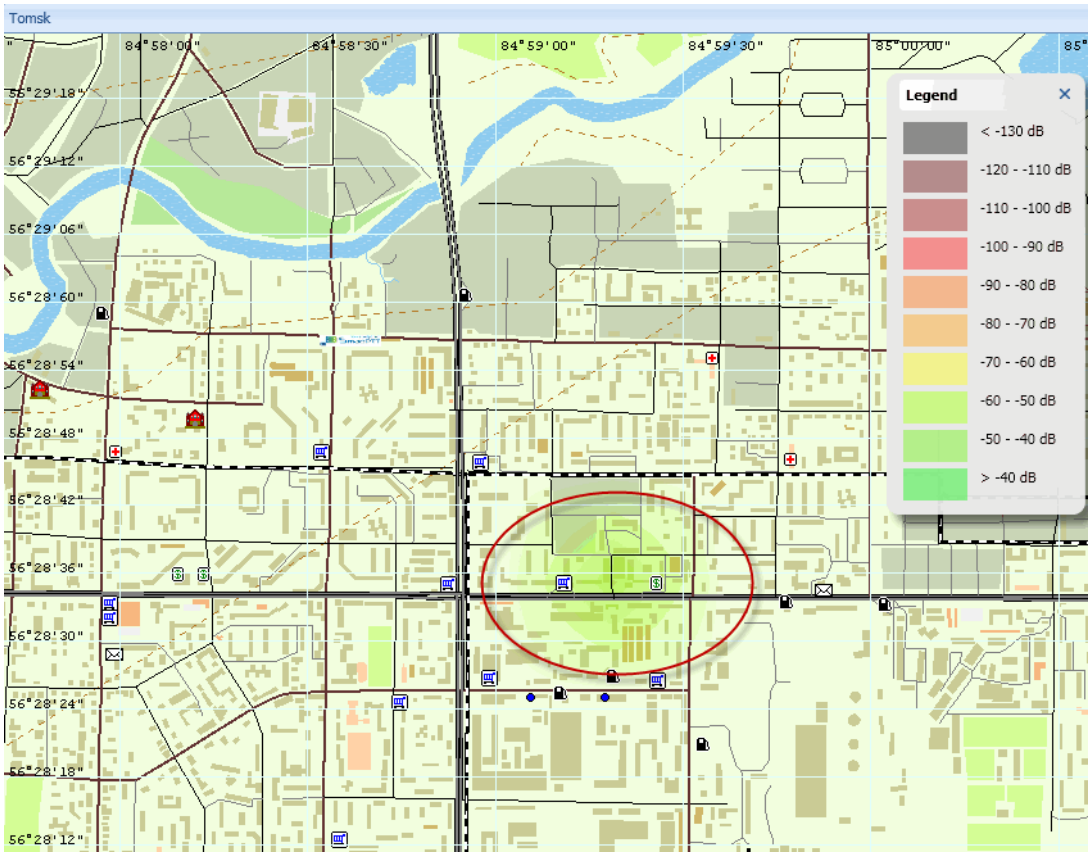


3. In the **Subscribers** field select the subscribers whose data you want to see on the map. You can also select all subscribers by clicking **Select All**.

4. In the **Grid** field set the radius for checking RSSI.

5. Fill in the **Start Date** and **End Date** fields.

6. Click **OK** to build the map. Here is an example of the map.



The **Legend** box identifies the colors used in the coverage map.

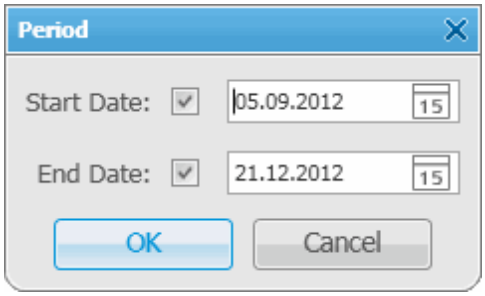
To clean the map, select **Hide Coverage Map** in the **Map** menu.

Event Log

The **Events** window allows you to see what is going on in the system. The event log displays status and event messages from the SmartPTT system, and other useful information.

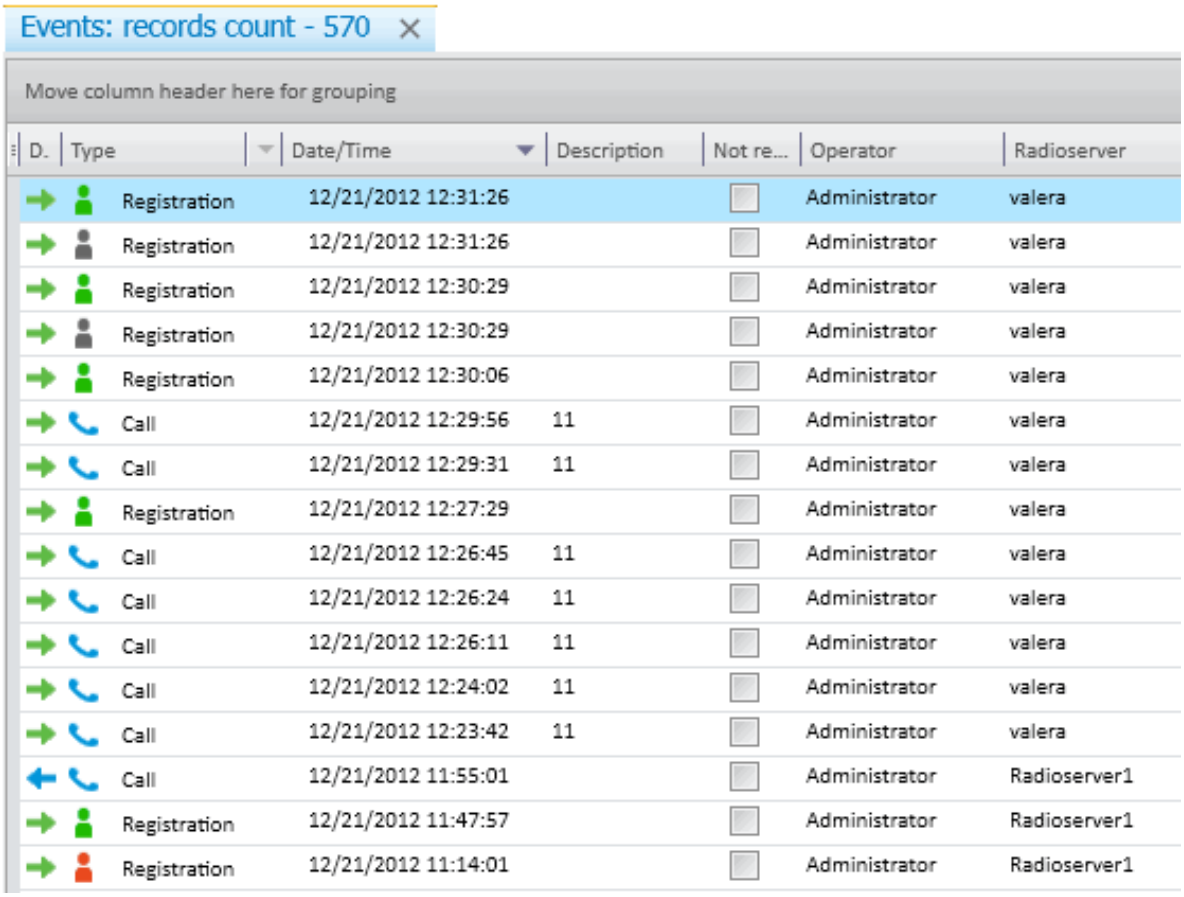
To open the event log, click **Event Log** in the **Main Menu** bar and then **All Events**. To tune **Event Log** settings, see Event Log.

You can limit the number of displayed data by setting a period of time. To do this, click **Events for Period** in the **Events** menu. The **Date/Time Period** dialog is displayed. Specify start and end date for entries displayed in the log.



To display only not read messages in the log, select **Unread Messages**.

The system event log appears as follows.



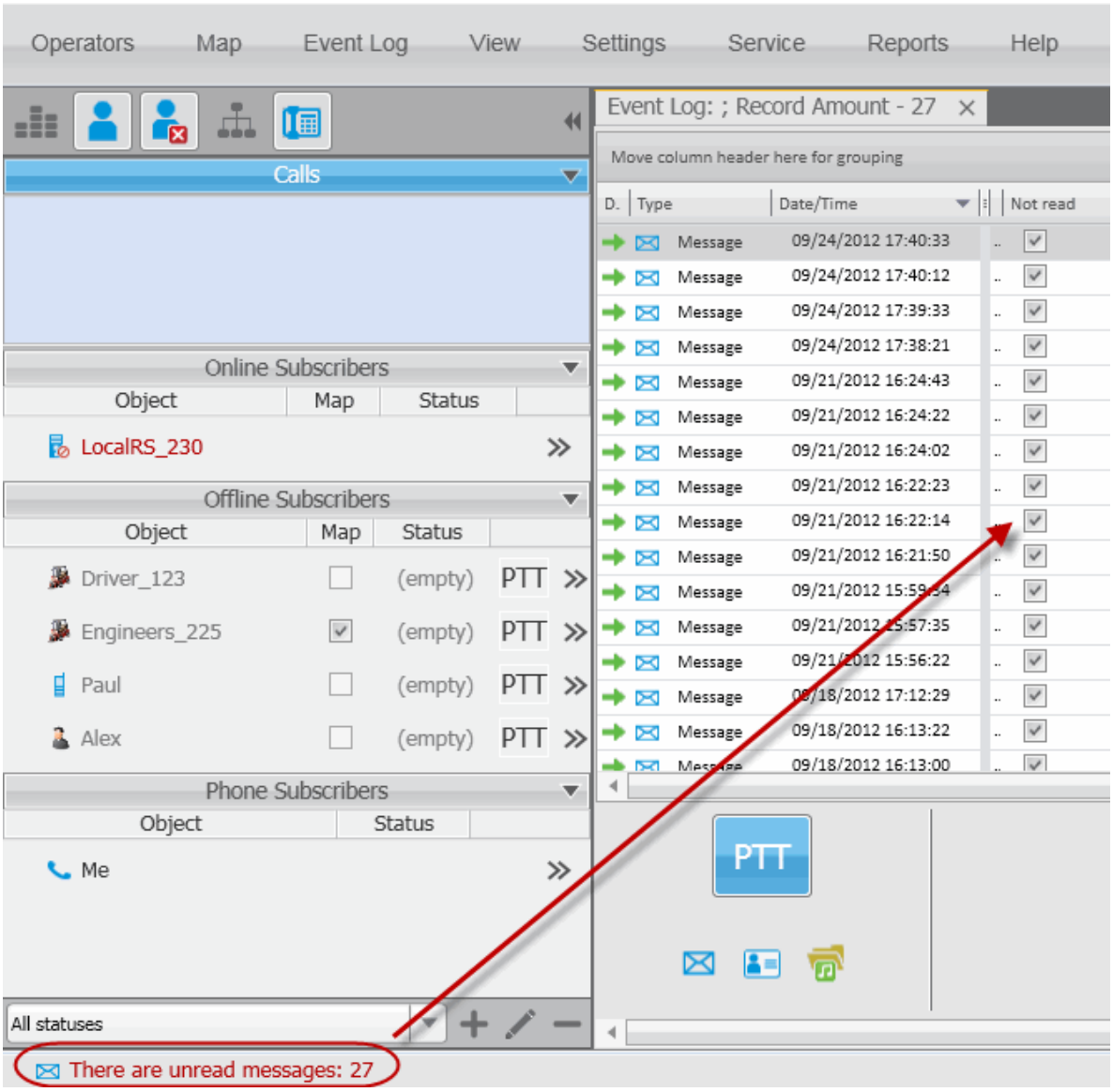
The log consists of the following columns: Direction, Event Type, Date/Time, Radioserver, Description, Not Read, Operator, Control Station, Subscriber, Talkgroup, Status, Duration, Record, Connection Type, Repeater IP and Receiver, Lone Worker. By default, all the columns are displayed in the log. To select columns displayed in the event log, right-click on the menu with column names and select the requisite columns in the list.

Place the cursor on the column name and click the arrow button that appears to open a list of filters related to the selected column. The following table contains a list of filters for the log columns and their description.

Column Name	Filters	Description
Direction	Left arrow Right arrow	Direction of calls, incoming and outgoing
Event Type	Block station Call Registration Message Status Telemetry Alarm	Select available events in SmartPTT

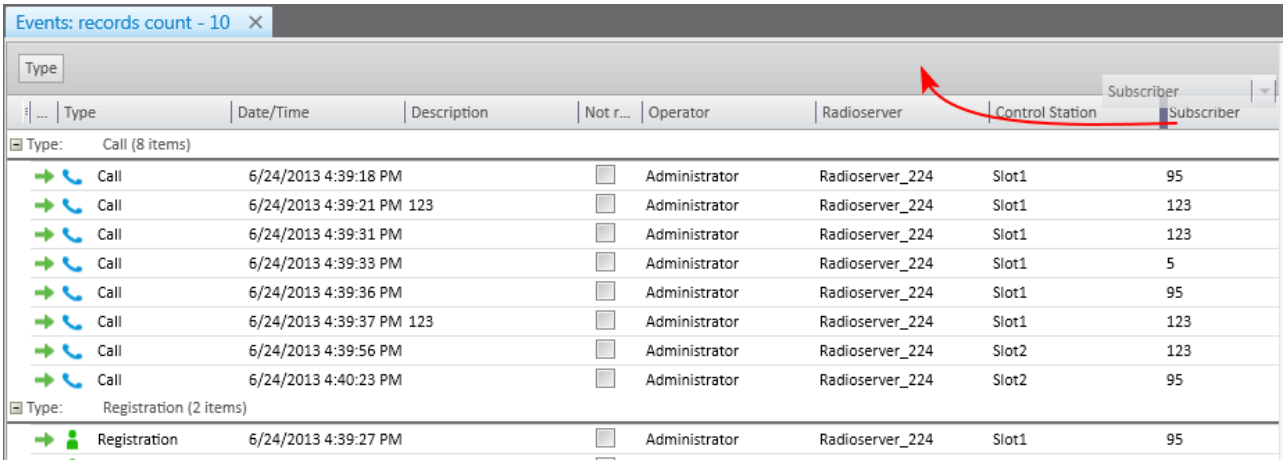
Column Name	Filters	Description
	Job Ticket Lone Worker	
Date/Time	Date/Time	A list of filters by date/time when an event took place
Description	Description of events	Description of SmartPTT events
Not Read	Read	Select read and not read messages
Operator	Operators list	List of SmartPTT operators
Radioserver	List of radioservers	List of available SmartPTT radioservers
Control Station	List of control stations	List of available SmartPTT control stations
Subscriber	Subscribers list	List of SmartPTT subscribers
Talkgroup	List of talkgroups	List of SmartPTT talkgroups
Status	List of statuses	List of SmartPTT statuses
Duration	Timing list	Displays for how long events last
Record	Not recorded Recorded	Select messages with and without recorded audio files
Connection Type	IP PBX DMR	Connection types in SmartPTT
Repeater IP	Address list of repeaters	IP-address and port of repeater in IP Site Connect network
Receiver	List of radios or talkgroups	ID of receiving radio or talkgroup
Lone Worker	Yes/No	The lone worker profile is assigned to the radio subscriber or not

Note: You can filter the event log by the column **Not Read** not only from the event log, but also by clicking on "There are unread messages: n" in the **Information bar**.

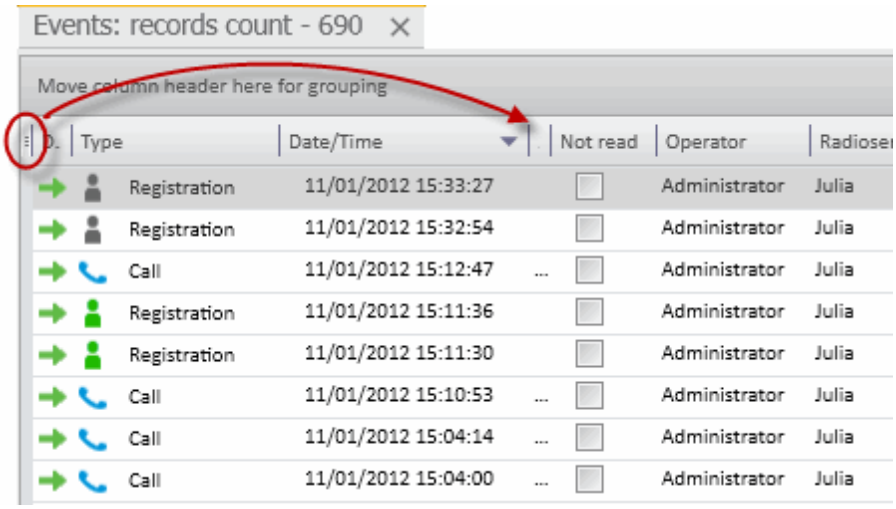


Click on any column name so the log sorts its contents according to this column content. You can filter the content displayed in the log using filters.

To group the log entries, click on the column title and drag it to the area labeled as "*Move column header here for grouping*".

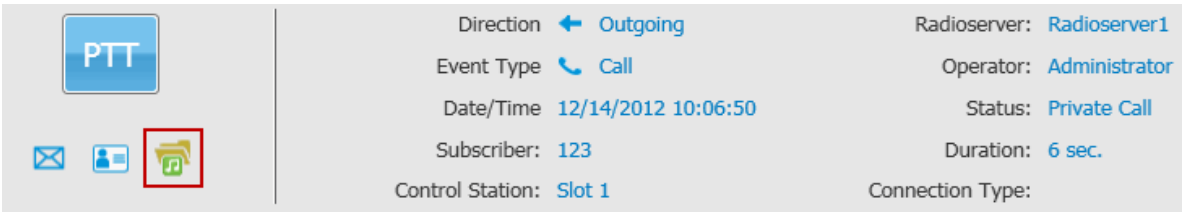


If you want to have particular columns to be always seen in the log regardless of the scroll position, use the special element in the column titles. Just drag it after the column you want to be always there.

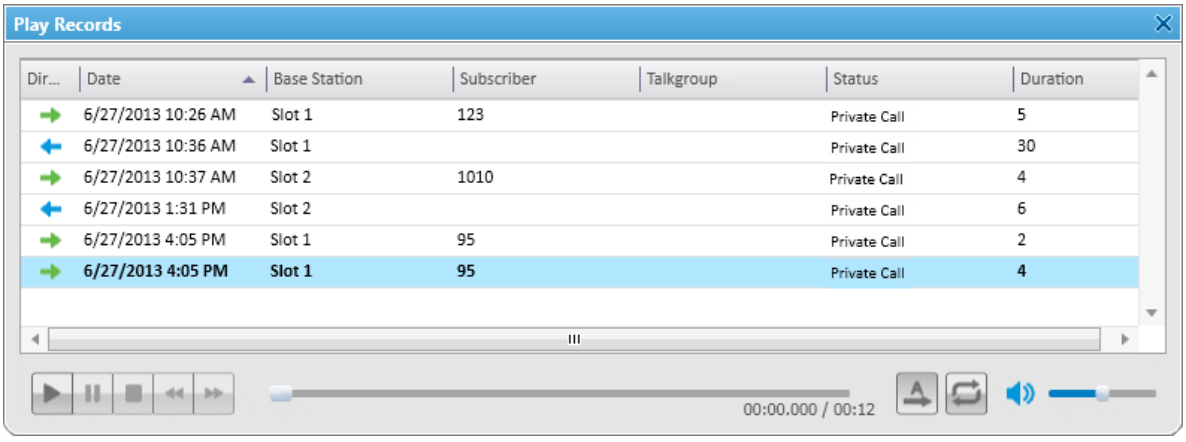


To listen to recorded audio files, select messages in the event log and click the **Play Selected Records** button

.



The **Play Records** window for selected records opens.



Note: After the record playback window opens, selected records are reproduced automatically, starting from the earliest date.

Player buttons:

Start Playback plays the selected record and all the records of the list without stopping.

Pause Playback pauses playback of the current record. Clicking the **Start Playback** button resumes playback of the record from the place of suspension.

Stop Playback stops playback of the current record. Clicking the **Start Playback** button enables playback of the record from the beginning.

Return to Previous Record plays the previous record after the current one.

Go to Next Record plays the following record after the current one.

Settings:

Play All Records enables the mode of all records reproduction in turn. Playback is controlled by the previously described buttons.

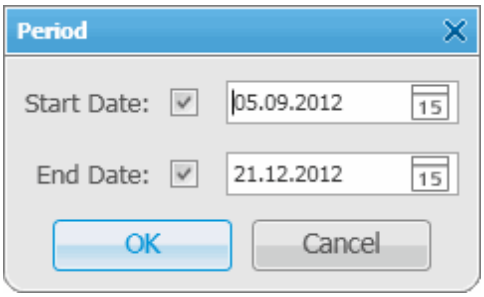
Replay enables the mode of replaying the current record or all the records in turn if the **Play All Records** mode is activated.

Opening Radioserver Event Log

Depending on the SmartPTT system configuration the event log can be saved either on the dispatcher side or the server side, or both.

To open the event log saved at the radioserver:

1. Open the radioserver **Action List** and select **Show Radioserver Event Log**.



2. Select the **Start** and **End Dates** to show events of the period. The **Radioserver Event Log** is displayed in the same way as the **Dispatcher Event Log** in a separate tab.

To make subscriber radio activity report based on the radioserver data, select **Create Radio Activity Report**. In the opened window specify the period of time, grouping, file to save the report and click **OK**.

View

From the **View** menu you can open all the panels used in SmartPTT Dispatcher.

These are the following panels:

- Lock UI Layout, allows blocking any changes in SmartPTT Dispatcher layout for operators. Available for Administrator only.
- Sound Panel from where you can manage the sound volume of the selected subscribers and slots.
- Call History panel, which gives you information of the recent voice calls made.
- Subscribers panel for quick access to the subscribers.
- Points of Interest which opens the panel with created points of interest (POIs). You cab also manage the POI list from this panel.
- Subscriber Locations panel to display subscriber on the map.
- Control Zones panel to manage control zones.
- Routes panel to create new routes on maps.
- Lone Workers panel to show lone workers' status, for example, that a lone worker did not call for a longer period than expected, etc.
- Server Tasks panel to display server tasks in the background.
- Monitoring panel for graphical representation of the voice and data received from the repeater.
- System Messages panel, which displays errors, disconnection of the radioserver, etc.
- Notifications panel to get information about the alarms configured by the dispatcher.
- Job Tickets panel from where you can create and supervise job tickets.
- Indoor Tracking Overview Map to control over their employees' displacement inside buildings.

Lock UI Layout

Lock interface layout function is available only for Administrator account and allows blocking any dispatch console layout changes for operators. It allows administrator to do specific console customization and prevent ordinary dispatchers from opening and closing windows and panels.

In order to fix panel positioning, expand the **View** menu in the **Main Menu** bar of the SmartPTT Dispatcher window and click **Lock UI Layout**.

When this mode is enabled, the dispatcher can't do the following actions:

- Opening and closing panels. Automatic pop-up panels, such as **Notifications** and **System messages**, do not open either.
- Changing panel location (see Panel Positioning).

- Switching window configurations by pressing the **Show List of Window Configurations** button .
- Changing the size of the opened panels.
- Changing the content of the **Subscriber Management Panel** using the **Navigation Bar** buttons (see Subscriber Management Panel > Navigation bar).

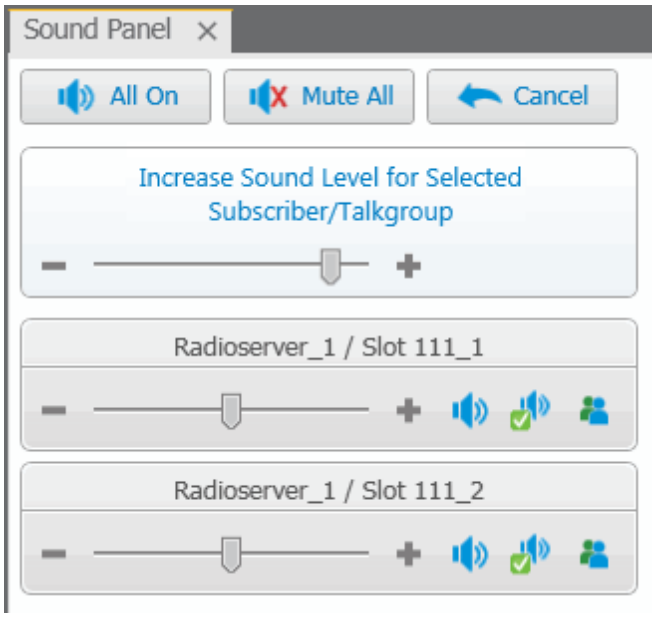
Note: If the **Event Log** is opened when the user interface layout is locked, all the features designed for the **Event Log** management are available to the dispatcher.

Sound Panel

The **Sound Panel** allows setting individual sound level for each control station, turn on/off sound for the subscriber or talkgroup, select only one control station with the sound turned on.

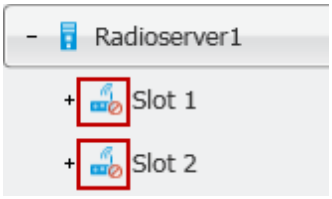
To open the **Sound Panel**, expand the **View** menu in the **Main Menu** bar of the SmartPTT Dispatcher window and click **Sound Panel**.

The **Sound Panel** window.



All On – turns on the sound for all the connected control stations.

Mute All – turns off the sound for all connected control stations. Mute control stations are marked with a special symbol.



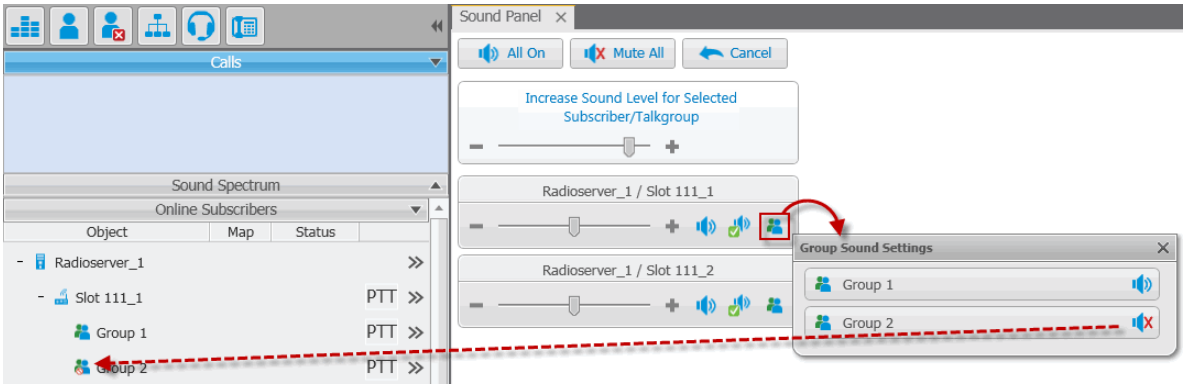
Cancel – calls off the last action.

To manipulate the sound level, click the **–** / **+** buttons or move the thumb.

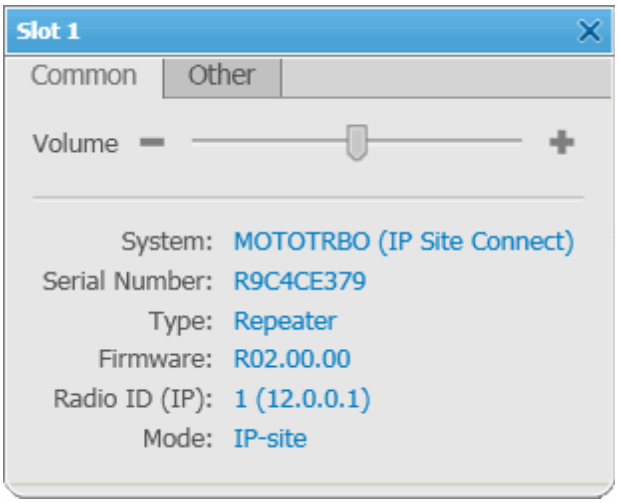
To turn on/off the sound on a particular control station, click .

To turn on the sound for one control station and at the same time to turn off the sound for other control stations, click .

To turn on/off the sound for talkgroups, click . At that, a window will open with the list of available talkgroups on the slot. Mute talkgroups are marked with the special symbol.



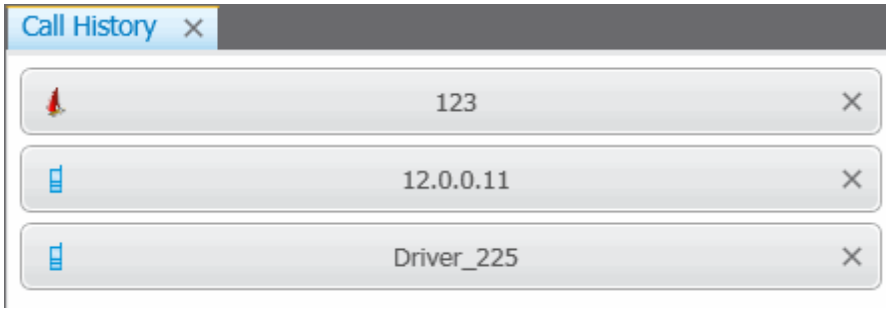
Sound settings for a control station can also be done in the control station **Properties** window.



Call History

The **Call History** panel displays the list of recent subscriber voice calls. The panel is used for quick access to the call windows of the subscribers.

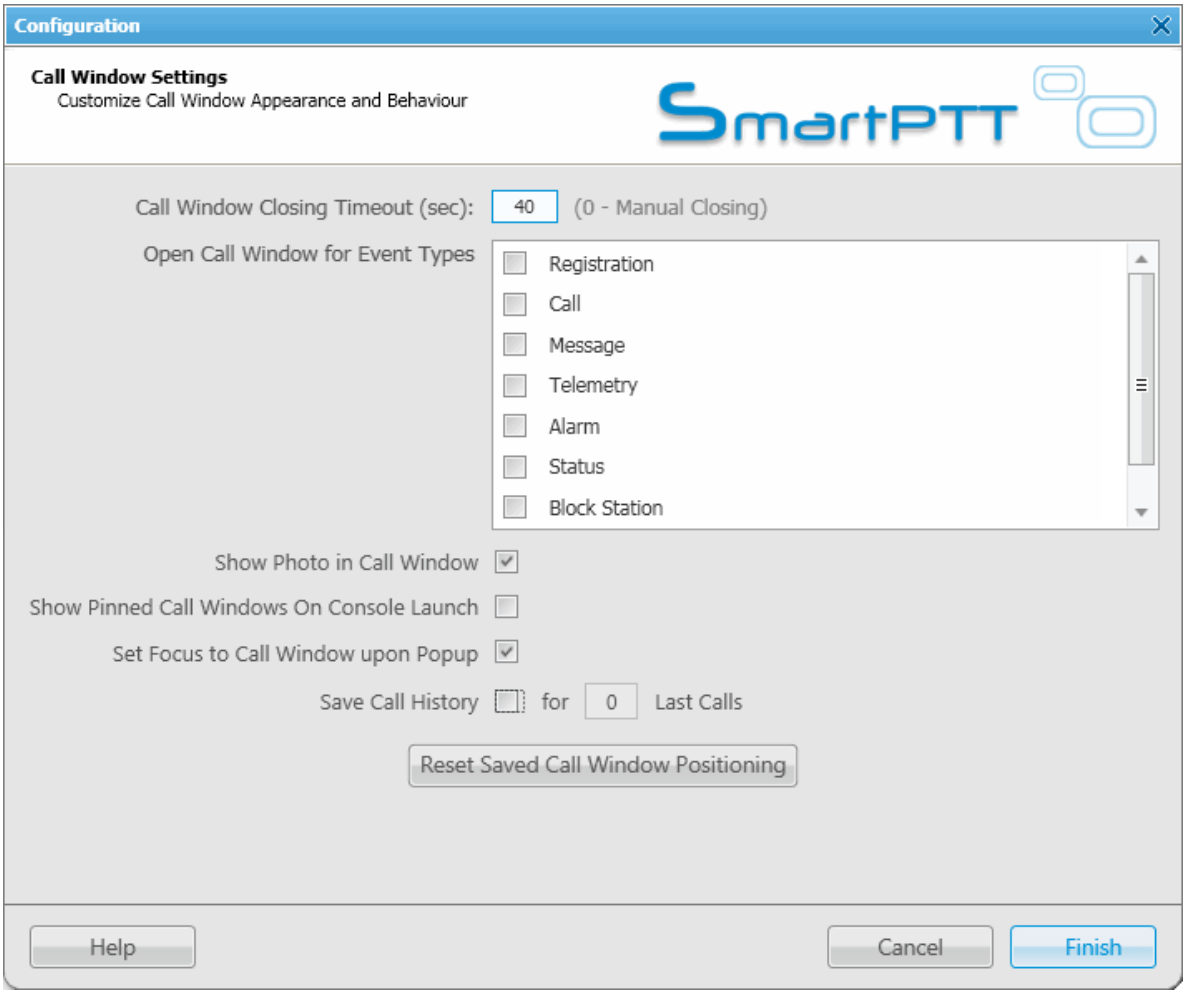
To open **Call History** panel, expand the **View** menu in the **Main Menu** bar of the SmartPTT Dispatcher window and click **Call History**. At that, the **Call History** window opens.



Click on the subscriber record to open the **Call Window**.

To configure the **Call History** panel settings, expand the **Settings** menu in the **Main Menu** of the SmartPTT Dispatcher window and click **Call Windows**.

At that, the following window opens.



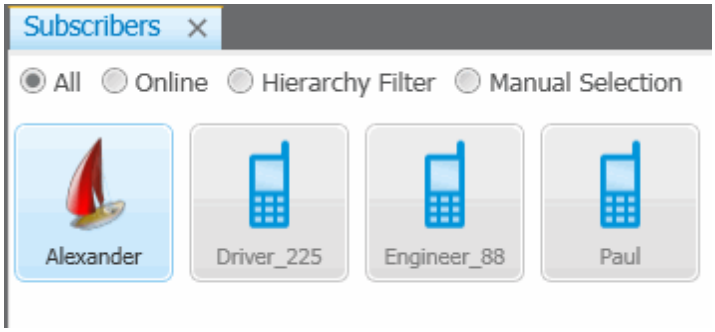
Save Call History – keeps history of calls in the **Call History** panel. The limit is set in the **Last Calls** field.

To apply the changes, click **Finish**.

Subscribers

Subscribers panel provides convenient interface to perform voice calls and subscriber property modification by generating the list of large control buttons for radio subscribers.

To open the **Subscribers** panel, expand the **View** menu in the **Main Menu** bar of the SmartPTT Dispatcher window and click **Subscribers**. At that, the **Subscribers** panel opens.



All – all registered radio subscribers (online and offline) are displayed on the panel.

Online – only online radio subscribers are displayed.

Hierarchy Filter – only radio subscribers from selected category, radioserver or control station are displayed.

Manual Selection – radio subscribers selected manually by the dispatcher are displayed. To do it, drag the radio subscriber into the panel window.

To select a subscriber on the panel, click on the corresponding button. Functions applicable for a selected subscriber:

- Right-click to view the subscriber **Property** window.
- Double-click to view the **Call** window.

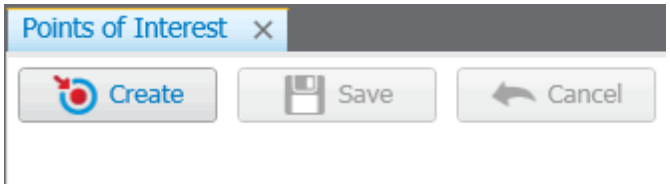
On the **Subscriber** panel window it is possible to distinguish between radio subscribers' states. Different states differ by color of the control button, the icon and the frame around it. The colors are the same as in Custom Consoles.

Points of Interest

The **Points of Interest** panel displays all the exiting points of interest. You can also create, modify or delete a point of interest from the panel.

To view points of interest (POI) to be displayed on the map, expand the **View** menu in the **Main Menu bar** of the SmartPTT Dispatcher window and click **Points of Interest**.

At that, the **Points of Interest** panel opens.



In the panel window you can do the following:

- Create a new POI
- View the list of created POIs
- Hide or show POIs on the map

To create a new POI:

1. Open a map.
2. Click **Create**.
3. In the opened window type the name of the POI and upload its picture. Click **OK**.
4. Place the new POI on the map by clicking the left mouse button.
5. To save the position of the POI click **Save** in the panel window. To call off the changes, click **Cancel**.

You can also create the POI from the **Map** menu. For more information see Maps.

To hide or show the POI on the map, select the checkbox next to the POI title.

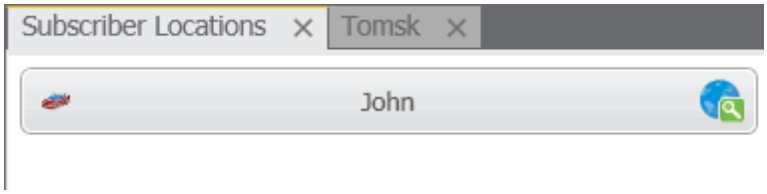
Subscriber Location Panel

Subscriber Location panel shows the subscribers inside the selected area on the map.

To select area on the map, press **CTRL** and click with the left mouse button and draw the area covering subscribers.

Note: The **Subscriber Location** panel will be opened automatically if it is hidden at the moment of subscriber selection.

Opened **Subscriber Locations** panel.



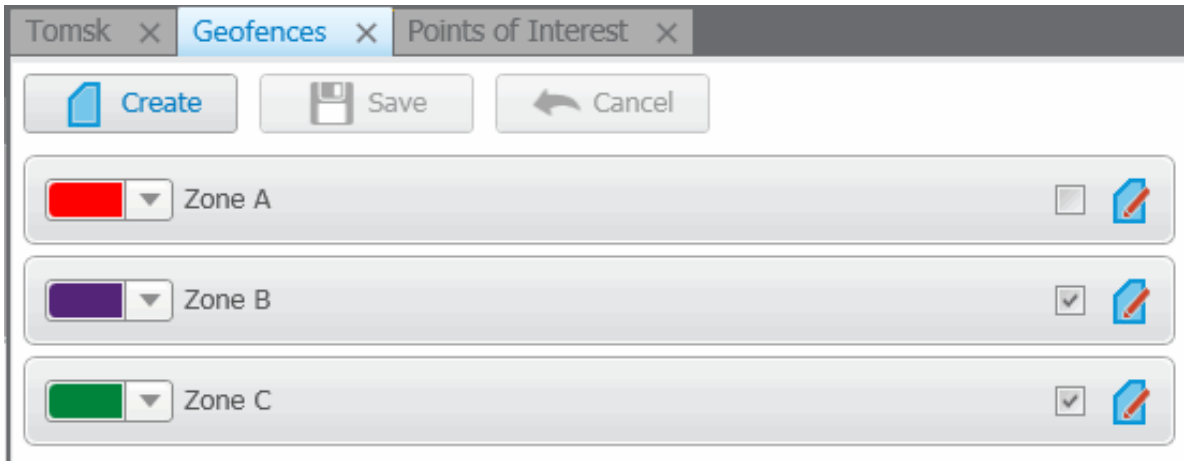
Click to find the subscriber on the map.

To manually open the **Subscriber Location** panel use the **View** menu in the **Main Menu** bar.

Geofences

The **Geofences** panel is used to create, modify and display geofence on the map. Geofences help dispatchers to keep an eye on subscribers. A dispatcher can define the area of the geofence on his or her own and attach special rules to it.

To open the **Geofences** panel, expand the **View** menu in the **Main Menu** bar of the SmartPTT Dispatcher window and click **Geofences**. At that, the following window opens up.

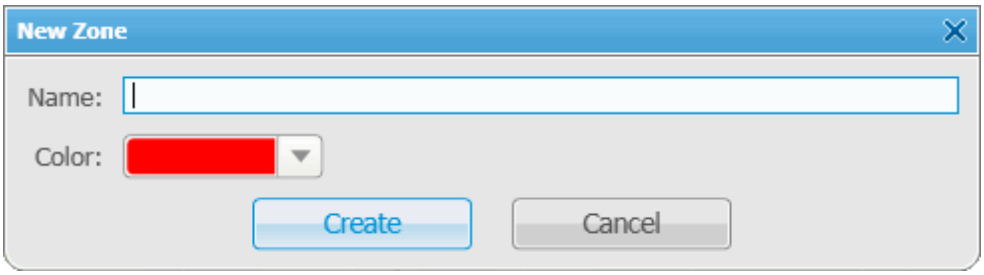


To create a new geofence:

1. Open a map.

Note: Geofence creation with Map Point is not supported.

2. Click **Create** in the **Geofences** panel window.
3. In the opened dialog box type the name of the geofence and select the color. Click **Create**.



4. Draw the geofence on the map with the help of mouse and the keyboard. For example, to undo the last added point press the **ESC** key.
5. Click **Save** in the **Geofences** panel window.
6. The record about the new geofence will appear in the **Geofences** panel.
7. You can activate the geofence in this panel by selecting the checkbox next to the name of the geofence and edit it by clicking **Edit**. You can also change the color of the geofence.

Note: You can also stop drawing the geofence by double-clicking on the last point of the zone.

Note: Geofence must have at least 3 points.

To call off creation of the new geofence, click **Cancel**. To modify the existing geofence, click **Edit**.

You can also create geofences from the **Map** menu. For more information see Maps.

To assign a rule to the geofence, go to GPS Rules.

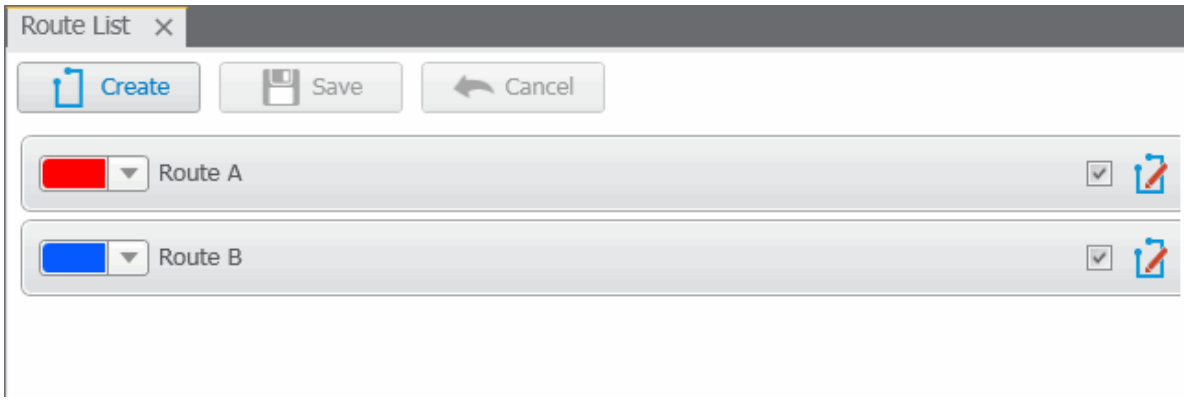
Routes

Route is a tool of SmartPTT that significantly extends functionality of the dispatch system, especially for monitoring and controlling networks of highly mobile subscribers moving along the predefined route (for example, employees of transportation companies). Its meaning radically differs from the pre-existing concept of a "Route" as the trajectory of subscriber's movement that, from now on, is called "Track".

The route, starting with version 7.1.0 is a polyline connecting key points of the network coverage area. Subscriber location near the key points is identified by the specified radius of the route and can be summarized in the

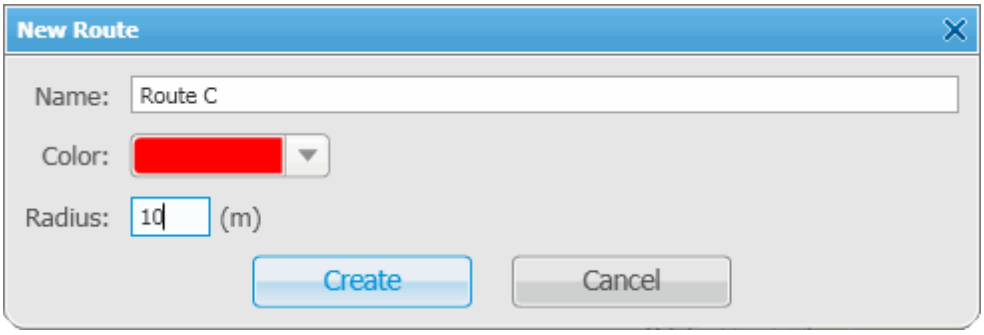
Subscriber Locations report.

To open the **Routes** panel, expand the **View** menu in the **Main Menu** bar of the SmartPTT Dispatcher window and click **Routes**. At that, the **Routes** panel opens.



To create a new route:

1. Open the map window and click **Create**. At that, the **New Route** window opens.



2. In the field **Name** type the name of the new route.
3. Set the color of the new route.
4. In the **Radius** field enter allowed deviation from the route.
5. Click **Create**.
6. Go to the map window and draw the route.

Route points are created by clicking with the left mouse button on the map area. To create the first route point, point to the place where the route starts and left-click on it. To create next route points, point to the appropriate place on the map and left-click on it. Route points connect sequentially drawing a new route on

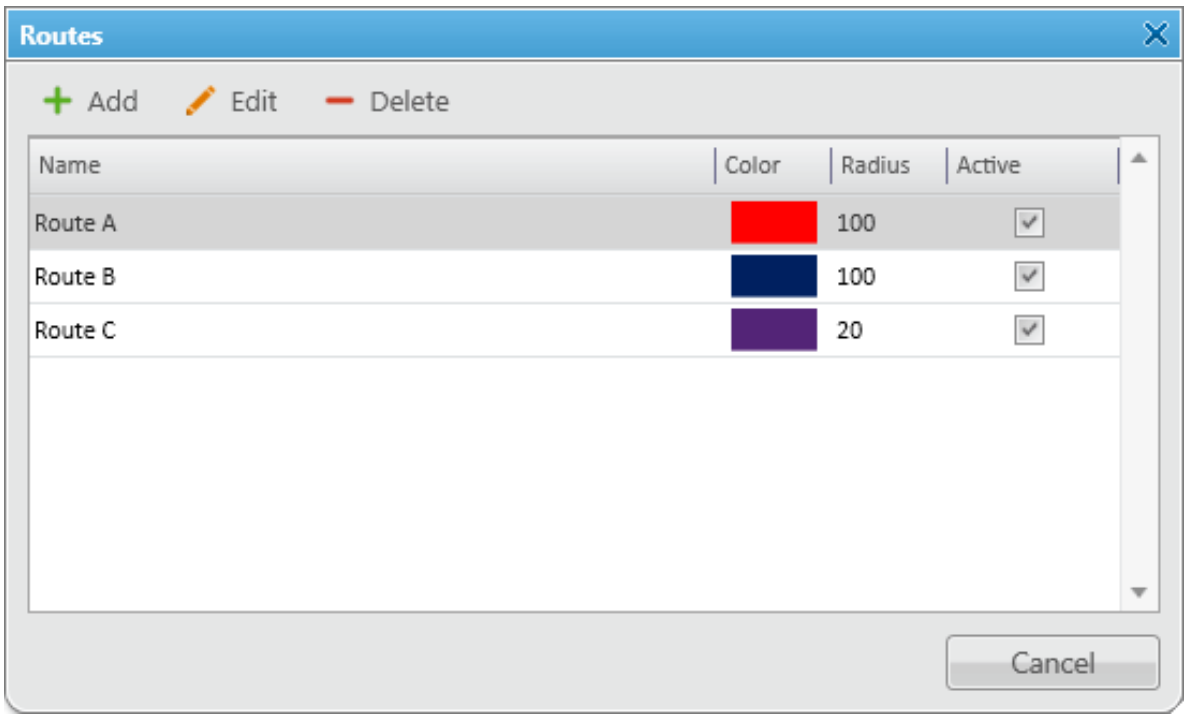
the map. To undo the last added point, press Esc.

You can stop drawing the route by double-clicking the last point of the route.

7. To save the route, click **Save** in the **Routes** panel window. To call off the route, click **Cancel**. To modify the existing route, click the **Edit** button .

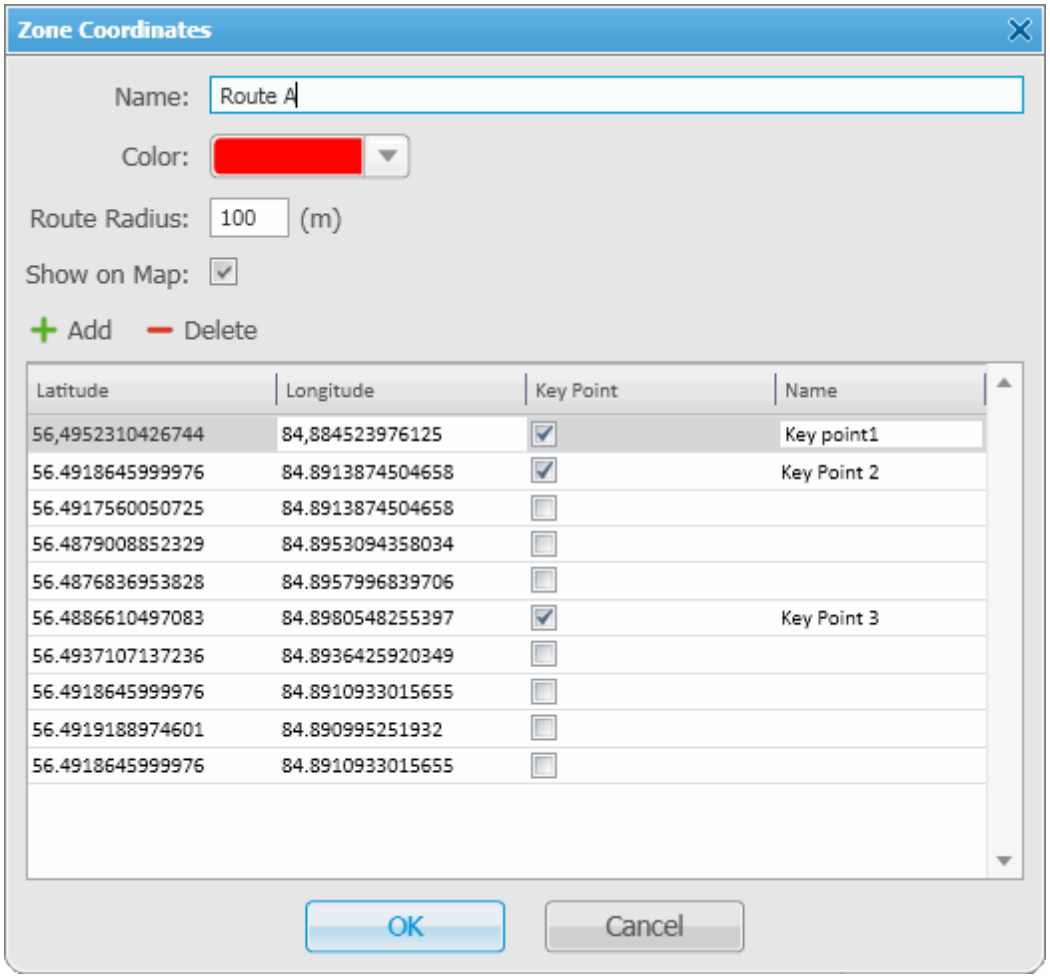
To specify the route parameters (Color, Radius, Coordinates), expand the **Map** menu in the **Main Menu** of the SmartPTT Dispatcher window and click **Routes**.

At that, the following window opens.



To modify route display settings (coordinates, key point names, radius and route color) click **Edit**.

The **Route Coordinates** window opens.



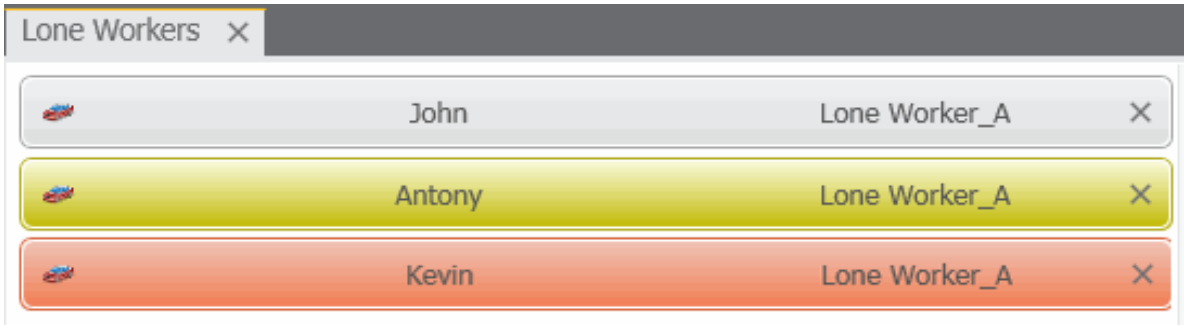
Key Point is used for singling out particular places of the track on the map. You can give a name to each key point to be displayed on the map. The key points are represented by small white squares on the map.

The route example:

Lone Workers

The **Lone Workers** panel displays the list of subscribers who are in the **Lone Worker** mode and their current status. This was designed for a better supervision over lone workers.

To open the **Lone Workers** panel, expand the **View** menu in the **Main Menu** bar of the SmartPTT Dispatcher window and click **Lone Workers**. At that, the following window opens.



The **Lone Workers** panel shows radio subscribers working in the **Lone Worker** mode marked with specific color.

The color shows if the subscriber meets the requirements set for the lone worker profile the subscriber belongs to:

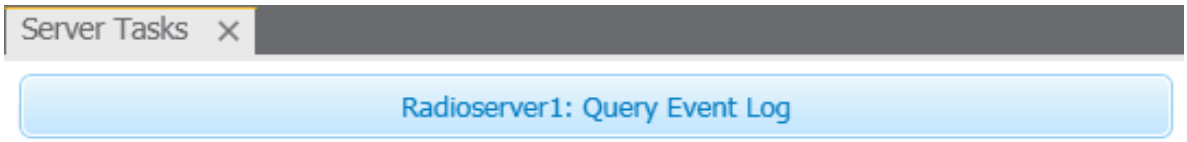
- Light gray – the lone worker did not violate the rule.
- Yellow – rule violation: the event, described by the rule, has occurred. **Alert Timer** starts.
- Red – the lone worker did not react in a specified way after **Alert Timer** expired.

Note: For more information how to set rules for lone workers, please see Lone Worker Rules.

Server Tasks

The **Server Tasks** window shows the list of commands from the dispatch application the radioserver is processing at a given moment of time.

For now, only a few commands are displayed in the **Server Tasks** window, for example, the command to create the radioserver event log.



Monitoring

The **Monitoring** panel is a complex tool which gives a comprehensive outlook on the whole radio system.

It includes four tabs:

1. Monitoring
2. Topology
3. Diagnostics
4. Log

Monitoring Tab

Monitoring – graphical representation of data and voice received from MOTOTRBO repeaters, which allows

observing the ongoing system operation. Each logical channel has a section for displaying transmitted packets in the form of colored vertical bars. The height of the bar corresponds to the level of the received signal; and the color corresponds to the event type according to the legend. In order to see the radioserver and its network in the **Monitoring** tab, make sure that the Monitoring service is enabled for this radioserver in SmartPTT Radioserver Configurator.

Note: Graphical representation of data packets is displayed only for the selected network, that is after you have opened the **Monitoring** tab for this particular network.

Show Details – when selected, events from different slots appear in separate blocks.

Show Summary – when selected, events from different slots appear in one block.

When checking both parameters, all the three blocks are displayed.

Data displayed in blocks:

Name	Description
System	System events from MOTOTRBO equipment (data confirmation, private call confirmation, etc.)
ARS	Registration information, that is information about radio availability in the network
Location	Coordinates of the radio with GPS support (GPS service)
Text Message	Receiving and sending text messages (TMS service)
Telemetry	Transmitting and processing telemetry signals
Call Alert	Call alert sent to a radio subscriber
All Call	Calling to all radio subscribers registered on one logical channel
Group Call	Calling to a particular talkgroup of radio subscribers
Private Call	Private call from or to radio subscriber
Remote Monitoring	Radio station remote monitoring

Name	Description
Emergency Alarm	Emergency signal from radio station
Emergency Call	Emergency call from radio station
Phone to Group	Group telephone call between the telephone subscriber and the talkgroup
Phone to Private	Telephone call between a telephone subscriber and one radio station

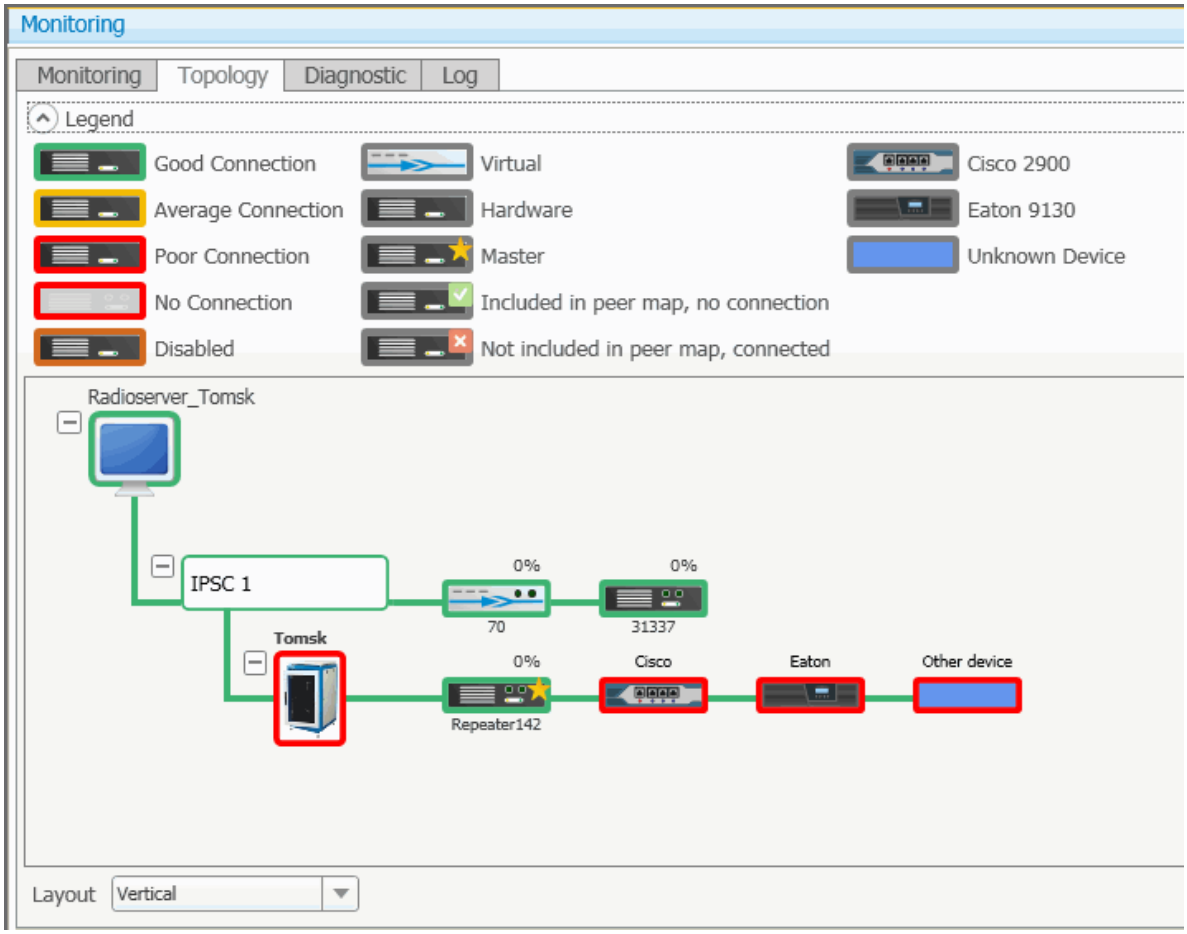
The event log at the bottom of the screen gives more detailed information, namely the type of the transmitted data (ARS, GPS, Message, Emergency Call, etc.), date and time of the event, event duration, sender and receiver ID, repeater ID and RSSI level.

If there are more than one IP Site Connect or Capacity Plus network in SmartPTT Dipsather, to view events of a particular network, select it from the list on the left by clicking with the mouse button.

Note: The list on the left shows only active networks (IP Site Connect or Capacity Plus) of SmartPTT Radioserver. If a network becomes inactive, it disappears from the list.

Topology Tab

Topology – schematic representation of active networks. A network topology is set in SmartPTT Radioserver Configurator and displayed in SmartPTT Dispatcher.



Note: In order to see the radioserver and its network in the **Topology** tab, make sure that the **Monitoring** service is enabled for this radioserver in SmartPTT Radioserver Configurator.

Graphical objects used in topology:

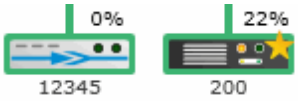
Graphical Object	Description
	Major alarm on device or no connection
	Device is connected or no alarms registered on device.

Graphical Object	Description
	Minor alarm is registered on device or there are more than 5 packets lost or corrupted.
	Repeater is turned off.
	Repeater is not connected.
	SmartPTT Radioserver
	Network in folded state
	Virtual repeater in IP Site Connect (SmartPTT Radioserver)
	Slave hardware repeater in IP SiteConnect
	Master hardware repeater in IP Site Connect Master virtual repeater in IP SiteConnect
	Repeater is not connected, but it is included in the peer map.
	Repeater is connected, but it is not in the peer map.
	Location in folded and unfolded state
	Uninterruptible power supply (Eaton)
	Cisco router

Graphical Object	Description
	Unknown device (any other device)

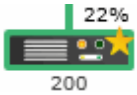
Note: Network configuration is set in SmartPTT Radioserver Configurator. Repeaters, which are added but not active, are marked red. If network configuration is not set in SmartPTT Radioserver Configurator, the network topology will be generated automatically based on the information received from the available network repeaters. If IP-connection with the repeater is lost, it disappears from the topology screen.

Repeater loading on both logical channels is displayed in percents above each repeater.

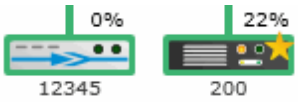


Loading percentage grows steadily, not sharply, until the maximum value. When both logical channels are used, the maximum value is 100%, when only one logical channel is used— 50%.

A busy channel is represented by a yellow LED on the repeater.



Repeater ID is displayed under repeater.



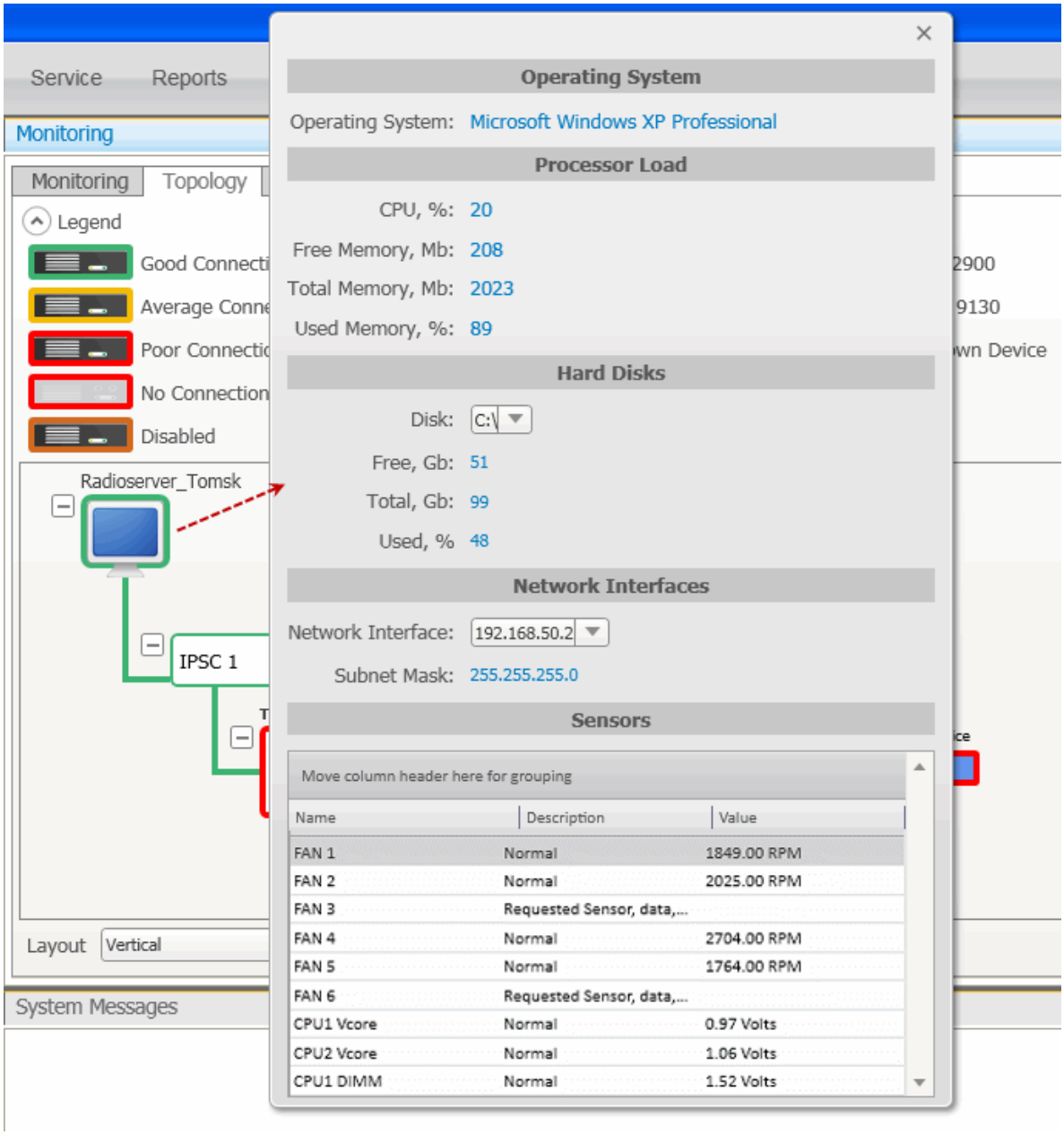
Application peer ID is specified in SmartPTT Radioserver Configurator in IP Site Connect or Capacity Plus settings in the **Peer ID** field.

Note: All the repeaters used in one network should have unique ID's (IP Site Connect or Capacity Plus).

1. Radioserver

To fold and unfold the network, right-click on the radioserver and select **Fold** or **Unfold** respectively.

To view radioserver parameters and the ongoing performance information, right-click on the radioserver image and select **Information**.



Operating System – provides information on the OS used on the server.

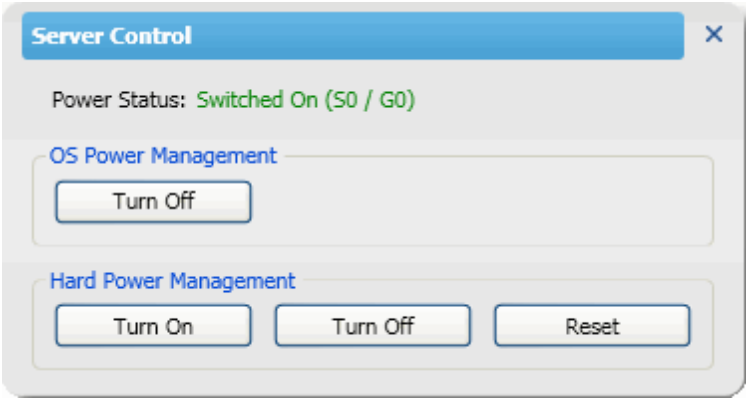
Processor Load – displays current CPU load and other information about PC memory.

Hard Disks – provides information on the the available hard disks of the PC and their characteristics.

Network Interfaces – displays the network interface and the sub network mask of the PC.

Sensors – displays platform status (for example, system temperatures, voltages, fans, power supplies and chassis intrusion).

To operate remotely, right-click on the radioserver image and select **Control**. At that, the following window opens.



Power Status – shows the current status of the radioserver. There can be three statuses:

- **Switched On**
- **Switched Off**
- **N/A Unknown**

Note: In case of **N/A Unknown** check that all the information about the radioserver is set correctly in the Radioservers settings.

OS Power Management – allows users to turn off the radioserver at the OS level.

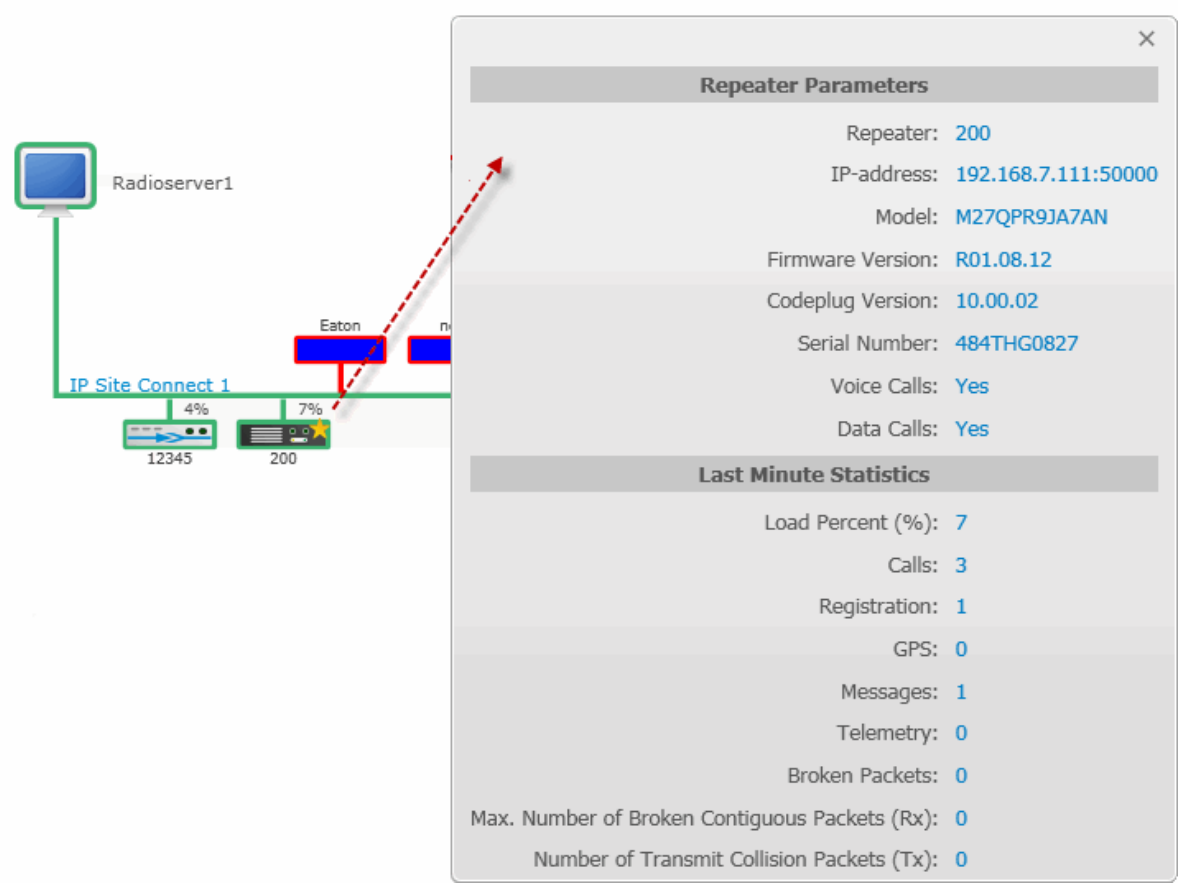
Hard Power Management – allows users to turn on/off or to hard reset the radioserver computer at the hardware level.

Note: If the radioserver computer is blocked, you can turn off the radioserver computer only at the hardware level.

If you have more than one radioserver, you can arrange them in the **Topology** tab either vertically or horizontally. The layout can be selected in the **Layout** dropdown at the bottom of the **Topology** tab. The selected layout is applied not only to radioserver elements, but to all elements, which can be folded and unfolded.

2. Repeater

To view repeater parameters and statistics, right-click on the repeater element and select **Information**.



Repeater parameters:

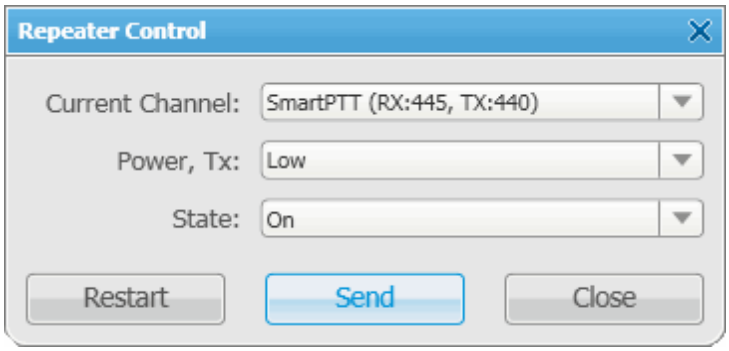
Name	Description
Repeater	Repeater ID
IP-address	Repeater IP-address
Model	Repeater model number
Firmware Version	Version of firmware used in repeater

Name	Description
Codeplug Version	Repeater parameter block version
Serial Number	Repeater serial number
Voice Calls	Ability to transmit voice (Yes, No)
Data Calls	Ability to transmit data (Yes, No)

Statistics:

Name	Description
Channel Loading (%)	Channel loading on repeater for the last 10 seconds
Calls	Number of times the PTT button was pressed.
Registration (ARS)	Number of registration packets transmitted for the last minute
GPS	Number of GPS coordinates transmitted for the last minute
Messages	Number of text messages transmitted for the last minute
Telemetry	Number of telemetry packets transmitted for the last minute
Broken Packets (RX)	Number of packets (Rx) with errors, received for the last minute
Maximum Number of Broken Contiguous Packtes (RX)	Maximum number of broken packets (Rx) in a row
Number of Transmit Collision Packets (TX)	Number of not transmitted packets due to collisions on the channel

To operate remotely, right-click on the repeater element and select **Control**. At that, the following window opens.



Note: You cannot operate virtual repeaters remotely, therefore, the **Repeater Control** window is available only for hardware repeaters connected to the radioserver.

Current Channel – channel used by the repeater. Channels are set in repeater settings with the help of MOTOTRBO Customer Programming Software (MOTOTRBO CPS).

Power, TX – transmitter power of repeater. There are high and low modes. Bands for both modes are specified in MOTOTRBO CPS.

State – allows switching the repeater to “active” or “not active” mode. When in the “not active” mode, repeater does not transmit any signals. To switch the repeater to the “active” mode, select *On* in the **State** field.

Restart – allows restarting repeater remotely.

Apply Settings – applies settings specified in the **Repeater Control** window.

Cancel – closes the **Repeater Control** window without making changes in the repeater settings.

3. Uninterruptable Power Supply (UPS)

Currently, you can select between Eaton UPS and any other UPS if you select *Unknown* in the **Type** field.

To view parameters and status information of Eaton UPS, right-click on the UPS element and select **Information**.

Identification:

Name	Description
Model	Eaton UPS model

Name	Description
Serial Number	Device serial number
Firmware	Firmware version
IP-address	IP-address
Network Mask	Network mask

State:

Name	Description
Alarm Details	Informs about issues in UPS operation
Input Power Source	Input Power Source
Output Power Source	Output Power Source
Last Battery Replacement	Date and time when battery was replaced last time

Parameters:

Name	Description
Input Voltage (V)	Input voltage level (V)
Input Frequency (Hz)	Input frequency level (Hz)
Output Voltage (V)	Output voltage level (V)
Output Frequency (Hz)	Output frequency level (Hz)
Output Current (A)	Output current level (A)
Output Power (W)	Output power level (W)
Load (%)	Eaton UPS loading in percent

Name	Description
Battery Charge (%)	Battery charge left in percent
Charge Left (hh:mm)	Battery charge left in hours and minutes

4. Router

Currently, you can select between Cisco router and any other router if you select *Unknown* in the **Type** field.

To view parameters and other information of Cisco router, right-click on the element and select **Information**.

Identification:

Name	Description
Model	Cisco model
Serial Number	Cisco router serial number

Alarms – gives information about issues in the router operation.

5. Unknown Device

Unknown device is any kind of device other than Cisco 2900 and Eaton 9130.

To view information on the device, right-click on the element and select **Information**.

Parameters:

Name	Description
System Name	Name of the device
System Description	Description of the device
Alarm Details	Informs about issues in the device operation

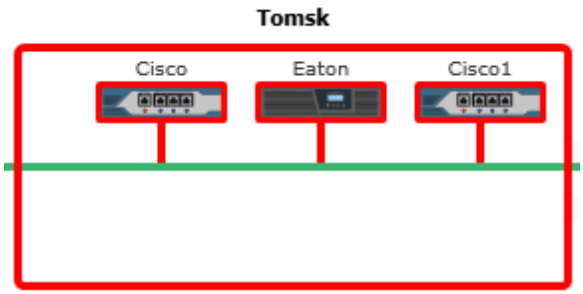
6. Location

To change the way **Location** is displayed, right-click on the **Location** element, or click on the **Plus**/**Minus** icon. There are two display modes:

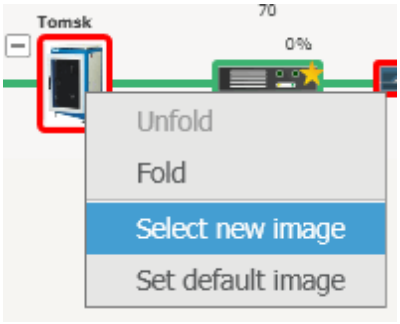
- **Folded**
- **Unfolded**

Folded – location is displayed as an image inside a box.

Unfolded – displays which devices, repeaters and routers are used in this location.

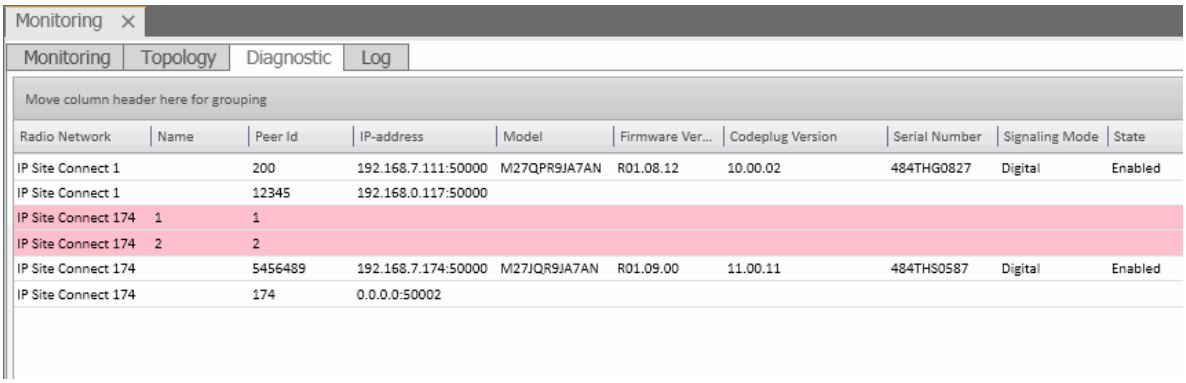


To change the default image of **Location**, right-click on the object. At that, a drop-down will appear where you can either upload your own image or set the default image.

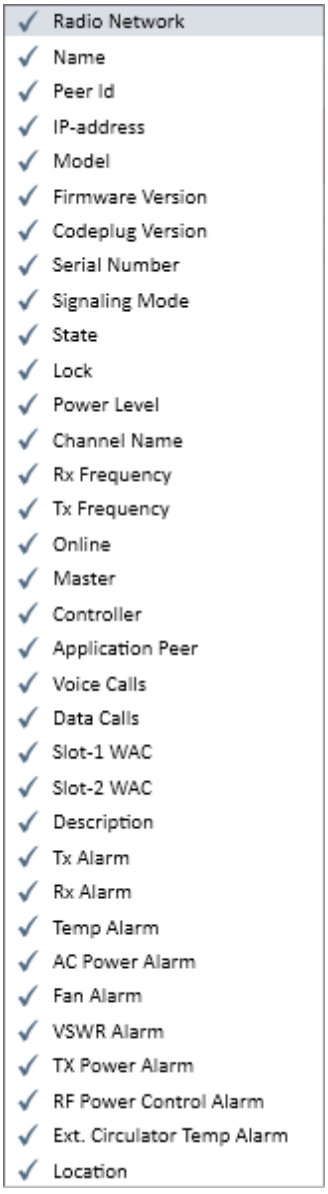


Diagnostic Tab

Diagnostics – provides information about the current state of the connected MOTOTRBO repeaters.



To select the columns which are to be displayed, right-click on the menu bar with the column names. At that, the following list opens.



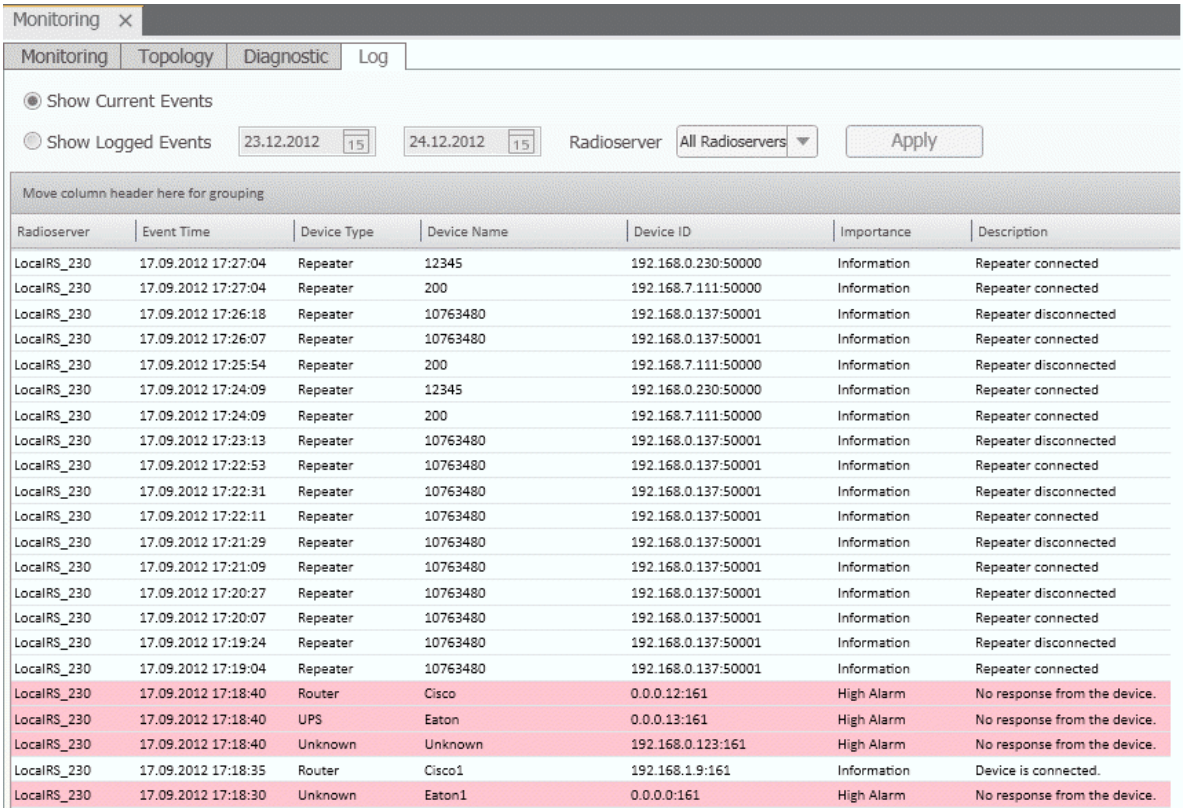
Note: By default, all columns are enabled.

Alarm types:

Icon	Description
	Major alarm is detected
	Minor alarm is detected
	No alarm detected
	Alarm is not supported

Log Tab

The log is one of the best ways to learn about alarms, for example, it informs about repeater connection or about Cisco and Eaton state.



Note: Events with severity “Critical”, “High Alarm” and “Minor Alarm” are highlighted red, pink and yellow respectively.

Besides reviewing current events, the **Log** provides the ability to view saved events for some particular time period.

To review events for some particular time period, select **Show Logged Events**, define the period limits by using the calendars for start and end dates, select the radioserver from the drop-down and click **Apply**.

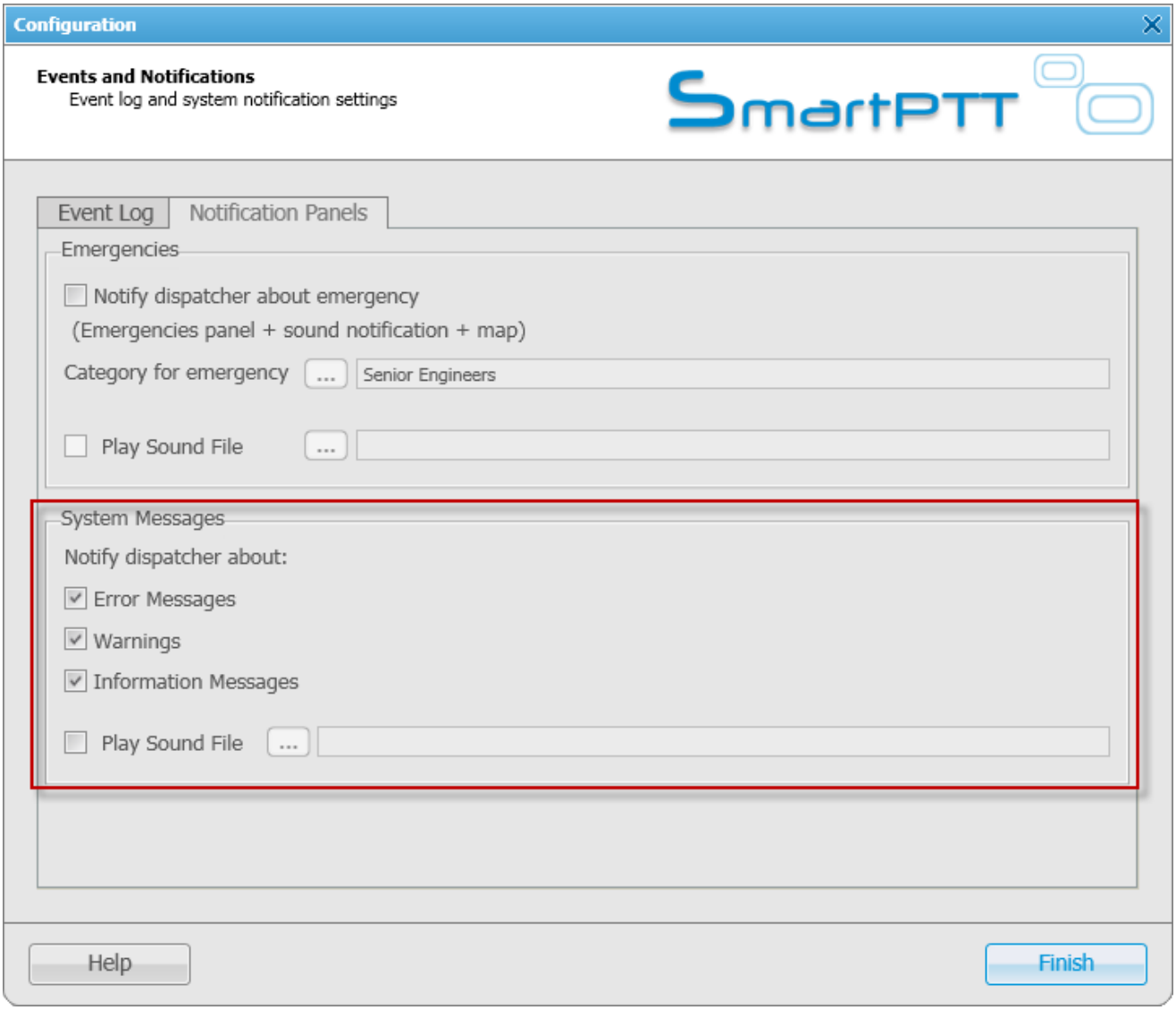
System Messages

The **System Messages** window displays notifications which inform about interaction between SmartPTT Dispatcher and SmartPTT Radioserver.

There are three notification types shown in the **System Messages** window:

- Error messages
- Warnings
- Information messages

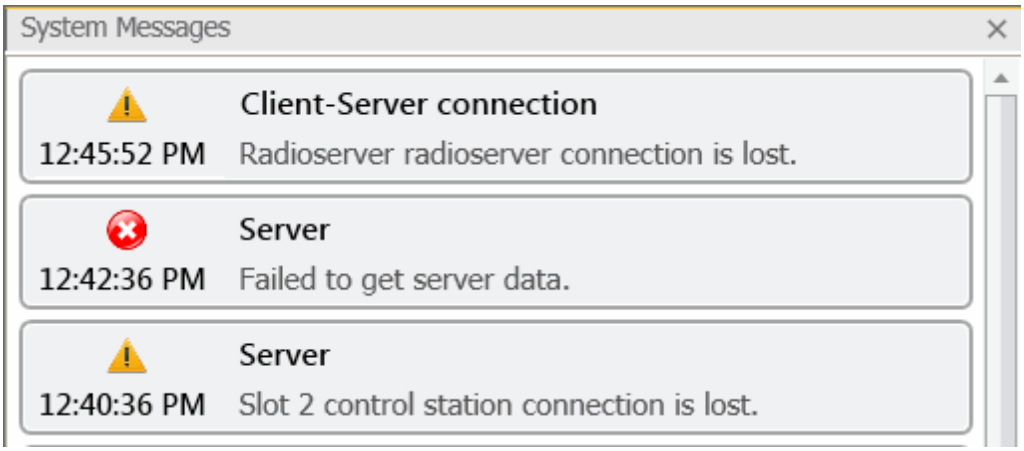
To set up **System Messages**, expand the **Settings** menu in the **Main Menu** bar and click **Events and Notifications**. In the opened window select the **Notification Panels tab**.



In the **System Messages** section select the checkboxes next to the notification types of which the operator is to be informed.

Note: If none of the checkboxes is selected, notifications will be registered in the background, i.e., the **System Messages** window won't open automatically. In this case, if an error is registered, an error message will appear.

To open the **System Messages** panel manually, expand the **View** menu in the **Main Menu** bar and click **System Messages**.



All the three message types (**Error Messages**, **Warnings**, **Information Messages**) have the following format:

1. Source of the problem:

   a) "Client" (SmartPTT Dispatcher)

   b) "Server" (SmartPTT Radioserver)

   c) "Client-Server Connection" (connection between SmartPTT Dispatcher and SmartPTT Radioserver)

   d) "Database"

2. Problem description.

Each message can be differentiated by the following characteristic traits:

- Icons:

  : used for error messages;

  : used for warnings;

  : used for information messages.

- Colors of the messages:

  Red is used for error messages.

  Gray is used for warnings and information messages.

Notifications

The **Notification** window informs the dispatcher that the set of rules were not fulfilled and the alarms were activated.

The following rules are displayed in the **Notifications** window:

- Rules and Alerts
- GPS Rules
- Lone Worker Rules

When the specified event happens and one of the rules triggers, the notification window opens up automatically to display the alarm notification.

The usual notification is composed of the following parts:

- Caption
- Subscriber name and time
- Text of the alarm

Job Tickets

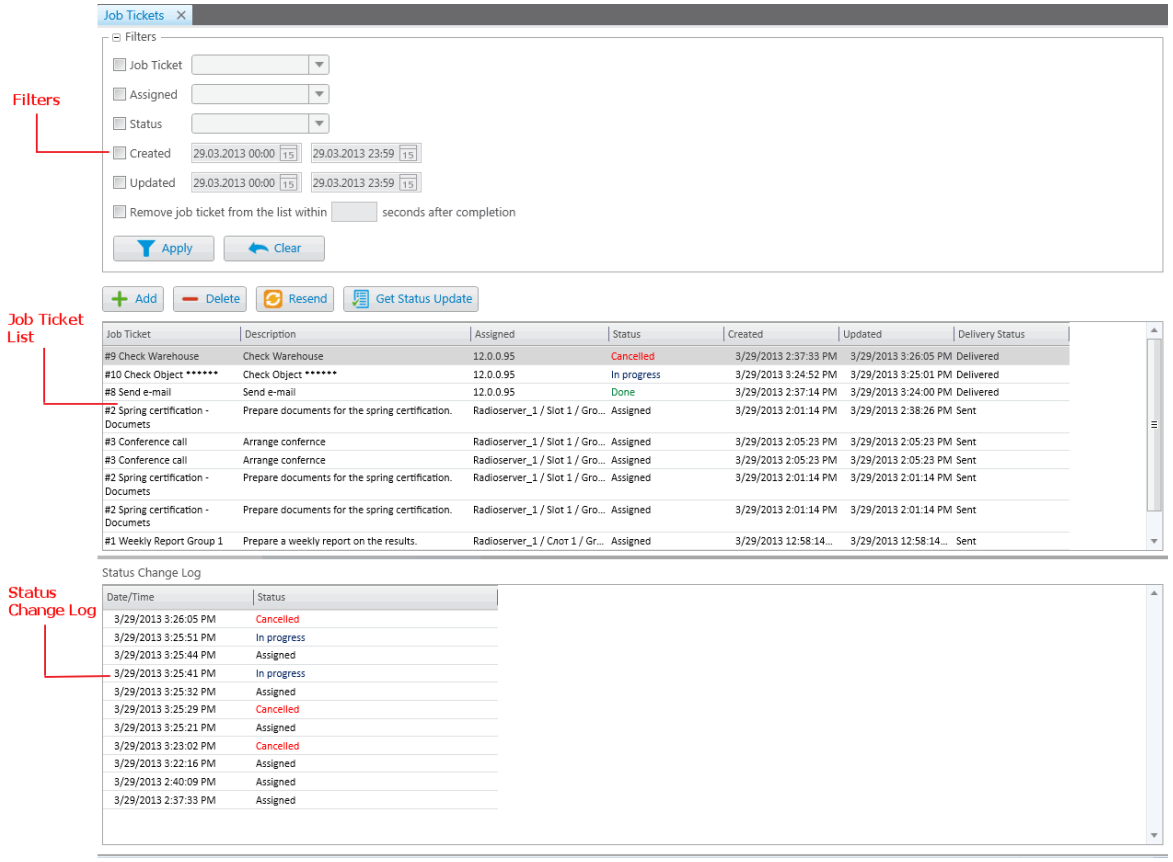
The **Job Tickets** panel allows creating special assignments for individual radio subscribers or talkgroups and tracking their performance.

Note: This functionality is only supported by MOTOTRBO SL Series portable radios. When a job ticket is sent to the radio, which does not support this functionality, it comes as a message, for example, ***<JTS> Job Ticket №1 Create weekly report***.

To create a job ticket, expand the **View** menu in the **Main Menu** bar of the SmartPTT Dispatcher window and click **Job Tickets**.

The **Job Tickets** panel can be divided into three parts:

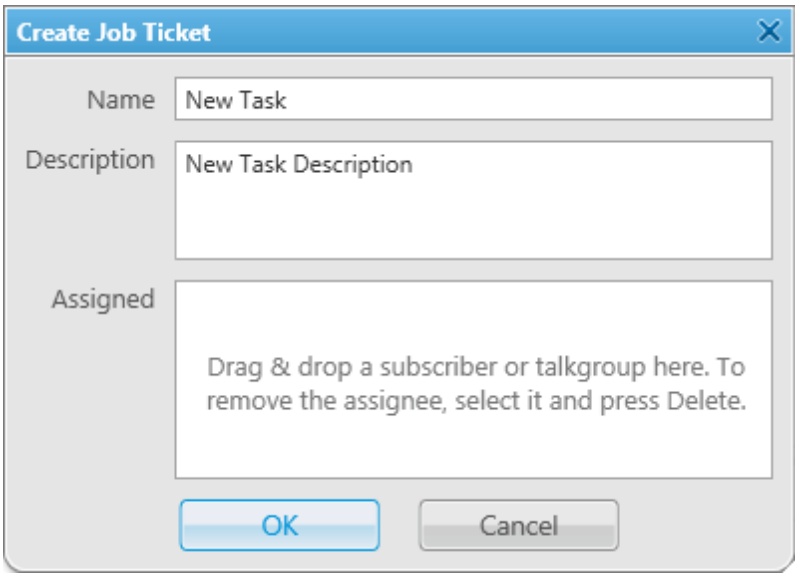
- Filters
- Job Ticket List
- Status Change Log



The filters arrange the list of job tickets to the user's taste. You can hide job tickets from the job list after the particular status is achieved. To do that, select the **Remove job ticket from the list within** checkbox and specify time period in the **seconds after completion** field. The status is set in the job ticket status settings.

The job list is a section to create, display and delete (or cancel) job tickets.

To create a job ticket, click **Add**.



Name – job ticket name. It is a required field.

Description – description of the job ticket. Also required field.

Assigned – job tickets can be assigned to an individual radio subscriber or to a talkgroup. To do this, simply drag a subscriber or a talkgroup in this field. To remove the assigned subscribers, select the subscribers from the list and press the DELETE key.

After creation, the job ticket will be displayed in the job list with the default status value. When the radio subscriber changes the job ticket status, the status in the job list will be changed accordingly. If the job ticket is assigned to a talkgroup, then the job ticket table will contain the name of the radio subscriber, who changed the job ticket status.

Note: You can also assign job tickets to offline subscribers. As soon as the subscribers become online, they will get the job tickets.

To see the history of changes for job ticket statuses, click on the job ticket status. At that, the **Status Change Log** table will display the information about status updates.

To cancel the job ticket and delete it from the job list, click **Delete**. At that, the radio subscriber, to whom the job ticket was assigned, will receive a text message that the job ticket was canceled (only if **Send Message When Not Completed Job Ticket Was Deleted** is checked in **Job Ticket Statuses**).

If the job ticket has not been delivered (see **Status Delivery**) for some reason or if you want to resend an existing job ticket to the radio subscriber or a talkgroup, click **Resend**. In this case, the job ticket will change its status to the default value.

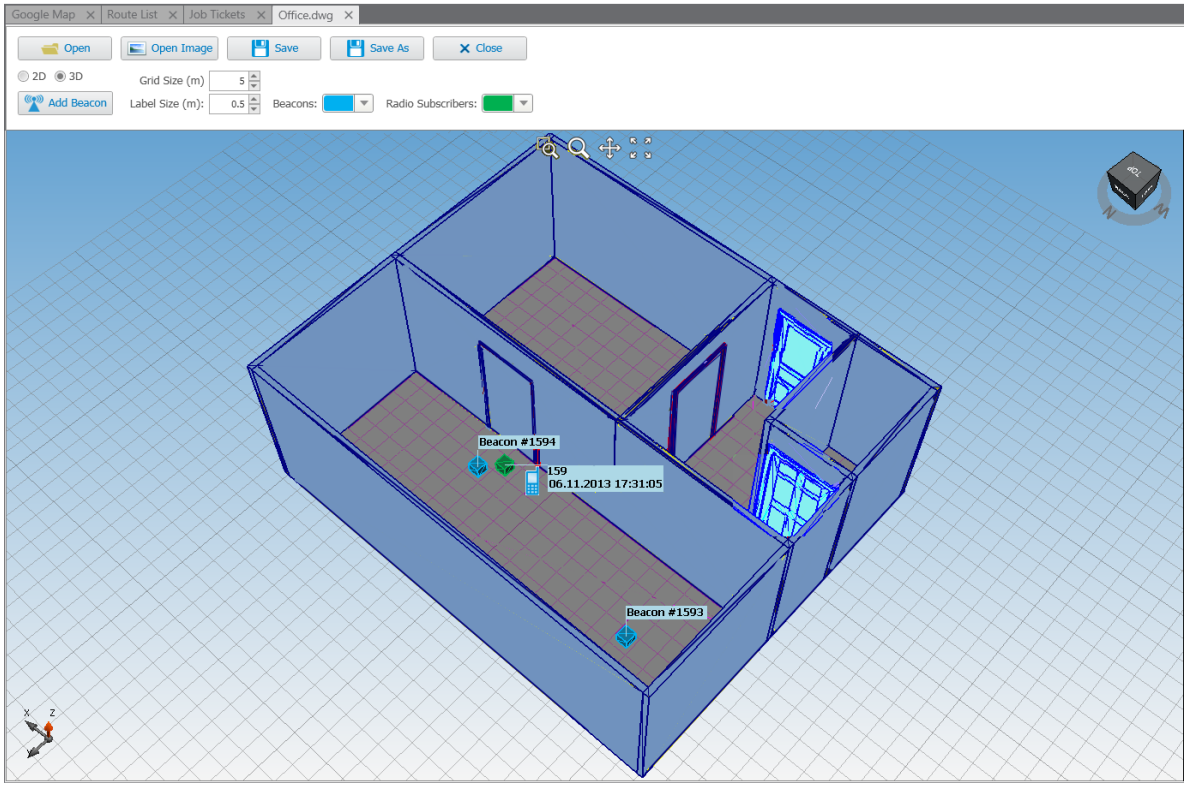
Information about job ticket statuses can be obtained even for the period, when the dispatcher console was turned off. To do this, click **Get Update Status** to load data from the radioserver database.

Indoor Tracking Overview Map

Big organizations with huge premises require constant control over their employees' displacement inside buildings. For this purpose Indoor Tracking system was implemented. Indoor Tracking system allows getting data from special beacons and transmitting it to SmartPTT Dispatcher or an external applications using API.

Since satellite communication system is not available inside buildings, Indoor Tracking allows controlling relocation of subscribers with MOTOTRBO DP 4xxx radios implemented with Kilchherr option boards (K-TERM 44) near special beacons (K-TERM 70IC Beacon Transmitter), which are installed in buildings.

SmartPTT Dispatcher displays the subscriber movement on the uploaded building plan.



Note: SmartPTT Dispatcher provides the *Indoor Tracking* support if the **Indoor Tracking** service in SmartPTT Radioserver Configurator is active.

To open a building plan in SmartPTT Dispatcher, expand the **View** menu in the **Main Menu** bar of the SmartPTT Dispatcher window and click **Indoor Tracking Overview Map**. In the **Indoor Tracking Overview Map** panel open a .dwg file. To do this, click **Open** and browse the necessary file.

Note: DWG (DraWinG) is a binary file format used for storing two and three dimensional design data and metadata. It is the native format for several CAD packages including nanoCAD, AutoCAD, IntelliCAD.

To add a beacon to the building plan, click **Add Beacon**. In the **Beacon Settings** window specify **Beacon Number**, which must correspond to the **Beacon ID**, specified in the K-Term CPS settings. Place the new beacon on the map by clicking the left mouse button. To remove the beacon from the plan, left-click the necessary beacon and press the DELETE key.

Open Image allows importing images of building plans.

2D or **3D** – a mapping of the building plan in a two- or three-dimensional form.

Grid Size (m) – the grid size of the building plan.

Label Size (m) – the size of the radio subscriber and beacon labels displayed on the building plan.

Beacons – color of the beacon label.

Radio Subscribers – color of the radio subscriber label.

The following buttons allow user to control the way the building plan is displayed:

Button	Description
	Zooming up the marked area of the building plan. Click the button, then left-click on the building plan and mark the necessary area.
	Zooming up or zooming out the entire building plan. To zoom in, click the button and withholding the button pressed move the mouse pointer up. To zoom out – move the mouse pointer down. Also, use the wheel button to change the scale of the building plan.

Button	Description
	Moving the building plan. Click the button and withholding the button pressed relocate the plan.
	Fits the scale of the building plan to the size of the **Indoor Tracking Overview Map** panel.

Available only for three-dimensional building plans. Allows changing the angle of the displayed building plan.

Click **Save** to save the building plan changes to the DWG file. To save a copy of the building plan with another name, click **Save As**. To close the building plan, click **Close**.

Settings

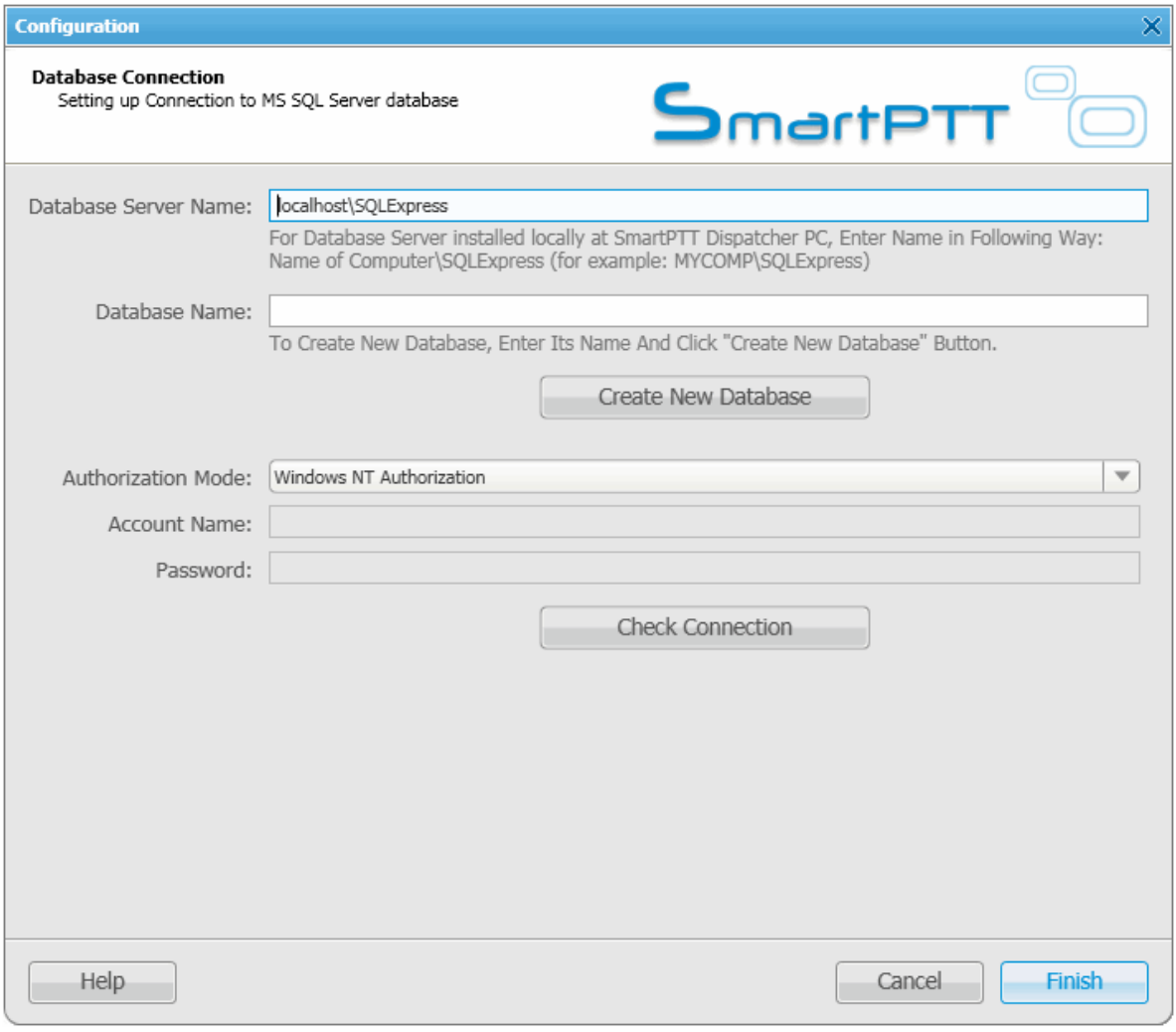
The **Settings** menu allows you to configure system parameters, create special rules, which will help you manage workers, connect external third-party devices and so on:

- Database Settings allows you to manage the system database, i.e., create new database or connect to the existing database.
- Licenses allows you to install licenses.
- General Settings allows you to tune the dispatcher console, e.g., define the PTT button behavior, enable automatic system updates, select language, etc.
- Radioservers allows you to manage available radioservers, e.g. add new radioservers to be seen in the dispatcher console, assign profiles to the available radioservers.
- Statuses allows you to add statuses for radio subscribers displayed in the **Subscribers Management** panel.
- Event Log allows you to manage the event log and the system messages.
- Call Windows allows you to configure **Call Window** parameters, e.g., specify the type of event that triggers the window opening.

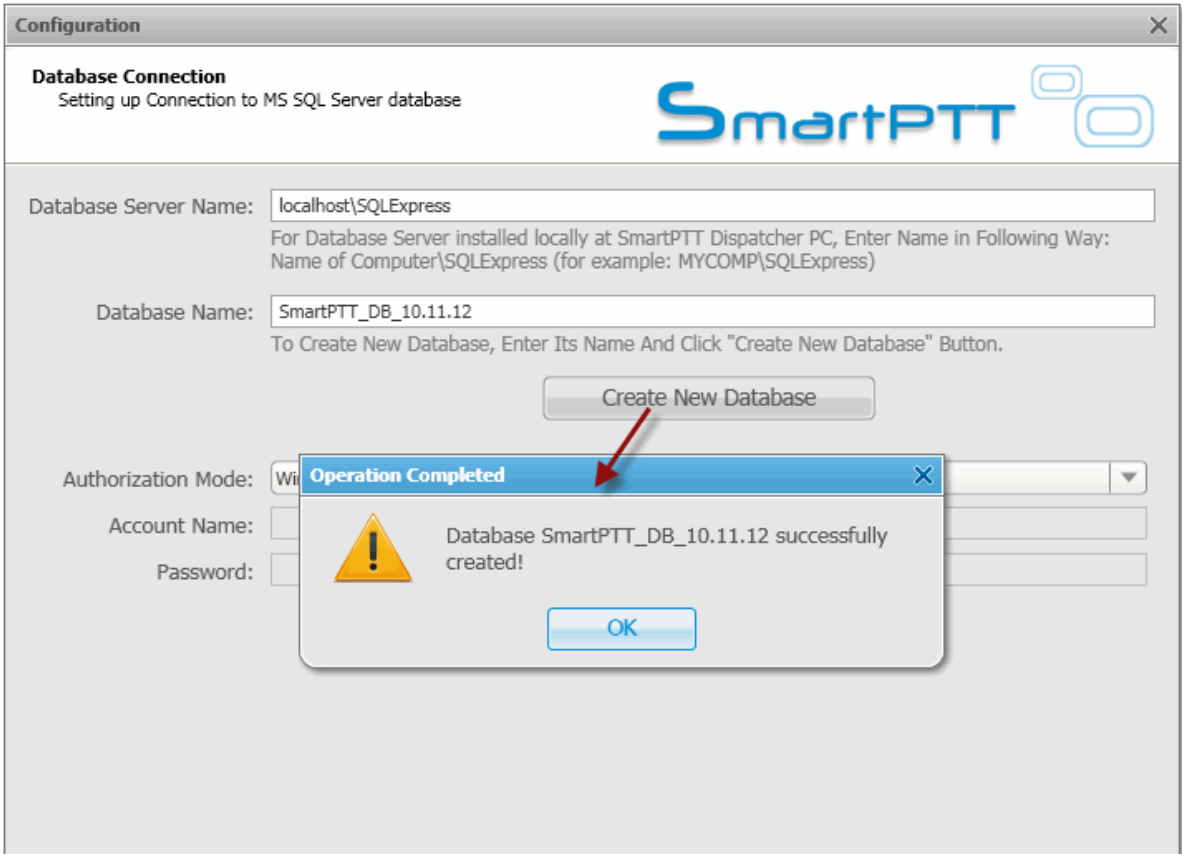
- Sound Settings allows you to configure sound settings and set up multichannel sound.
- Records allows you to enable call recording and set up recording parameters.
- GPS allows you to configure GPS settings, e.g., set up GPS request interval, accuracy radius, etc.
- Raster Maps allows you to create raster maps.
- Telemetry allows you to configure telemetry commands to be available.
- Categories allows you to create categories.
- Dispatchers allows you to add other dispatchers and configure parameters of your own dispatcher console.
- Telephone Settings allows you to configure telephone settings and add telephone subscribers.
- Job Ticket Statuses allows you to add statuses for job tickets.
- Tipro allows you to configure Tipro settings.
- Hot Keys allows you to customize keyboard shortcuts for making calls to subscribers.
- Database Auto Backup allows you to set the SmartPTT Dispatcher database auto backup.
- Rules&Alerts allows you to set up rule conditions.
- GPS Rules allows you to set up GPS rules.
- Lone Worker Rules allows you to create and set up **Lone Worker** rules.
- Subscriber Custom Properties allows you to add additional properties to be displayed in subscriber **Properties** window.
- Custom Consoles allows you to cteate custom consoles with necessary elements.

Database Settings

To connect to the database, expand the **Settings** menu in the **Main Menu** bar of the SmartPTT Dispatcher window and click **Database Settings**. At that, a configuration window for database creation opens.



To create a new database, fill in the **Database Server Name** and **Database Name** fields, and click **Create New Database**. If creation was successful, a message about successful database creation is displayed. If the database is not created, the reason will be displayed at the bottom of the window.



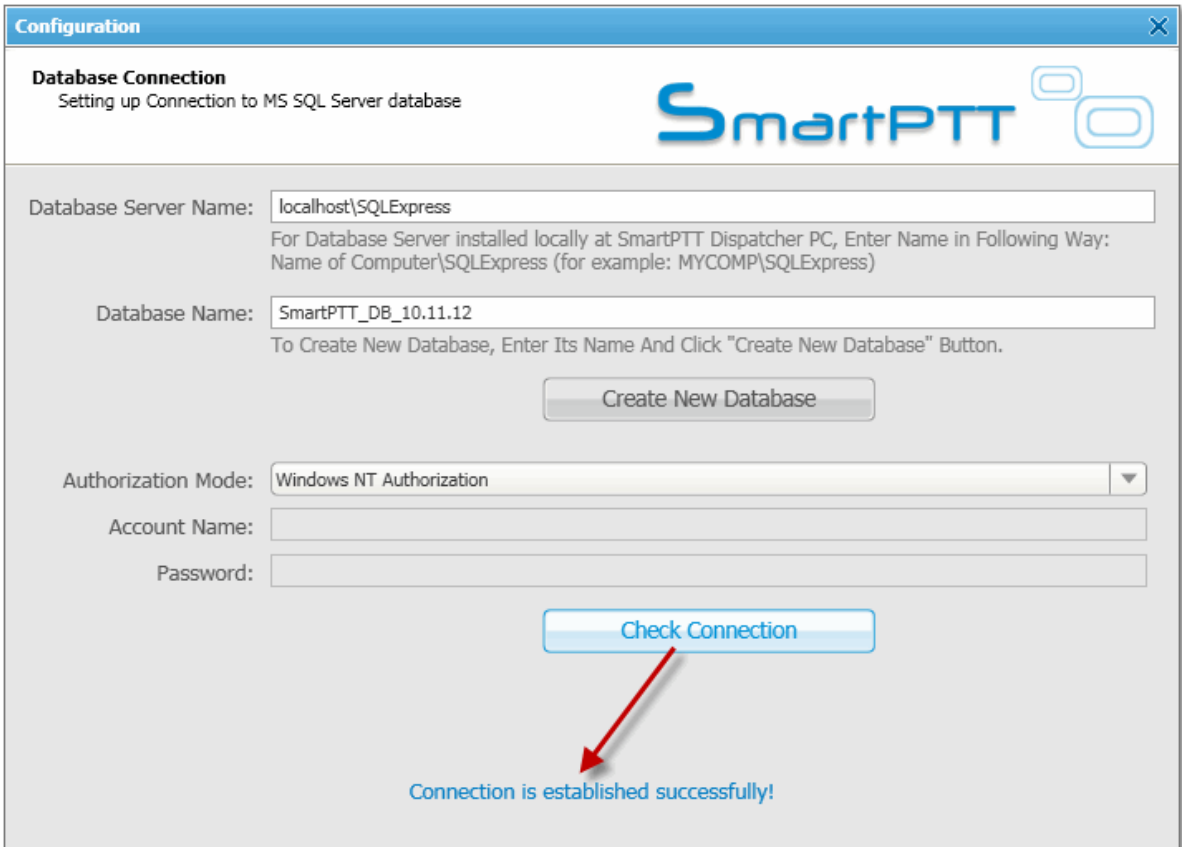
Note: For a database server installed together with the SmartPTT dispatcher application enter the name using the format: Name of PC\SQLExpress (for example, MYCOMP\SQLExpress).

To test connection with the database, choose **Authorization Mode**.

SQL Server Authorization – you must have the login and password of the account which has access to the SQL server.

Windows NT Authorization – the user who has logged into the Windows system, must be listed in the SQL server's list of users to make connection.

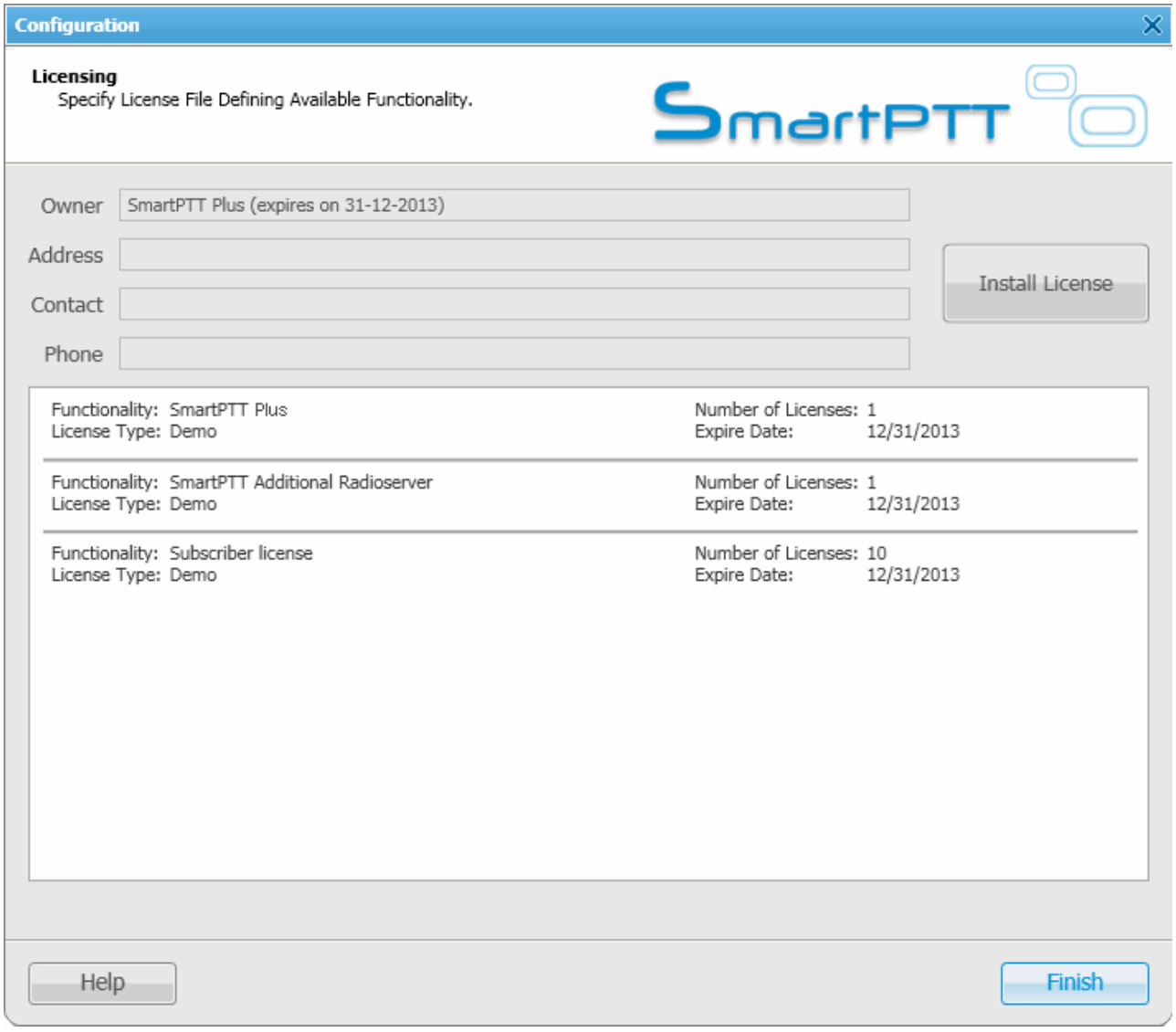
Click **Check Connection**. In case of successful authorization the message "Connection is established successfully!" is displayed. If authorization fails, the reason will appear at the bottom of the window.



Licenses

To use the SmartPTT application you need to install licenses. There are licenses for basic features which allow you to run the application and licenses for additional features, like telephone connection support, bridging, SNMP service, etc.

To install licenses, expand the **Settings** menu in the **Main Menu** bar of the SmartPTT Dispatcher window and click **Licenses**. The configuration window opens from where you can load license files which define functions available in the system.



Click **Install License** – the browse window will open. Specify the license file's location and click **Open**.

The license is installed, and the system licensing window displays information on the license type and scope of functions.

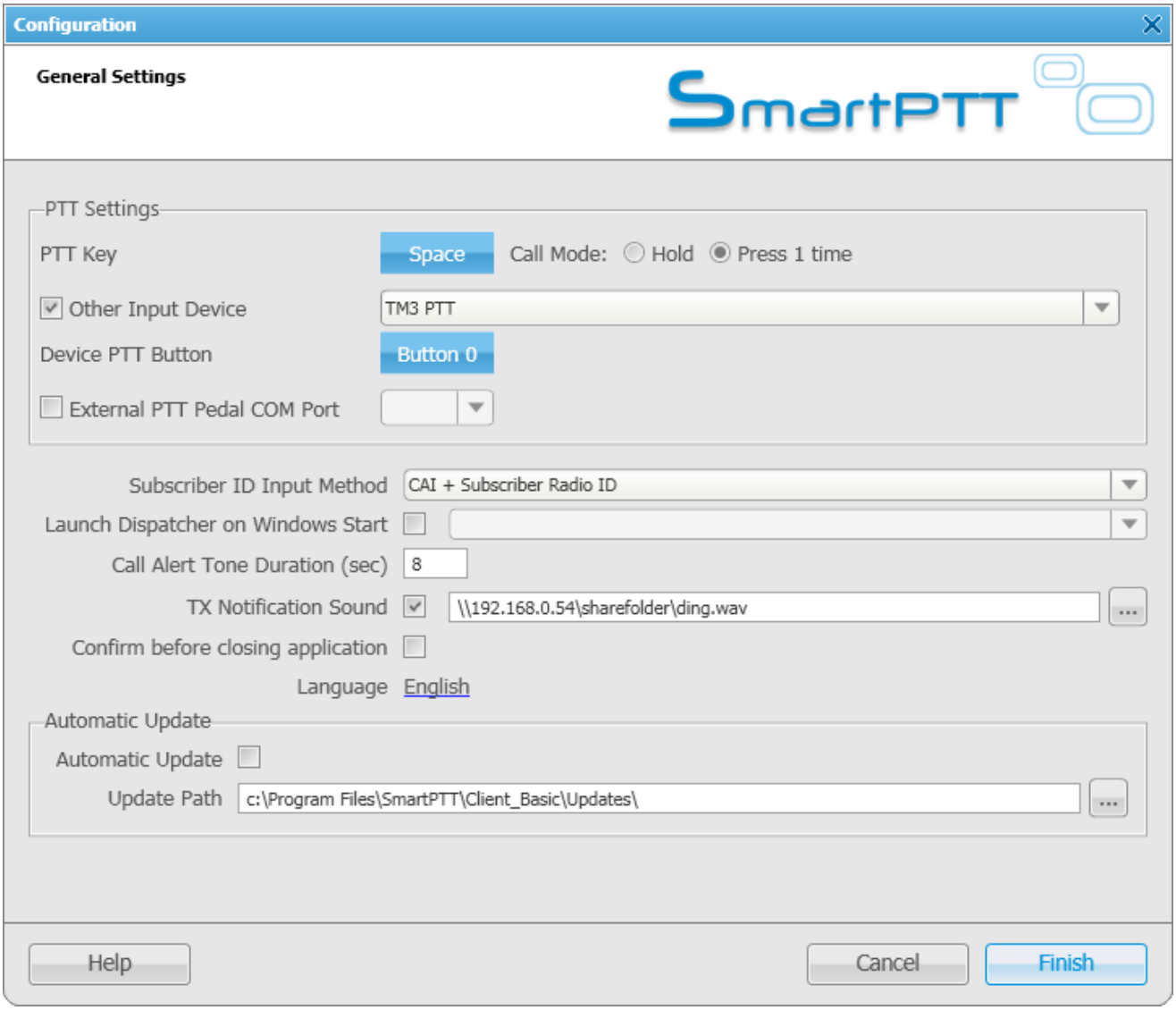
Note: If the radioserver and the dispatcher console are installed on one and the same machine, you can install the

licenses either in SmartPTT Radioserver Configurator or in SmartPTT Dispatcher. If the radioserver and the dispatcher console are installed on different PCs, you need to install the licenses in both applications.

General Settings

In the **General Settings** window you can configure the global settings of the SmartPTT Dispatcher application, for example, specify PTT behavior, select interface language, enable automatic update, etc.

To set the general settings, expand the **Settings** menu in the **Main Menu** bar and select **General Settings**. At that, the following window appears.



The **General Settings** window can be divided into 3 sections:

1. PTT settings
2. Miscellaneous
3. Update settings

PTT Settings

In this section you can set up the PTT button on:

1. the keyboard;

2. the external input device connected via USB;

3. the external input device connected via COM port (currently, it is a foot pedal).

To set up the PTT button on the keyboard, click on the blue button next to **PTT Key** and then press any key on the keyboard. To define the working mode of the PTT key, select either **Hold** or **Press 1 time**.

To set up the PTT button on any external input device connected via USB, select **Other Input Device** and choose the required device from the list. Then click on the blue button next to **Device PTT Button** and press any button on the device.

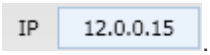
External PTT Pedal COM Port – COM port used to connect to the external PTT pedal.

Note: There is only one mode available for the PTT button on external devices – hold to enable.

To save changes, click **Finish**.

Miscellaneous

Subscriber ID Input Method sets the input and display method used for showing network ID in the radio subscriber **Properties** window: IP address or CAI + subscriber ID.

IP Address – IP address is entered and displayed in the subscriber **Properties** window, for example, 

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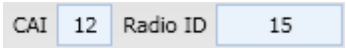
CAI + Subscriber ID (CAI network ID and a unique radio station ID) are entered and displayed in the subscriber's **Properties** window, for example, 

.

Launch Dispatcher on Windows Start – launches SmartPTT Dispatcher automatically on Windows start under specified dispatcher account.

Call Alert Tone Duration (sec.) – configures the call alert tone sound duration for the Dispatcher application.

Talk Permit Tone – sets alert tone which sounds after the PTT button is pressed and the dispatcher is able to transmit on the channel.

Confirm Before Closing – if selected, the application will ask for a confirmation before closing.

Language – selects interface language.

Note: After selecting a new language, restart SmartPTT Dispatcher to apply the change.

Automatic Update

To enable automatic update, select the **Automatic Update** checkbox. If the checkbox is selected, the system will be checking for updates on a regular basis.

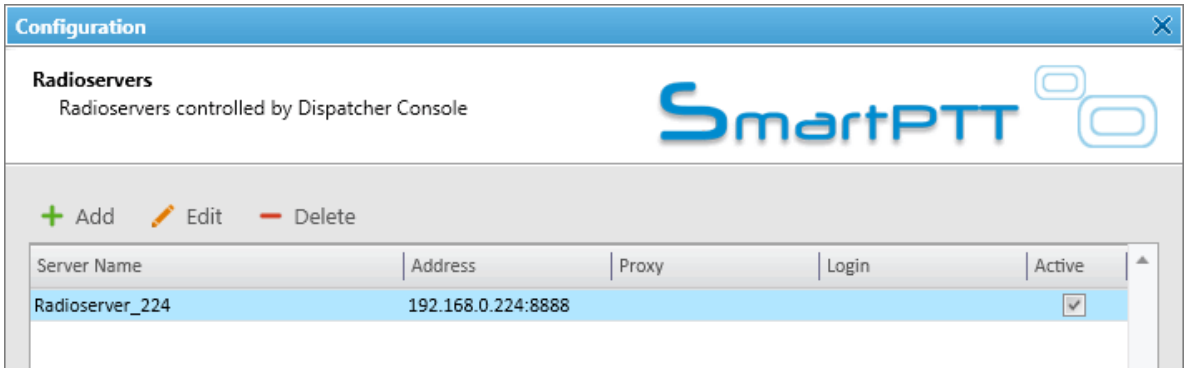
In the **Update Path** specify the path to the **ClientSetup.exe** file which you download together with SmartPTT Software Installation Package.

If the new SmartPTT version is available, when you launch SmartPTT Dispatcher (or when you choose **Check for Updates** from the **Service** menu), the notification window will appear.

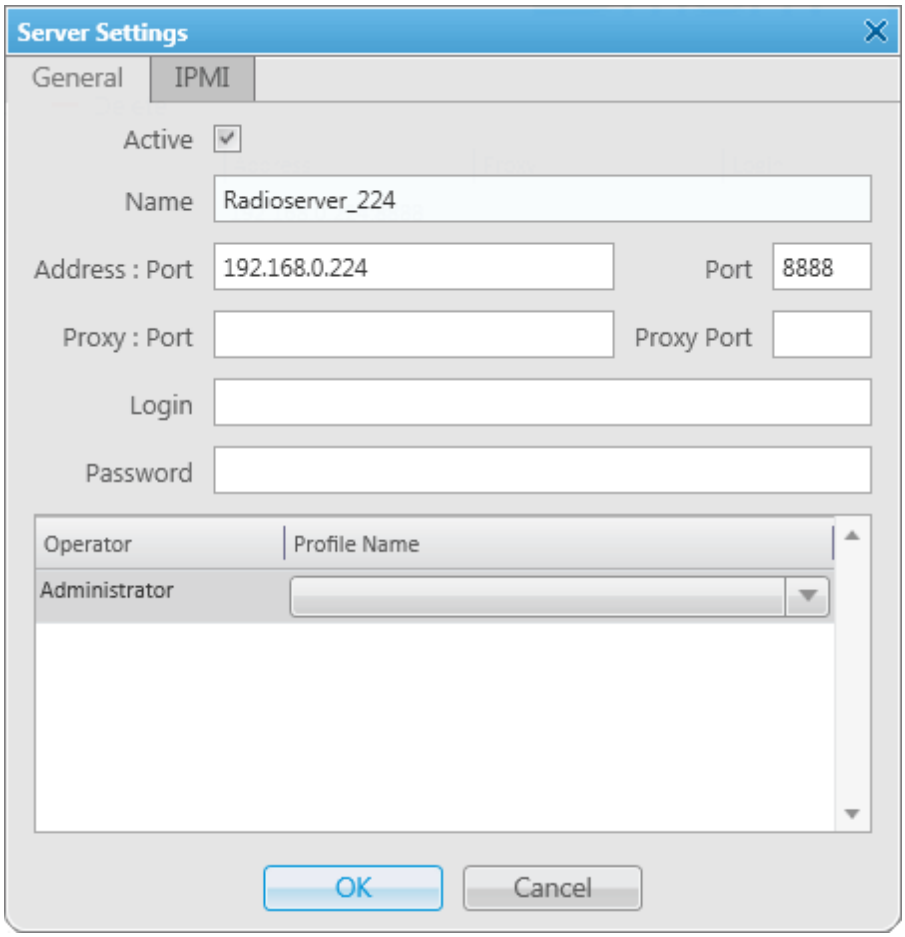
Note: After downloading the new system version, it is not necessary to uninstall the previous version.

Radioservers

To connect the existing radioserver to the dispatcher console, expand the **Settings** menu in the **Main Menu** bar of the SmartPTT Dispatcher window and click **Radioservers**. The configuration window for setting up and configuring the list of radioservers opens up.



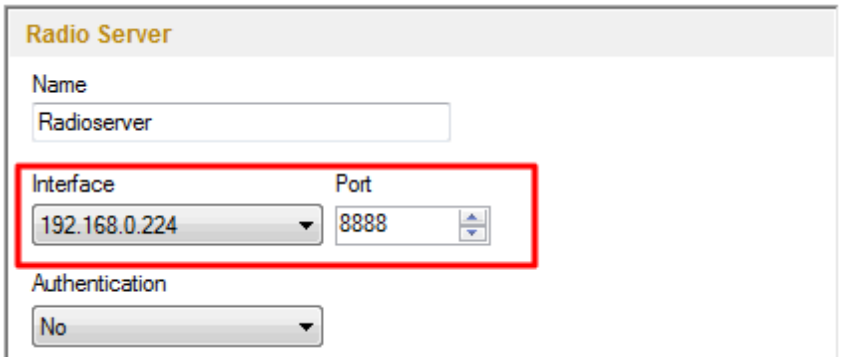
By default, the list of radioservers is empty. Click **Add** to open the window for adding radioservers.



Name – radioserver name displayed in the list of radioservers.

Address, Port – radioserver IP address and port number to connect with the dispatcher (the default radioserver port number is 8888). Make sure that the **Address** and **Port** you enter match the **Address** and **Port** specified in SmartPTT Radioserver Configurator.

In this example we use port *8888*.



Proxy:port – is a proxy server IP address and port number of the connection.

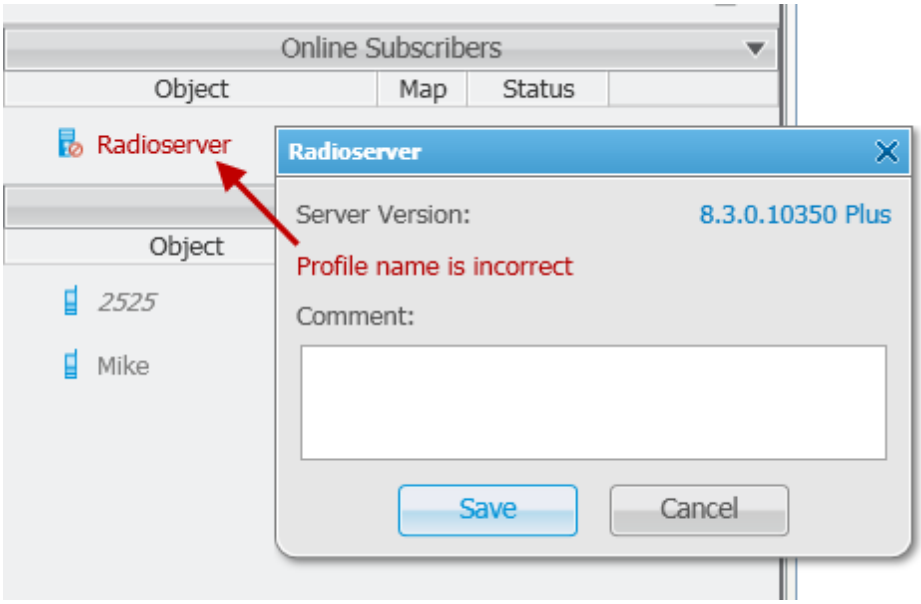
Fields **Login** and **Password** must be filled if authentication is enabled on the radioserver side. To enable authentication on the radioserver side, run SmartPTT Radioserver Configurator, click **Radioserver**, select *Windows* in the **Authentication** field. Currently, you can select only Windows authentication. If Windows authentication is selected, you can't connect the dispatcher console and the radioserver without indicating valid credentials in the **Login** and **Password** fields. If the radioserver computer makes part of a domain, indicate the domain login and password, if not – indicate local login and password.

Note: If *No* is selected in the **Authentication** field, make sure that the fields **Login** and **Password** in the dispatcher console are empty. Otherwise, the dispatcher console and the radioserver can't connect.

Active – if selected, the radioserver is available for connections. You should also remember that you do not have to remove the radioserver from the list to disable it. It is enough to clear the checkbox.

Operator – list of all active operators created in SmartPTT Dispatcher.

Profile Name – enter profile name defined for the dispatcher in SmartPTT Radioserver Configurator. If **Profile Name** is not specified, the dispatcher has access to all radios, talkgroups and services provided by the radioserver. If the profile name is incorrect, the radioserver will be marked red.



Note: Profile management is described in the SmartPTT Radioserver Configurator help file.

After all the fields are completed, click **OK**. At that, the new radioserver appears in the list of radioservers.

To edit the radioserver settings, select it in the list of radioservers and click **Edit**.

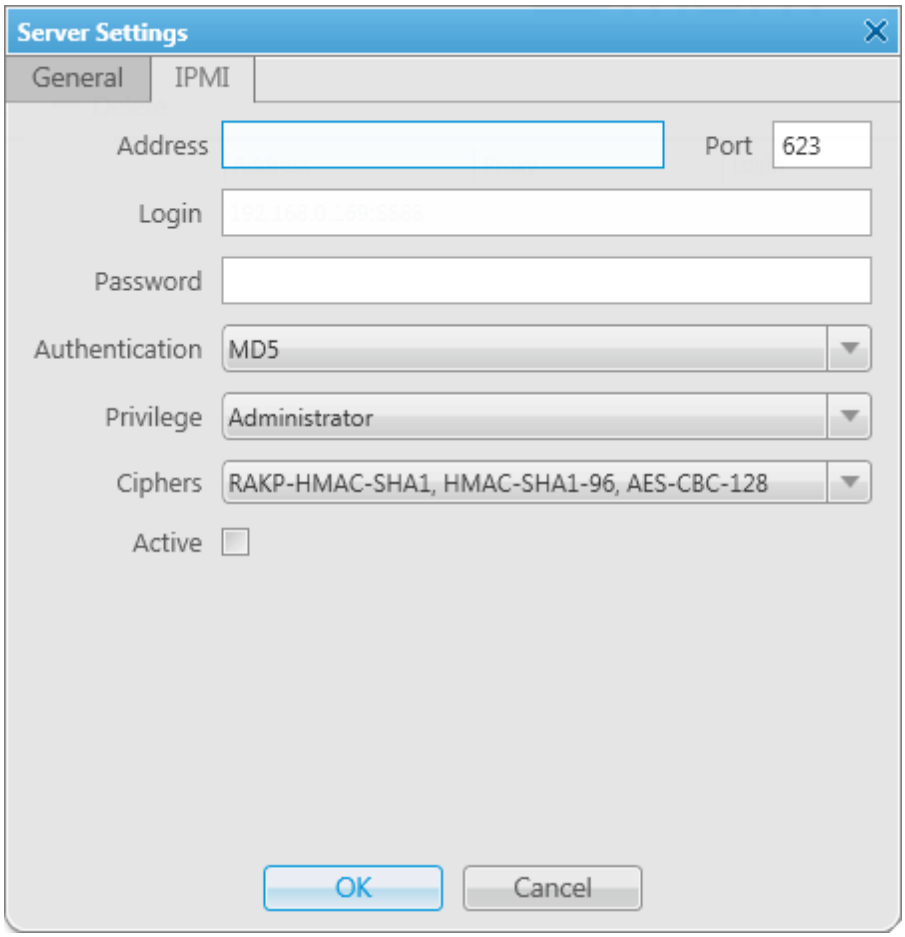
To delete the radioserver, select it in the list of radioservers and click **Delete**.

IPMI Settings

Intelligent Platform Management Interface (IPMI) is a standardized computer system interface used for out-of-band management of computer systems and monitoring of their operation.

SmartPTT system uses IPMI for managing and monitoring remote radioservers. With the help of IMPI you can not only learn about the hardware characteristics of the radioserver machine, but also turn it on/off remotely.

To set up IPMI open the **Server Settings** window of the selected radioserver and then open the **IPMI** tab.



Address, Port – IPMI interface address.

Login and **Password** are obligatory fields. they must match the login and password set at the radioserver.

Authentication – authentication types. Use **MD5** as default authentication type.

Privilege – depending on the privilege used, the user has different permissions. Use Administrative as default. For more information about the privileges, check the official IPMI documentation.

Ciphers – the list of ciphers to be used. Select the default cipher, that is ***RAKP-HMAC-SHA1, HMAC-SHA1-96, AES-CBC-128.***

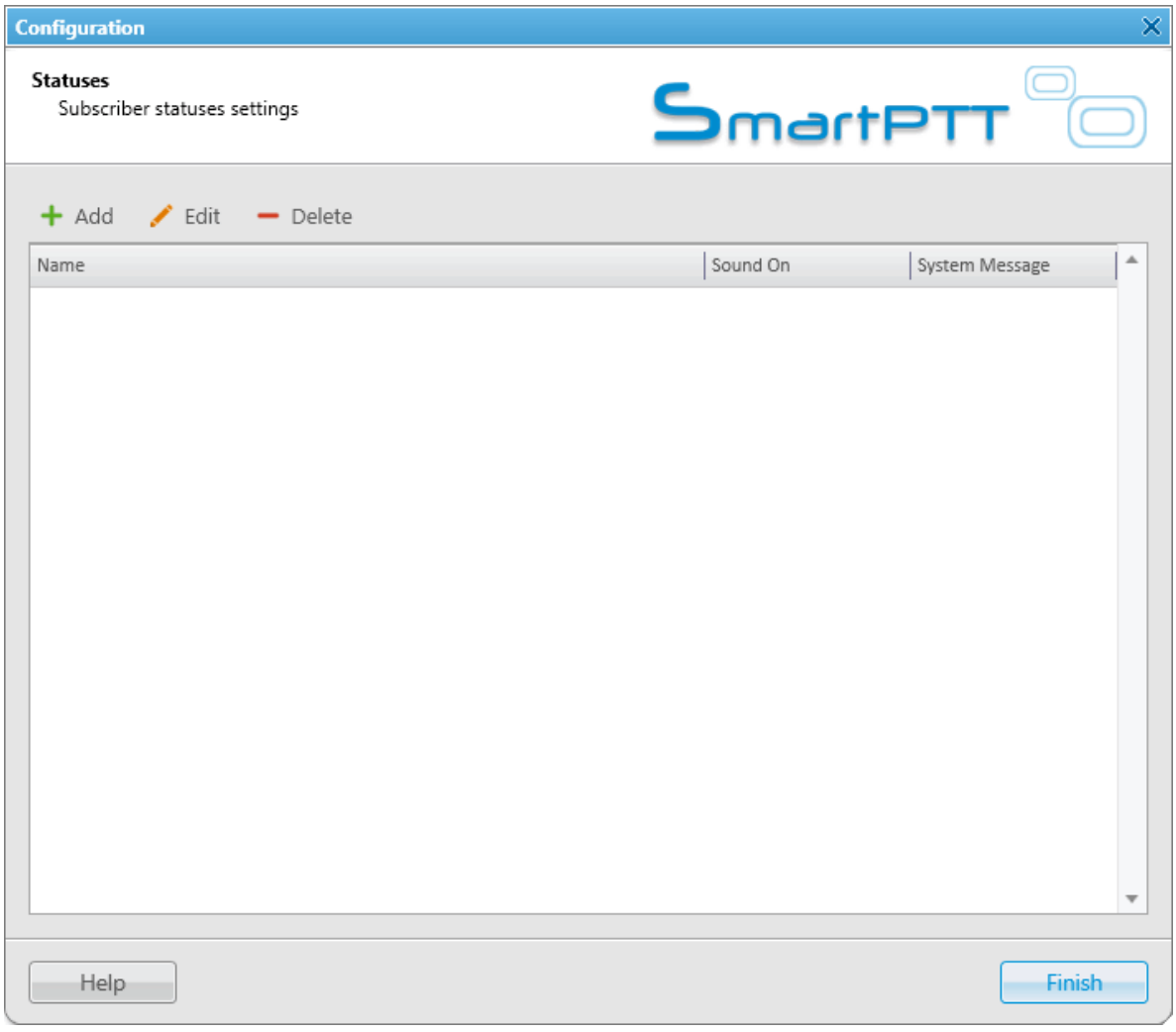
Active – select the checkbox to activate IPMI functionality for the radioserver.

Note: For more information about managing the radioserver with the help of IPMI, see Monitoring.

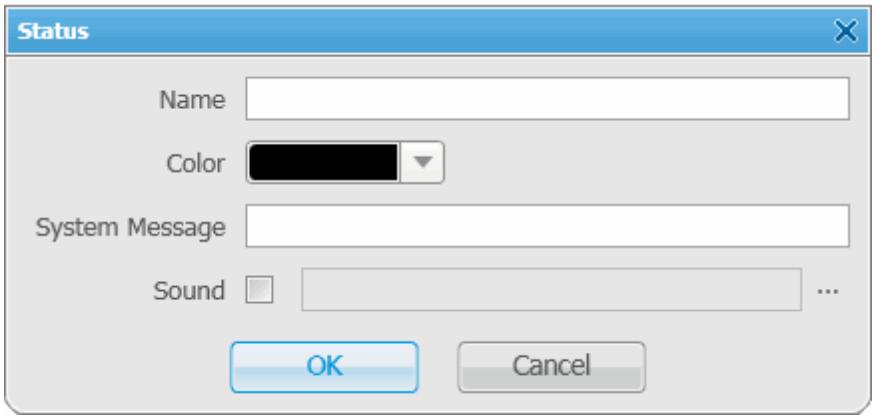
Statuses

You can create statuses to assign to radio subscribers (for example, Available, On Call, In Place or Busy). Each radio subscriber can have a status showing their current state. The status is set either by the dispatcher or by the radio subscribers themselves.

To set up statuses, expand the **Settings** menu in the **Main Menu** bar of the SmartPTT Dispatcher window and click **Statuses**. At that, the configuration window opens.



To add a new status, click **Add** in the **Active** tab. A window for adding a new status opens.



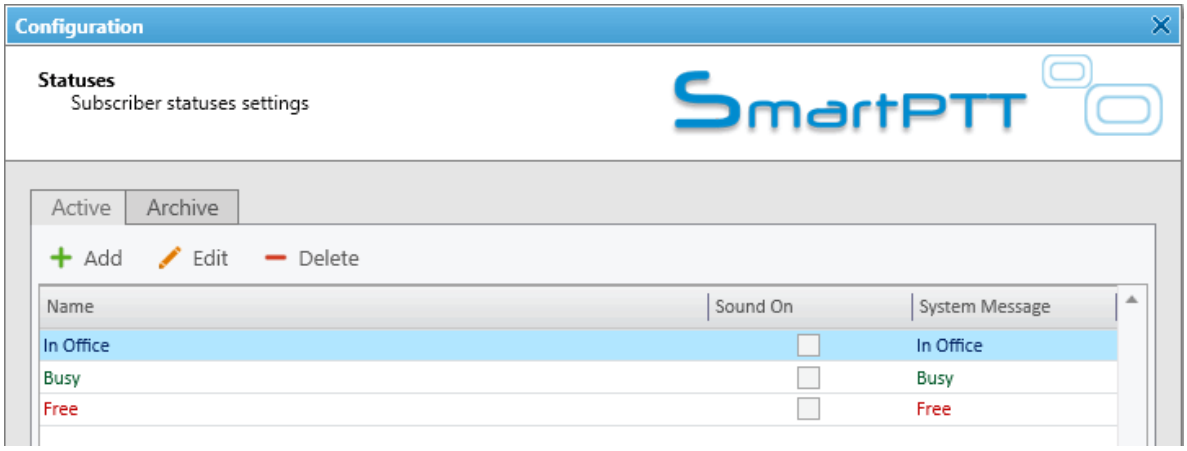
Name – status name to be displayed in SmartPTT Dispatcher.

Color – status color to be displayed in SmartPTT Dispatcher.

System Message – message which triggers status change, that is if a radio subscriber sends this message to the dispatcher, the subscriber receives the status.

Sound – audio file played back if the status is activated.

Click **OK**, and the new status is added to the list of statuses.

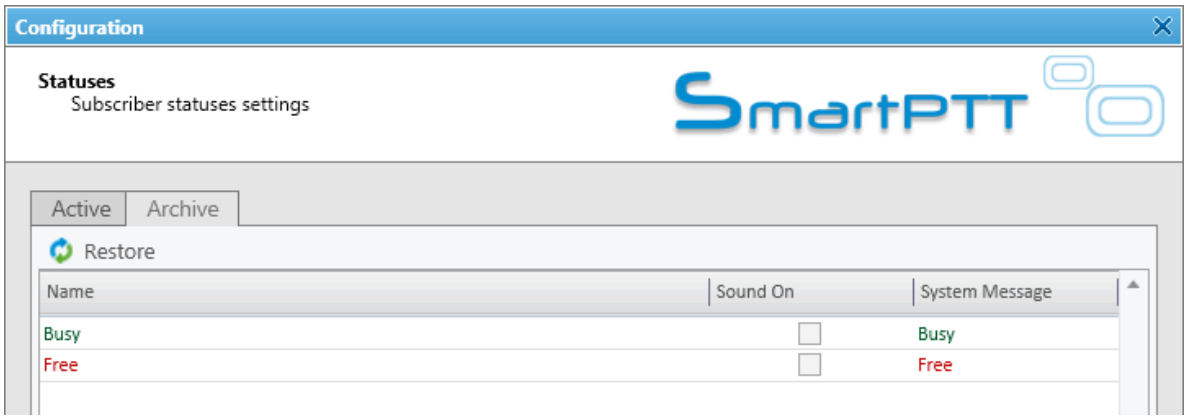


To edit the existing status, select it in the list of active (the **Active** tab) statuses and click **Edit**.

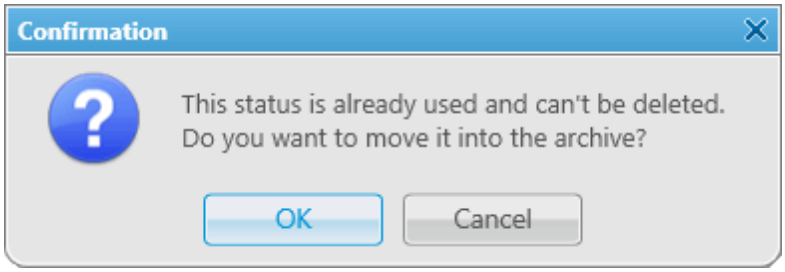
To delete a status, select it in the list of active statuses and click **Delete**. You can delete a status only if it was never assigned to a subscriber. If the status is currently assigned to a subscriber or used to be assigned, it can't be deleted. But, it can be moved to an archive. Characteristics of the archive statuses are:

- They can't be assigned to radio subscribers.
- They can't be used in the alert rule definitions. However, the archive status remains valid as an alert rule criteria for a particular rule, if it was selected as such before being moved to the archive.
- They are displayed in the event log entries.
- They can be restored from the archive.

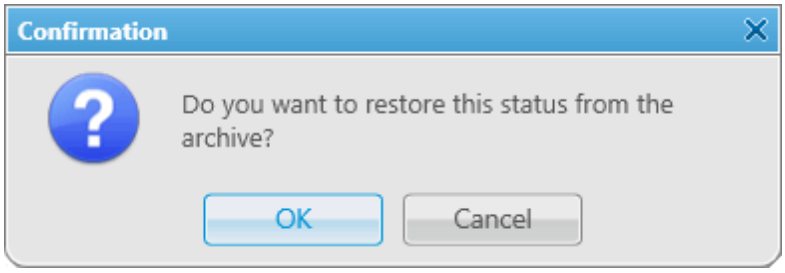
To see the list of archive statuses, open the **Archive** tab of the **Statuses** window.



To move the status to the archive, select the status from the active status list, click **Delete** and click **OK** in the opened dialog box to confirm the action.



In order to restore the status from the archive, select the status from the archive list, click **Restore** and then click **OK** in the opened dialog box to confirm the action.

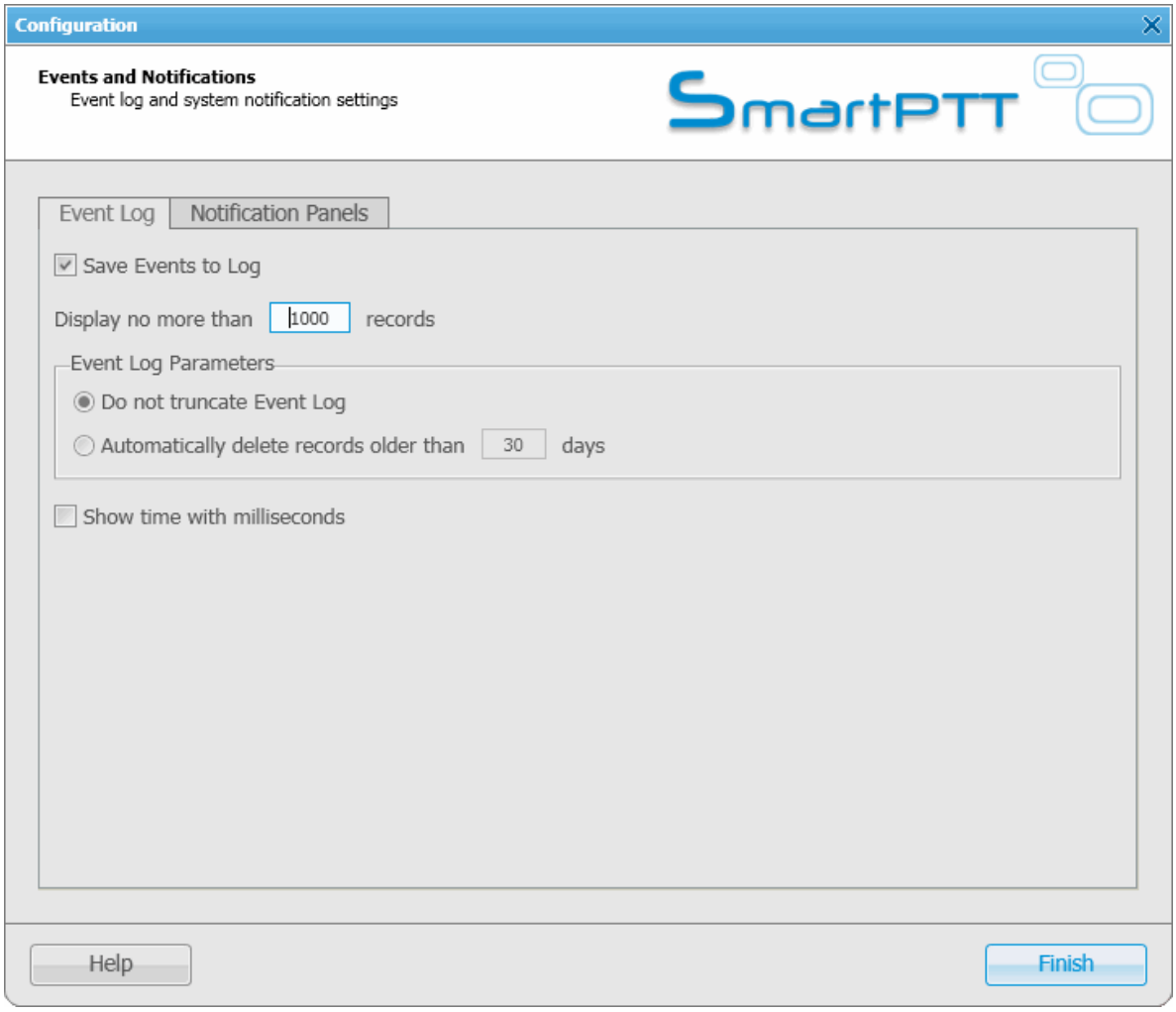


Events and Notifications

The **Events and Notifications** window provides the following settings:

- Event log settings
- Settings for the **Emergencies** panel
- System message settings

To manage the event log, expand the **Settings** menu in the **Main Menu** bar of the SmartPTT Dispatcher window and click **Events and Notifications**:



Save Events to Log – when the checkbox is selected, events data is saved in the SmartPTT Dispatcher database.

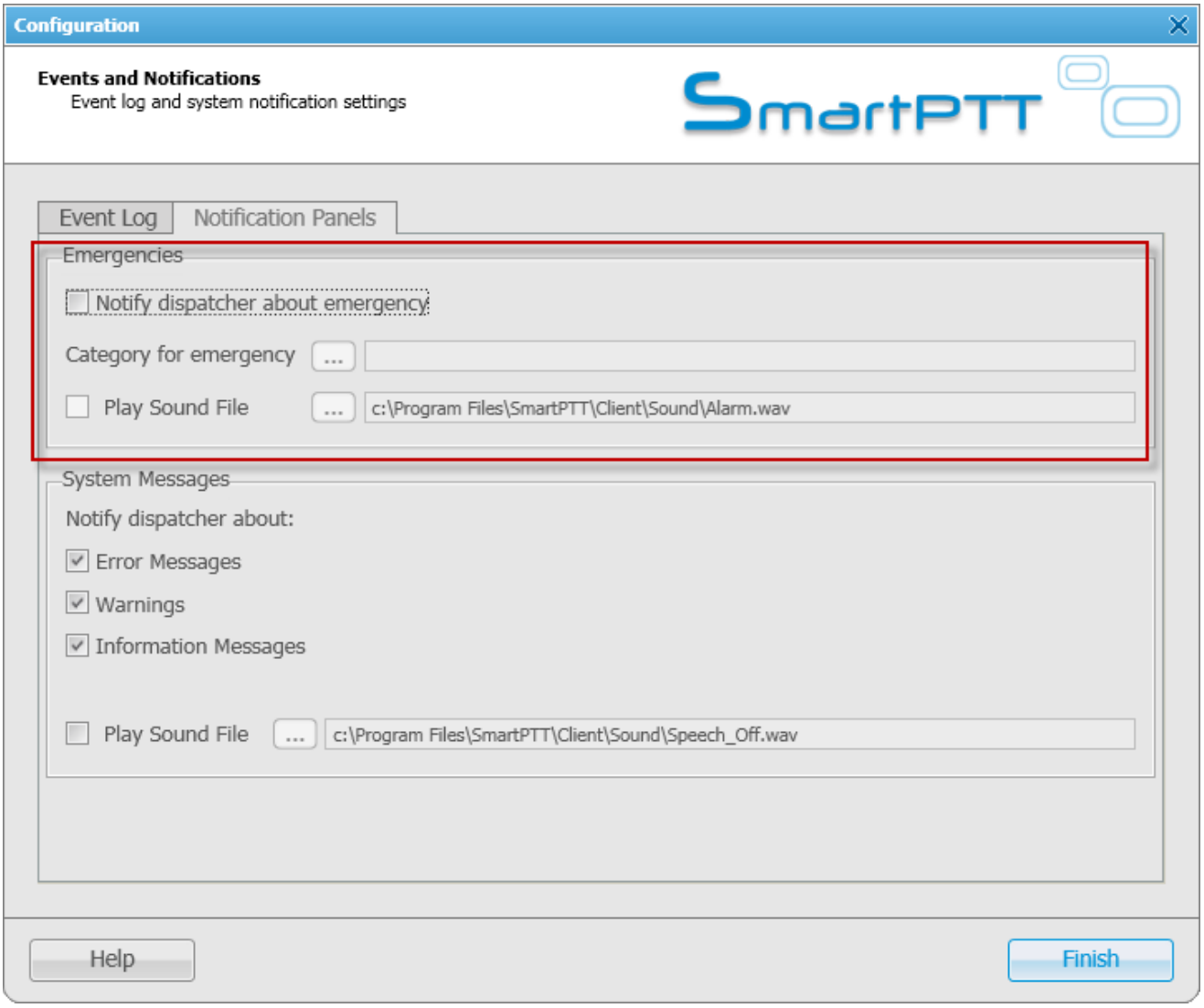
Display no more than – sets the number of records to be displayed in the log.

Event Log Parameters – an area to configure cleaning settings for the event log.

Show time with milliseconds – sets time format to display milliseconds.

To save changes, click on **Finish**.

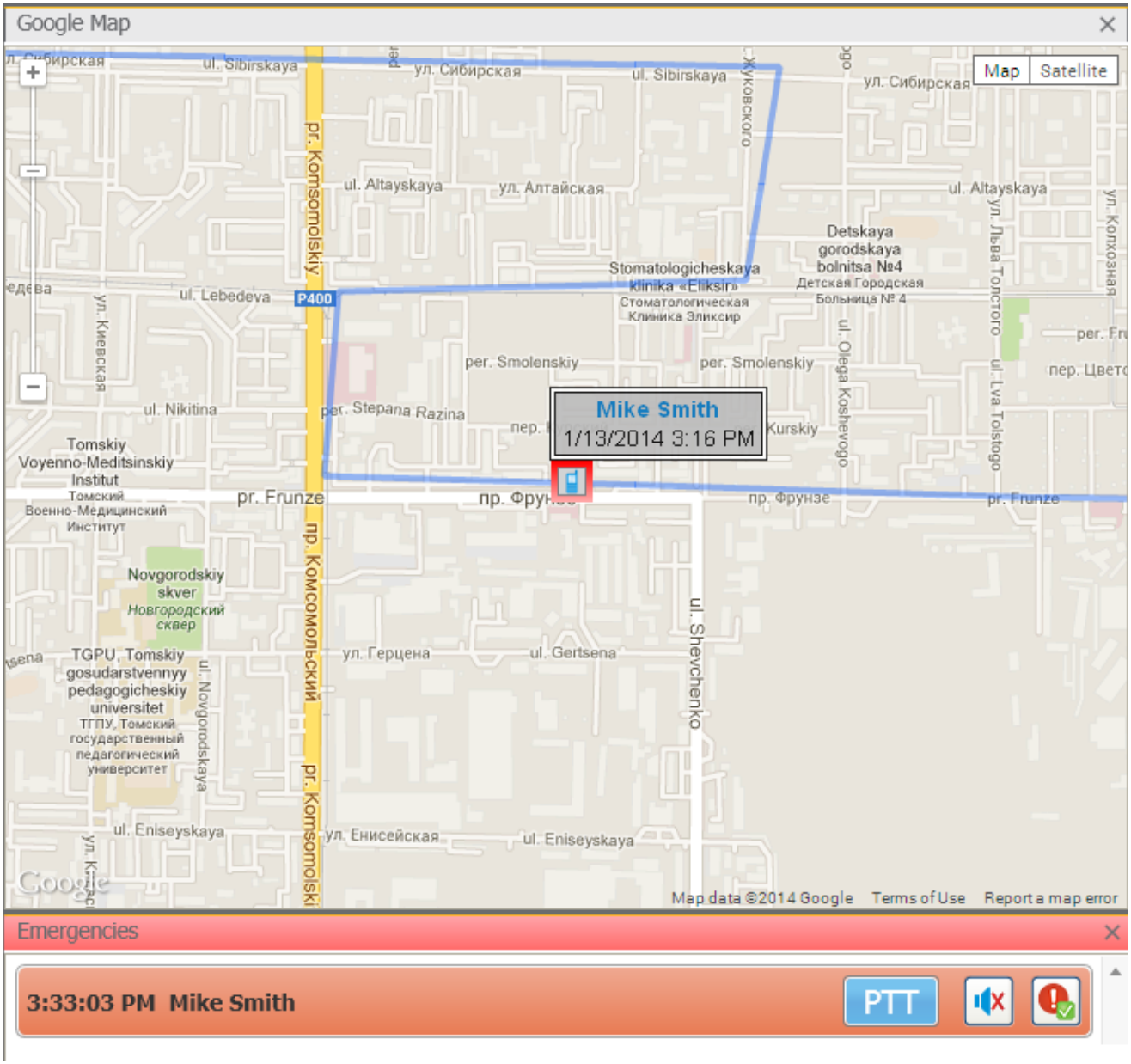
To set parameters for the **Emergencies** panel, click on the **Notification Panels** tab.



Notify dispatcher about emergency – if enabled, when receiving an emergency signal from a radio subscriber, the system will open the **Emergencies** panel, play the sound file, if specified, and will open the map to display the radio sending the emergency signal. The radio location on the map is based on the latest GPS data.

Category for emergency – select a category, which will be responsible for resolving the emergency issue. If the category is selected, it will also appear on the map.

If enabled, the **Emergencies** panel opens automatically, when the system receives the emergency signal:



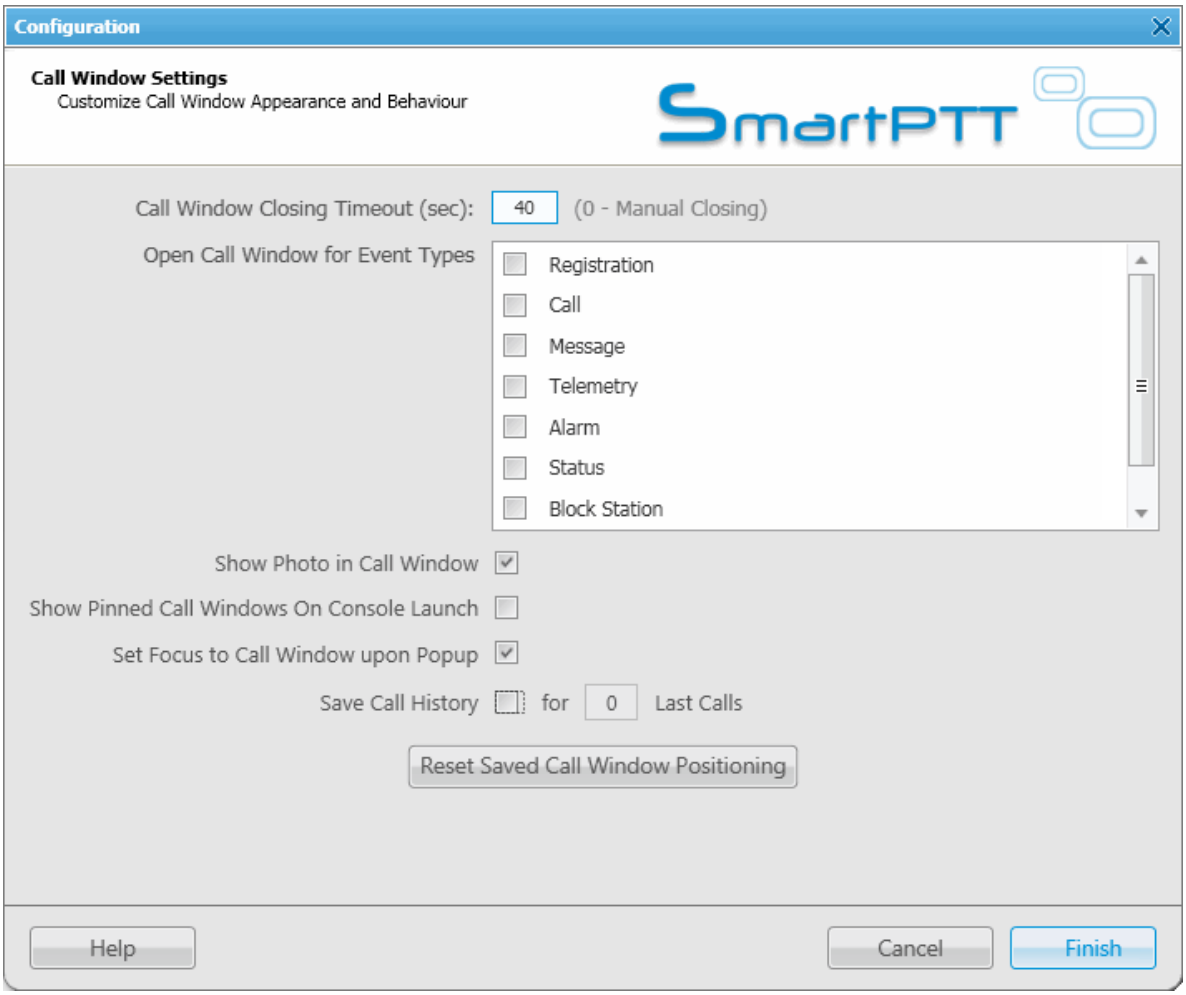
From the **Emergencies** panel the dispatcher can do the following:

- Make a group call. The talkgroup is set in the radio parameters in MOTOTRBO CPS.
- Turn off the sound alert by clicking .
- Mark the issue as resolved by clicking . At that, the **Emergencies** panel gets closed.

To set parameters for the system messages, see System Messages.

Call Windows

To configure the parameters of the **Call Window**, expand the **Settings** menu in the **Main Menu** bar of the SmartPTT Dispatcher window and click **Call Window Settings**. At that, the configuration window opens where you can configure the appearance and functions of the **Call Window**.



Call Window Closing Timeout (sec) – sets the time period in seconds at the end of which the **Call Window** closes automatically.

Note: If you enter 0 in the field, the **Call Window** won't close automatically.

Open Call Window for Event Types – specifies types of events triggering the **Call Window** opening (**Registration**, **Call**, **Message**, **Telemetry**, **Alarm**, **Status**, **Block Station**, **Job ticket**, **Lone Worker**, **Radio**

Check).

Show Photo in Call Window – select to display the subscriber's photo in the **Call Window**.

Show Pinned Call Windows on Console Launch – if selected, the position of the **Call Windows,** pinned before the SmartPTT Dispatcher application closing, will be restored during next launch.

Make Call Window Active upon Opening – select the checkbox to focus on the **Call Window** when it is opened or have a new activity.

Save Call History – allows you to keep call history when SmartPTT Dispatcher is closed.

Reset Saved Call Window Positioning – click the button to reset the current position of the call windows.

Sound

To set audio device settings and VoIP parameters, expand the **Settings** menu in the **Main Menu** bar of the SmartPTT Dispatcher window and click **Sound Settings**. At that, the configuration window opens up.

The **Sound Settings** window includes:

1. **General Settings** tab
2. **Audio Output Devices** tab
3. **Other Settings** tab

The **General Settings** tab:

Audio Input – audio device to which the microphone is connected.

Input Line – audio mixer line used to connect a microphone.

Audio Output – audio device to which headsets or speakers are connected.

Codec – audio stream compression method.

Bitrate – audio stream sampling frequency.

VoIP Port – audio stream receive port.

Specifications of the codec format **8000 Hz, 20 ms, 64 (89) kbps**:

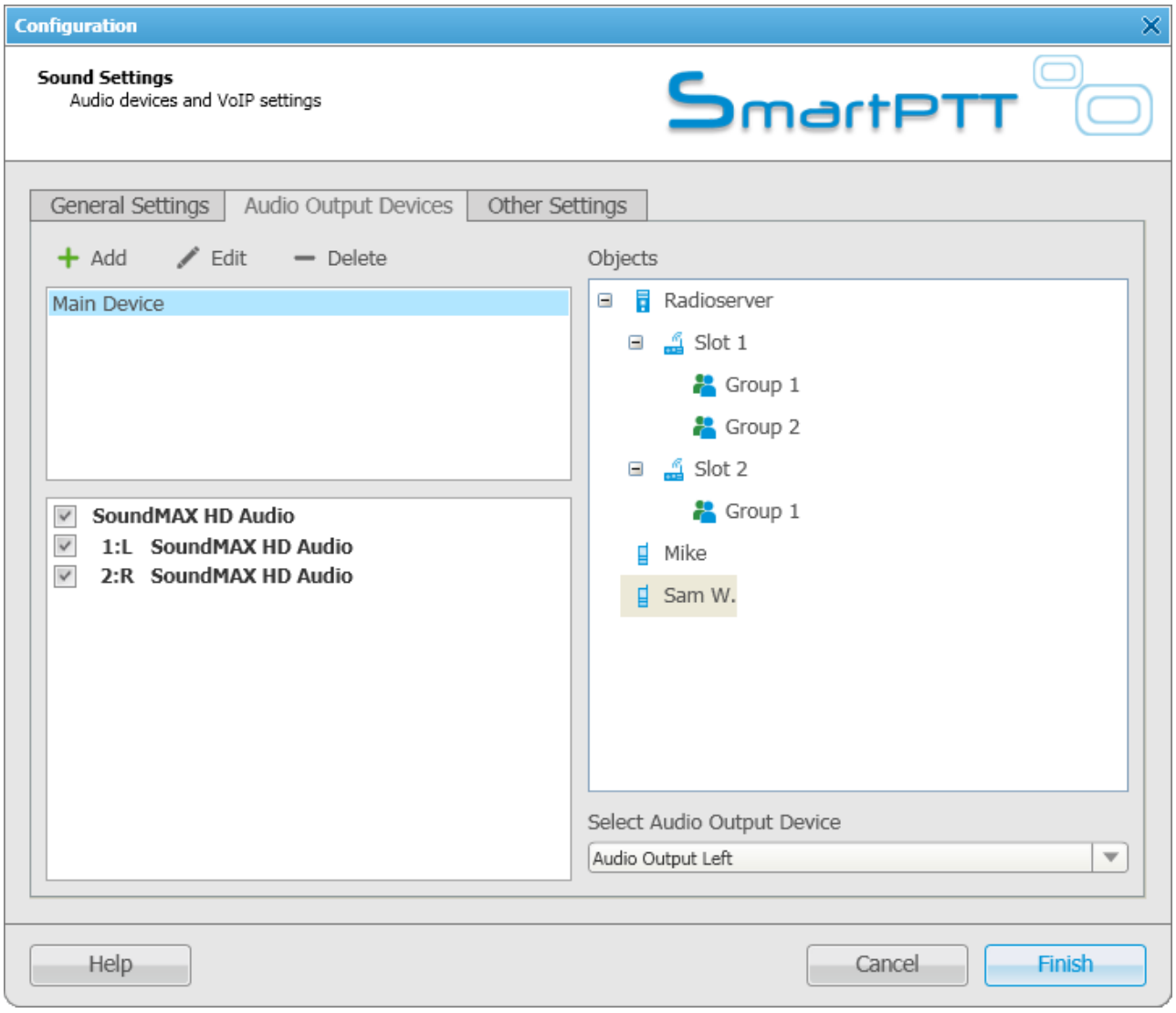
8000 Hz – the sampling rate

20 ms – the frame size

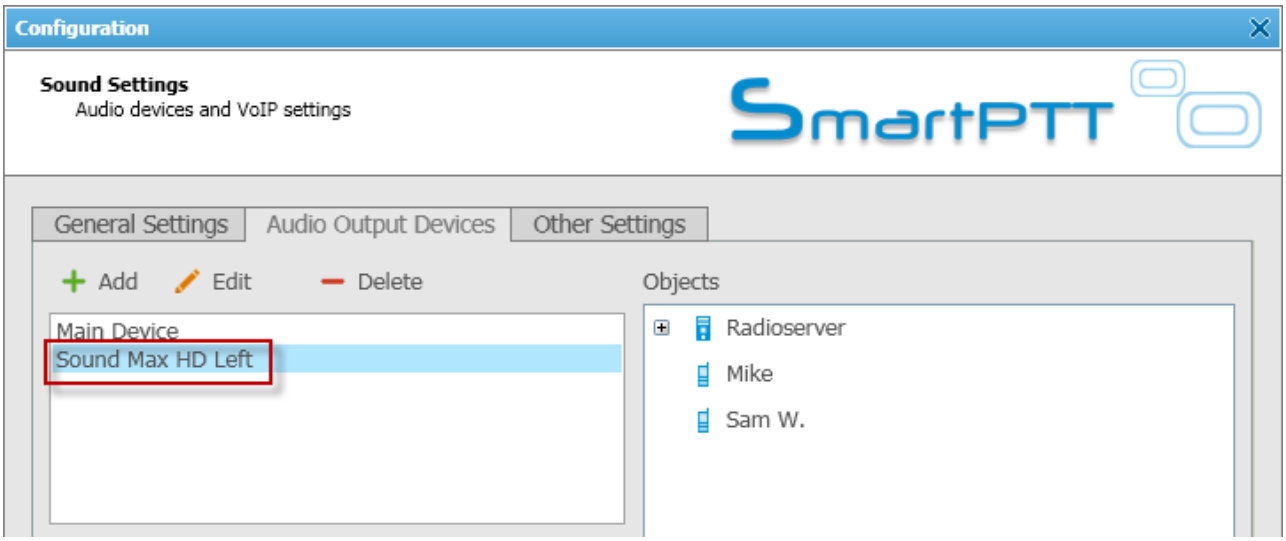
64 kbps – the voice data bit rate

89 kbps – a full bit rate (required network bandwidth)

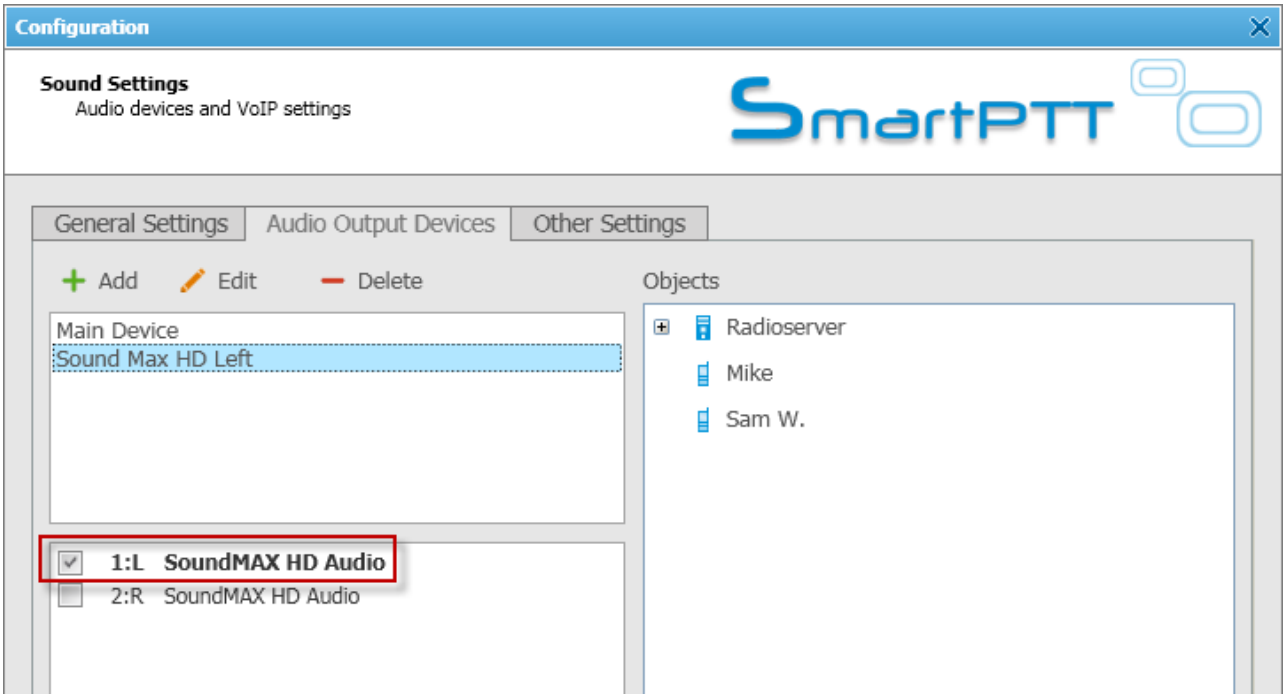
Starting from version 8.3, dispatch console allows you to set up different audio output devices, including multiple channels, for different subscribers, talkgroups, slots, etc. E. g., you can listen to radio subscribers on the headset, and the external dispatcher on the speakers. To do that, open the **Audio Output Devices** tab.



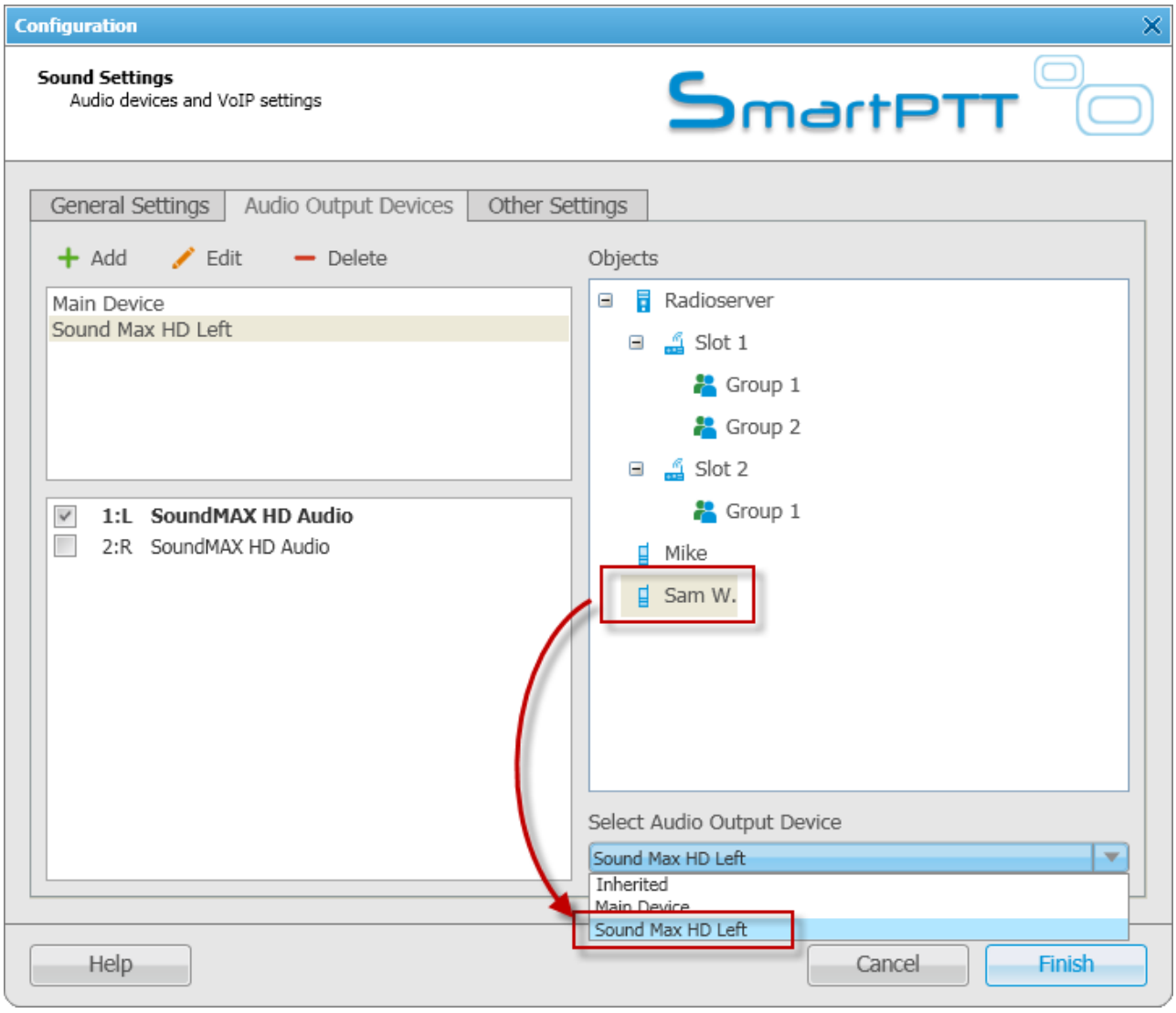
1. Add audio output devices in the first box on the left. These are not real output devices and are used only in dispatch console. To do that click on **Add**. A new record will appear on the list. Change its name, if necessary, by clicking **Edit**, and then select it.



2. In the list below, select the real devices or device channels which will correspond to the added output device.

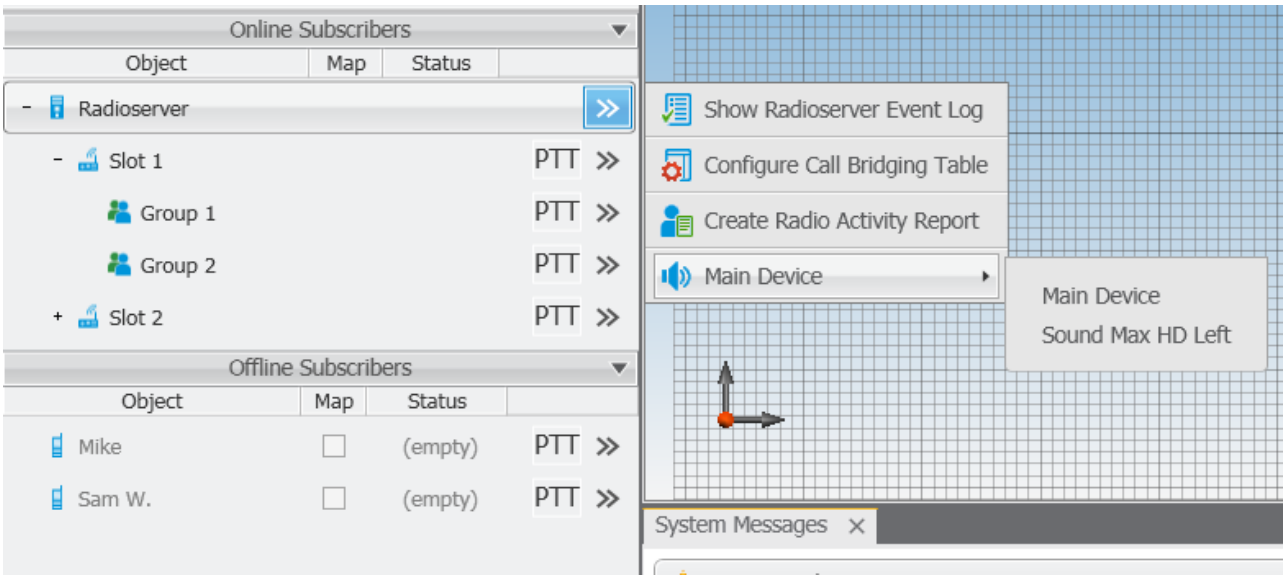


3. In the **Objects** list select the network object, for which you want to set up the new audio device or channel. And in the **Select Audio Output Device** dropdown list select the created output device. Thus, you assign the audio output device or channel to a network object.

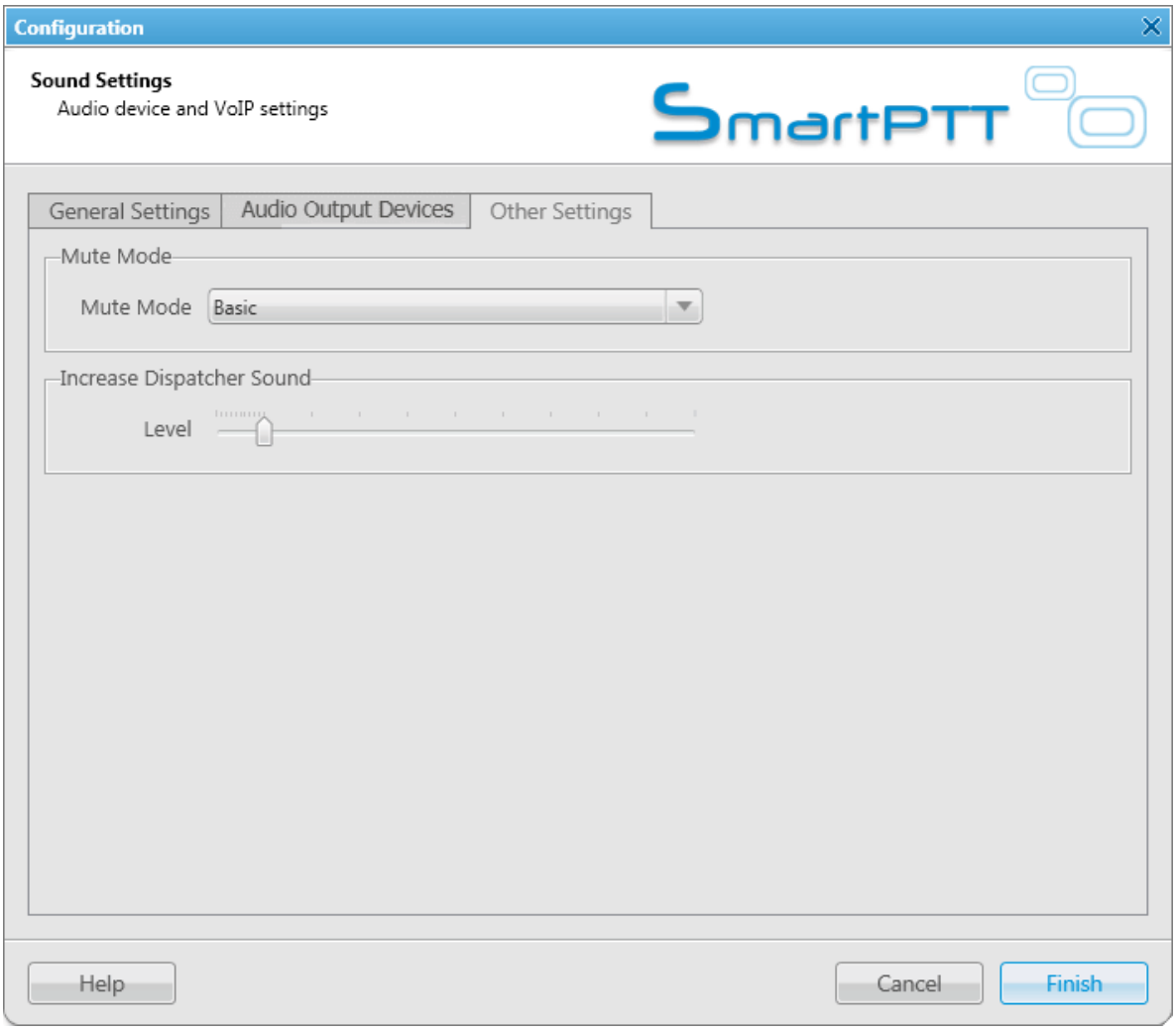


Note: Select **Inherited** if you don't want to set the audio output device explicitly. In this case the object will use the audio output device which is assigned to the parent object.

To assign another device to an object, you can do it in its **Action List** in the **Subscriber Panels**.



The **Other Settings** tab:



Mute Mode – provides options for muting.

Basic – in this mode when you click to mute the control station, the system will work in a standard way, that is you will hear nothing from the control station.

Advanced – in this mode when you click to mute the control station, the system will work differently. You will still be able to hear private incoming calls, calls initiated on the dispatcher side or calls answered by the dispatcher.

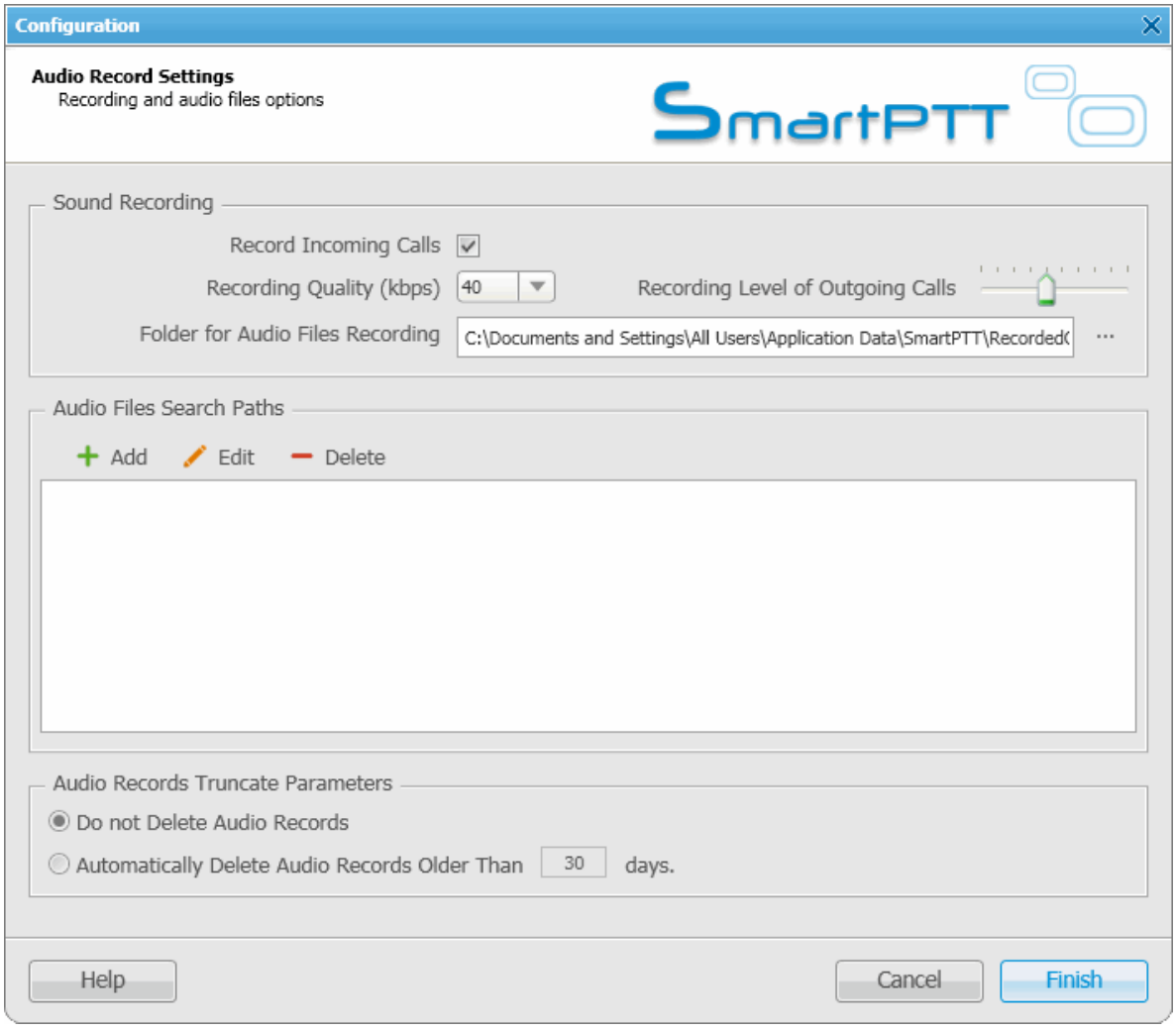
Increase Dispatcher Sound – allows user to adjust the volume level of the dispatcher outgoing call on the

receiving radio (to increase or decrease by the value of selected **Level** coefficient).

Unlike the microphone volume settings in the equalizer window, the microphone volume change applies to all devices. **Increase Dispatcher Sound** regards only the radio receiving a dispatcher call.

Records

To set audio record settings, expand the **Settings** menu in the **Main Menu** of the SmartPTT Dispatcher window and click **Record Settings**. The **Audio Record Settings** window opens.



Record Calls – select this option to record all the incoming and outgoing calls.

Recording Level of Outgoing Calls – increase or decrease the sound volume for recording outgoing calls.

Recording Quality (kbps) – sets sound quality for audio files.

Folder for Audio Files Recording – sets the path to the folder with recorded audio files.

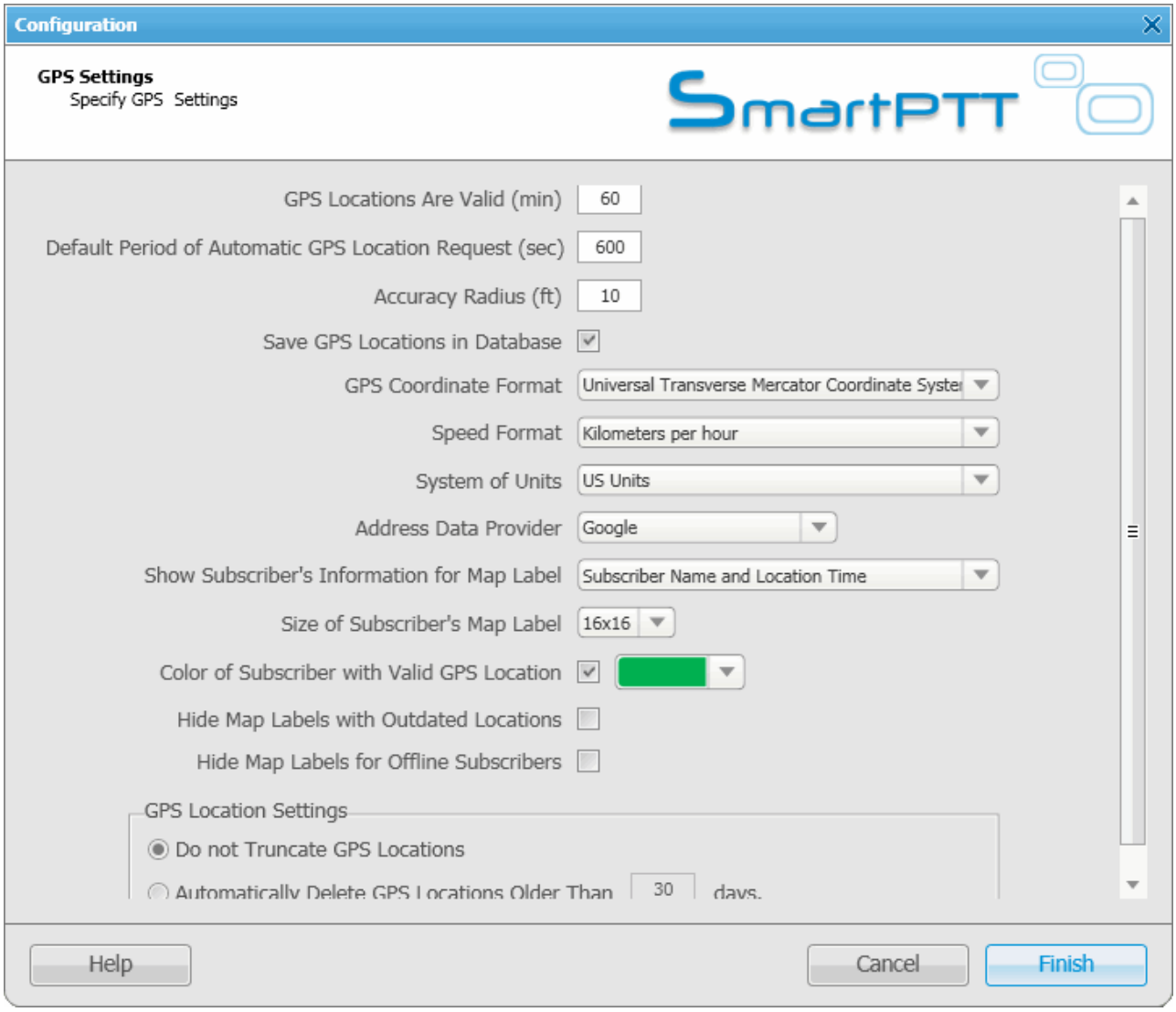
Audio Files Search Paths – sets paths to additional folders for recorded audio files.

Note: After changing the folder path where audio files are stored, the former path is automatically added to the audio files search path field.

Audio Records Truncate Parameters – sets audio record cleaning parameters.

GPS

To set GPS settings, expand the **Settings** menu in the **Main Menu** bar of the SmartPTT Dispatcher window and click **GPS**. The **GPS Settings** window opens up.



GPS Locations Are Valid – GPS data validity period in minutes.

Default Period of Automated GPS Location Request – interval of GPS data requests in seconds.

Accuracy Radius – sets the maximum coordinate error margin. If the received error value exceeds the value specified in this field, the coordinate is invalid.

Save GPS Locations in Database – select the checkbox to store GPS coordinates received from subscribers in

the database.

GPS Coordinate Format – GPS coordinate format to display in the subscriber **Call** window:

- Decimal degrees. GPS coordinates are displayed as: lat.: 56,47568, lon.:84,98779.
- Degrees, Minutes, Seconds. GPS coordinates are displayed as: lat.: 56°28'32", lon.:84°59'16".
- Universal Transverse Mercator Coordinate System. GPS coordinates are displayed as: 45V 376108 B 6260913 C.

Speed Format – select the way to display subscriber speed.

System of Units – allows selecting measurement system for distance.

Note: When changing measurement system, the data previously logged won't be recalculated according to the new measurement system.

Address Data Provider – select the map service (Google or OpenStreetMap), which will determine the object address on the map corresponding to the subscriber current GPS-coordinates.

Show Subscriber's Information for Map Label – select the checkbox to permanently display subscriber name and time of the last GPS coordinate behind subscriber map label.

Size of Subscriber's Map Label – choose subscriber map label size.

Color of Subscriber with Valid GPS Location – set color of the subscriber name with valid GPS locations.

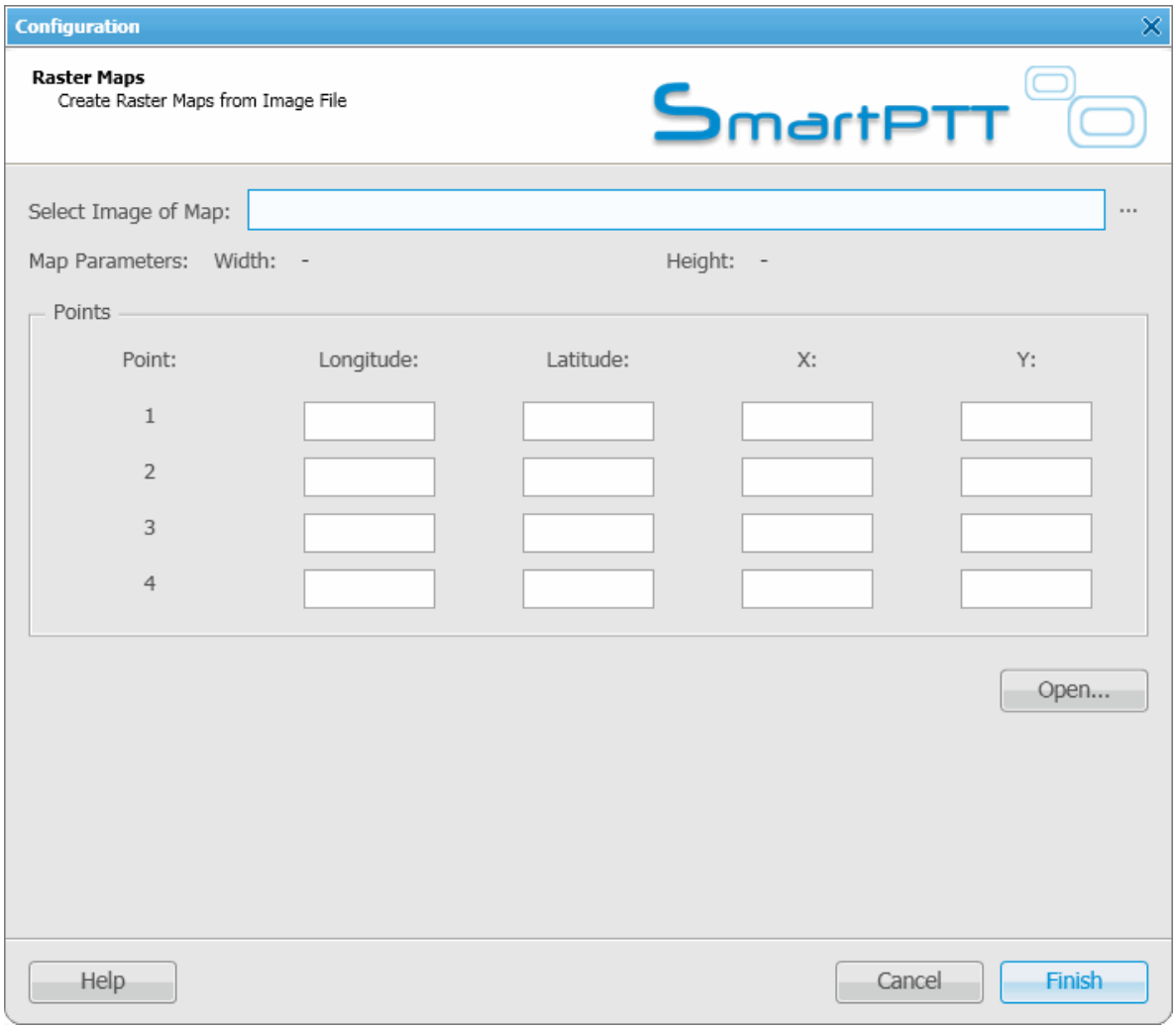
Hide Map Labels with Outdated Locations – select the checkbox to hide map labels for subscribers with outdated GPS locations. GPS location becomes outdated if it was not updated for more than the period set in the **GPS Locations Are Valid** field.

Hide Map Labels for Offline Subscribers – select the checkbox to hide map labels when a subscriber goes offline.

GPS Location Settings – settings to clear coordinates from the database.

Raster Map

To set raster map settings, expand the **Settings** menu in the **Main Menu** bar of the SmartPTT Dispatcher window and click **Raster Map**. At that, the configuration window is displayed for creating geographic raster maps based on an image.



To create a map, select the map image using the browse button .

On the selected map image mark reference points (crossroads, places of interest, etc.) with the help of Google Earth and calculate their coordinates. Coordinates are calculated in the following way:

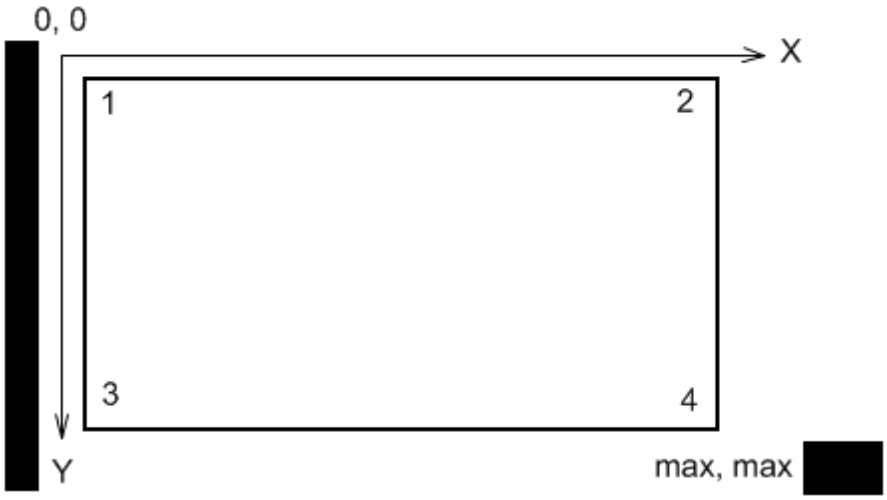
Longitude and Latitude = Degree + ((Minute * 60) + Second) / 3600 (this s a conversion from degrees, minutes and seconds into normal values), where X and Y are corresponding coordinates (in pixels) on the image.

Please remember that the longitude corresponds to the horizontal coordinate (X) and the latitude corresponds to the vertical coordinate (Y). The longitude value can range from -180 degrees (the most distant longitude to the west from the Greenwich Meridian set to 0) to +180 degrees (the most distant longitude to the east from the Greenwich Meridian). In fact -180 degrees and +180 degrees are the same longitude. The latitude value can range from -90 degrees (the South Pole) to +90 degrees (the North Pole).

Longitude and Latitude coordinates, already converted into normal values and corresponding to the subscriber's current locations, are also shown in the subscriber's **Call Window**.

You need four points. Point selection criteria are:

- Point 1 is located as close as possible to the top left image corner.
- Point 2 is located as close as possible to the top right image corner.
- Point 3 is located as close as possible to the bottom left image corner.
- Point 4 is located as close as possible to the bottom right image corner.



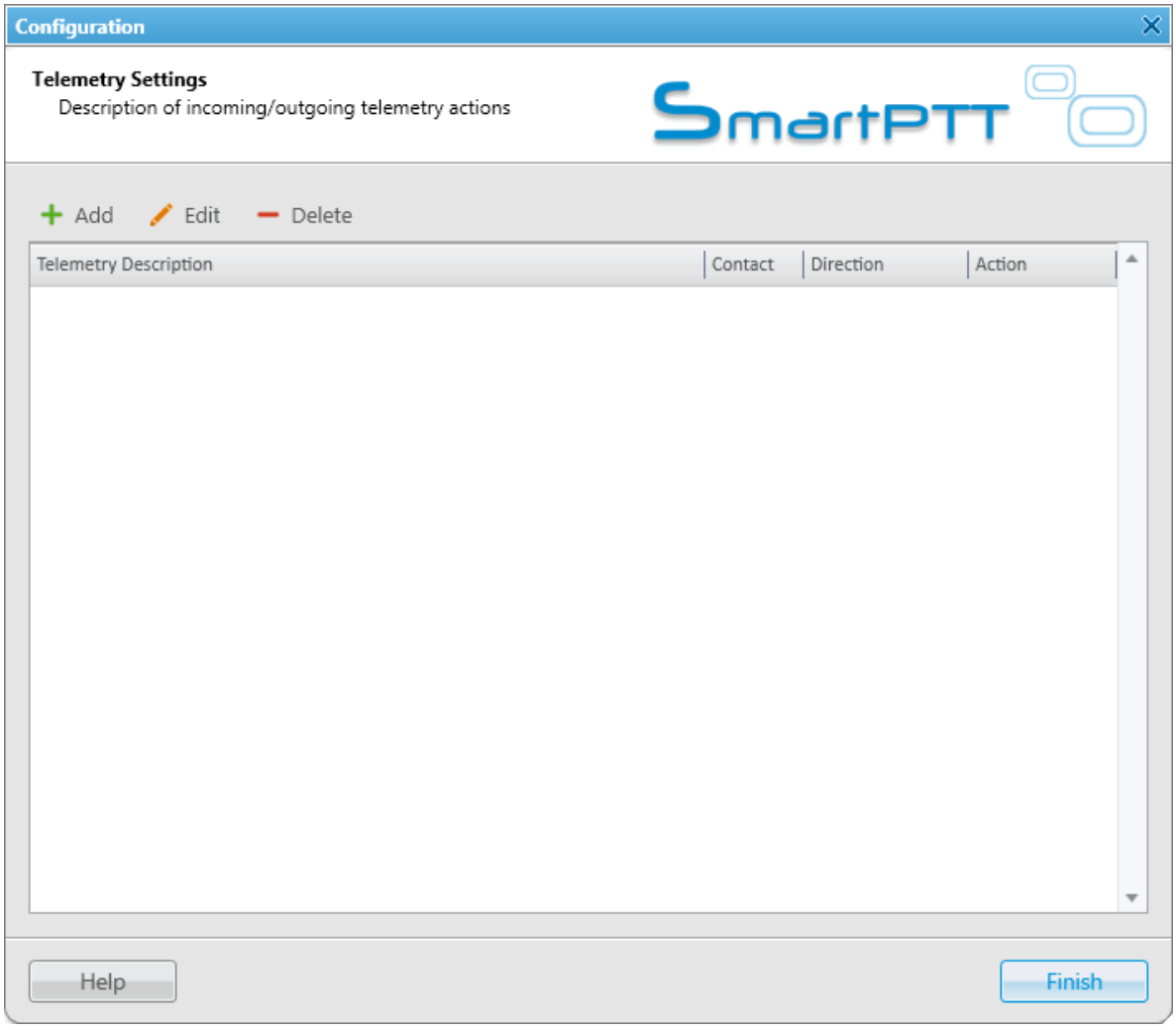
After all coordinates are entered, click **Finish**. In the opened window set the raster map name and click **Save**.

To edit or check object locations in the created raster map, click **Open**. Locate the raster map in the window which is displayed.

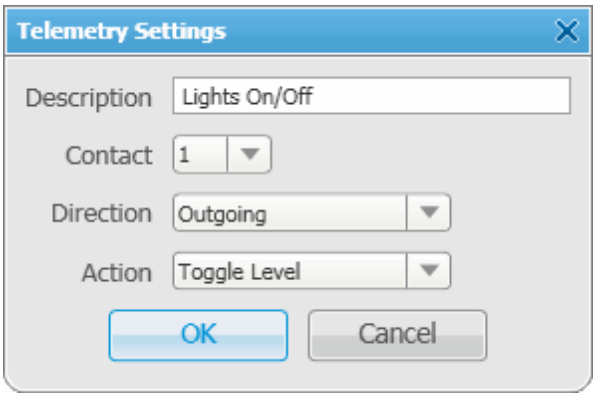
Note: The created raster map files and the image map file must be in the same folder.

Telemetry

To set up incoming/outgoing telemetry actions, expand the **Settings** menu in the **Main Menu** bar of the SmartPTT Dispatcher window and click **Telemetry**. At that, the configuration window is displayed for telemetry settings.



To add a new telemetry rule, click **Add**. The **Telemetry Settings** window is displayed.



Description – description of the action to be triggered.

Contact – select a contact or VIO from the list.

Note: Make sure the selected contact or VIO is mapped to a physical GPIO line in MOTOTRBO CPS.

Direction – select direction (incoming or outgoing).

Action – action type: impulse, high level, low level, toggle level.

To save the changes click **OK** – the created settings appear in the list of settings.

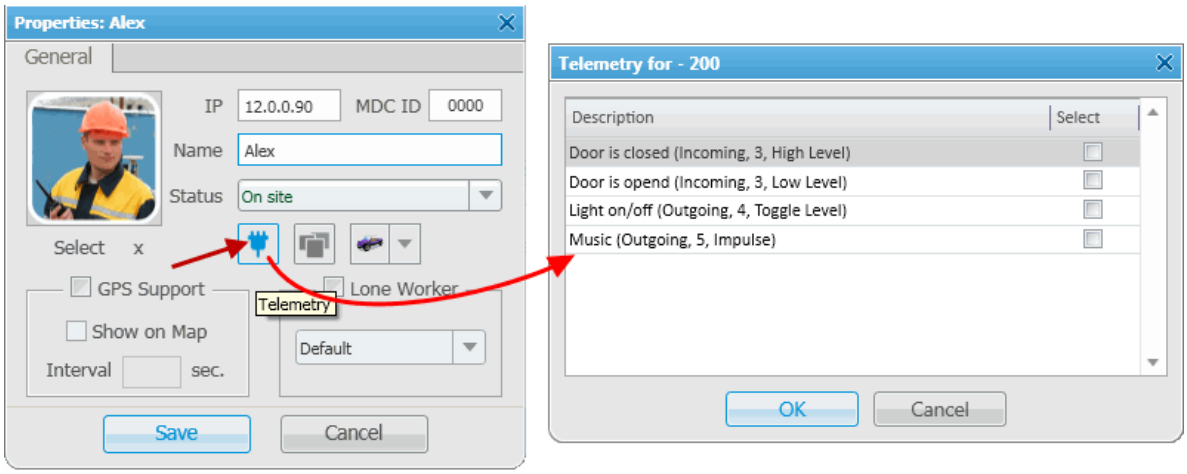
To edit the existing settings, select the entry in the list of settings and click **Edit**.

To delete the settings, select the entry in the list of settings and click **Delete**.

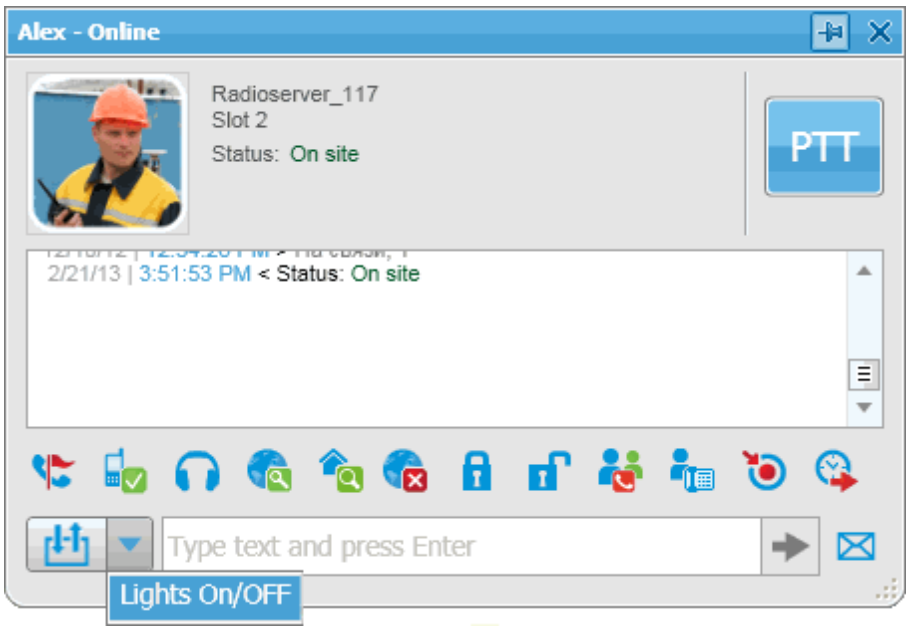
How to Assign Telemetry to the Radio Subscriber

You can select telemetry settings in the subscriber's **Properties** window.

Click the **Telemetry** button to open the window for selecting available telemetry commands for the subscriber.



Then you can run the telemetry command from the subscriber's **Call Window**.

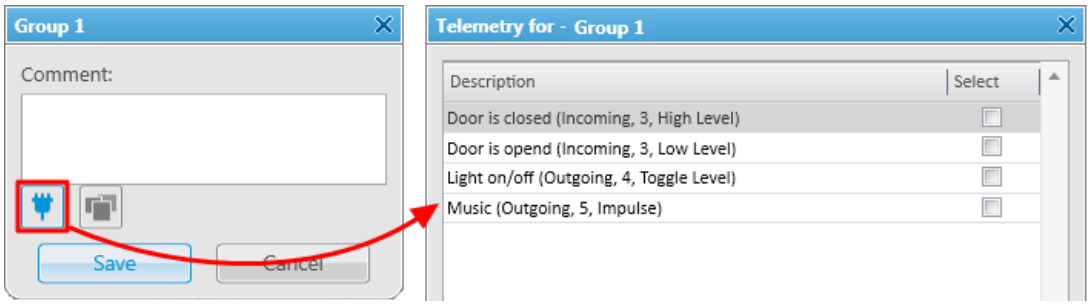


To receive the current telemetry status, click .

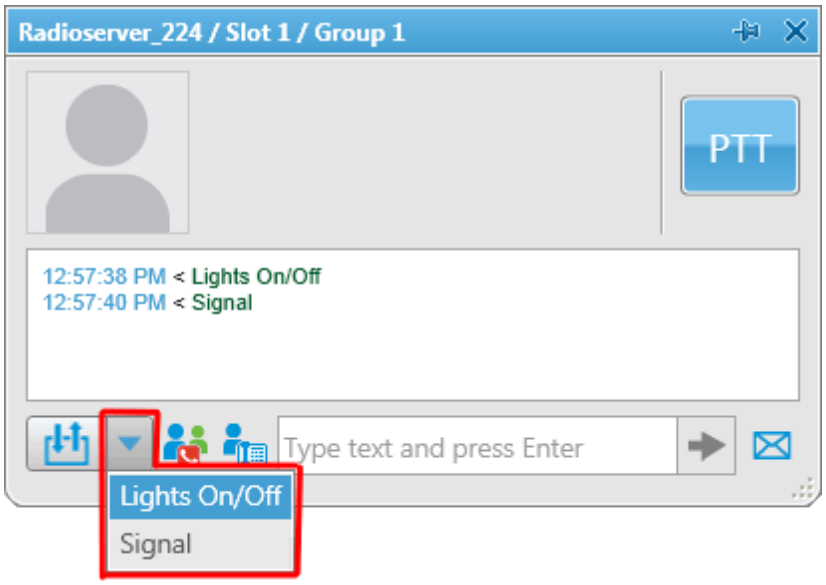
How to Assign Telemetry to the Talkgroup of Radio Subscribers

You can select telemetry settings in the **Properties** window of the talkgroup.

Click the **Telemetry** button and select available telemetry commands for the talkgroup.

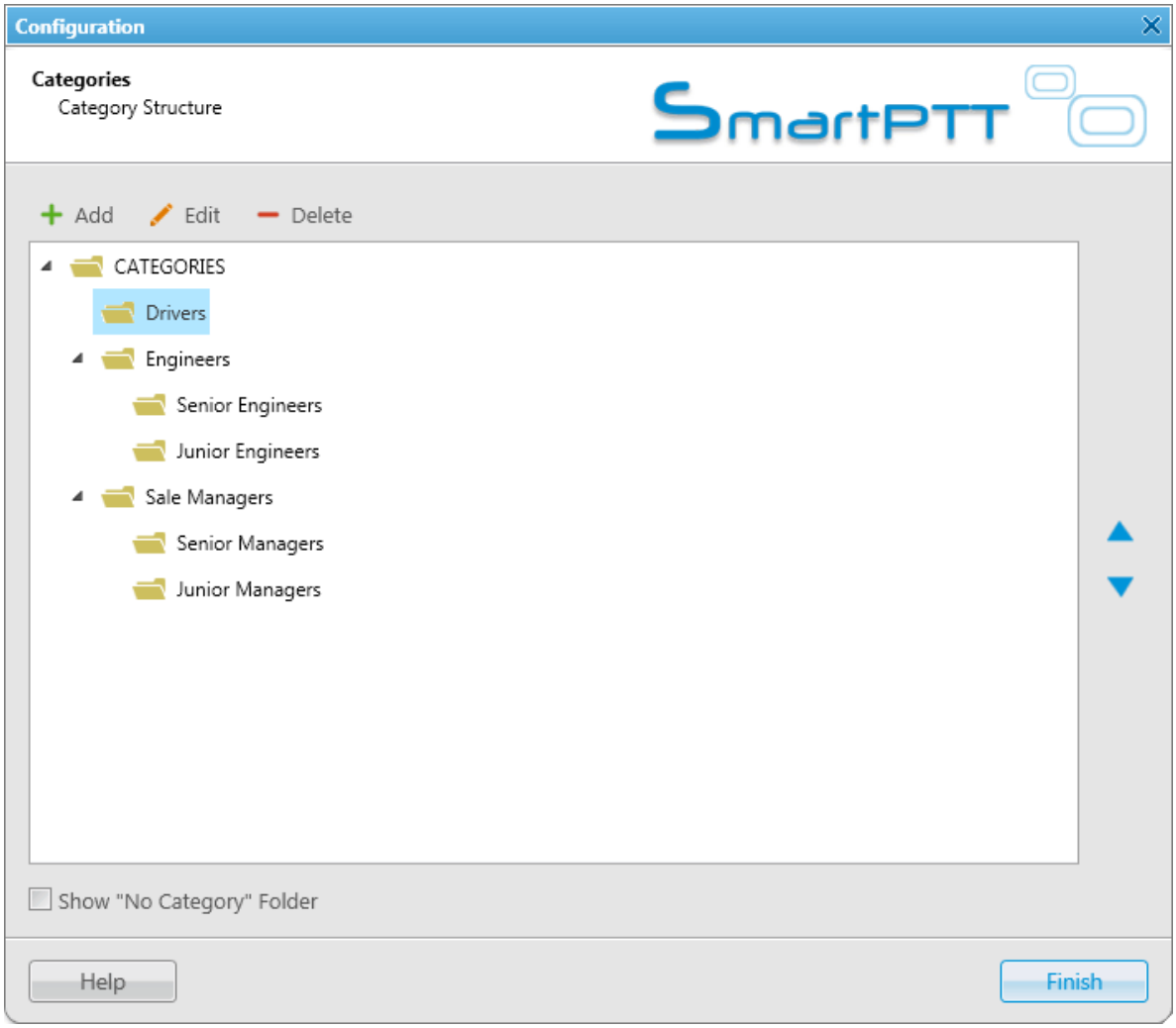


Then you can run the telemetry command from the talkgroup **Call Window**.



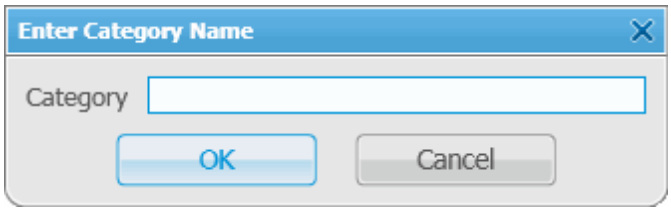
Categories

To create a category structure, expand the **Settings** menu in the **Main Menu** bar of the SmartPTT Dispatcher window and click **Categories**. The configuration window for setting up the category structure opens.



Show "No Category" Folder – displays a list of all online subscribers (radio subscribers, talkgroups, telephone subscribers, dispatchers) in the **No Category** folder of the **Subscriber Management > Categories** panel, without reference to categories.

To create a new category, click **Add**.



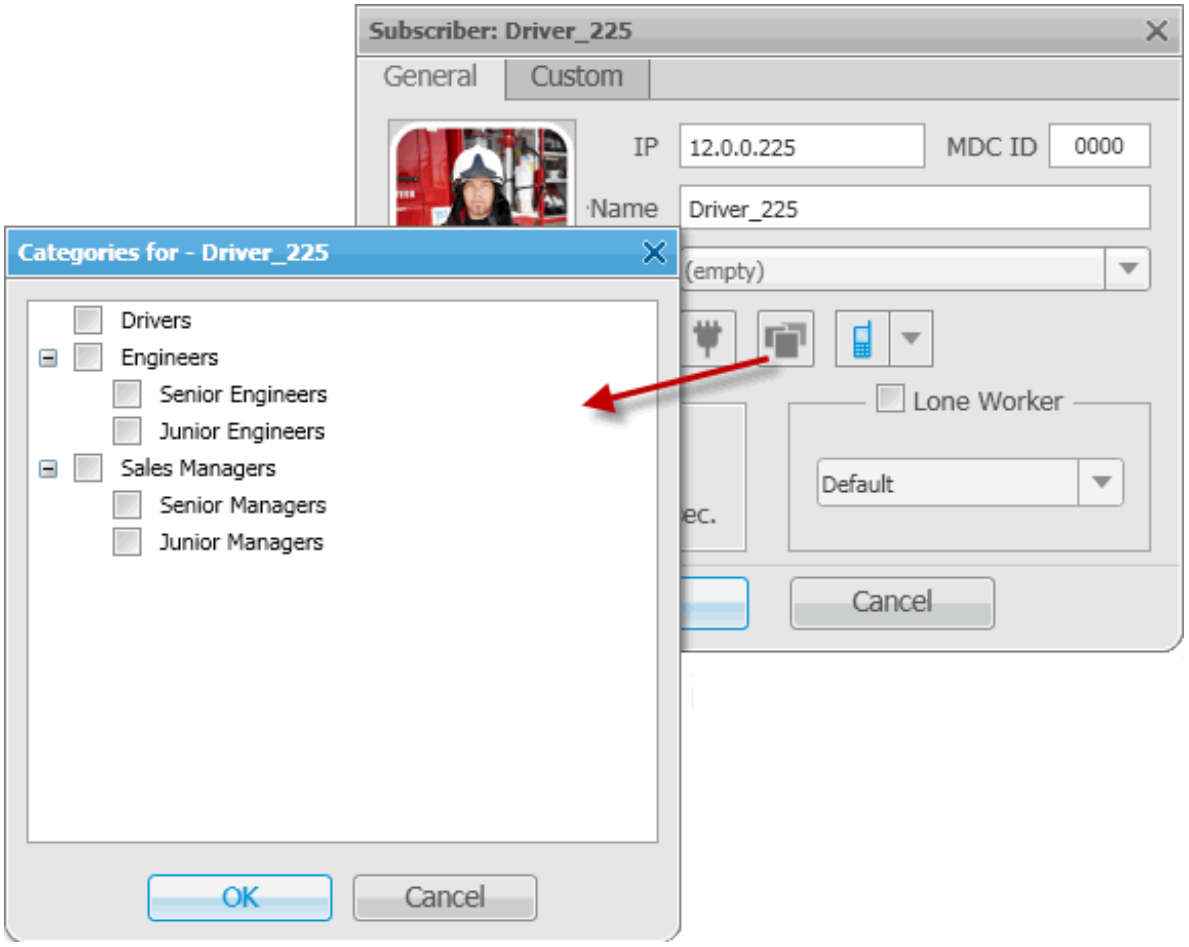
To edit the existing category name, select it in the list and click **Edit**.

To remove a category, select it in the list and click **Delete**.

To move categories inside a parent category, use arrow button on the right.

To move the categories between levels, click on a category, hold the left mouse button and drag it to a new position.

A subscriber can be assigned to the categories from the subscriber's **Properties** window. Click the **Categories** button to display the window where you can assign categories to the subscriber.

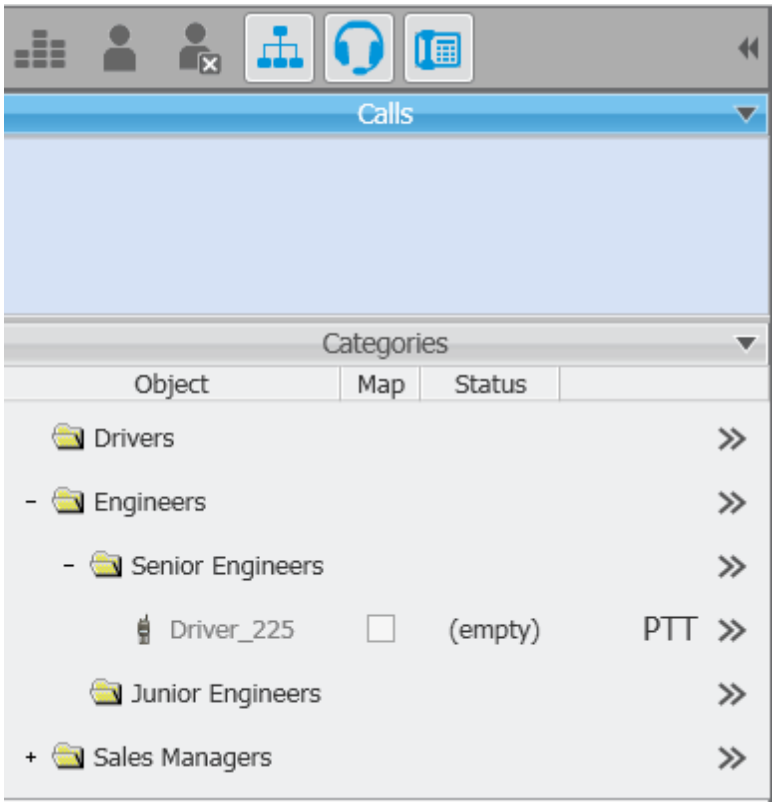


Choose the desired categories and click **OK**.

You can also assign subscribers to categories in the **Subscriber Management Panel** using drag and drop feature.

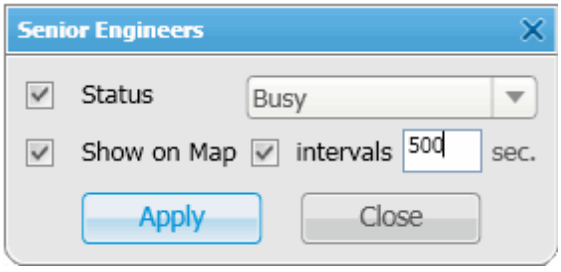
Note: All the three types of subscribers (radio, telephone subscribers and dispatchers) can be assigned to a category. However, the actions applied to the category members will be addressed only to radio subscribers.

The selected categories are displayed in the **Subscriber Management Panel**.

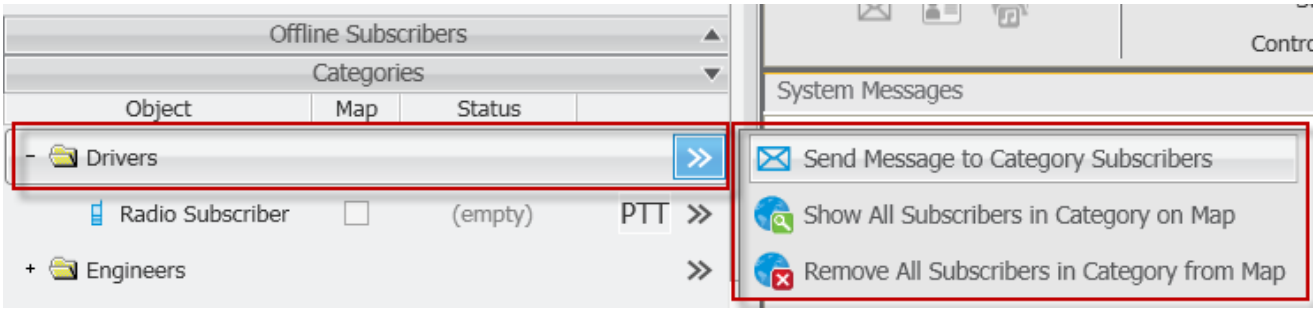


To remove the **Categories** window from the **Subscriber Management Panel**, click .

Right-click on the category name to open the **Properties** window. Here you can change the status of all radio subscribers who belong to this category and set GPS settings for the category subscribers.



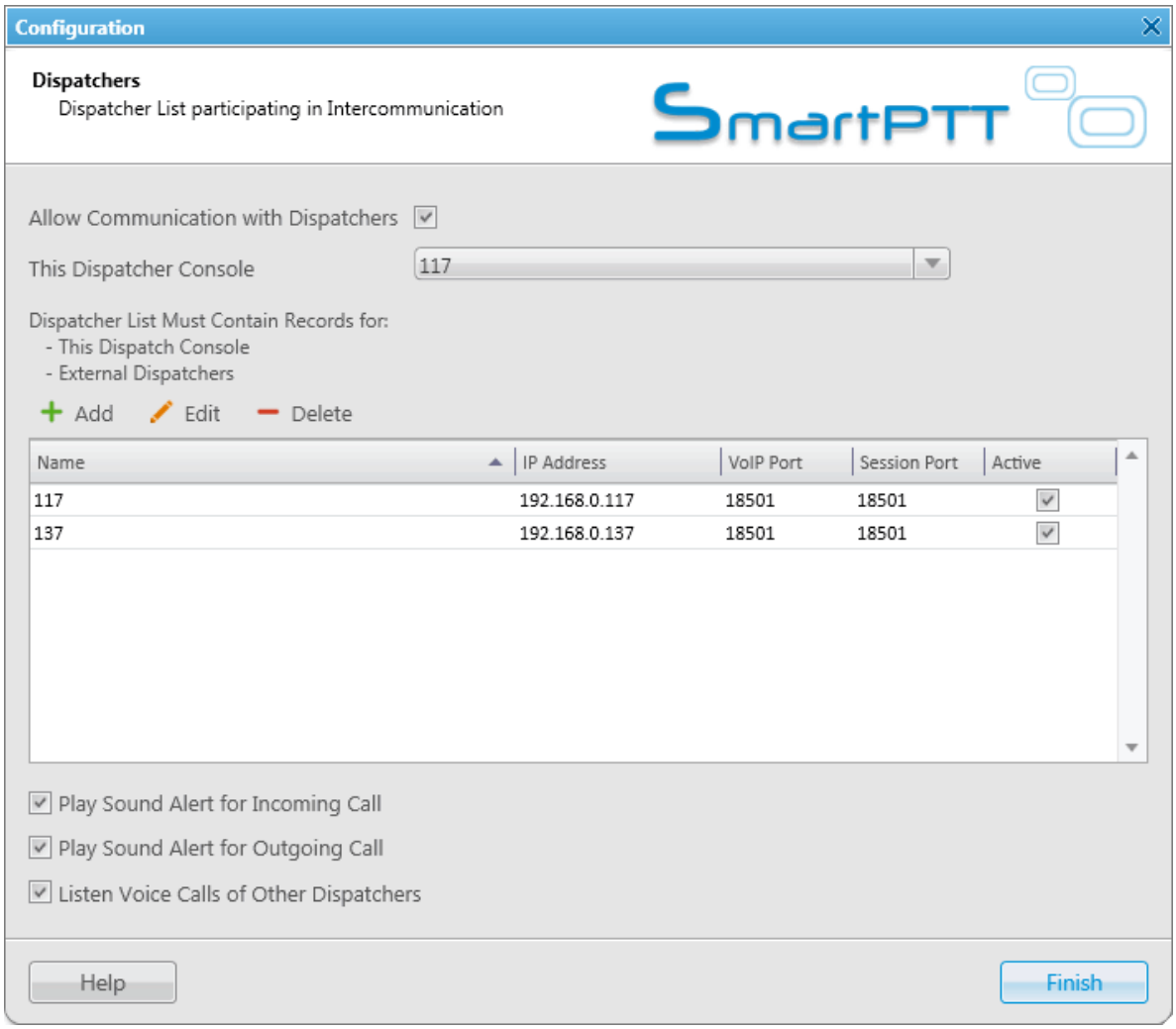
Click the button next to the category name to apply actions to all the subscribers from the category.



- **Send Message to Category Subscribers** – opens the window for sending messages.
- **Show All Subscribers in Category on Map** – displays all subscribers from this category on the map, if it is opened.
- **Remove All Subscribers in Category from Map** – removes all subscribers of this category from the map, if it is opened.

Dispatchers

To set up connection to other dispatchers, expand the **Settings** menu in the **Main Menu** bar of the SmartPTT Dispatcher window and click **Dispatchers**. The configuration window is displayed for setting up a list of available dispatchers.



Allow Communication with Dispatchers – select the checkbox to enable the ability to voice communicate with other dispatchers. If the checkbox is not selected, the button will be unavailable and you cannot access the **Dispatchers** window in the **Subscriber Management Panel**.

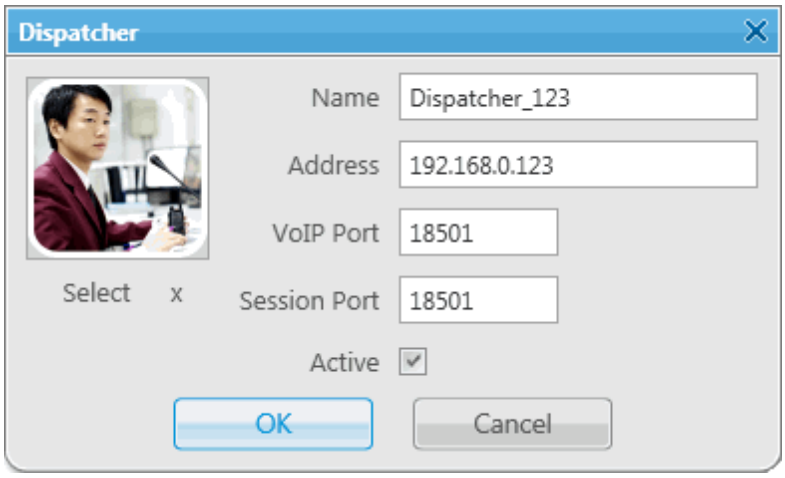
This Dispatcher Console – select your dispatch application name.

Play Sound Alert for Incoming Call – select this checkbox to play a sound alert on incoming calls.

Play Sound Alert for Outgoing Call – select this checkbox to play a sound alert on outgoing calls.

Listen Voice Calls of Other Dispatchers – select this checkbox to be able to listen to other dispatchers' communication.

To add a new dispatcher, click **Add**.



Name – the dispatcher's name displayed in the list of dispatchers.

Address – the dispatcher's workstation IP address (DNS name can be used).

VoIP Port – UDP port for sound transmission.

Session Port – TCP port for transmission of commands and text messages.

Active – enable this option to display the dispatcher in the **Subscriber Management panel**.

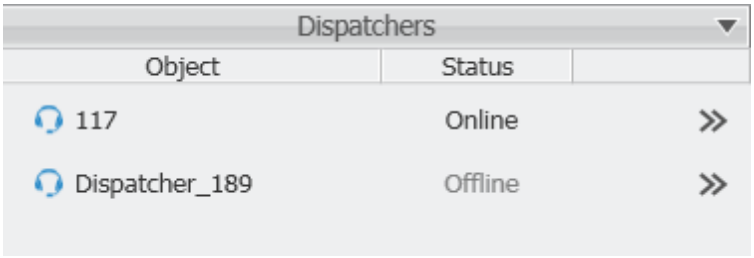
Select – specify the file path to the dispatcher's photo.

To save the changes, click **OK**. At that, the new dispatcher is added to the list of dispatchers.

To edit dispatcher settings, select it in the list of dispatchers and click **Edit**.

To remove a dispatcher, select it in the list of dispatchers and click **Delete**.

When connection to dispatchers is enabled, the **Dispatchers** window is displayed in the **Subscriber Management panel**. It displays a list of dispatchers available for communication.



The dispatchers can have the following statuses:

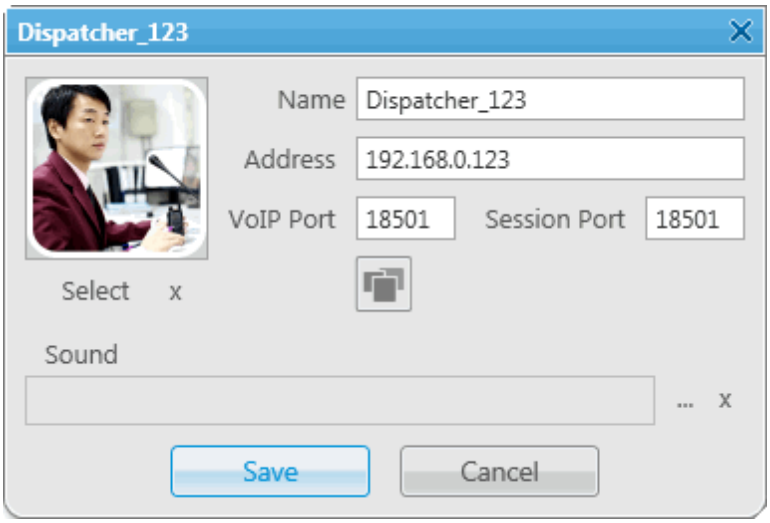
Offline – the dispatcher is not available for communication.

Online – the dispatcher is available for communication.

Ringing – calling to the dispatcher to establish voice communication.

Call – voice communication is established.

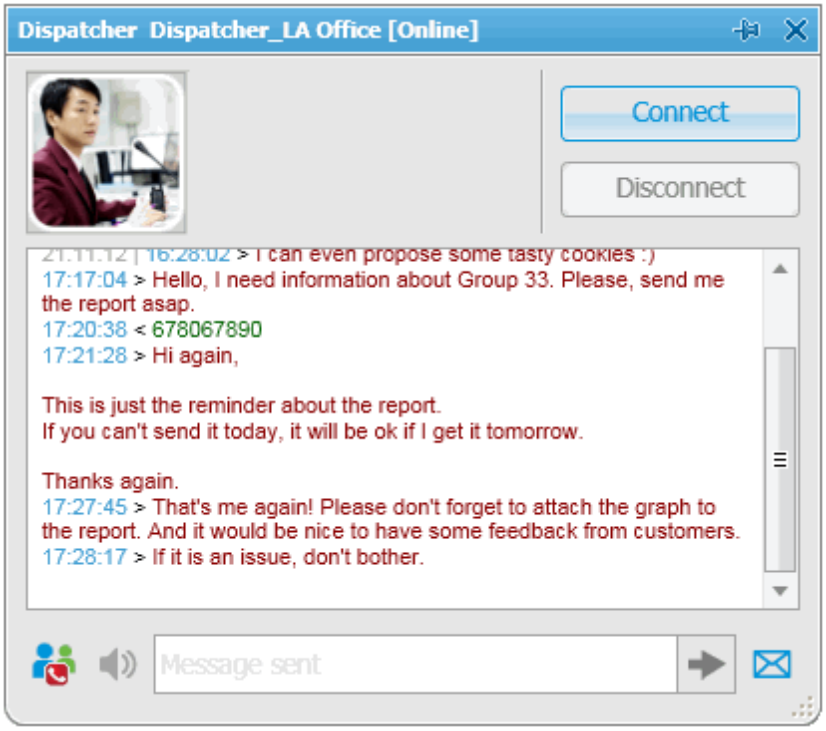
To display the dispatcher settings window, select the dispatcher entry and then right-click on it.



To set an alert sound for incoming calls, click .

To assign the dispatcher to a category, click .

To open the dispatcher **Call Window**, double-click on the dispatcher entry.



Connect – call the dispatcher (voice communication).

Disconnect – terminate voice communication with the dispatcher.

To add the dispatcher to the conference call, click .

To stop sound transmission, while the other dispatchers still can be heard, click . This button is unavailable until you start voice communication with another dispatcher.

Message field – a field used to send a text message. You can type the message text right in the field and click or you can open the **Send Message** window and send a message from there.

If a dispatcher calls another dispatcher, the addressee will change the status to **Ringing** and in the **Call Window** the buttons **Accept** and **Decline** will appear.

Accept – the incoming call is accepted and voice communication is established.

Decline – the incoming call is not accepted and voice communication is not established.

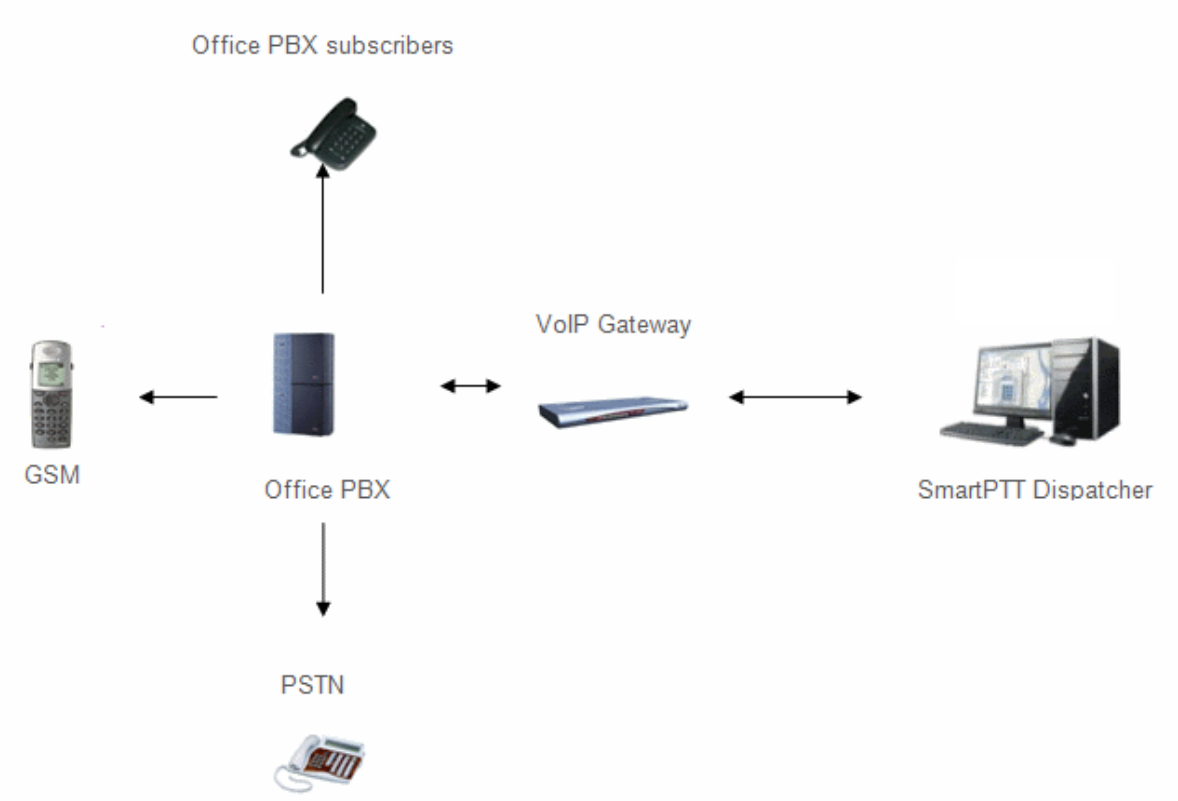
Telephone Settings

SmartPTT Dispatcher has a built-in function to make telephone connections with telephone subscribers. A call can be initiated both by the dispatcher and the telephone subscriber. Standard VoIP gateways are used to connect to telephone subscribers. The following connection options are possible:

1. The dispatcher calls the office PBX subscriber and voice is transmitted in full-duplex mode.
2. The office PBX subscriber calls the dispatcher and voice is transmitted in full-duplex mode.
3. SmartPTT Dispatcher connects telephone and radio subscribers.

Connection and subscriber addressing are implemented via SIP protocol. Voice data is transmitted via RTP protocol.

The connection scheme



A VoIP gateway is a device which bridge conventional telephone networks and equipment to VoIP telephone networks.

A Private Branch eXchange (PBX) is a telephone exchange that serves a particular business or office.

The Public Switched Telephone Network (PSTN) is the network of the world's public circuit-switched telephone networks.

SIP Architecture

Call service management is distributed between different elements of SIP network. The basic functional unit that implements connection management are User Agents, which are endpoints of a call (that is each of the participants in a call). The remaining network elements (SIP-servers) are responsible for call routing and can provide additional services.

1. User Agents

User agents are both the computer that is being used to make a call, and the target computer that is being called. These make the two endpoints of the communication session. There are two components to a user agent: a client and a server. When a user agent makes a request (such as initiating a session), it is the User Agent Client (UAC), and the user agent responding to the request is the User Agent Server (UAS). Even though other devices that we'll discuss are optional to various degrees, User Agents must exist for a SIP session to be established.

2. Proxy Server

Proxy servers are computers that are used to forward requests on behalf of other computers. If a SIP server receives a request from a client, it can forward the request onto another SIP server on the network. While functioning as a proxy server, the SIP server can provide such functions as network access control, security, authentication, and authorization.

3. Registrar Server

Registrar servers are used to register the location of a user agent who has logged onto the network. It obtains the IP address of the user and associates it with their user name on the system. This creates a directory of all those who are currently logged onto the network, and where they are located. When someone wishes to establish a session with one of these users, the Registrar server's information is referred to, thereby identifying the IP addresses of those involved in the session.

4. Redirect Server

The Redirect servers are used by SIP to redirect clients to the user agent they are attempting to contact. If a user agent makes a request, the Redirect server can respond with the IP address of the user agent being contacted. This is different from a Proxy server, which forwards the request on your behalf, as the Redirect server essentially

tells you to contact them yourself.

SIP determines the following addressing system: ***[sip:] id [@ fragment]***. ID indicates user name or phone number of the subscriber. Fragment specifies the host, which can be set to the domain name, the IP-address of the computer or the address of the VoIP gateway. Caller ID can be presented in different ways, such as *user_name@[domain name]*, *name@[IPaddress]*, *phone_number@[VoIPgateway]*.

SIP Connection Methods

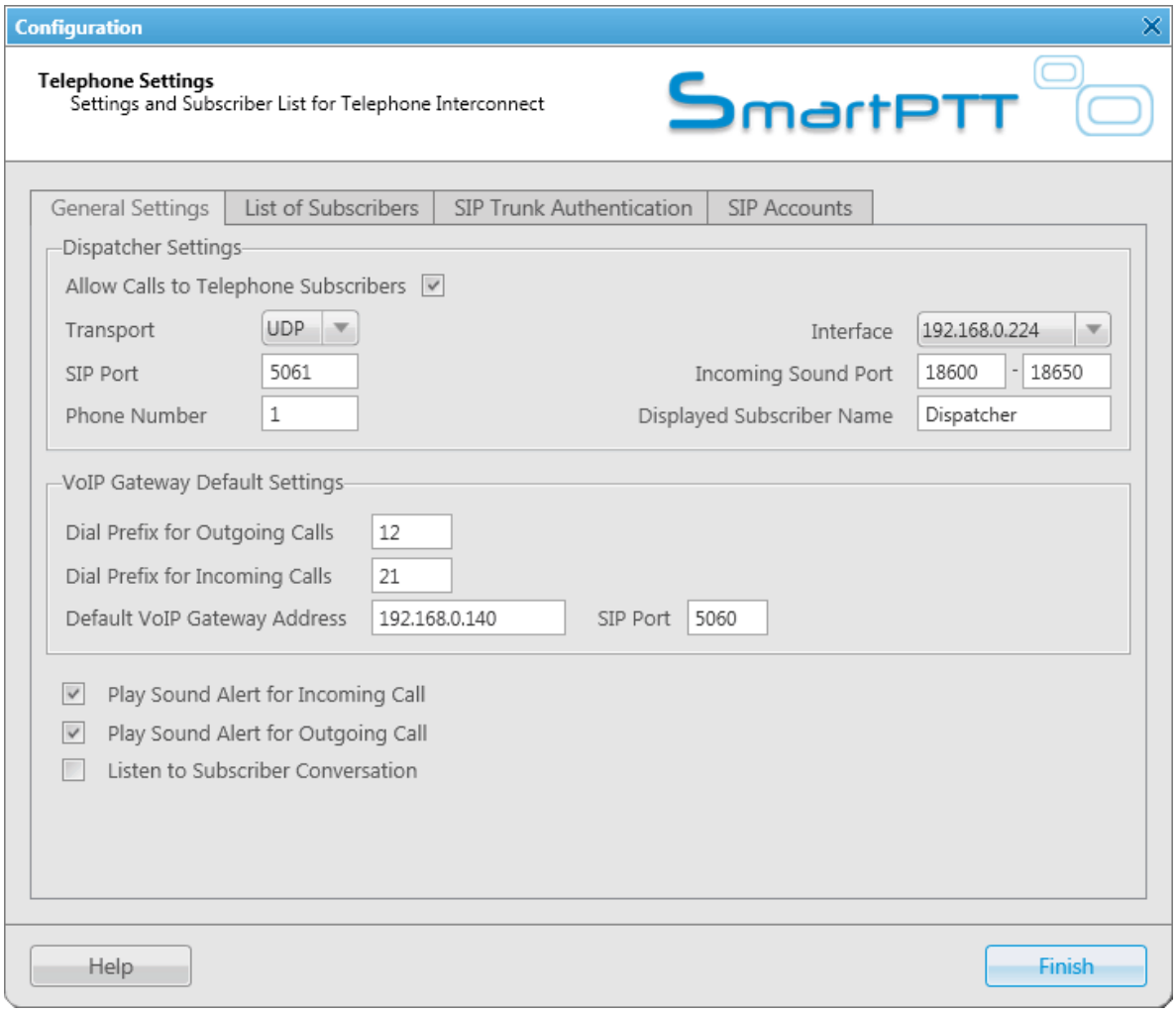
There are two SIP connection types – SIP trunking and using a SIP account.

SIP trunking is used when a user agent (SmartPTT Dispatcher in our case) has a static IP address. This IP address must be prescribed on SIP server only once, and the client does not require to re-register on the SIP server. SIP trunking provides security by means of password authentication for incoming and outgoing calls.

If the client IP address changes periodically, use a SIP server account to establish the connection. When the client turns on, it sends a special package for SIP registration to the server. The package contains authentication data (SIP account user name, login, password) and the current IP address. Since then server knows where to route calls addressed to the client. After a period of time the client automatically updates the registration. If its IP address has changed, SIP server accordingly updates the information on this user.

Telephone Settings Configuration

To configure connection parameters with telephone subscribers, expand the **Settings** menu in the **Main Menu** bar of the SmartPTT Dispatcher window and click **Telephone Settings**. The configuration window is displayed for configuring connection parameters.



The **Telephone Settings** window includes:

1. General Settings tab
2. Telephone Subscriber List tab
3. Authentication tab
4. SIP accounts

General Settings

General Settings tab includes **Dispatcher Settings** and **VoIP Gateway Default Settings** sections.

1. Dispatcher Settings

Allow Calls to Telephone Subscribers – select the checkbox to be able to make and receive calls between SmartPTT Dispatcher and telephone subscribers.

Note: If the checkbox is not selected, the **Telephone Subscribers** window is unavailable.

Incoming Sound Port – each connection with the telephone subscriber requires two UDP ports (even port numbers are used by RTP protocol, uneven – by RTCP). Thus, the specified ports must be available both for incoming and outgoing traffic.

Interface – IP address of the local computer, used to receive and transmit commands and voice data. If the dispatcher's computer has only one IP address, the system can select it automatically; if it has more than one IP address, the IP address (interface) should be specified expressly. The specified IP must be available from the VoIP gateway end.

Warning! If several network interfaces are installed on the computer you may have to configure the routing table using the command "route add ...".

SIP Port – UDP or TCP port number to receive and send SIP data packets. The default value is *5060*. Accordingly, the specified port must be available for incoming and outgoing traffic.

Displayed Telephone Number – type the telephone number which allows you to connect to SmartPTT Dispatcher. This number is also displayed on the screen of the receiving SIP call device (phone or softphone).

Displayed Subscriber Name – type the name to be displayed on the screen of the receiving SIP call device (phone or softphone).

2. VoIP Gateway Default Settings

If **VoIP Gateway Default Settings** are specified, it is enough to set only subscriber phone numbers in the **List of Subscribers** tab. Also, these parameters are used to dial the called subscriber number manually (click the **Dial Pad** button and the **Dial Pad** window opens).

Default VoIP Gateway Address – the VoIP gateway IP address.

SIP Port – a VoIP gateway to receive and send SIP data packets. By default VoIP gateways use the UDP port

5060.

Dial Prefix for Outgoing Calls – numeric prefix added to the called subscriber number by SmartPTT Dispatcher. VoIP gateway uses the prefix to determine where the call came from and what rules it must apply to the call (block or allow, where the call must be routed).

Dial Prefix for Incoming Calls – numeric prefix value in this field must match the same VoIP gateway prefix.

If default VoIP gateway is used, the telephone subscriber's complete SIP address will be as follows:

SIP address = Dial Prefix for Outgoing Calls + Phone Number + @ + Default VoIP Gateway Address + : + Gateway SIP Port.

> **Example:**
> If the following settings are used:
> Default VoIP Gateway Address = ***192.168.0.243***
> SIP Port = ***5060***
> Dial Prefix for Outgoing Calls = ***12***
> The telephone subscriber with the phone number 1140 is automatically assigned the following outgoing SIP address = ***121140@192.168.0.243:5060***.

Play Sound Alert for Incoming Call – select the checkbox to enable ringing at the SmartPTT Dispatcher application when a telephone subscriber calls.

Play Sound Alert for Outgoing Call – select the checkbox to enable ringing at the SmartPTT Dispatcher application when making a call to a telephone subscriber.

Listen Subscriber Conversation – select the checkbox to allow the dispatcher to listen to the conversation between the radio and telephone subscriber.

Note: If your network uses a firewall, consult a network administrator about the possibility of using SIP protocol and the required settings. The most common problem is that the media streams (for example, voice) are transferred over dynamically assigned UDP ports that are generally closed. The firewall must be able to dynamically open and close ports based on the transferred SIP signaling. Another problem is that the SIP clients inside the firewall cannot be reached by IP addresses since these most often are private and local to the LAN. Communication simply does not take place, unless there is specific SIP support in the firewall.

3. VoIP Gateway Configuration

The VoIP gateway administrator must ensure that SIP addresses for incoming calls are appropriately interpreted and switched to phone numbers.

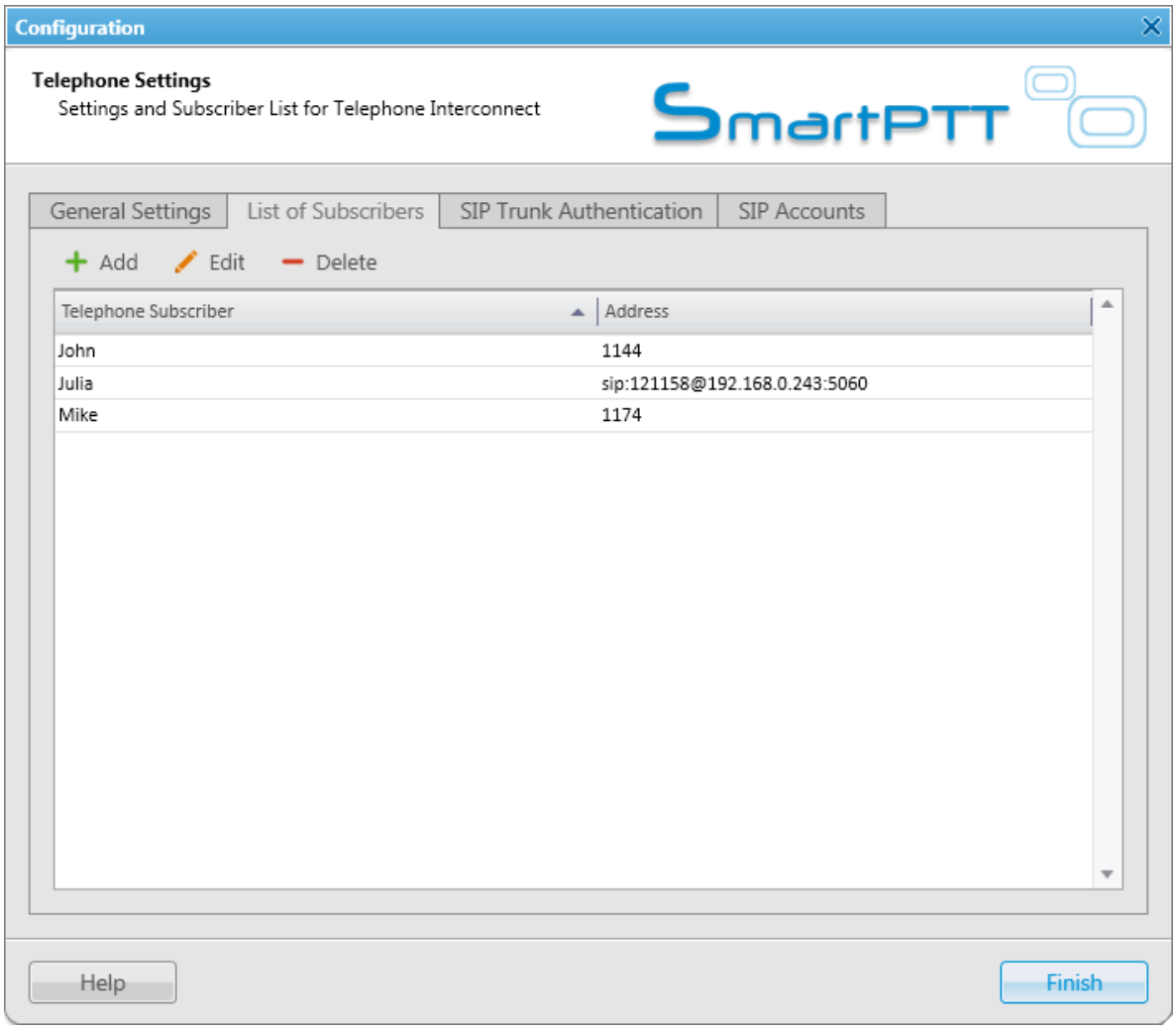
In the example above the telephone subscriber address is ***sip:121140@192.168.0.243:5060*** and the dial prefix for outgoing calls is ***12***. Therefore VoIP gateway rules must discard the incoming prefix ***12*** from the full address and connect the dispatcher to the telephone subscriber number, that is ***1140***.

You should also configure appropriate generation rules for outgoing SIP addresses to call other dispatchers.

For example, if the telephone subscriber with the number ***1140*** assigned wants to connect to the dispatcher with the address ***192.168.0.105:5060***, then generation rules for outgoing SIP addresses on the VoIP gateway must generate the correct destination address ***sip:1@192.168.0.105:5060*** (the **Displayed Telephone Number** value must be set as the SmartPTT Dispatcher identifier) and the sender's correct address ***sip:1140@192.168.0.243:5060*** (a dial prefix for incoming addresses is not set so the name in the sender's address is the same as the phone number).

List of Subscribers

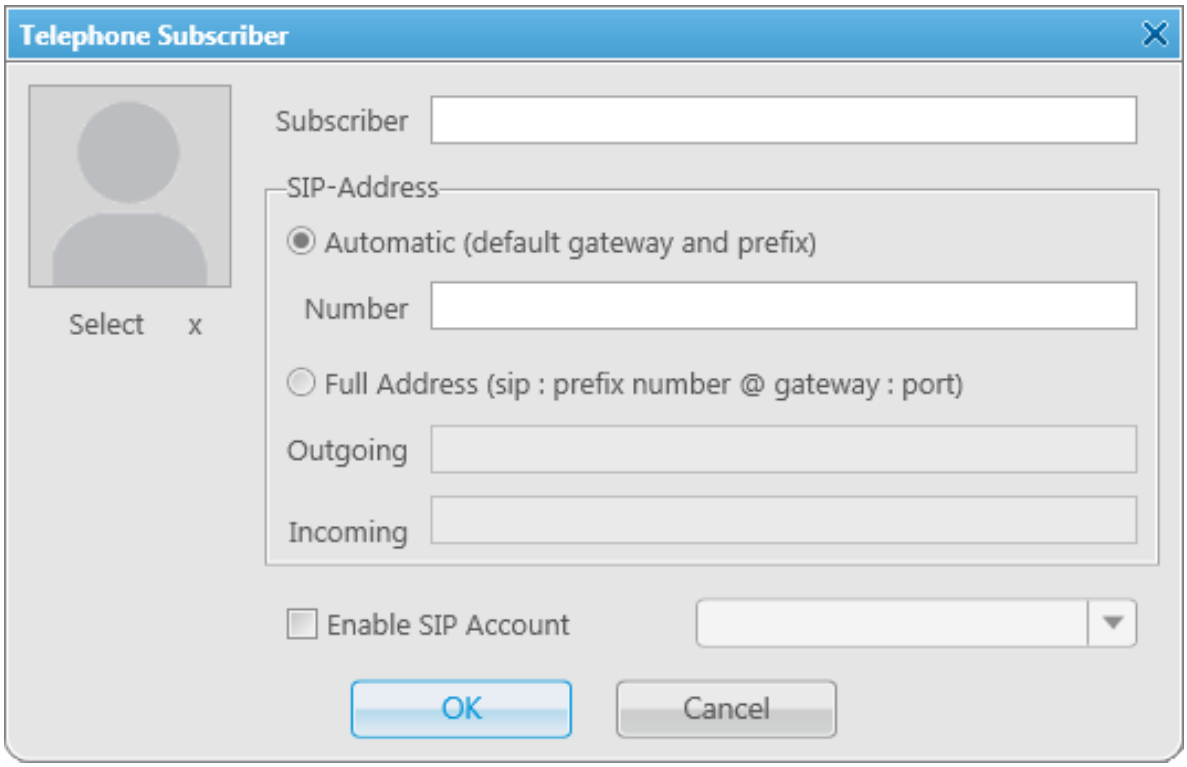
The **Telephone Settings** window contains **Telephone Subscriber List**. The list includes all telephone subscribers that maintain SIP connection. You can modify the existing subscribers or add new subscribers.



Note: SIP connection can be established also with subscribers not from the SmartPTT Dispatcher subscriber list.

To make an outgoing call, use the **Dial Pad** window.

To add a telephone subscriber to the list of subscribers, click **Add**. At that, the following window opens.



Subscriber – type the name of telephone subscriber.

The **SIP Address** area allows you to specify the telephone subscriber address.

There are several options to enter the address of the subscriber. First, the outgoing and incoming address fields can be generated automatically using the default gateway settings. To do that, click **Automatic**.

Second, you can enter the addresses manually by clicking **Full Address** (use the following format – ***sip:prefix number@gateway:port***).

Select the **Enable SIP Account** checkbox and specify the required SIP account from the list of available to carry out SIP connection under the set account. For SIP account setup details in SmartPTT Dispatcher see SIP Accounts.

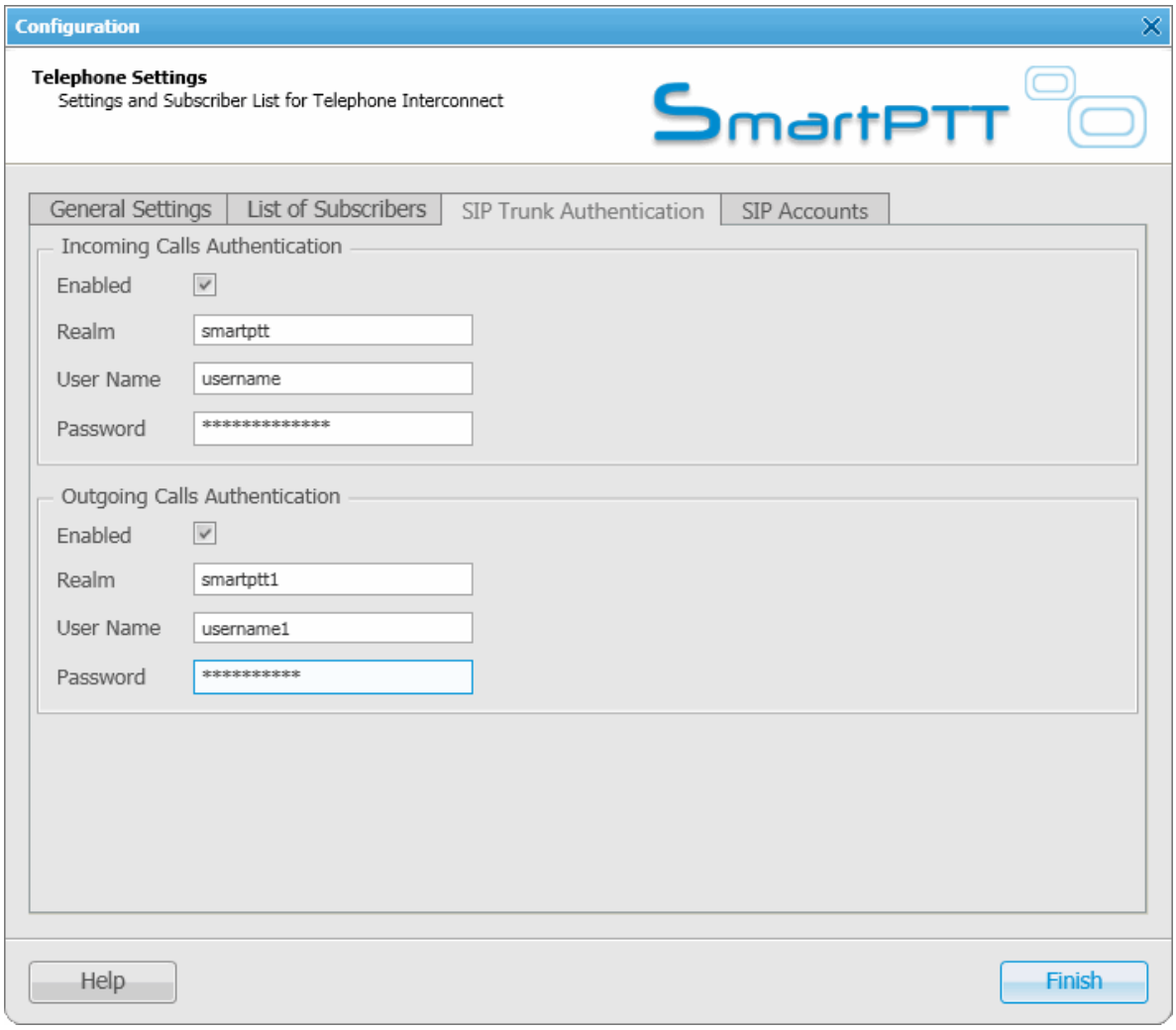
Click **OK** to save the changes.

As soon as you have added a new telephone subscriber, it appears in the **Telephone Subscribers** window in **Subscriber Management panel**. Please remember that the **Allow Calls to Telephone Subscribers** checkbox in the **General Settings** tab must be selected.

To edit or delete the telephone subscriber from the list, click the corresponding button.

Sip Trunking Authentication

The **Telephone Settings** window contains authentication settings in a separate tab.



Incoming Call Authentication – the setting includes parameters required for incoming call authentication. When an incoming call from a phone/softphone is received, dispatcher asks user name and password corresponding to **Realm** in the described setting. Calling subscriber must send back user name and password specified in this setting. The authentication type is not required if the incoming call is addressed to subscriber using SIP account for connection. To activate this ability, select the **Enabled** checkbox.

Realm – parameter used for the incoming telephone calls authentication.

User Name – name of the user used for authentication.

Password – password used for authentication.

Outgoing Call Authentication – the setting includes parameters required for outgoing call authentication.

Realm – if not set, SmartPTT Dispatcher responds to any any authentication request with specified user name and password. If set, SmartPTT Dispatcher responds only to authentication requests that matches the **Realm** value.

User Name – user name used for authentication.

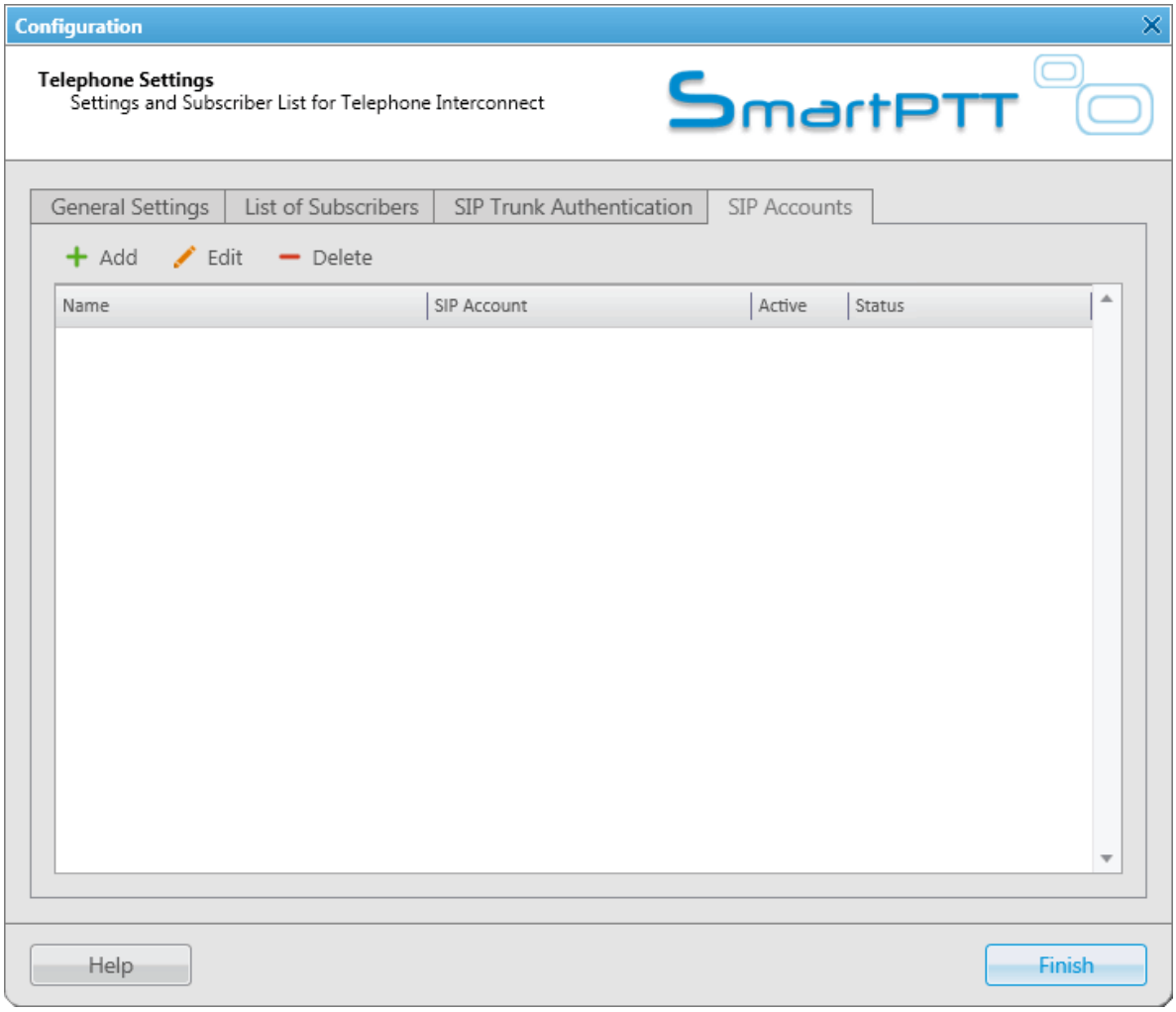
Password – password used for authentication.

SIP Accounts

If SmartPTT Dispatcher IP address varies, there must be a mechanism for determining its current value. In order to do this, SIP registration can be used, allowing the dispatcher to inform SIP server of its actual IP address.

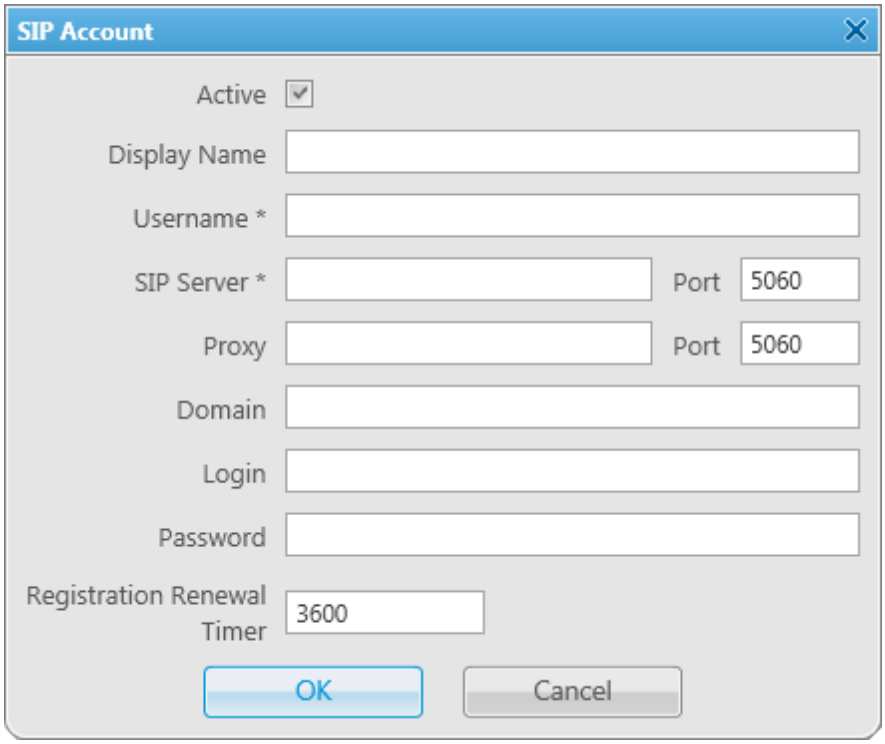
For example, *Client 1* has current IP address *192.168.0.224*, *Client 2 – 192.168.0.98*. It is necessary to establish connection between them, while both subscribers are not aware of each other's IP addresses. To do this, create accounts on SIP server (*sip_server.com*) for both subscribers – *user1* (*sip: user1@sip_server.com*) and *user2* (*sip: user2@sip_server.com*) respectively. SIP server stores current IP addresses relevant to the SIP accounts of *Client 1* and *Client 2*. Therefore, *Client 1* is not required to know current IP address of *Client 2* to make a call. *Client 1* refers to the SIP server under its account and requests connection with *Client 2* pointing out its SIP account. The SIP server searches its database for the current IP address of *Client 2*, returns it to *Client 1* or redirects the call from *Client 1* to *Client 2*.

The **SIP Accounts** tab in the **Telephone Settings** window contains dispatcher SIP account parameters. These accounts are created by the dispatcher on various SIP servers in advance. The parameters are used to establish connection with other server subscribers.



The **Status** field displays the account registration status on SIP server. Possible values – *Registered*, *Not registered*, *Processing*, and SIP error messages.

To add a record about a new SIP account, click **Add**. At that, the following window opens.



Active – select this checkbox to enable account registration on SIP server.

Display Name – the name that appears on the subscriber device screen.

Username – the account identifier on the SIP server.

SIP server – remote SIP server IP address.

Proxy – proxy server which can be used for special cases (for example, some providers insist on using proxy to request SIP server).

Domain – parameter for SIP server account authentication.

Login – login for SIP server account authentication.

Password – password for SIP server account authentication.

Registration Renewal Timer – time period (in seconds) between requests for the dispatcher IP address update on the SIP server.

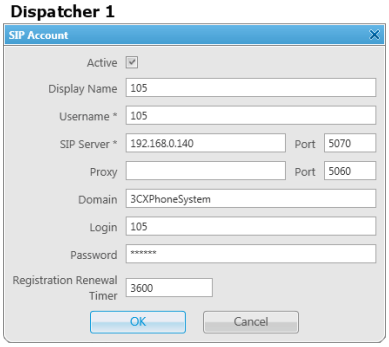
The following example is focused on setting up connection between SmartPTT Dispatcher (*Dispatcher 1*) and two

other SIP clients (Linphone, MicroSIP, 3CX, or SmartPTT Dispatcher) (*Dispatcher 2*, *Dispatcher 3*). These settings allow *Dispatcher 1*, *Dispatcher 2*, and *Dispatcher 3* to interact with one another as 3CX server subscribers.

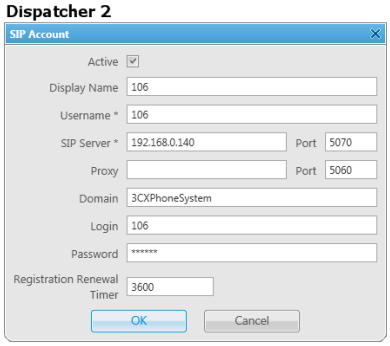
In order to do this:

1. Create SIP accounts for three SIP clients using the selected VoIP service provider, for example, accounts with **ID** = *105*, *106*, and *107* on the 3CX SIP server.
2. In the **SIP Accounts** tab, as *Dispatcher 1* add records corresponding to the created SIP server accounts with **ID** = *105*; *Dispatcher 2* – with **ID** = *106*; *Dispatcher 3* – with **ID** = *107*.

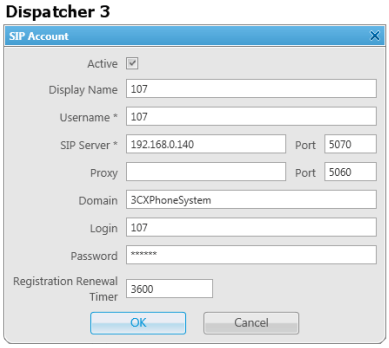
Dispatcher 1



Dispatcher 2



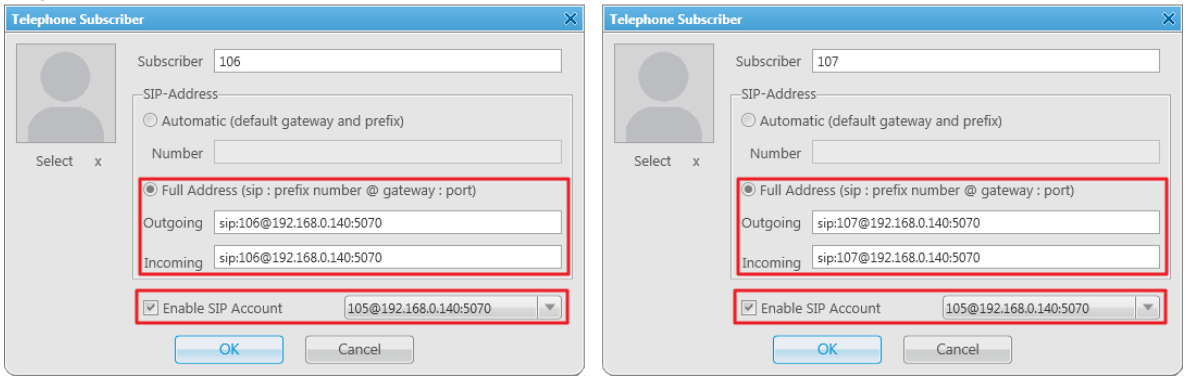
Dispatcher 3



3. As *Dispatcher 1* add records of the two subscribers (*Dispatcher 2*, *Dispatcher 3*). Connection with these subscribers will be established via SIP server accounts.

Create the accounts in the **List of Subscribers** tab. Fill in the **Subscriber** field. Click **Full Address** (**Automatic** can also be ckicked if **VoIP Gateway Default Settings** allow you to connect to the selected SIP server) and specify the outgoing and incoming SIP addresses corresponding to the called subscriber. Select the *Dispatcher 1* SIP account in the **Enable SIP Account** field (see step 2).

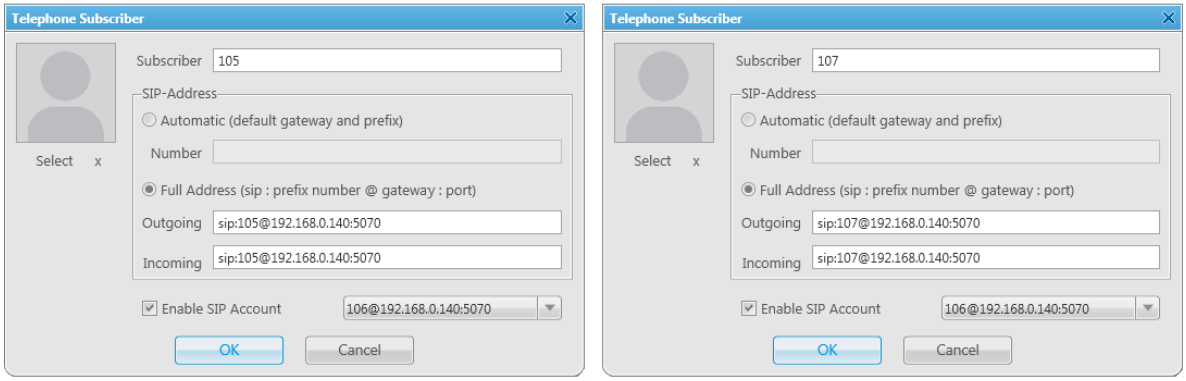
Dispatcher 1



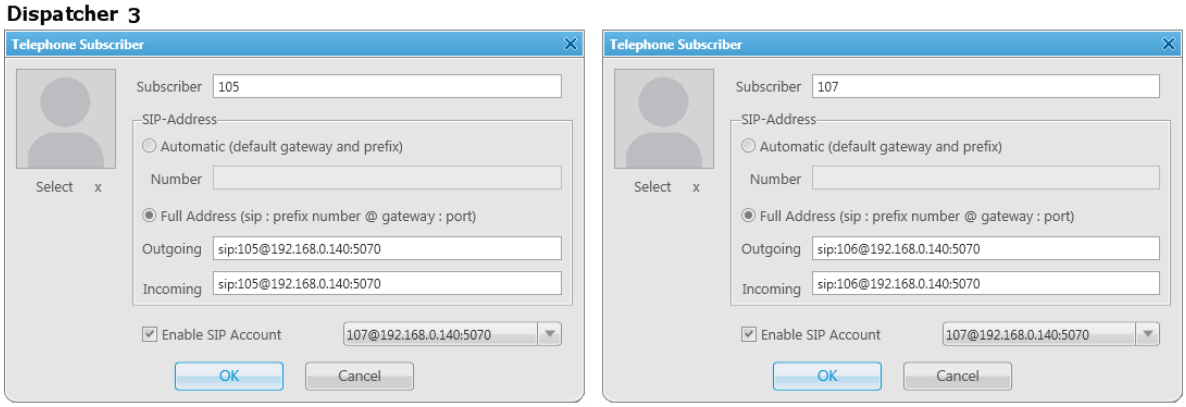
Created subscriber entries appear in the **Telephone Subscribers** window in **Subscriber Management panel**.

4. Complete the same settings for *Dispatcher 2* (create account with **ID** = *106* in the SIP accounts tab; add subscribers *105* and *107* in the **List of Subscribers** tab) and *Dispatcher 3* (create account with **ID** = *107* in the SIP accounts tab; add subscribers *105* and *106* in the **List of Subscribers** tab).

Dispatcher 2



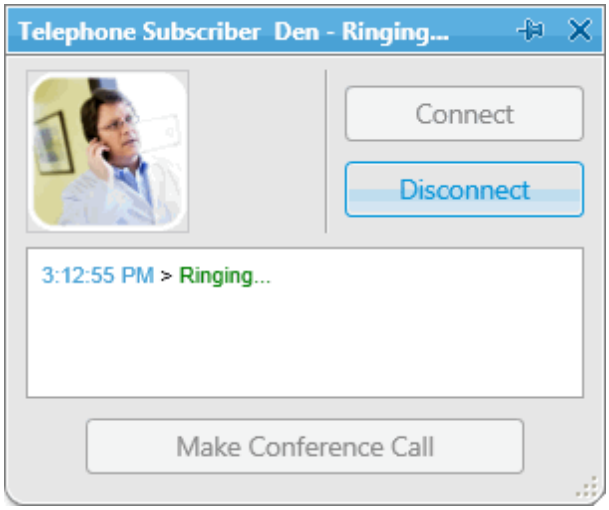
Dispatcher 3



5. To apply settings, click **Finish** in the **Telephone Settings** window.

How to Call Telephone Subscriber

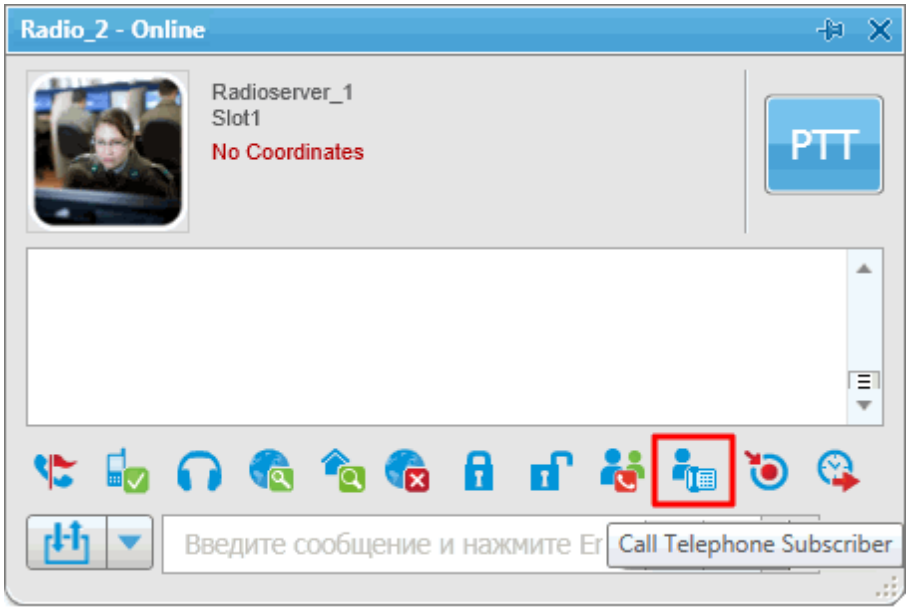
To call the telephone subscriber from the Dispatcher Console, open the corresponding **Call Window**.



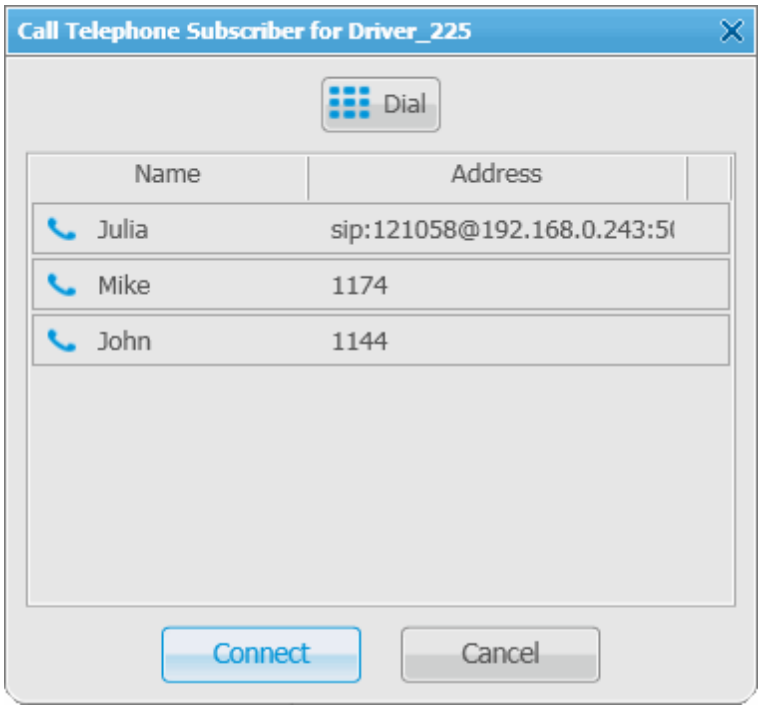
To call the subscriber, click **Connect**.

To make a call to a telephone subscriber not on the list, click the **Dial Pad** button in the **Quick Launch** buttons area (default gateway settings are used to generate the full SIP address).

To connect a radio subscriber and a telephone subscriber open the **Call Window** of the radio subscriber and click the **Call Telephone Subscriber** button.



At that, **Call Telephone Subscriber** window opens.



Select the telephone subscriber from the list and click **Connect** or double-click on the list item. This list is taken from the list of telephone subscribers created under **Settings/Telephone Settings.**

If the subscriber is not on the list, click **Dial** to input the telephone number manually.

At clicking **Connect** a new window with the call status opens.

There are three statuses:

- Ringing
- Call
- Call Complete

If the connection attempt is failed, status window shows the corresponding error message.

To manage the call process the dispatcher can use the buttons next to the call status:

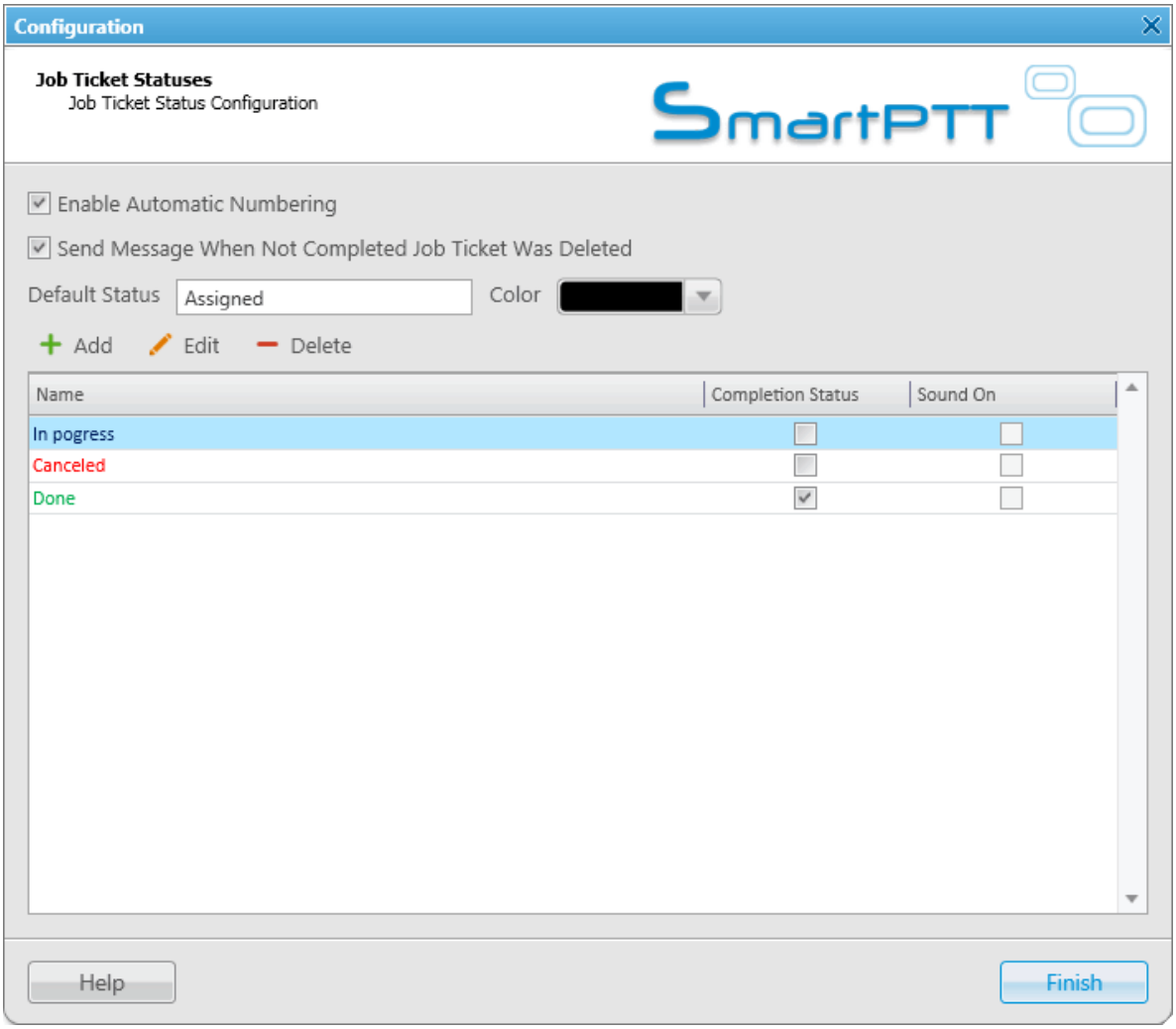
Stops the call.

Initiates reconnection to the telephone subscriber.

Job Ticket Statuses

Here you can create job ticket statuses and specify their settings. For example, assign a color to a status or add alert on status change.

To create job ticket statuses, expand the **Settings** menu in the **Main Menu** bar of the SmartPTT Dispatcher window and click **Job Ticket Statuses**. At that, the following window opens.



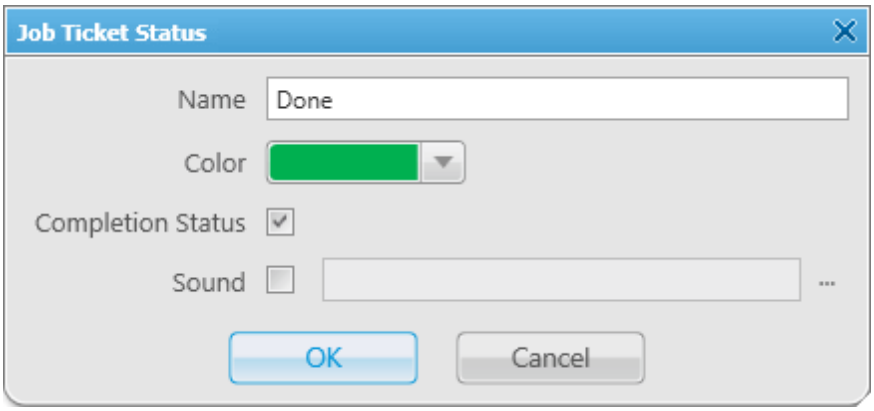
Enable Automatic Numbering – when this option is enabled, a unique number is assigned to each new job ticket. It is necessary to distinguish job tickets with same names.

Send Message When Not Completed Job Ticket Was Deleted – when this option is enabled, a radio subscriber receives a message, if an incomplete job ticket was canceled.

Default status – the job ticket status which is displayed when the operator creates a new job ticket. The status does not change, until the radio subscriber modifies it. You do not need to set this status in the MOTOTRBO CPS settings. It is used only in SmartPTT Dispatcher, so you can add any value you like.

In the **Color** field select the color for the default status.

To add a job ticket status, click **Add**.



Name – name of the status.

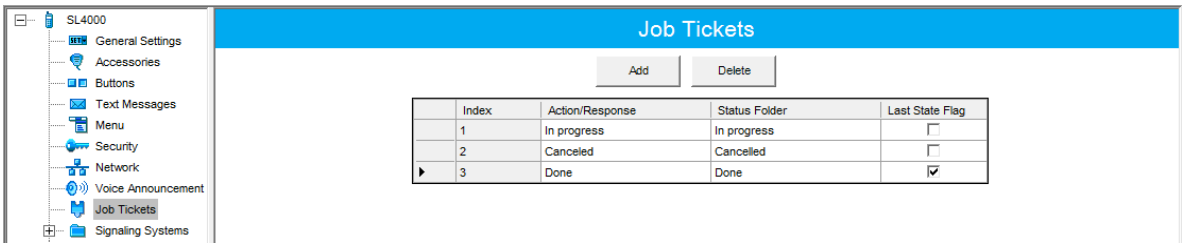
Color – color of the status, which will be used in the job ticket table.

Completion status – it is the final status of a job ticket. If a job ticket has such a status and if **Remove job ticket from the list within *n* seconds after completion** is enabled, the job ticket will be hidden from the list.

Note: You can also select the **Completion status** later in the **Job Tickets** configuration window.

Sound – this setting enables the sound signal which will notify the operator that a job ticket changed its status to this one.

Warning! Added statuses must match the statuses set in MOTOTRBO CPS.



If the statuses of SmartPTT Dispatcher does not correspond to statuses in MOTOTRBO CPS, all settings (color, sound signal and status completion) won't be applied.

Third-Party Equipment

SmartPTT system supports third-party equipment:

1. Tipro modular console with BeFREE touchcomputer
2. Imtradex

The supported Tipro configuration includes:

1. Touchcomputer module
2. Speakerbox module
3. Handset module
4. Keyboard module with dial-pad and free programmable keys

Note: Interactive keyboard module (Chameleon) is not supported.

1. Tipro

Tipro console keyboard layout

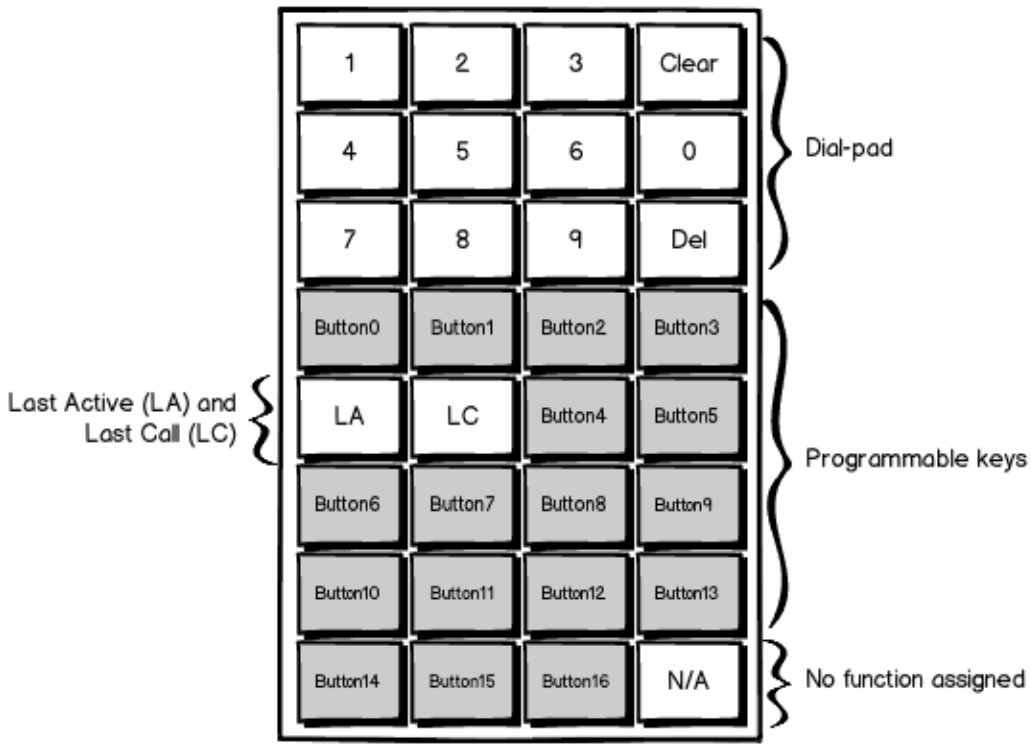
There are two modules with the keyboard:

- Keyboard module with dial-pad
- Speakerbox module

Each keyboard can have two types of keys:

- Predefined, non-programmable (white on the following figures)
- Programmable (gray on the following figures)

1. The schematic layout of the keyboard module with a dial pad

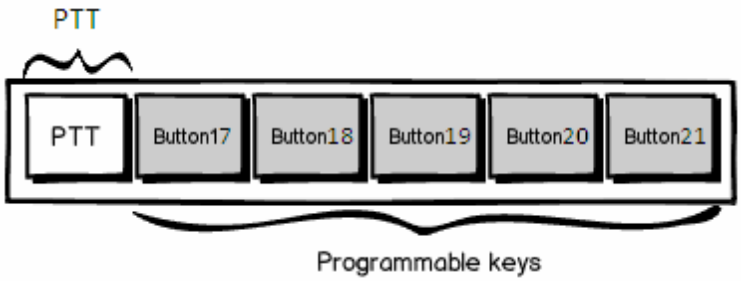


Last Active (LA) – initiates a call to the last active subscriber on the channel.

Last Call (LC) – initiates a call to the subscriber to whom the dispatcher called last time.

N/A – does not do anything, it is saved for future use.

2. The schematic layout of the speakerbox module keyboard



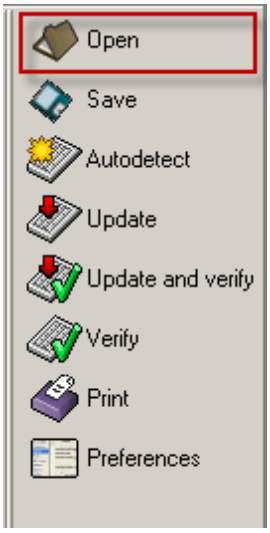
How to prepare the console for SmartPTT system

To make the console work with SmartPTT system, first configure its codeplug and then select the correct COM

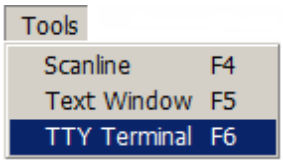
port.

To configure the codeplug:

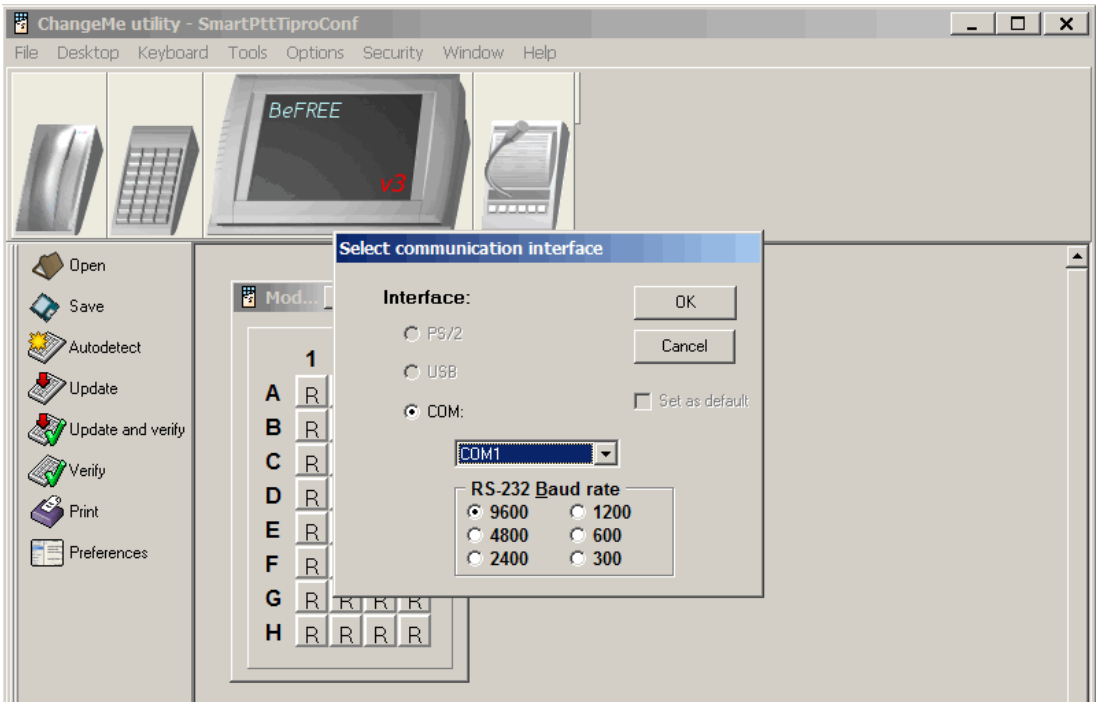
1. Download the SmartPttTiproConfig file onto Tipro console.
2. Open the SmartPttTiproConfig file in the application ChangeMe Utility by clicking **Open**.



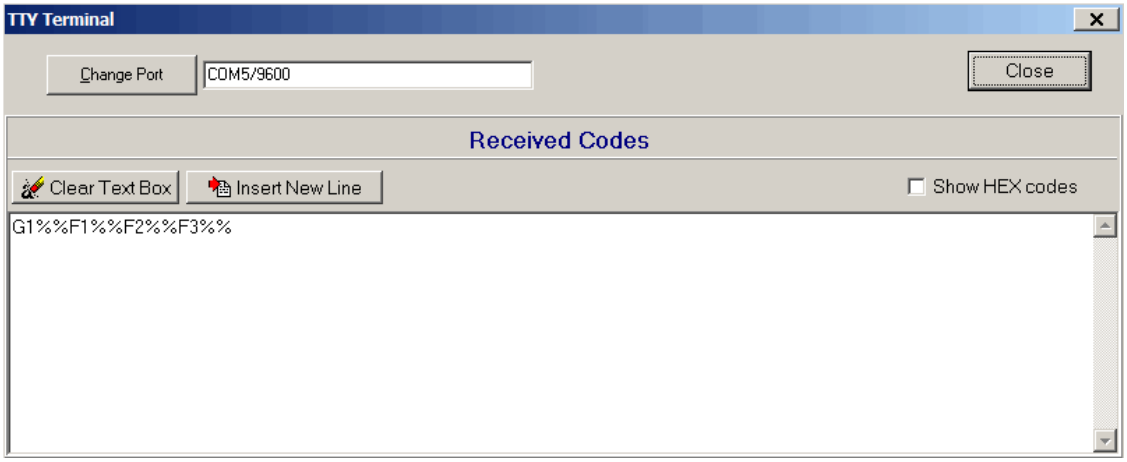
3. Click **Update** on the left to write the console settings.
4. Select **Tools** and then **TTY Terminal**.



At that, the following window opens, where you can select the COM port, connecting the keyboard module to the touchcomputer module, and then click **OK**.



5. Check whether the COM port was selected correctly. To check, type something using the keyboard with the dial-pad. If symbols appear, the COM port was selected right. If no symbols appear, select another COM port.

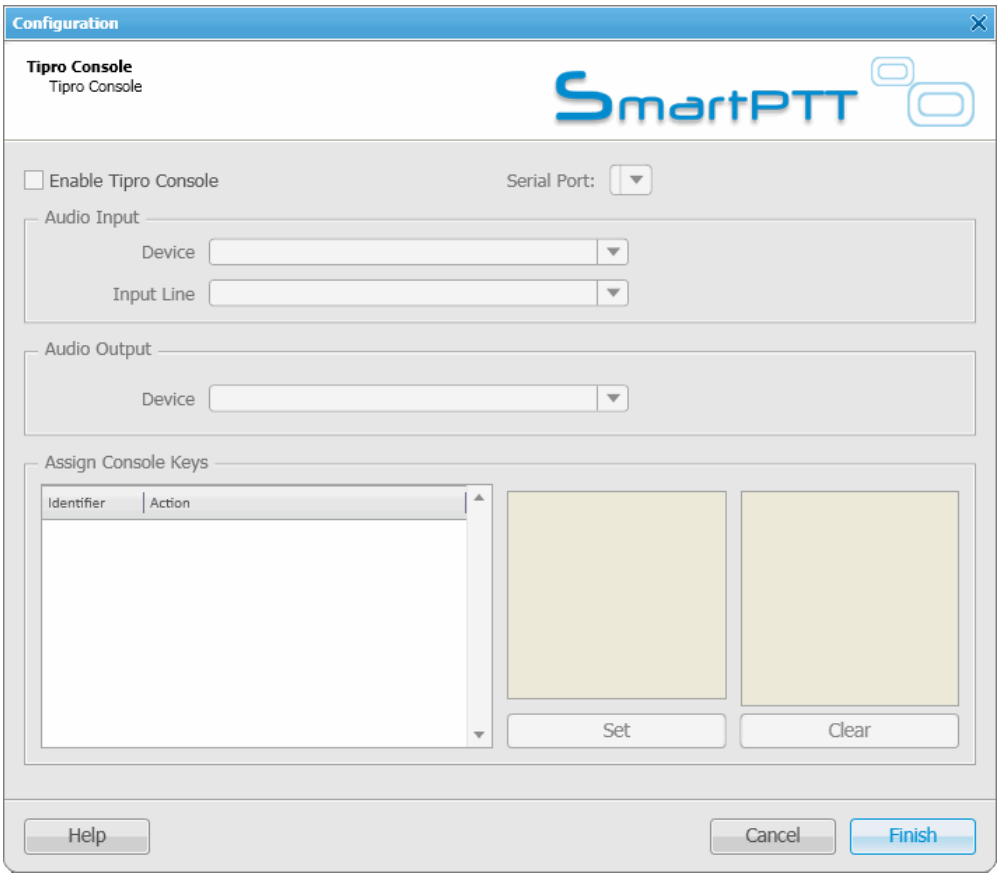


6. Close ChangeMe Utility.

How to configure Tipro console in SmartPTT Dispatcher

Configuration of the console in SmartPTT Dispatcher includes the following steps:

1. Install SmartPTT Dispatcher on Tipro touchcomputer.
2. Open SmartPTT Dispatcher.
3. Configure sound settings of the speakerbox module. On the **Settings** menu select **Sound Settings**. Select *Microphone (4-USB Audio CODEC)* in the **Audio Input** field and *Speakers (4-USB Audio CODEC)* in the **Audio Output** field.
4. Enable Tipro console. To do this, in the **Setting** menu point to **Third-Party Equipment** and then select **Tipro Console**. In the opened window, select the **Enable Tipro Console** checkbox.



5. On the same window specify the COM port selected in ChangeMe Utility.
6. Set up audio settings of the handset module by selecting *Microphone (4-USB audio CODEC)* in the **Audio Input** field and *Speakers (4-USB audio CODEC)* in the **Audio Output** field.

7. Assign actions to the programmable keys of the console. To do it, use the **Assign Console Keys** area.

The area contains three boxes:

1) The first box is a list of **Identifiers** and **Actions**. **Identifiers** represent programmable keys of the keyboard module. **Actions** stand for the actions which will be executed at pressing the corresponding key.
2) The second box represents a list of actions which can be assigned to a key. The list is always the same and includes the items:
    - Select Radio
    - Select Talkgroup
    - Select Control Station
    - Select Dispatcher
    - Select PBX Subscriber
3) The third box is a list of registered radio subscribers, all available talkgroups and control stations, registered telephone subscribers and dispatchers. The list changes depending on the item selected in the second box.

To assign an action to a key:

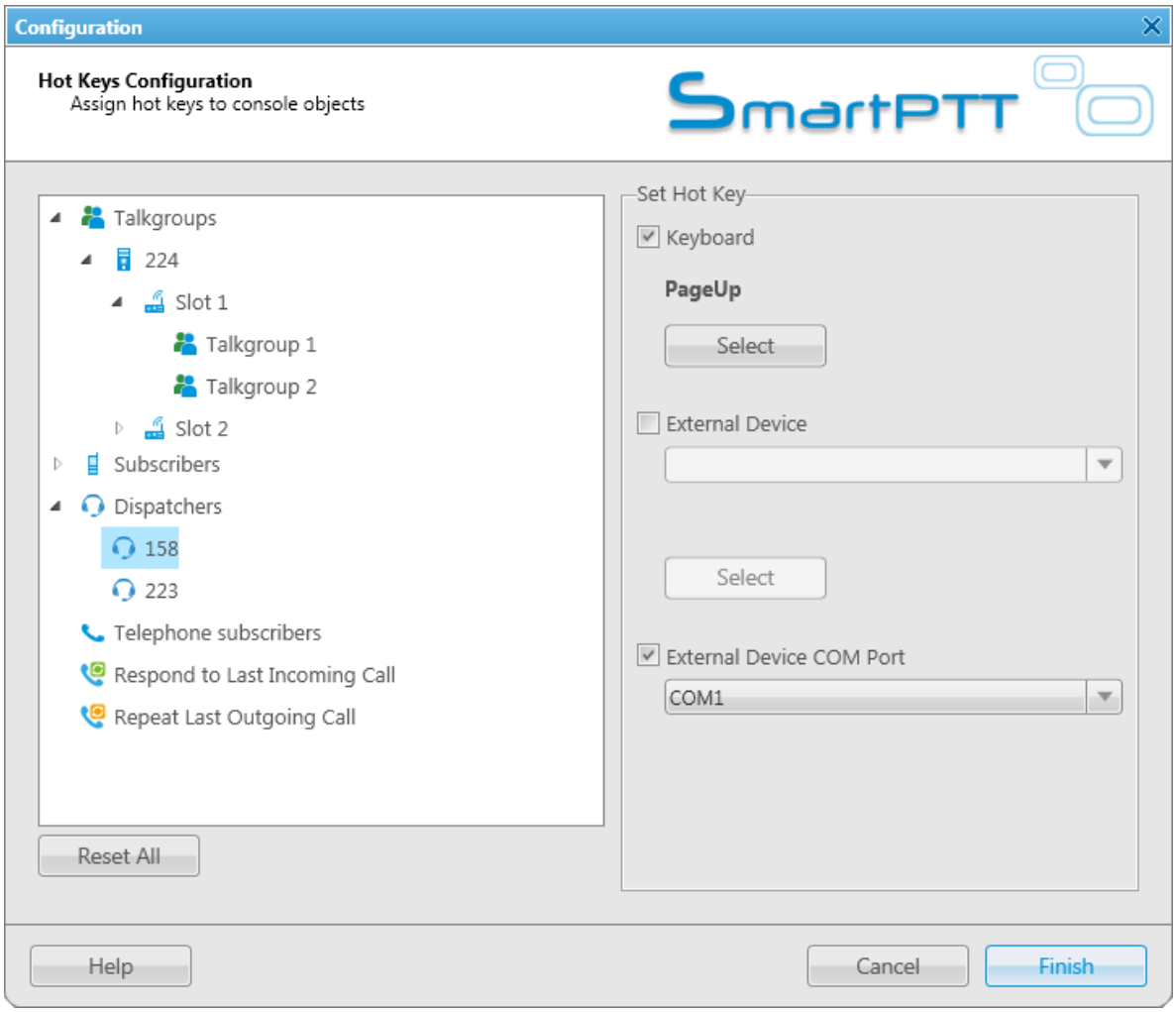
1. In the first box select a free key to assign an action.
2. In the second box select the action itself.
3. In the third box select subscribers/talkgroups/control stations or dispatchers.
4. To add a record with the new key assignment, click **Set** and then **Finish**.

To delete a record from the first box, click **Clear**.

Hot Keys

SmartPTT Dispatcher implements the ability to make a call to subscribers (radio subscriber, talkgroups, all call, telephone subscriber, external dispatcher) by clicking on a predetermined keyboard key, its combination or a button of the external input device. Also, dispatcher can repeat the last outgoing call or respond to the last incoming call by pressing the hot keys.

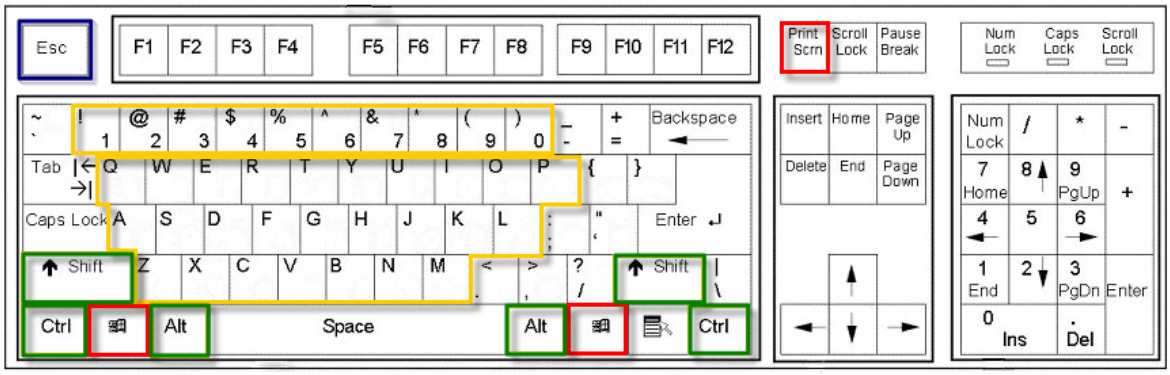
In order to set up hot keys for system subscribers, expand the **Settings** menu in the **Main Menu** bar of the SmartPTT Dispatcher window and click **Hot Keys**.



The window contains a list of subscribers available for the hot key assignment – radio subscribers, talkgroups, telephone subscribers, external dispatchers, last called and last active subscribers. To assign a hot key to the subscriber, select the subscriber from the list, then select the hot key type.

Keyboard – select the field to assign to the subscriber a keyboard key or a key combination as the PTT button. Click **Select**, then press the keyboard key or the key combination.

Not all keyboard keys can be used as hot keys. Here is the keyboard scheme. It shows which keyboard keys can be used and which cannot.



1. The keyboard keys marked red cannot be used as hot keys separately or in combination.
2. The keyboard keys marked yellow cannot be used as hot keys separately, only in combination with the **Ctrl**, **Alt** or **Shift** keys. The **Shift** key can be used only in combination of three keys, for example, **Shift+Alt+F**.
3. The **Esc** key can be used only in combination with **Shift** (**Shift+Esc**).
4. All other keyboard keys can be used as hot keys either separately or in combination with the **Ctrl**, **Alt** or **Shift** keys. The **Shift** key can be used in combination of two or three keys, for example, **Shift+Delete**, **Shift+Alt +Enter**.

Note: Hot keys support single press only.

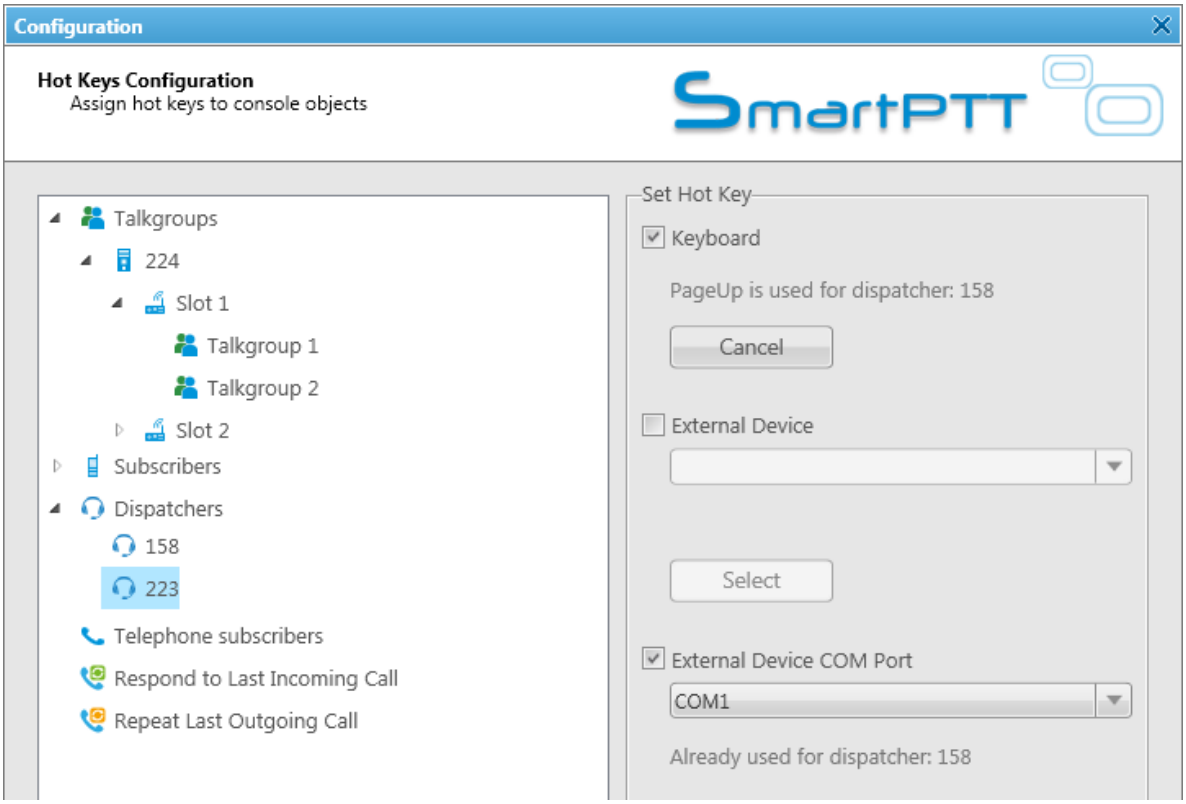
External Device – select the field to assign to the subscriber a key of the external input device connected via USB as the PTT button. Select the external device from the list of available, click the **Select** button, then press the key of the external device.

External Device COM Port – select the field to assign to the subscriber a key of the external PTT pedal connected via COM port as the PTT button. Select the COM port of the PTT pedal from the list of available.

There is only one mode available for the PTT button on external devices – hold to enable.

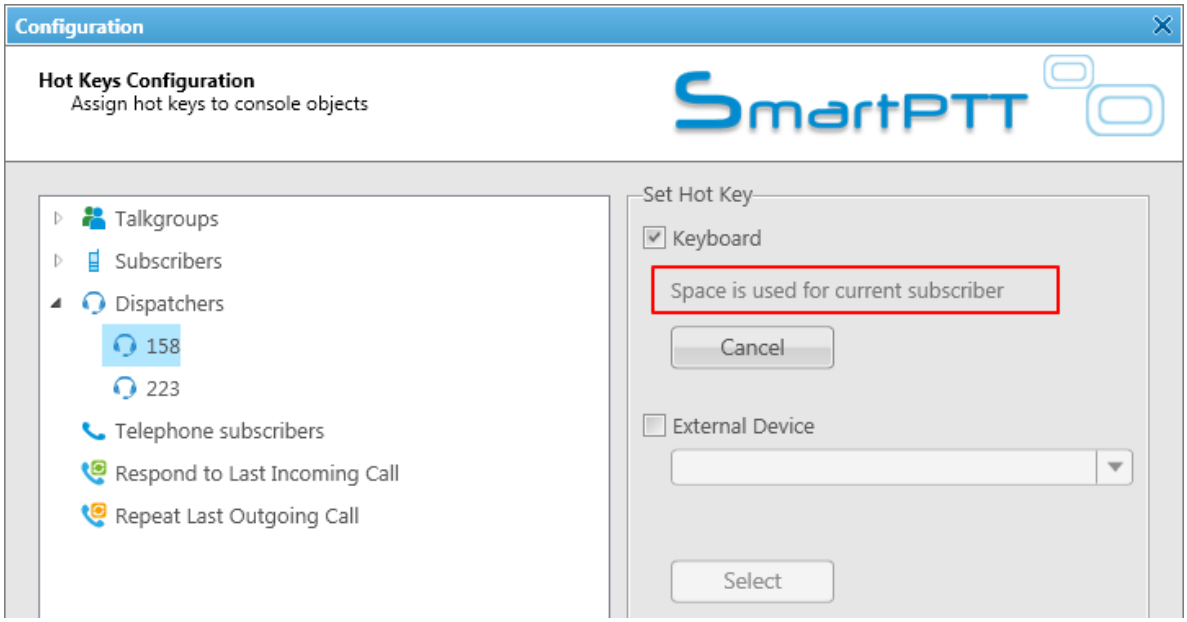
To remove the previously defined hot key for the subscriber, disable the appropriate check box. To reset the assigned hot keys for all subscribers, click **Reset All**.

If a designated keyboard key or button of an external input device is already in use, the message appears in the window:



A keyboard key or a key of the external input device which is already in use as the **PTT** button for a current subscriber cannot be used as a PTT button for the selected subscriber.

Note: The **PTT** button used for a call to a current subscriber means that you use this button to call any subscriber of SmartPTT Dispatcher.



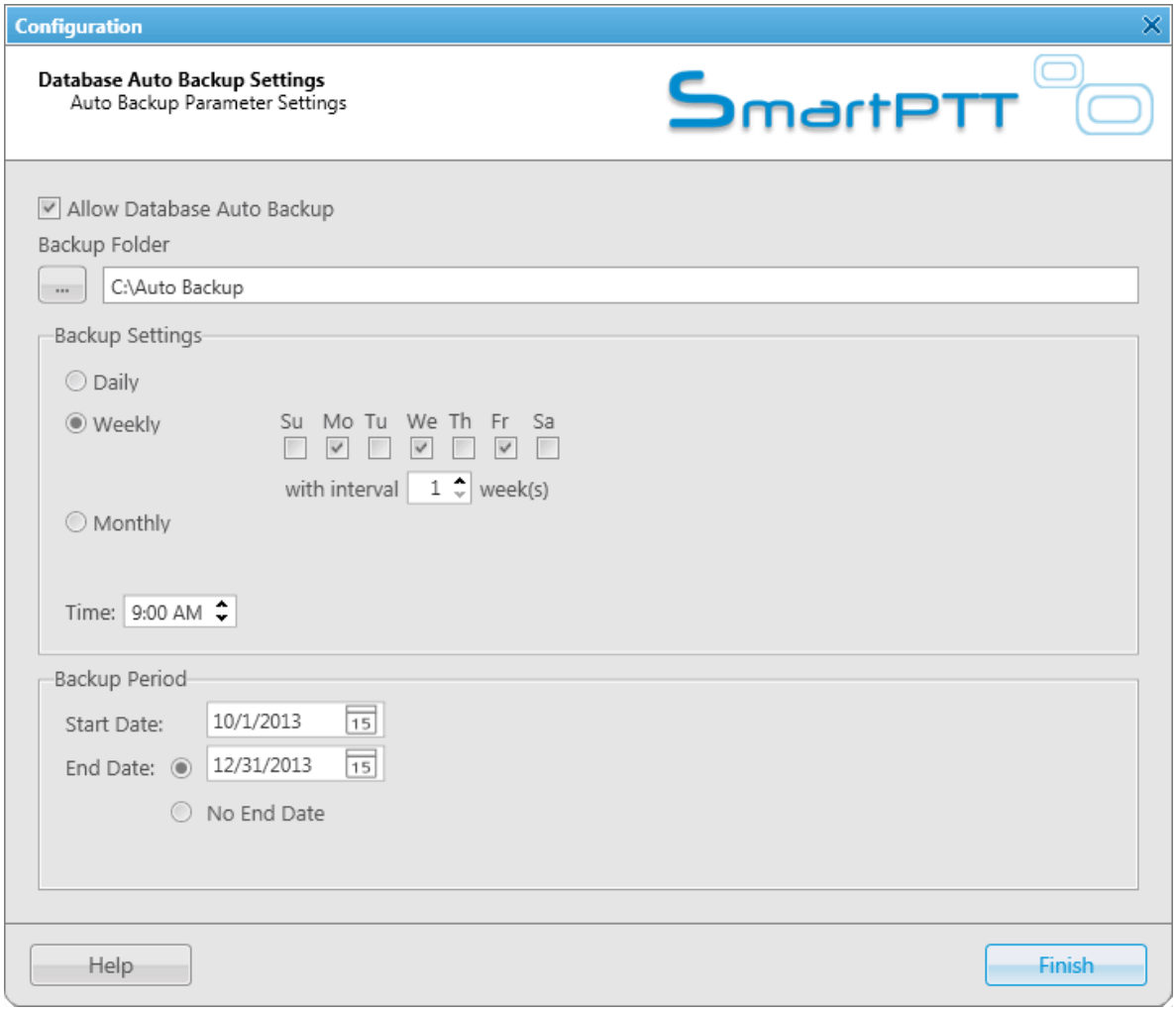
Note: If the hot key that you set matches the **PTT** button for the current subscriber, the hot key settings will be discarded.

Click **Finish** to apply the settings. To get back to the previous settings, click **Cancel**.

Database Auto Backup

Backing up data on a regular basis helps to protect it from being erased in case of the server hardware or software failure. SmartPTT Dispatcher allows the Administrator to back up the database manually or to set up parameters for automatic backup.

In order to set up automatic backup parameters, expand the **Settings** menu in the **Main Menu** bar of SmartPTT Dispatcher and click **Database Auto Backup**.



Allow Database Auto Backup – select the checkbox to enable the ability to create SmartPTT Dispatcher current database backups in the automatic mode.

Backup Folder – full path to the file for saving the database backup.

Backup Settings – schedule for creating the current database backup:

- **Daily** – every fixed day at the specified time (for example, every day, every third day at 9:00 a.m.).
- **Weekly** – every fixed day of the week at the specified time (for example, every Monday, Wednesday and Friday at 11:00 p.m., or every Monday at 11:00 p.m. and Friday at 11:00 a.m.).
- **Monthly** – once a month on the fixed day of the selected month and at the specified time.

Backup Period – allows you to set time period when automatic database backup is to be made according to the selected backup settings.

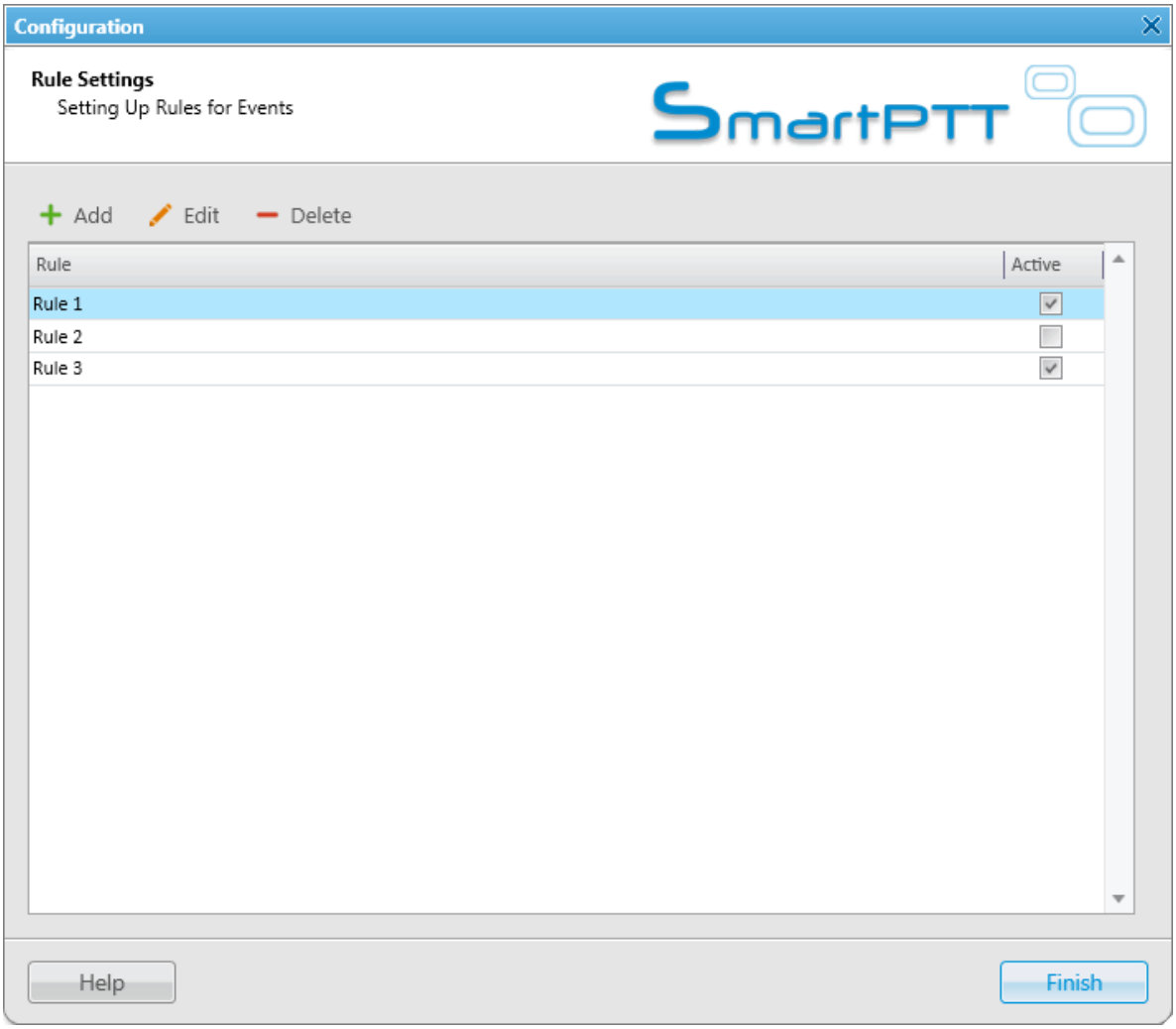
Note. The number of stored backup files in the same folder is limited to 3. Otherwise, when creating a new copy, the old files are deleted.

Note. To restore database from the automatically created backup, see How to Restore from the Created SmartPTT Dispatcher Database Backup.

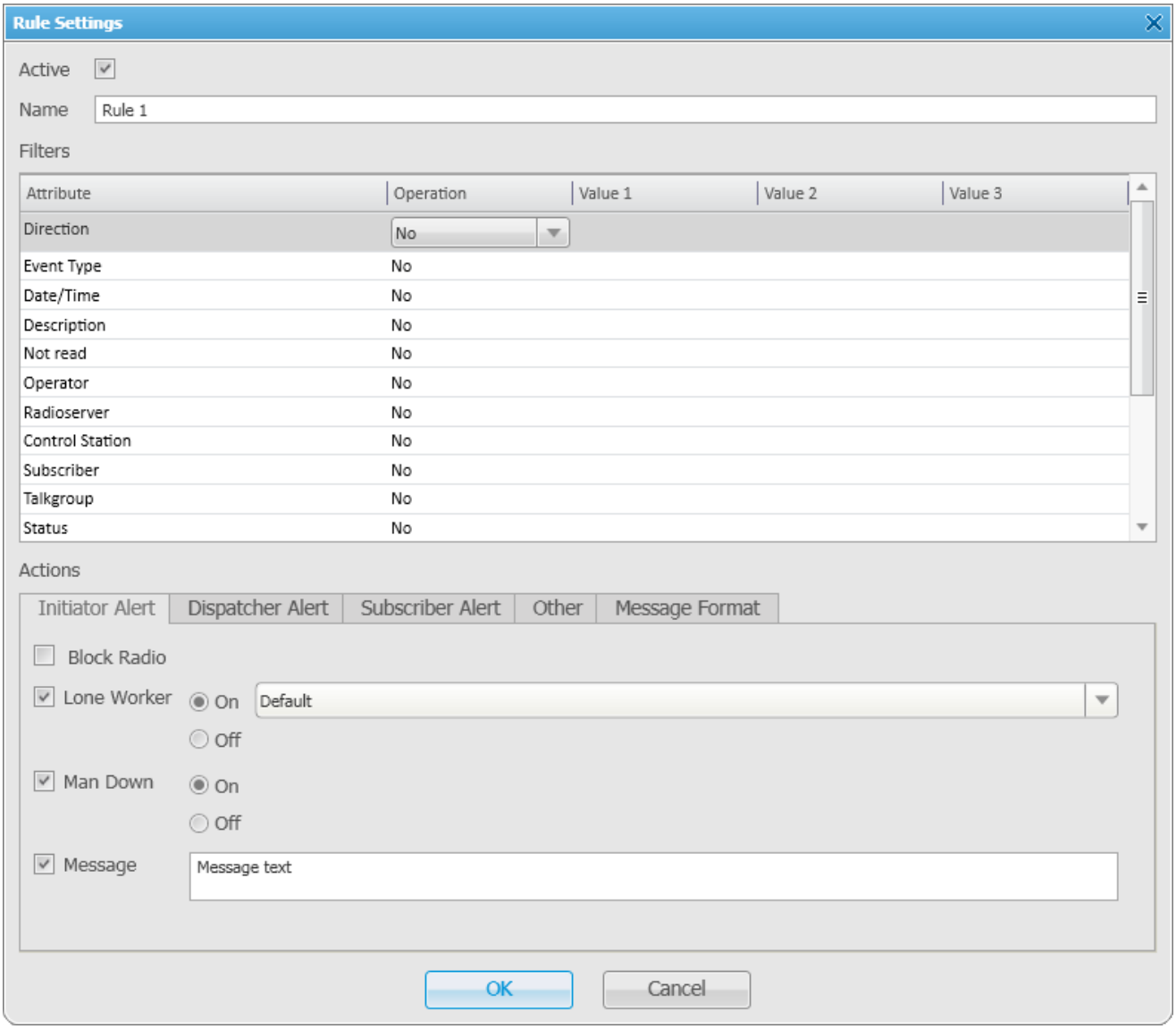
Rules and Alerts

You can set response rules for the events registered in the SmartPTT system. Response rules may include automatic sending of messages, playing alerts in SmartPTT Dispatcher and on the radio, changing radio subscriber status, etc.

To set rules, expand the **Settings** menu in the **Main Menu** bar of the SmartPTT Dispatcher window and click **Rules and Alerts**. The configuration window opens up.



To add a new rule, click **Add**. The window with rule settings opens up.



Name – the name of the rule.

Active – select this checkbox to make the rule enabled.

The following table presents filters, which can be used in rules.

Attribute	Operation	Value
Direction	No, Equals	Incoming, Outgoing

Event Type	No, Equals, Not Equals	Registration, Call, Message, Telemetry, Alarm, Status, Block Station, Job Ticket, Lone Worker
Date/Time	No, In Interval	Time interval
Description	No, Equals, Contains	Type event description text
Not Read	No, Equals	Read, Not Read
Operator	No, Equals, Not Equals	Operator from list of operators
Radioserver	No, Equals, Contains	Radioserver name
Control Station	No, Equals, Contains	Control station name
Subscriber	No, Equals, Not Equals	Subscriber from the list of subscribers
Talkgroup	No, Equals, Contains	Talkgroup name
Status	No, Equals, Not Equals	Status from the list of statuses
Duration	No, Equals, Not Equals, Greater, Greater than or Equal, Less, Less than or Equal, In Interval	Duration in seconds
Connection Type	No, Equals, Not Equals	Connection types used in SmartPTT: • DMR – over-the-air connection made via repeaters and control stations; • PBX – telephone connection • IP – Dispatcher-Dispatcher connection.
Repeater IP	No, Equals, Not Equals	Available repeaters' IP addresses
Receiver	No, Equals, Not Equals	Subscriber from the list of subscribers
Record	No, Equals	Available audio records

Attribute – contains the list of existing events which the system can register.

Operation – list of possible system operations for this attribute.

Value – values that can be selected for the attribute.

The rule is a combination of an attribute, operation and value. One rule can contain more than one such combinations.

When the system has registered an event matching the specified rule, the system performs predefined actions:

1. Alerts addressed to the initiator
2. Alerts addressed to the dispatcher
3. Alerts addressed to the radio subscriber
4. Other

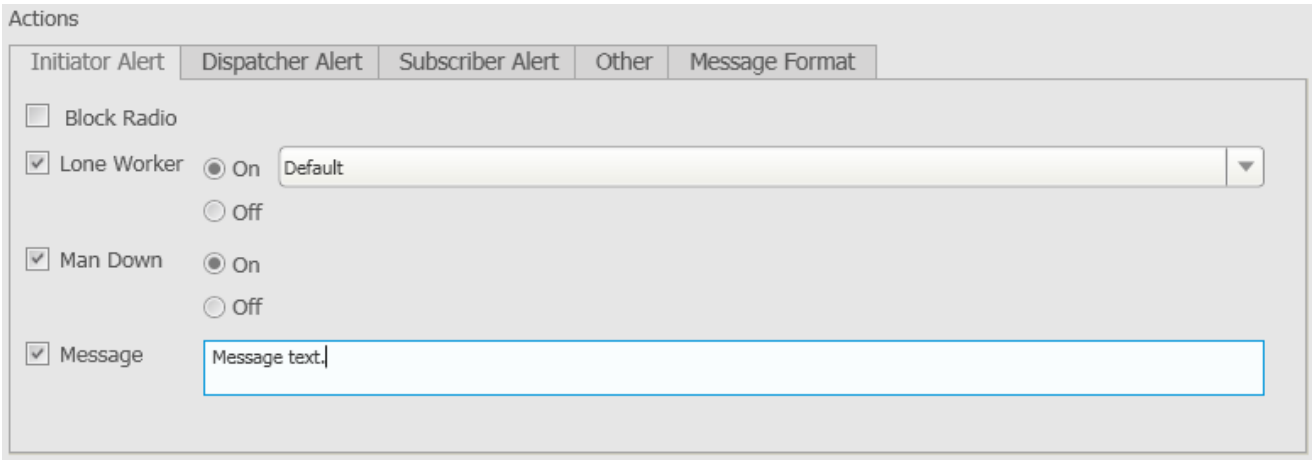
The **Message Format** tab allows you to set the format of the alert massages.

To save the rule, click **OK**. At that, the created rule appears in the list of rules.

To edit the rule, select it in the list of rules and click **Edit**. To remove the rule, select it in the list of rules and click **Delete**.

Initiator Alert

Open the **Initiator Alert** tab. In this tab you can set up actions that will be performed if the rule conditions are fulfilled.



Block Radio – if selected, the radio that triggered the rule, will be blocked.

Lone Worker – if selected and **On** is checked off, the lone worker profile will be set to the radio that triggered the rule. If **Off** is selected, the lone worker mode of the radio will be deactivated.

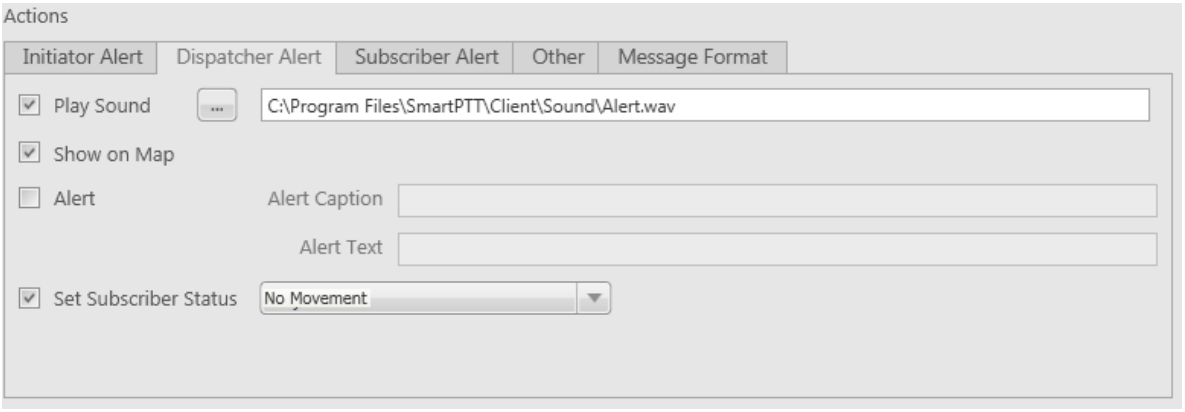
Note: To set up the lone worker profile, see Lone Worker Rules in SmartPTT Dispatcher.

Man Down – if selected and **On** is checked off, the Man Down functionality will be applied to the initiator radio to control its orientation. E.g., if the radio is tilted, an alarm will play on the radio. If **Off** is selected, the Man Down functionality is turned off. Make sure that Tallysman support is enabled in SmartPTT Radioserver Configurator

Message – a text message is sent to the subscriber who initiated triggering of the rule. You can specify message format settings in the Message Format tab.

Dispatcher Alert

Open the **Dispatcher Alert** tab.



Play Sound – select .wav audio file to play.

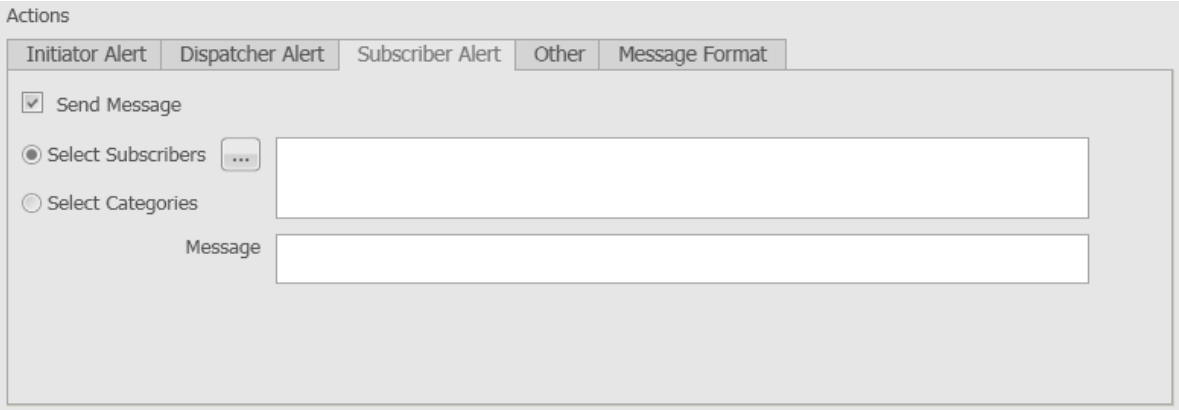
Show on Map – location of the subscriber specified in the rule is shown on the map (with an icon).

Alert – notification with the event description is displayed in the **System Notification** window. You can define the title in the **Alert Caption** field and the description in the **Alert Text** field.

Set Subscriber Status – the subscriber is assigned the predefined status. It is selected from the status list.

Subscriber Alert

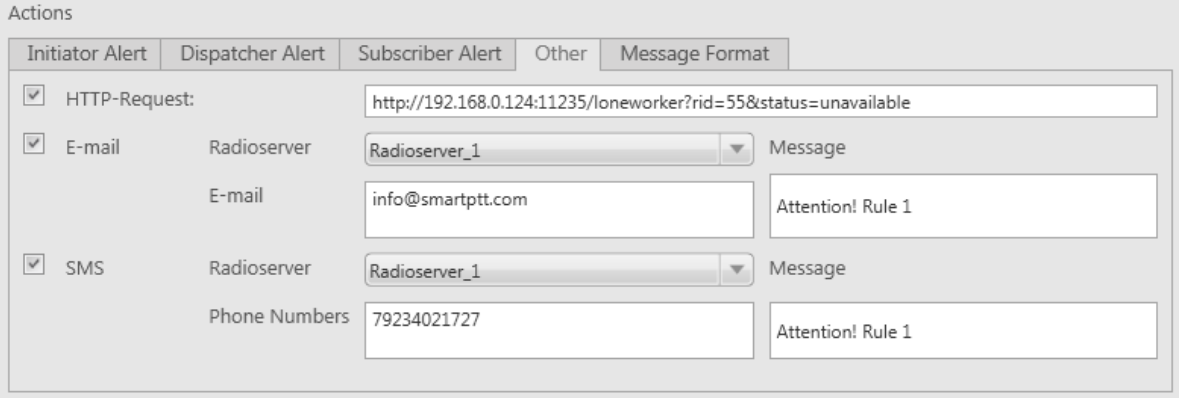
Open the **Subscriber Alert** tab.



Send Message – a text message is sent to the selected subscribers or categories (all subscribers, talkgroups and dispatchers assigned to specific categories). You can specify format settings of text messages in the Message Format tab of the **Actions** area.

Other

Open the **Other** tab.



HTTP Request – is used for specifying address where information on radio subscriber and its status can be sent. HTTP request can render two values: radio ID and its status.

Example of HTTP request:

http://192.168.0.124:11235/loneworker?rid=55&status=unavailable.

E-mail – is used for specifying e-mail address where a message should be sent in case the rules specified earlier are not fulfilled. To do this, the following fields are to be filled:

Radioserver – server name which is configured for e-mail sending. The name of the server is selected from the drop-down list.

E-mail – electronic addresses to send messages.

Message – text of the message.

SMS – if selected, the SMS message is sent to the specified phone number in case the rules specified earlier are not fulfilled. To do this, the following fields are to be filled:

Radioserver – server name for SMS messages sending. The name of the server is selected from the drop-down list.

Phone Numbers – telephone numbers to send SMS.

Message – text of the message.

Note: See information about SmartPTT Radioserver configuration for sending and receiving e-mails, and SMS messages in SmartPTT Radioserver Configurator Help under **Telephone Interconnect** and **SMS Gateway**.

You can specify format settings of SMS or E-mail messages in the Message Format tab of the **Actions** area.

Message Format

You can specify message format (text messages, SMS, or E-mail) in the **Message Format** tab of the **Actions** area. These messages are sent to radio subscribers, defined in the message recipient list in the **Subscriber Alert** or **Other** tab.

Note: The format settings for text messages are valid for specific messages, only if **Send Message** is selected in the **Subscriber Alert** tab; for SMS – if **SMS** is selected in the **Other** tab; for E-mail – if **E-mail** is selected in the **Other** tab.

Event Information:

Event Type – if selected, the message includes the type of the event, which triggered the rule.

Date/Time – if selected, the date and time of the event will be added to the text message. You can set the date format displayed in the message (date and time, or time only).

Time Zone – if selected, the message includes subscriber time zone in Coordinated Universal Time (UTC).

Coordinates – if selected, the subscriber coordinates are displayed in the message. Coordinates are relevant to the moment, when the rule conditions were fulfilled.

Subscriber Information:

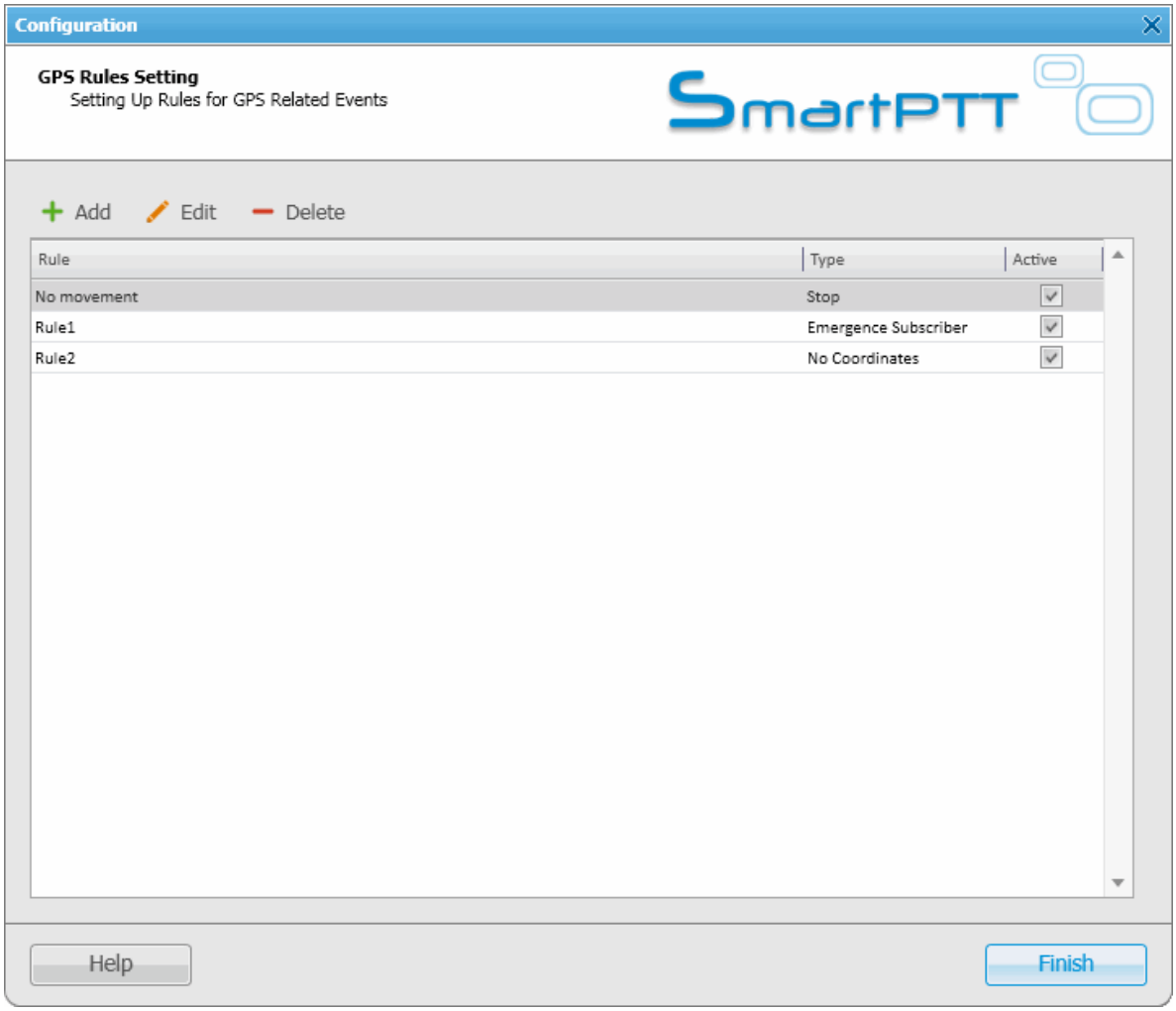
Subscriber ID – if selected, the ID of the subscriber, who has triggered the rule, will be added to the text message.

Subscriber Name – if selected, the name of the subscriber, who has triggered the rule, will be added to the text message.

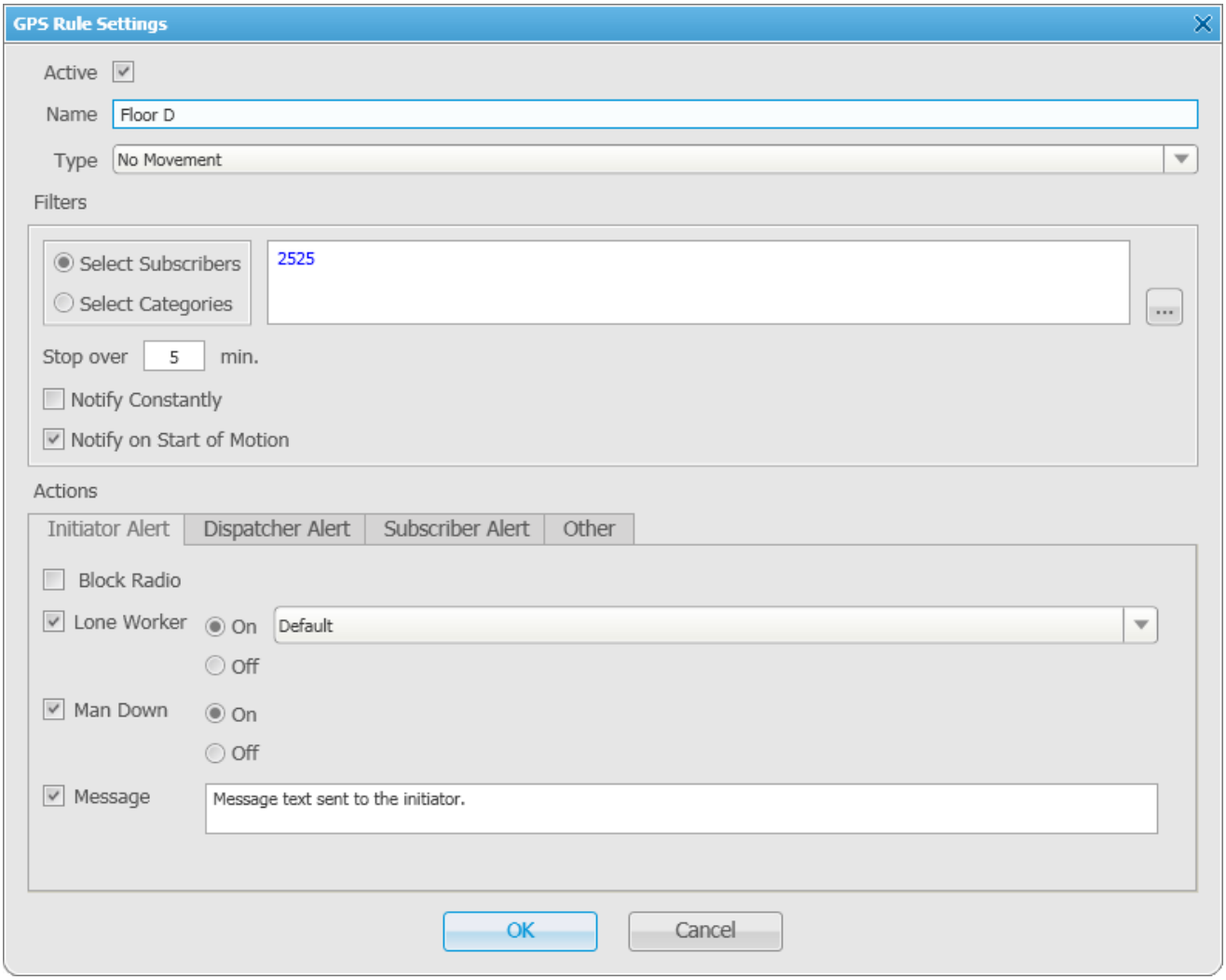
GPS Rules

You can set response rules for GPS events registered in the SmartPTT system. GPS event includes receiving or not receiving subscriber's GPS coordinates. Response rules may include automatic sending of messages, playing alerts in SmartPTT Dispatcher and on the radio, changing radio subscriber statuses, etc.

To set GPS rules, expand the **Settings** menu in the main menu of the SmartPTT Dispatcher window and click **GPS Rules**. The configuration window is displayed. It is used to set and configure a list of response rules applied to GPS events which occur during the system operation.



To add a new rule, click **Add**. The **GPS Rule Settings** window is displayed.



Name – name of the rule.

Type – rule types:

- **No Movement** – subscriber stops, that is the subscriber's GPS coordinates do not change, for a period longer than the specified period of time.
- **Subscriber Appearance** – subscriber appears after being absent for a period longer than the specified period of time.
- **No Coordinates** – no subscriber coordinates for a period longer than the specified period of time. The subscriber's GPS coordinates were received and then stopped, and they have not been received for a period longer than the specified period of time.

Note: Coordinates like "*...Lat: 0 Long: 0*" are not regarded as valid coordinates, and they won't be taken into account when applying GPS rules.

- **Zone Entry** – subscriber enters the zone, that is the subscriber's previous GPS coordinates were outside any of the zones specified in the rule, and the current coordinates are within one of the zones specified in the rule.
- **Zone Leaving** – subscriber leaves the zone, that is the subscriber's previous GPS coordinates were within the zone specified in the rule, and the current coordinates are outside the zone.
- **Speeding** – the latest GPS coordinates of the radio subscriber are compared with the previous GPS coordinates to find out if there is any speeding.

Active – if the checkbox is selected, processing of events starts in accordance with the selected criteria. If the checkbox is not selected, the associated rule is unavailable.

The table presents criteria used in GPS rules.

Attribute	Value
Select Subscribers / Select Categories	Select subscribers or categories
Stop for	Time interval for how long the radio subscriber can stay at one place (min)
Subscriber Appearance After No Location Data Longer	Period of time after which the subscriber appears on the map again (min)
No Location Data for More Than	Period of time when subscriber's coordinates are not received (min)
Notify Constantly	Select this checkbox to notify the dispatcher about violation of one of the criteria every time it happens. If the checkbox is not selected, the actions which follow the violation of the specified criteria will occur only once.
Notify on Start of Motion	If the subscriber starts moving and before that the subscriber stopped for much more than the specified time period, the notification window will display the message "Motion resumed".
Notify on Location Renewal	If the subscriber coordinates were not received for a longer period than the specified time limit, and then the coordinates are well received

Attribute	Value
	again, the notification window will display the message "GPS coordinates resume".
Control Zones	Select control zones
Speeding	If speeding is registered, the rule is executed.

If the rule meets selected criteria, the system can perform some actions:

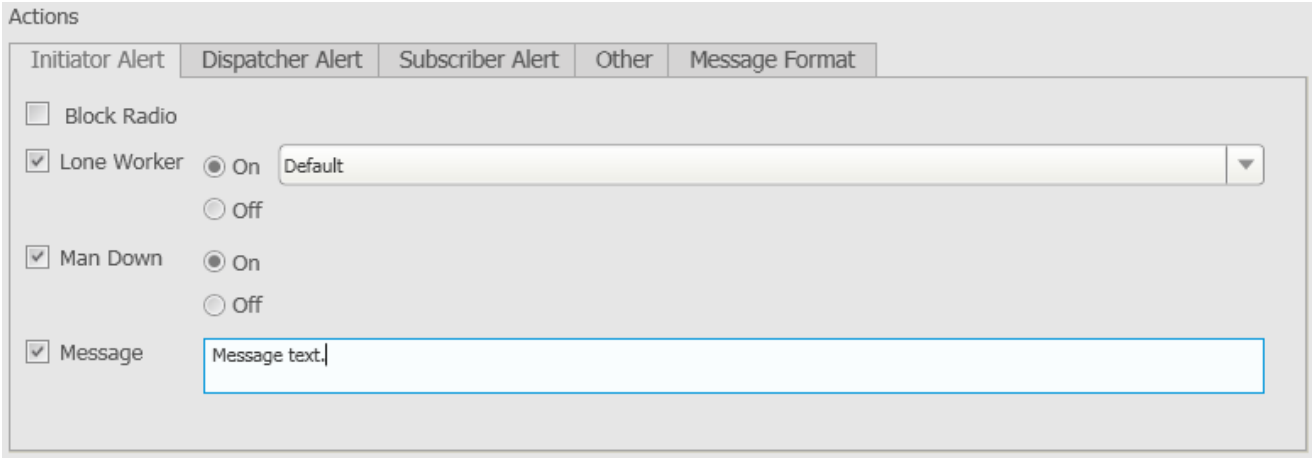
1. Actions addressed to the initiator
2. Alerts addressed to the dispatcher
3. Alerts addressed to the radio subscriber
4. Other

If finished, click **OK** to save the rule, and the created rule appears in the list of rules.

To edit rule settings, select it in the list of rules and click **Edit**. To remove the rule, select it in the list of rules and click **Delete**.

Initiator Alert

Open the **Initiator Alert** tab.



Block Radio – if selected, the radio that triggered the rule, will be blocked.

Lone Worker – if selected and **On** is checked off, the lone worker profile will be set to the radio that triggered the

rule. If **Off** is checked off, the lone worker mode of the radio will be deactivated.

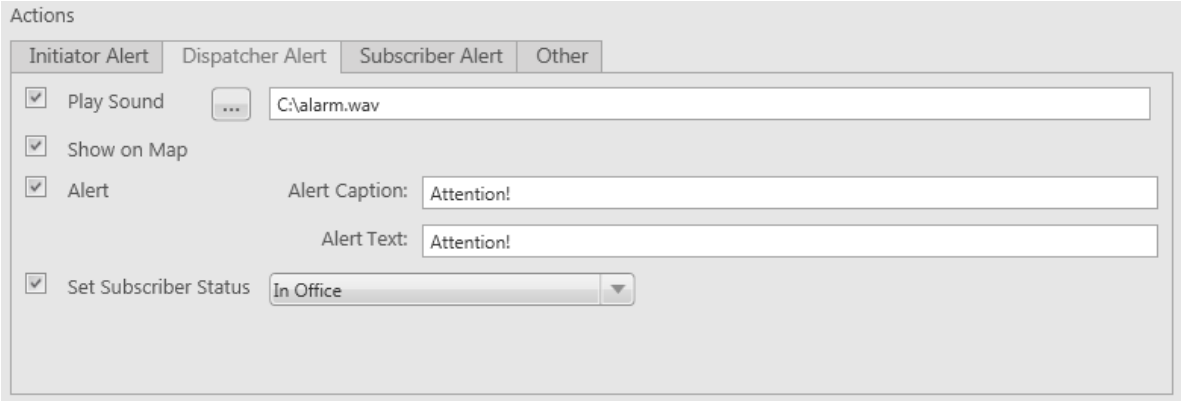
Note: To set up the lone worker profile, see Lone Worker Rules in SmartPTT Dispatcher.

Man Down – if selected and **On** is checked off, the Man Down functionality will be applied to the initiator radio to control its orientation. E.g., if the radio is tilted, an alarm will play on the radio. If **Off** is selected, the Man Down functionality will be turned off. Make sure that **Tallysman** is enabled in SmartPTT Radioserver Configurator

Message – a text message is sent to the subscriber who initiated triggering of the rule.

Dispatcher Alert

Open the **Dispatcher Alert** tab.



Play Sound – select .wav audio file to play back.

Show on Map – location of the subscriber specified in the rule is shown on the map (with an icon).

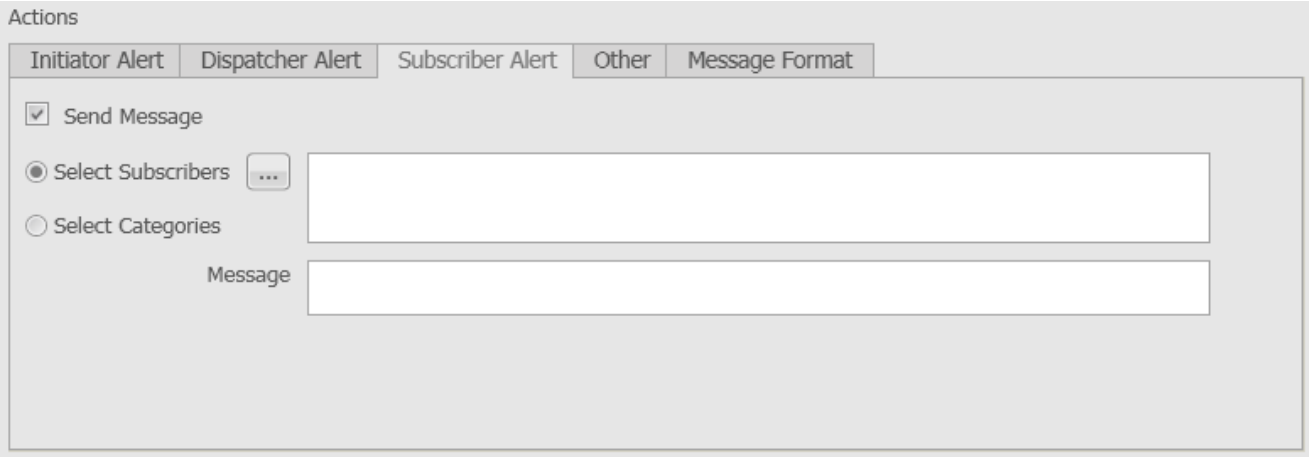
Alert – notification with the event description is displayed in the **System Notification** window. You can define the title in the **Alert Caption** field and the description in the **Alert Text** field.

Note: For rules **No Movement** and **No Coordinates** the text of **Alert** cannot be set – it is generated by the system automatically.

Set Subscriber Status – the subscriber is assigned the specified status. It is selected from the list of statuses.

Subscriber Alert

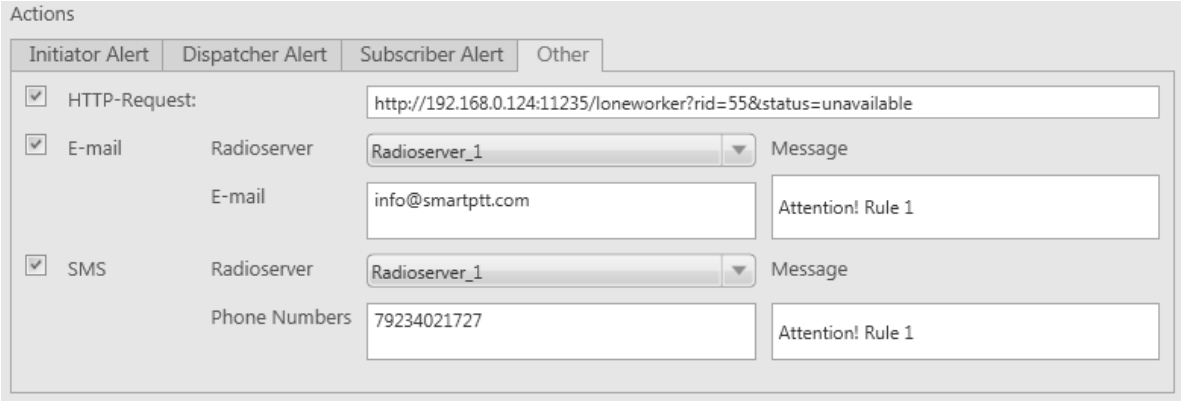
Open the **Subscriber Alert** tab.



Send Message – a text message is sent to the selected subscribers or categories (all subscribers, talkgroups and dispatchers assigned to specific categories).

Other

Open the **Other** tab.



HTTP Request – is used for specifying address where information on radio subscriber and its status can be sent. HTTP request can render two values: radio ID and its status.

Example of HTTP request:

http://192.168.0.124:11235/loneworker?rid=55&status=unavailable.

E-mail – is used for specifying e-mail address where a message should be sent in case the rules specified earlier are not fulfilled. To do this, the following fields are to be filled:

Radioserver – server name for e-mail sending. The name of the server is selected from the drop-down list.

E-mail – electronic addresses to send the message.

Message – text of the message.

SMS – if selected, the SMS message is sent to the specified phone number in case the rules specified earlier are not fulfilled. To do this, the following fields are to be filled:

Radioserver – server name which is configured for SMS messages sending. The name of the server is selected from the drop-down list.

Phone Numbers – telephone numbers to send SMS.

Message – text of the message.

Note: See information about SmartPTT Radioserver configuration for sending and receiving e-mails and SMS messages in SmartPTT Radioserver Configurator Help under **Telephone Interconnect** and **SMS Gateway**.

Lone Worker Rules

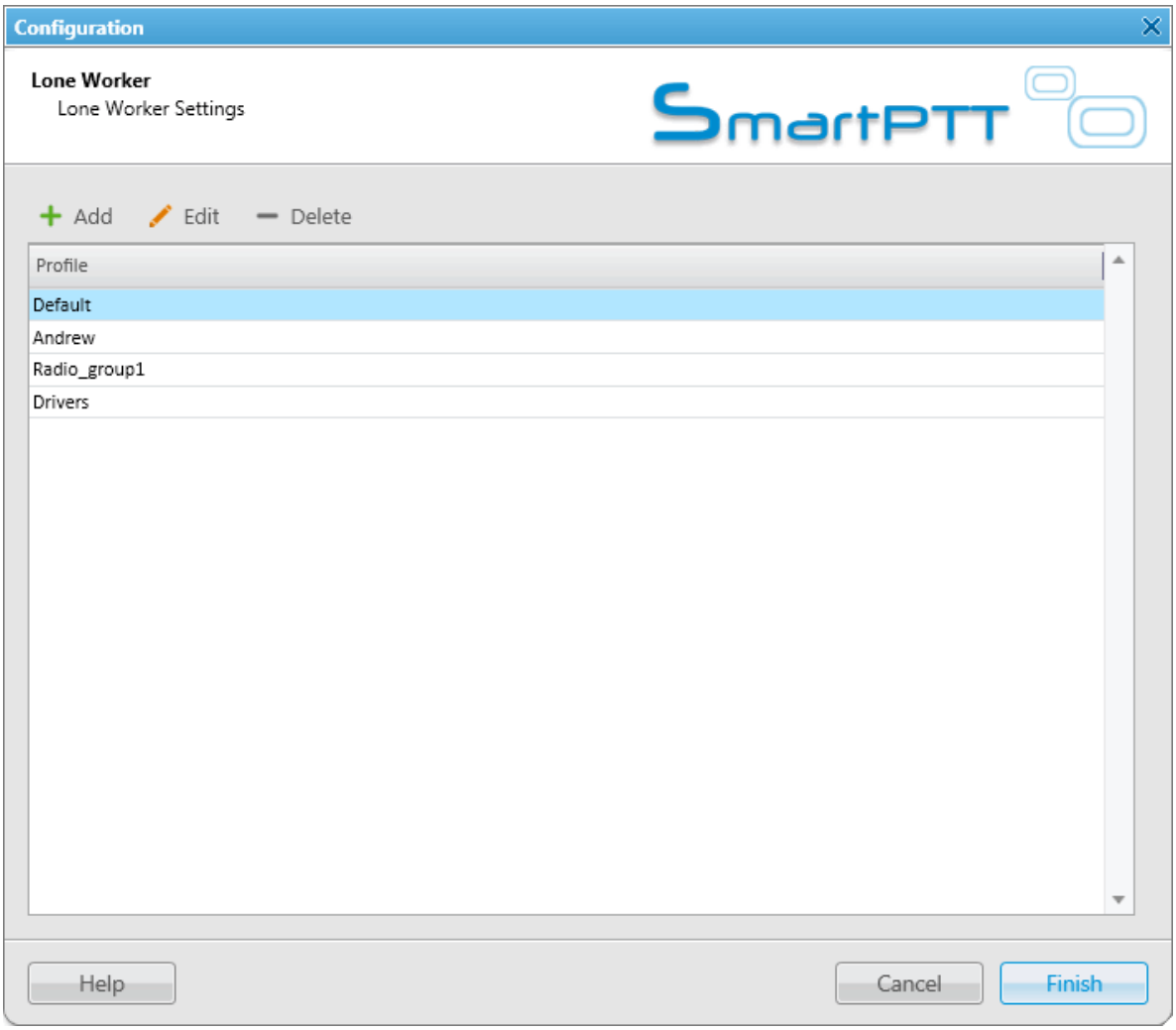
SmartPTT Dispatcher supports the Lone Worker mode for radio subscribers.

When a subscriber is set to the Lone Worker mode, SmartPTT automatically tracks the following conditions:

- Absence of calls from the subscriber during specified period of time.
- Absence of GPS coordinates from the subscriber during specified period of time.
- Immobility of the subscriber during specified period of time.

When one of the specified conditions triggers, SmartPTT Dispatcher executes the actions defined by the settings.

To define **Lone Worker** rules, expand the **Settings** menu in the **Main Menu** bar of the SmartPTT Dispatcher window and click **Lone Worker Rules**. At that, the window for creation and/or editing **Lone Worker Profiles** opens.

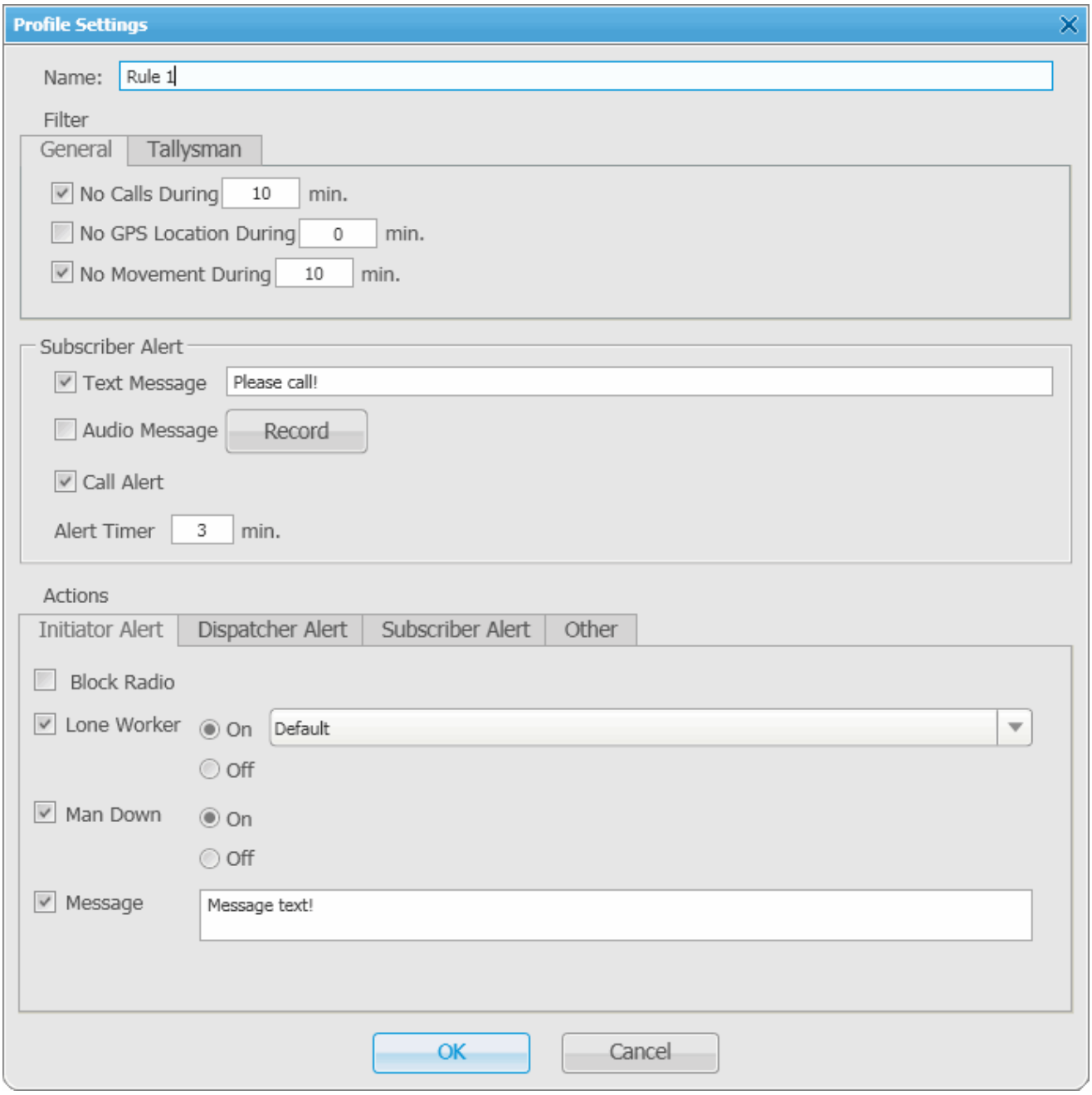


Lone Worker Profile is a rule which gets executed if the specified conditions are fulfilled. SmartPTT supports multiple profiles, so it is possible to create a profile for each radio subscriber.

To add a new profile, click **Add**. To make changes in the existing profile, select the profile and click **Edit**. To delete a profile, select the profile from the list and click **Delete**.

Note: The default profile cannot be deleted.

At clicking **Add** or **Edit**, the **Profile Settings** window opens.



In the **Profile Settings** window you can set up rules for a new profile or edit rules for the existing profile. The window contains the following fields and sections:

Name – name of the profile. It is an obligatory field.

The **General** tab contains rule conditions to trigger an alert:

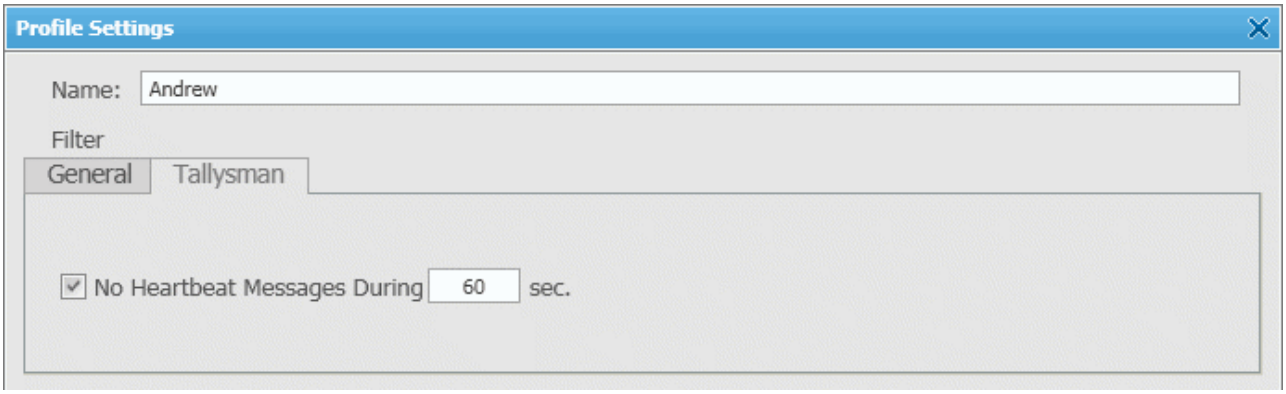
No Calls During – specifies the period of time for a subscriber to make a voice call. If the subscriber does not make a call during the specified time period, the corresponding actions are executed.

No GPS Location During – specifies the period of time for a subscriber to send GPS data. If the subscriber radio does not send its GPS data during the specified time period, the corresponding actions are executed.

No Movement During – specifies the period of time to check if a subscriber is moving (deviations in range of 5 meters are ignored). If the subscriber does not move during the specified time period, the corresponding actions are executed.

The **Tallysman** tab allows you to specify rule conditions related to the Tallysman option board.

Note: The subscriber radio must be provided with a built-in option board. The **Tallysman** feature must be enabled in SmartPTT Radioserver Configurator.



No Heartbeat Messages During – specifies the period of time to receive radio signals for its presence in the network. If the radio built-in option board does not send information on the radio presence in the network during the specified time period, the corresponding actions are executed.

The **Subscriber Alert** area:

Text Message – when the event specified in one of the filters occurs, the text message is sent to the lone worker.

Audio Message – when the event specified in one of the filters occurs, an audio message is sent to the lone worker. To record the message, press the **Start** button. To stop recording, press the **Stop** button. To listen to the recorded message, press **Play**. To delete the recorded message, press **Delete**.

Call Alert – when the event described by one of the filters occurs, a **Call Alert** is sent to the lone worker.

Alert Timer – specifies the time period for a subscriber to make a call, to send GPS coordinates or to move

after **Subscriber Alert** took place.

If the **Alert Timer** has expired but the subscriber did not perform certain actions, or if the **Alert Timer** equals 0, the system executes actions specified in the **Actions** area.

If the rule meets selected criteria, the system can perform some actions:

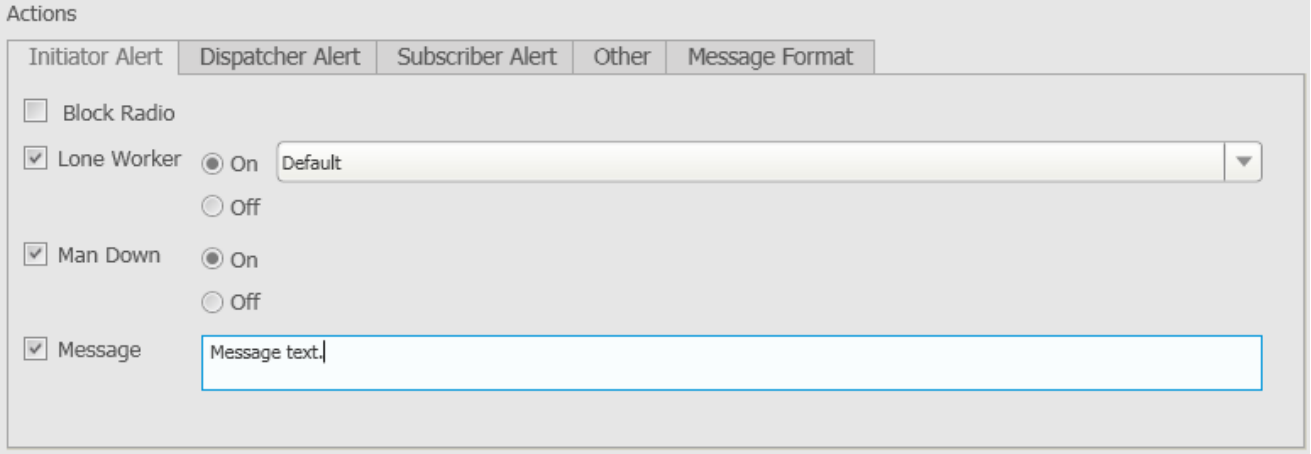
1. Actions addressed to the initiator
2. Alerts addressed to the dispatcher
3. Alerts addressed to the radio subscriber
4. Other

To save the rule, click **OK**. At that, the created rule appears in the list of rules.

To edit rule settings, select it in the list of rules and click **Edit**. To remove the rule, select it in the list of rules and click **Delete**.

Initiator Alert

Open the **Initiator Alert** tab.



Block Radio – if selected, the radio that triggered the rule, will be blocked.

Lone Worker – if selected and **On** is checked off, the lone worker profile will be set to the radio that triggered the rule. If **Off** is selected, the lone worker mode of the radio will be deactivated.

Note: To set up the lone worker profile, see Lone Worker Rules in SmartPTT Dispatcher.

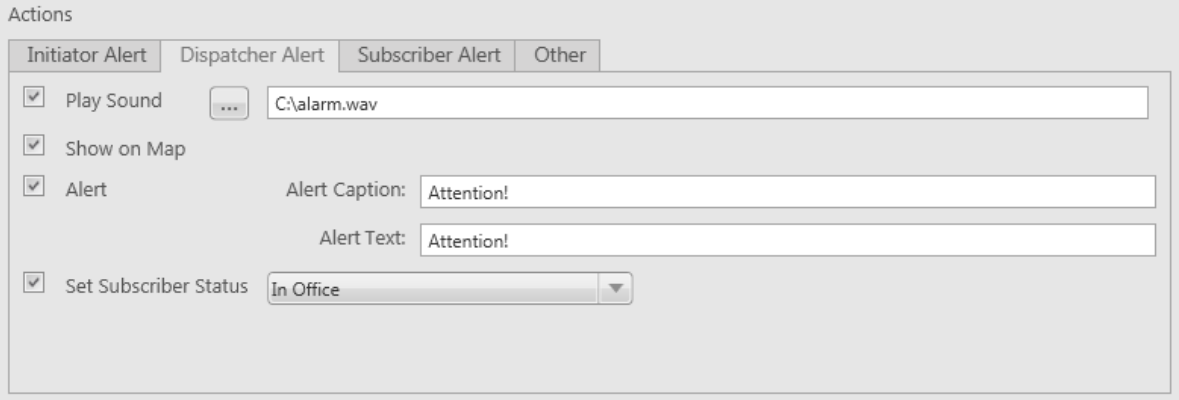
Man Down – if selected and **On** is checked off, the Man Down mode will be set to the radio that triggered the rule. If **Off** is selected, the Man Down mode of the radio will be deactivated.

Note: Make sure that the radio subscriber unit has the built-in option board and the Tallysman feature is enabled in SmartPTT Radioserver Configurator.

Message – a text message is sent to the subscriber who triggered the rule.

Dispatcher Alert

Open the **Dispatcher Alert** tab.



Play Sound – select .wav audio file to play in SmartPTT Dispatcher.

Show on Map – subscriber specified in the rule is shown on the map (with an icon).

Alert – notification with the event description is displayed in the **System Notification** window. You can define the title in the **Alert Caption** field. and the description in the **Alert Text** field. Description of the event can't be set, it is generated automatically.

Set Subscriber Status – the subscriber is assigned the specified status. It is selected from the list of statuses.

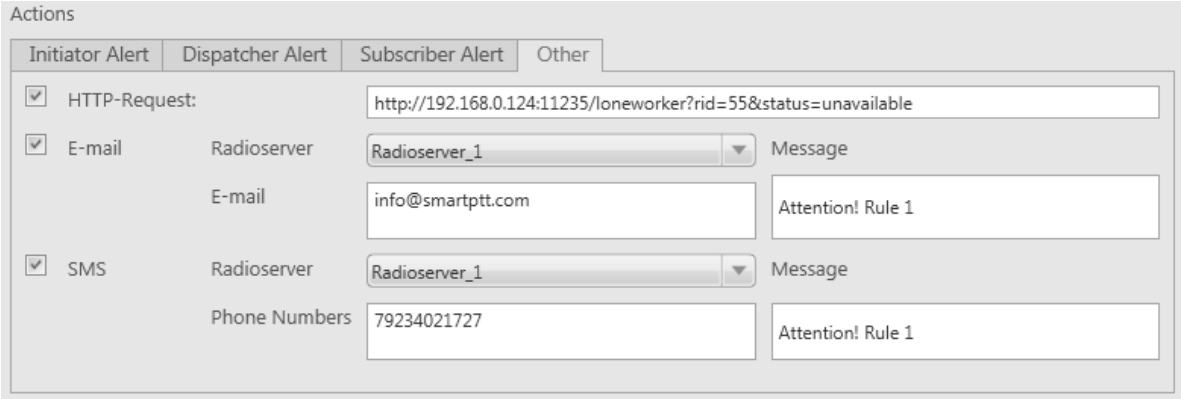
Subscriber Alert

Open the **Subscriber Alert** tab.

Send Message – a text message is sent to the selected subscribers or categories (all subscribers, talkgroups and dispatchers assigned to specific categories).

Other

Open the **Other** tab.



HTTP Request – is used for specifying address where information on radio subscriber and its status can be sent. HTTP request can render two values: radio ID and its status.

Example of HTTP request:

http://192.168.0.124:11235/loneworker?rid=55&status=unavailable.

E-mail – is used for specifying e-mail address where a message should be sent in case the rules specified earlier are not fulfilled. To do this, the following fields are to be filled:

Radioserver – server name for e-mail sending. The name of the server is selected from the drop-down list.

E-mail – electronic addresses to send the message.

Message – text of the message.

SMS – if checked, the SMS message is sent to the specified phone number in case the rules specified earlier are not fulfilled. To do this, the following fields are to be filled:

Radioserver – server name for SMS messages sending. The name of the server is selected from the drop-down list.

Phone Numbers – telephone numbers to send SMS.

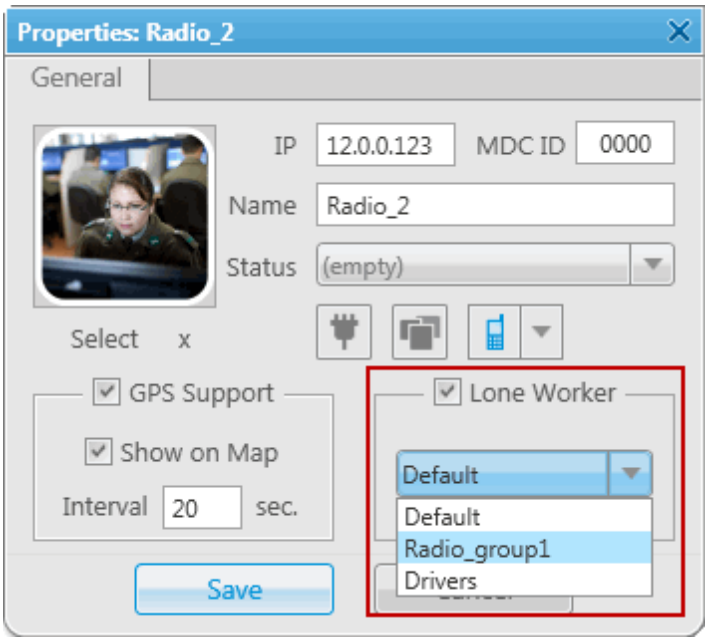
Message – text of the message.

Note: See information about SmartPTT Radioserver configuration for sending and receiving e-mails and SMS messages in SmartPTT Radioserver Configurator Help under **Telephone Interconnect** and **SMS Gateway**.

How to assign a Lone Worker Profile to the radio subscriber

To assign the created **Lone Worker Profile** to a radio subscriber, go to the **Subscriber Management panel** and open the **Properties** window of the subscriber by right-clicking.

In the opened window select the **Lone Worker** checkbox and in the drop-down list select the created profile.



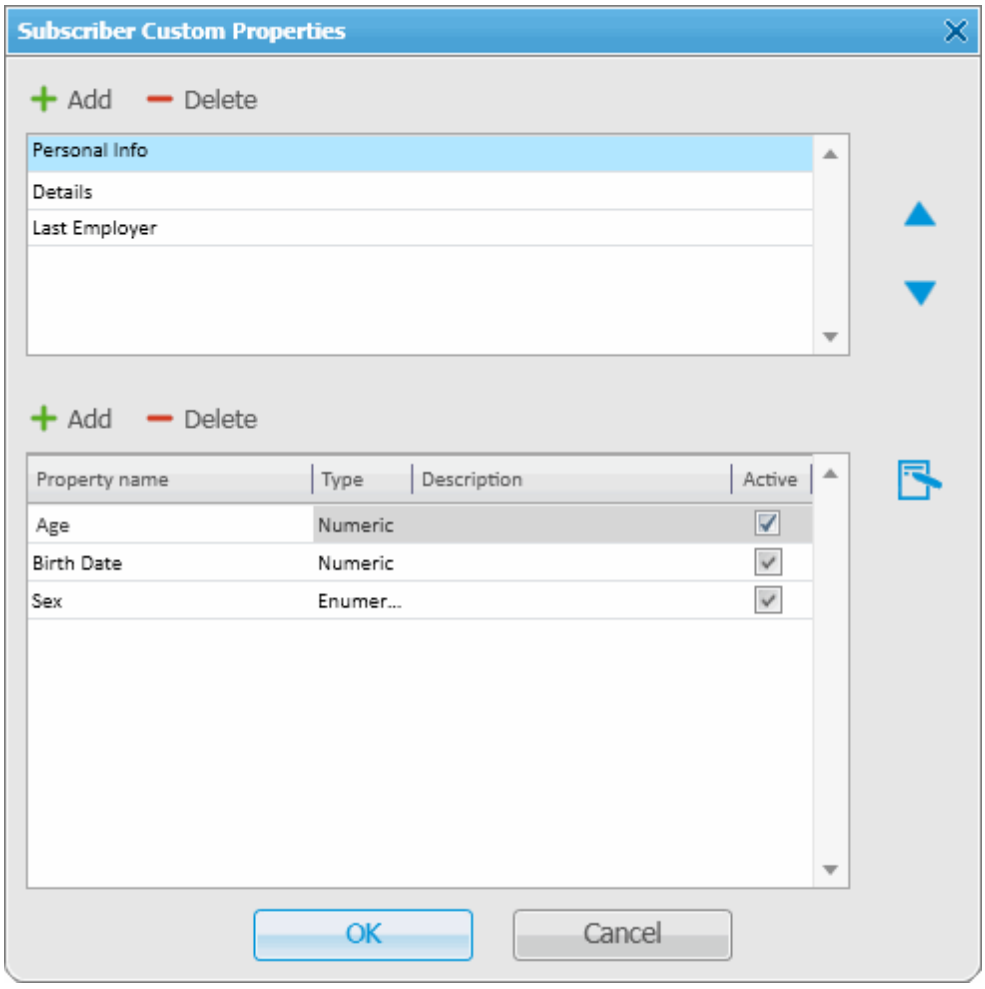
To remove the profile from the subscriber, clear the **Lone Worker** checkbox.

Subscriber Custom Properties

SmartPTT Dispatcher provides the ability to add custom properties of a subscriber, which can be used for giving additional information about the radio subscriber. Subscriber Custom Properties have the following four types:

1. Text
2. Numeric
3. Date
4. List

To create custom properties expand the **Settings** menu in the **Main Menu** bar of the SmartPTT Dispatcher window and click **Subscriber Custom Properties**. At that, the **Subscriber Custom Properties** window opens.



The top list contains subscriber custom property groups.

To add the subscriber custom property group, click **Add** at the top. To delete the group, click **Delete**. Arrows on the right allow moving groups inside the list.

The bottom list contains the properties of the created groups.

Property Name – custom name of the property which will be displayed in the **Properties** window.

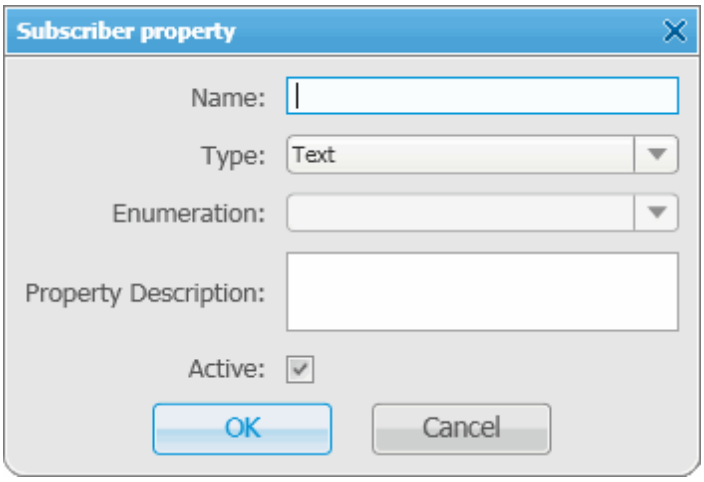
Type – property type (Text, Numeric, Data or List).

Description – text description added by the user when creating a property.

Active – select the checkbox, to have the property displayed in the **Properties** window.

To add a property into the property group, select the created property group in the top list and then click **Add** above the bottom list.

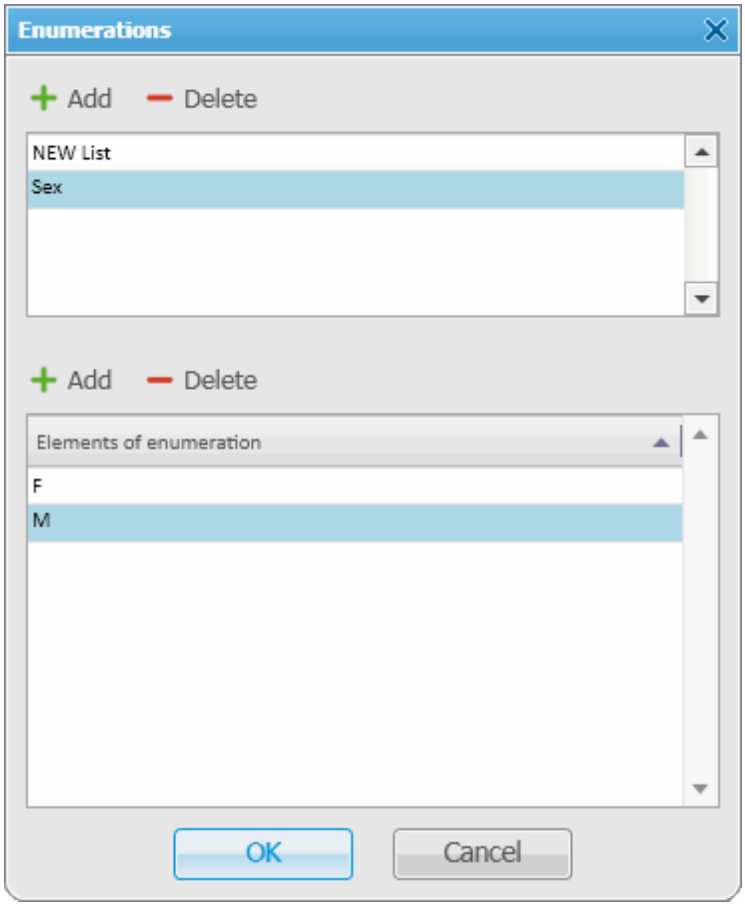
At that, the **Subscriber property** window opens.



Fill all the fields required. Select the **Type** and click **OK**.

Note: If you want to select **List** in the **Type** field, before that you need to create the list. Otherwise, the list will be empty.

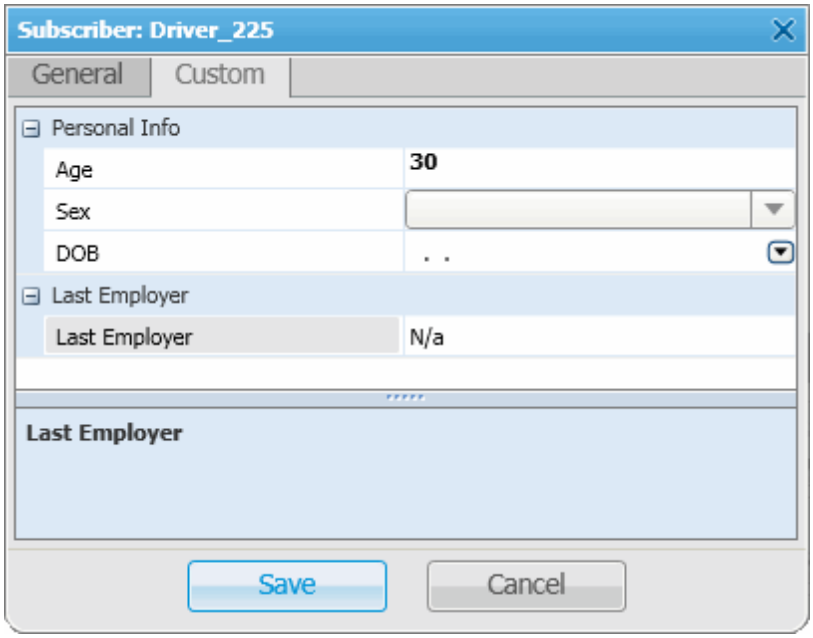
To create the list, click the **Create/Edit Lists** button . At that, the window opens:



In the top box add list names by clicking **Add**.

Select the created list and add elements of the list. To do it, go to the bottom box and click **Add** just above it.

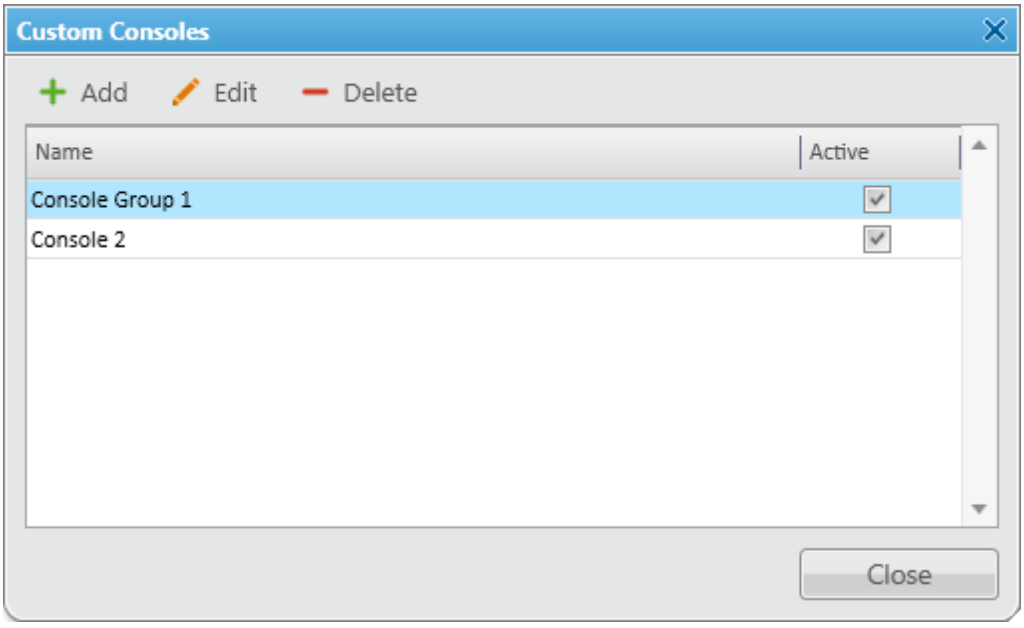
To view the active custom properties go to the subscriber **Properties** window, **Custom** tab.



Custom Consoles

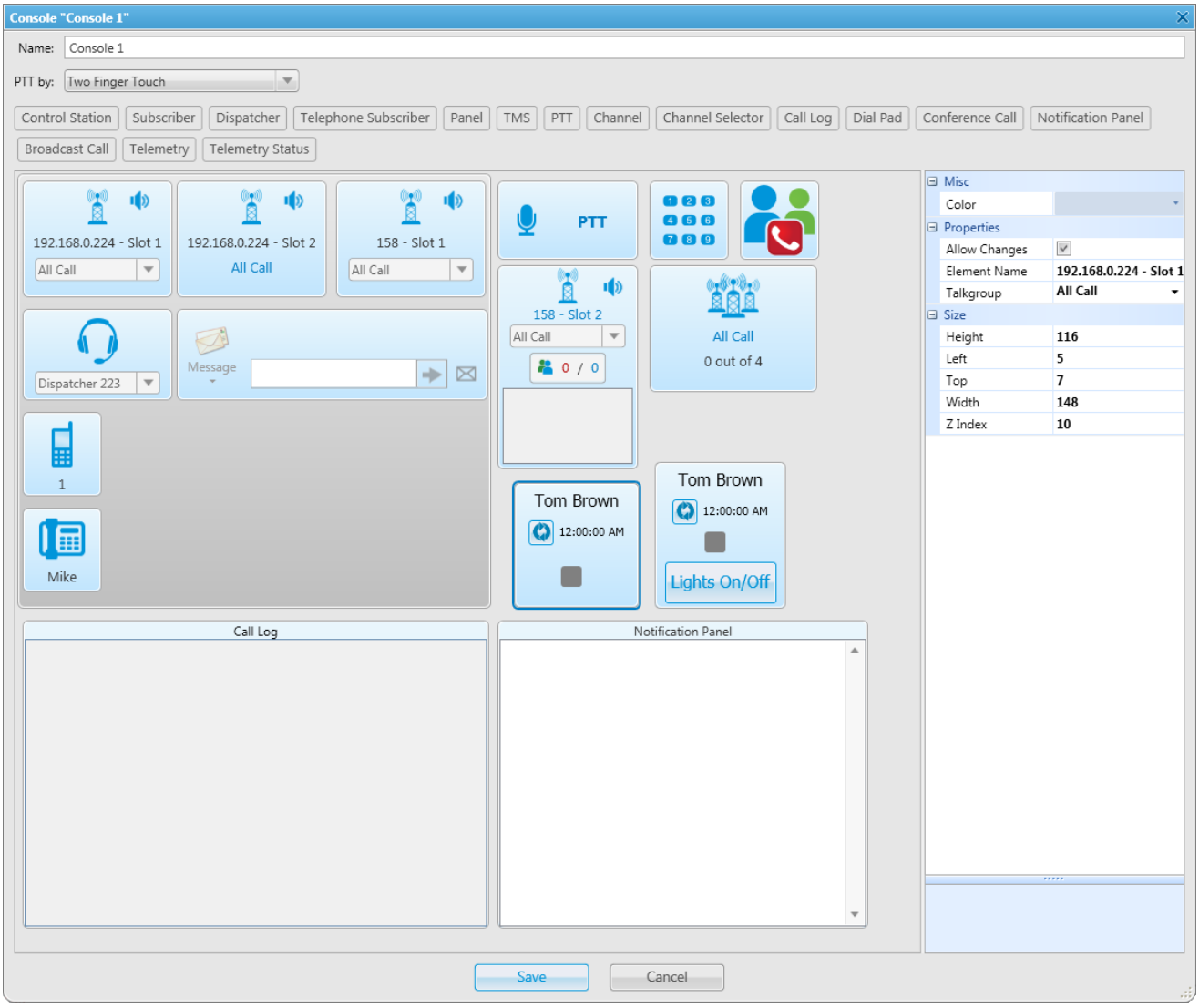
Custom Consoles are implemented as visual panels, designed in SmartPTT Dispatcher to manage specific subscribers, talkgroups or control stations. The embedded console designer allows creating panels containing visual elements of variable sizes and placement assigned to corresponding subscribers or talkgroups. Using visual control elements the dispatcher can make voice calls, have quick access to subscriber properties or the **Call Window**.

To configure custom consoles, expand the **Settings** menu in the **Main Menu** bar of the SmartPTT Dispatcher window and click **Custom Consoles**. At that, the **Custom Consoles** window opens.



To add a new console, click **Add**.

At that, the window for creating a new custom console opens. Specify the name of the new console, how the PTT will be activated in the **PTT by** field and make the console active.



Name – custom console name which will be displayed in the **View** menu.

In the **PTT by** field you can select between two options:

1. Two Finger Touch
2. One Finger Touch / Mouse Click

The **Two Finger Touch** is used for a PC with a multi-touch screen. In this mode one finger touch selects a talkgroup or subscriber on the custom console, and a two-finger touch on the subscriber or talkgroup initiates

transmission. If non-multitouch screen is used, then to make a call, select the control station, subscriber, phone or dispatcher by clicking on the corresponding element and click the element assigned to PTT.

One Finger Touch / Mouse Click is used for any PC touch screens and non-touch screens to use with the mouse. One finger touch / mouse click starts the transmission right away.

There are following types of visual elements available in **Custom Consoles**:

1. Control Station
2. Subscriber
3. Dispatcher
4. Telephone Subscriber
5. Panel
6. SMS
7. PTT
8. Channel
9. Channel Selector
10. Dial Pad
11. Conference Call
12. Notification Panel
13. Broadcast Call
14. Telemetry
15. Telemetry Status

To add an item to the custom console, click on the desired element in the console designer menu. To remove the element from the console, press the left mouse button on the element and press DELETE.

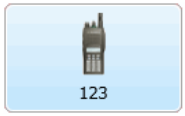
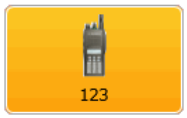
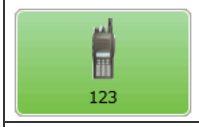
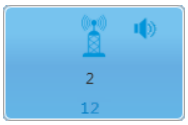
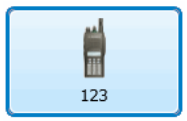
You can adjust size, color or location of each element on the custom console. To do this, use the **Size** or the **Properties** fields on the right of the console designer area.

Click **Control Station** to add the **Control Station** element into the console designer area. The **Control Station** element is linked to the existing control station and one of the talkgroups defined for it. The **Control Station** element is designed to make group calls or all calls, to mute the sound of the control station. The element is connected to the control station or with the talkgroup of the virtual control station. To link the talkgroup or **All Call** with the **Control Station** element, select the necessary value in the **Talkgroup** field of the **Properties** panel in

the console designer area. To allow the dispatcher to select the necessary calling subscriber manually, select the **Allow Changes** checkbox.

Click **Subscriber** in the console designer to add the **Subscriber** element to the console area. The **Subscriber** element is designed to do private voice calls and displays the subscriber **Properties** window or **Call Window**. The **Subscriber** element can be linked with a particular radio subscriber selected in the **Subscriber** field of the **Properties** panel or with the list of radio subscribers of SmartPTT Dispatcher. To link the element with the list of subscribers, select the **Allow Changes** checkbox.

When in work, color of the **Subscriber** element differs depending on the status.

Element	Description
	Gray – the subscriber is offline or outside the network coverage
	Gray blue – the subscriber is online
	Light yellow — the subscriber is trying to make an outgoing call Yellow – the subscriber is making a call to the dispatcher or another radio subscriber, or it is being monitored
	Green – somebody is calling to the subscriber
	Blue – none of the parties transmit or receive voice. The subscriber can answer the call by the pressing the PTT button within hang time. After the hang time expires, the subscriber initiates a new call by pressing the PTT button. The calling subscriber is the subscriber linked with the PTT button by default.
	Blue frame – the subscriber is selected

– the icon on the subscriber button shows that the dispatcher did not answer to the subscriber call.

Click **Dispatcher** in the console designer to add the **Dispatcher** button to the console area. The **Dispatcher**

button is designed to make connection to a specific external dispatcher. Clicking on the button opens the dispatcher **Call Window**. The **Dispatcher** element can be linked with a particular external dispatcher selected in the **Subscriber** field of the **Properties** panel or with the list of the dispatchers. To link the element with the list of dispatchers, select the **Allow Changes** checkbox.

Note: The list of dispatchers consists of the active external dispatchers added in the Dispatchers configuration window.

The **Telephone Subscriber** button is linked to a specific telephone subscriber and designed to do private voice calls or show telephone subscriber properties or **Call Window**. The **Telephone Subscriber** element can be linked with a particular telephone subscriber selected in the **Telephone Subscriber** field of the **Properties** panel or with the list of the subscribers. To link the element with the list of telephone subscribers, select the **Allow Changes** checkbox.

Note: To set the list of telephone subscribers, go to the **List of Subscribers** tab in the Telephone Settings window.

Panel is a rectangular area to arrange sets of the other elements. The panel can have its own color, any size and placement. All inside elements of one panel are moved together with the panel.

The **TMS** button is designed to send short text messages to the specified subscribers or talkgroups. To do this, select the necessary subscriber in the custom console area, enter the text of the message or select a template, and send it.

The **PTT** button is designed for a multiple-user call. If it is located inside the panel, then clicking the **PTT** button makes a call to all the subscribers located within this panel. If it is located outside the panel, clicking the **PTT** button makes a call to all the selected subscribers located outside the panel.

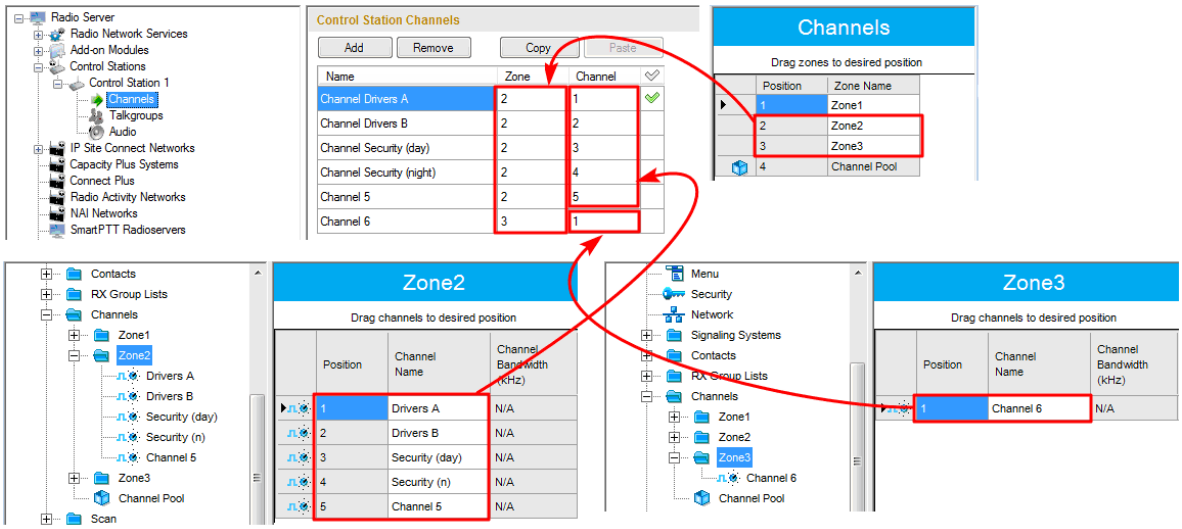
Note: To select multiple elements, press and hold the **Ctrl** key and select the necessary elements by the left click of the mouse.

The **Channel** button provides user with the information about the state of a channel assigned to the button (missed calls, the default subscriber for outgoing calls) and allows user to mute the assigned control station or slot.

The **Channel Selector** button, located in the console area, allows dispatcher to switch from one channel of the control station to another.

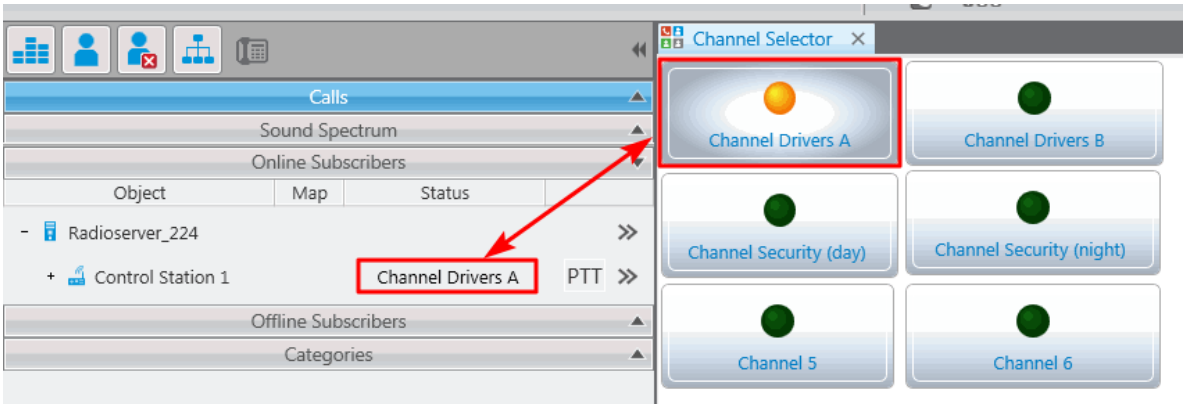
Note: The functionality requires the control station to be connected to the PC and its channels to be set up via MOTOTRBO CPS and SmartPTT Radioserver Configurator.

Channel setting in SmartPTT Radioserver Configurator is carried out on the **Channels** tab of the control station. Channels listed on this tab must match the channels set in MOTOTRBO CPS (channel number, zone number).

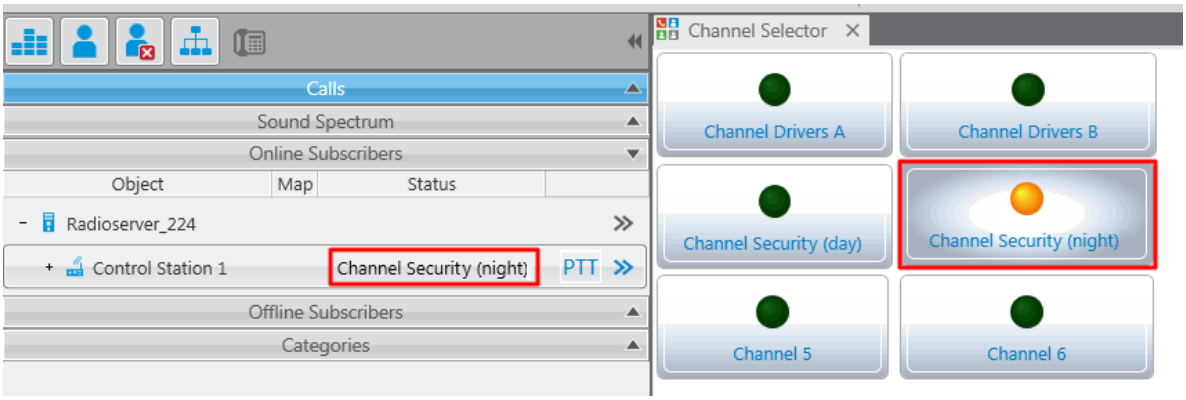


To configure this functionality in SmartPTT Dispatcher, add the **Channel Selector** button into the console designer area and assign the channel to it by selecting it from the list of available channels. Each button corresponds to one channel. To allow switching between channels, you should add the required number of elements and define channels. To link the element with the channel, set the **Channel** field of the **Properties** panel in the console designer area. Each element corresponds to one channel.

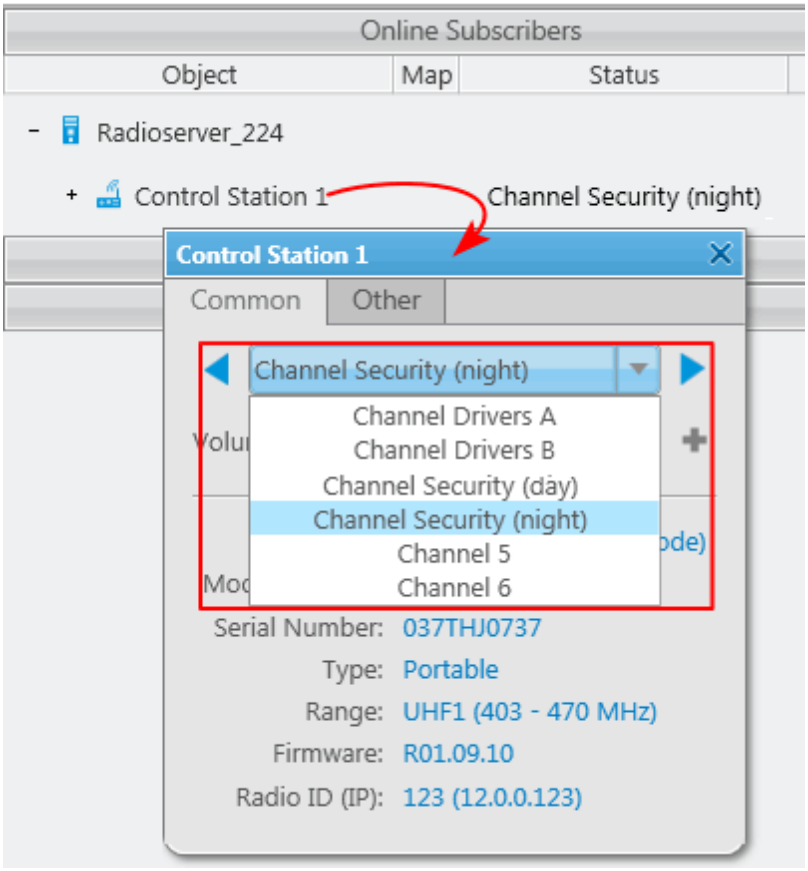
Custom console **Channel Selector** with the active channel:



To switch the channel, simply click the button of the required channel in the **Channel Selector** custom console.



Note: The control station channels also could be switched in the **Properties** window of the control station.



The **Event Log** panel displays subscribers, direction, channel and time of the call for recent calls in SmartPTT Dispatcher.

The **Dial Pad** element opens a telephone keypad which allows you to make calls to the telephone subscribers from SmartPTT Dispatcher.

The **Conference Call** element opens the window where you can hold conference calls. For more information about this feature see Conference Calls.

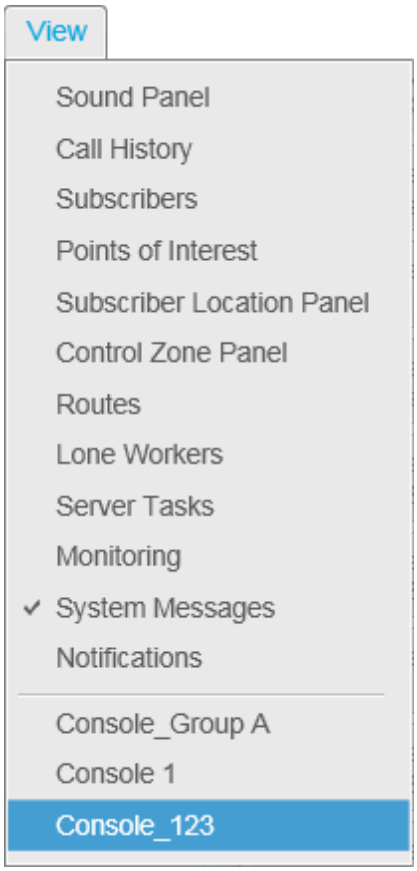
The **Notification Panel** informs about incoming messages, call alerts and calls in SmartPTT Dispatcher.

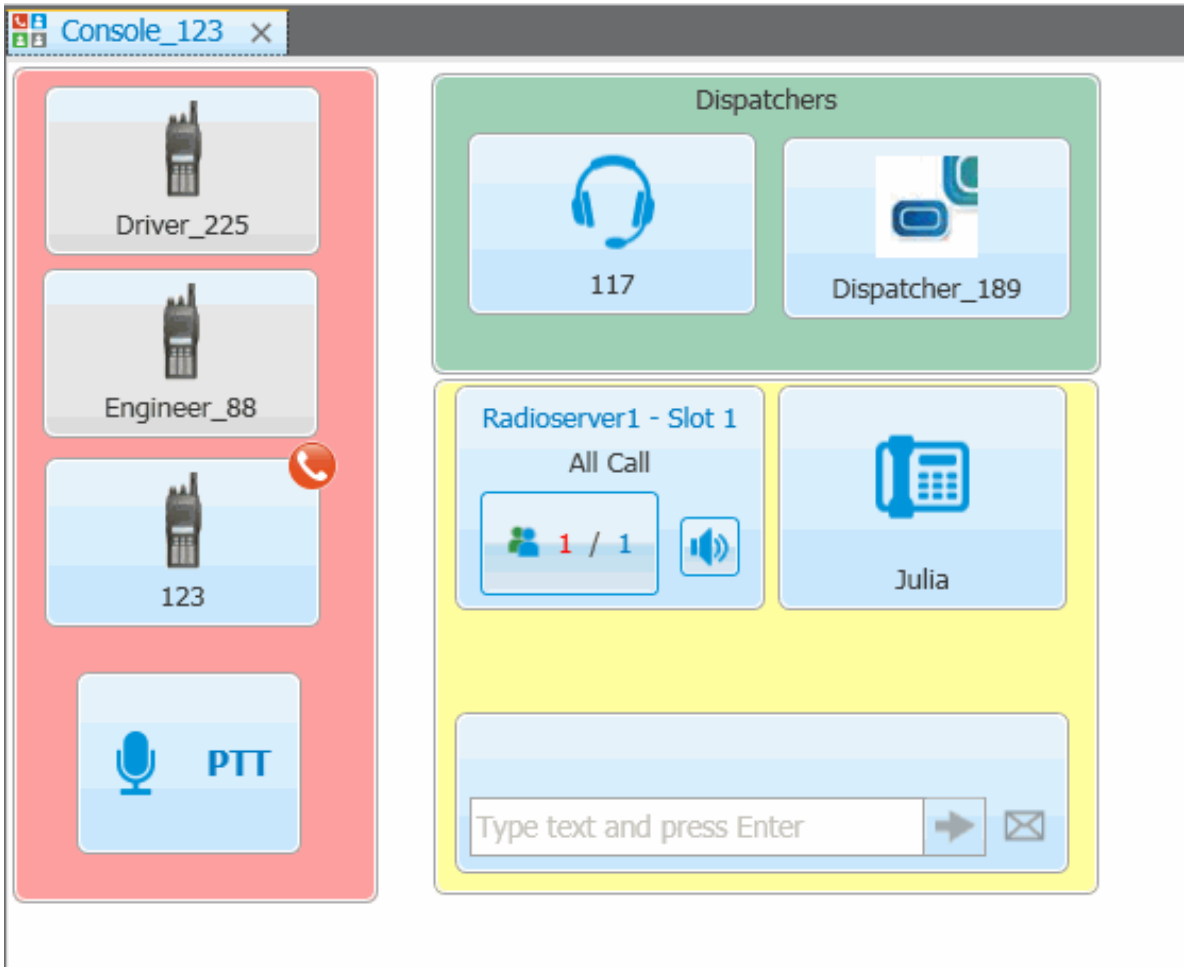
The **Broadcast Call** element is designed for making group calls or **All Call** within all the channels of the dispatch console simultaneously. Select the required talkgroup or **All Call** ID in the **Group ID** field of the **Properties** panel. When such a call is initiated, SmartPTT Dispatcher tries to call all the subscribers with the given identifier.

The **Telemetry** element is designed for sending telemetry commands. You can assign only one telemetry command per element. Before assigning a command to the element, add it to the telemetry list of commands. Apart from sending commands, you can also check current status and the time of the last status update.

The **Telemetry Status** element is designed for receiving status of the selected pin. You can also see time of the last status update.

The custom consoles created in the designer are displayed in the **View** menu. Select one of the custom consoles to open in the dispatcher main area.

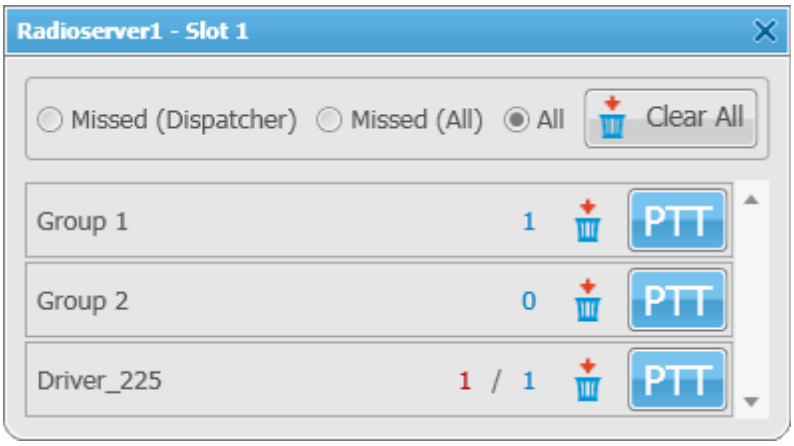




SmartPTT Dispatcher allows opening multiple custom consoles simultaneously.

– shows how many calls were ignored by the dispatcher. The red number stands for the number of private calls not answered by the dispatcher. The blue one shows the total number of calls not answered by the dispatcher, including private and group calls. As soon as the dispatcher called back the talkgroup or the radio subscriber, the counter is set to zero.

By clicking the element, the window with details appears.



Missed (Dispatcher) – filters only private calls not answered by the dispatcher.

Missed (All) – filters private and group calls not answered by the dispatcher.

All – removes all filters and shows all available talkgroups and radio subscribers and their call statistics.

Clear All – sets all counters to zero.

– mutes the control station.

Note: Check the Mute Mode settings before applying this function.

Service

The **Service** menu allows you to carry out secondary functions, namely:

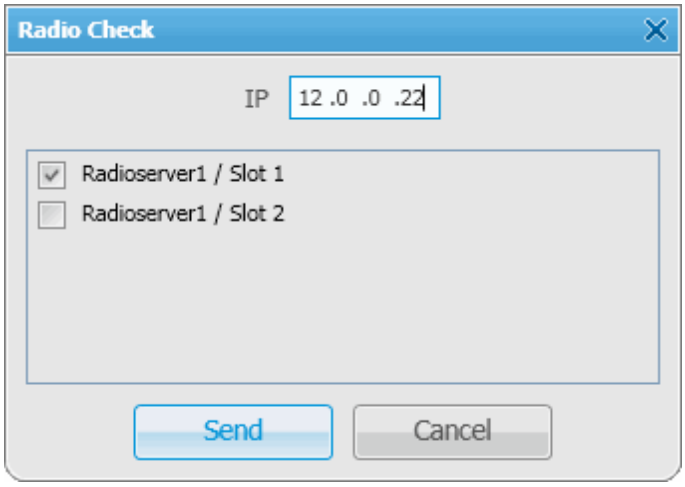
- Radio Check allows you to send the radio check command to radio subscribers.
- Save Dispatcher Settings allows you to save current settings of the dispatcher console and database to restore them in the future.
- Restore Dispatcher Settings allows you to restore saved settings of the dispatcher console and the database.
- Database Backup allows you to save database copy and then restore it.
- Export Radio Subscribers allows you to save the list of registered radio subscribers in XML or XLS formats.
- Import Radio Subscribers allows you to import previously exported list of radio subscribers.

- Upload to KML allows you to export current geographical position of radio subscribers in KML format.
- Import Connect Plus Logs allows you to import data from the Connect Plus network.
- View Received Files allows you to view files received by the radioserver via SmartPTT File Transfer.
- View Deferred Actions allows you to view and edit deferred actions.
- Voice Notifications allows you to play voice notifications.
- Check for updates. Details about update process see in General Settings.
- View System Information allows you to check event statistics registered on the radioserver or in the dispatcher console and other information on the system.

Radio Check

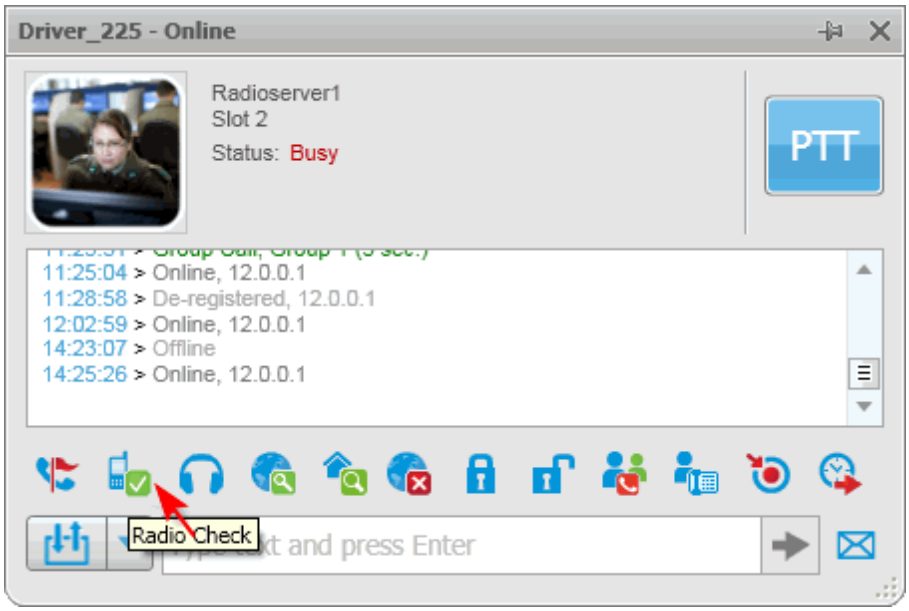
The **Radio Check** function can be executed on the selected control stations available to the dispatcher. The result of the **Radio Check** is displayed in the subscriber **Call Window**. It can be: "Subscriber is available" or "Subscriber is unavailable".

To do **Radio Check**, expand the **Service** menu in the **Main Menu** bar of the SmartPTT Dispatcher window and click **Radio Check**. At that, the **Radio Check** window opens.

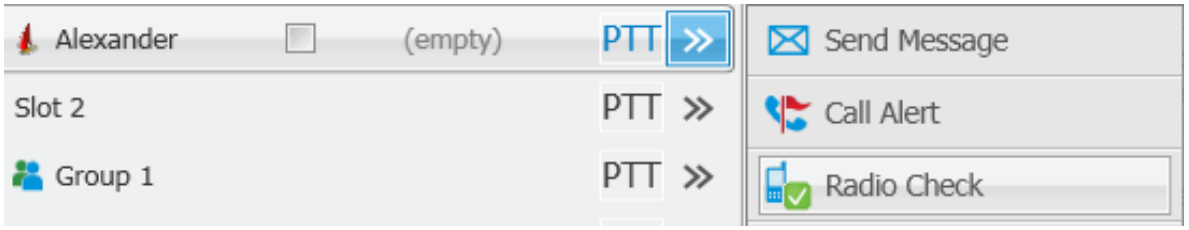


Specify the **IP** of the subscriber radio. Select control stations which should be used to check the subscriber availability and click **Send**.

Alternatively, **Radio Check** can be done from the **Call Window** or the **Action List**.



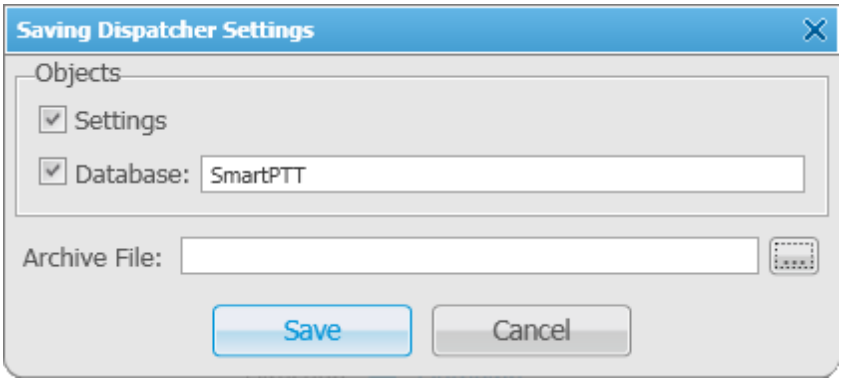
In the **Action List**:



Save Dispatcher Settings

Starting from version 8.3 you can save and restore not only the event log database, but also the dispatcher console settings. These includes: opened panels, subscriber list, the application interface language and many other things.

To save current settings or database, open the **Service** menu and select **Save Dispatcher Settings**. At that, the following window opens up:



Objects – define what you want to save. You can select both, if needed.

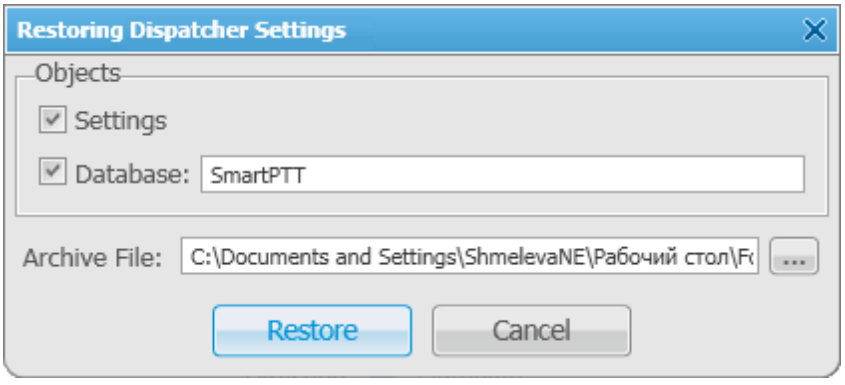
Archive File – specify the path to the folder where you need the archive to be saved.

To save the selected objects, click **Save**. To quit the window without saving, click **Cancel**.

To restore the saved settings and database, see Restore Dispatcher Settings.

Restore Dispatcher Settings

To restore the dispatcher console settings or the event log database, open the **Service** menu and select **Restore Dispatcher Settings**. At that, the following window opens up:



Objects – define what you want to restore. You can select both, if needed. When selecting **Database** to restore, do not forget to enter its name.

Archive File – specify the path to the archive folder.

To restore the selected objects, click **Restore**. To quit the window, click **Cancel**.

Note: To apply the restored settings, restart the application.

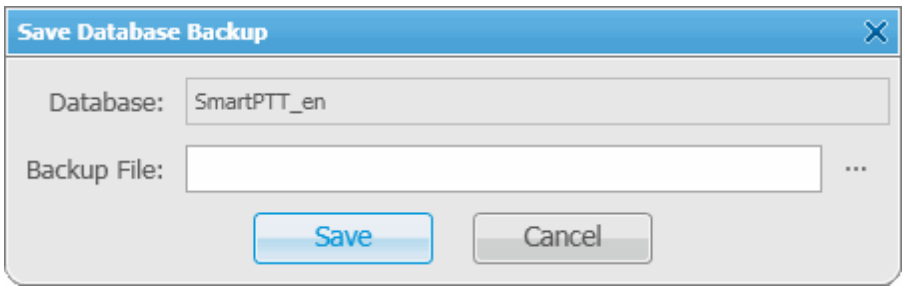
Note: To connect to the restored database, expand the **Settings** menu in the **Main Menu** bar of the SmartPTT Dispatcher window and click **Database Settings**. Specify the restored database name in the **Database Name** field and press **Finish**.

SmartPTT Database

Since SmartPTT Dispatcher has its own database, it is necessary to be able to do backups and restore them. Both of these functions are available in SmartPTT Dispatcher: saving database backup and restoring from it. However, backup saving and restoring are available only for local databases.

How to create SmartPTT Dispatcher database backup

To save the database backup, expand the **Service** menu in the **Main Menu** bar of the SmartPTT Dispatcher window and click **Save Database Backup**. At that, the following window opens.



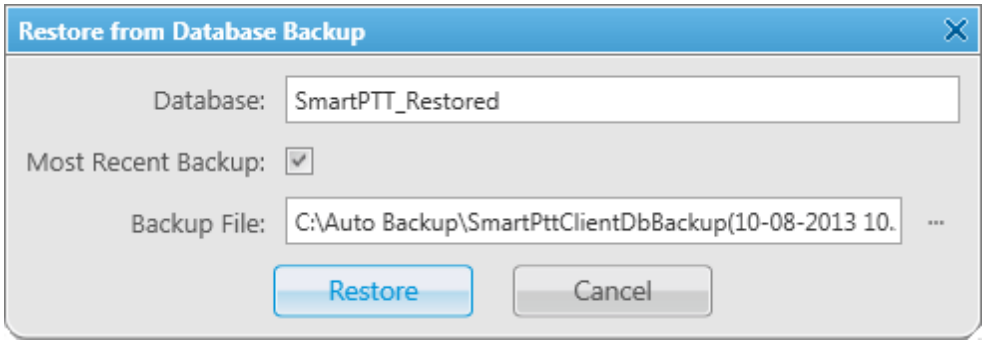
Database – name of the current database.

Backup File – full path to the file for saving the database backup.

Click **Save** to create the backup file.

How to restore from SmartPTT Dispatcher database backup

To restore from the database backup, expand the **Service** menu in the **Main Menu** bar of the SmartPTT Dispatcher window and click **Restore from Database Backup**. At that, the **Restore from Database Backup** window opens.



Database – new database name which will be created after backup restore.

Most Recent Backup – allows you to restore the database using the latest automatically created backup. To set the SmartPTT Dispatcher database auto backup see Database Auto Backup.

Backup File – path to the backup file. If the **Most Recent Backup** checkbox is selected, the **Database** field is automatically filled with the name of the actual backup file.

Click **Restore** to create the database from the backup file.

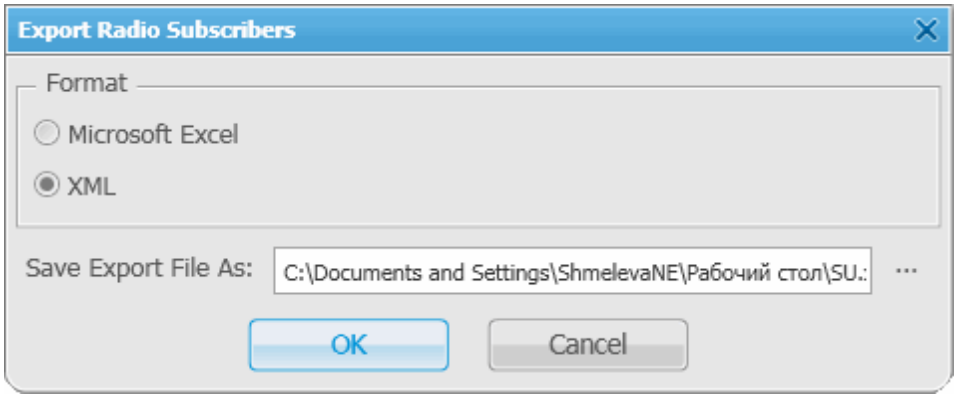
Note: You cannot restore the backup of the database which is currently connected.

To connect the restored database, expand the **Settings** menu in the **Main Menu** bar of the SmartPTT Dispatcher window and click **Database Settings**. Specify the restored database name in the **Database Name** field and press **Finish**.

Export Radio Subscribers

SmartPTT Dispatcher provides the ability to export subscriber list from one SmartPTT Dispatcher and then to import it into another. Only registered radio subscribers can be exported.

To export the list of radio subscribers, expand the **Service** menu in the **Main Menu** bar and click **Export Radio Subscribers**. At that, the following window opens.



In the **Format** area select the format in which you want to export the subscribers list.

To select the file for export, click ... . Supported file formats: XLS and XML.

Then click **OK**. At that, the file with the exported data is opened.

The example of the exported file in XLS format

Export Radio Subscribers

ID	IP-Address	Network ID	Radio ID	Name	GPS	MDC ID	Icon
-520093684	12.0.0.225	12	225	Lead engineer_225	False		
1694498831	15.0.0.101	15	101	Junior Engineer_101	True		
2063597580	12.0.0.123	12	123	Security_123	False		

ID — automatically generated ID of the radio subscriber.

IP Address – radio subscriber IP address.

Network ID – network ID which is specified in MOTOTRBO Customer Programming Software (see parameter **CAI Network**).

Radio ID – radio station unique identifier.

Name – radio subscriber name specified in the subscriber window of SmartPTT Dispatcher.

GPS – shows whether the radio station supports GPS. There are two possible values: "True" and "False".

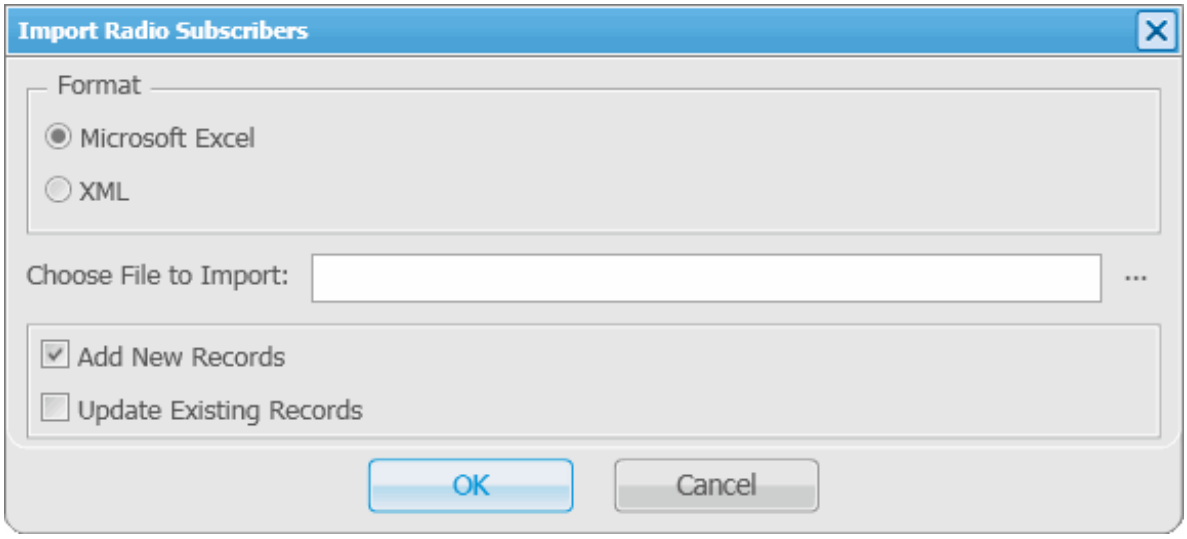
MDC ID – radio ID in the analog data channel.

Icon – path to the icon selected per subscriber. If a radio subscriber has a default icon, the corresponding field in the export file is empty.

Import Radio Subscribers

SmartPTT Dispatcher provides the ability to import subscribers (in XLS and XML format) from one SmartPTT Dispatcher to another.

To import the list of radio subscribers, expand the **Service** menu in the **Main Menu** bar and click **Import Radio Subscribers**. At that, the following window opens.



In the **Format** area select the format in which you want to import the subscribers list.

To select the file for import, click ... . Then select the import options.

Add New Records – when the checkbox is selected, at importing, new subscribers (not existing in SmartPTT Dispatcher) will be added to the list of subscribers.

Update Existing Records – when the checkbox is selected, at importing, the existing data on the subscribers in SmartPTT Dispatcher is replaced with the data from the imported file.

Note: It is possible to select both import options at a time. At that, new records will be added and the existing records will be updated.

Click **OK** to launch import process.

To close the window, click **Cancel**.

Note: To apply changes after importing, it is important to restart SmartPTT Dispatcher.

The example of the imported file in XLS format

ID	IP-Address	Network ID	Radio ID	Name	GPS	MDC ID	Icon
-520093684	12.0.0.225	12	225	Lead engineer_225	False		
1694498831	15.0.0.101	15	101	Junior Engineer_101	True		
2063597580	12.0.0.123	12	123	Security_123	False		

ID – automatically generated ID of the radio subscriber.

IP Address – radio subscriber IP address.

Network ID – network ID which is specified in MOTOTRBO Customer Programming Software (see parameter **CAI Network**).

Radio ID – radio station unique identifier.

Name – radio subscriber name added in the subscriber window of SmartPTT Dispatcher.

GPS – shows whether the radio station supports GPS. There are two possible values: "True" and "False".

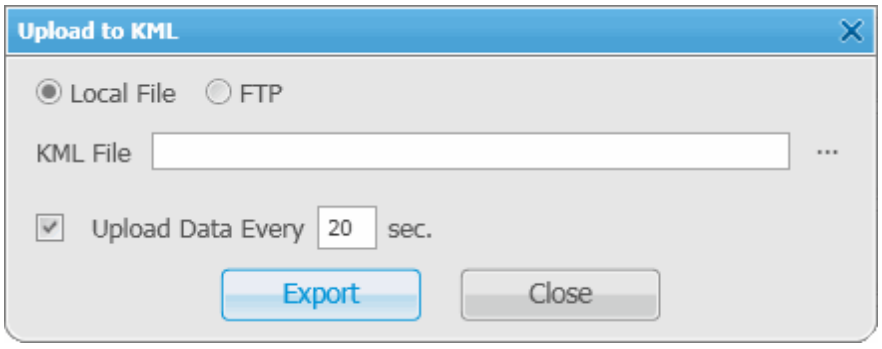
MDC ID – radio ID in the analog data channel.

Icon – path to the icon. If the path specified in the export file is invalid, a default icon will be assigned to the radio subscriber.

Upload to KML

SmartPTT Dispatcher supports export of the current subscriber coordinates in KML format. This format is used in Google Maps / Google Earth systems.

To upload subscriber coordinates in KML file format, expand the **Service** menu in the **Main Menu** bar of the SmartPTT Dispatcher window and click **Upload to KML**. At that, the following window opens.



The interface of the window depends on where you selected to store the KML file – locally or on FTP.

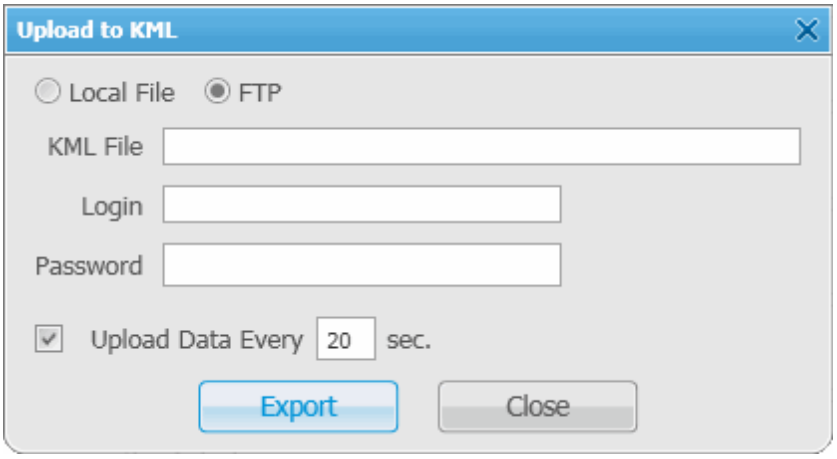
Click **Local File** to keep the uploaded KML file locally.

KML File – specify the destination folder and the name of the KML file with the subscriber coordinates.

You can also set up the upload as a continuous process. Simply, select the **Upload Data Every** checkbox and enter the time interval.

When everything is ready click **Export** to launch the upload process.

You can also store the uploaded file on FTP. To do that, click **FTP** at the top of the window.



KML File – specifies the destination folder and the name of the KML file with the subscriber coordinates on the FTP server (for example, *ftp://myserver/smartptt/abonents_smartptt.kml*).

Fill in the **Login** and **Password** fields if the FTP server requires authentication.

To exit and save the settings, click **Close**.

To exit without saving the settings, press **Esc**.

How to Display Subscriber Coordinates

To view subscriber coordinates from the FTP file:

1. Open the website *http://www.google.com*.
2. Click on **Maps** (the page *http://maps.google.com/maps?hl=en&tab=wl* is displayed).
3. Enter a direct HTTP link to the file located on the FTP server (for example, *http://myserver/smartptt/abonents_smartptt.kml*) in the Google maps field and click **Search Maps**.

To view subscriber coordinates from the local file in Google Earth:

1. Start Google Earth.
2. Select **Open** (from the **File/Open** menu or press **CTRL+O**).
3. Specify the path to the local file with the subscriber coordinates in KML format and click **Open**.

How to Configure Subscriber Coordinates Display with Automatic Update in Google Earth

1. Start Google Earth.
2. Select the menu command **Add/Network Link**.
3. In the **Name** field specify the place mark name to be displayed in Google Earth.
4. To view the file from the FTP server, enter a direct HTTP link to the file located on the FTP server (for example, *http://myserver/smartptt/abonents_smartptt.kml*).

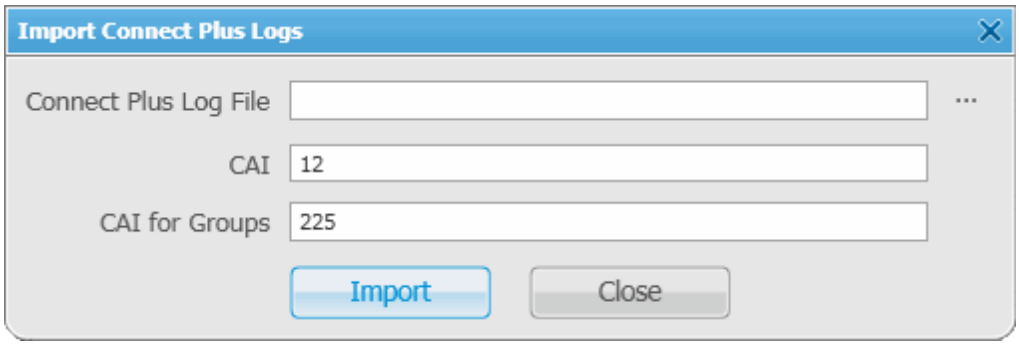
To view the file from the local disk, click **Browse**, specify the path to the file with subscriber coordinates in KML format and click **Open**.

5. Click the **Refresh** tab, select the **Periodically** option and set an update interval.
6. Click **OK**: SmartPTT subscribers should now be displayed in Google Earth.
7. To open the added KML file automatically the next time Google Earth is run, you should save the temporary place mark "Subscribers (SmartPTT)" to **My Places** list. To do this please select the menu command **File/ Save/Save to My Places** or press CTRL+SHIFT+S.

Import Connect Plus Logs

SmartPTT Dispatcher allows importing **Connect Plus Logs** to the **Event Log**. This is useful for dispatchers joining a new Connect Plus radio network to get data on the events in this network. The data is taken from the XRC 9000 Controller.

To import **Connect Plus Logs**, expand the **Service** menu in the **Main Menu** bar of the SmartPTT Dispatcher window and click **Import Connect Plus Logs**. The **Import Connect Plus Logs** window opens.

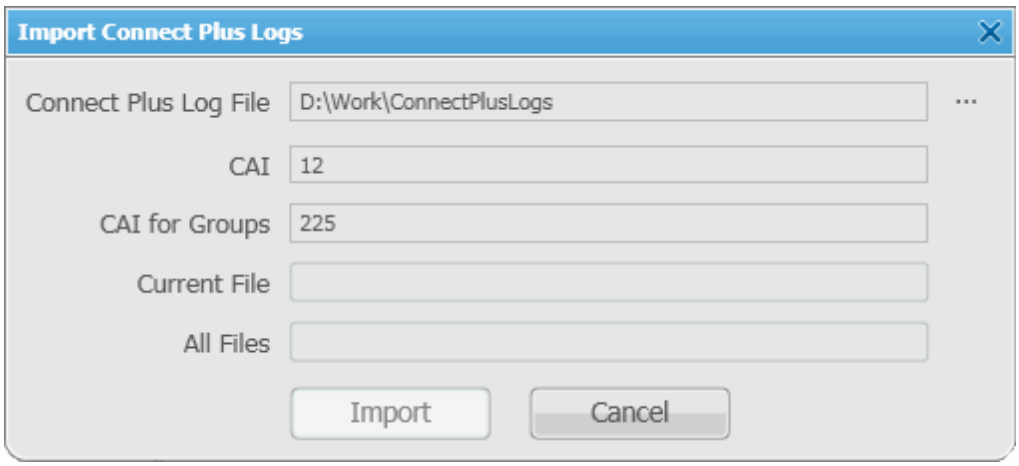


Connect Plus Log File – specifies the path to the folder where **Connect Plus Log** file is stored.

CAI – CAI-Network identifier. It's recommended to use the default value 12. It is set in the range from 1 to 126.

CAI for Groups – the identifier of the group's CAI-Network. It's recommended to use the default value 225. It is set in the range from 225 to 239.

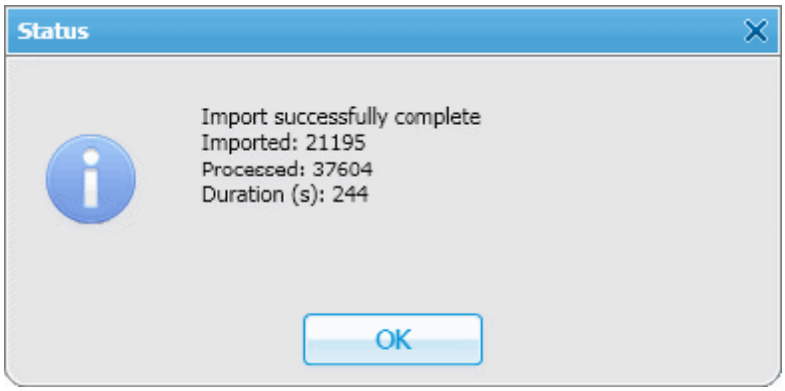
If you click **Import**, Connect Plus data import to the **Event Log** will be started.



Current File – displays the download progress of the file being processed.

All Files – displays the total download progress.

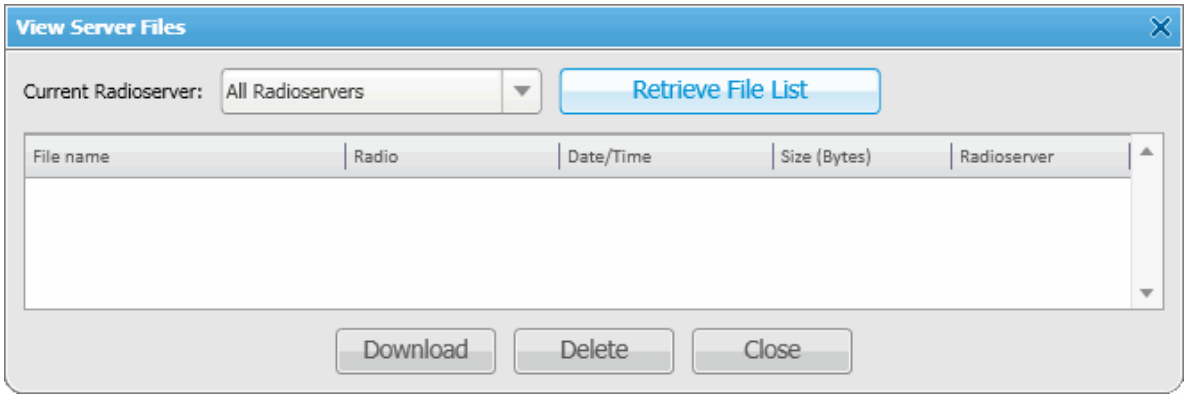
When **Connect Plus Log** file is imported, you will see the following notification window.



View Received Files

SmartPTT Dispatcher provides the ability to view files sent from radio stations with the help of a free application SmartPTT File Transfer.

To view the files received from radio stations, expand the **Service** menu in the **Main Menu** bar and click **View Received Files**. At that, the following window opens.



Current Radioserver – allows checking files from one available radioserver or all available radioservers.

Retrieve File List – loads received files for the selected radioserver.

Download – opens the window for saving the selected file.

Note: You can also open the window for saving a file by double-clicking on the selected file.

Delete – deletes the selected file from the list.

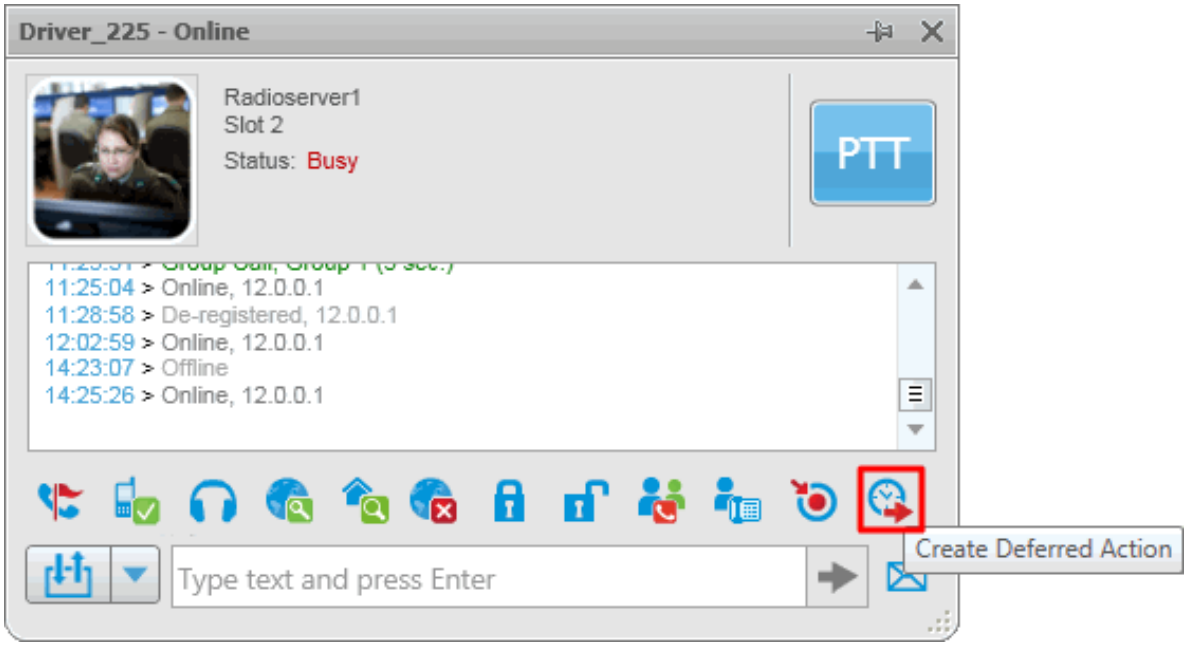
Close – closes the **View Server Files** window.

View Deferred Actions

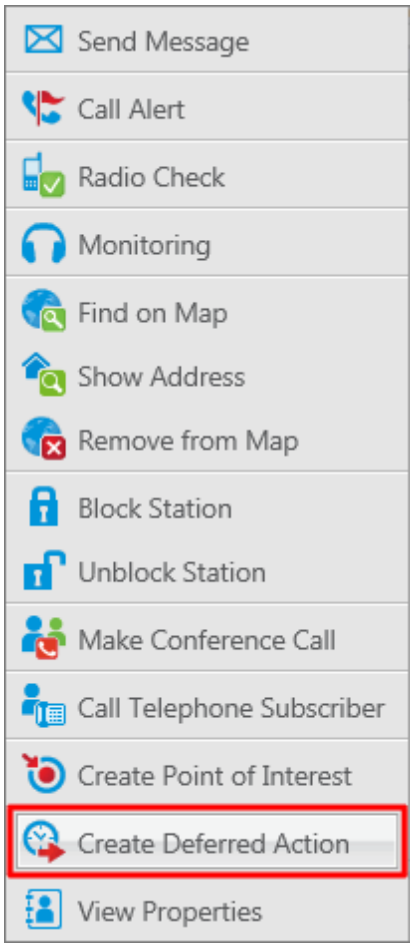
SmartPTT Dispatcher allows creating deferred actions. In this version these are audio and text messages, which are to be delivered to a radio subscriber even if the radio subscriber is offline at the moment of message transmission. As soon as the radio subscriber becomes available, the message is sent to the addressee.

Note: If the radio subscriber is online at the moment of message transmission, the message is delivered at once.

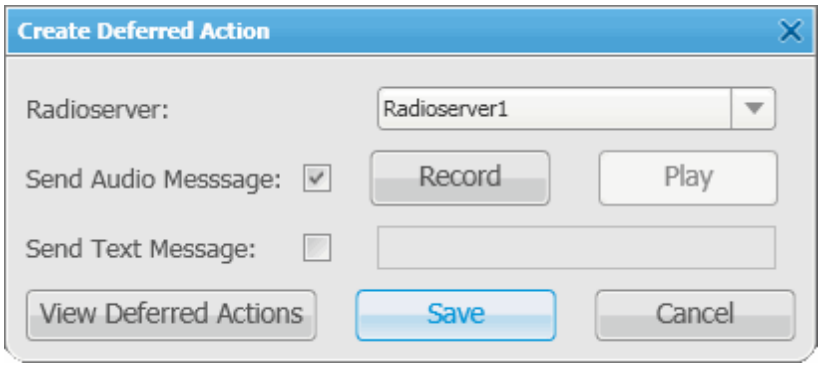
To create a deferred action open the **Action List** or the **Call Window** and select **Create Deferred Action**. The radio subscriber can be either online or offline.



Or in the **Action List**



At that, the following window opens.



Radioserver – lists all the available radioservers, where a deferred action can be created. The drop-down list

contains radioservers with the status “Active” only (see **Radioservers** in the **Settings** menu in the **Main Menu** bar).

Send Audio Message – allows creating audio messages. To record a message make sure the **Send Audio Message** checkbox is selected. Then click **Record**. After you have recorded the message, click **Stop**.

To replay the recording, click **Play**. To stop the playback, click **Stop**.

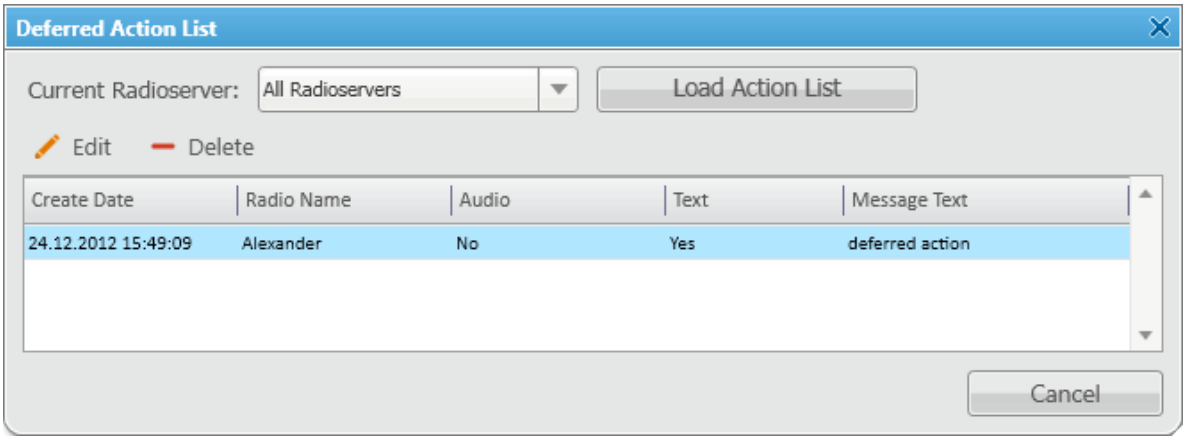
Note: The buttons **Record** and **Play** are unavailable if **Send Audio Message** is not selected.

Send Text Message – allows creating text messages. To enable the input field, select the **Send Text Message** checkbox.

Save – saves the newly created audio or text message or updates the existing message.

Cancel – closes the window. At that, unsaved changes will be lost.

View Deferred Actions – opens the list of deferred actions.



Deferred Action List – allows checking the list of audio and text messages which are to be sent. As soon as the message is sent to the radio subscriber, it is removed from the list.

Current Radioserver – allows selecting the radioserver whose list of deferred actions is to be viewed. The drop-down list contains only registered radioservers (see **Settings** > **Radioservers**).

Note: If the radioserver is registered but not running, it won’t be on the drop-down list.

Load Action List – loads the list of unsent deferred messages per selected radioserver.

Delete – deletes selected message.

Cancel – closes the **Deferred Action List** window.

Edit – allows making changes in the existing, that is unsent, message. To edit a message, select the message you need and click **Edit**.

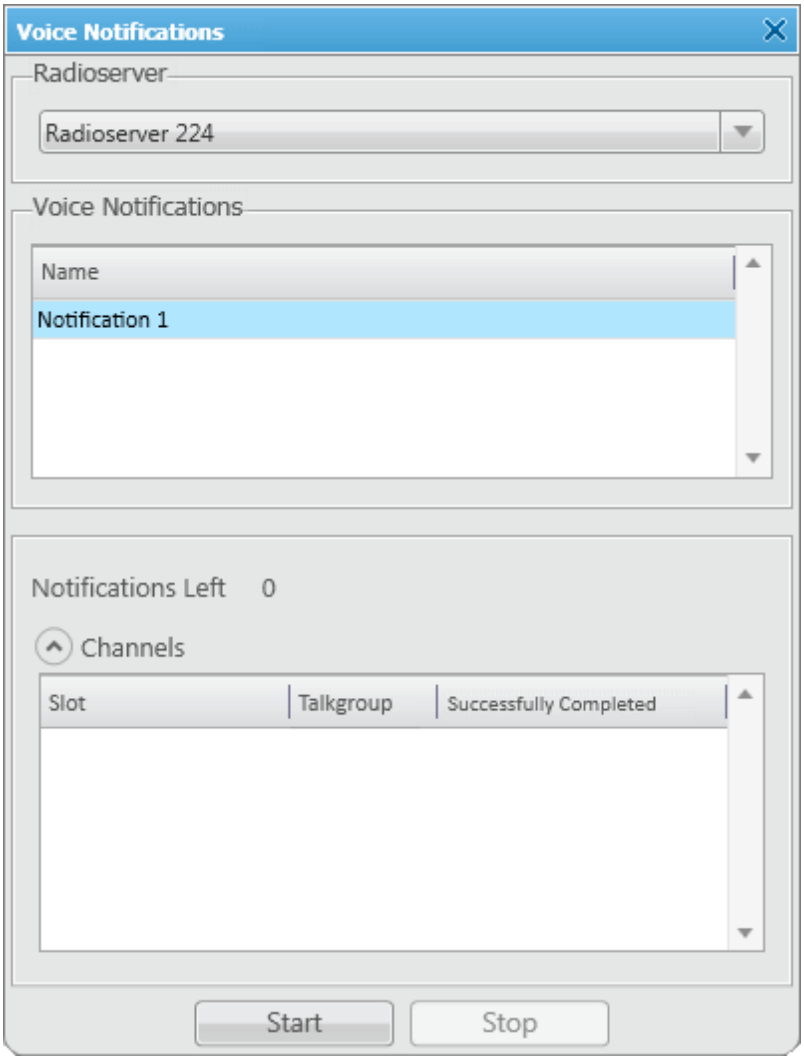
After changes have been made, click **Save**.

Note: You can also get to the edit mode by double-clicking on the message.

Voice Notifications

The main purpose of the voice notification functionality is to warn talkgroups about the fire or other emergency and to manage evacuation. However, in normal mode voice notification can be used for usual voice announcements.

To set up a sound alert in SmartPTT Dispatcher, expand the **Service** menu in the **Main Menu** bar and click **Voice Notifications**. At that, the **Voice Notifications** window opens.



dispatch console

Radioserver – select the radioserver from the list. The list contains only active and running radioservers, registered in the dispatch console .

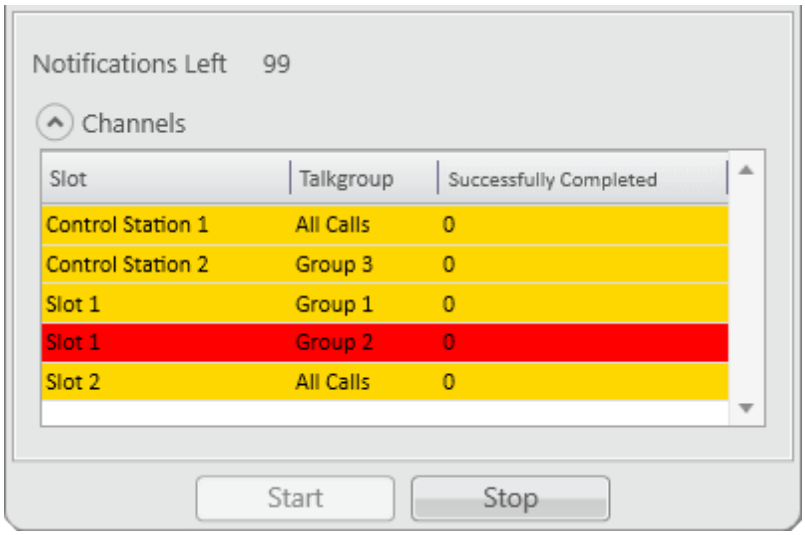
Voice Notifications – select a voice notification from the list of items created in SmartPTT Radioserver Configurator.

To play the voice notification, select the radioserver and the voice notification, and click **Start**. To stop playing, click **Stop**.

Note: When voice notification is stopped, it does not stop playing immediately, but only after it played on all selected channels within a single repetition.

Notifications Left – specifies the number of remaining voice notification repetitions.

Channels – contains a list of channels specified for the selected voice notification. Here you can also see the current status of the voice notification playing, and the number of completed playbacks. The channel is highlighted green, when voice notification playing was successfully completed on this channel. When voice notification can't be played on the channel (for example, hardware or virtual device is not available at the moment), the channel is highlighted red. While voice notification is played on the channel, the channel is highlighted yellow.

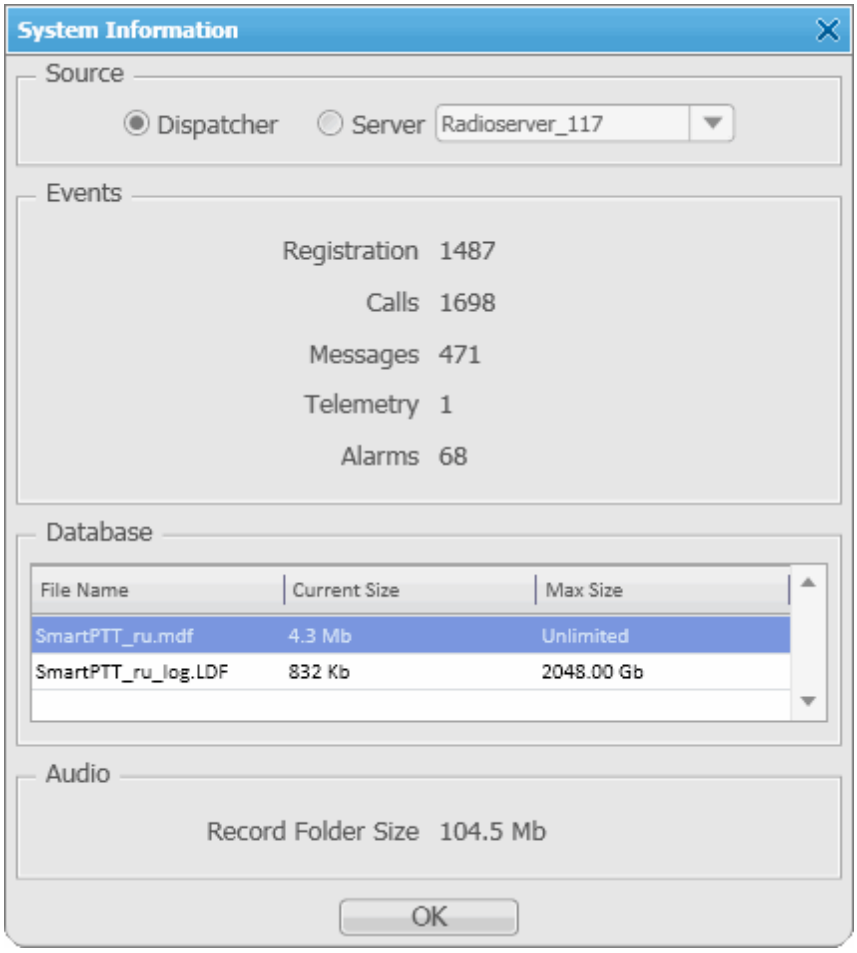


View System Information

In the **System Information** window the dispatcher can see:

1. The total number of events taking place either on the dispatcher console or on the radioserver.
2. Free space of the used databases.
3. The size of the folder with audio recordings.

To open the window expand the **Service** menu in the **Main Menu** bar and click **View System Information**. At that, the following window opens.



Reports

The **Reports** menu presents all the reports available in the system:

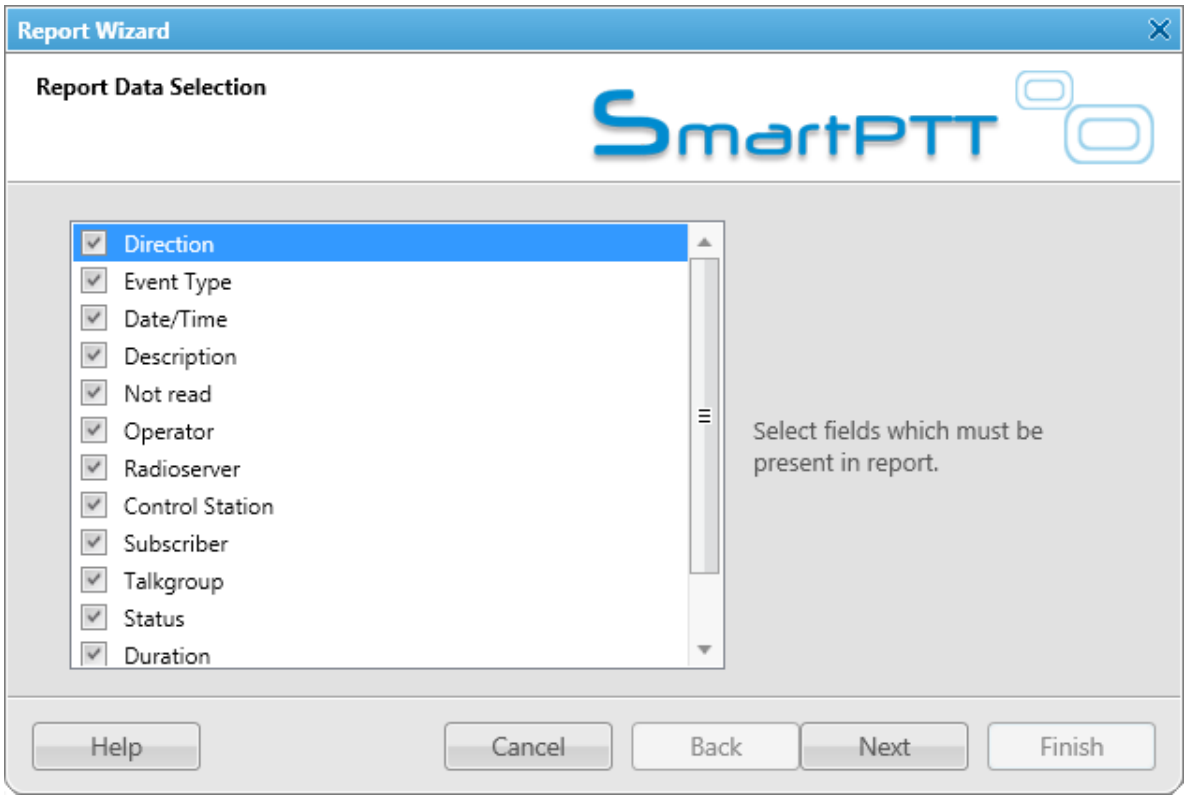
- Report Wizard allows you to build a report on the basis of the **Event log**.
- Radio Activity Report allows you to view the number of all calls and group calls during a defined time period.
- Subscriber Location Report is a special report that displays GPS coordinates of the selected radio subscribers.
- Online Subscribers report gives you a list of registered and non-registered subscribers online.
- Monitoring Report, Monitoring Analytics, Monitoring Log give you consolidated information collected during monitoring process.

- Lone Workers report gives you the information about events that occur when the radio is in the Lone Worker mode.
- Indoor Tracking report provides information on subscribers' movements inside buildings, based on beacon data.

Report Wizard

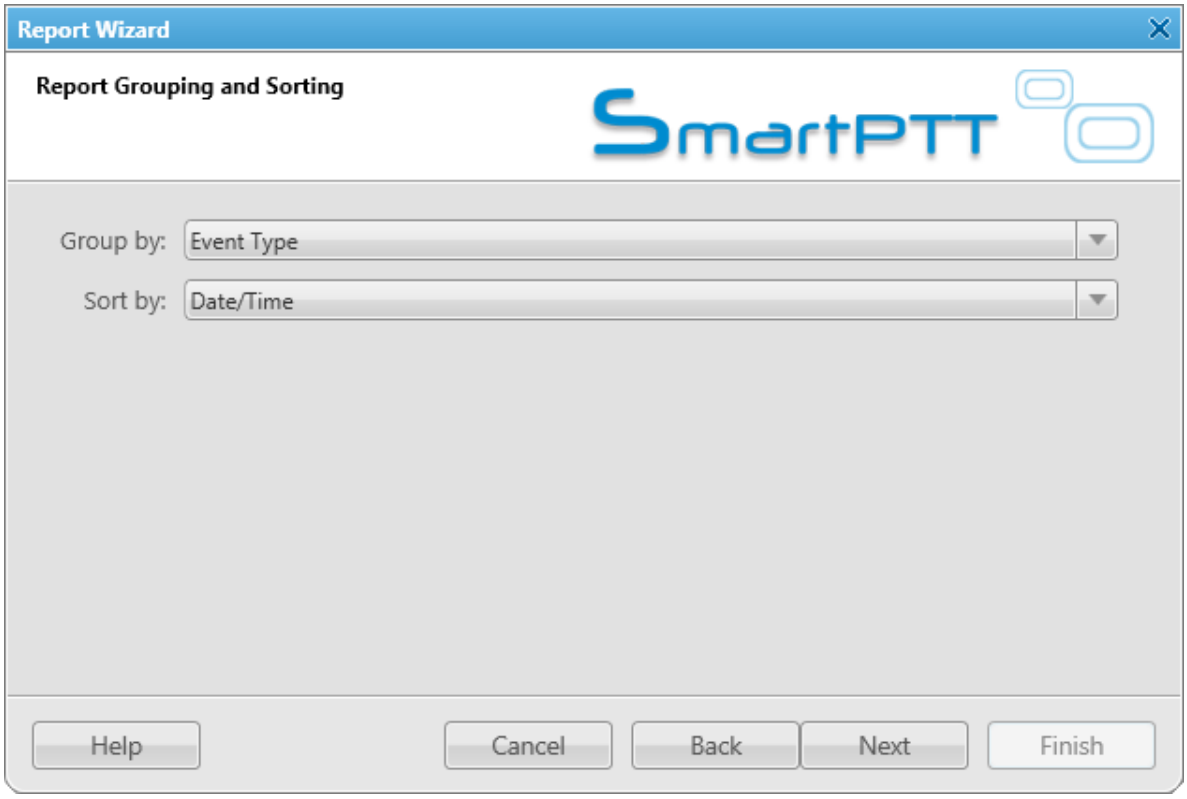
Report Wizard functionality provides flexible report creation based on the information stored in the SmartPTT Dispatcher **Event Log**. Using the **Report Wizard** it is possible to select the necessary fields for the report, specify grouping and sorting fields, specify filtering criteria. Reports generated by the **Report Wizard** are exported to Microsoft Excel.

To use the **Report Wizard**, expand the **Reports** menu in the **Main Menu** bar of the SmartPTT Dispatcher window and click **Report Wizard**. At that, the **Report Wizard** window opens.



Select fields which you want to include in the report and click **Next**.

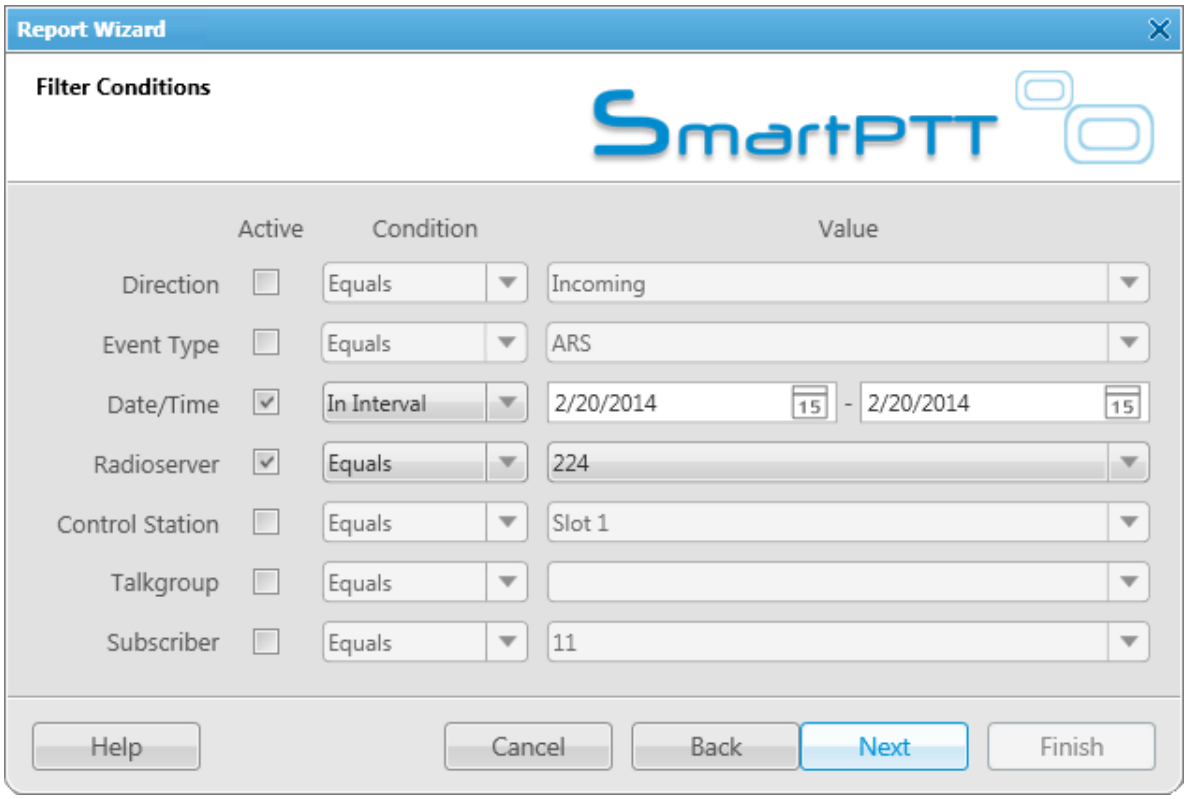
Define the structure of the report – its grouping and sorting.



Note: If both fields are not specified, the report will be grouped and sorted by default.

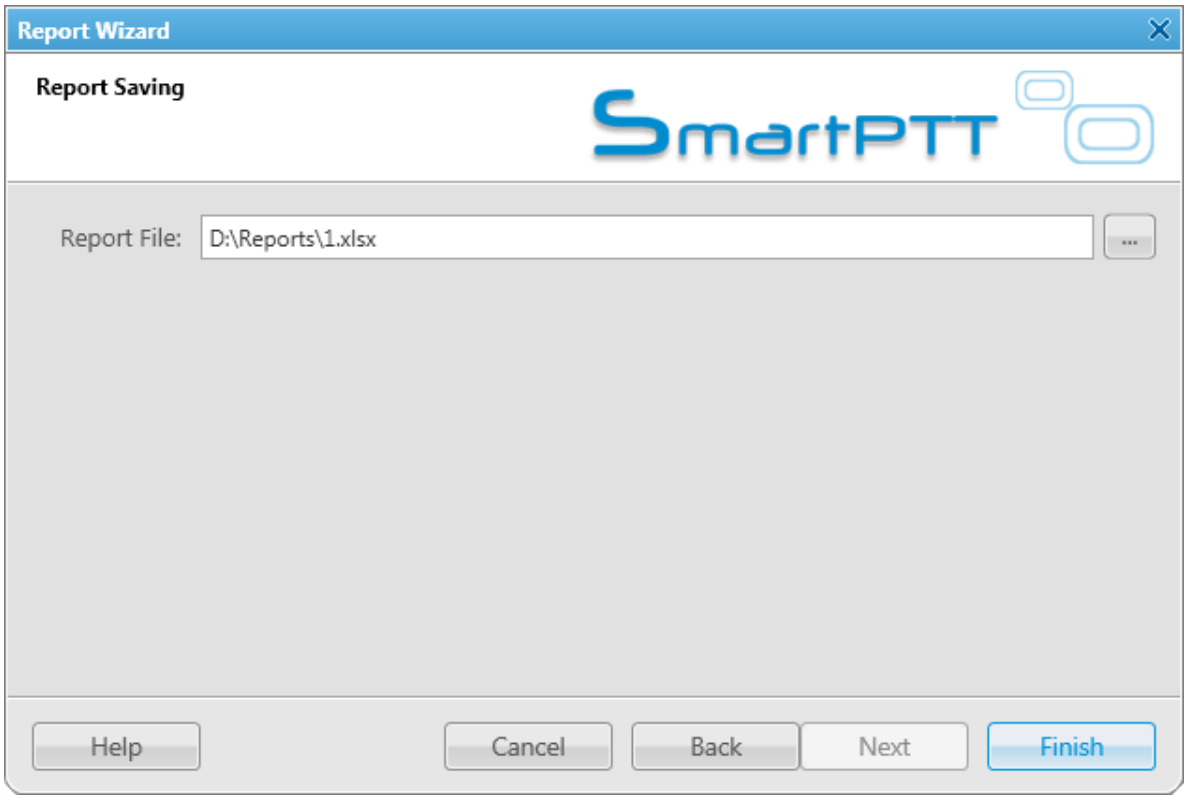
When ready, click **Next**.

In the following window filter the report by values.



Click **Next** to continue.

Then specify the file name of the report.

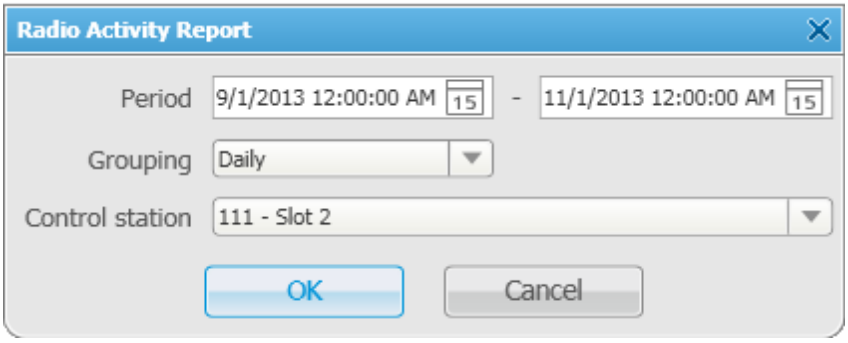


To complete the process, click **Finish**. The report can be saved in HTML, MHT, XLS, XLSX, CSV, and TXT formats.

Radio Activity Report

Radio Activity Report presents information about quantity and duration of all calls and group calls with a breakdown into hours or days.

To create the report expand the **Reports** menu and select **Radio Activity Report**. The **Radio Activity Report** window opens.

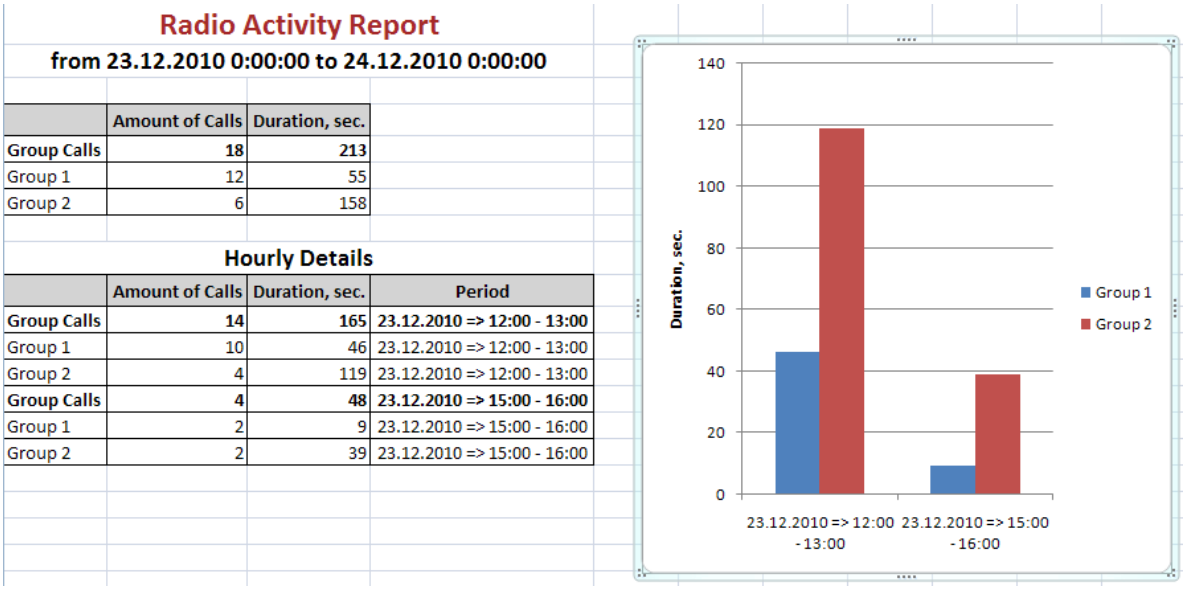


Period – defines the time frame for the report data.

Grouping – defines the level of detail, whether you want to see the report information divided into days or into hours.

Control Station – allows building a report for a particular control station or for all control stations.

The report can be saved in PDF, HTML, MHT, RTF, XLS, XLSX, CSV, TXT, Image or XPS formats.



Radio Activity Report

from 23.12.2010 0:00:00 to 24.12.2010 0:00:00

	Amount of Calls	Duration, sec.
Group Calls	**18**	**213**
Group 1	12	55
Group 2	6	158

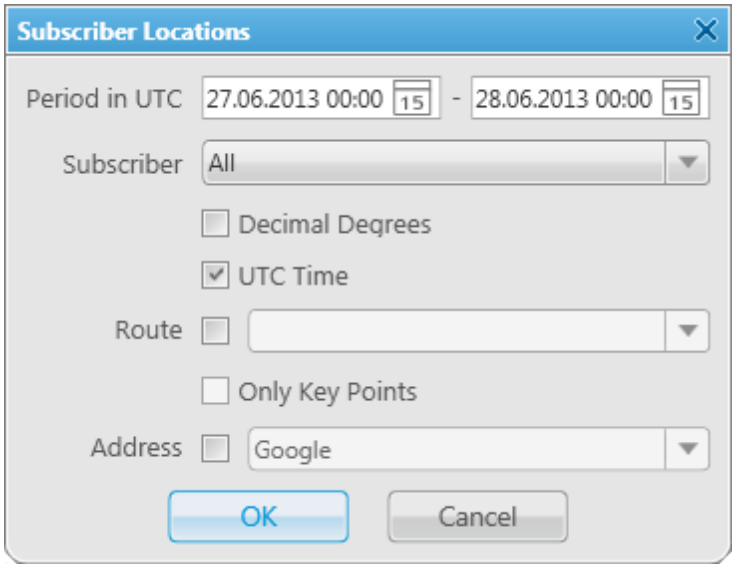
Hourly Details

	Amount of Calls	Duration, sec.	Period
Group Calls	**14**	**165**	**23.12.2010 => 12:00 - 13:00**
Group 1	10	46	23.12.2010 => 12:00 - 13:00
Group 2	4	119	23.12.2010 => 12:00 - 13:00
Group Calls	**4**	**48**	**23.12.2010 => 15:00 - 16:00**
Group 1	2	9	23.12.2010 => 15:00 - 16:00
Group 2	2	39	23.12.2010 => 15:00 - 16:00

Subscriber Location Report

SmartPTT Dispatcher allows creating **Subscriber Locations Report**. The report can be saved in PDF, HTML, MHT, RTF, XLS, XLSX, CSV, TXT, Image or XPS formats.

To create the **Subscriber Locations Report**, expand the **Reports** menu in the **Main Menu** bar of the SmartPTT Dispatcher window and click **Subscriber Locations**. At that, the **Subscriber Locations** window opens.



Period – defines the time frame of the report.

Subscriber – defines subscriber for whom the report is to be generated. The list of subscribers is taken from the connected database.

Note: When **All** is selected, the report will be generated for all subscribers which have GPS coordinates in the database.

Degree with Fractional Part – displays GPS coordinates in decimal degrees, for example, latitude: 56,47568, longitude: 84,98779.

UTC Time – if **UTC Time** is selected, then the report time will be converted to UTC format. If **UTC Time** is not selected, the local time of the radioserver PC will be shown in the **Subscriber Locations Report**.

Route – define the route on the basis of which the **Subscriber Locations Report** is to be generated.

Only Key Point – displays only the key points of the route in the report.

Address – displays the address, corresponding to the coordinates of the map object. In order to do that, the

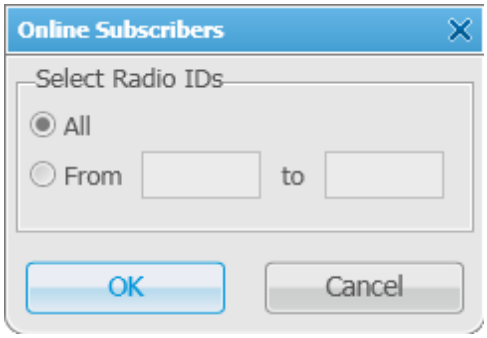
selected map service is used – Google Maps or Openstreetmap.

Click **OK** to create the report. In the report you can open Google map with the subscriber location on it.

Online Subscribers

SmartPTT allows exporting online subscribers (registered and not registered) in no time by means of the new report **Online Subscribers**.

To create the report, expand the **Reports** menu in the **Main Menu** bar of the SmartPTT Dispatcher window and click **Online Subscribers**. At that, the following window opens.



All – select this radio button to include all registered and not registered online subscribers in the report.

From ... to ... – select this radio button to limit the number of subscribers in the report.

In the **Save Export File As** specify the name of the report file. Click **OK**. At that, the report opens.

The report can be saved in PDF, HTML, MHT, RTF, XLS, XLSX, CSV, TXT, Image or XPS formats.

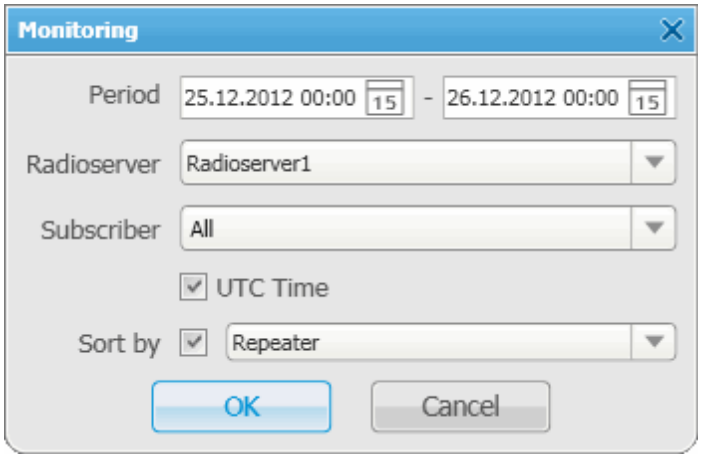
Online Subscribers	
Radio ID	**Name**
95	Nicolas W.
123	Stanley V.
88	Paul S.

Monitoring Report

Monitoring Report is a report based on the data collected during monitoring and filtered by different criteria. The

report gives such information as repeater ID, ID's of the calling and receiving parties, duration of the event and its type, RSSI and many other.

To create the report, expand the **Reports** menu in the **Main Menu** bar and under **Monitoring** select **Report**. At that, the following window appears.



Period – defines the time frame of the report.

Radioserver – defines the radioserver, whose database you want to use as a data source.

Subscriber – selects the subscriber for whom the report is to be generated. If you select **All**, the report will be generated for all registered subscribers.

UTC Time – if **UTC Time** is selected, the report time will be converted to UTC format. If **UTC Time** is not selected, the local time of the radioserver PC will be shown in the report.

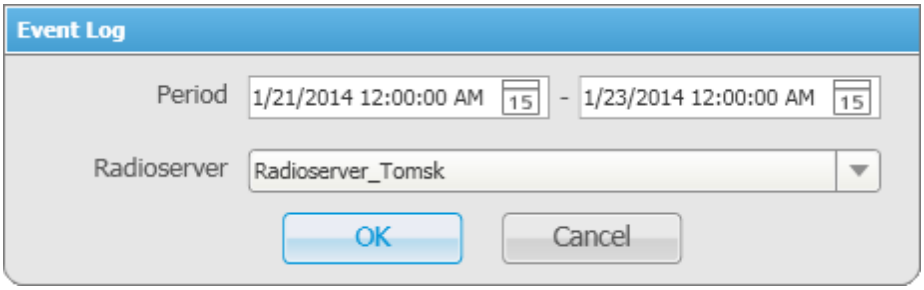
Sort By – you can select the column by which you want to sort the report data: network, repeater, slot, protocol, sender, receiver, duration, RSSI.

Note: Before building a report, make sure the radioserver is up and running.

Monitoring Log

Monitoring Log – is a report based on the data from the **Log** tab in the **Monitoring** panel.

To create the report, expand the **Reports** menu in the **Main Menu** bar and under **Monitoring** select **Log**. At that, the following window opens.

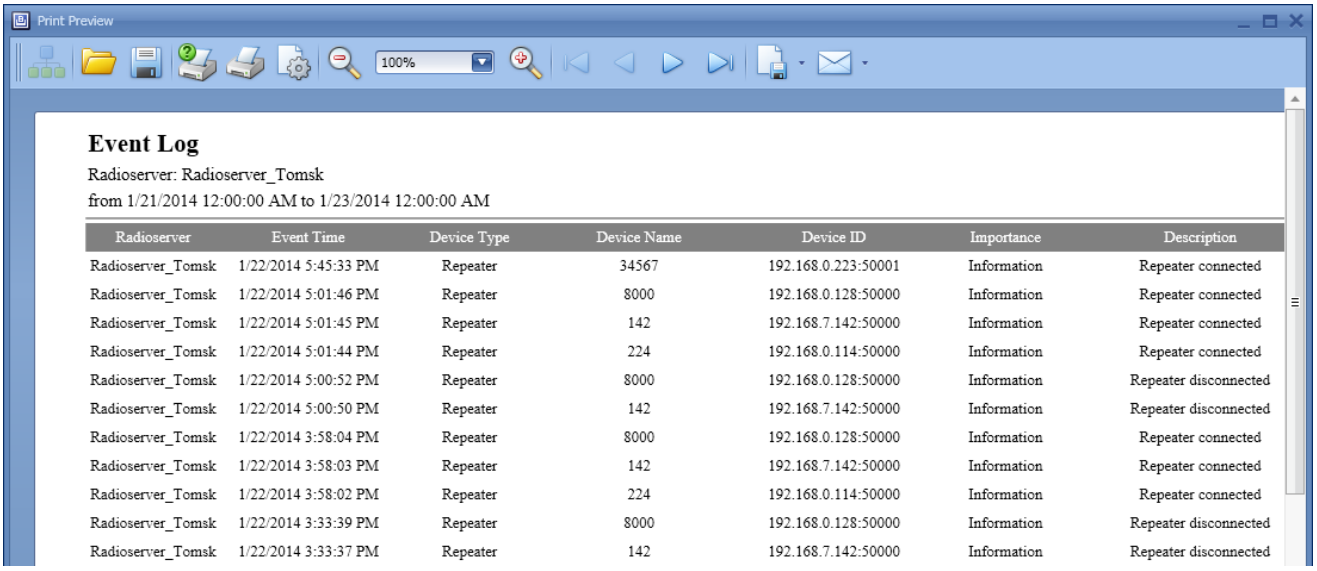


Period – defines the time frame of the report.

Radioserver – defines the radioserver whose database you want to use as a data source.

Note: Before building a report, make sure the radioserver is up and running.

After clicking OK, the report opens automatically:

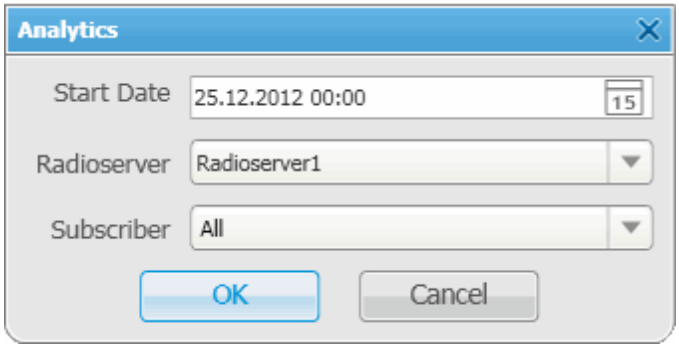


Radioserver	Event Time	Device Type	Device Name	Device ID	Importance	Description
Radioserver_Tomsk	1/22/2014 5:45:33 PM	Repeater	34567	192.168.0.223:50001	Information	Repeater connected
Radioserver_Tomsk	1/22/2014 5:01:46 PM	Repeater	8000	192.168.0.128:50000	Information	Repeater connected
Radioserver_Tomsk	1/22/2014 5:01:45 PM	Repeater	142	192.168.7.142:50000	Information	Repeater connected
Radioserver_Tomsk	1/22/2014 5:01:44 PM	Repeater	224	192.168.0.114:50000	Information	Repeater connected
Radioserver_Tomsk	1/22/2014 5:00:52 PM	Repeater	8000	192.168.0.128:50000	Information	Repeater disconnected
Radioserver_Tomsk	1/22/2014 5:00:50 PM	Repeater	142	192.168.7.142:50000	Information	Repeater disconnected
Radioserver_Tomsk	1/22/2014 3:58:04 PM	Repeater	8000	192.168.0.128:50000	Information	Repeater connected
Radioserver_Tomsk	1/22/2014 3:58:03 PM	Repeater	142	192.168.7.142:50000	Information	Repeater connected
Radioserver_Tomsk	1/22/2014 3:58:02 PM	Repeater	224	192.168.0.114:50000	Information	Repeater connected
Radioserver_Tomsk	1/22/2014 3:33:39 PM	Repeater	8000	192.168.0.128:50000	Information	Repeater disconnected
Radioserver_Tomsk	1/22/2014 3:33:37 PM	Repeater	142	192.168.7.142:50000	Information	Repeater disconnected

Monitoring Analytics

Monitoring Analytics – a graphical representation of consolidated information based on the data received during a monthly monitoring process.

To build the report based on the monitoring analysis, expand the **Reports** menu in the **Main Menu** bar and under **Monitoring** select **Analytics**. At that, the following window opens.



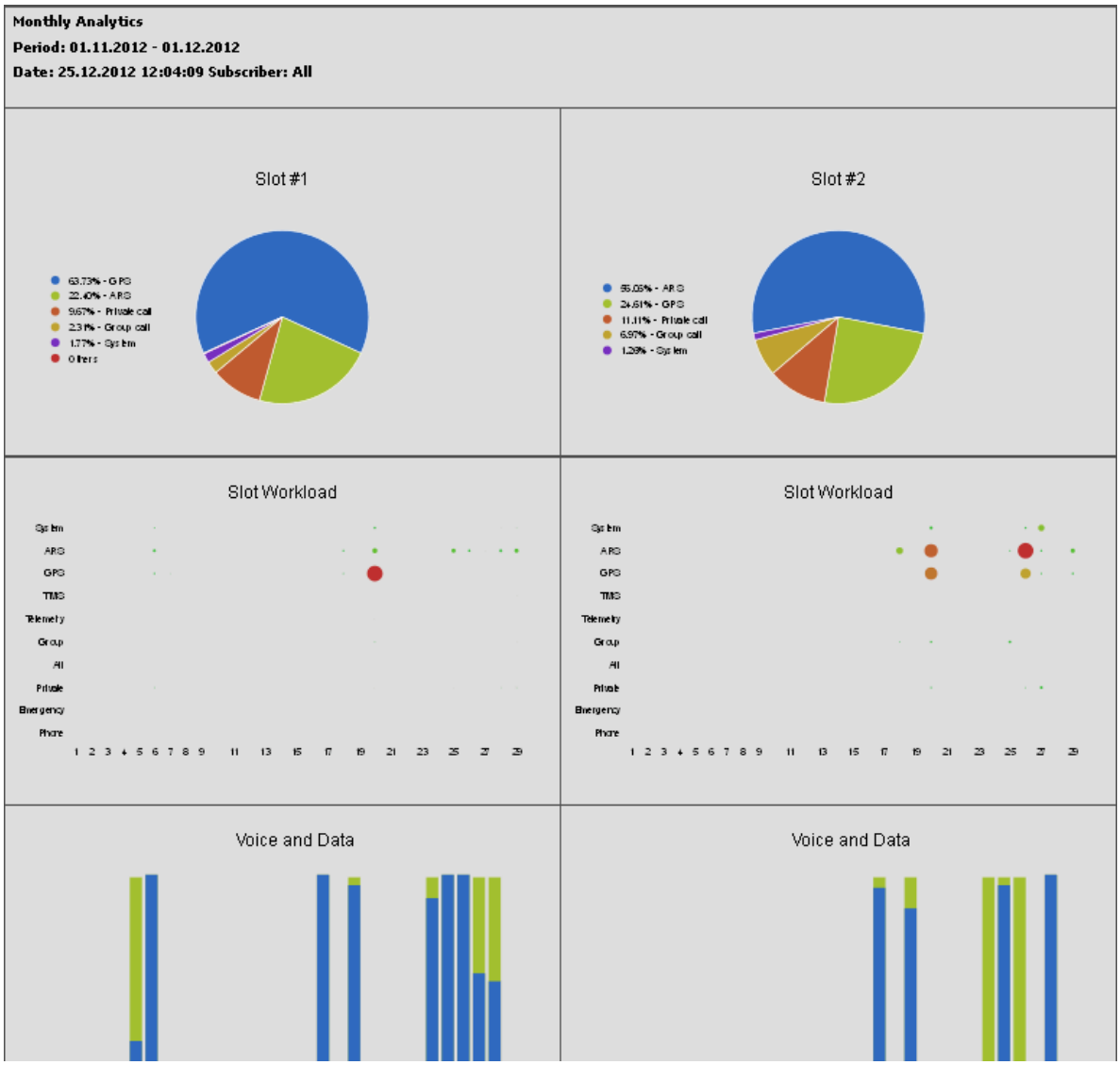
Start Date – specify the start date in the report.

Note: This is a monthly report, so the end date is calculated automatically.

Radioserver – select the available radioserver whose database will be used as a data source.

Subscriber – select the subscriber for whom the report is to be generated. If you select **All**, the report will be generated for all registered subscribers.

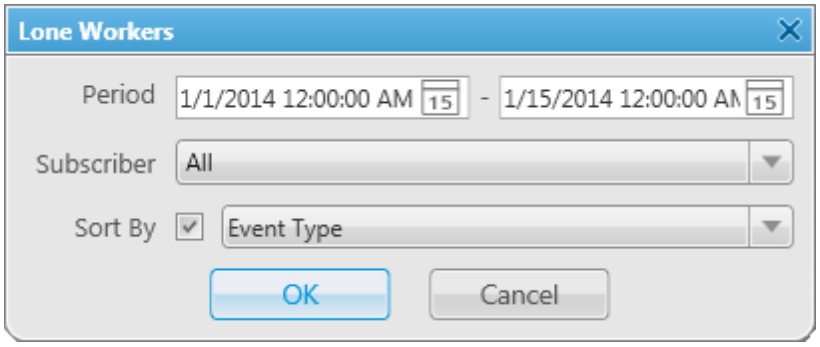
The report example:



Lone Workers

Lone Workers report provides information about the radio subscriber events when the radio is in the "lone worker" mode, for example, registration on the network, the incoming or outgoing calls and messages.

To create the report expand the **Reports** menu in the **Main Menu** bar of the SmartPTT Dispatcher window and select **Lone Workers**. The **Lone Workers Report** window opens.

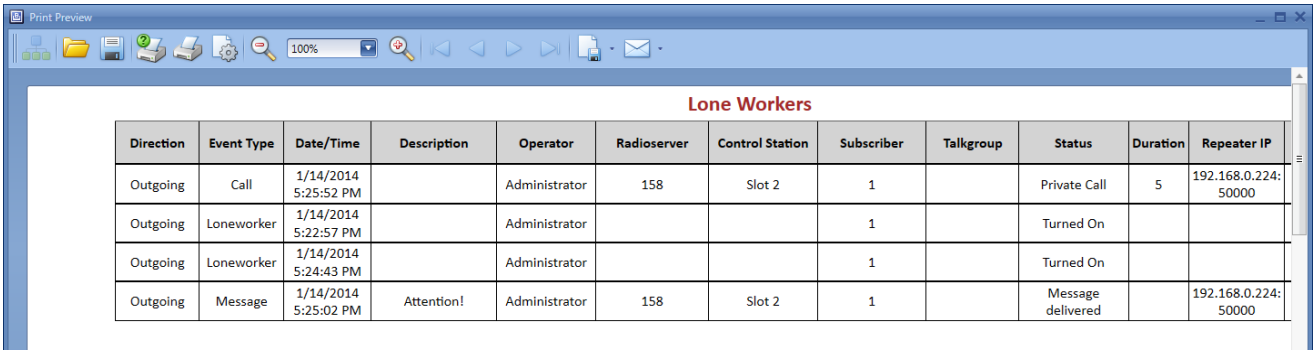


Period – defines the time frame for the report data.

Subscriber – defines the subscriber for whom the report is to be generated. The list of subscribers is taken from the connected database.

Sort By – defines the sorting field for the report events. Sorting parameters: direction, event type, date and time, event description, operator, control station, subscriber, group, status, duration, repeater IP address, receiver.

The report can be saved in PDF, HTML, MHT, RTF, XLS, XLSX, CSV, TXT, Image or XPS formats.

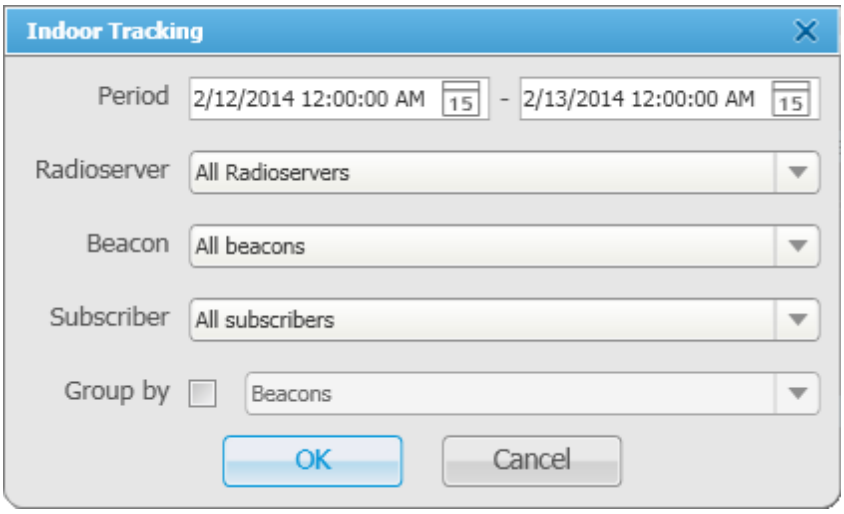


Direction	Event Type	Date/Time	Description	Operator	Radioserver	Control Station	Subscriber	Talkgroup	Status	Duration	Repeater IP
Outgoing	Call	1/14/2014 5:25:52 PM		Administrator	158	Slot 2	1		Private Call	5	192.168.0.224: 50000
Outgoing	Loneworker	1/14/2014 5:22:57 PM		Administrator			1		Turned On		
Outgoing	Loneworker	1/14/2014 5:24:43 PM		Administrator			1		Turned On		
Outgoing	Message	1/14/2014 5:25:02 PM	Attention!	Administrator	158	Slot 2	1		Message delivered		192.168.0.224: 50000

Indoor Tracking

The **Indoor Tracking** report was designed to provide the dispatcher with consolidated information on subscribers' movements inside buildings, based on beacon data.

To create the report expand the **Reports** menu and select **Indoor Tracking**. At that the following window opens.



Period – defines the time frame for the report data.

Radioserver – selects the available radioserver, whose database will be used as a data source.

Beacon – selects the particular beacon or all beacons.

Subscriber – defines the subscriber for whom the report is to be generated. The list of subscribers is taken from the connected database.

Define the structure of the report by grouping it by beacons or subscribers.

Then click **OK** to build the report.

Bridging

SmartPTT Bridging service allows joining multiple network systems into a single radio network. The bridging service is implemented by SmartPTT Radioserver and provides intelligent means of patching for voice and data streams between various network systems.

Radio network configurations supporting bridging:

1. MOTOTRBO IP Site Connect networks
2. Capacity Plus sites
3. NAI networks
4. Digital conventional channels
5. Analog conventional channels

SmartPTT Bridging service allows you to:

- join various radio networks;
- bridge two or more radioservers to cover distributed regions;
- bridge selected voice and data;
- bridge private and group calls dynamically;
- break the barrier of 15 repeaters per IP Site Connect;
- have calls bridged with only a short voice delay (from 60 ms), when joining IP Site Connect systems.

How to Configure Bridging in SmartPTT Dispatcher Console

You can configure bridging settings in the call bridging table in SmartPTT Dispatcher. It was designed to make the process of bridging configuration simple and easy. The main idea of the configuration process is to manage bridging with the help of the so-called "Profiles" and "Route Groups". The profiles contain information on the bridging rules, which are specified in route groups and further in routes. So, there are three levels:

1. Routes
2. Route Groups
3. Profiles

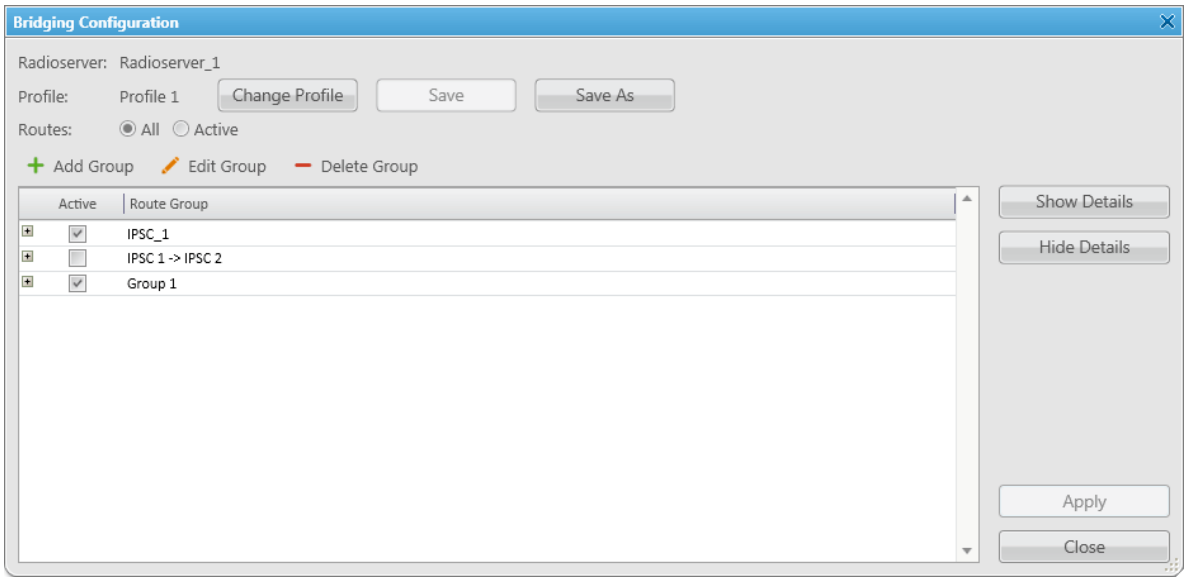
Route – basic unit of the bridging process and an integral part of the route group, that is a route cannot be used separately. It is in the route where you define the source and the destination networks, and other main characteristics of the route.

Route Group – group which unites several routes. It was designed to provide a neat look to profiles. Route groups can be easily activated and deactivated, which will either make routes inside route groups usable or not usable.

Profile – saved template of route groups. Profiles can be created for various business fields, for example, there can be profiles for general purposes, for carrying out engineering work or for emergency situations, etc.

You can configure the bridging settings individually for each radioserver from SmartPTT Dispatcher. To open the call bridging table, open the **Action List** by clicking the button next to the radioserver and select **Configure Call Bridging Table**.

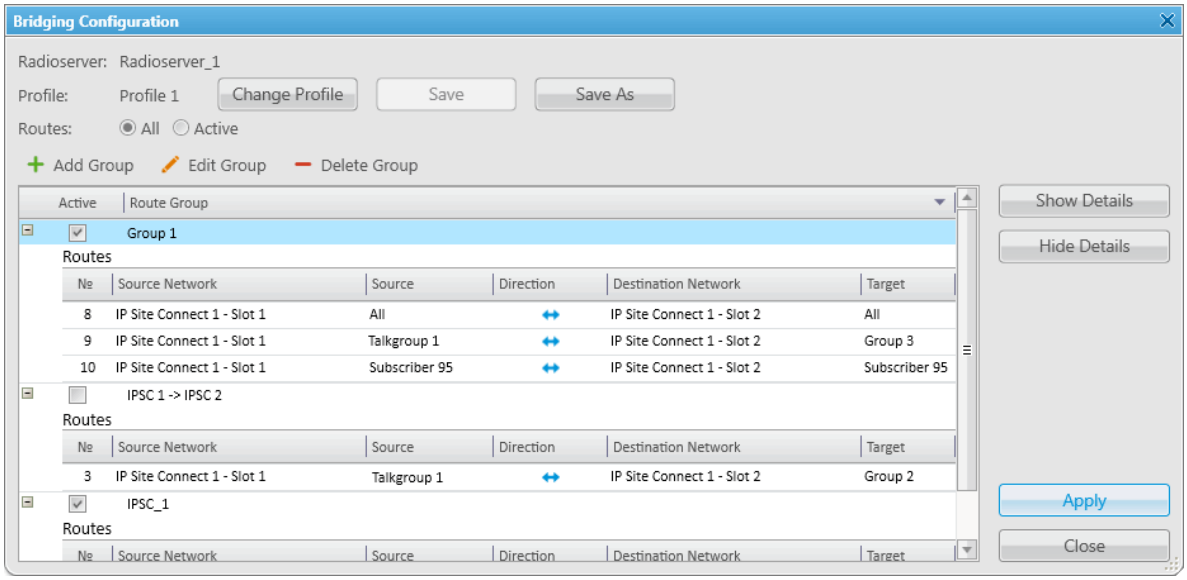
At that, the **Bridging Configuration** window opens.



This is the main window from where you can create routes, route groups and add them to new profiles. The window also informs about the name of the current radioserver, its current profile, the list of available routes organized in groups.

Show Details – displays details of the route groups. You can also check the details of a particular route group by clicking a plus sign next to the route group name.

Hide Details – displays only route group names and the **Active** checkbox.



By default, the bridging table displays only active route groups, which belong to the selected profile. To display all route groups, select the **All** option.

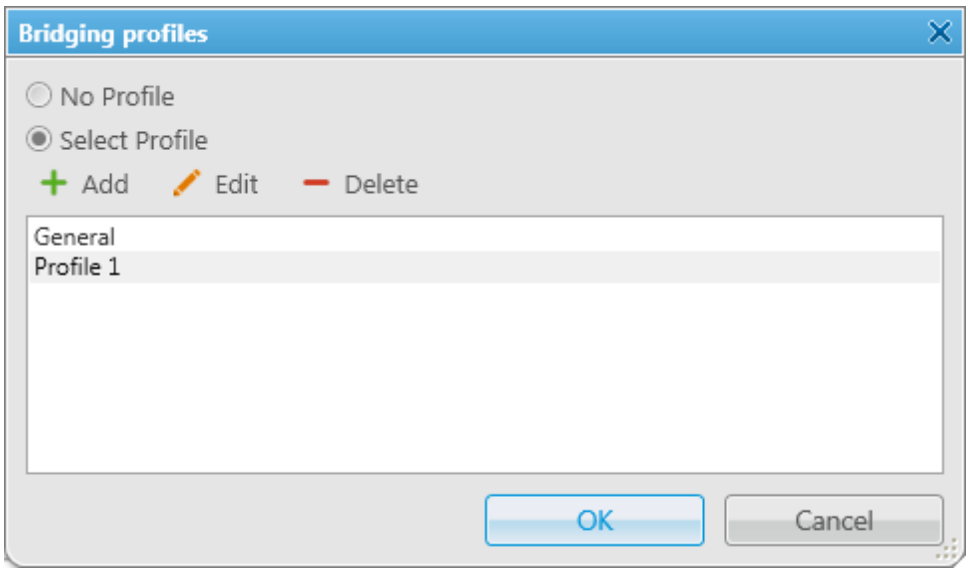
The buttons **Change Profile**, **Save**, **Save As** allow you to create a new profile or edit the existing one.

The buttons **Add Group**, **Edit Group**, **Delete Group** allow creating new route groups and attach routes to groups.

1. Profiles

Profiles are used for quick switching between predefined bridging tables.

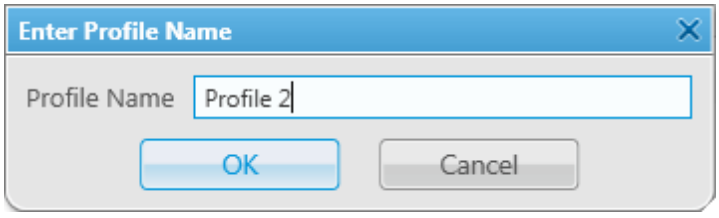
To add, modify or delete a profile, click **Change Profile** in the **Bridging Configuration** window.



If **No Profile** is selected, the created groups have no reference to a specific profile. The profile list and buttons for profile edition are not available in the **Bridging Profiles** window.

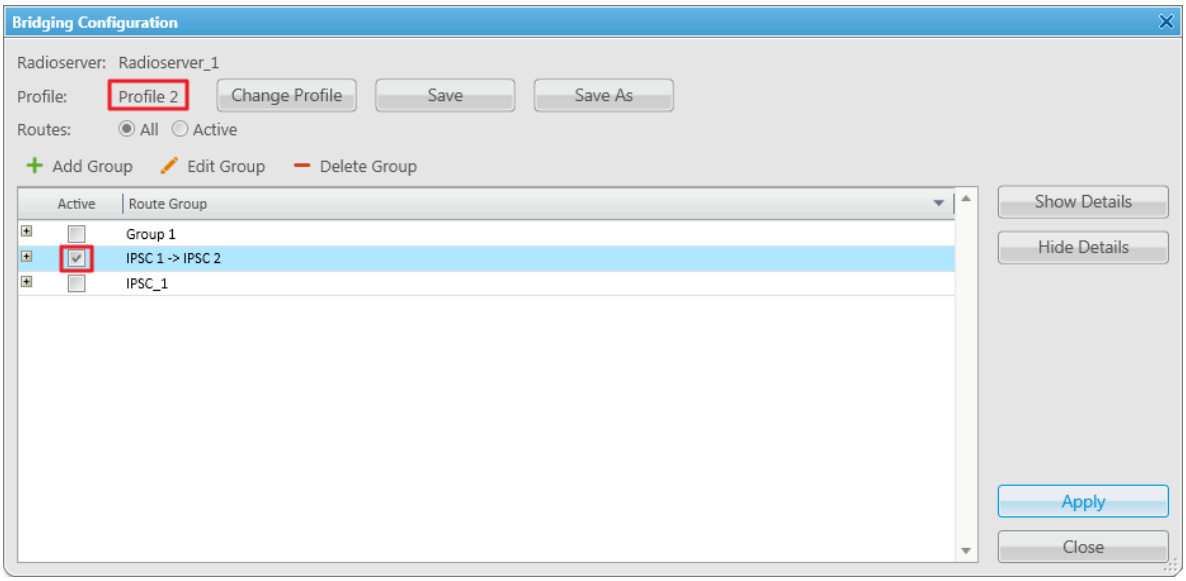
If **Select Profile** is enabled, the profile list is available for editing and route groups can be assigned to the selected profile.

In the **Bridging Profiles** window click **Add** to create a new bridging profile. At that, the **Enter Profile Name** window opens. Use the **Profile Name** field to specify the profile name, click **OK**.

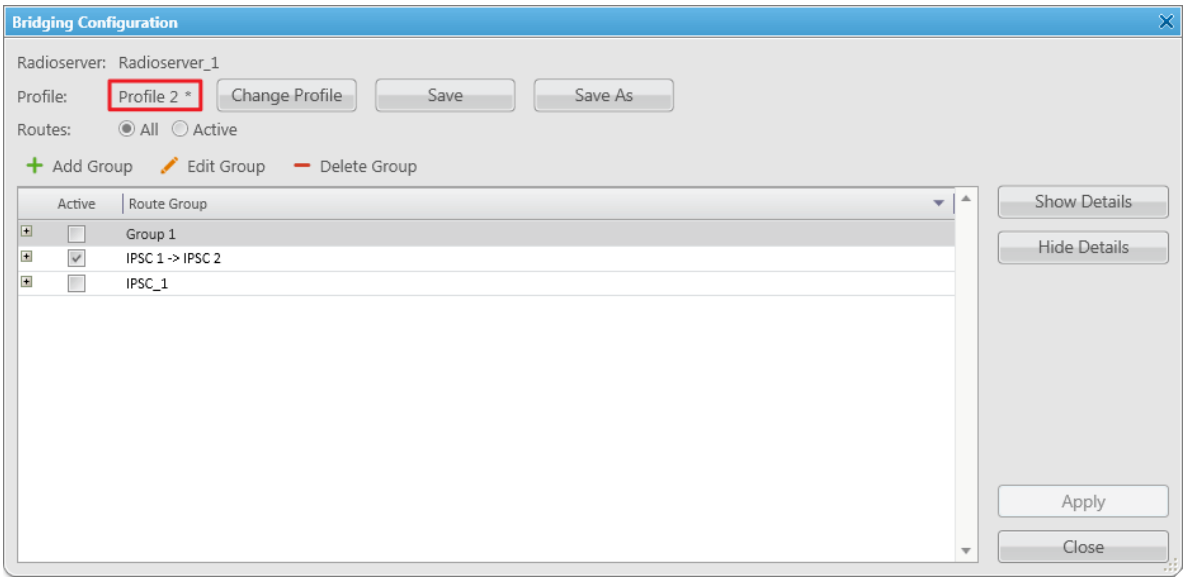


Left-click on the profile name in the **Bridging Profiles** window and click **OK**.

In the list of groups select **Active** checkboxes in front the route groups that should apply to the chosen profile.

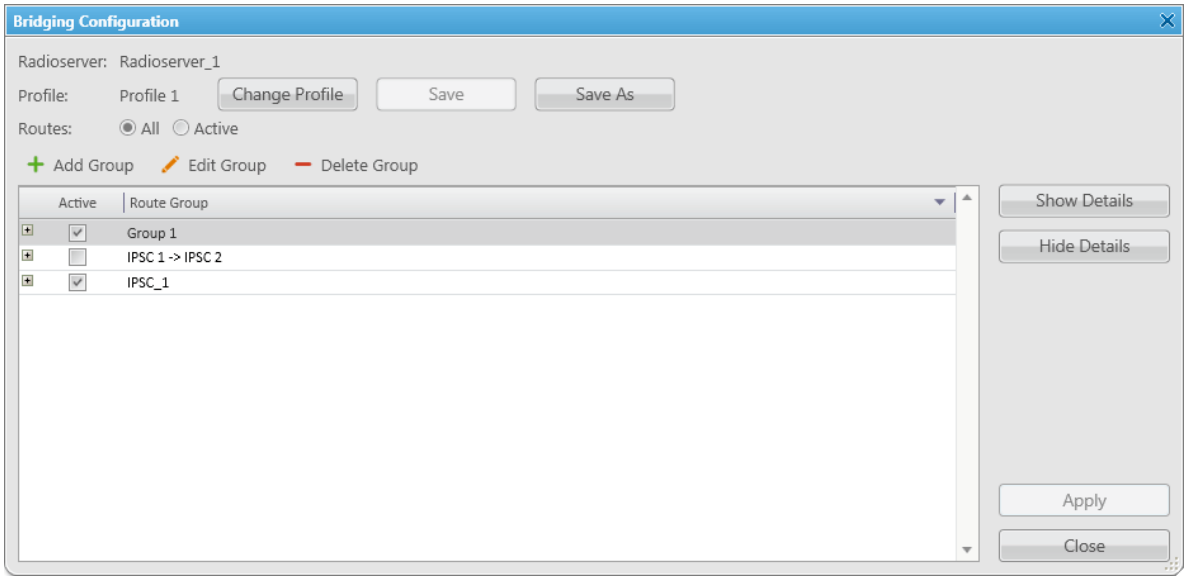


As you finished editing the profile settings, click **Apply** to activate the current profile settings. At that, the asterisk character ("*") appears in front of the profile name.



Click **Save** to save the profile settings.

To switch the profile, click **Change Profile** in the **Bridging Configuration** window, select a profile from the list and click **OK**. The **Bridging Configuration** window displays settings of the selected profile – active route groups.

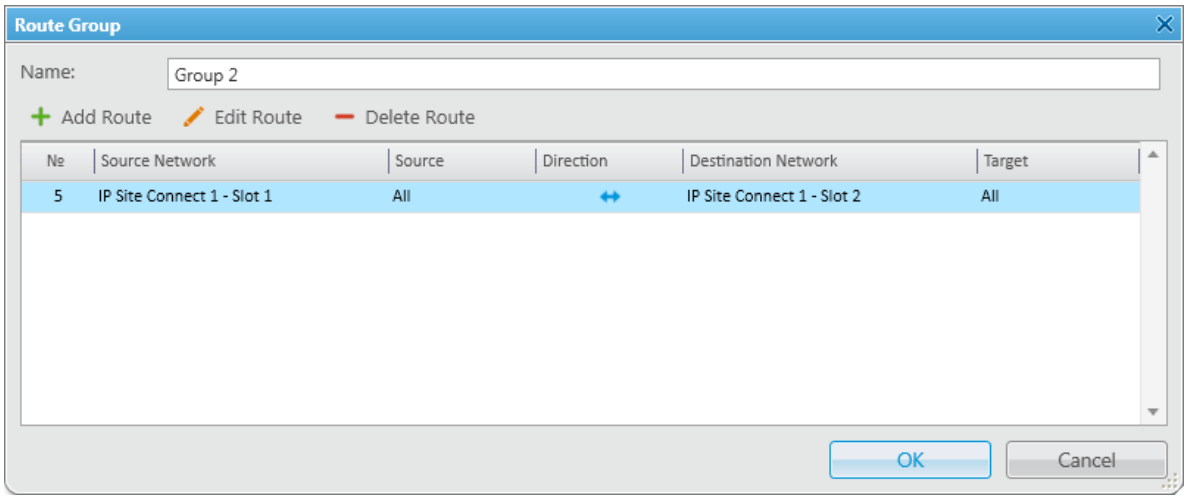


Save As allows you to save a copy of the current profile with a new name.

2. Rout Groups

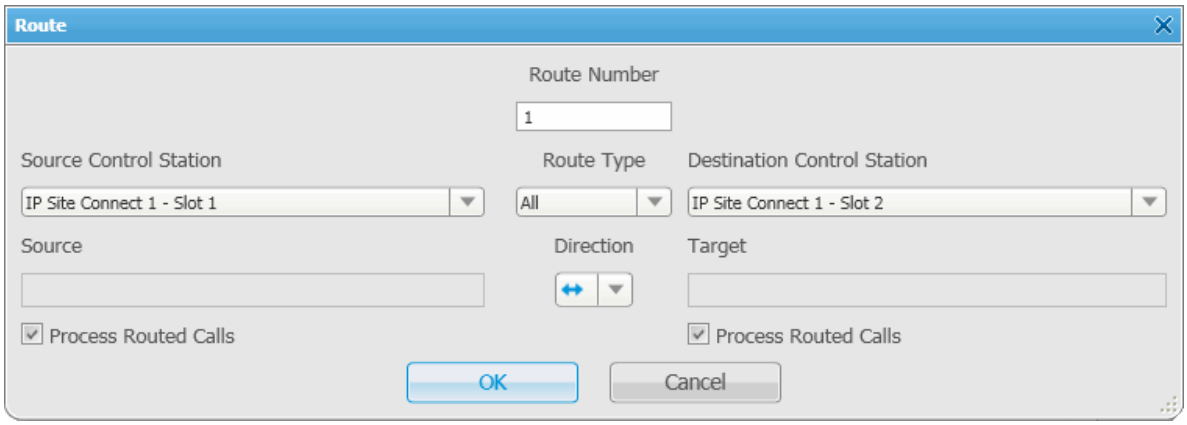
To create a new bridging route group and add routes to it, click **Add Group** in the **Bridging Configuration** window.

In the **Route Group** window, specify name of the route group, add routes to the group and click **OK**.



To save the changes in the route groups, click **Apply**.

Add routes to the group by clicking **Add Route** in the **Route Group** window. At that, the window for adding routes opens up.



This is the window where you create routes. Here you can define the source and the target networks, route direction (one-way or two-way), the source radio or talkgroup and the target radio or talkgroup. You can also select the **Route Type**, which depends on the data type you want to patch.

Here you can find a detailed description how to configure routes of different types.

2.1. Configuring "All" Route Type

If you need to patch all voice and data packets from the source network to the destination network, select **All** in the **Route Type**.

In this case you need to fill in the following fields:

Route Number – ordinal number of the route.

Source Control Station – select any of the added control stations serving as a source. You can add control stations of various networks in SmartPTT Radioserver Configurator.

Destination Control Station – select any of the added control stations serving as a destination. You can add control stations of various networks in SmartPTT Radioserver Configurator.

Direction – allows you to select either one-way or two-way.

Process Routed Calls – if selected the call which is already routed once (by one route) also can be routed another time by another route. It takes place only when several routes are added.

Example:

You can add all these routes without the **Process Routed Calls** checkbox selected:

IPSC 01 slot 01 <---> IPSC 02 slot 01

IPSC 01 slot 01 <---> IPSC 03 slot 01

IPSC 01 slot 01 <---> IPSC 04 slot 01

IPSC 02 slot 01 <---> IPSC 03 slot 01

IPSC 02 slot 01 <---> IPSC 04 slot 01

IPSC 03 slot 01 <---> IPSC 04 slot 01

Or, you can select the checkbox and create only three routes:

IPSC 01 slot 01 <---> IPSC 02 slot 01

IPSC 02 slot 01 <---> IPSC 03 slot 01

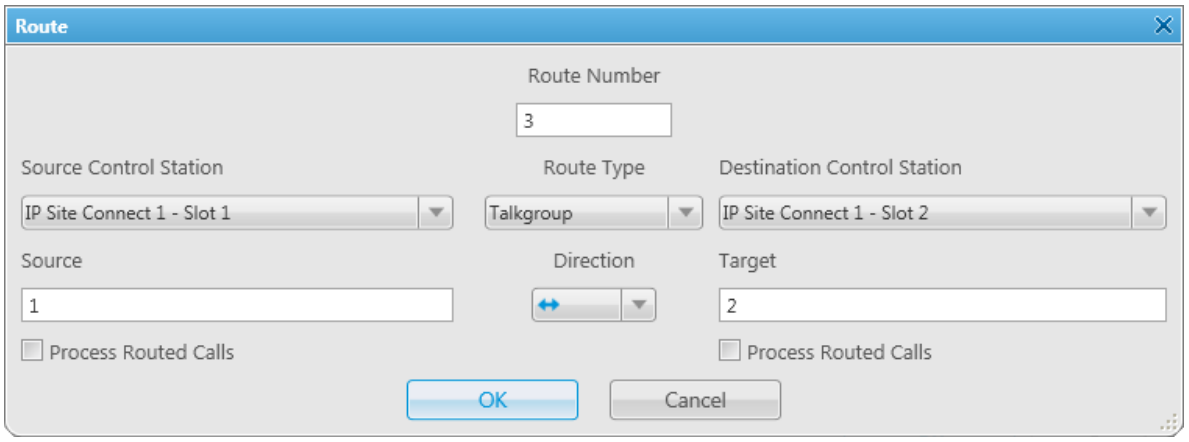
IPSC 03 slot 01 <---> IPSC 04 slot 01

Warning! Please don't use round routes which can cycle all routes and can lead to the unstable system operation (for example, IPSC 01 slot 01 <---> IPSC 04 slot 01).

2.2. Configuring "Talkgroup" Route Type

In order to patch a group call, select **Talkgroup** in the **Route Type**. Specify the source and the destination networks, and other parameters as if you were configuring the "All" **Route Type**.

The only difference is that for this route type you need to specify the groups' IDs, that is the source talkgroup ID in the **Source** field and the destination talkgroup ID in the **Target** field.

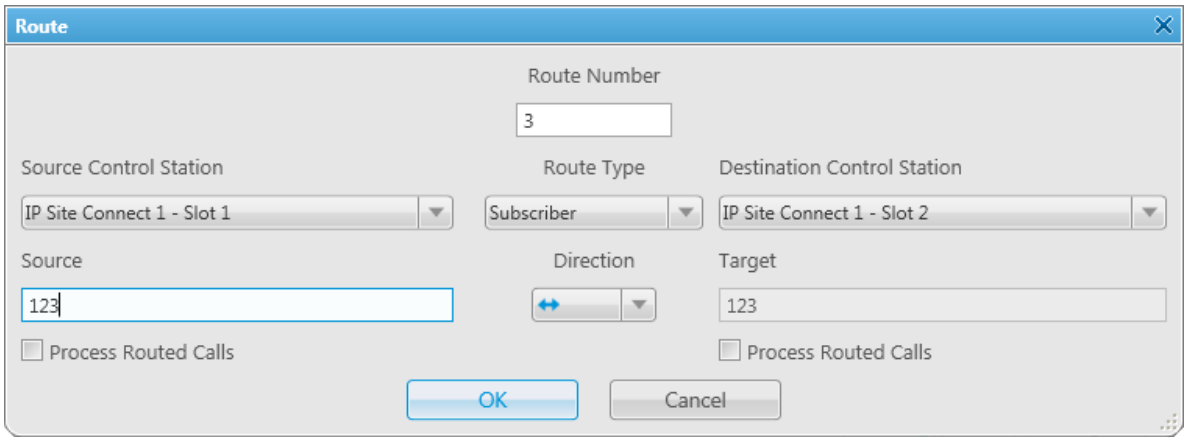


2.3. Configuring "Subscriber" Route Type

To patch individual calls or text messages, select **Subscriber** in the **Route Type** field.

Specify the source and the destination networks, and other parameters as if you were configuring any of the previous route types.

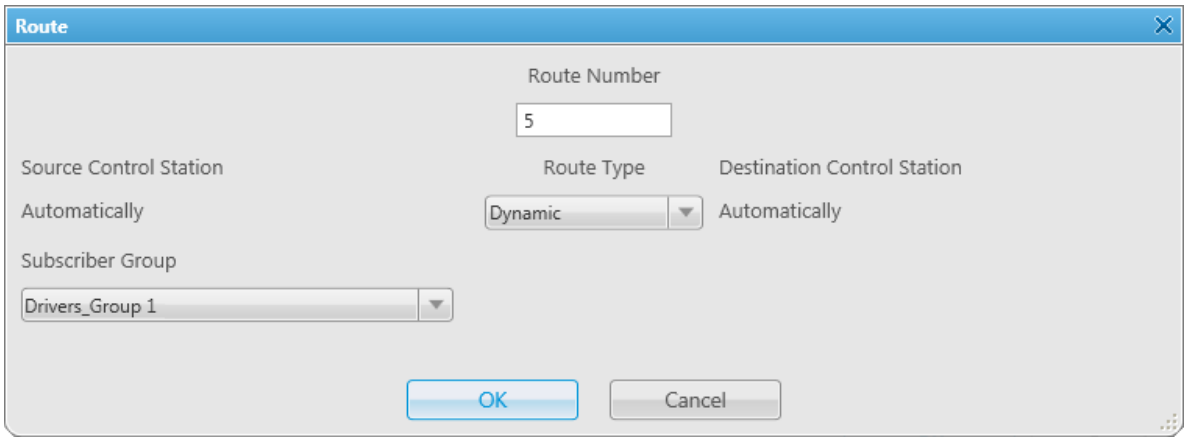
In the **Source** field specify the subscriber radio ID from the source network. The **Target** field will be populated automatically. In this case, all the subscribers from the destination network (see **Destination Control Station**) will be able to call to radio subscriber 123 and vice versa.



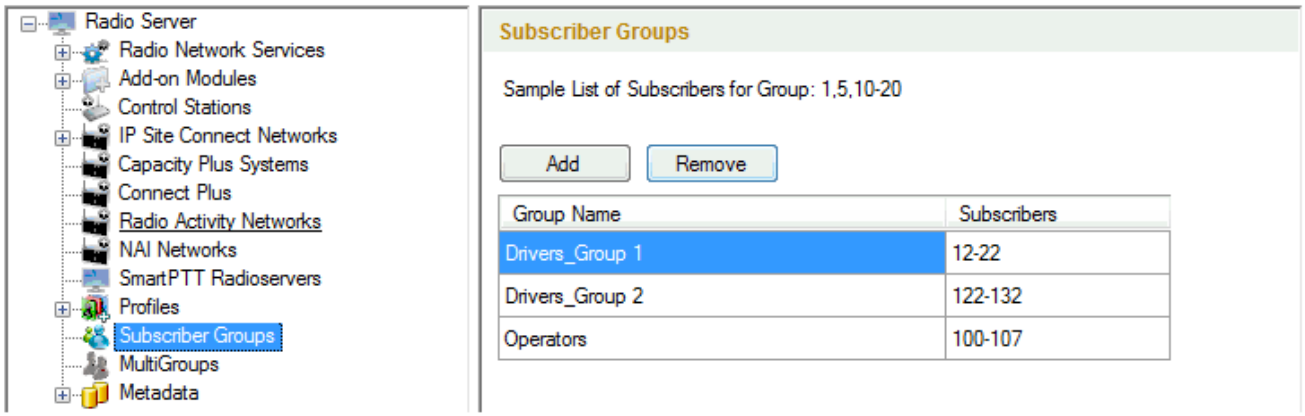
2.4. Configuring "Dynamic" Route Type

To patch individual voice calls or text messages of the subscribers from the **Subscriber Groups**, select **Dynamic**

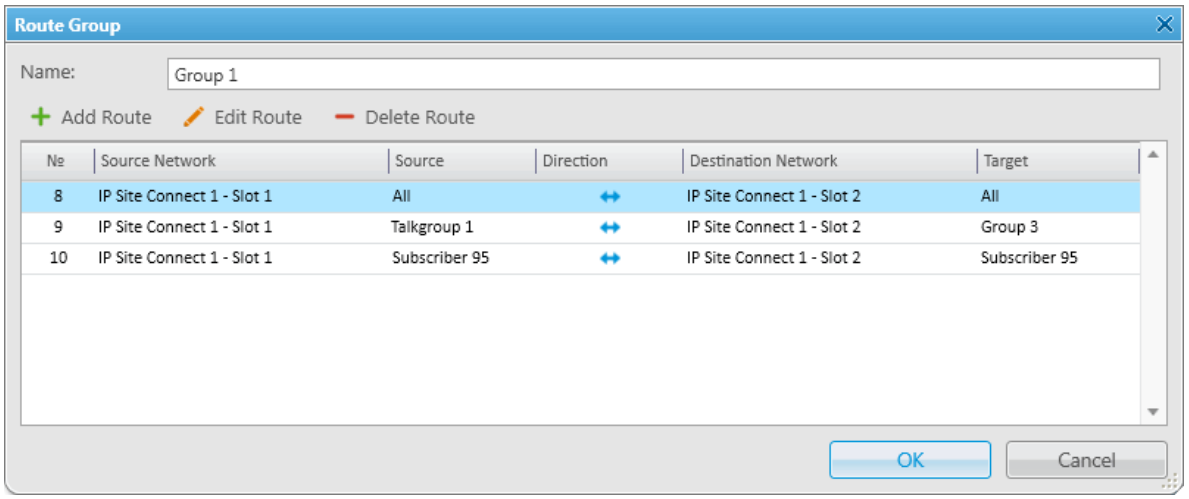
in the **Route Type** field.



In the **Subscriber Group** select a group, which was added in **Subscriber Group** of SmartPTT Radioserver Configurator.

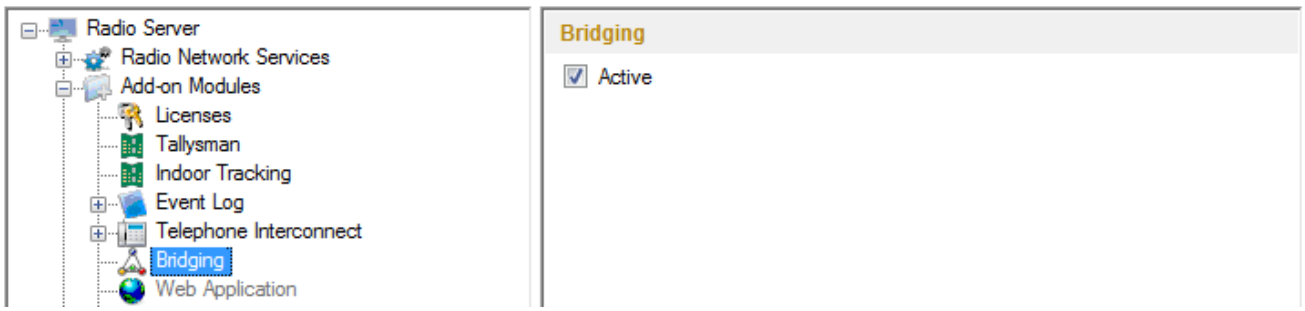


Once created, the routes will display in the **Route Group** window. Here is the example of the route group containing routes of three types (**All**, **Group**, **Subscriber**).



Activating Bridging Service

To make bridging active go to SmartPTT Radioserver Configurator, select **Bridging** in the tree and select the **Active** checkbox. Save the settings and restart the radioserver to apply the changes.



Conference Calls

The **Conference Call** is a type of call in which the dispatcher wishes to have more than one subscriber of different types at a time. At that, all the participants of the conference call can hear and talk to each other.

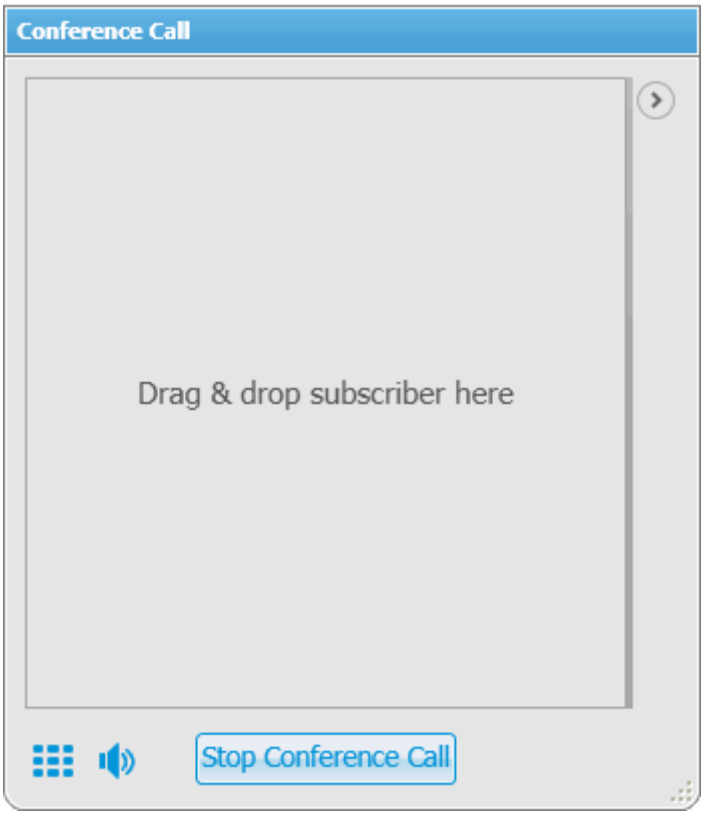
SmartPTT Dispatcher allows the dispatcher to organize conference calls and to connect the following subscriber types:

- Telephone subscribers
- SmartPTT Dispatcher
- Radio subscribers (over SIP protocol)
- Talkgroups (over SIP protocol)

Note: To be able to organize conference calls the dispatcher must have the permission “Allow conference calls”. If the permission is not given, the dispatcher cannot make conference calls.

To organize a conference call click the **Conference Call** button in the **Main Menu** bar of SmartPTT Dispatcher.

At that, the **Conference Call** window appears.



The main list shows the conference call participants. You can also see the log of the conference call by opening the right part of the window. To do it, click .

The button opens the dial pad to make a phone call and to add a telephone subscriber into the conference call.

– allows switching off sound of the conference call. At that, the dispatcher does not hear the conference call participants, and the participants cannot hear the dispatcher.

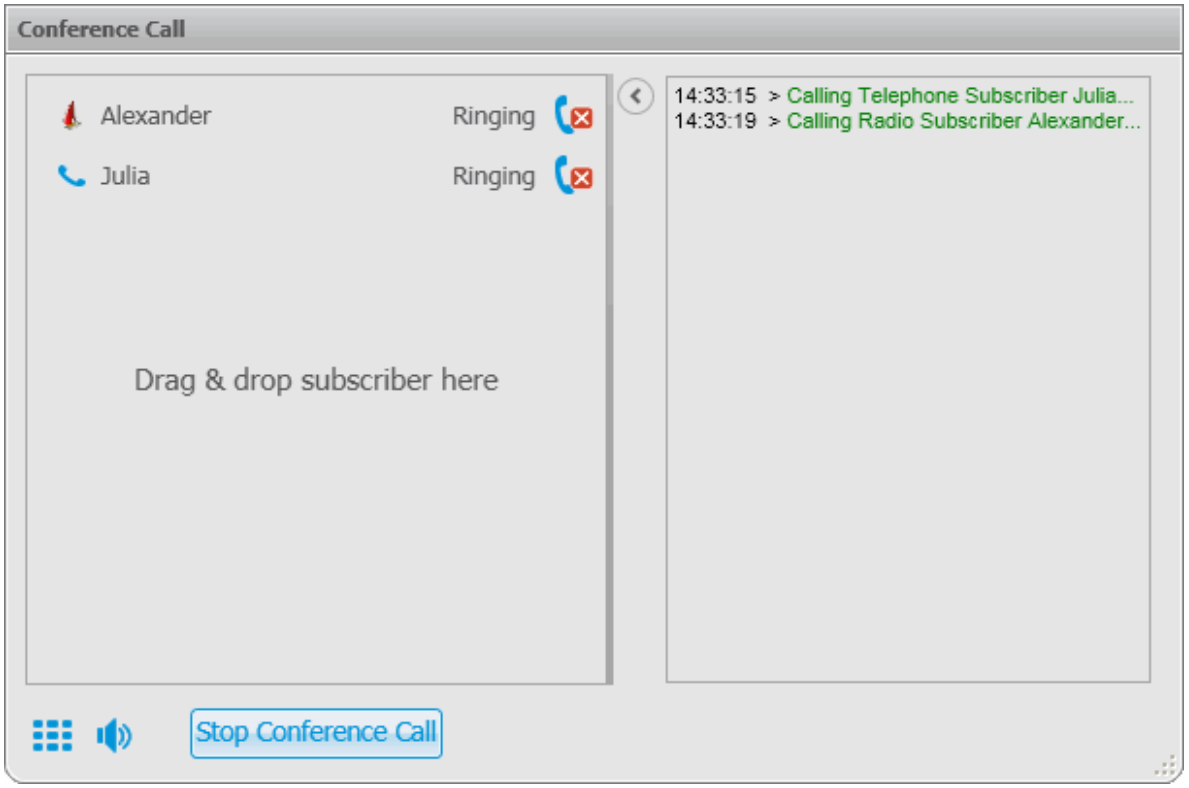
Stop Conference Call – stops current conference call and closes the **Conference Call** window.

To add a subscriber into a conference call, select the subscriber from the **Online list**, then drag the subscriber into the left section of the **Conference Call** window. As soon as the subscriber is shown in the **Conference Call** window, a call to the subscriber is initiated.

Note: Only online subscribers, talkgroups or dispatchers can be added to the conference call. Connect Plus networks do not support conference calls.

Note: To organize a conference call with radio subscribers, make sure to check SmartPTT Radioserver configuration. For more information see SmartPTT Radioserver Configurator Help, the **Telephone Interconnect** section.

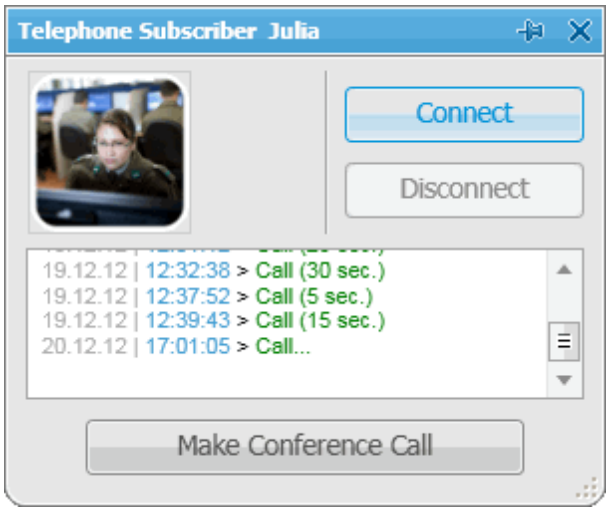
To finish the ongoing conference call with one of the participants, click the button next to the participant.



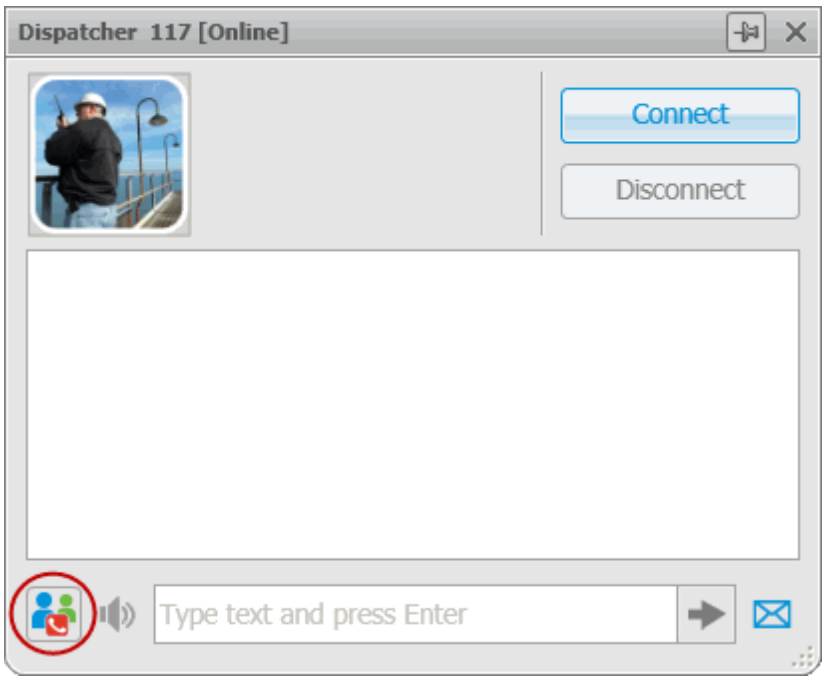
There is another way how to organize a conference call.

1. In order to invite subscribers, open the **Call Windows** of the subscribers.

Telephone subscriber



Dispatchers

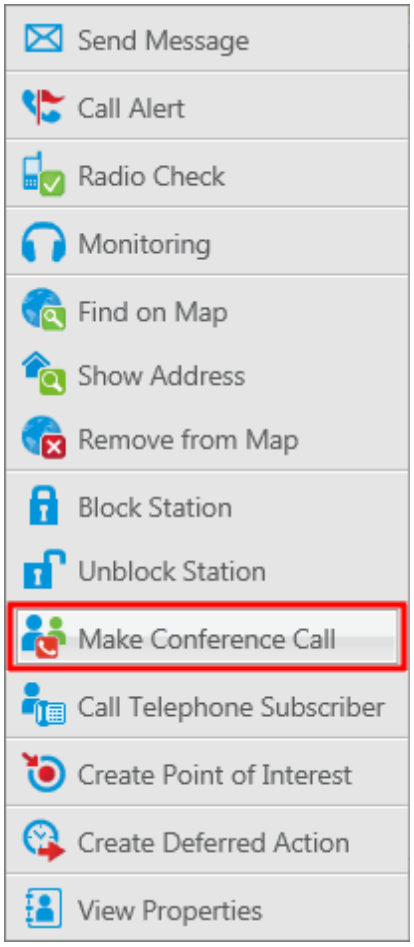


Click the **Make Conference Call** button to open the **Conference Call** window. As soon as the window

opens, the call is initiated.

Note: Only dispatchers from the **Dispatcher List** with the status “Active” can be invited into the conference call.

2. Use **Action List** to select the **Conference Call** option.



At that, the **Conference Call** window appears and the call is initiated.

Window Configuration

While working in SmartPTT Dispatcher Console the operator tends to open many different windows. Some of them are used very often. Usually, at every launch of the application all the windows are closed and the operator

needs to spend considerable time to configure the main area. This is quite inconvenient and time-consuming. In order to avoid this the operator can save his or her windows configuration at the end of the work day, prior to the application shutdown, and restore the configuration the next day. There can be more than one window configuration and the operator can choose between them.

To save the current window configuration for future use, click the **Window Configurations** button in the **Main Menu** bar.

Click **Add** to give the name to the current window configuration. At that, the opened windows will be grasped and saved.

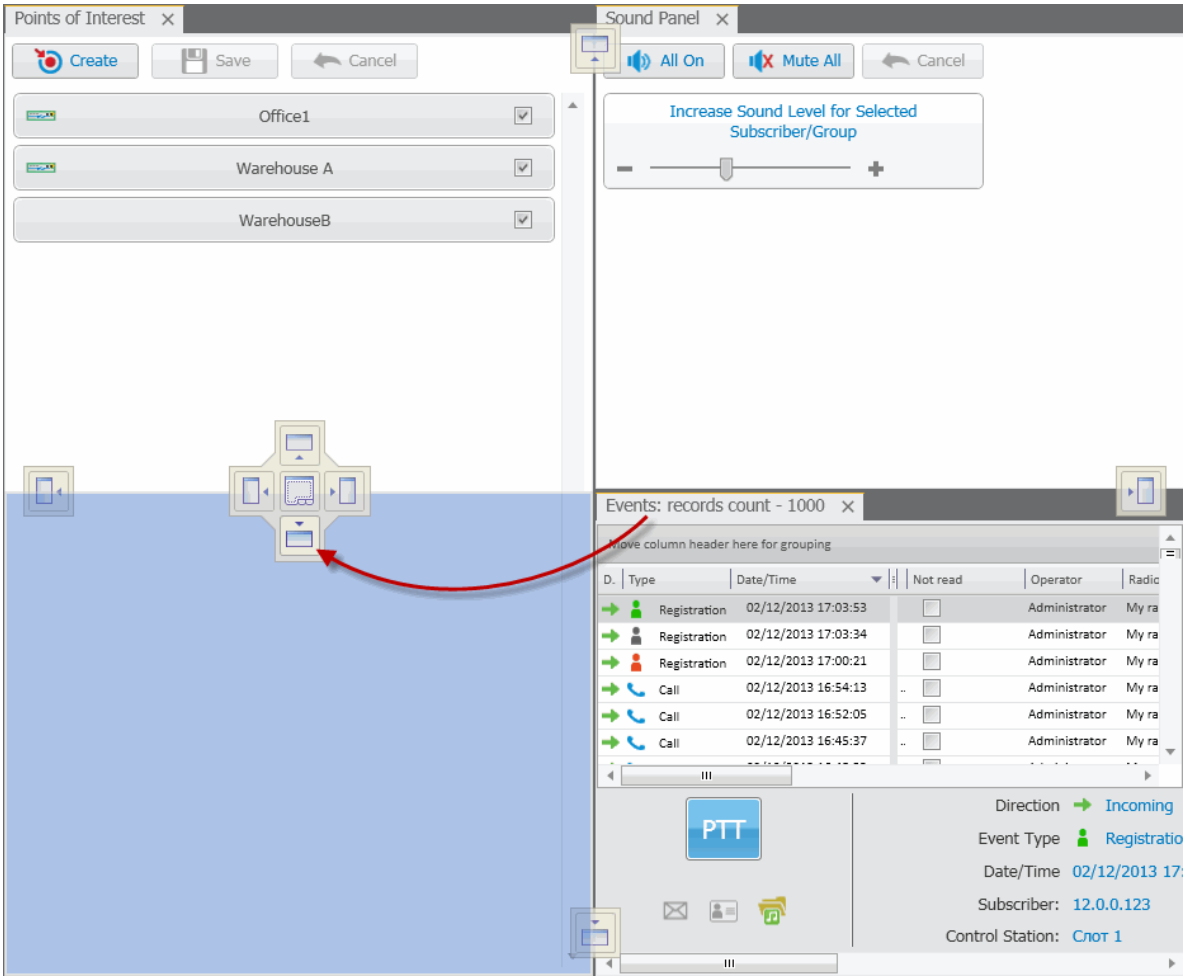
Click **Apply** to restore the saved windows configuration.

Click **Delete** to remove the saved windows configuration.

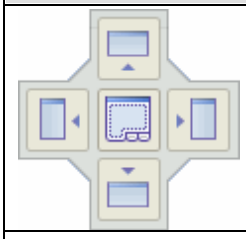
Panel Positioning

There is an ability to adjust the layout of the opened panels in the **Main area**.

To do it, you need to click on the tab of the opened panel and while holding it, drag it to the position where you want it to place it on the screen. As soon as you start dragging it, you will see new icons appear on the screen. The icons represent positioning of the panel on the screen. To place the panel in a new position you need to drop the tab when the cursor is over one of these icons.



The table displays the icon description.

Icon	Description
	Appears inside a panel, which means that you can either place the panel in any of the four positions beside the panel or make it a tab of the other panel.
	The four standalone icons can be used to place the panel in any position of the **Main area** outside any other panel.

Help

The **Help** menu includes:

- **SmartPTT Help**. Here you can find useful information on the system objects and functionality. You can also open the **SmartPTT Help** file any time by pressing F1.
- **About**. It contains information on the application version, license, and the third-party software used in development process.

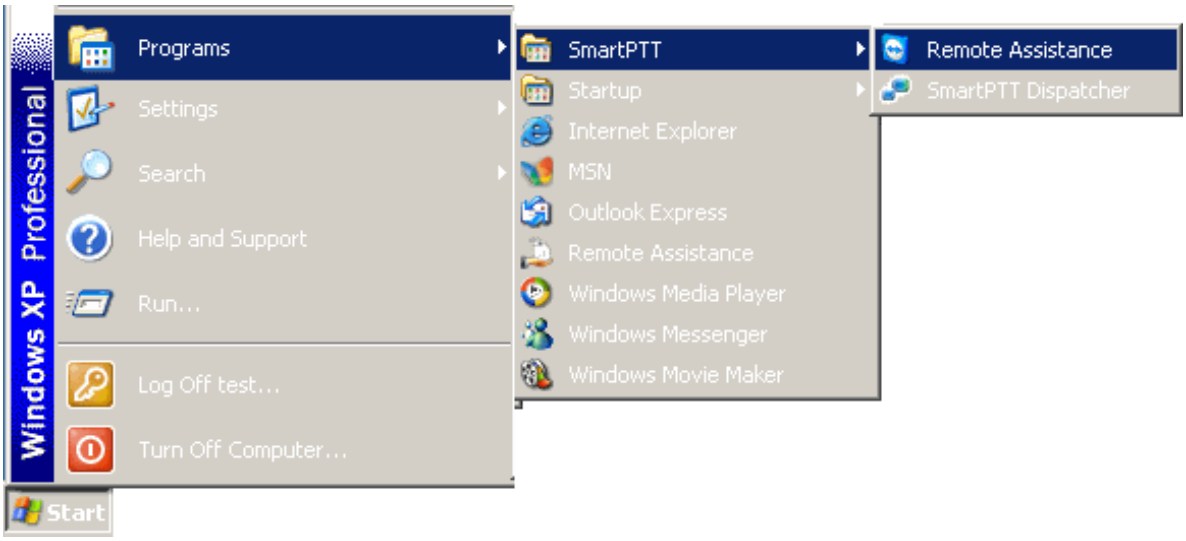
Remote Assistance

SmartPTT contains a special technical support tool providing remote access to the PC to resolve possible technical issues.

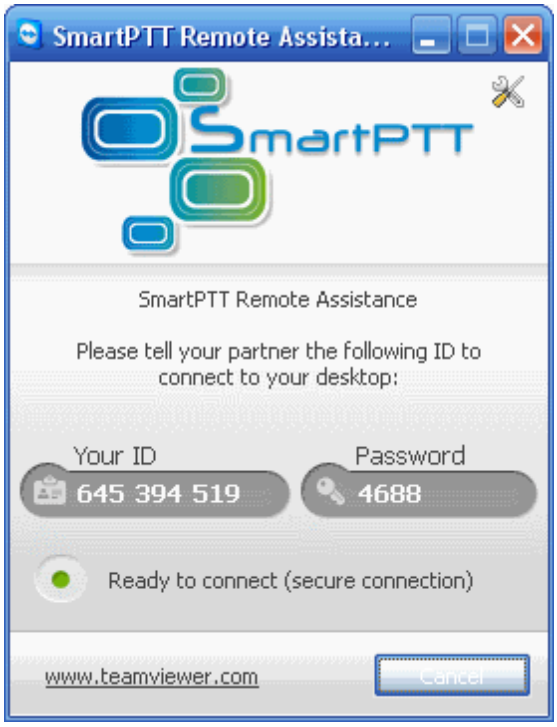
To give the technical support engineer remote access to the PC, launch SmartPTTRemoteAssistance.exe. SmartPTTRemoteAssistance.exe window will show ID and Password which should be passed to the engineer.

Steps to follow to get remote assistance:

1. Launch Remote Assistance (**Start > Programs > SmartPTT > Remote Assistance**).

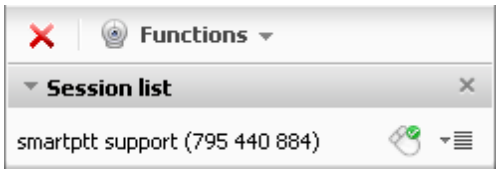


SmartPTT Remote Assistance window

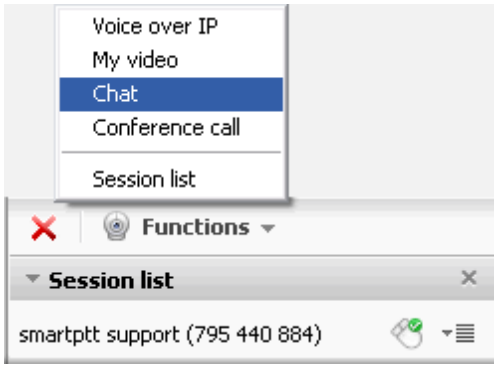


2. Pass **Your ID** and **Password** to the engineer who is going to provide technical support.

3. When the connection is established, you will see session window on the screen.



4. Chat function can be used for communication with the engineer.



5. To stop the session click .

SmartPTT Radioserver Configurator

Main Features

SmartPTT Radioserver Configurator is an application designed as a tool to configure SmartPTT Radioserver parameters. SmartPTT Radioserver is an application server implemented as a Windows service.

The radioserver setup process includes configuration of registration, location, text messaging, control station services and other settings. Here is a list of the most important system features.

The **registration service** provides information on availability of subscriber radios in the radio network.

The **location service** provides coordinates of subscriber radios with a GPS receiver so you can determine their current location. In terms of subscriber monitoring you can also take advantage of the features provided by Tallysman Sprite™ and **Indoor Tracking**.

The **text messaging service** is used to exchange text messages between dispatchers and radio subscribers.

The **telemetry service** is used for transmission and processing of telemetry signals between the dispatcher console and radio subscribers.

The **SMS** and **Email Gateways** allow you to configure message sending to mobile phones and email boxes.

The **telephone interconnect service** allows establishing intercommunication between telephone and radio subscribers.

The **event log** provides functionality for saving and representation of all events specific for the SmartPTT system and also incoming or outgoing voice records.

The **monitoring service** gives an outlook for the whole radio system in the real time.

In SmartPTT Radioserver Configurator you can set up networks based on:

- Control Stations (analog, including Select 5, and digital)
- IP Site Connect
- Capacity Plus
- Connect Plus
- Connect Plus Monitoring
- IP Site Connect, Capacity Plus and Linked Capacity Plus using MNAI protocol

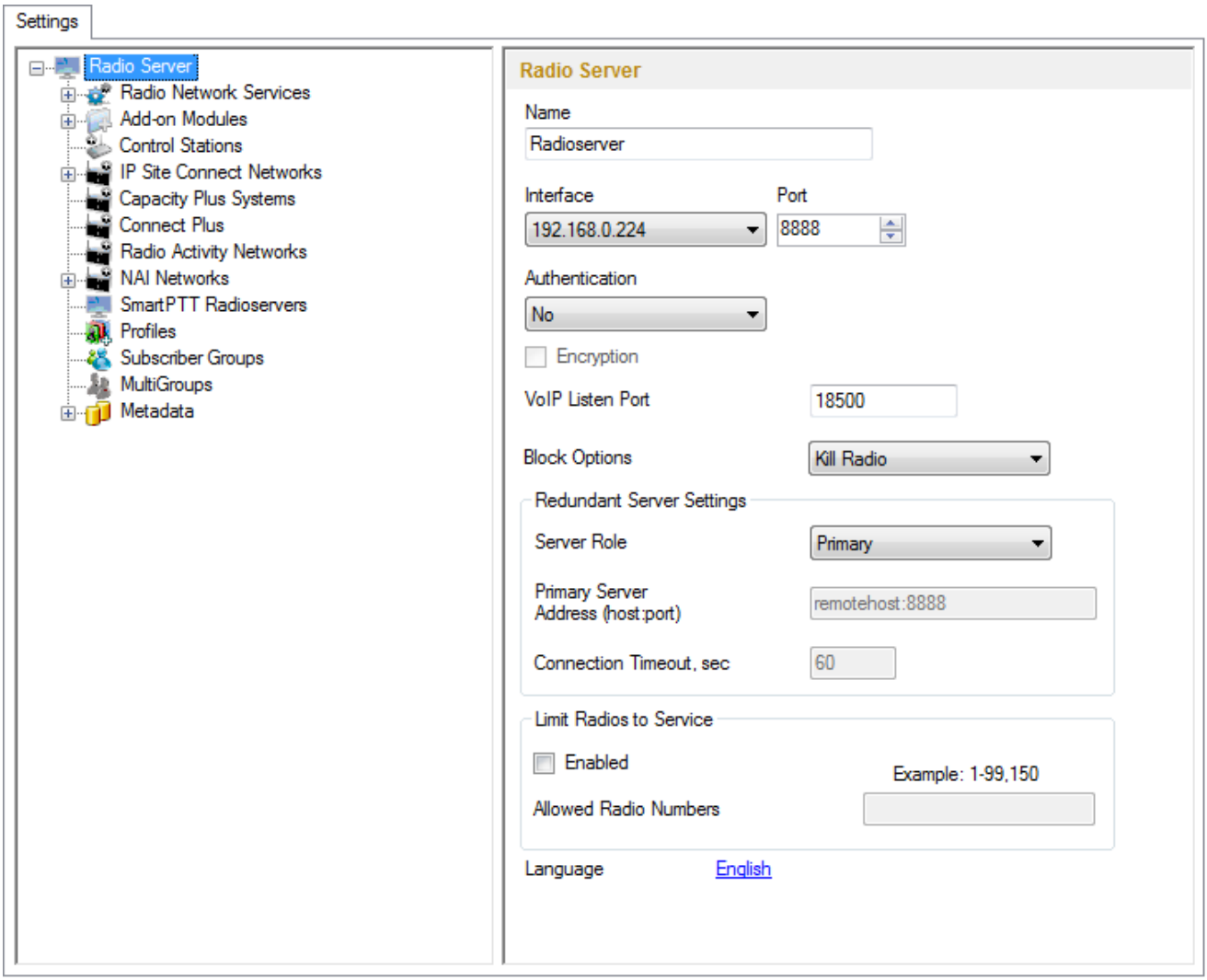
You can also enable bridging between some networks in the list.

Other available features include:

- **Profiles** used to limit operators' access to the objects managed by the radioserver, such as control stations, talkgroups, services, IP Site Connect slots, etc.
- **Rules** used to perform automatic actions (playback sounds, send messages, play predefined voice notifications) based on conditions specified.
- **Monitoring** used to display events going on the radio network. It can be useful for Administrators.
- **Network Configuration** used to set up notification sending of alarms, which may occur in the network hardware elements (repeaters, uninterruptable power supplies, routers).
- **Export/Import Settings** used to allow exporting configuration settings and database from one radioserver and importing them into another.

Radioserver

To set up the radioserver, click **Radioserver** in the left list of the SmartPTT Radioserver Configurator window. At that, the settings window will display on the right.



Name – radioserver alias. You cannot type more than 20 characters into this field.

Interface and **Port** – radioserver IP address. Default port is 8888.

Note: If the specified port is occupied, you will see a warning icon next to the input field. Hover the mouse over the icon to see where the port is being used.

Authentication – authentication parameters required for connection to the radioserver.

No – anonymous authentication.

Windows – Windows authentication. To connect, the dispatcher must use the user name and password of the account where the radioserver service was started.

Encryption – this function allows users to enable and disable encryption of transmitted data. VoIP data cannot by encrypted.

VoIP Listen Port – number of a UDP port for receiving voice data from the dispatcher.

Block Options – allows selecting the way how to block a radio. When *Kill Radio* is applied, radioserver sends Radio Kill command to block the radio. The *Deny Channel* option denies the subscriber radio to work on the given channel.

Note: The *Deny Channel* option is applicable only to IP Site Connect (direct IP connection) or NAI based configurations.

Note: When the **Block Radio** command is sent from one radio unit to another, the radio will be blocked, even if *Deny Channel* is selected.

Language – allows selecting languages of the user interface of the SmartPTT Radioserver Configurator application.

You can save changes made by clicking **Save** . If you want to cancel changes made, click **Restore** . All the changes made after the last save will be restored. To exit SmartPTT Radioserver Configurator, click **Close** . To view help, click **Help** .

The radioserver is implemented as Windows service SmartPTT Radio Service. To enable saved changes you must restart the service. Service is managed using the following buttons: **Start**, **Stop and Restart** .

How to Set up the Redundant Server

The redundant server can be useful in case of the primary server breakdown. Switching between the servers is made automatically.

To set up the redundant server correctly follow the steps enumerated below:

1. Define the role of the current radioserver as **Redundant**. If you select **Primary**, you will need to configure the redundant server for it elsewhere.

Note: A primary server can be backed up with only one redundant server.

2. Fill in the fields **Primary Server Address (host:port)** and **Connection Timeout**.

Primary Server Address (host:port) – IP address and port of the computer where the primary radioserver is installed.

Connection Timeout, sec – time interval that starts ticking as soon as the primary server is down. If the primary server has not recovered within the specified time interval, the redundant server takes over.

Note: The **Primary Server Address (host:port)** and **Connection Timeout** fields are unavailable if the role of the server is set to **Primary**.

How to Limit the Number of Radios

The **Limit Radios to Service** area was designed to manage the number of radios allowed in the network. Here the user can specify which radios are to be controlled by the system and which are not.

To make this functionality active select **Enabled**. Then, in the **Allowed Radio Numbers** field, enter ID's of the radios which are to be controlled by the system.

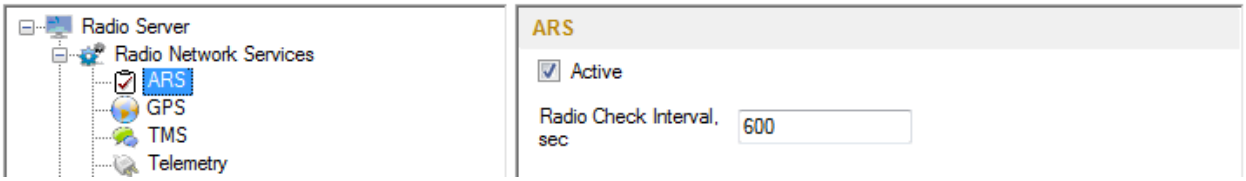
Warning! All the radios whose ID's were not specified will be ignored by the SmartPTT system.

Services

3.2.1.1 ARS

ARS or registration service provides information on the availability of radio subscribers in the radio network.

To set up the registration service parameters, click **ARS** in the list in the left area of the SmartPTT Radioserver Configurator window. At that, a new window appears on the right.



To enable the service select the **Active** checkbox.

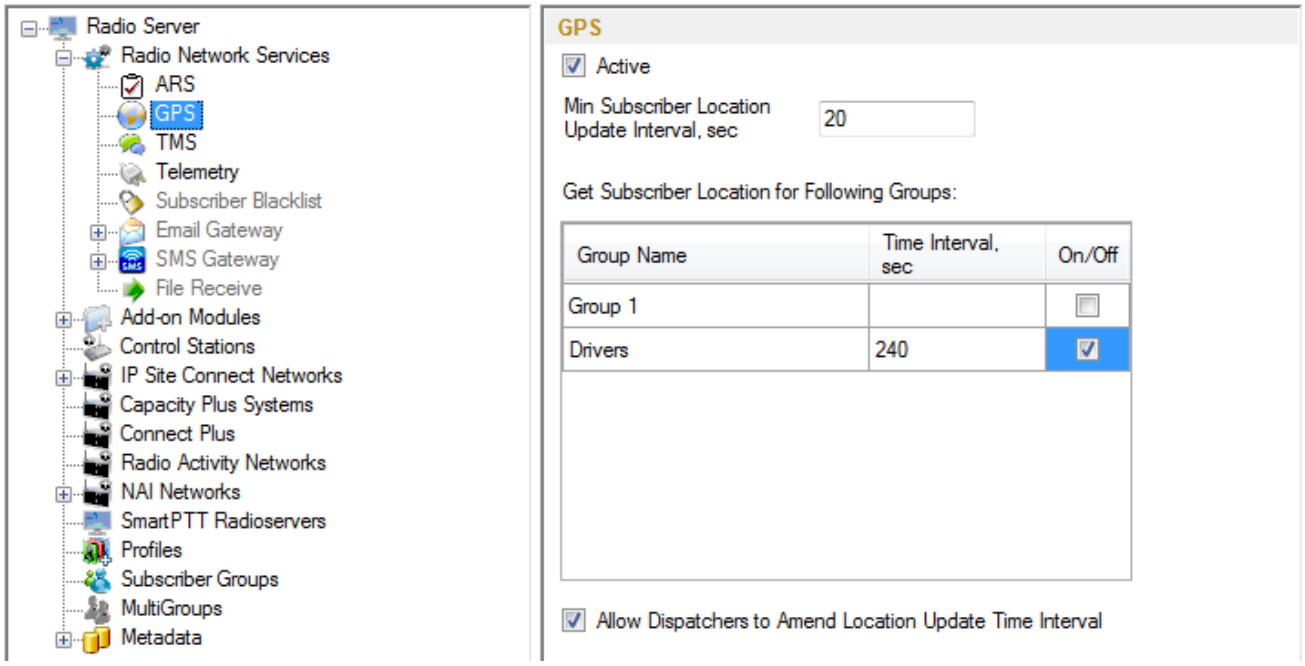
Radio Check Interval – time interval for radio subscriber check. If a radio subscriber does no activity during the time specified in the field, the radioserver sends a request for registration to the radio.

Note: Radio activity includes the following events: GPS location, telemetry signal, text message or voice call.

3.2.1.2 GPS

GPS or location service provides coordinates of radio subscribers with a GPS receiver so you can determine their current location.

To set up the location service parameters, click **GPS** in the list in the left area of the SmartPTT Radioserver Configurator window. At that, the following window opens.



By default, the minimum time interval for GPS data transfer is set to 20 seconds.

If necessary, location service can be unavailable. To do this, clear the **Active** checkbox.

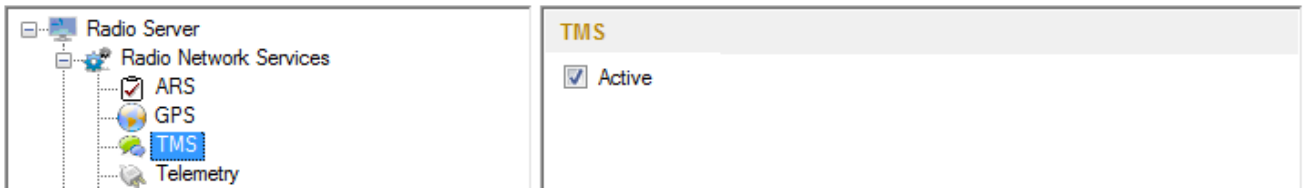
The list **Get Subscriber Location for Following Groups** allows you to specify time interval for location update per subscriber group added in SmartPTT Radioserver Configurator under **Subscriber Groups**.

If **Allow Dispatchers to Amend Location Update Time Interval** is selected, dispatchers can reduce the location update time interval configured in the table above. However, if the time interval specified by the dispatcher is less than **Min Subscriber Location Update Interval, sec**, the new value set by the dispatcher will be ignored, and subscriber location will be updated according to **Min SU Location Update Interval, sec**.

If **Allow Dispatchers to Amend Location Update Time Interval** is not selected, dispatchers won't be able to change the time interval for location update, and location will be updated within the time interval set in the table per each group.

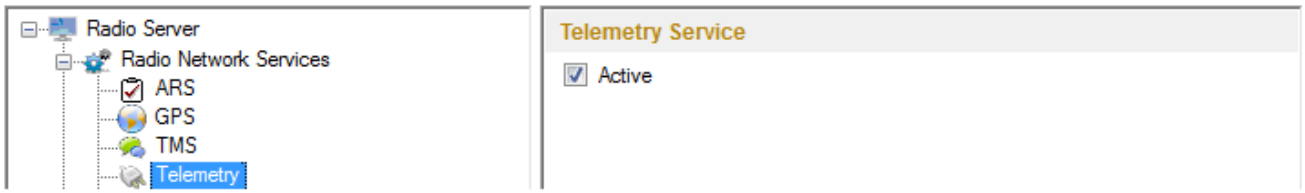
3.2.1.3 TMS

TMS or text messaging service is used to exchange text messages between radio subscribers and SmartPTT Dispatcher. To set up the messaging service parameters, click **TMS** in the setting tree of the SmartPTT Radioserver Configurator window. At that, a window opens. To enable the messaging service, select the **Active** checkbox.



3.2.1.4 Telemetry

The telemetry service is used for transmission and processing of telemetry signals between SmartPTT Dispatcher and radio subscribers. To set up the telemetry service parameters, click **Telemetry** in the list in the left area of the SmartPTT Radioserver Configurator window. At that, the following window is displayed on the right. To enable the telemetry service, select the **Active** checkbox.

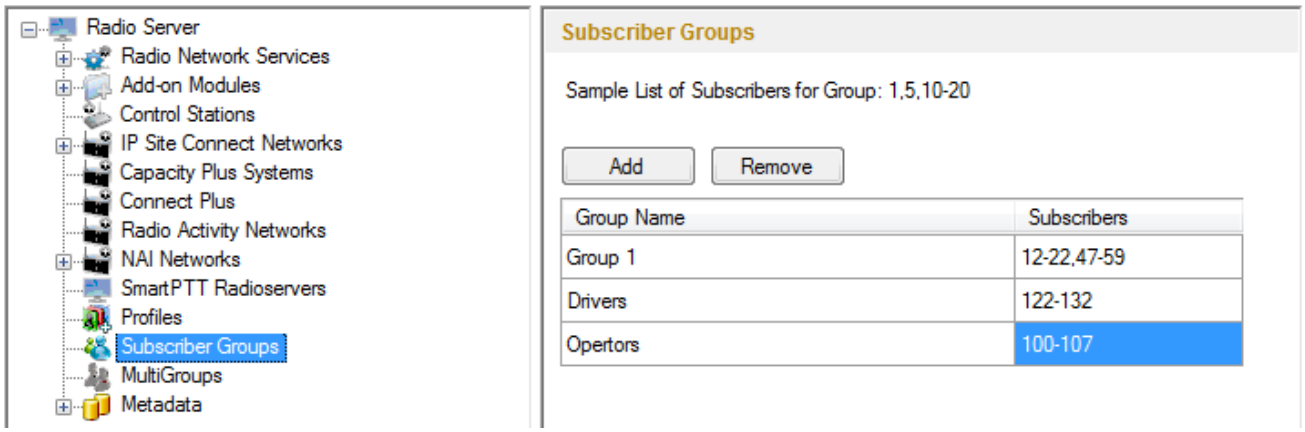


3.2.1.5 Subscriber Blacklist

Subscriber blacklist allows managing the number of available radio subscribers and operators in the network.

To create a blacklist, first it is necessary to create subscriber groups. We will need these to form a blacklist.

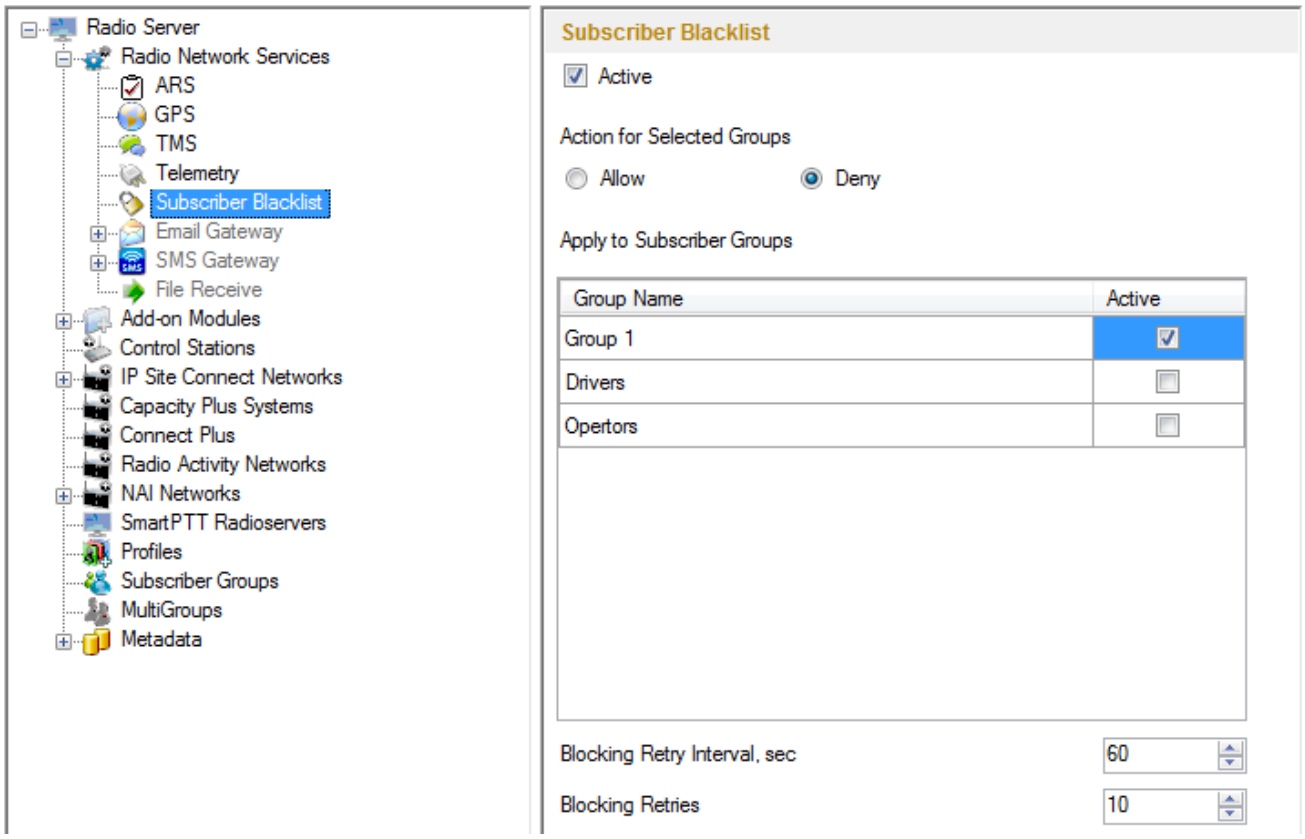
To add a subscriber group, click **Subscriber Groups** in the setting tree of SmartPTT Radioserver Configurator. At that, the **Subscriber Groups** window opens on the right.



Group Name – any name of a subscriber group.

Subscribers – the list of radio IDs that are to be included in the created group.

To configure blacklist parameters, click **Subscriber Blacklist** in the setting tree of SmartPTT Radioserver Configurator. At that, the following window opens.



Enable subscriber blacklist service by ticking off the **Active** checkbox.

Note: **Subscriber Blacklist** allows not only blocking certain radios, but also creating the so-called "whitelist" of radios that are allowed in the radio network. In the latter case all other radios, that is not included in the whitelist, will be blocked.

To block certain groups of subscribers, choose **Deny** and select groups that are not permitted to communicate in MOTOTRBO network.

To allow certain groups of subscribers to communicate in MOTOTRBO network, that is to create a whitelist, select **Allow** and mark those groups that will be available in radio network when all other radios are blocked.

Blocking Retry Interval, sec – sets a minimum time period for sending a command to block the radio added in the blacklist.

Blocking Retries – number of retries to send the Block command to the radio before confirmation comes.

To save changes, click **Save** and then restart SmartPTT Radioserver .

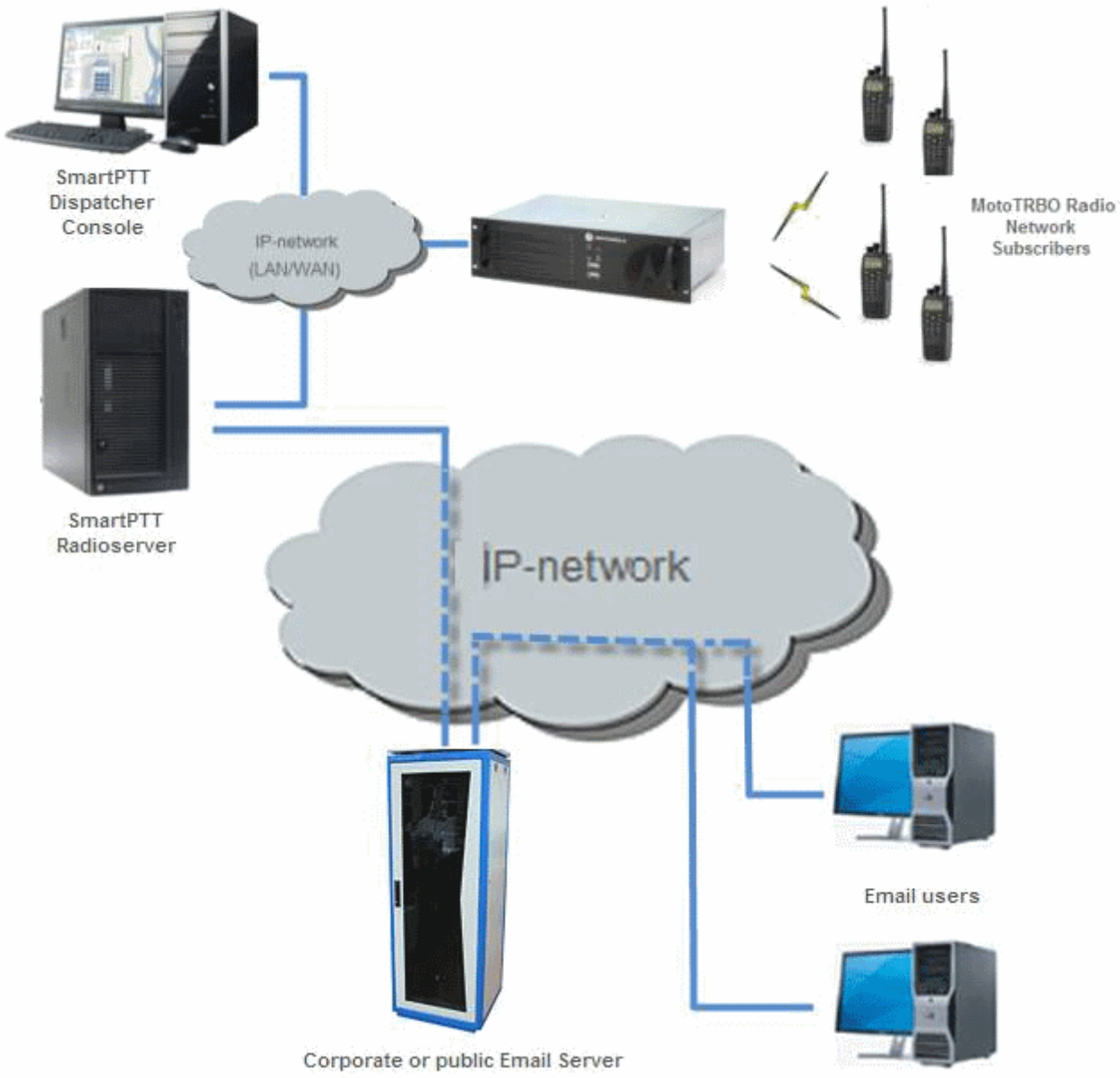
If a radio is in the blacklist and MOTORBO control station is used (MOTOTRBO control station, Capacity Plus system), then the radio will be completely unavailable. When the radio is unavailable, some actions are still available: **Monitoring**, **Radio Check** and **Radio Unblocking**. The dispatcher can remove the block from the radio by sending the "Unblock" command. To enable the radio without dispatcher's help, just read the codeplug of the radio in MOTOTRBO Customer Programming Software (called MOTOTRBO CPS) and then write the settings to the codeplug.

To be able to process the Radio Disable command, the radio must have the **Radio Disable Decode** parameter selected in the codeplug. You can find it in MOTOTRBO CPS, in the **Signaling Systems** section. If **Radio Disable Decode** is not selected, the radio can't be blocked even if it is in the blacklist.

When direct IP connection is used (for example, IP Site Connect) in MOTOTRBO network, radio blocking allows to block the channel only. At that, "Channel Denied" is displayed on the radio screen. The radio can change the channel and resume its operation. To enable the blocked channel, the dispatcher should send the "Unblock" command to the radio. To enable the radio without dispatcher's help, delete the blocked channel and create the channel equal to the deleted one.

3.2.1.6 Email Gateway

Email gateway provides the ability to exchange digital messages between e-mail users and MOTOTRBO radio network subscribers. The following scheme displays how it is done.



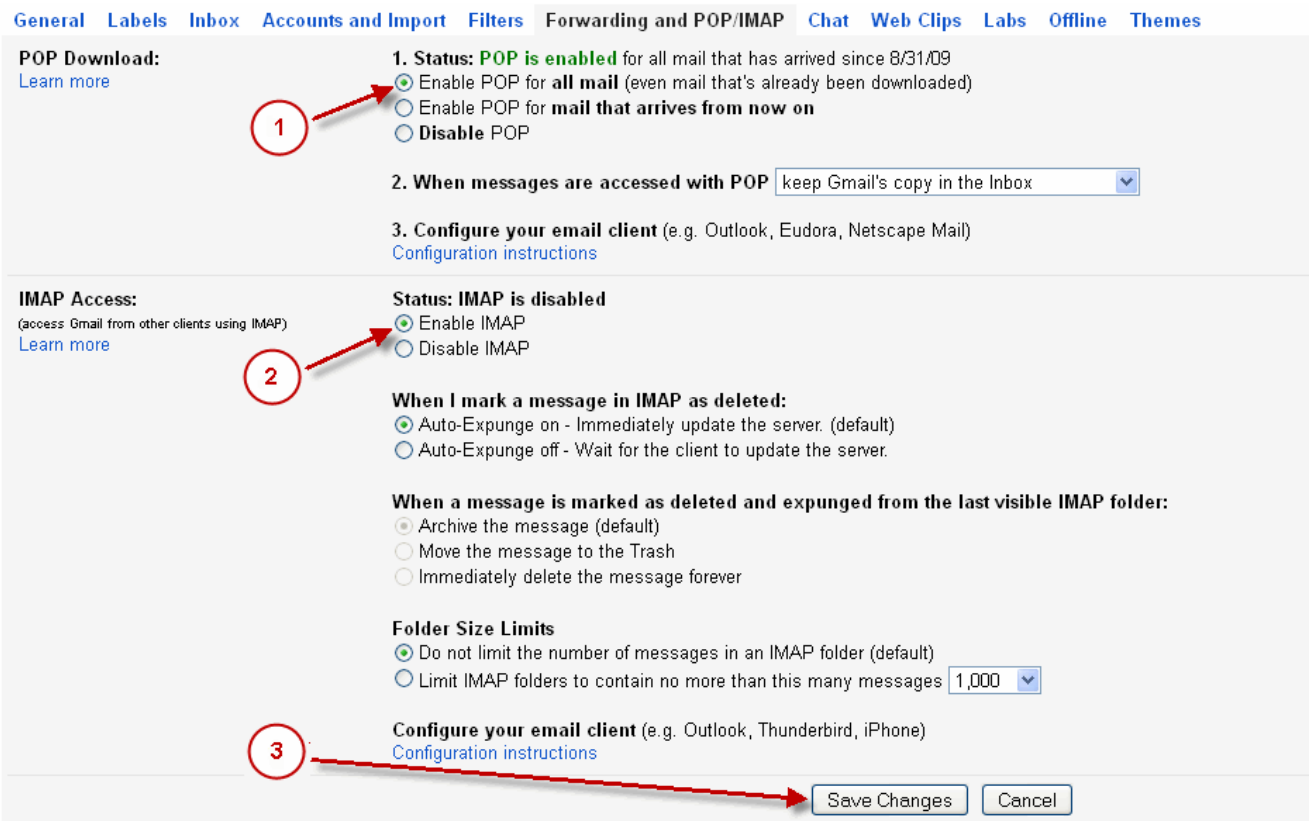
To be able to exchange email messages between radio subscribers and email users you need:

1. Create and configure email account.
2. Configure the radioserver.

Create and Configure Email Account

First of all, create your email account, if you do not have one. This section describes how to do it as well as how to configure it properly.

1. Create your email account. You can use your corporate email server or any other server. In this example we are using *gmail.com*.
2. In the settings of the newly created email account specify all the necessary parameters.
3. In the settings of the email account in the Forwarding and POP/IMAP tab select the following items:
    1) Enable POP for all email (even mail that has already been downloaded).
    2) Enable IMAP.
    3) Save changes.



4. If you have an email client (for example, Microsoft Outlook), for the outgoing messages you need the following settings:
    1) Use plain text as message format.
    2) Use Unicode (UTF-8) for outgoing images (with Base64 encoder).

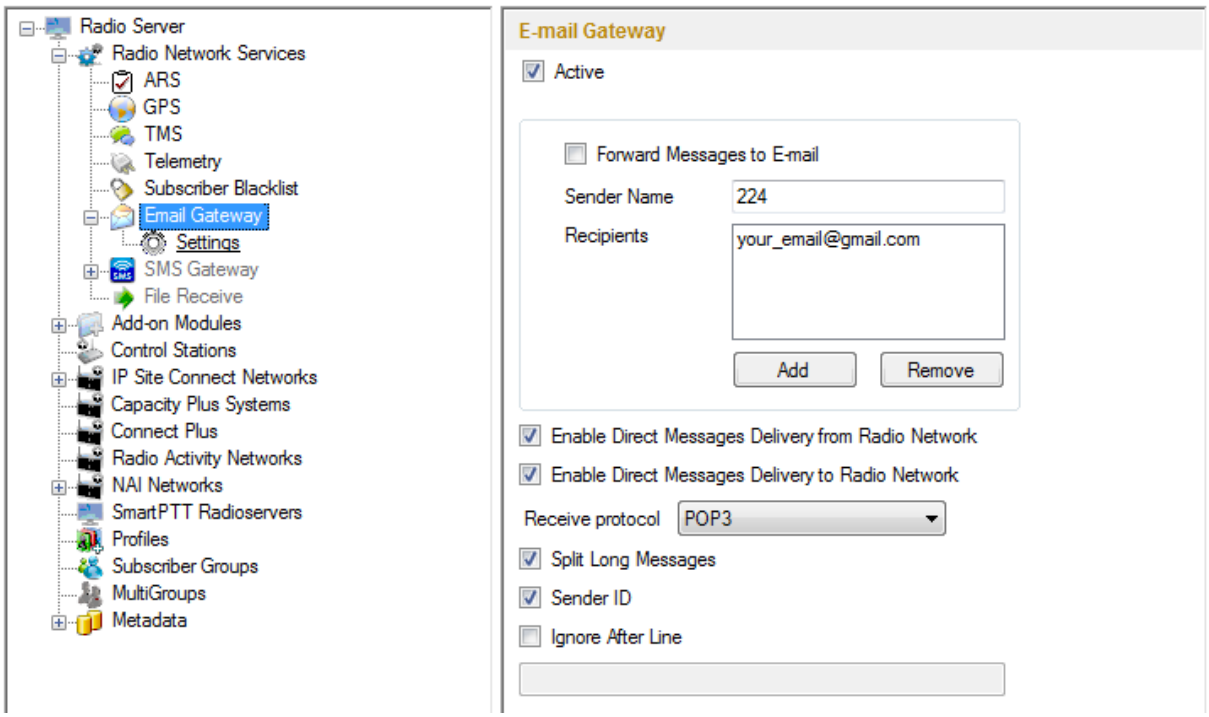
Configure SmartPTT Radioserver Settings

The radioserver configuration includes the following steps:

1. Configure email gateway (activate email gateway, choose the direction of text message sending).
2. Setup POP3/IMAP4 protocols for sending text messages.

Email Gateway Configuration

Select **Email Gateway** in SmartPTT Radioserver Configurator.



Select the **Active** checkbox to enable the email gateway service.

Forward Messages to E-mail – select to enable message forwarding from radio subscribers to the email addresses specified in the **Recipients** list.

Note: When a radio subscriber sends a text message to another radio subscriber, all email users whose emails

are given in the **Recipients** list will receive 1 or 2 text messages. The first one with the confirmation that the message was sent and the second – with the confirmation on delivery.

Sender Name – specify domain name, in the name of which all email messages will be sent (for example, *smartptt.com*).

Recipients – list of email addresses to receive forwarded text messages.

Enable Direct Message Delivery from Radio Network – forwarding mail messages directly from radio subscribers.

Enable Direct Message Delivery to Radio Network – forwarding mail messages directly to radio subscribers.

Receive protocol – select protocol for email message receiving (POP3 or IMAP4).

Split Long Messages – if not selected, a long E-mail message (over 140 characters) addressed to a radio is trimmed to size limit (that is some information gets lost). If selected, the original message is split into several packages during transmission. Thus, the radio subscriber receives the message without information loss.

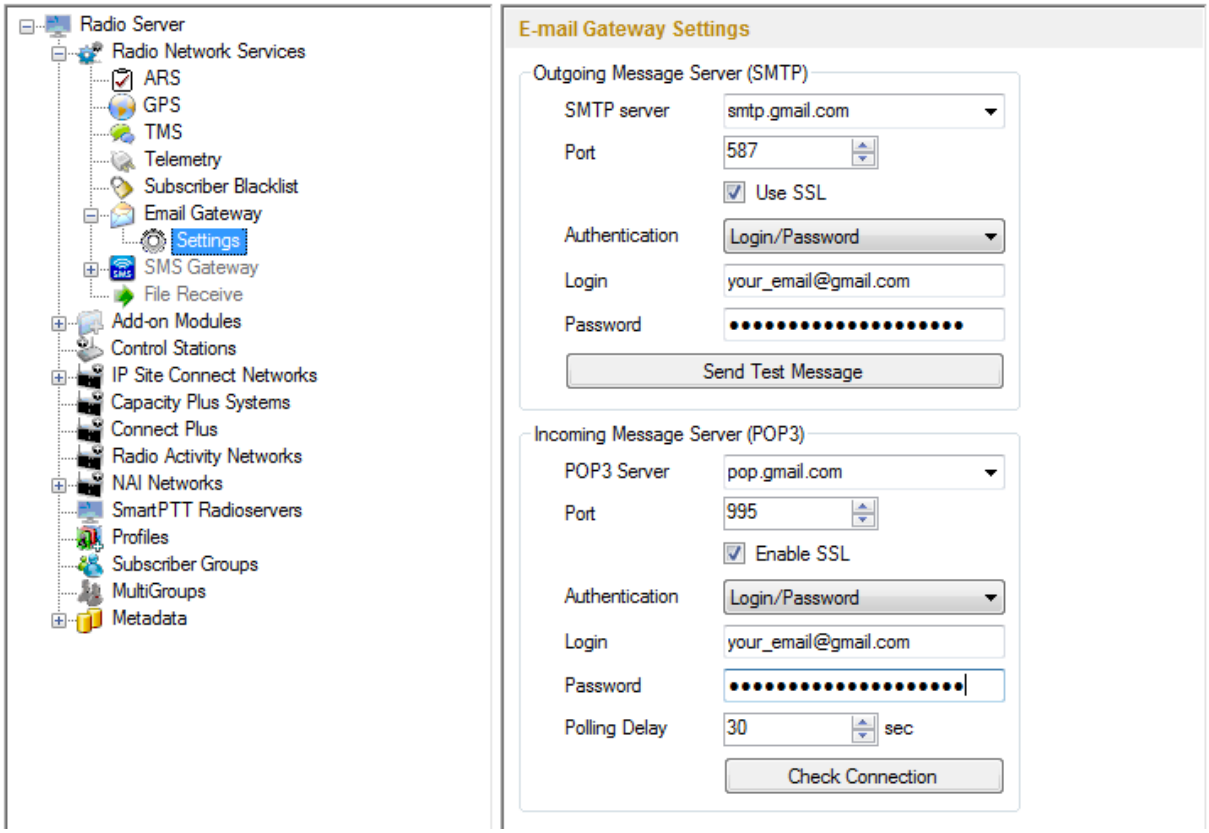
Sender ID – when selected, the received message contains the sender e-mail address.

Ignore After Line — ignore everything after a certain string in the received e-mail message.

> **Example**:
>
> The original e-mail message: *Due to technical works on the PBX, the PI will have no telephony for the whole day.To turn off these notifications, open **Personal Settings**, click **Manage Alerts**. Clear checkboxes next to unwanted notifications.*
>
> If you enter *To turn off* in the **Ignore After Line** field, the radio subscribers will receive the message: *Due to technical works on the PBX, the PI will have no telephony for the whole day.*

POP3 Protocol Configuration

In the **Receive Protocol** field, select *POP3* and click **Settings** in the left setting tree.



SMTP server – domain name of the SMTP server which is used for delivering outgoing email messages (for example, *smtp.gmail.com*).

Port – SMTP server port number.

Use SSL – check this option if you need secure connection to SMTP server.

Authentication – select authentication method for SMTP server (**Anonymous** – connect anonymously, **Windows** – connect to the server under Windows user account, **Login/Password** – connect with Login/ Password specified).

Login – email address or login required by the mail server.

Password – user's password.

Send test message – press the button to check server connection. In case of successful connection and correct settings, the mail user specified above will receive a test email message.

POP3 server – specify domain name of POP3 server which is used to deliver incoming e-mail messages.

Port – enter POP3 server port number.

Use SSL – check this option if you need a secure connection to POP3 server.

Authentication – select authentication method for POP3 server.

Login – enter email address or login required by mail server.

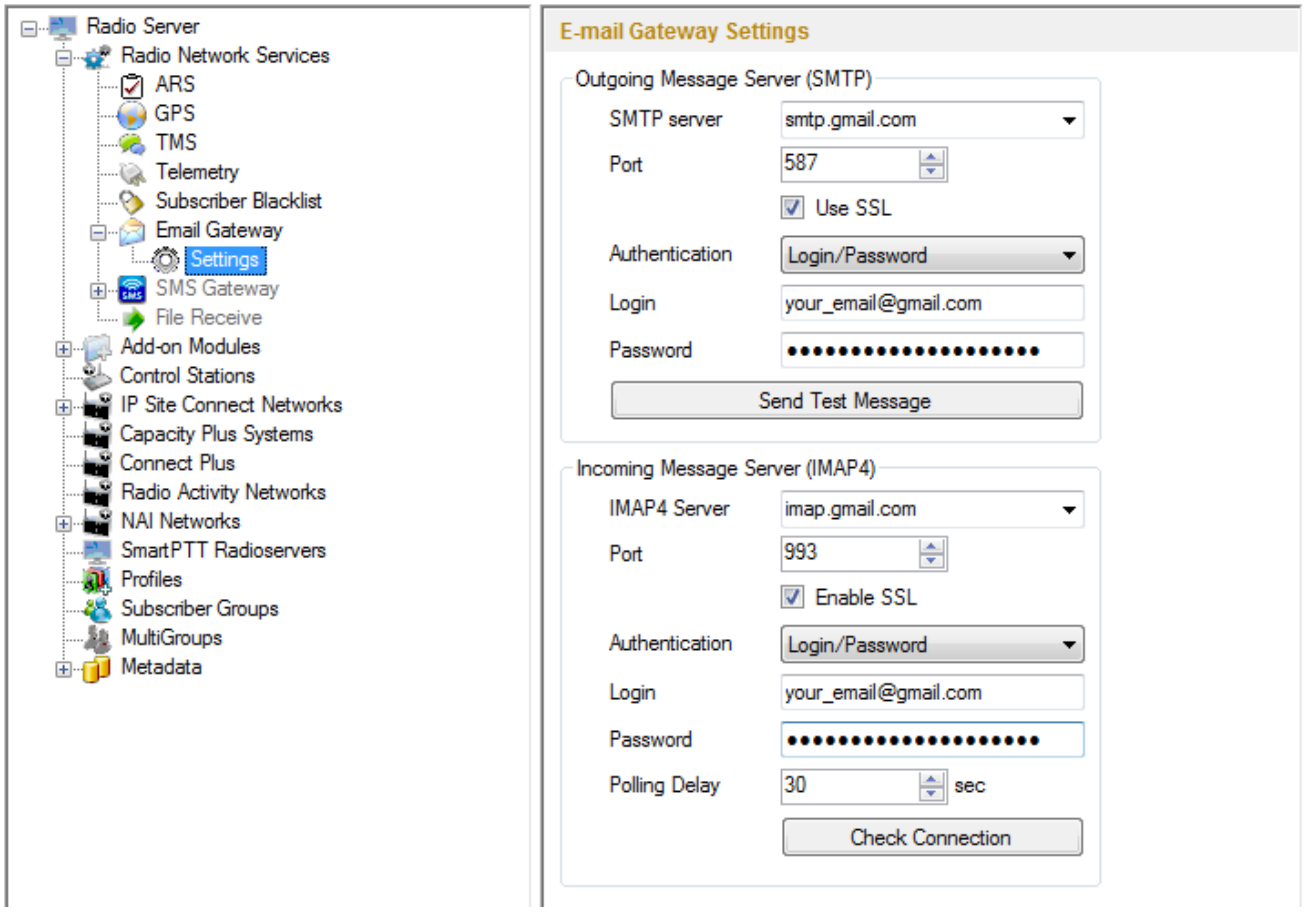
Password – user's password.

Polling Delay – polling interval for the mail server.

Check connection – press to check connection with the server. In case of successful connection, the pop-up window message shows the number of unread email messages in your email box. In case of connection failure, a window with connection error message opens.

IMAP4 Protocol Configuration

Select "IMAP4" in the drop-down list of **Receive** protocol and click **Settings**.



IMAP4 server – specify the domain name of IMAP4 server which is used for incoming email messages delivery.

Port – enter IMAP4 server port number.

Use SSL – check this option if you need secure connection to IMAP4 server.

Authentication – select authentication method for IMAP4 server.

Login – enter email address or login required by mail server.

Password – user's password.

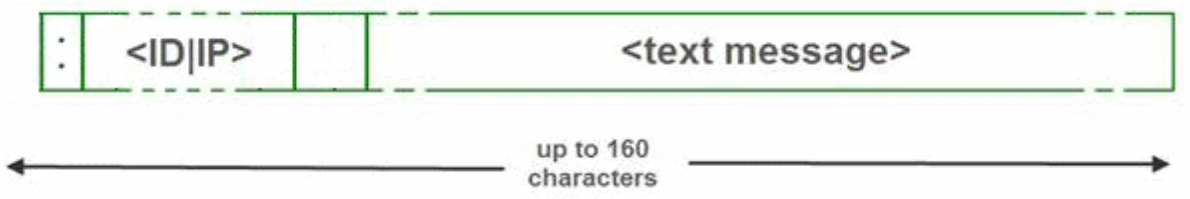
Polling Delay – polling interval for the mail server.

Check connection – click the button to check connection with the server. In case of successful connection, the pop-up window shows the number of unread mail messages in your email. If connection is failed, connection error

window opens.

Supported Message Formats

When sending an email message to radio subscribers, use the following format of the message.



: – prefix indicating that this message is addressed to a radio subscriber or talkgroup.

<ID|IP> – ID or IP address of the radio subscriber or subscriber group.

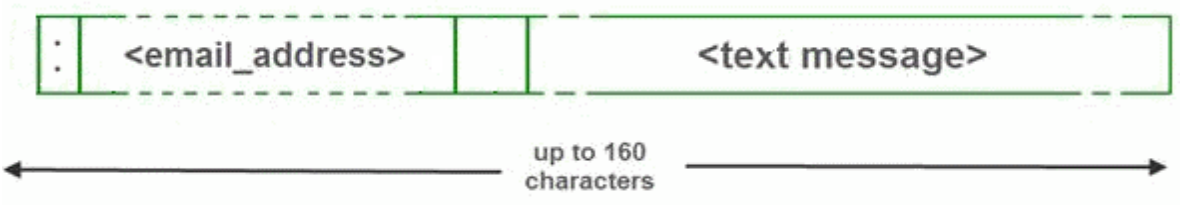
Space indicates the beginning of the message body.

Example:

1. The email message ***:12.0.0.77 Hello!*** or ***:77 Hello!*** received from the mail server will be forwarded to the radio subscriber with ID 77.
2. The email message ***:225.0.0.1 Please, call to the station*** received from the mail server will be forwarded to the subscriber group with ID 1.

The email message ***:12.0.0.80,12.0.0.81,12.0.0.82,12.0.0.50 Hello!*** or ***:9080,9081,9800,9050 Hello!*** received from the mail server will be forwarded to the radio subscribers with corresponding IDs.

When sending a text message from a radio subscriber to an email user, use the following format.



: – prefix indicating that this message is addressed to an email user.

<email_address> – email address of the email user.

Space indicates the beginning of the message body.

Example:

1. The message ***:email_address@example.com Hello!*** from a radio subscriber will be forwarded to the email user with the email address *email_address@example.com*.
2. The message ***:email_address1@example.com,email_address2@example.com Hello!*** from a radio subscriber will be forwarded to the email users *email_address1@example.com* and *email_address2@example.com*.

Note: When **Forward Messages to E-mail** is enabled together with the options of receiving messages from radio network and from the email, all messages sent or received by email users will be duplicated to the specified email addresses.

3.2.1.7 SMS Gateway

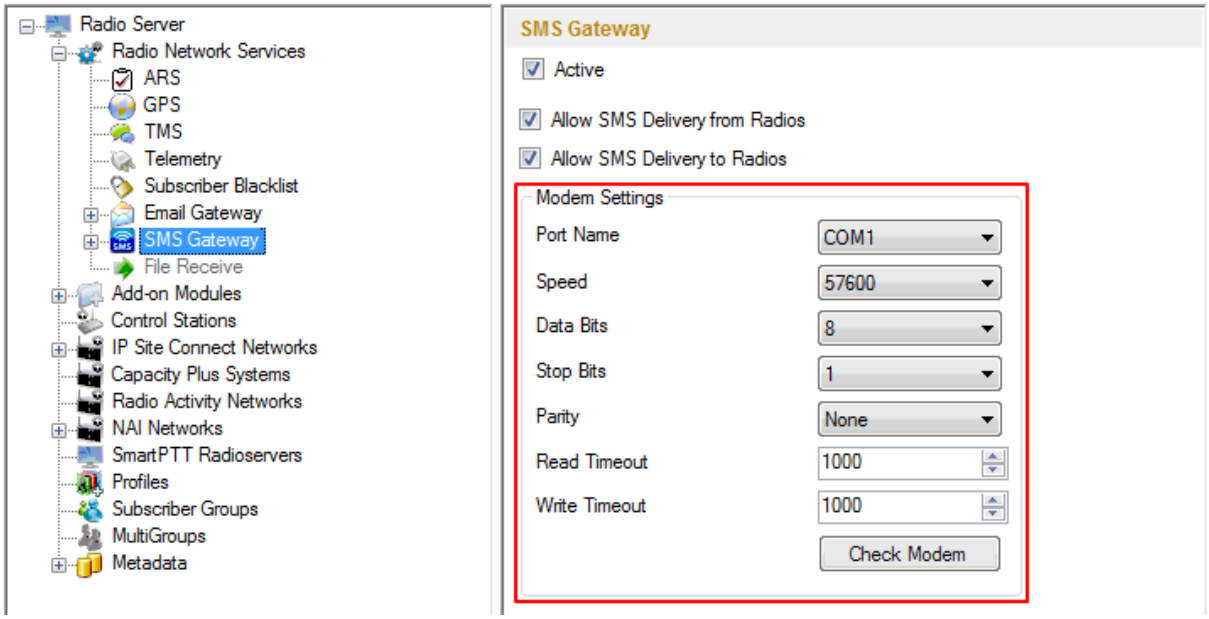
SmartPTT Radioserver has an integrated SMS Gateway service, which allows establishing communication between radios and mobile phones There are 2 possible ways to communicate between each other:

1. A radio subscriber sends an SMS to a phone subscriber.
2. A phone subscriber sends an SMS to a radio subscriber.

To be able to send an SMS, it is necessary to do preliminary settings on both modem and SmartPTT Radioserver.

How to Configure SmartPTT Radioserver

Select the **SMS Gateway** item in SmartPTT Radioserver Configurator.

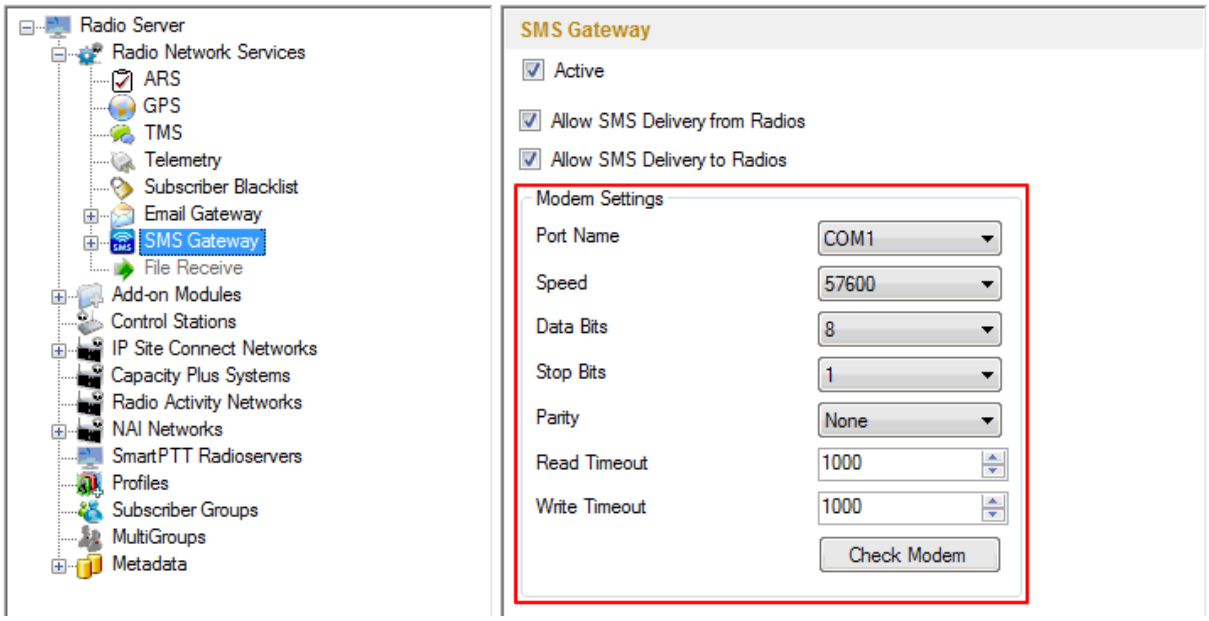


Active – select to enable SMS Gateway service.

Allow SMS delivery from radios – select this option if you need to forward SMS directly from subscriber radios.

Allow SMS delivery to radios – select this option if you need to forward SMS directly to subscriber radios.

How to Configure a Modem



Port Name – COM port number which modem is connected to. You can find the COM port number by opening modem properties in Windows Control Panel.

Speed – data flow rate through COM port (in bits/sec).

Data Bits – number of data bits to transmit.

You can configure **Data Bits** to be 5, 6, 7, or 8. Data is transmitted as a series of five, six, seven, or eight bits (five and six bit data formats are used rarely for specialized communications equipment).

Stop Bits – number of bits used to indicate the end of a byte. You can configure **Stop Bits** to be 1, 1.5, or 2. If **Stop Bits** is 1.5, the stop bit is transferred for 150% of the normal time used to transfer one bit.

Both the computer and the peripheral device must be configured to transmit the same number of stop bits.

Parity – method of detecting errors in transmission.

You can configure **Parity** to be **None**, **Odd** or **Even**.

If **Parity** is **None**, parity checking is not performed and the parity bit is not transmitted.

If **Parity** is **Odd**, the number of mark bits in the data is counted, and the parity bit is asserted or unasserted to obtain an odd number of mark bits.

If **Parity** is **Even**, the number of mark bits in the data is counted, and the parity bit is asserted or unasserted to obtain an even number of mark bits.

Read Timeout – number of milliseconds before a time-out occurs when a read operation does not finish.

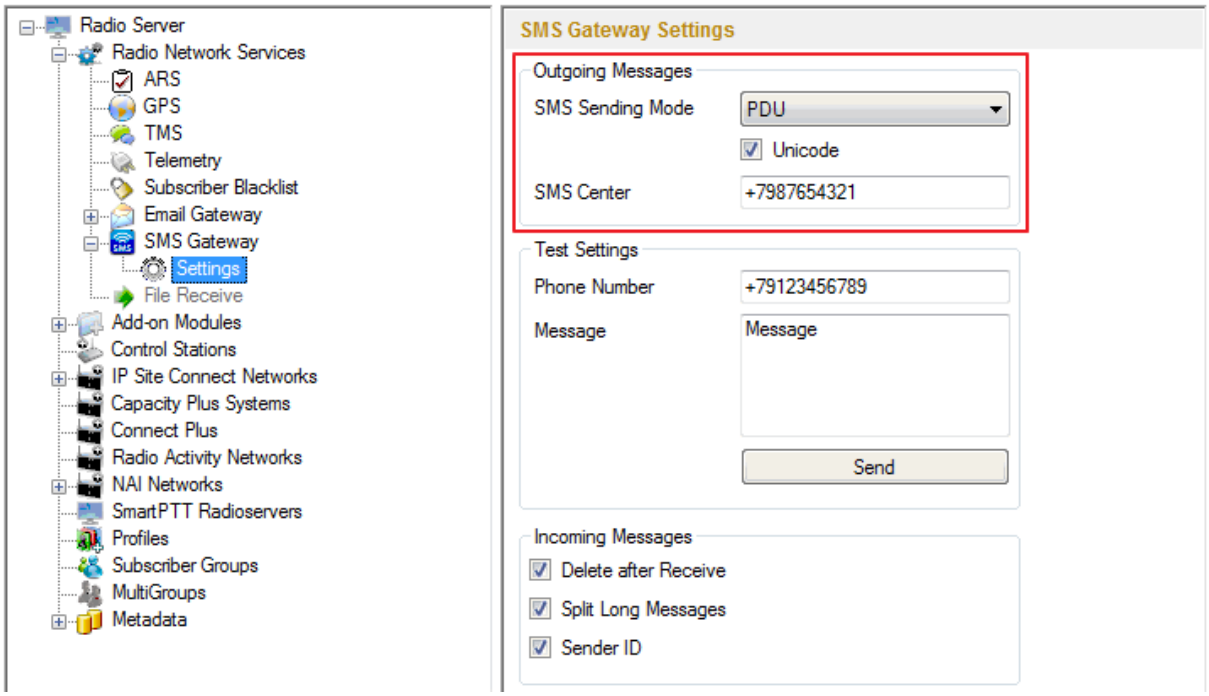
Write Timeout – number of milliseconds before a time-out occurs when a write operation does not finish.

Check Modem – modem operation test. If a modem is detected, you will see information regarding the type of modem installed on your system. If there is no modem detected, you will see "Modem not found" message.

The next step is to check the settings for outgoing messages and to send a test message.

Set Parameters for Outgoing Messages

To set parameters for outgoing messages, select **Settings** in SmartPTT Radioserver Configurator. At that, the following window opens.



SMS Sending Mode – Text or PDU mode.

There are two ways of sending and receiving SMS messages: in text mode and in the protocol description unit (PDU) mode. The text mode (unavailable on some phones) is just an encoding of the bit stream represented by the PDU mode, and can be used only for English; PDU mode and Unicode are used for all languages.

Unicode is the universal character encoding which provides the basis for the consistent encoding, representation and handling of text expressed in most of the world's writing systems. Select **Unicode**, if other languages except English are used.

SMS Center – SMS message center number. If the number is registered on modem's SIM-card, there is no need

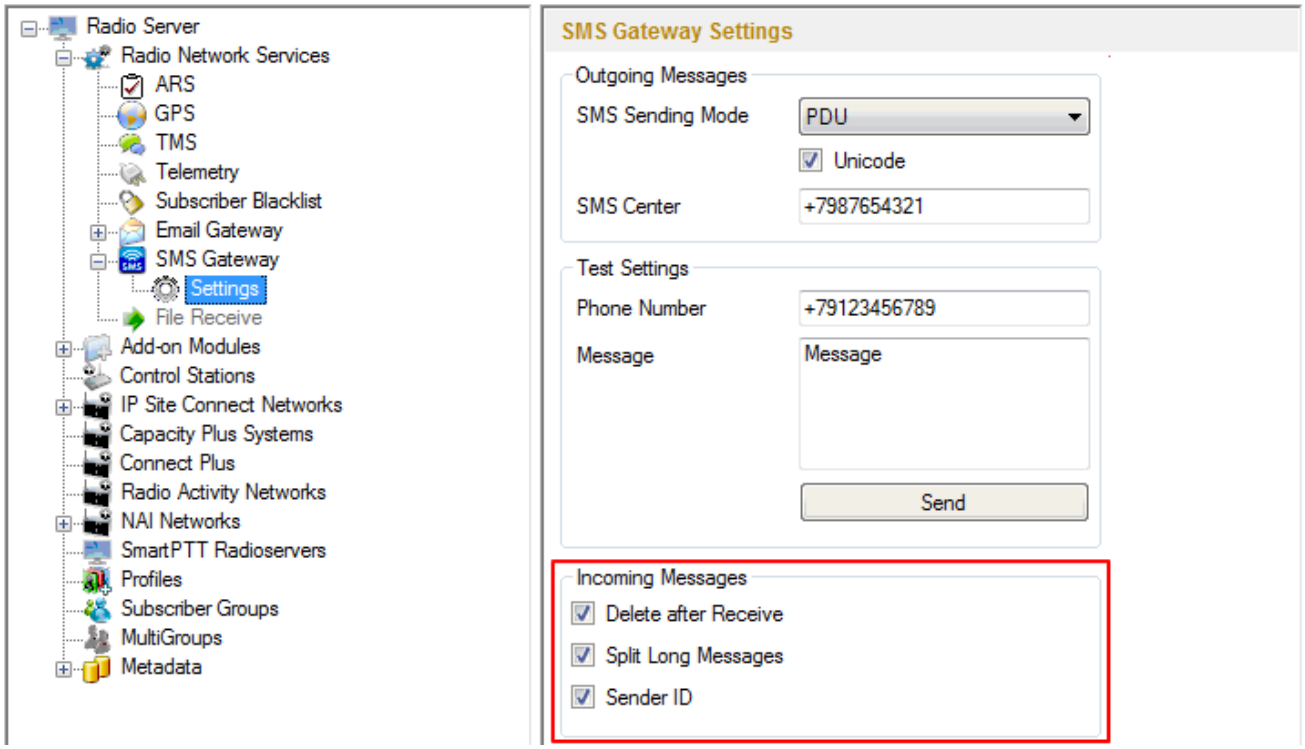
to fill this field.

Set Parameters for Incoming Messages

Delete after Receive – select **Delete after Receive** to avoid saving SMS messages in the modem memory.

Split Long Messages – if not selected, a long SMS message (over 140 characters) addressed to a radio is trimmed to size limit (that is some information gets lost). When selected, the original message is split into several packages during transmission. Thus, the radio subscriber receives the message without information loss.

Sender ID – when selected, the received message contains the sender phone number.



Run Tests on SMS Sending

Make sure SMS messages can be sent to recipients from SmartPTT Radioserver. Use the **Test Settings** option to do it.

First, in the field **Phone Number** specify the phone number where you will send the test message.

Second, enter the text of the message in the field **Message**. And then click **Send**.

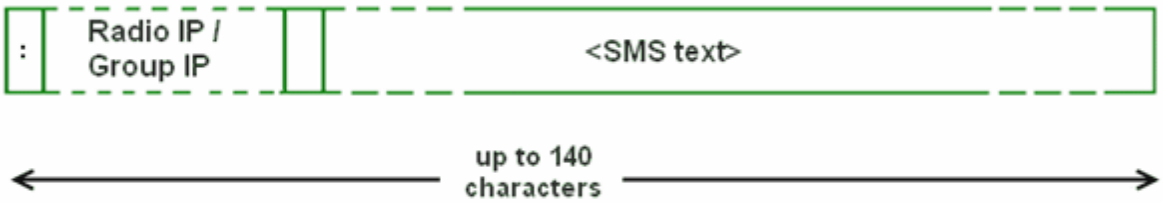
If the message is successfully sent, you will get a confirmation notification.

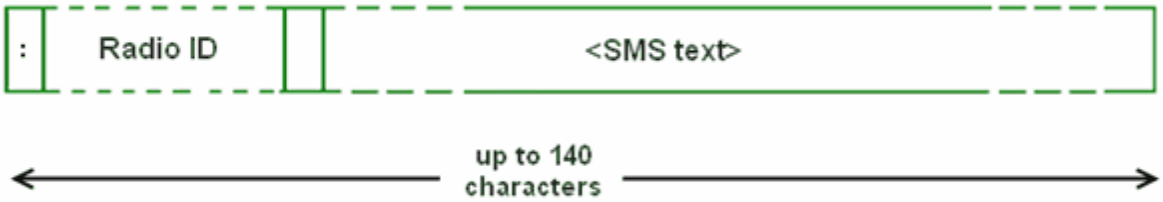
When modem is selected and test message is successfully sent, then save setting and restart the radioserver .

After radioserver is restarted, **Check modem** and **Send** (test message) will be unavailable. It means that now you can send SMS messages from the radio and to the radio.

Supported Message Formats

To send SMS from the mobile phone to the radio, the message forwarded to the modem number should comply with one of the following formats.





: – prefix indicating that this message is addressed to a radio subscriber or talkgroup.

<Radio/Talkgroup IP> – radio or talkgroup IP address of the recipient

<Radio ID> – radio ID of the recipient

Space indicates the beginning of the message body.

Example:

When the radioserver gets the following message, it sends the message to subscriber 77 (or to talkgroup ID=2):

To subscriber 77:

:12.0.0.77 SMS text

:77 SMS text

To talkgroup 2:

:225.0.0.2 SMS text

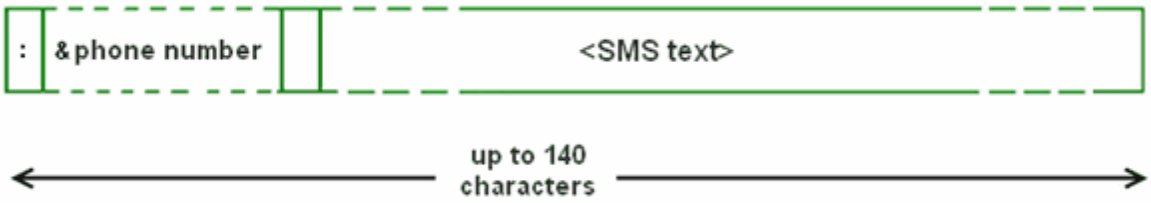
To multiple subscribers simultaneously:

:12.0.0.80, 12.0.0.81, 12.0.0.82, 12.0.0.50 SMS text

:9080,9081,9082,9050 SMS text

Note: When only ID is specified (with no IP address of the radio or talkgroup), SMS can be sent only to the subscriber with the specified ID. To send group SMS, it is necessary to use a full talkgroup IP address.

To send SMS from the radio to the mobile phone, the message should comply with the following format.



: – prefix indicating that this message is addressed to a mobile phone.

&phone number – mobile phone number of the SMS recipient (symbol "&" is used instead of "+" because there is no "+" symbol on the MOTOTRBO radios).

Space indicates the beginning of the message body.

Example:

On receiving the message ***:&71234567890 SMS text***, the radioserver sends it to the mobile radio with the phone number +71234567890.

To several mobile subscribers simultaneously:

:&71234567890,&81234567890 SMS text

3.2.1.8 File Receive

File Receive service is an easy and useful tool, which allows sending files for almost all MOTOTRBO radios. This function is even more necessary in field communication characterized by the absence of the Internet connection and other channels to transmit data.

In version 2.0 SmartPTT File Transfer allows receiving files without the server application or base stations. The user needs to have only a radio connected to the PC via USB port and the client application SmartPTT File Transfer version 2.0.

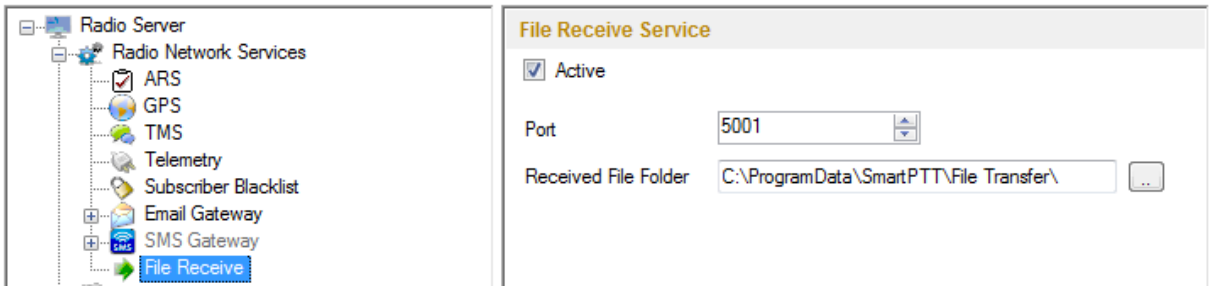
Note: Not all networks support the new scheme of file transfer. It is possible for IP Site Connect only. For other network types use the old file transfer method, that is using control stations and server application SmartPTT File Transfer version 1.0 or 2.0.

To enable this functionality the following steps should be taken:

1. Configure SmartPTT Radioserver settings.
2. Configure the radio with the help of MOTOTRBO CPS.
3. Configure routing settings for file transfer on a remote computer.
4. Configure the client application SmartPTT File Transfer 2.0.

How to Configure SmartPTT Radioserver

To configure the settings, select the **File Receive** menu item in the left setting tree of SmartPTT Radioserver Configurator. At that, the **File Receive Service** window opens on the right.



Active – enables the service.

Port – port used by file receive service.

Received File Folder – field to specify the folder name where received files are to be stored.

To apply the changes, save the new settings and restart the radioserver.

How to Configure Radio Settings in MOTOTRBO CPS

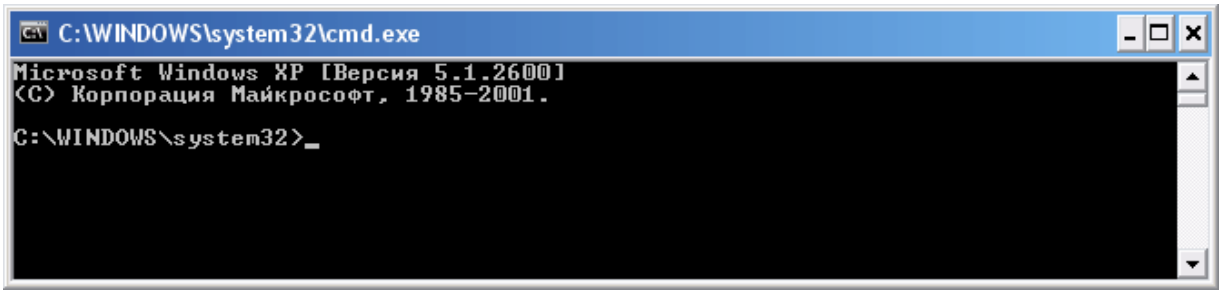
For the best file transfer rate a radio should be configured in the following way:

1. Open MOTOTRBO CPS and go to **General Settings** and configure the **TX Preamble Duration** parameter to be *60* ms.
2. Go to **Network** and configure the **Max TX PDU Size** parameter to be *500* byte.
3. Clear **Data Call Confirmed** for the channel where the files are to be transmitted.

How to Configure Routing Settings for File Transmission

To configure file transmission correctly, add information on the new route for file transmission in the routing table of the PC to which a radio is connected.

The routing table is configured via Windows command line. To open the command line, run file C:\\WINDOWS \system32\cmd.exe.



To add the file transmission route, use Windows command line:

route –p add 13.0.0.0 mask 255.0.0.0 192.168.X.X, where:

route is a command to add a route;

–p – the key for adding a route into the list of fixed routes;

add – adding the route;

13.0.0.0 – IP address of all radios available in the radio network;

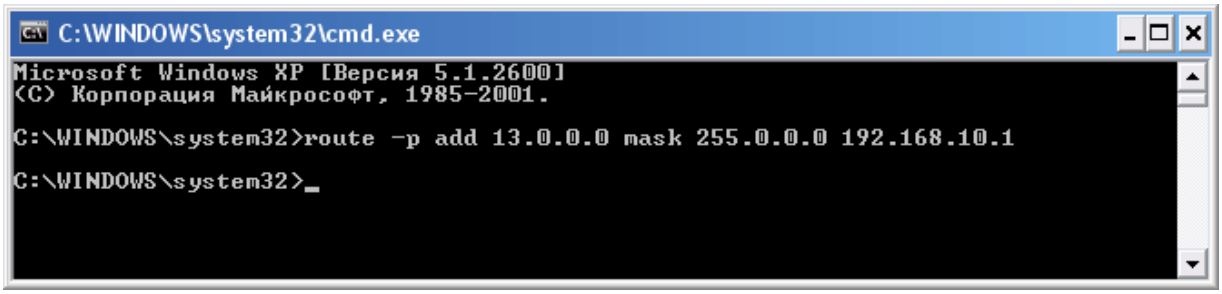
mask 255.0.0.0 – network mask;

192.168.X.X – radio IP address.

Example:

To transmit data packets from the radio with IP address **192.168.10.1** (radio IP address can be found in the MOTOTRBO CPS application, **Network** menu item), the following command needs to be entered:

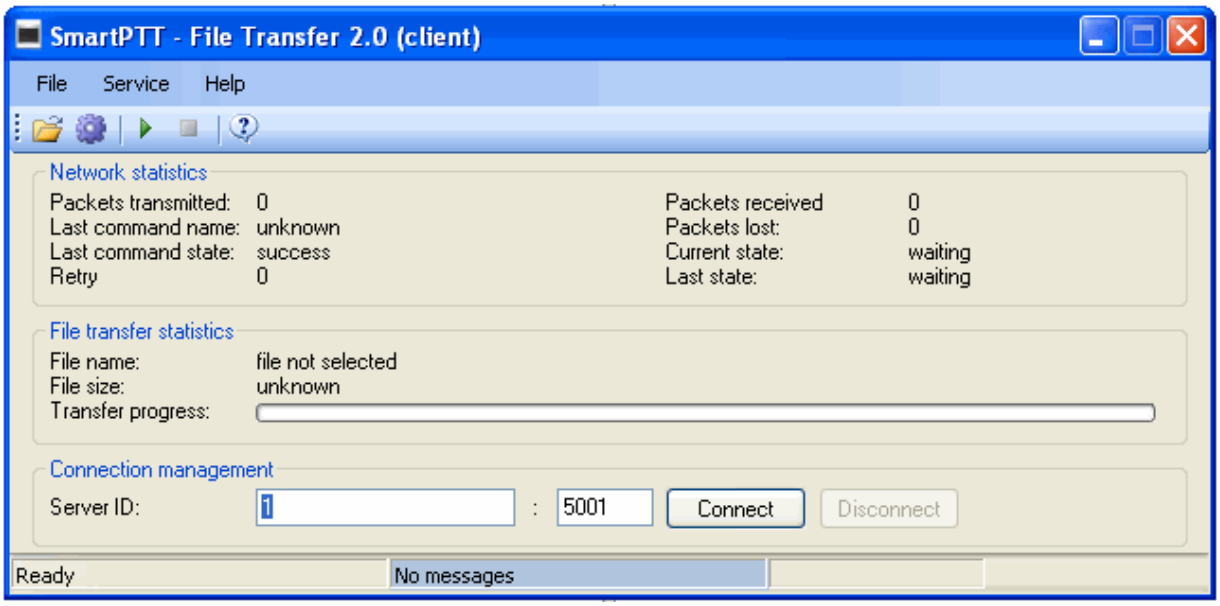
route –p add 13.0.0.0 mask 255.0.0.0 192.168.10.1



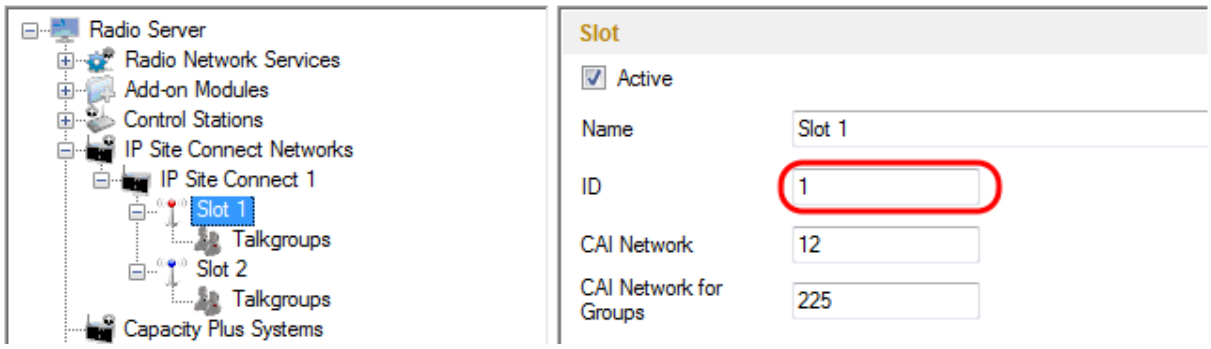
How to Configure SmartPTT File Transfer Settings

Download and install the latest version of the application SmartPTT File Transfer (*http://www.smartptt.com/demo_versija.html*).

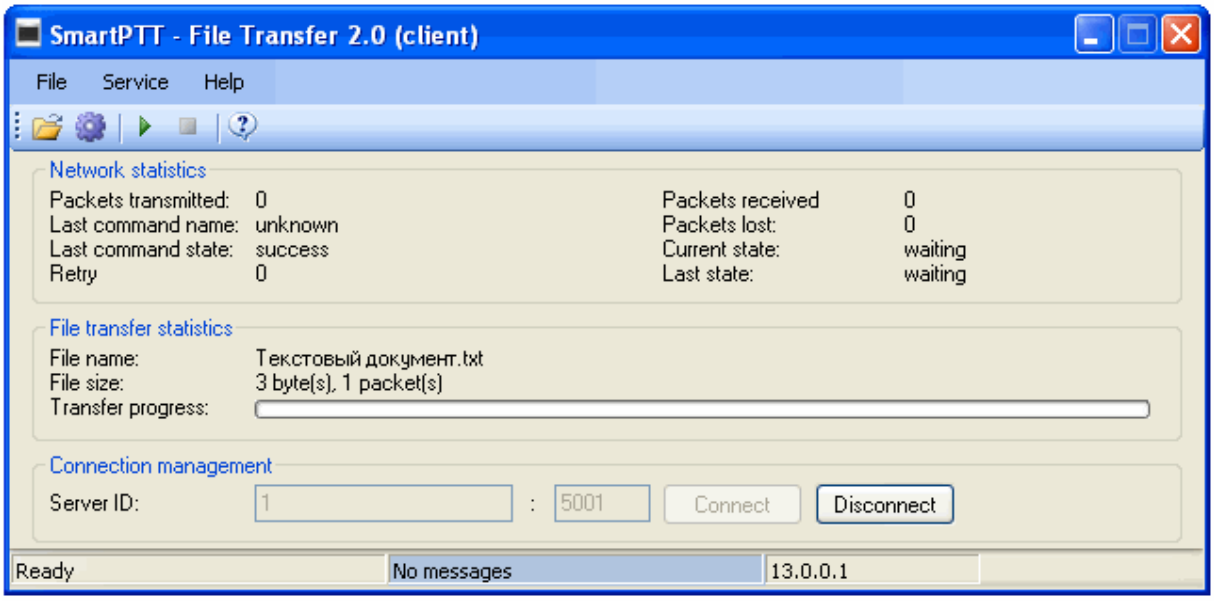
Launch the client application (**Start > All Programs > SmartPTT File Transfer > SmartPTT File Transfer Client**).



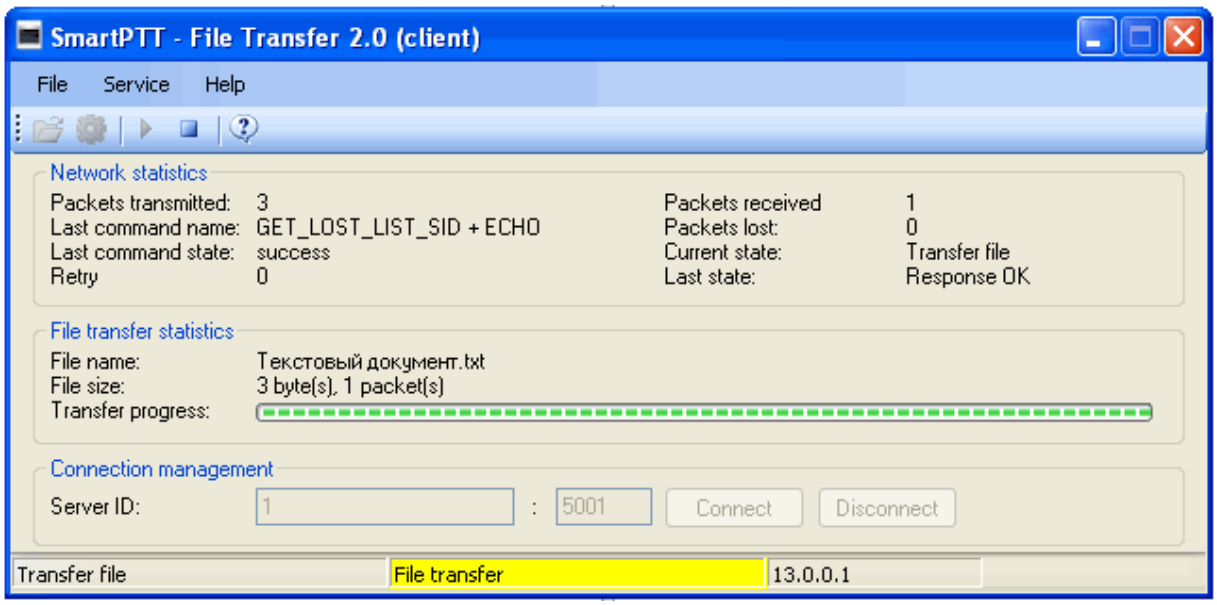
In the **Server ID** field, enter the slot ID of the IP Site Connect, which will be used for file transmission. The slot ID is set in Smart PTT Radioserver Configurator, in the **Slot** window.



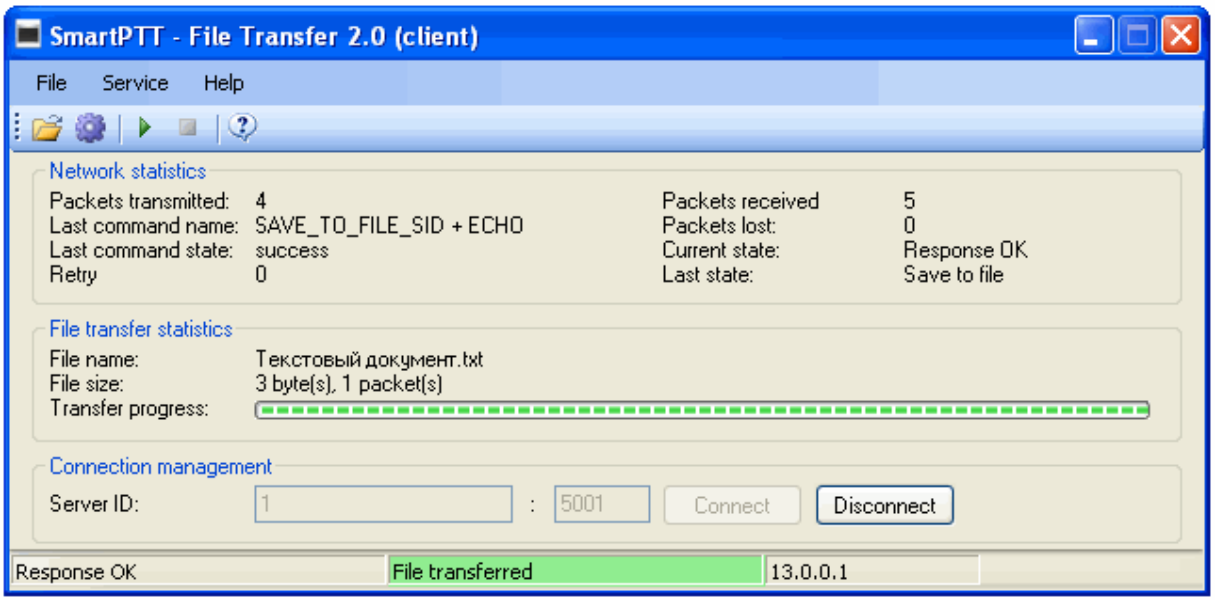
To connect to the radioserver, click **Connect**.



Select file to transmit (**File > Select File**) and click the **Start File Transfer** button . At that, the radio will start transmitting the file to the radioserver, and at the bottom of the window a record will appear informing about the ongoing file transmission process.



As soon as the file is successfully transmitted, the corresponding notification appears at the bottom of the window.



Note: For more information about the settings of SmartPTT File Transfer, please check SmartPTT File Transfer User Guide.

Add-on Modules

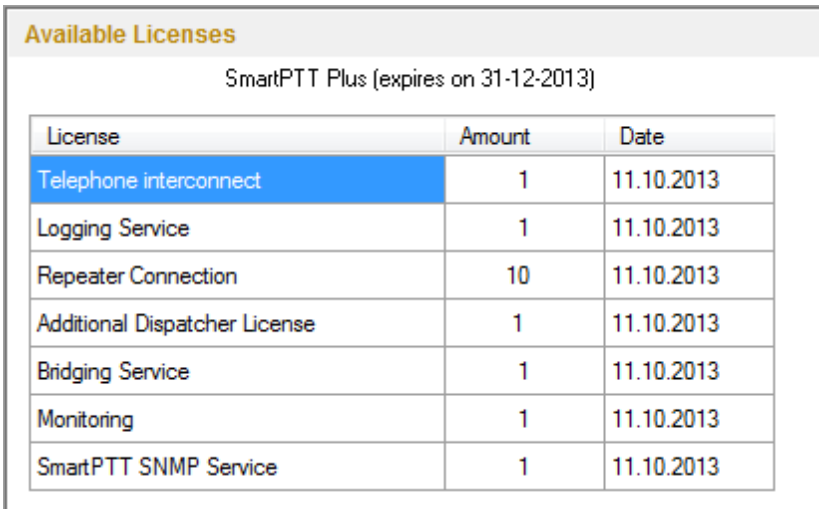
3.2.2.1 Licenses

To use the SmartPTT application you need to install licenses. There are licenses for basic features, which allow you to run the application, and licenses for additional features, like telephone connection support, bridging, SNMP service, etc.

To install server licenses, select **Licenses** section in SmartPTT Radioserver Configurator. At that, the following window opens.

Click **Install License** – the browse window is displayed. Specify the license file's location and click **Open**.

The license is installed, and the window displays information on the license's type.

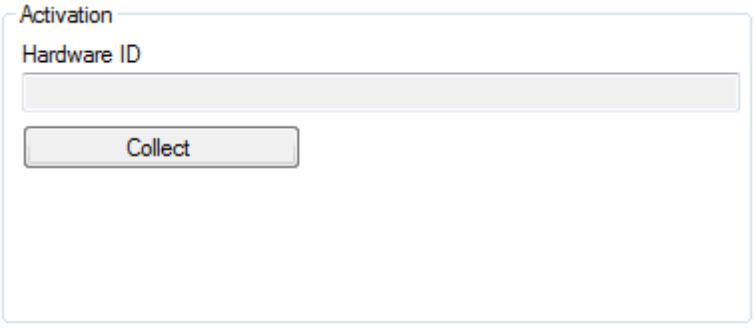


License – title of the license.

Amount – allowed number of computers where the service can be installed or the number of repeater connections.

Date – license expiry date.

Licenses can be tied to the hardware ID. You can generate it in the **Activation** area by clicking **Collect**.



3.2.2.2 Tallysman

SmartPTT together with the Tallysman Sprite™ TW251 software provides a more efficient radio monitoring that works in the Lone Worker mode. The option is compatible with MOTOTRBO DM/DP 3000 series radios.

Tallysman Sprite™ TW251 is required to configure the built-in accelerometer of the MOTOTRBO radio option board that is used to detect no movement or a tilt of the radio.

SmartPTT ensures the following features:

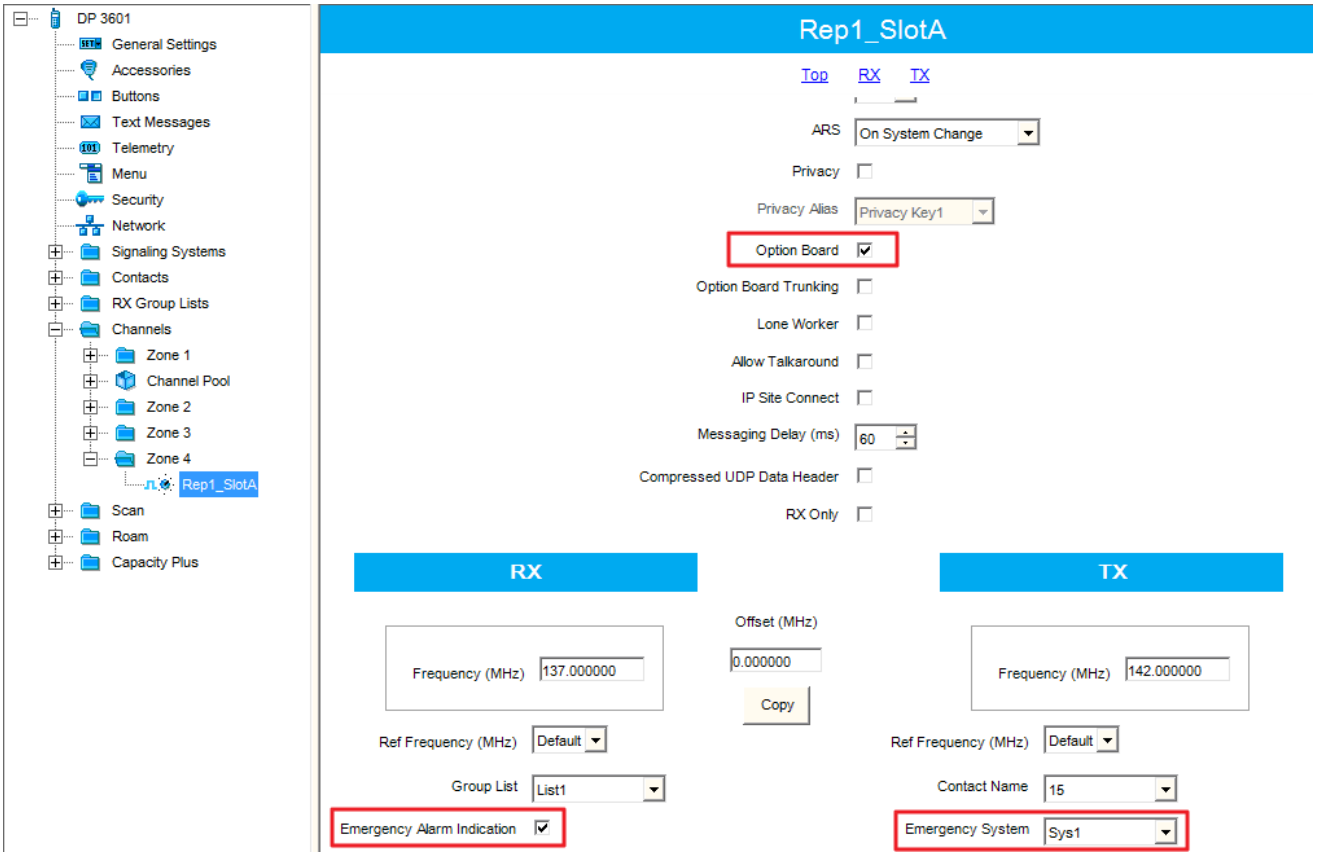
- Man Down, i.e., activating the alarm signal if the radio position (its tilt) no longer corresponds to the parameters set for the option board in Tallysman Sprite Configurator.
- Heartbeat messages. Messages that provide information about subscriber presence in the radio network. In case of message delivery failure, SmartPTT Dispatcher is notified about the radio unavailability. The radio is also informed about radioserver unavailability (e.g., when the channel is busy).

> Example of the option board configuration:
> When the radio tilt changes, an signal is played on the radio. This signal stops after the radio is returned to its normal orientation. If not, an emergency alarm is sent to SmartPTT Radioserver. The emergency alarm LED on the radio can be turned off by a long press on the emergency alarm button (depends on the radio MOTOTRBO CPS settings).

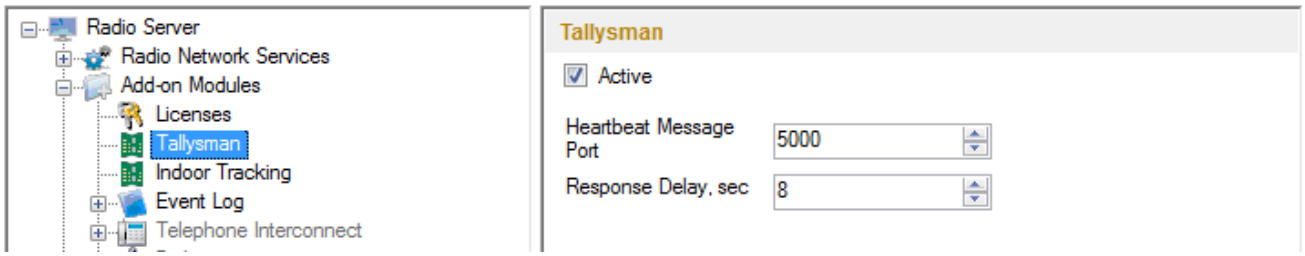
You should contact the software provider on the installation and configuration of Tallysman Sprite™ TW251 – Tallysman Wireless Inc.

For proper operation of the radios with the built-in option board, do the following radio settings in MOTOTRBO CPS:

- enable option board on the selected channel by selecting the **Option Board** checkbox;
- enable the **Emergency Alarm Indication** option and select digital signaling system from the list in the **Emergency System** field. To set up a signaling system, go to **Signaling Systems > Digital Emergency** item.



To enable Tallysman, click **Tallysman** in the setting tree of SmartPTT Radioserver Configurator and select the **Active** checkbox.



Heartbeat Message Port – UDP port to receive messages about the radio presence in the network. This value must match **Host UDP Port** in the option board configurator (the **Heartbeat** item, the Tallysman Sprite Configurator application). Use the default value of *5000*.

Response Delay, sec – the time period that passes before SmartPTT Radioserver sends heartbeat message confirmation to the radio. Set the value taking into consideration the network load. Otherwise, if the radio does not receive acknowledgment, the radio gets a signal about radioserver unavailability.

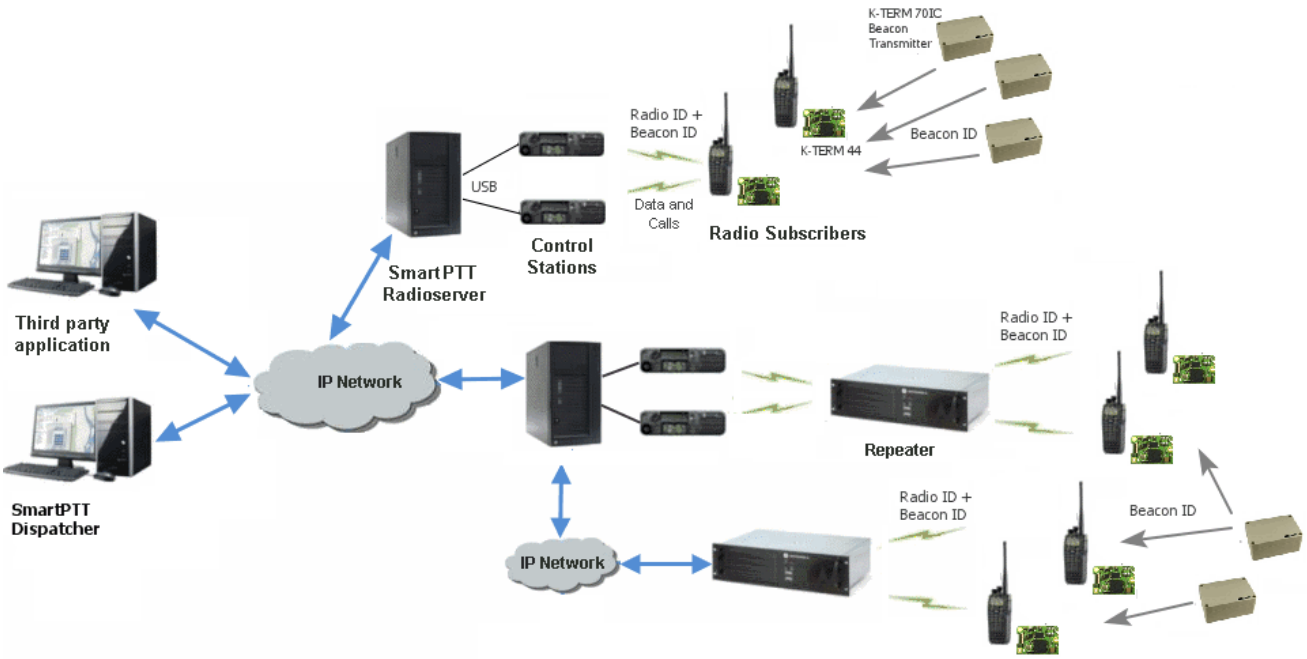
3.2.2.3 Indoor Tracking

Big organizations with huge premises require constant control over their employees' displacement inside buildings. For this purpose Indoor Tracking system was implemented. Indoor Tracking system allows getting data from special beacons and transmitting it to SmartPTT Dispatcher or external applications using API.

Since satellite communication system is not available inside buildings, Indoor Tracking allows controlling relocation of subscribers with MOTOTRBO DP 4xxx radios implemented with Kilchherr option boards (K-TERM 44) near special beacons (K-TERM 70IC Beacon Transmitter), which are installed in buildings.

Note: Indoor Tracking functionality requires the corresponding license.

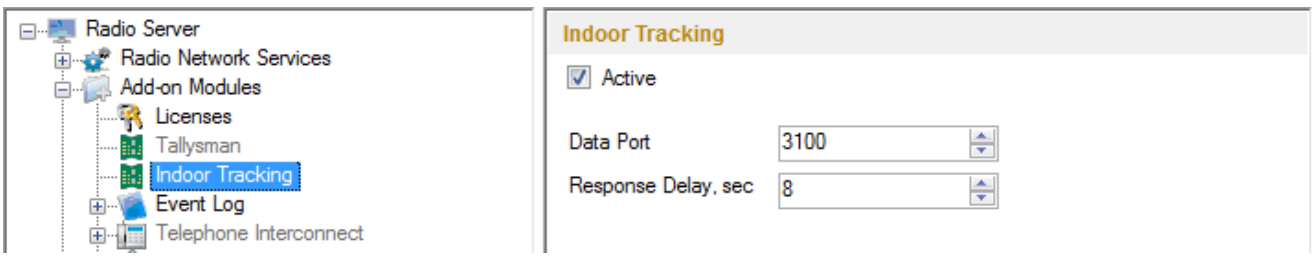
The following scheme shows how SmartPTT Radioserver gets subscriber location data.



Each beacon installed is continually transmitting commands, like *Detect*, *Keep Alive*, *Lost,* which contain unique Beacon ID, set in K-Term CPS. When a radio gets closer to the beacon, the built-in option board receives Beacon ID and then transmits it with the Radio ID to SmartPTT Radioserver via repeater or control station. Further data processing can be handled by SmartPTT Dispatcher or any third party application, connected to the radioserver using API.

Note. When using Control Stations (without repeaters), it is highly recommended to take one separate control station for Beacon ID transmission.

To enable **Indoor Tracking** select **Indoor Tracking** in **Add-on Modules** of SmartPTT Radioserver Configurator and select **Active**.



Data Port – UDP port for listening for Beacon ID.

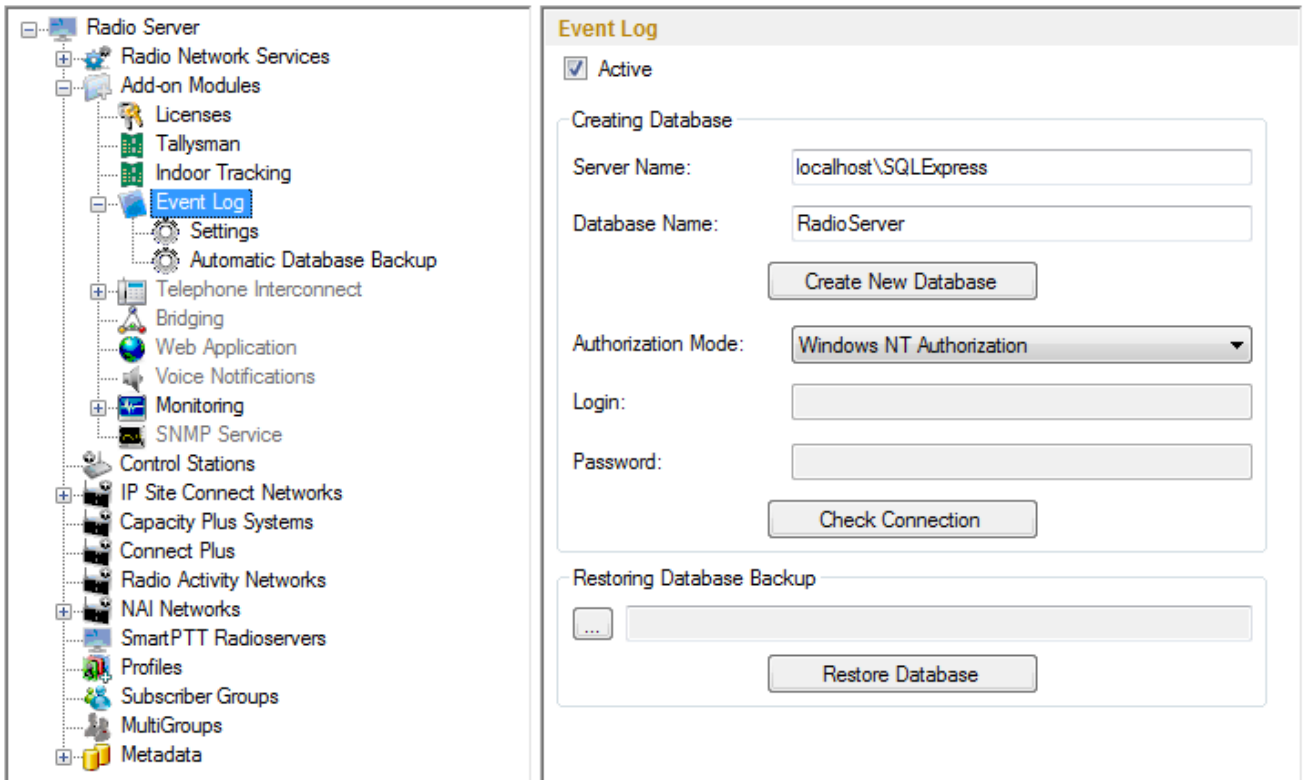
Response Delay – time period during which SmartPTT Radioserver waits to confirm the command receiving from the option board.

3.2.2.4 Event Log

The **Event Log** is a special SmartPTT Radioserver log. It tracks all events from all dispatch systems connected to the radioserver. Events are registered in the event log even if SmartPTT Radioserver Configurator is closed.

First activate the event log by checking off **Enable Event Logging**. To do it, select **Event Log** item in the setting tree in SmartPTT Radioserver Configurator.

Then create the database for the log.



Warning! To enable Event Log on the radioserver, the corresponding license should be available. Go to the Licenses section to acquire the necessary license.

To create a new database, type in the **Server Name** and the **Database Name** fields, and click **Create New Database**. If creation is successful, a message about successful database creation is displayed. If a database is

not created, the cause of failure will be displayed at the bottom of the window.

Note: Database creation process at SmartPTT Radioserver is similar to the database creation process at SmartPTT Dispatcher.

Note: For the database server installed together with the radioserver enter the name using the following format: Name of computer\SQLExpress (for example, MYCOMP\SQLExpress).

Select **Authorization Mode** between the two:

SQL Server Authorization – you must have the login name and password of the account with SQL server access.

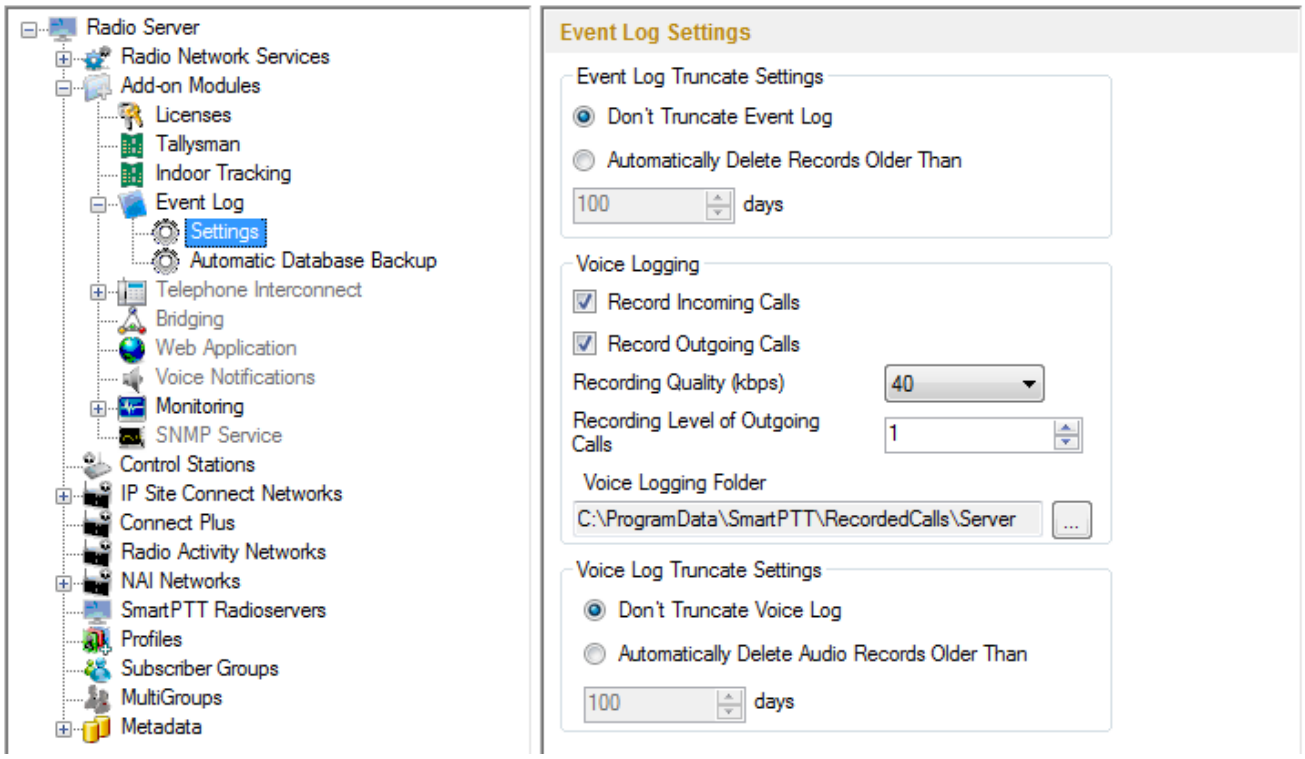
Windows NT Authorization – the user who has logged into the Windows system, must be listed in the SQL server's list of users to make connection.

Click **Check Connection**. In case of successful authorization the message "The connection is established successfully!" is displayed. If authorization fails, the cause will be displayed at the bottom of the window.

To restore the event log database from the backup, select the required database backup file in the **Path** field and click **Restore Database**.

Note: To set up the auto backup of the event log database, go to the Automatic Database Backup window.

To tune the radioserver event log select **Settings** under **Event Log** in the setting tree of SmartPTT Radioserver Configurator.



Event Log Truncate Settings – settings to manage records deletion in the log.

Record Incoming Calls – if this option is on, incoming calls are recorded.

Record Outgoing Calls – if this option is on, outgoing calls are recorded.

Recording Quality (kbps) – audio files sound quality.

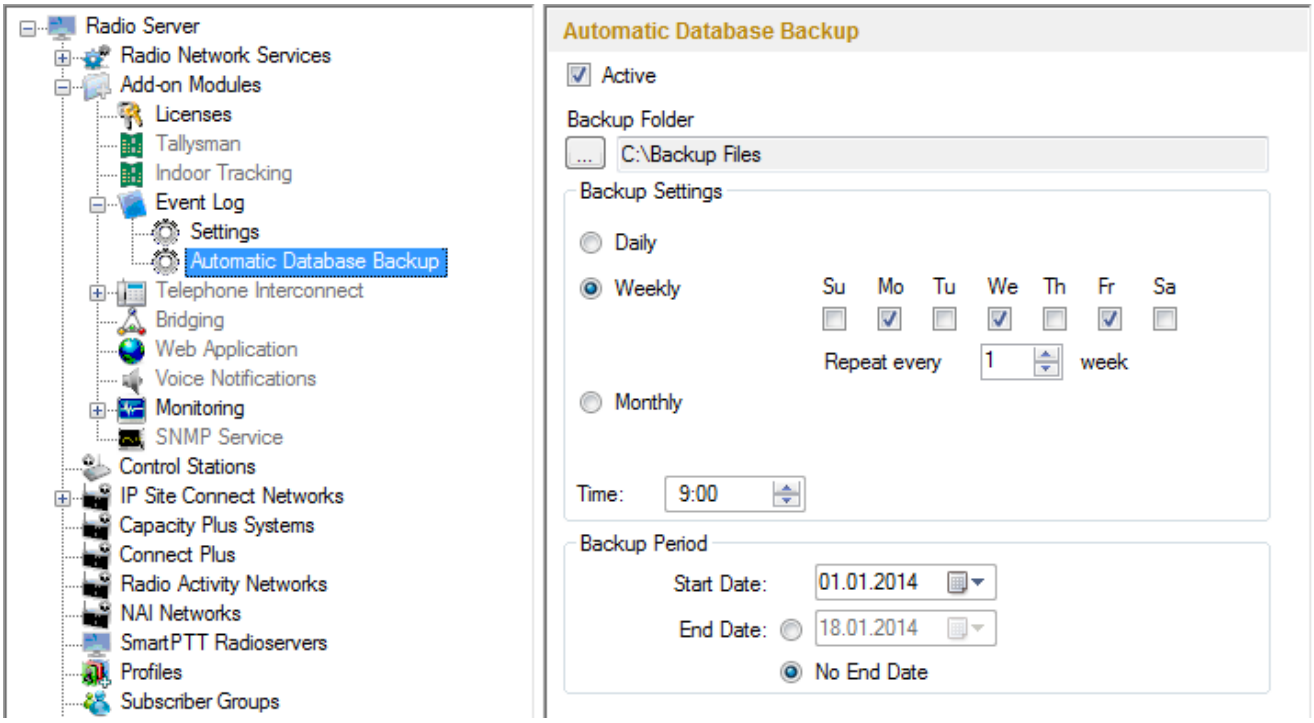
Recording Level of Outgoing Calls – increase or decrease sound volume for recording outgoing calls.

Voice Logging Folder – set path to the folder where recorded audio files are stored.

Voice Log Truncate Settings – settings to control audio records truncate parameters.

Backing up data on a regular basis helps to protect it from being erased in case of the server hardware or software failure. SmartPTT Radioserver Configurator allows user to back up the event log database automatically.

In order to set up automatic backup schedule of the event log database, select **Automatic Database Backup** under **Event Log** in the setting tree of SmartPTT Radioserver Configurator.



Active – select the checkbox to enable the ability to create current event log database backups in the automatic mode.

Backup Folder – full path to the file for saving the database backup.

Backup Settings – schedule for creating the current database backup:

- **Daily** – every fixed day at the specified time (for example, every day, every third day at 9:00 a.m.).
- **Weekly** – every fixed day of the week at the specified time (for example, every Monday, Wednesday and Friday at 11:00 p.m.).
- **Monthly** – once a month on the fixed day of the selected month and at the specified time.

Backup Period – allows you to set time period when automatic database backup is to be made according to the selected backup settings.

Note: The number of stored backup files in the same folder is limited to 3. Otherwise, when creating a new copy, the old files are deleted.

Note: The event log database recovery from the automatically created backup is performed manually in the Event Log window.

3.2.2.5 Telephone Interconnect

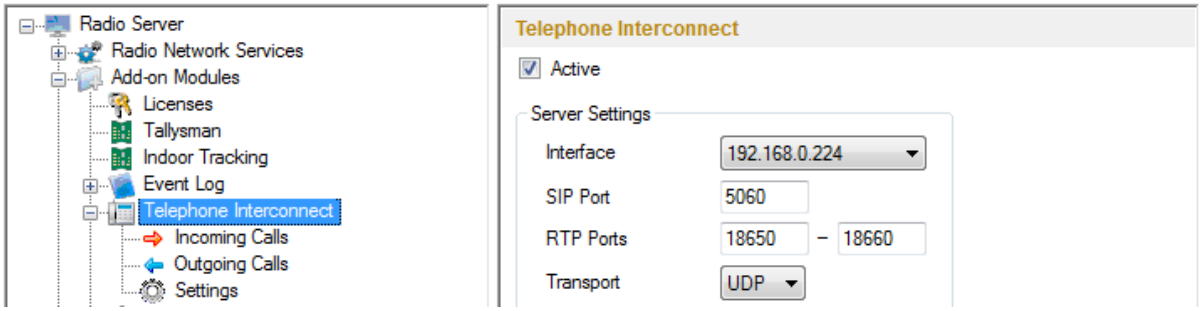
Telephone Interconnect service allows for communication between radio and telephone subscribers, and uses SIP and RTP protocols for signaling and voice data transmission. Voice data transmission is done in half-duplex mode. Switching between receiving and transmitting modes is carried out by voice interrupt initiated by a radio subscriber. There are several ways how to make the interconnection:

- A telephone subscriber makes a private call.
- A telephone subscriber makes a group call.
- A radio subscriber makes a call to a telephone subscriber.
- The dispatcher connects telephone and radio subscribers.
- The dispatcher connects a telephone subscriber and a talkgroup.

To use Telephone Interconnect service, configure the radioserver and VoIP gateway settings. Also, make sure that **Allow Telephone Interconnect** is enabled in the network slot parameters.

How to configure SmartPTT Radioserver

To configure SmartPTT Radioserver settings, go to SmartPTT Radioserver Configurator and select **Telephone Interconnect** as shown on the picture.



Warning! To activate Telephone Interconnect, install the corresponding license. The license can be

installed under Licenses.

In the **Server Settings** area specify the interface that will be used for sending and receiving commands and voice data when working with VoIP gateway.

SIP Port – UDP or TCP port number to receive and send SIP data packets. The default value is *5060*. Accordingly, the specified port must be available for incoming and outgoing traffic.

Note: If both SmartPTT Dispatcher and SmartPTT Radioserver are installed on one computer, their SIP ports must differ. For example, *5060* for the radioserver and *5061* for the dispatch console.

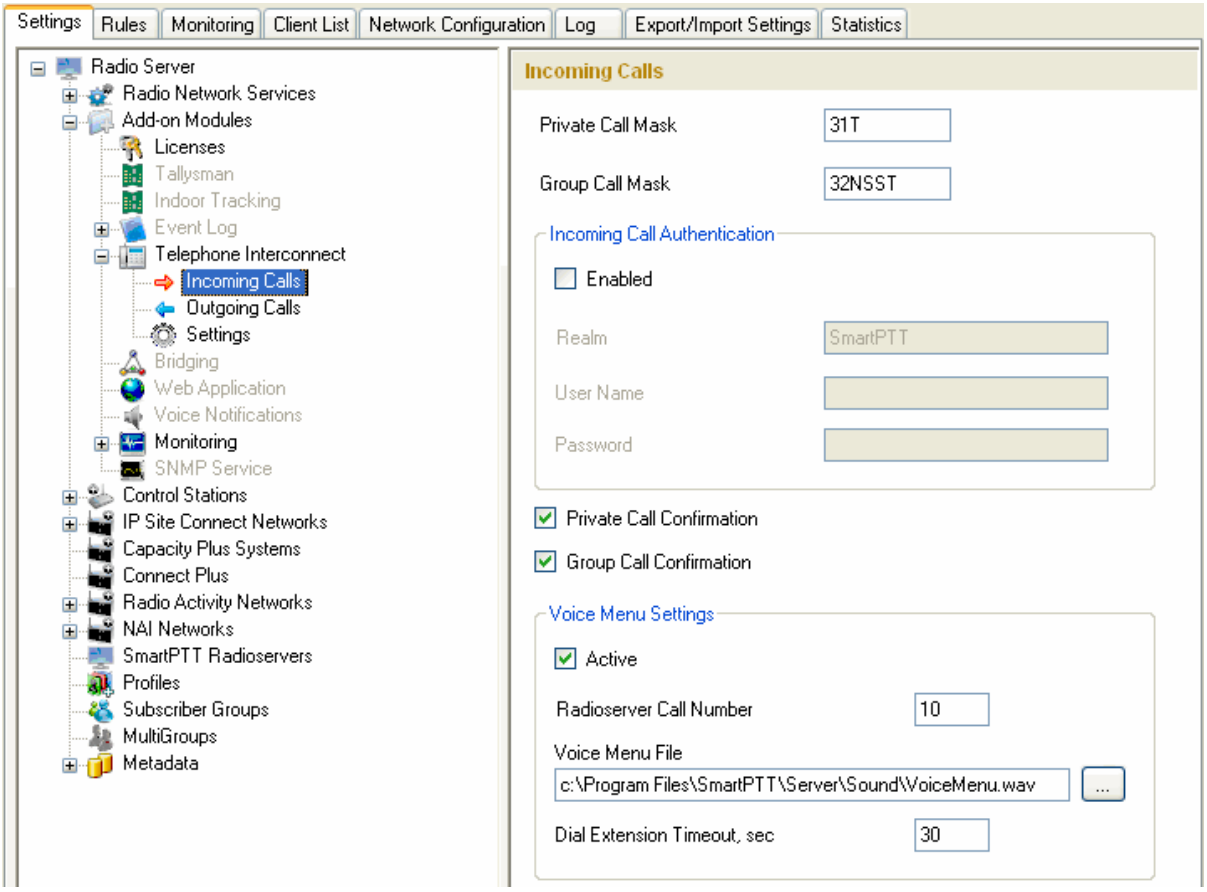
RTP Ports – UDP or TCP port number to receive and send SIP data packets. Accordingly, the specified port must be available for incoming and outgoing traffic. The default range of values is from *18650* to *18660*.

Warning! The address and the port of the VoIP gateway must be real (NAT is not supported).

Transport – allows selecting between TCP and UPD for SIP commands transmit.

Incoming Calls

In terms of the SmartPTT system "incoming calls" are calls that are made from telephone subscribers to radio subscribers.



A telephone subscriber can make two types of calls to radio subscribers.

1. Private call is a call when the radioserver calls to a radio subscriber. You can use **Private Call Mask** when making a private call.
2. Group call is a call when the radioserver calls to a talkgroup. You can use **Group Call Mask** to make a group call.

A mask is a regular expression. In the following table you can find all the symbols used in masks.

Symbols	Description
.	Used for any figure
[m-n]	Used for any figure in the interval from m to n
[a,b,c] or [abc]	Used for any figure from the list
T	Used for any number of any figures
( )	Used to unite regular expressions

Symbols	Description
N	Used to denote network ID. ***N**=0* when there is only one network.
S	Used to denote Slot ID (in IP Site Connect) or Site ID (Linked Capacity Plus)

Example:

Let's specify the sample masks:

Private Call Mask: *31* or *31T*

Group Call Mask: *32NSST*

Then the dialed numbers will mean:

31403 31 403: private call to subscriber with ID=403.

3200013 32 0 00 13: wide group call to a talkgroup 13, which must be either unique for the radioserver, or located in the only network connected to the radioserver.

3310013 33 1 00 13: wide group call to a talkgroup 13 located in network 1.

33112123 33 1 12 123: local group call to a talkgroup 123 in network 1, on site 12.

The **S** symbol can be assigned different values and they depend on the network type. Below is the list of values that can be used for the **S** symbol:

- In the IP Site Connect network the **S** symbol can be assigned values *1* and *2* only, which corresponds to the number of the IP Site Connect slot.
- In the Capacity Plus network the **S** symbol can have only one value: *0.*
- In the Linked Capacity Plus network the **S** symbol can be assigned any value. ***S**=0* stands for a wide group call. ***S**=1*, ***S**=2*, ***S**=any other number* stand for a local group call specifying the LCP site number.

To make the all call, use the following values:

- In the IP Site Connect network: ***S**=1/2* and *talkgroup ID=0*.
- In the Capacity Plus network: ***S**=0* and *talkgroup ID=0*.
- In the Linked Capacity Plus network: ***S**=0* and *talkgroup ID=0*.

Incoming Call Authentication – receiving an incoming call from a phone/softphone, the radioserver asks for user name and password corresponding to **Realm** in the described setting. Calling subscriber must send back

user name and password specified in this setting. To activate this ability, select **Enabled**.

Realm – parameter used for the incoming telephone calls authentication.

User Name – name of the user used for authentication.

Password – password used for authentication. It should correspond to the specified realm.

Private Call Confirmation – if enabled, when making a private call, the telephone subscriber can hear dial tone until the radio subscriber has pressed the PTT button. If **Private Call Confirmation** is not selected, the call will start immediately.

Group Call Confirmation – if enabled, when making a group call, the telephone subscriber can hear the dial tone until one of the the radio subscribers of the talkgroup has pressed the PTT button. If **Group Call Confirmation** is not selected, the call will start immediately.

Voice Menu Settings is used for setting up interactive voice response (IVR), i.e., a technology that allows the SmartPTT system to interact with subscribers through the use of voice and DTMF tones input via keypad. If enabled and set up properly, the telephone subscriber can make a call to the radioserver and then to the required radio subscriber or talkgroup using the information heard in the voice menu file.

Radioserver Call Number – number to call to the radioserver.

Voice Menu File – the audio file which will be played to the telephone subscriber. The sampling frequency of the audio file must be 8000 Hz.

Dial Extension Timeout – period in seconds when the caller can dial the ID of the radio subscriber or talkgroup after listening to the voice menu file. If the caller has not dialed the ID before the time is out, the call will be dropped.

Here is the list of steps to make a call using voice menu:

1. Dial your PBX number.
2. Dial the radioserver call number.
3. Dial * to turn on DTMF mode on the telephone (not obligatory, depends on the telephone parameters).
4. Dial the private or group call mask, and then the radio subscriber or talkgroup ID.
5. Dial #.

Example:

The radio subscriber ID: *120*.

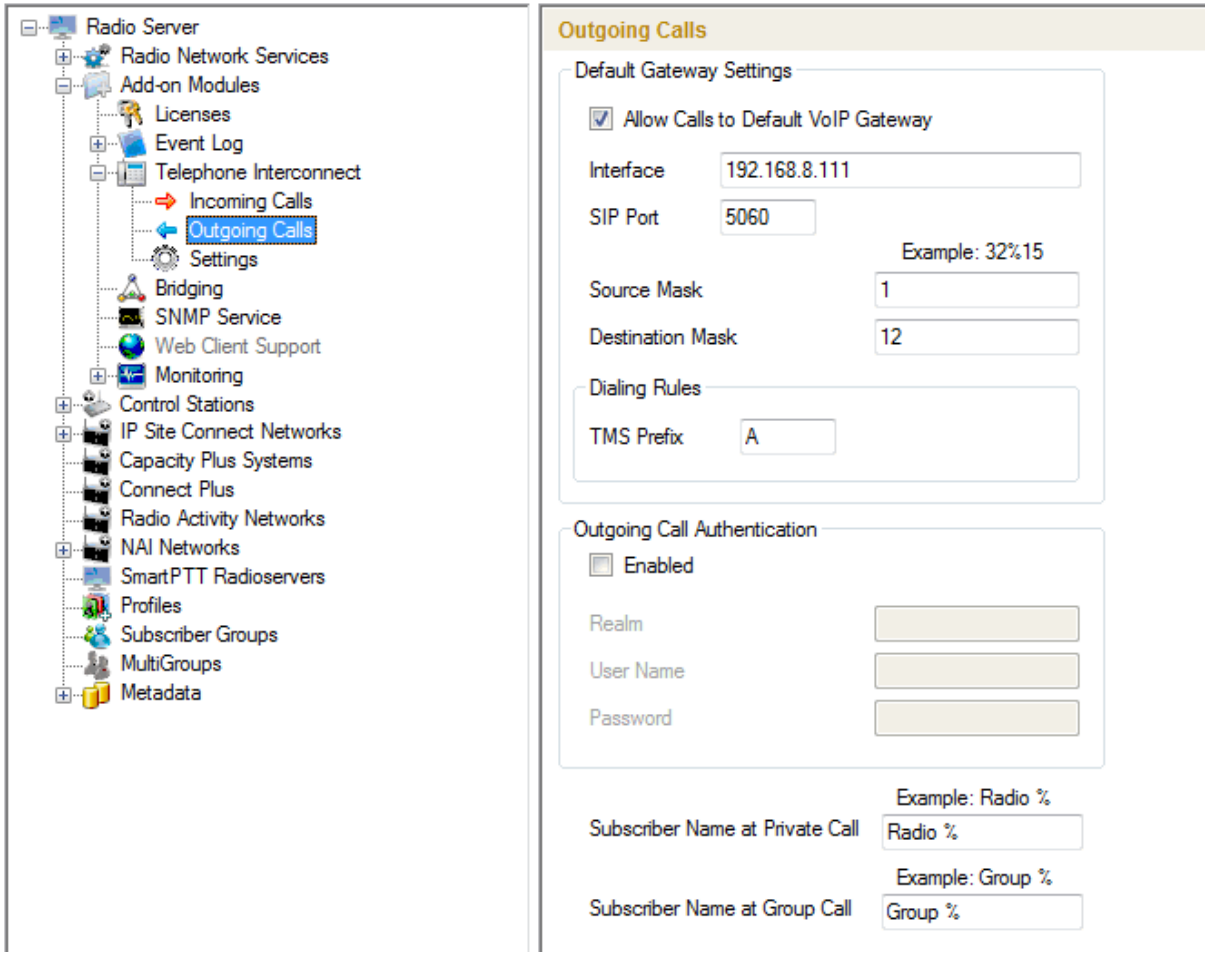
The PBX number: *9649*.

The radioserver call number: *10*.

The private call mask: *1*.

The telephone subscriber will call: 9649 10 (*) 1 120 #.

Outgoing Calls



Allow Calls to Default VoIP Gateway – if enabled, radio subscriber calls to telephone subscribers are made automatically, using all the data given, such as **IP Address** of the automatic exchange, **Source** and **Destination Masks**, **Dialing Rules**. If the option is not selected, radio subscribers will need to enter the IP address and the full number of the telephone subscriber to make a call.

IP Address – IP address of the automatic exchange.

Source Mask – must correspond to the source mask specified in the automatic exchange. It includes only figures, for example, 32%15, where % is the number of the radio subscriber.

Destination Mask – contains only figures, for example, 32%15, where % is the dialed telephone number. It is used to speed up dialing of the telephone number.

TMS Prefix is used for making a call to a telephone subscriber with the help of a text message sent from a radio. **TMS Prefix** can contain any available symbol on the radio keyboard. Figures following the specified prefix are regarded as the telephone subscriber's number.

Outgoing Call Authentication – the setting includes parameters required for outgoing call authentication. If **Realm** is left blank, the specified user name and password are used in response to any authentication request from the called party. Otherwise, **Realm** is checked whether it corresponds to the requesting user name and password. If it matches, user name and password are sent. If not, the authentication is failed immediately.

Realm – if the value is set, SmartPTT Radioserver responds to authentication requests with the matching **Realm** value. If the value is not set, SmartPTT Radioserver sends user name and password given in response to any authentication request.

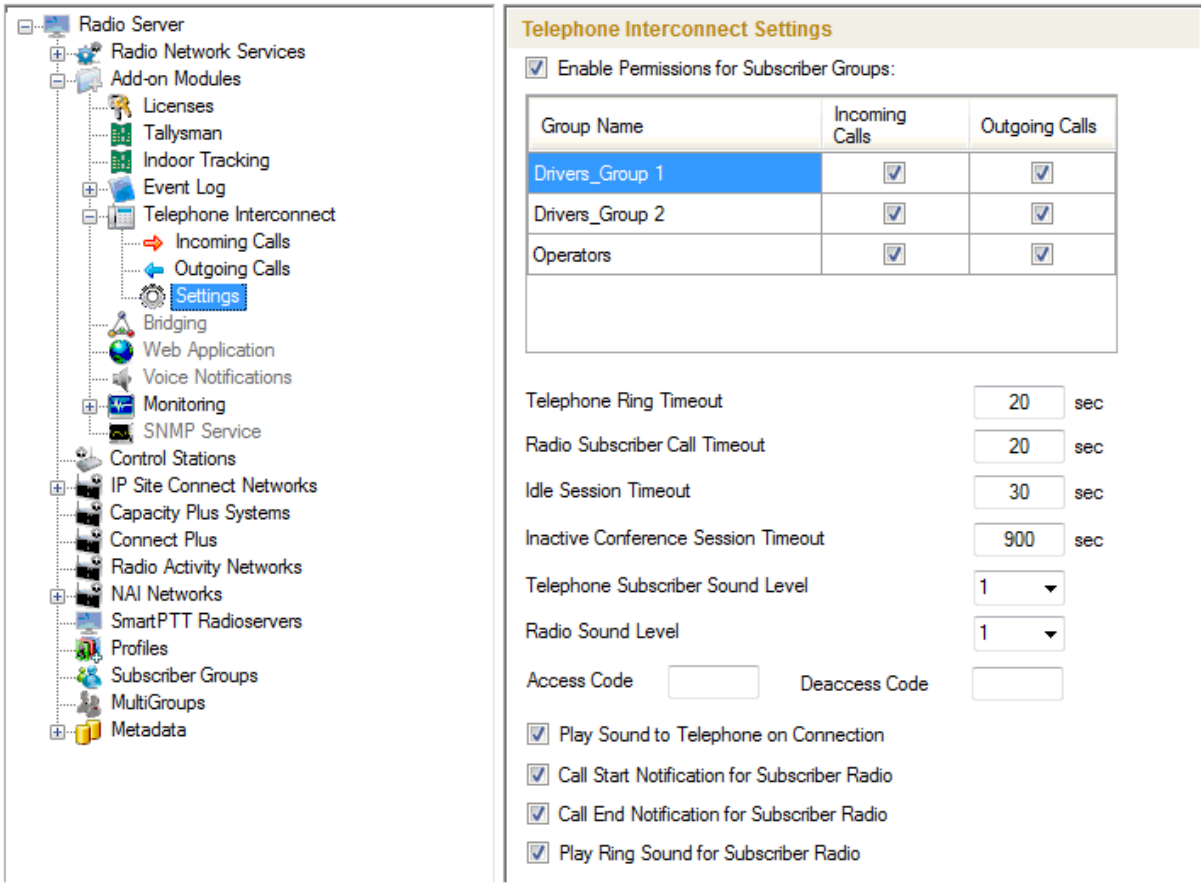
User Name – user name used for authentication.

Password – password used for authentication.

Subscriber Name at Private Call – name of the radio subscriber that will be shown to the telephone subscriber. % will be replaced automatically by the radio number.

Subscriber Name at Group Call – name of the talkgroup that will be shown to the telephone subscriber. % will be replaced automatically by the talkgroup number.

Telephone Interconnect settings



Enable Permissions for Subscriber Groups – if selected, permissions specified in the table become active.

Note: Groups for the table can be created under **Subscriber Groups** in SmartPTT Radioserver Configurator.

Select the checkbox next to the action in the table to allow it. Clear the checkbox to forbid the action.

Telephone Ring Timeout – sets the time interval during which the radioserver waits for the telephone subscriber to pick up the phone.

Radio Subscriber Ring Timeout – sets the time interval during which the radioserver waits for the radio subscriber to press the PTT button.

Idle Session Timeout – sets the time interval starting from the last PTT button pressing, after which telephone call will be automatically finished.

Inactive Conference Session Timeout – sets the time interval starting from the last PTT button pressing at

conference call, after which the conference call will be automatically finished.

Telephone Subscriber Sound Level – sound level on the telephone during incoming or outgoing radio calls.

Radio Sound Level – sound level on the radio during incoming or outgoing telephone calls.

Access Code – must match the access code specified in MOTOTRBO CPS settings (IP Site Connect and Capacity Plus systems).

Deaccess Code – must match the deaccess code specified in MOTOTRBO CPS settings (IP Site Connect and Capacity Plus systems).

Play Sound to Telephone on Connection – if enabled, when picking up the phone, the telephone subscriber will hear a signal prompting to start conversation.

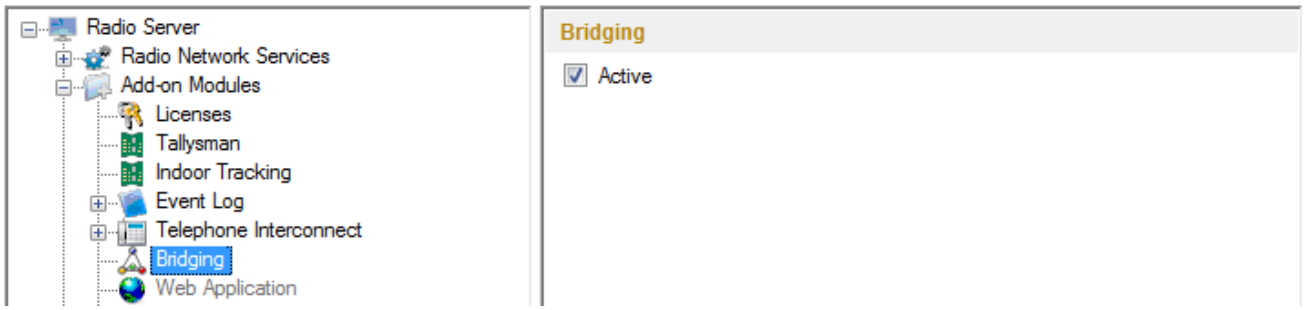
Call Start Notification for Radio Subscriber – if enabled, the radio subscriber will hear a signal notifying that the telephone subscriber has picked up the phone.

Call End Notification for Radio Subscriber – if enabled, the radio subscriber will hear a signal notifying that the telephone subscriber has replaced the receiver.

3.2.2.6 Bridging

SmartPTT bridging service allows joining various network systems into a single radio network. The bridging service is implemented in the scope of SmartPTT Enterprise Plus Radioserver and provides intelligent means of redirecting voice and data streams among different network systems.

To activate the Bridging service, click **Bridging** in the setting tree of SmartPTT Radioserver Configurator. In the opened window select the **Active** checkbox.



3.2.2.7 Web Application

This additional module expands SmartPTT bounds. It allows the dispatchers to do their job without the desktop SmartPTT Dispatcher. The web version of SmartPTT Dispatcher was designed specifically to provide users with the functionality of the desktop version, but without the restrictions of desktop applications. Currently the web version provides the following functionality:

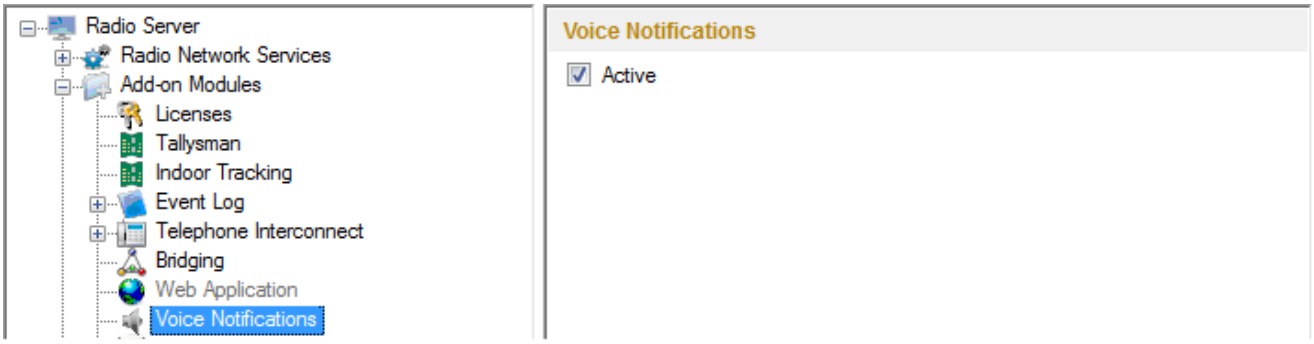
- Displaying radio subscribers on Google Map
- Sending TMS messages to and from radio subscribers
- Getting ARS and GPS data
- Making private calls to radio subscribers
- Blocking and unblocking radios

Install the web client and connect it to SmartPTT Radioserver by selecting the **Active** checkbox in the **Web Appliction** window in SmartPTT Radioserver Configurator.

3.2.2.8 Voice Notifications

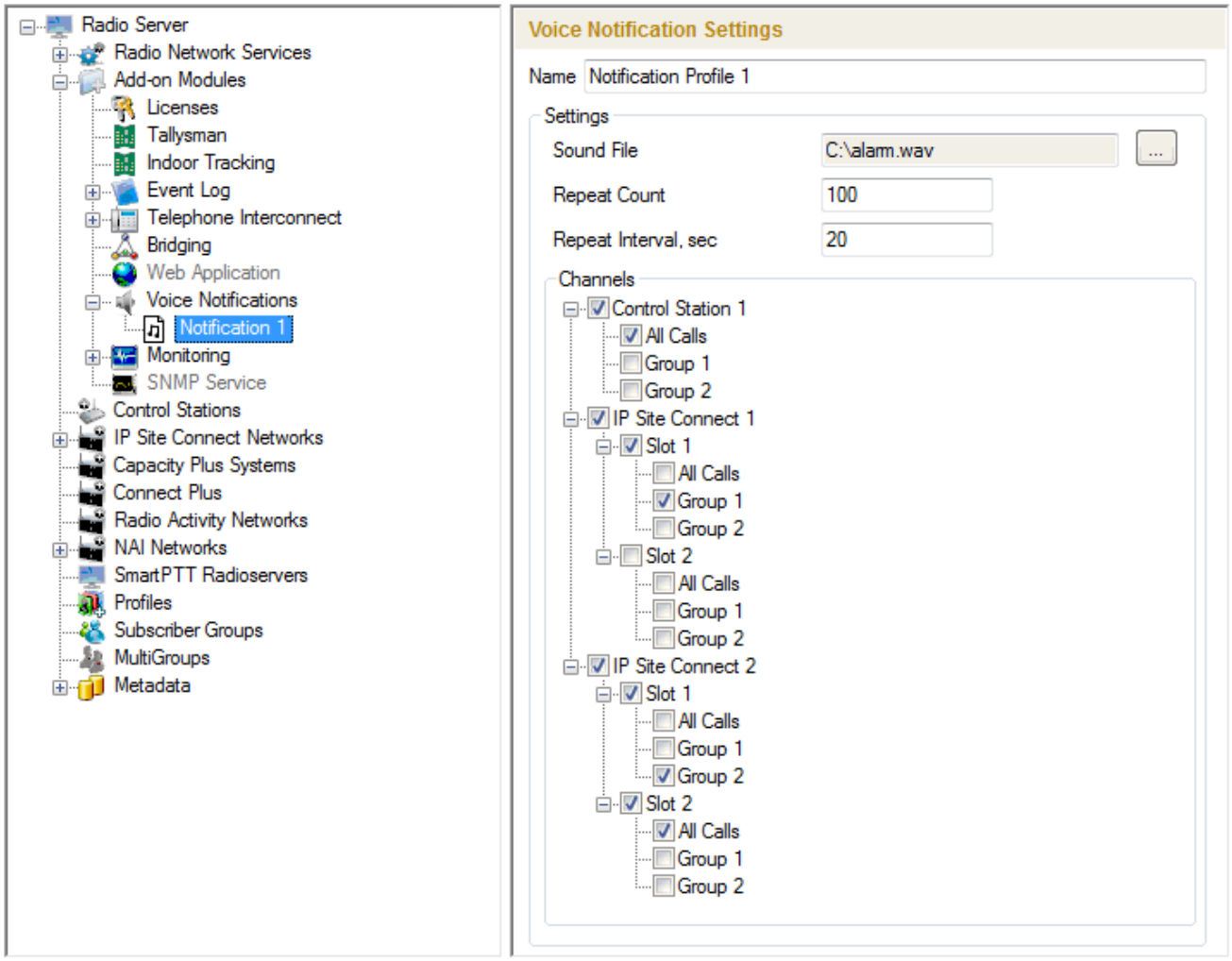
The main purpose of the voice notification functionality is to warn talkgroups about the fire or other emergency and to manage evacuation. However, in normal mode voice notifications can be used to transmit ordinary announcements.

To create a voice notification, select the **Voice Notifications** item in SmartPTT Radioserver Configurator. At that, the **Voice Notifications** window appears on the right. To enable the service, select the **Active** checkbox.



To add a voice notification, right-click on **Voice Notifications** and select **Add**. At that, the **Voice Notification Settings** window opens.

Set the following parameters in the **Voice Notification Settings** window.



Name – name of the voice notification displayed in SmartPTT Dispatcher.

Sound File – sound file in WAV format. Only monophonic files can be used as voice notifications.

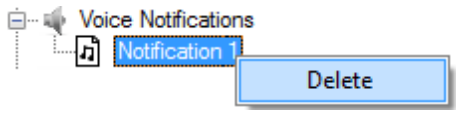
Play Count – specifies how many times the voice notification will be played on the channel. To be set in the range from *1* to *9999*.

Play Interval, sec – specifies the interval between the voice notification plays. To be set in the range from *5* to *216000*.

Select channels of the hardware or/and virtual control stations in the **Channels** area (**All Call** or **Group Call**) that play the voice notification (after it was run in SmartPTT Dispatcher).

Note: Playing voice notification on the channel corresponds to an outgoing call of SmartPTT Radioserver and fully occupies the selected channel. Thus, each control station (hardware or virtual) can have only one call type to be used for playing voice notifications on the channel – an all call or a group call.

To delete the voice notification profile, right-click on the selected profile and click **Delete**.

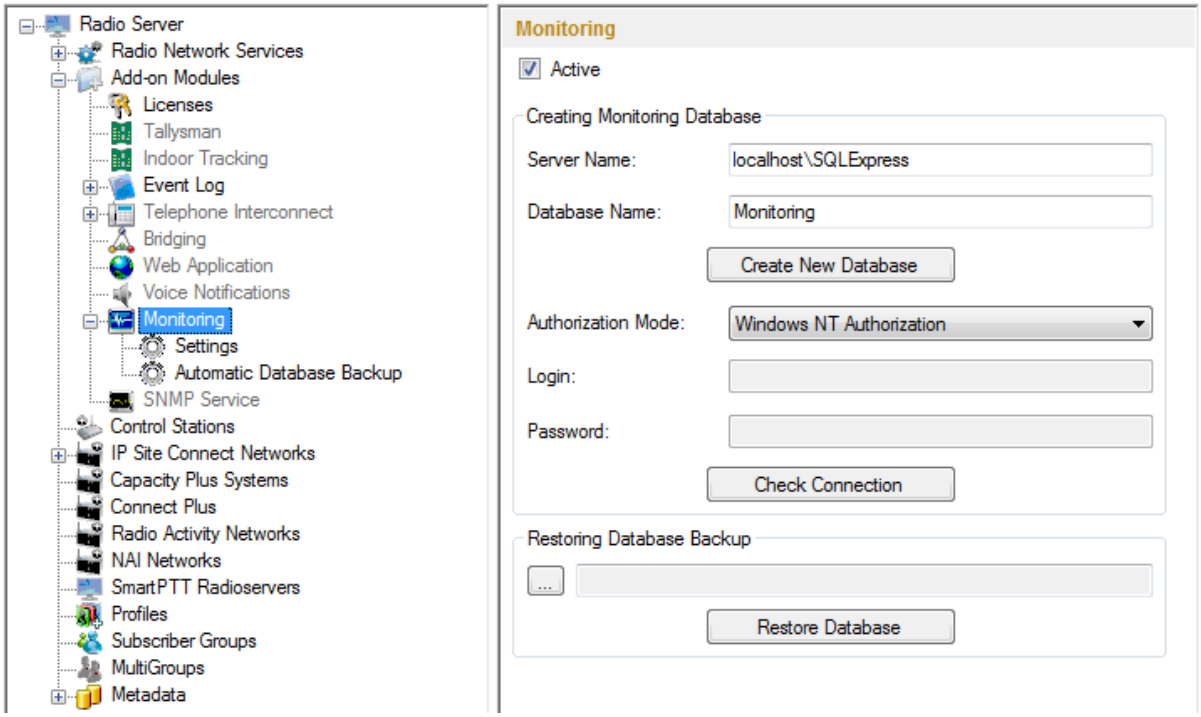


3.2.2.9 Monitoring

The Monitoring service gives an outlook for the whole radio system in the real time. With the help of this service the dispatcher can see what is happening on the channels and get information on the state of the devices.

Warning! Monitoring service requires corresponding license to be installed at SmartPTT Radioserver. Licenses are installed under the Licenses section of SmartPTT Radioserver Configurator.

By default, the Monitoring service is not active. Select **Monitoring** in the setting tree in SmartPTT Radioserver Configurator and select **Active** to enable it. If the **Monitoring** service is not activated, the radioserver and its network won't be displayed on the **Monitoring** panel.



To create a database for the monitoring purpose, type in the **Database Server Name** and **Database Name** fields, and click **Create New Monitoring Database**. If creation is successful, a message about successful database creation is displayed. If the database is not created, the cause of the issue will be displayed at the bottom of the window.

Note: If the database server and SmartPTT Radioserver are installed on one computer, enter the name of the following format: Computer Name\SQLExpress (for example, MYCOMP\SQLExpress).

Select **Authorization Mode** between the two:

SQL Server Authorization – the **Account Name** and **Password** must belong to the account with access to the SQL server.

Windows NT Authorization – the user, who has logged into the Windows system, must be listed in the SQL server user list to make connection.

Click **Check Connection**. In case of successful authorization the message "The connection is established

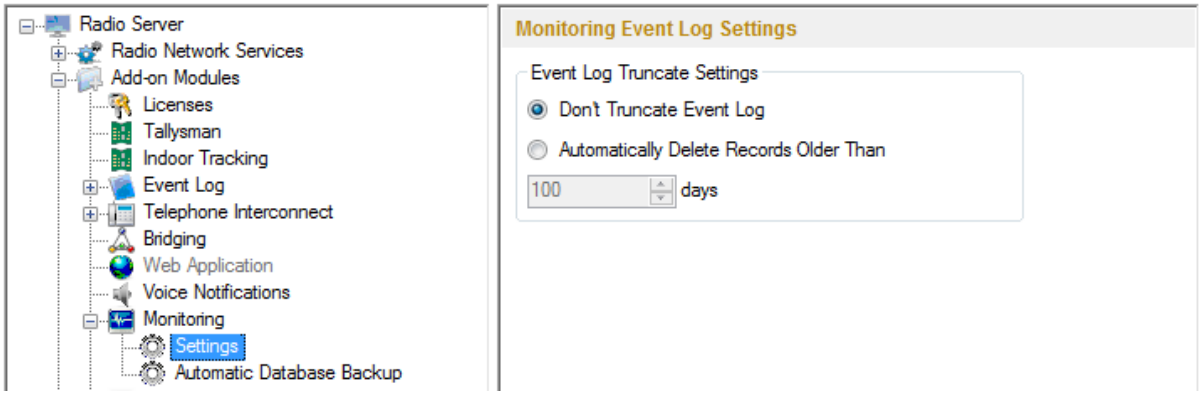
successfully!" is displayed. If authorization fails, the reason will appear at the bottom of the window.

Note: The radioserver event log database, the Monitoring database and the Dispatcher event log database must be different.

To restore the monitoring database from the backup, select the required database backup file in the **Path** field and click **Restore Database**.

Note: To set up the auto backup of the monitoring database, go to the Database Backup window.

To configure automatic cleaning for the monitoring event log, go to the **Settings** section of the monitoring in SmartPTT Radioserver Configurator. At that, the following window appears.

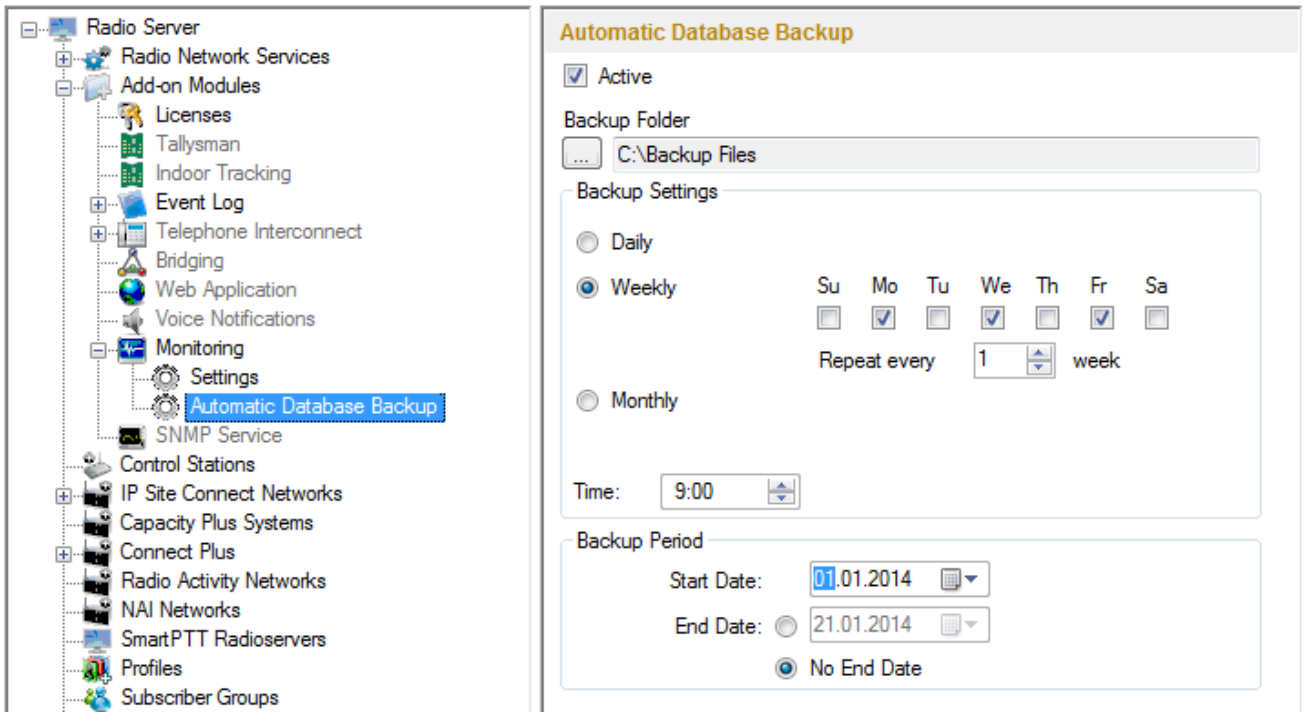


Don't Truncate Event Log – if selected, monitoring event log is not cleared automatically.

Automatically Delete Records Older Than n days – if selected, the system will delete records older than the number of days set in the field. By default, it is set to 100 days.

Backing up data on a regular basis helps to protect it from being erased in case of the server hardware or software failure. SmartPTT Radioserver Configurator allows user to back up the monitoring database automatically.

In order to set up automatic backup schedule of the monitoring database, select **Automatic Database Backup** under **Monitoring** in the setting tree of SmartPTT Radioserver Configurator.



Active – select the checkbox to enable the ability to create current monitoring database backups in the automatic mode.

Backup Folder – full path to the file for saving the database backup.

Backup Settings – schedule for creating the current database backup:

- **Daily** – every fixed day at the specified time (for example, every day, every third day at 9:00 a.m.).
- **Weekly** – every fixed day of the week at the specified time (for example, every Monday, Wednesday and Friday at 11:00 p.m.).
- **Monthly** – once a month on the fixed day of the selected month and at the specified time.

Backup Period – allows you to set time period when automatic database backup is to be made according to the selected backup settings.

Note: The number of stored backup files in the same folder is limited to 3. Otherwise, when creating a new copy, the old files are deleted.

Note: The monitoring database recovery from the automatically created backup is performed manually in the Monitoring window.

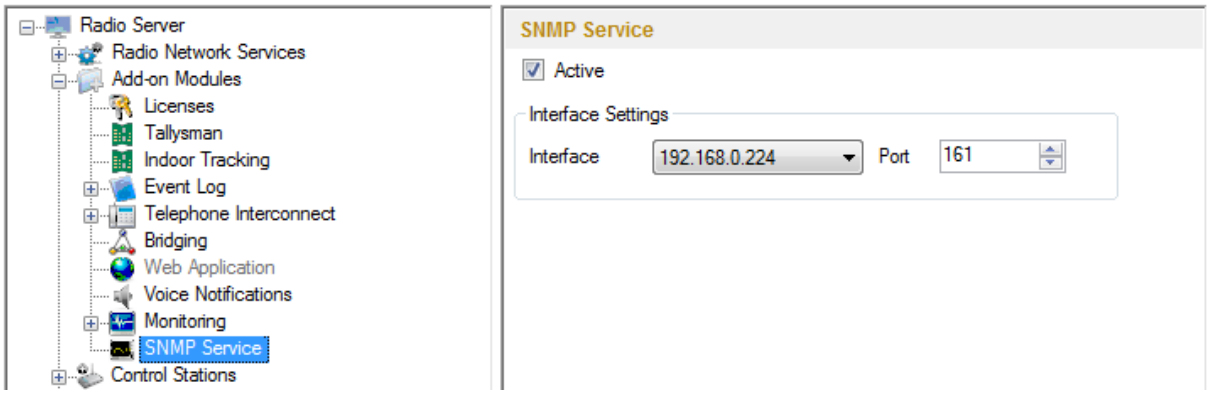
3.2.2.10 SNMP Service

The additional SNMP service allows users to monitor network-attached devices such as repeaters, routers and uninterruptable power supply (UPS).

Warning! To be able to get information about the state of the devices, the user needs to have the corresponding license and an SNMP client application installed. Use versions 1 and 2 of SNMP client applications.

To obtain the license, go to SmartPTT Radioserver Configurator and open the **Licenses** section. Check if you have the license for SmartPTT SNMP service installed, and if not install it. For more information how to install licenses, check the Licenses section.

After you have obtained the license, enable SNMP service. To do that, select **SNMP Service** in the setting tree of SmartPTT Radioserver Configurator. At that, the following window opens.

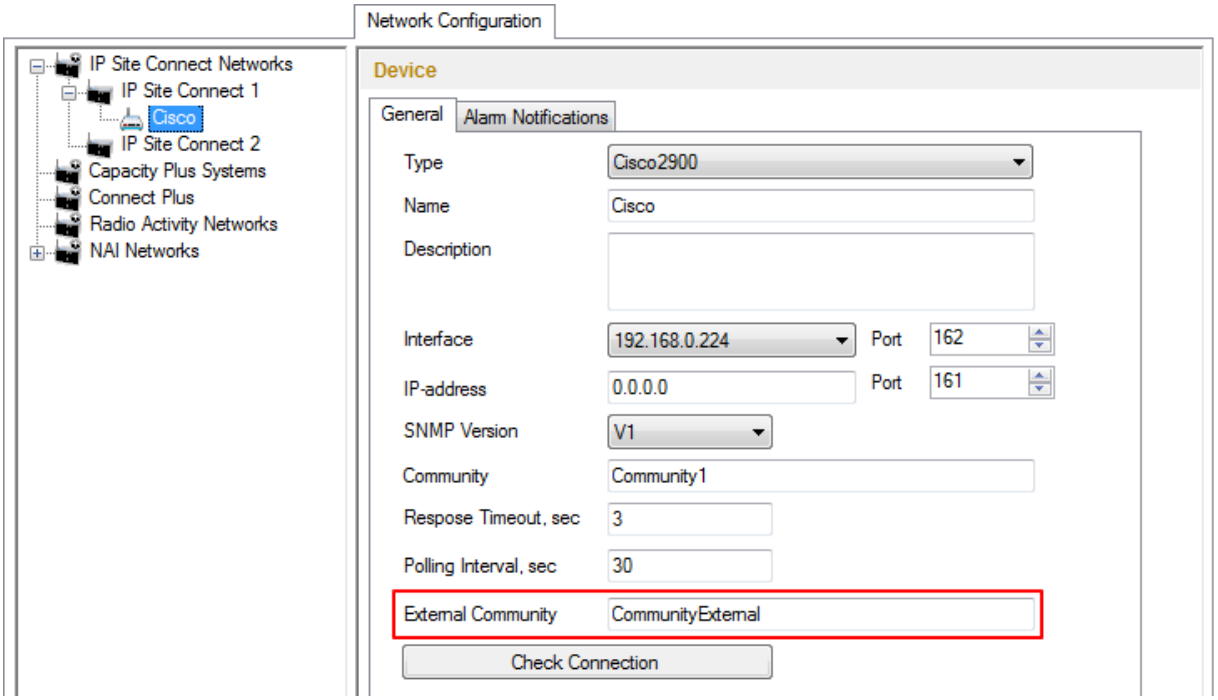


Select the **Active** checkbox to enable the service. At that, the **Interface Settings** will become available.

Interface – the IP address of the radioserver.

Port – port to listen to the data from the devices. By default, it is set to port 161.

Then, install SNMP client application. Configure its settings to contain the IP address of the radioserver to get information on the devices, and the **External Community** to get information on particular device parameters. The **External Community** can be found in SmartPTT Radioserver Configurator in the **Network Configuration** tab for each device.



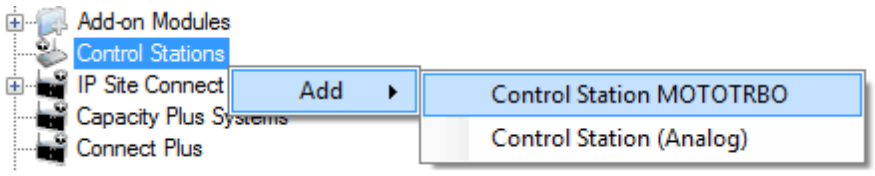
Note: For more information how to get device parameters, read documentation or review the corresponding MIB file of the device.

Control Station

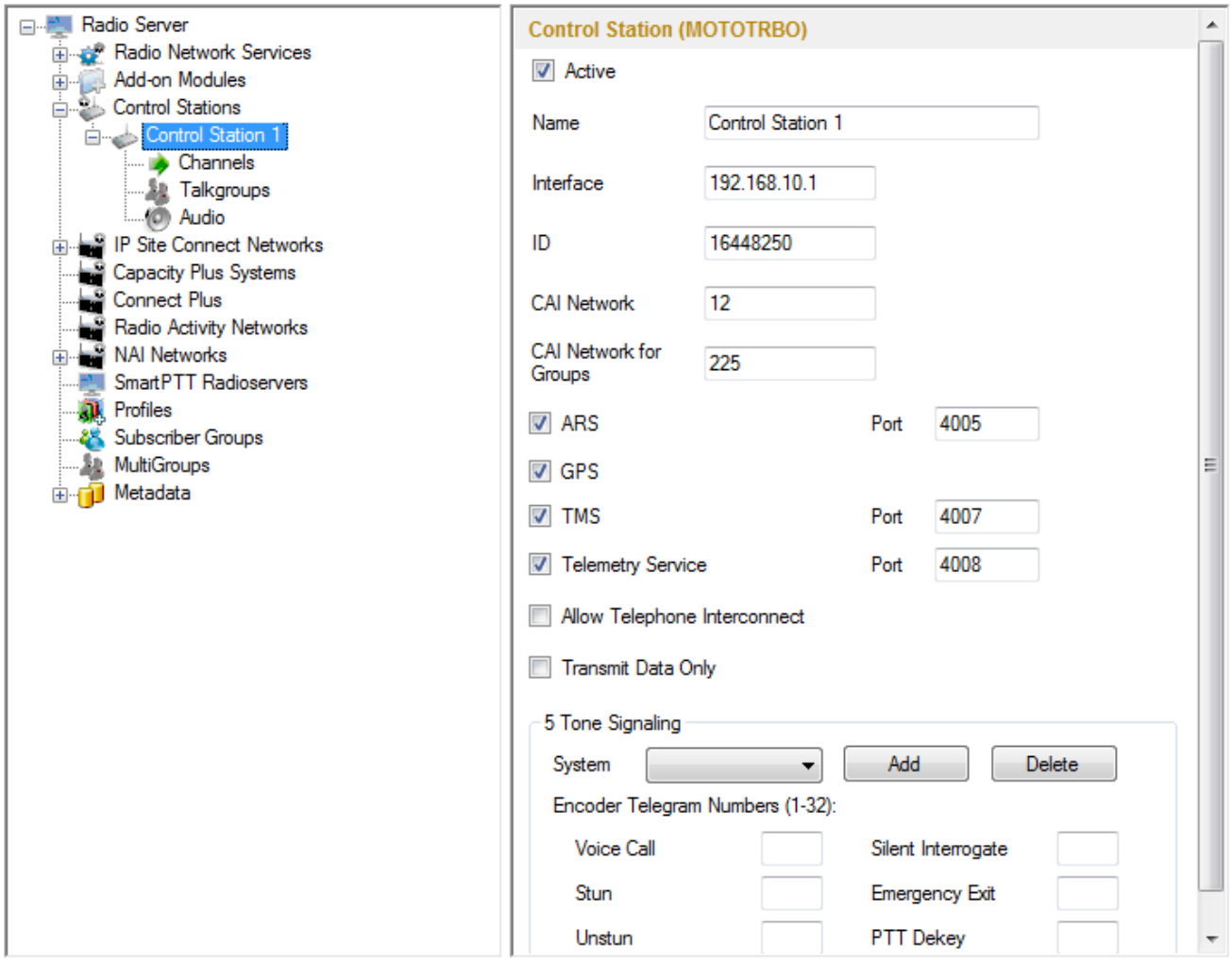
In this section you can configure MOTOTRBO and Analog Control Stations, which are used as a gateway to radio network.

MOTOTRBO Control Station is a mobile or portable MOTOTRBO radio station connected to the PC via USB and used as a gateway to radio network. The maximum allowed number of MOTOTRBO control station working at the same time is 8.

To set up the MOTOTRBO control station, right-click **Control Stations** in the setting tree of SmartPTT Radioserver Configurator, point to **Add** and click **MOTOTRBO Control Station**.



At that, a new setting window appears on the right.



Interface – local IP address of the control station. The following address format and range are used: *(001-223).(000-255).(000-255).(001-253)*. Users can use any address except 127.x.x.x in the range from 1.x.x.x to 223.x.x.x. We recommend to use the address *192.168.10.1* by default, and in case of conflicts with other network

interfaces you should select a different IP address.

Note: If two or more control stations are connected to the computer, one of the first three octets of the IP address must be unique for each control station.

ID – unique radio station identifier used during communication with it. ID is to be set in the range from *1* to *16776415*. It is highly recommended to use *16448250* as ID.

CAI Network – CAI-Network identifier. To be set in the range from *1* to *126*. Use the default value of *12*.

CAI Network for Groups – the identifier of the group's CAI-Network. To be set in the range from *225* to *239*. Use the default value of *225*.

ARS – enables registration service. Port *4005* is used as default.

Location Service – enables location service which provides coordinates of radio subscribers.

TMS – enables the service for exchanging text messages amid dispatchers and radio subscribers. Port *4007* is used by default.

Telemetry Service – enables the service responsible for transmitting and processing of telemetry signals between SmartPTT Dispatcher and subscriber stations. Port *4007* is used by default.

Allow Telephone Interconnect – allows you to enable voice calls to telephone subscribers.

Transmit Data Only – if selected, the control station is used for data transmit only and is not displayed in SmartPTT Dispatcher.

Note: Although the control station can't be seen in the **Subscriber** panel, you can still find it in **Report Wizard** and **Radio Activity Report**, as well as in the **Monitoring** tab (the **Monitoring** panel).

5 Tone Signaling – settings for 5 Tone signaling, also known as SelectV.

SelectV is used in the analog networks to arrange selective calls. As a result, the analog channel provides additional services other than all call. For example, group and private calls to the radio, blocking or unblocking the radio, checking the radio presence on the channel.

Note: The current version of SmartPTT Radioserver Configurator supports SelectV signaling for MOTOTRBO DM 46xx Series radios and DP 46xx, DP 48xx Series radios used as control stations.

Note: Make sure that control stations and radios operating on the analog channel are configured properly in MOTOTRBO CPS.

Selective call is based on subscriber addressing, i.e., on assigning IDs to subscribers. At the beginning of each session the sound signals of different frequencies are transmitted and received by the radio. Such signals are called telegrams. Each telegram contains from one to three sequences. Every sequence may include up to 12 tones. The telegram formed in this way may include the calling subscriber or talkgroup address, the radio ID, a status message or a command. The radio receives all signals, but handles only its telegrams, i.e., telegrams addressed to this radio.

Note: You can specify one or several identifiers (**CAI** + **Radio ID** or **IP**, **MDC ID** or **5 Tone ID**) as a radio ID in SmartPTT Dispatcher in the **Properties** window. If the radio is used on the analog channel only, enter **5 Tone ID** (and **MDC ID** if necessary); the **CAI** and **Radio ID** or **IP** fields must be left empty.

System – 5 Tone signaling system. Parameters in this section allow you to match the outgoing command from SmartPTT Radioserver and the telegram number.

Note: When decoded, telegrams are verified if the telegram sequences correspond to one of the definitions, and then the command of this definition is applied. To configure the command definition, use MOTOTRBO CPS (**Decoder > Definitions**, the **Matching Encode Telegram** field).

To create a 5 Tone signaling system in SmartPTT Radioserver Configurator, click **Add**. The several signaling systems can be added for each control station. To change the control station signaling system, select the required value from the list.

To delete the selected 5 Tone signaling system, click **Delete**.

Voice Call – the telegram number conforming to the private or group voice calls.

Silent Interrogate – the telegram number which corresponds to the check command of the radio presence on the network without notifying the subscriber.

Stun – the telegram number which stands for sending the **Block** command to the radio.

Unstun – the telegram number which stands for sending the **Unblock** command to the radio.

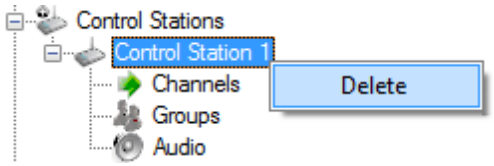
Emergency Off – when the radio receives the telegram number while in an emergency mode, the radio terminates the emergency mode.

PTT Dekey – when the radio receives the telegram number, the radio stops the current call session.

When the telegram encoding parameters are set, it is required to assign the signaling system for the channel (see the Channels tab).

If necessary, the control station can be disabled from the connection list. To do this, clear the **Active** checkbox.

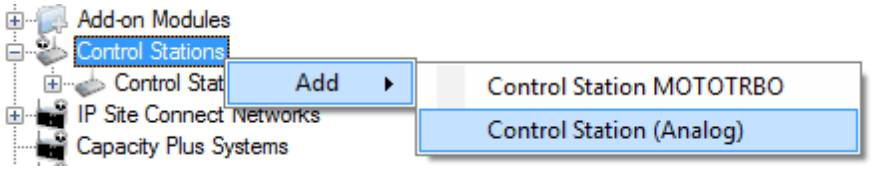
To delete the control station, right-click **Control Stations** entry in the setting tree of SmartPTT Radioserver Configurator and click **Delete**.



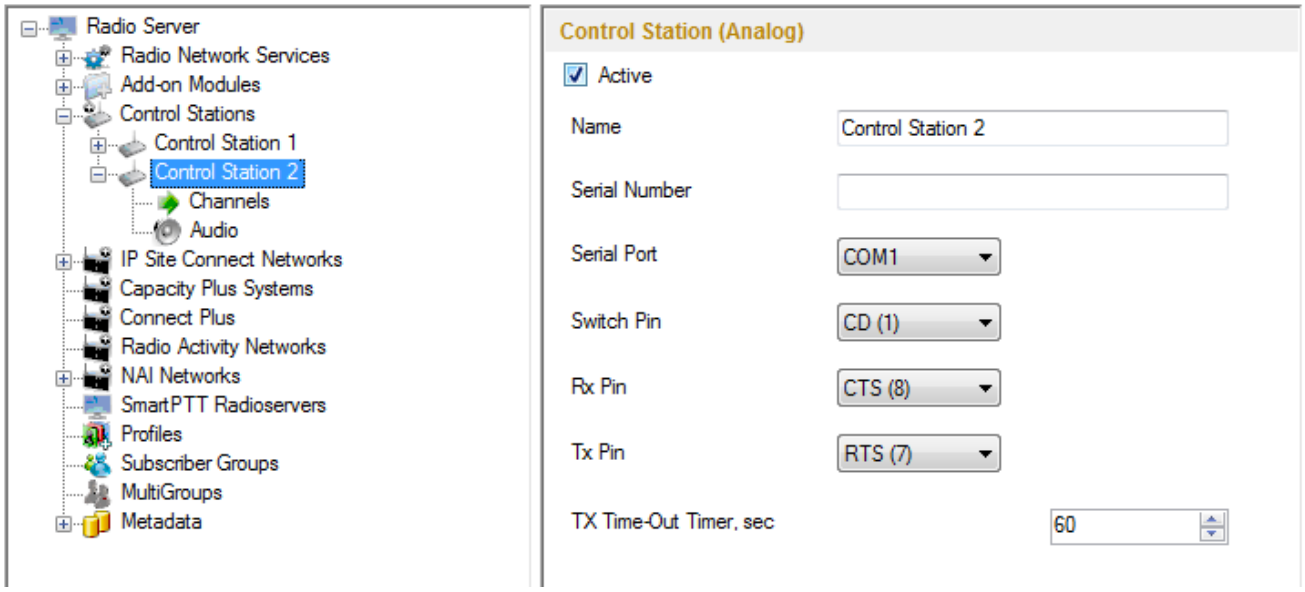
How to Configure Analog Control Station

Following user evaluations and to facilitate migration from analog technology to digital technology, SmartPTT has been complemented with support of analog control stations. Here you can find the configuration manual for the analog control station connected to the computer COM port via interface card. The interface card schematic is shown on the website.

To add an analog control station, right-click **Control Stations** in the setting tree of SmartPTT Radioserver Configurator, point to **Add** and click **Analog Control Station**.



At that a new setting window appears on the right.



Name – control station name.

Serial Number – the control station serial number.

Serial Port – the port to which the control station is connected.

Control station control signals:

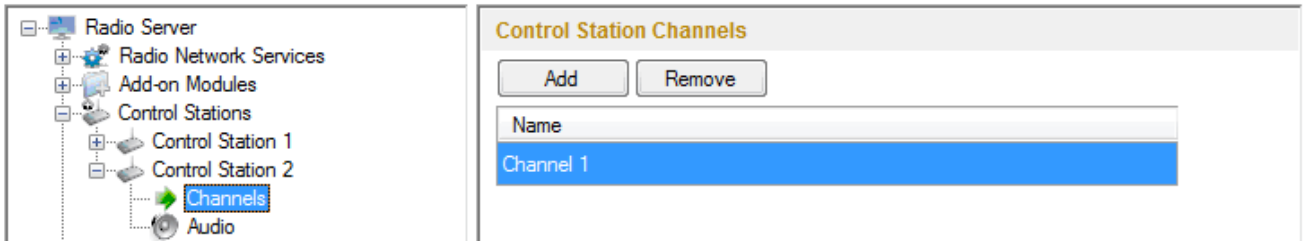
- **Switch Pin** (incoming) is set to *1* (< -3.0V) when the control station is switched on.
- **Rx Pin** (incoming) is set to *1* when a signal carrier is registered on the channel.
- **Tx Pin** (outgoing) is set to *1* to switch to transmit mode.

Change the display of the control signals of the control station to the pins of the socket RS323 (see the DE-9 pin numbers in brackets), if it is different from the one that is specified.

Note: The default values of the control signals are universal and usually do not require any changes.

TX Time-Out Timer (sec) – continuous radio transmission timeout. After this time the transmission is interrupted.

In the **Control Station Channels** window add a channel and name it (otherwise the dispatcher displays 1:1).



Audio is configured in the same way as for the control stations MOTOTORBO.

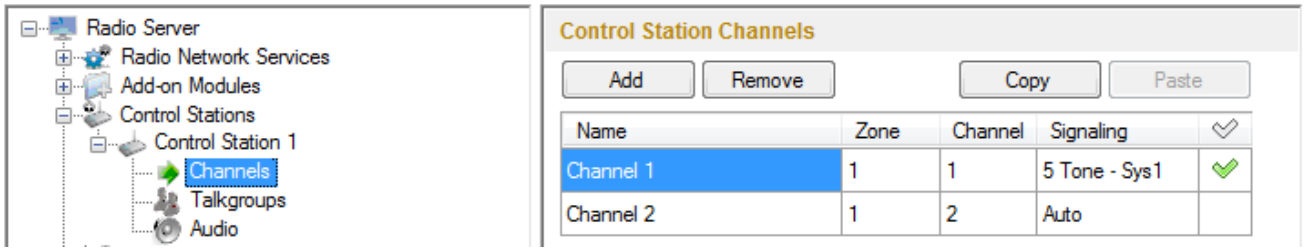
Save the changes and restart the service.

Note: In SmartPTT Dispatcher the operation of the analog control station is the same as for MOTOTRBO stations in analog mode without signaling.

3.2.3.1 How to Configure Control Station Channels

After adding a control station, configure its channels. To set up and edit control station channels, click **Channels** in the setting tree of SmartPTT Radioserver Configurator. At that, the following window is displayed.

To add a channel, click **Add**. At that, you will see a record of the added channel appear in the table.



Name – channel alias visible to SmartPTT Dispatcher.

Zone – serial number of a channel group. Information on the maximum possible number of zones and radio station channels is shown in the following table.

Model	Maximum number of zones	Maximum number of channels per zone	Maximum total number of channels
Mobile radio station with display	50	160	160

Model	Maximum number of zones	Maximum number of channels per zone	Maximum total number of channels
Mobile radio station with digital display	2	32	32

Channel – channel sequence number.

Signaling – 5 Tone signaling system taken from the Control Station (MOTOTRBO) settings window. The field is available only if the MOTOTRBO control station has at least one 5 Tone signaling system.

When *Auto* is selected, the automatic detection of the channel type is set (analog, digital, IP Site Connect slot, etc.). The detection take place when you connect the control station.

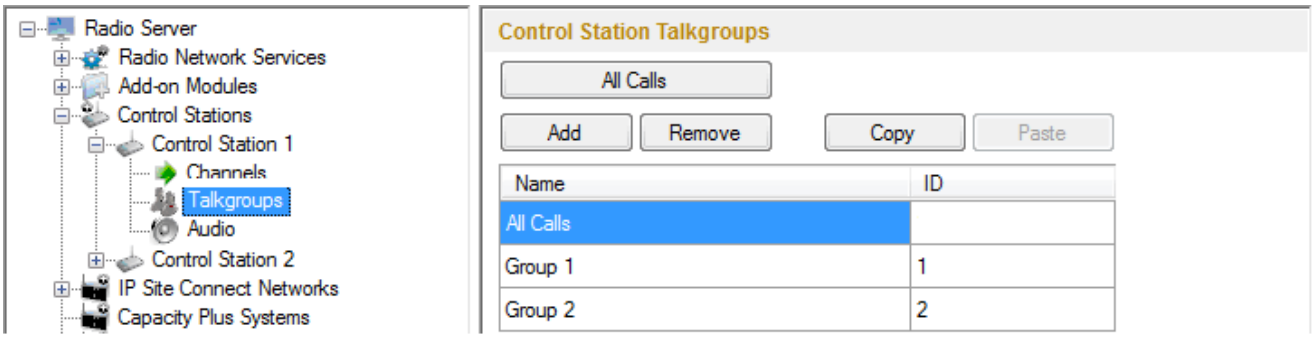
Note: If the channel type can't be determined automatically, you should specify the signaling system explicitly.

– selected channel will be set at the control station, when you start the radioserver.

To remove a channel, click **Delete**. To edit channel name, zone or channel number, place the cursor on the corresponding field and make changes.

3.2.3.2 How to Configure Control Station Talkgroups

To set up and edit **Control Station Talkgroups**, click **Talkgroups** in the setting tree of SmartPTT Radioserver Configuration. At that, the following window opens.



To add a talkgroup, click **Add**. To add an all-call, click **All Calls**. The added talkgroups will also appear in the **Profiles** window.

Name – talkgroup alias displayed by the control station.

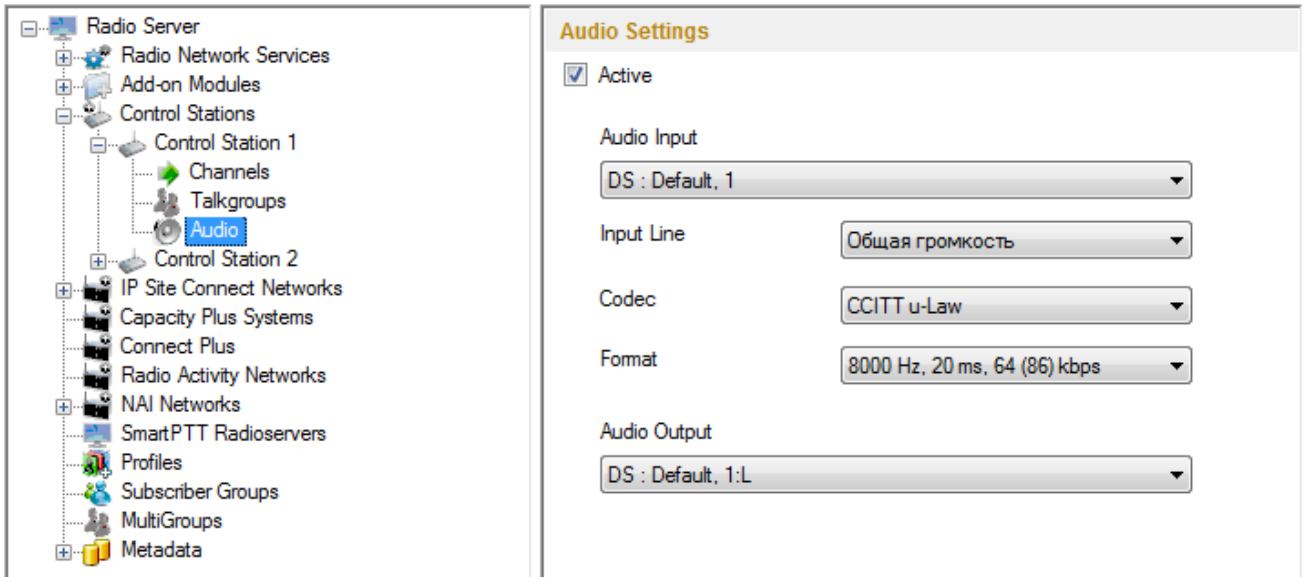
ID – talkgroup unique identifier used during communications. To be set in the range from *1* to *16776415*.

Remove – deletes the selected talkgroup.

To edit talkgroup name or ID, set the cursor on the corresponding field and make changes.

3.2.3.3 How to Configure Control Station Audio Settings

To select audio devices and set up VoIP parameters, click **Audio** in the setting tree of SmartPTT Radioserver Configurator.



The **Active** checkbox allows disabling calls for a control station if it is used to transmit data only.

Audio Input – an audio device to which the control station audio output is connected.

Input Line – audio mixer line used for connections. The control station audio output can be connected to the line input of the audio device.

Codec – outgoing audio stream compression method.

Format – sampling frequency of an outgoing audio stream.

> **Example**:
>
> Specifications of the codec format **8000 Hz, 20 ms, 64 (89) kbps**:
>
> **8000Hz** is the sampling rate
>
> **20 ms** is the frame size

64 kbps is the voice data bit rate

89 kbps is a full bit rate (required network bandwidth)

Audio Output – an audio device to which the control station audio input is connected.

IP Site Connect

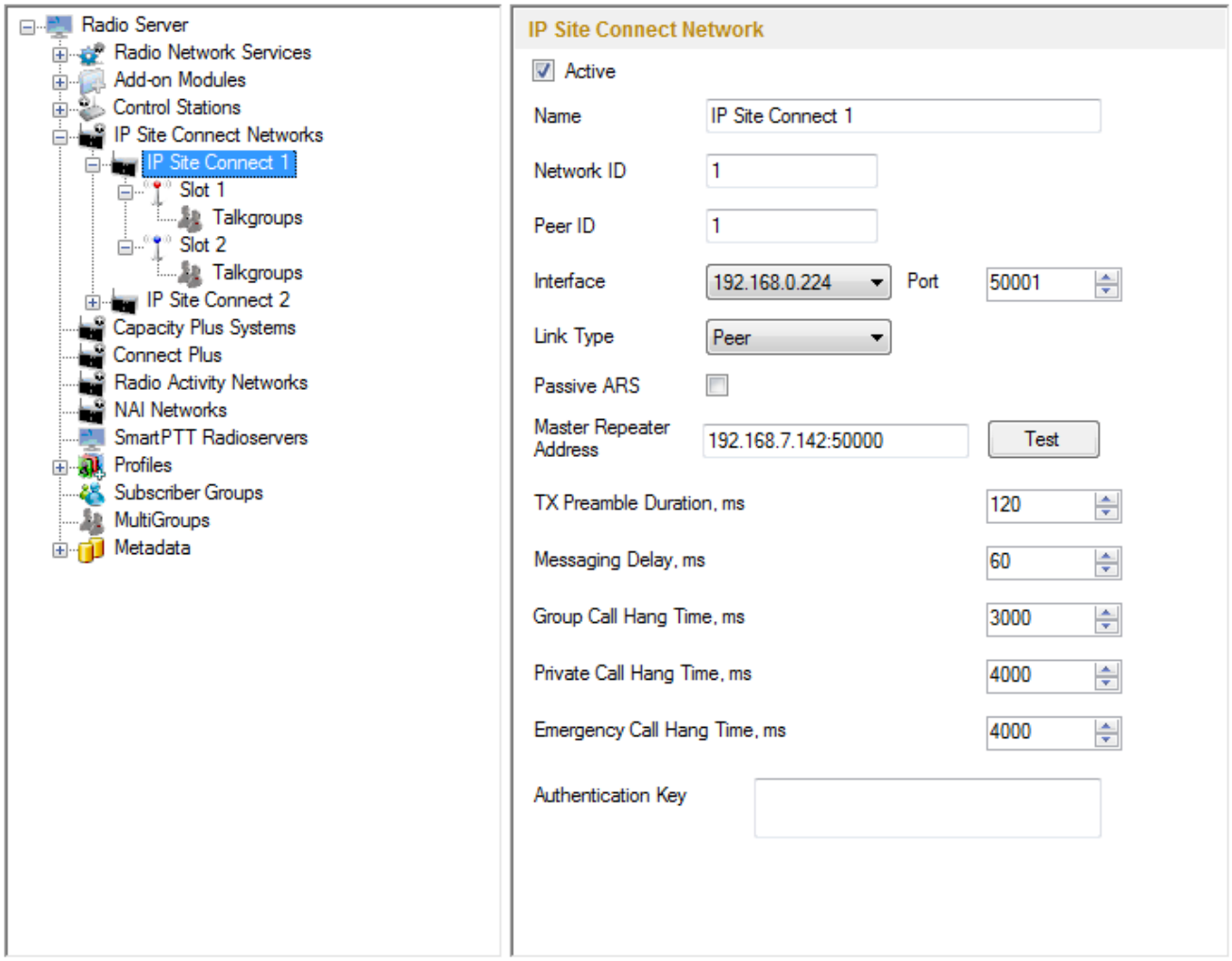
SmartPTT Plus implements direct connection of the radioserver to repeaters' network, functioning in IP Site Connect system. IP Site Connect is able to link up to 15 repeaters when using two slots, and twice as much, if only one slot is used. The repeaters can be placed at a single site or across multiple locations, thus creating a reliable local or wide-area communications network. A subscriber at one coverage location can share voice and data information with subscribers from other remote locations via an IP network. One SmartPTT Radioserver can control more than one IP Site Connect system at time. Here is the list of advantages IP Site Connect has to offer:

1. Reduction in the number of equipment used in communications network since there is no need to setup additional radioservers at each coverage location. No need to use control stations or additional sound cards.
2. Reduction in the time needed for system setting.
3. Enhanced system operation reliability.

To work with IP Site Connect, it is necessary to add virtual repeater and control stations, which can be done with the help of SmartPTT Radioserver Configurator.

3.2.4.1 How to Configure IP Site Connect

To configure IP Site Connect settings, select the existing or add a new IP Site Connect network in the setting tree of SmartPTT Radioserver Configurator (right-click **IP Site Connect Networks** in the setting tree of SmartPTT Radioserver Configurator, point to **Add** and click **IP Site Connect**).



Name – IP Site Connect name.

Network ID – unique ID of IP Site Connect network.

Peer ID – unique ID of a virtual repeater in the IP Site Connect network.

Warning! Peer ID must be unique. No other repeater in this IP Site Connect can have the same ID.

Interface (host:port) – IP address and port of the virtual repeater, i.e. SmartPTT Radioserver. Specify the IP

address of the PC where the radioserver is installed.

Passive ARS – when **Passive ARS** is active, the radioserver does not send any ARS and GPS commands (passive ARS is used for routing between radioservers).

Master repeater address (host:port) – IP address and port of IP Site Connect Master repeater.

Note: If in the **Link Type** field *Master* is selected, the **Master repeater address** field becomes dimmed. Also, you can have the map of peers and configure the peers remotely via CPS.

TX Preamble Duration (ms) – duration of TX preamble.

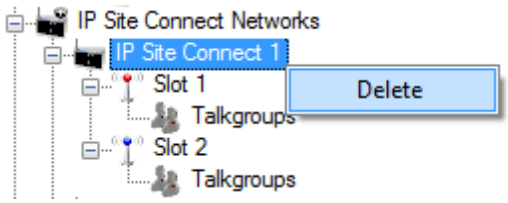
Messaging Delay (ms) – message exchange delay between repeaters.

Group Call Hang Time (ms) – time during which the repeater reserves the channel to a group call after the end of transmission. During the timeout, only the participants of the talkgroup can transmit.

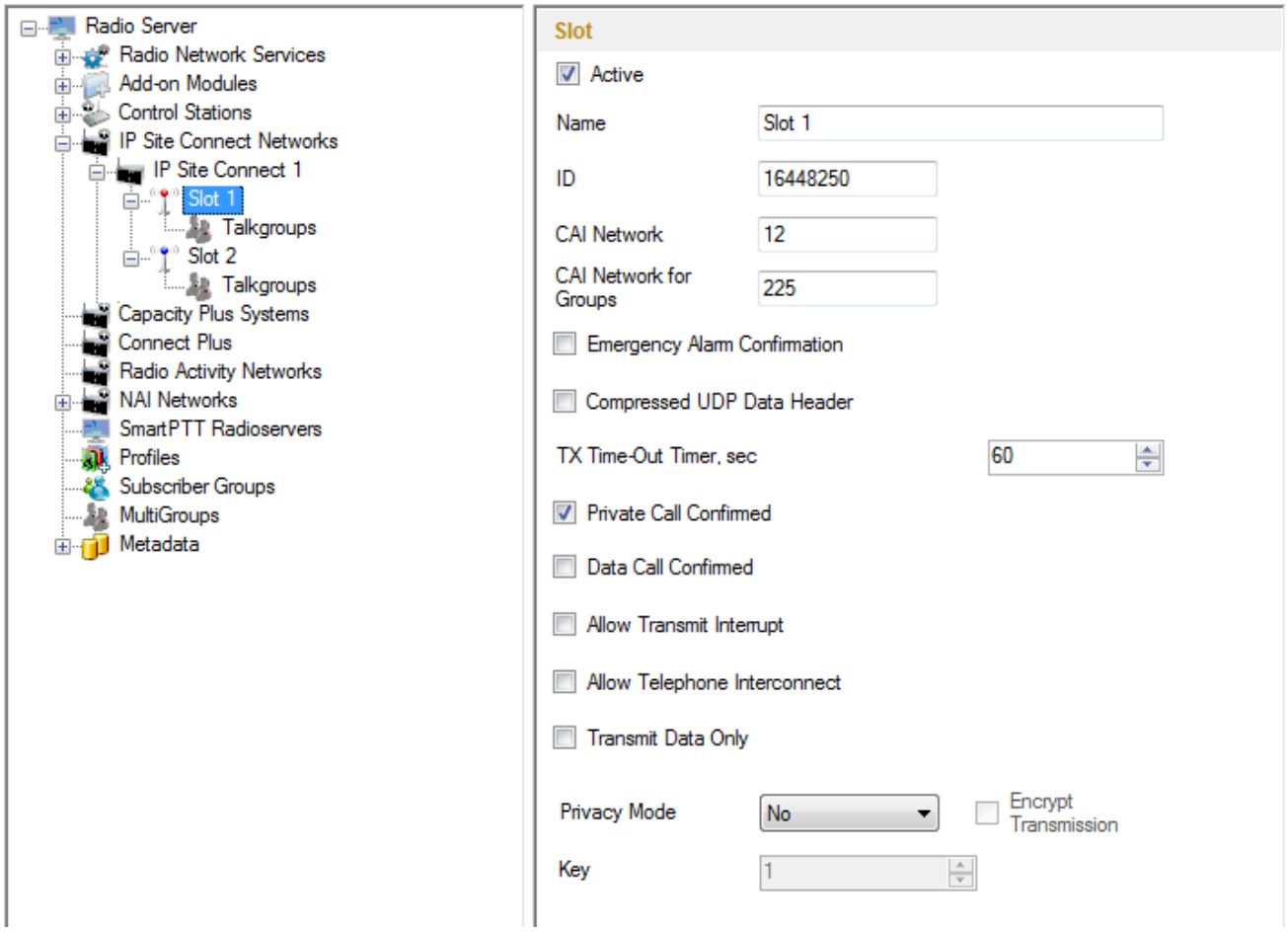
Private Call Hang Time (ms) – time during which the repeater reserves the channel to a private call after the end of transmission. During the timeout, only the participants of the private call can transmit.

Emergency Call Hang Time (ms) – time during which the repeater reserves the channel to an emergency call after the end of transmission. During the timeout only the participants of the talkgroup can transmit.

To delete IP Site Connect, right-click on the selected IP Site Connect and choose **Delete**.



To set up IP Site Connect slots, click **Slot 1** in the setting tree of SmartPTT Radioserver Configurator. At that, the following window opens.



Name – slot name.

ID – ID of a virtual control station corresponding to the slot of IP Site Connect.

CAI Network – CAI-network ID. Use default value of *12*.

CAI Network for Groups – CAI-network for groups ID. Use default value of *225*.

Compressed UDP Data Header – enabling this item reduces delays data transmissions.

Emergency Alarm Confirmation – determines if the emergency alarm is allowed to be acknowledged.

TX Time-Out Timer (sec) – time period during which the radio can transmit without interruptions. After this time is over, the transmission is interrupted.

Private Call Confirmed – this feature sets private calls on the current digital channel as confirmed.

Data Call Confirmed – this feature enables individual packets in data calls (ARS, GPS and Text Message) on the current digital channel or personality to be confirmed.

Allow Transmit Interrupt – enables or disables the ability to interrupt a radio subscriber.

Allow Telephone Interconnect – allows telephone calls on the slot.

Transmit Data Only – if selected, the slot is used for data transmit only and is not displayed in SmartPTT Dispatcher.

Note: Although the slot can't be seen in the **Subscriber** panel, you can still find it in **Report Wizard** and **Radio Activity Report**, as well as in the **Monitoring** tab (the **Monitoring** panel).

Encrypt Transmission – encrypt transmission on the side of SmartPTT Dispatcher.

Privacy Mode – choice of the encryption mode. Privacy is a software-based scrambling solution that is not robust, and is only meant to prevent eavesdropping. A radio must have privacy enabled on the channel to transmit a privacy-enabled transmission, but this is not necessary for a receiving radio. Privacy-enabled channels are still able to receive clear (unscrambled) transmissions. A visual indication appears on all display radios if the channel is privacy-enabled. The radio LED lights up green when transmitting and blinks rapidly when receiving an ongoing privacy-enabled transmission. The same behavior will be observed during scan operations. This is a radio-wide feature. This feature is not available for some radio models.

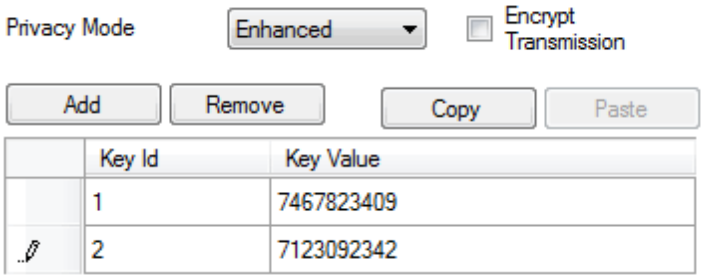
There are three types of **Privacy Mode**:

- *No*
- *Basic*
- *Enhanced*

If *No* is set, radioserver does not support outbound traffic encryption.

To ensure the *Basic* mode, set the key value in the **Key** field. Make sure that **Key** set in SmartPTT Radioserver Configurator matches **Basic Privacy Key** set in radio settings in MOTOTRBO CPS. A radio can have only one key. The value ranges from *1* to *255*.

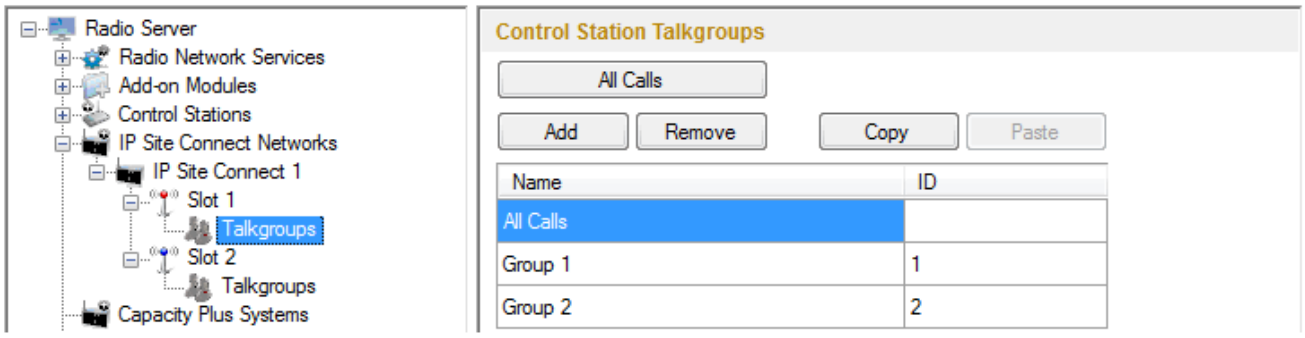
To ensure the *Enhanced* mode for traffic encryption, add enhanced privacy keys for incoming and outgoing calls. There can be multiple enhanced privacy keys for incoming calls, and only one key for outgoing calls. To select the key for outgoing calls, first select *Enhanced* in the **Privacy Mode** field. At that, a new table with **Key ID** and **Key Value** appears. In this table add the **Key ID** and the **Key Value** which matches the **Key ID** and the **Key Value** set in the radio settings in MOTOTRBO CPS.



If **Encrypt Transmission** is selected, a new column **TX Key** will appear. In the **TX Key** column select the key used for encryption of the outgoing calls.

If the values in the **Key ID** fields are the same, but the values in the **Key Value** fields do not match, the receiving radio hears only a distorted voice. If **Key ID** specified in the MOTOTRBO CPS of the radio does not match any of the **Key IDs** specified in the table, the dispatcher hears nothing during transmission.

To configure IP Site Connect talkgroups click **Talkgroups** in the setting tree of SmartPTT Radioserver Configurator. At that, the **Control Station Talkgroups** window opens.



Note: Configuration process of IP Site Connect talkgroups is similar to the configuring control station talkgroups.

Capacity Plus

SmartPTT provides direct connection to the repeaters operating in the Capacity Plus mode. Capacity Plus can include up to 6 repeaters (up to 12 time-slots) for voice communication and up to 12 repeaters (up to 24 time-slots) for data communication through revert-channels. Several Capacity Plus systems can be connected to one SmartPTT Radioserver.

To work with Capacity Plus it is necessary to create a virtual repeater and a virtual control station on SmartPTT Radioserver.For data transmission TX control stations are added.

Here you can find description of the steps how to configure Capacity Plus.

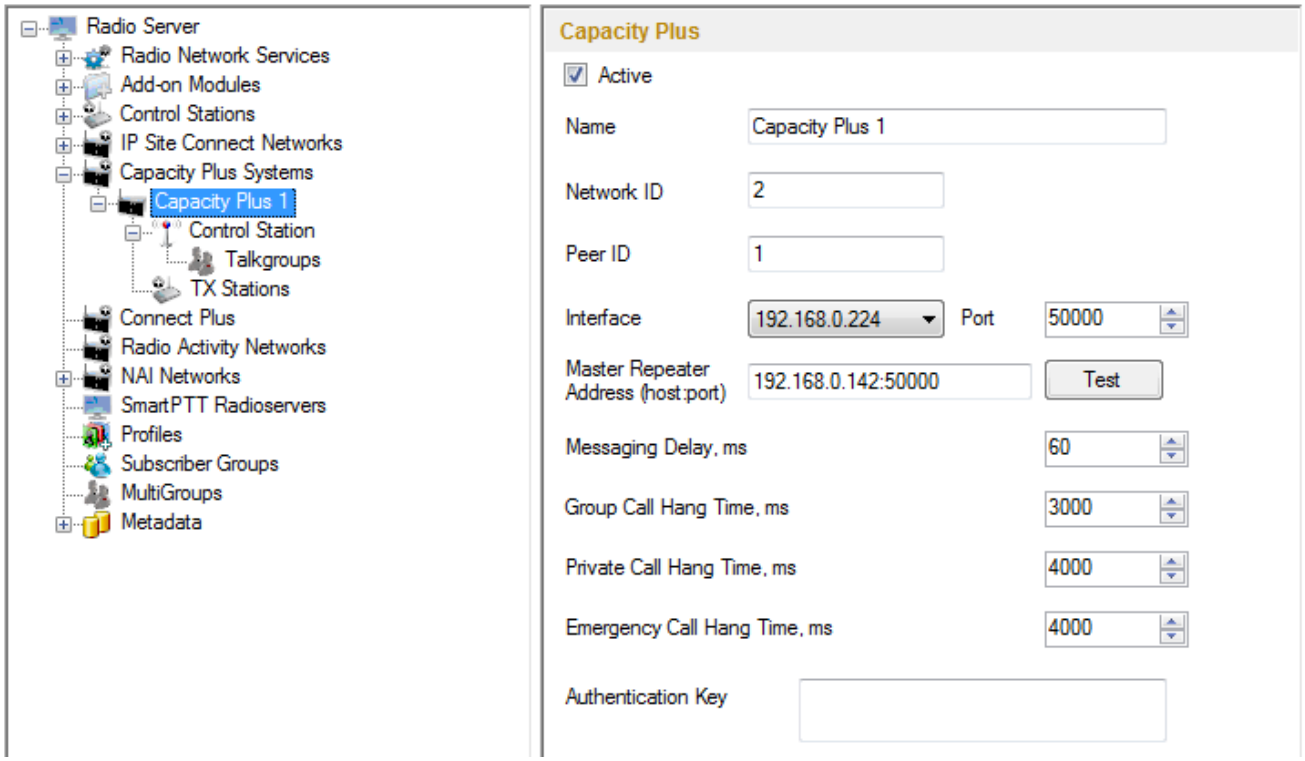
Capacity Plus configuration includes the following steps:

1. Configuration of the newly added Capacity Plus system.
2. Configuration of the control station and talkgroups.
3. Configuration of the TX control station, its groups and sound.

3.2.5.1 How to Configure Capacity Plus

To add a new Capacity Plus system, right-click **Capacity Plus Systems** in the setting tree of SmartPTT Radioserver Configurator, point to **Add** and then click **Capacity Plus**.

At that, **Capacity Plus** configuration menu appears on the right.



Name – Capacity Plus system name.

Network ID – unique ID of the Capacity Plus system.

Peer ID – unique identifier of the virtual repeater in Capacity Plus (should not coincide with identifiers of other repeaters in this Capacity Plus system).

Interface (host:port) – network interface of the radioserver that will be used for the connection with the repeaters in the Capacity Plus system.

Master repeater address (host:port) – IP address and port of Capacity Plus Master repeater.

Messaging Delay (ms) – the inter-repeater messaging delay.

Group Call Hang Time (ms) – duration for which the repeater reserves the channel after the end of a group call transmission. During this time, only members of the talkgroup that the channel is reserved for can transmit. After expiration of the group call hang timer, the radio will transmit using the TX contact name (digital group) specified for this channel in MOTOTRBO CPS.

Private Call Hang Time (ms) – duration for which the repeater reserves the channel after the end of a private call transmission. During this time, only members of the private call that the channel is reserved for can transmit. After

the hang timer expires, the radio transmits using the TX contact name specified for this channel in MOTOTRBO CPS.

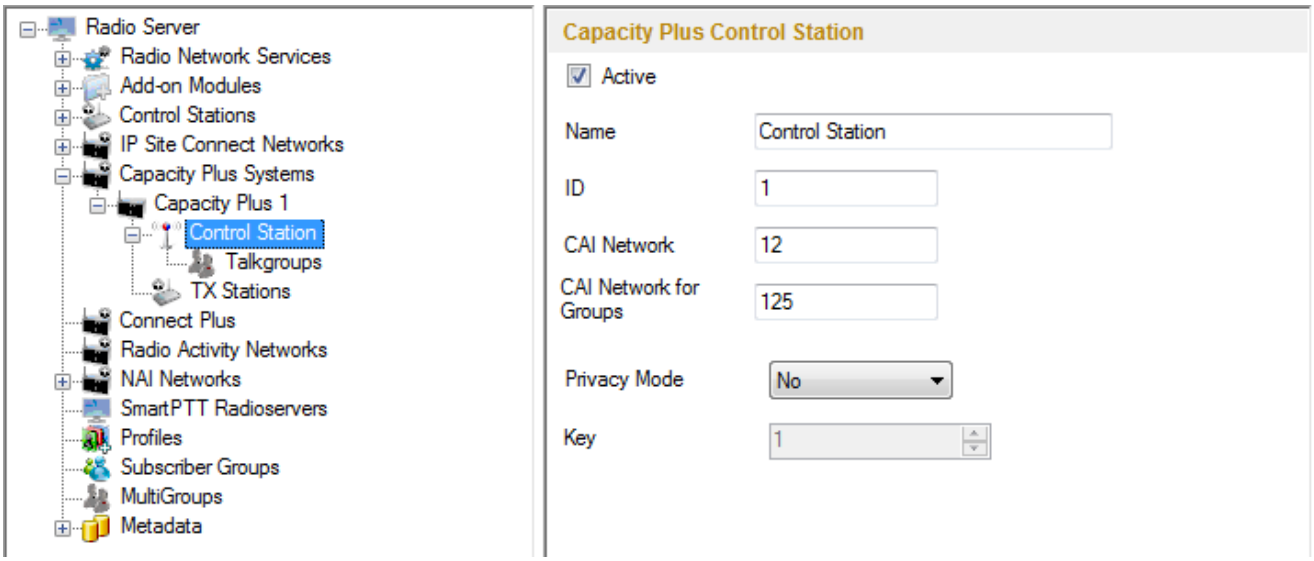
Emergency Call Hang Time (ms) – duration for which the repeater reserves the channel after the end of an emergency call transmission. During this time, only members of the talkgroup that the channel is reserved for can transmit.

Authentication Key – repeater authorization key (to be equal to the Authentication key in MOTOTRBO CPS).

To delete the Capacity Plus, right-click on the selected Capacity Plus system and choose **Delete**.

Capacity Plus virtual control station is designed to receive data and voice.

To set up a virtual control station, click **Control Station** in the setting tree of SmartPTT Radioserver Configurator. At that, the following window appears on the right.



Name – control station alias (max. 20 characters).

Note: If two or more control stations are connected to the computer, one of the first three octets of the IP address must be unique for each control station.

ID – the unique radio identifier, which is used during communication with this radio. It is set in the range from *1* to *65535*.

CAI Network – CAI-Network identifier. It is recommended to use the default value *12*. It is set in the range from *1*

to *126*.

CAI Network for Groups – the identifier of the group's CAI-Network. It is set in the range from *1* to *254*. *255* is reserved for the all call.

Privacy Mode – choice of the encryption mode. Privacy is a software-based scrambling solution that is not robust, and is only meant to prevent eavesdropping. A radio must have privacy enabled on the channel to transmit a privacy-enabled transmission, but this is not necessary for a receiving radio. Privacy-enabled channels are still able to receive clear (unscrambled) transmissions. A visual indication appears on all display radios if the channel is privacy-enabled. The radio LED lights up green when transmitting and blinks rapidly when receiving an ongoing privacy-enabled transmission. The same behavior will be observed during scan operations. This is a radio-wide feature. This feature is not available for some radio models.

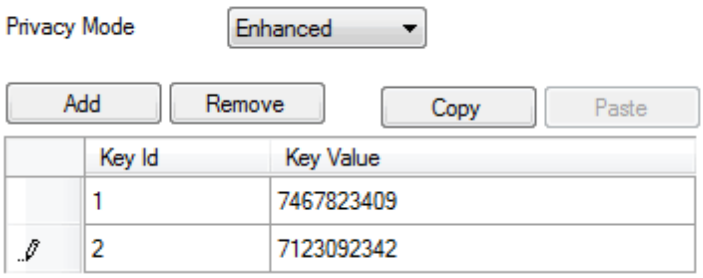
There are three types of **Privacy Mode**:

- *No*
- *Basic*
- *Enhanced*

If *No* is set, radioserver does not support outbound traffic encryption.

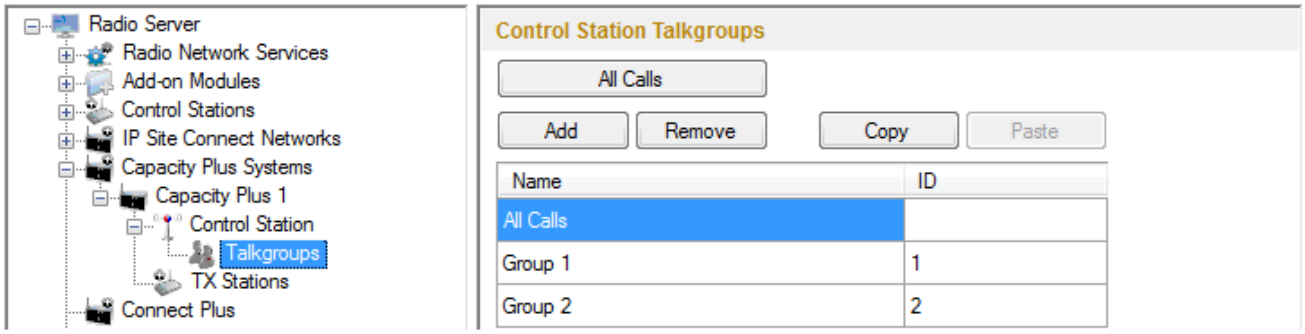
To ensure the *Basic* mode, set the key value in the **Key** field. Make sure that **Key** set in SmartPTT Radioserver Configurator matches **Basic Privacy Key** set in radio settings in MOTOTRBO CPS. A radio can have only one key. The value ranges from *1* to *255*.

To ensure the *Enhanced* mode for traffic encryption, multiple enhanced privacy keys can be added. Select *Enhanced* in the **Privacy Mode** field; a new table with **Key ID** and **Key Value** appears. In this table add the **Key ID** and the **Key Value** which matches the **Key ID** and the **Key Value** set in the radio settings in MOTOTRBO CPS.



If the values in the **Key ID** fields are the same, but the values in the **Key Value** fields do not match, the receiving radio hears only a distorted voice. If **Key ID** specified in the MOTOTRBO CPS of the radio does not match any of the **Key IDs** specified in the table, the dispatcher hears nothing during transmission.

To set up talkgroups for a virtual control station, choose **Talkgroups** in the setting tree of SmartPTT Radioserver Configurator.



Note: Configuration of the virtual Capacity Plus control station talkgroups is absolutely similar to the configuration process of MOTOTRBO control station talkgroups.

Connect Plus

SmartPTT EnterpriseSmartPTT Plus supports Connect Plus multi-site trunking system, which starting from version 8.3 can be used not only for ARS, TMS and GPS functionality, but also for voice communication between the dispatcher and radio subscribers.

Connect Plus network can include up to 15 repeaters (29 channels + 1 control channel) on each site. Each site must have one XRC 9000 Controller. It is the core of the Connect Plus network and its presence on each site is obligatory. The XRC 9000 Controller provides central call processing and real-time resource management for MOTOTRBO Connect Plus digital trunking systems.

XRT 9000 Gateways are required for voice communication only. MOTOTRBO Connect Plus multi-site trunking network provides extended load capacity and provides digital communication to as many as 2,900 users per site.

When using Connect Plus network, SmartPTT Radioserver plays the role of a virtual repeater.

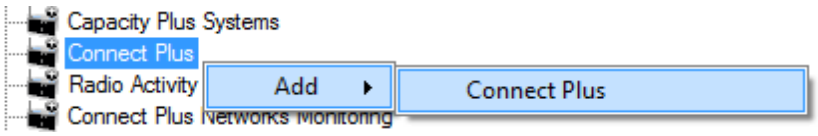
The Connect Plus network configuration includes the following stages:

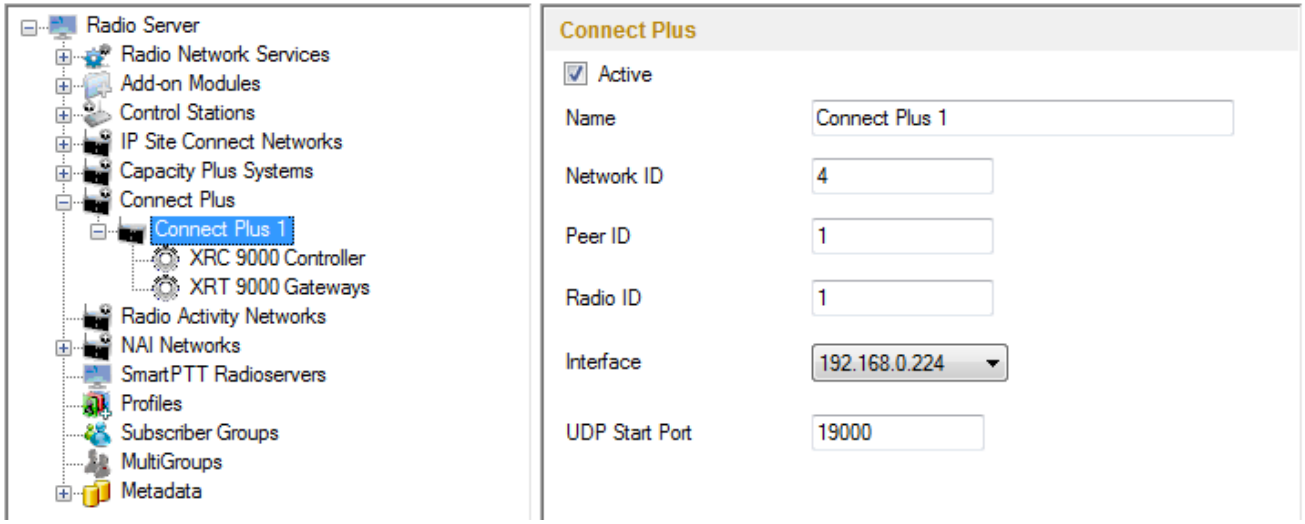
1. Adding new network and its basic configuration.
2. Setting up XRC 9000 Controller configurations.
3. Setting up talkgroups for group messages.
4. Setting up XRT 9000 Gateway parameters for voice communication.
5. Adding talk paths for voice calls.

3.2.6.1 How to Configure Connect Plus

First of all, make sure you have the necessary license for the Connect Plus network, i.e., Connect Plus Voice Support and Connect Plus Data Support.

To configure Connect Plus settings, add new Connect Plus system: right-click **Connect Plus** in the setting tree of SmartPTT Radioserver Configurator, point to **Add** and click **Connect Plus**.





Active – enables Connect Plus Network.

Name – Connect Plus network name.

Network ID – unique ID of the Connect Plus network.

Peer ID – unique ID of the virtual repeater in the Connect Plus network.

Interface – IP address of the virtual repeater, i.e. SmartPTT Radioserver. Specify the IP address of the PC where the radioserver is installed..

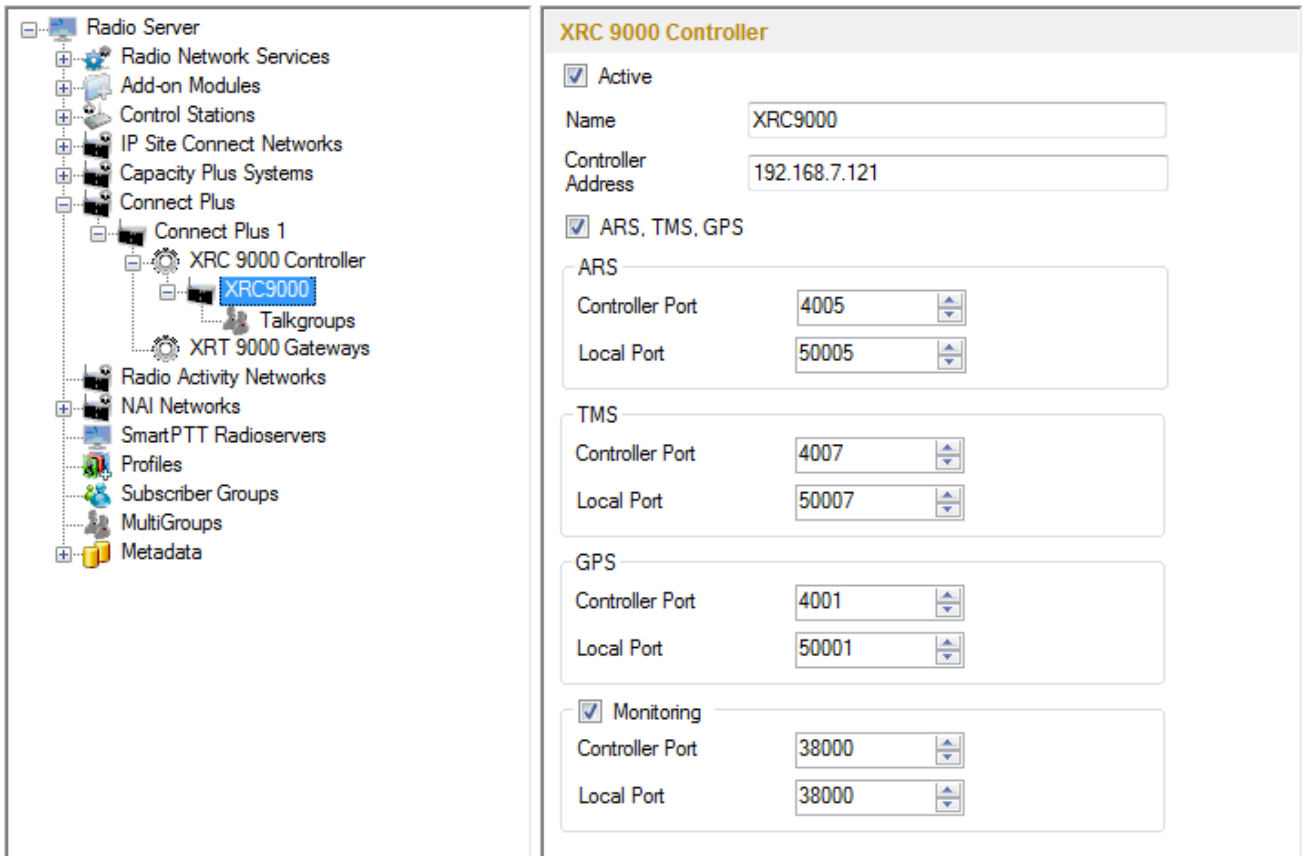
Radio ID – dispatcher identifier. It must correspond to the **Console User ID** field in the XRT 9000 Gateway settings.

UDP Start Port – this is the starting port number for the UDP ports that will be used by XRT 9000 for talk paths. It is recommended to use the default value of *19000.* If the created Connect Plus network should not transmit voice packets, this field can be ignored.

3.2.6.2 XRC 9000 Controller

The XRC 9000 Controller is necessary for transmitting registration and de-registration, GPS data, text messages. XRC 9000 Controller is also required for making private calls, because without it, radios will be regarded as offline, and dispatcher won't be able to make private calls.

You can add only one XRC 9000 Controller per site. Right-click on **XRC 9000 Controller** to add. At that, the following window opens:



Name – XRC 9000 controller name. This is used only in SmartPTT Radioserver Configurator.

Controller Address – IP address of XRC 9000 controller. Port is not required in this field.

In order to enable data services on the controller select **ARS, TMS, GPS**.

Controller port – port of XRC 9000 controller for the corresponding service.

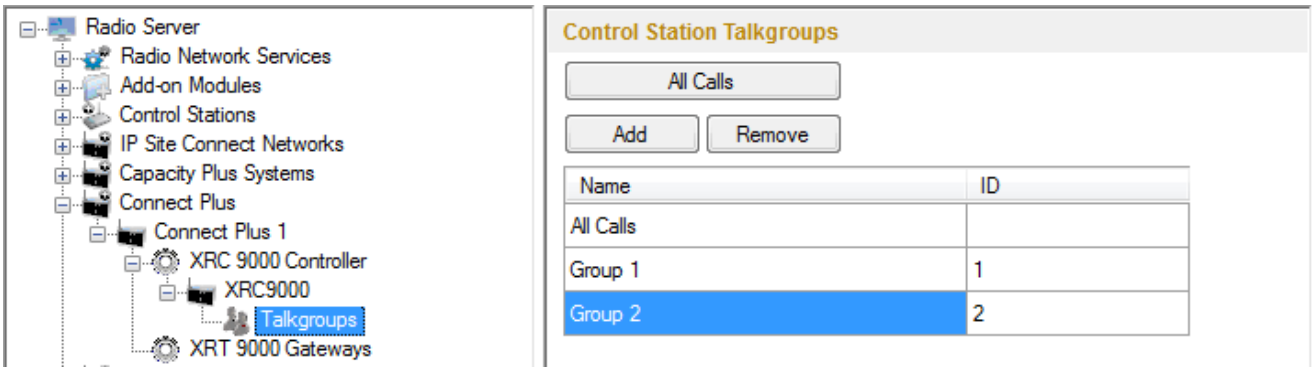
Local port – port of the virtual repeater for the corresponding service.

Note: The ARS, TMS and GPS services can be set up only on one of the XRC 9000 controllers in the network. These settings will be used by other controllers available in the network.

To be able to review the XRC 9000 controller on the **Monitoring** panel in SmartPTT Dispatcher, select **Monitoring** and specify **Controller port** and **Local port**.

Note: Make sure that you have the general Monitoring service enabled (Monitoring).

In order to send group text messages, add talkgroups. Select **Talkgroups** under **XRC 9000 Controller**. At that, the following window opens:

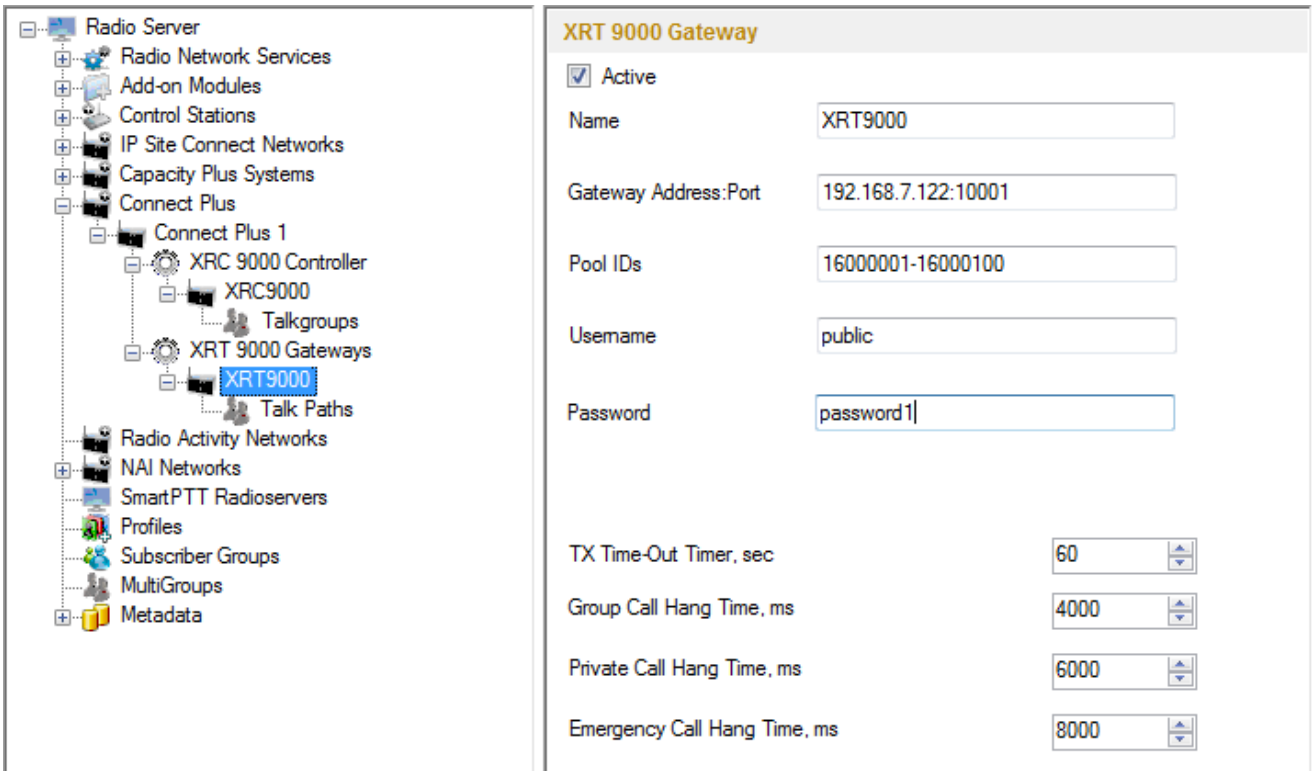


3.2.6.3 XRT 9000 Gateway

The XRT 9000 Gateway allows making voice calls in the Connect Plus system. You can have maximum 4 XRT 9000 Gateways working in one network.

Note: To support private voice communication, it is necessary to have XRC 9000. Otherwise, radio subscribers will be regarded as offline, and private calls will be impossible.

To add the gateway, right-click on **XRT 9000**. At that, the following window opens:

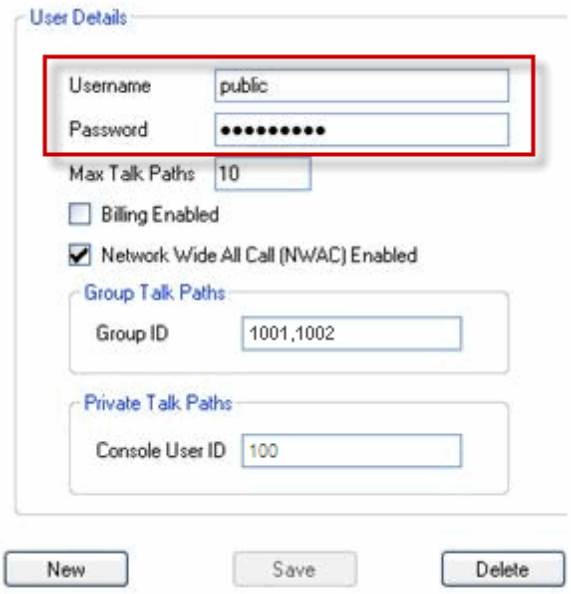


Name – XRT 9000 Gateway name, which is displayed only in SmartPTT Radioserver Configurator.

Gateway Address:Port – IP address and port of the XRT 9000 Gateway.

Pool IDs – it recommended to use default values. The values must correspond to the range of IDs set in the XRT 9000 Gateway settings (**Pool ID**).

Username and **Password** – used for authentication with the gateway and must equal the corresponding values in the XRT 9000 Gateway settings:



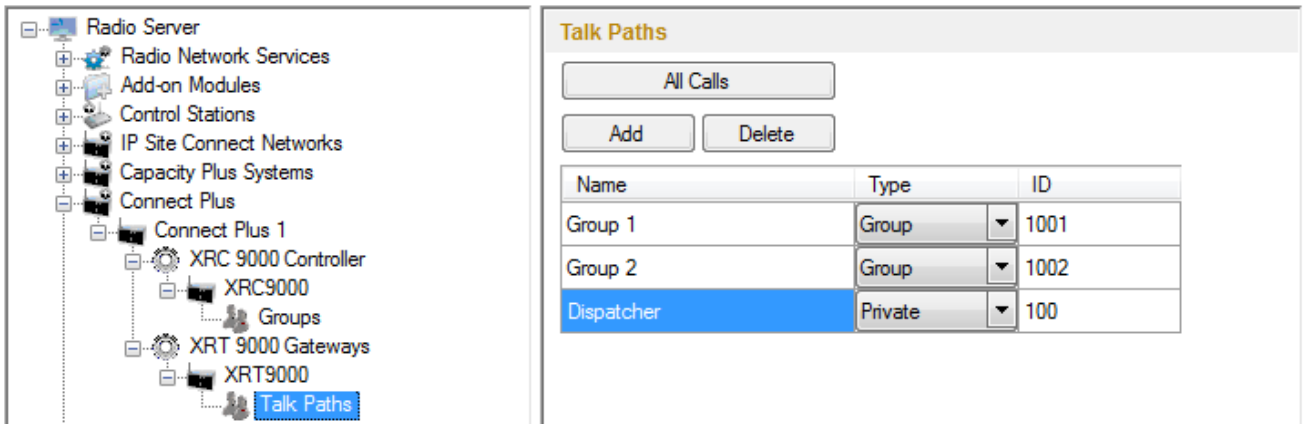
TX Time-Out Timer (sec) – time period during which the radio can transmit without interruptions. After this time is over, the transmission is interrupted.

Group Call Hang Time (ms) – time during which the repeater reserves the channel to a group call after the end of transmission. During the timeout, only the participants of the talkgroup can transmit.

Private Call Hang Time (ms) – time during which the repeater reserves the channel to a private call after the end of transmission. During the timeout, only the participants of the private call can transmit.

Emergency Call Hang Time (ms) – time during which the repeater reserves the channel to an emergency call after the end of transmission. During the timeout only the participants of the talkgroup can transmit.

The next step is to add talk paths. They are necessary for voice communication. For each talkgroup or/and dispatcher add a talk path. This can be done in the **Talk Paths** window.



Note: When adding talk paths make sure that talk paths with the same identifiers are specified in the XRT 9000 Gateway settings.

Radio Activity

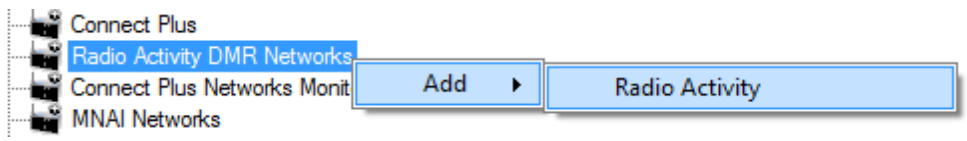
SmartPTT supports Radio Activity DMR network system. When working in Radio Activity DMR network system, SmartPTT Radioserver serves as a virtual repeater.

3.2.7.1 How to Configure Radio Activity Network

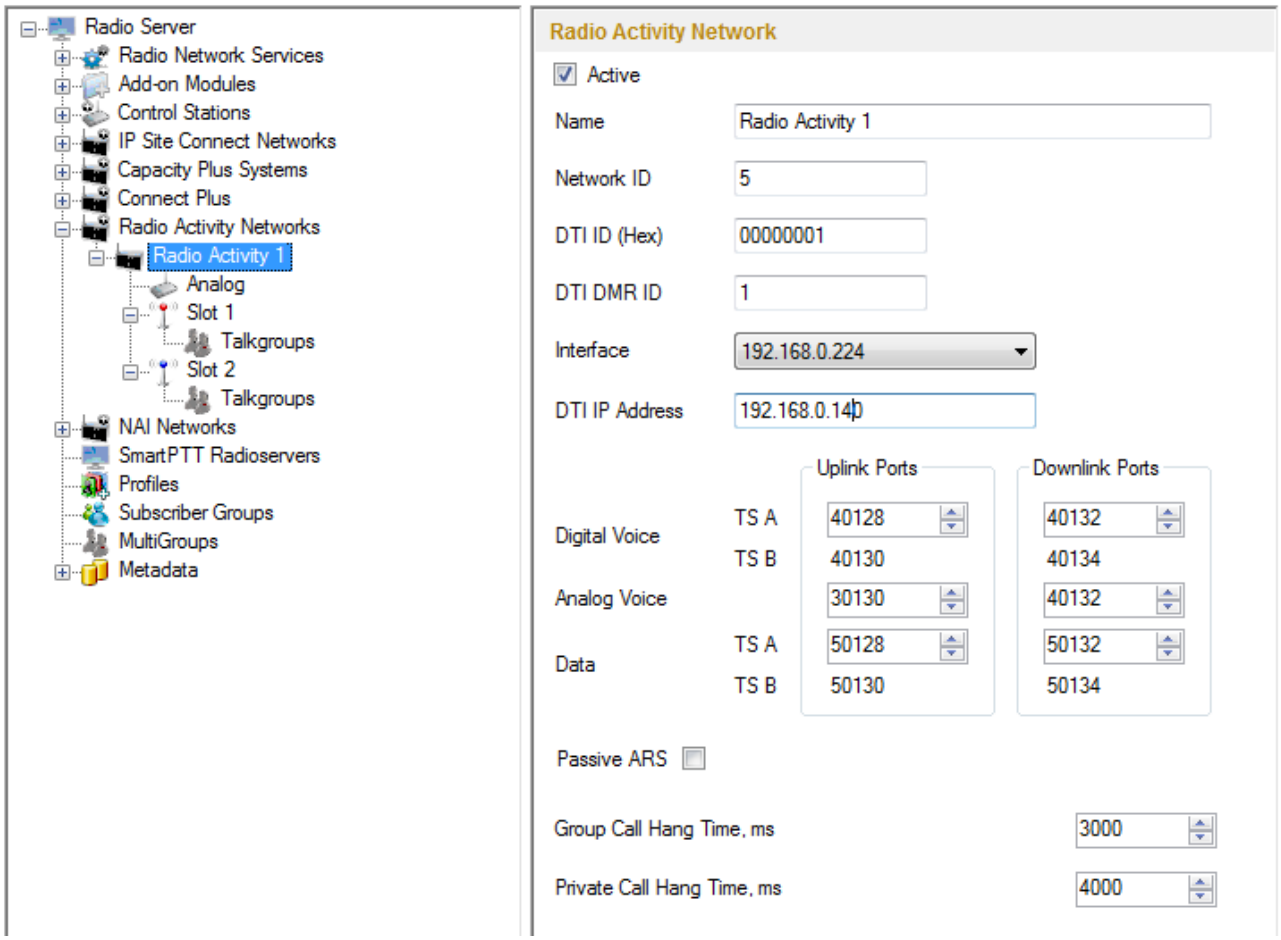
Configuration of Radio Activity DMR network includes:

1. Adding Radio Activity DMR network and basic configurations
2. Slot configuration
3. Talkgroup configuration

To add a new Radio Activity network, right-click **Radio Activity DMR Networks** in the serttings tree of SmartPTT Radioserver Configurator, point to **Add** and click **Radio Activity**.



To configure the newly added network, click **Radio Activity 1** under **Radio Activity Networks**. At that, the following window opens.



Active – enables the Radio Activity network.

Name – Radio Activity network name.

Network ID – unique ID of the Radio Activity network.

DTI ID (Hex) – identifier of the audio gateway of the Radio Activity repeater. It should match **RA DTI ID** in the DTI Manager software in the **About** section.

DTI DMR ID – it should match **DMR ID** in the DTI Manager software in the **About** section.

Interface (host:port) – IP address and port of the virtual repeater, i.e. SmartPTT Radioserver. Specify the IP address of the PC where the radioserver is installed.

DTI IP Address – IP address of the audio gateway of the Radio Activity repeater.

Uplink Ports – outgoing ports for data and voice that are set in the Radio Activity repeater.

Downlink Ports – incoming ports for data and voice that are set in the Radio Activity repeater.

Passive ARS – when **Passive ARS** is active, the radioserver does not send any ARS and GPS commands (passive ARS is used for routing between radioservers).

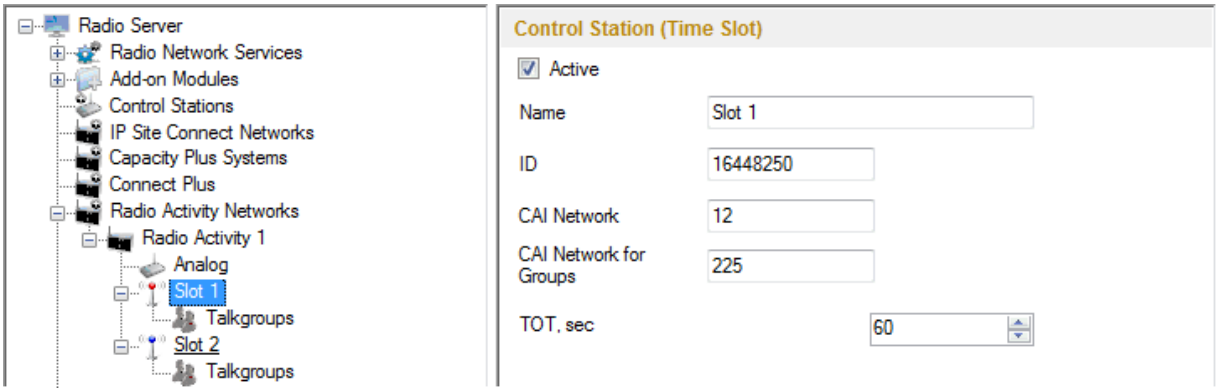
Group Call Hang Time (ms) – time during which the repeater reserves the channel to a group call after the end of transmission. During the timeout, only the participants of the talkgroup can transmit.

Private Call Hang Time (ms) – time during which the repeater reserves the channel to a private call after the end of transmission. During the timeout, only the participants of the private call can transmit.

Emergency Call Hang Time (ms) – time during which the repeater reserves the channel to an emergency call after the end of transmission. During the timeout only the participants of the talkgroup can transmit.

To delete Radio Activity, right-click on the selected Radio Activity and choose **Delete**.

To configure Radio Activity network slots, click **Slot 1** in the setting tree of SmartPTT Radioserver Configurator. At that, the following window opens.



Active – enables the slot.

Name – slot name. The name is displayed in SmartPTT Dispatcher.

ID – ID of a virtual control station to work with the selected Radio Activity slot.

CAI Network – CAI-network ID. Use default value of *12*. The allowed value range is *1–126*.

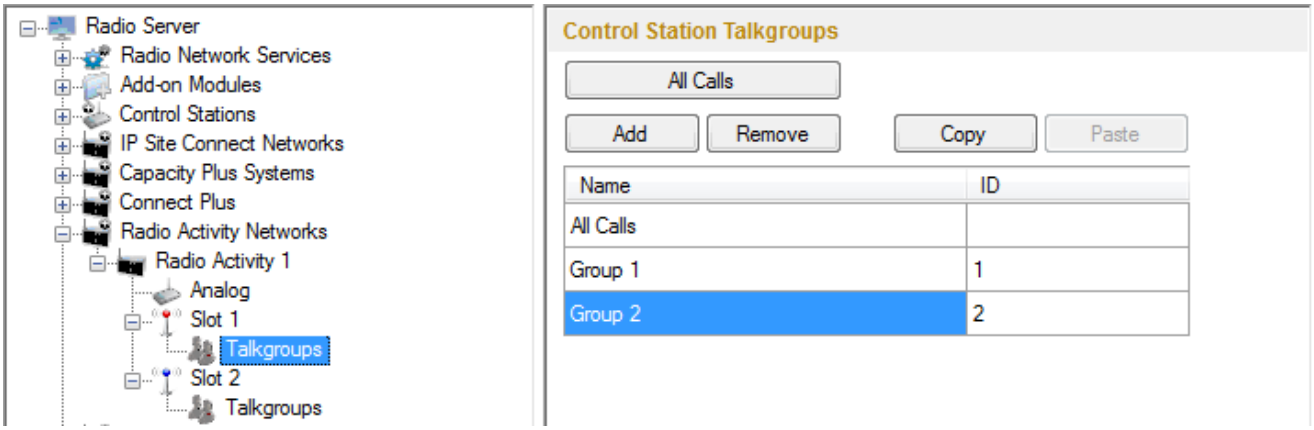
CAI Network for Groups – CAI-network for groups ID. Use default value of *225*. The allowed value range is *225–239*.

TOT – Time-Out Timer. The duration that the radio can continuously transmit before a transmission is automatically terminated. The default value is *60* sec.

Allow Subscriber Interrupt – enables or disables the ability of SmartPTT Dispatcher to interrupt voice transmissions by radios that are Transmit Interrupt capable.

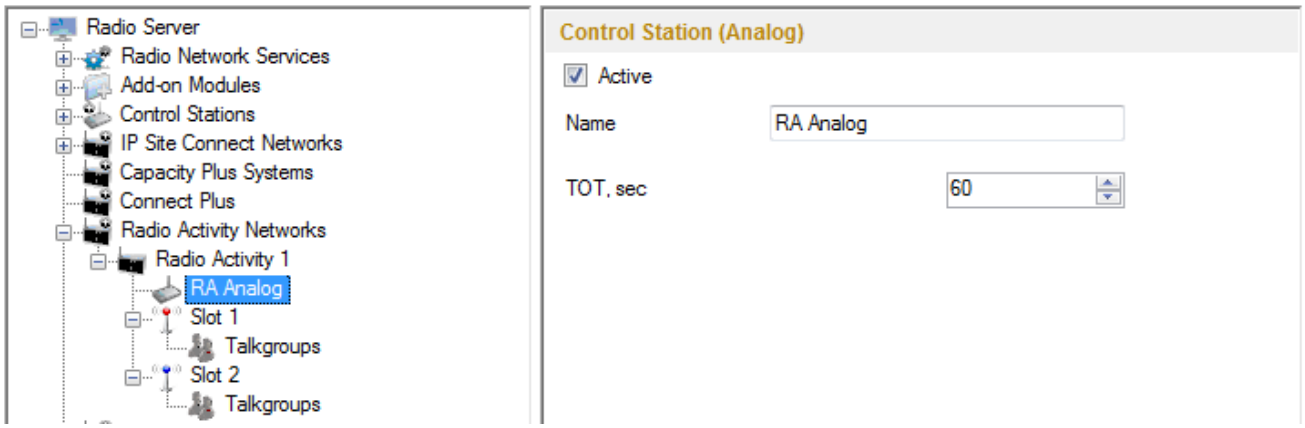
Allow Telephone Interconnect – allow radio subscribers to make calls to telephone subscribers and vice versa.

Click **Talkgroups** under Radio Activity Networks in the setting tree of SmartPTT Radioserver Configurator. At that, a window opens.



Note: Configuration process of Radio Activity talkgroups is similar to the configuring control station talkgroups.

To add the analog control station select **Analog**.]



Name – control station alias.

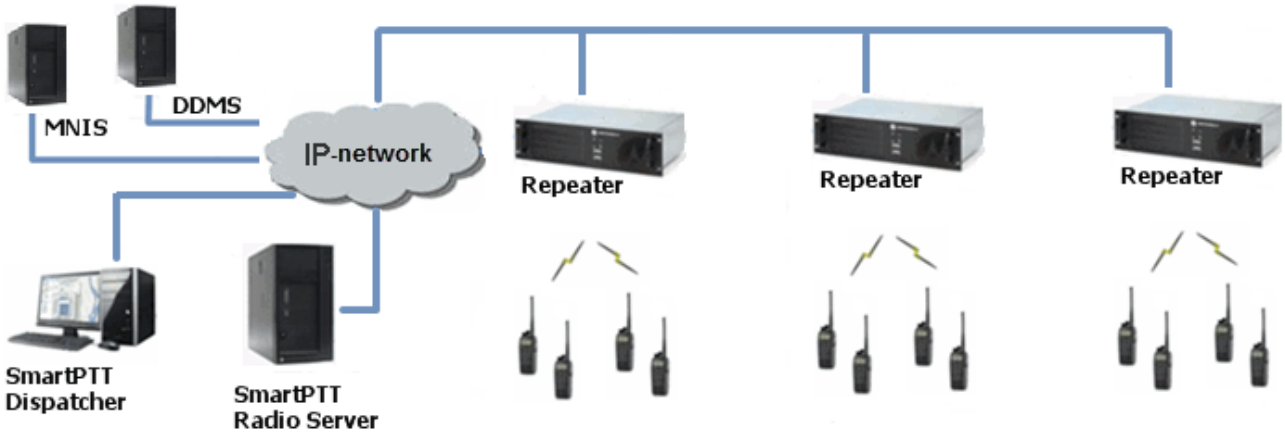
TX Time-Out Timer, sec – continuous radio transmission timeout. After this time the transmission is interrupted.

NAI

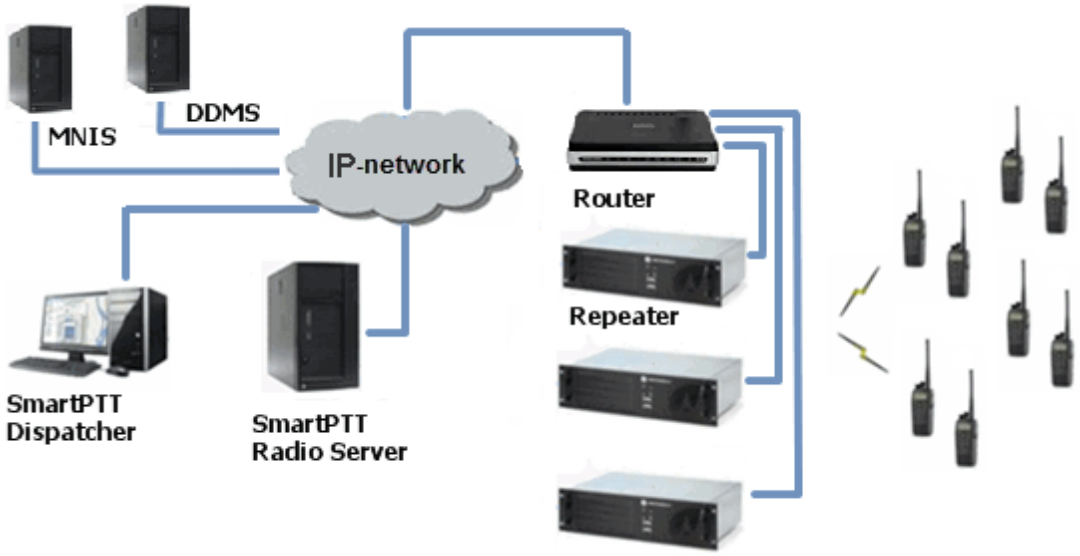
SmartPTT supports MOTOTRBO Network Application Interface (NAI) protocol for networks such as IP Site Connect, Capacity Plus, and Linked Capacity Plus. NAI network configuration uses this protocol for voice and data packet transmission.

Currently, you can configure three network types with the NAI protocol:

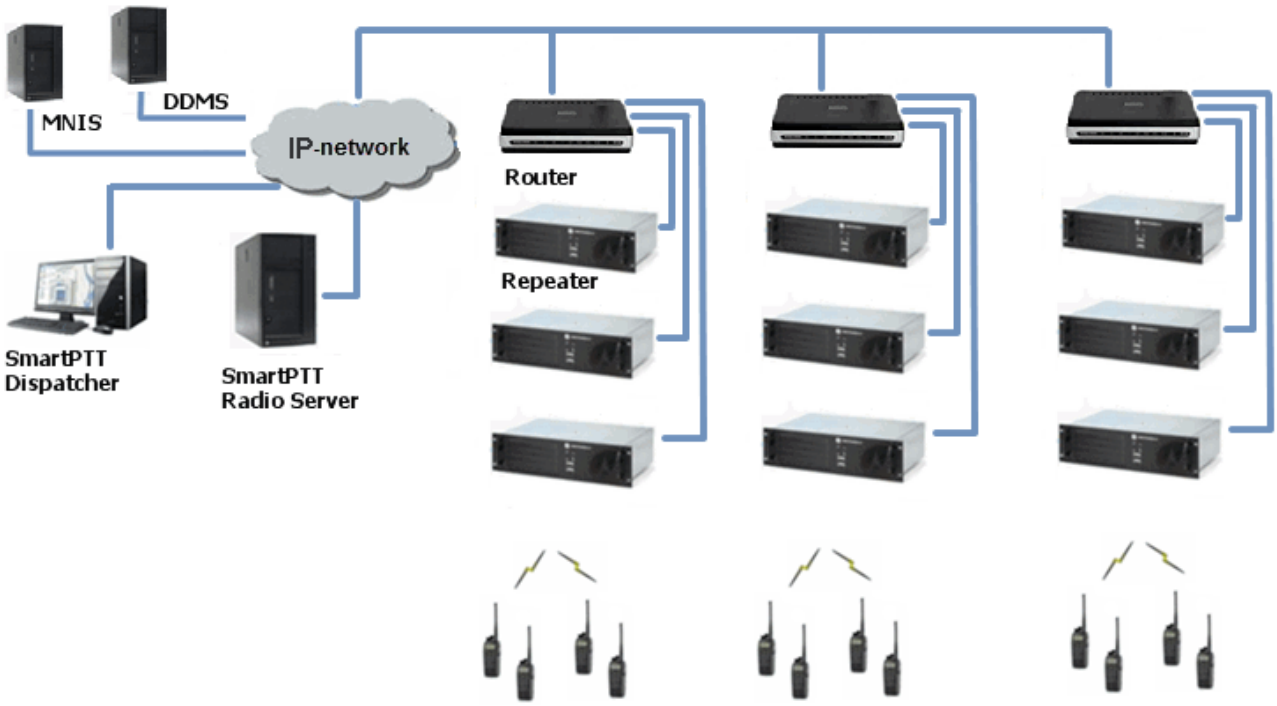
1. IP Site Connect



2. Capacity Plus



3. Linked Capacity Plus



Note: You can install SmartPTT Radioserver, DDMS and MNIS on the same PC.

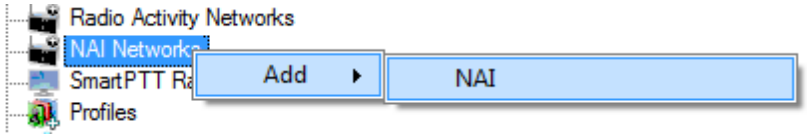
The MOTOTRBO Network Interface Service (MNIS) lets you transmit data (text messages, GPS, telemetry, etc.) without control stations. MNIS connects with the repeater system over IP and uses the repeaters to transmit and receive data packets.

Note: MNIS allows data transmission only. It does not support the transmission of voice calls and CSBK commands (Radio Check, Call Alert commands and so on).

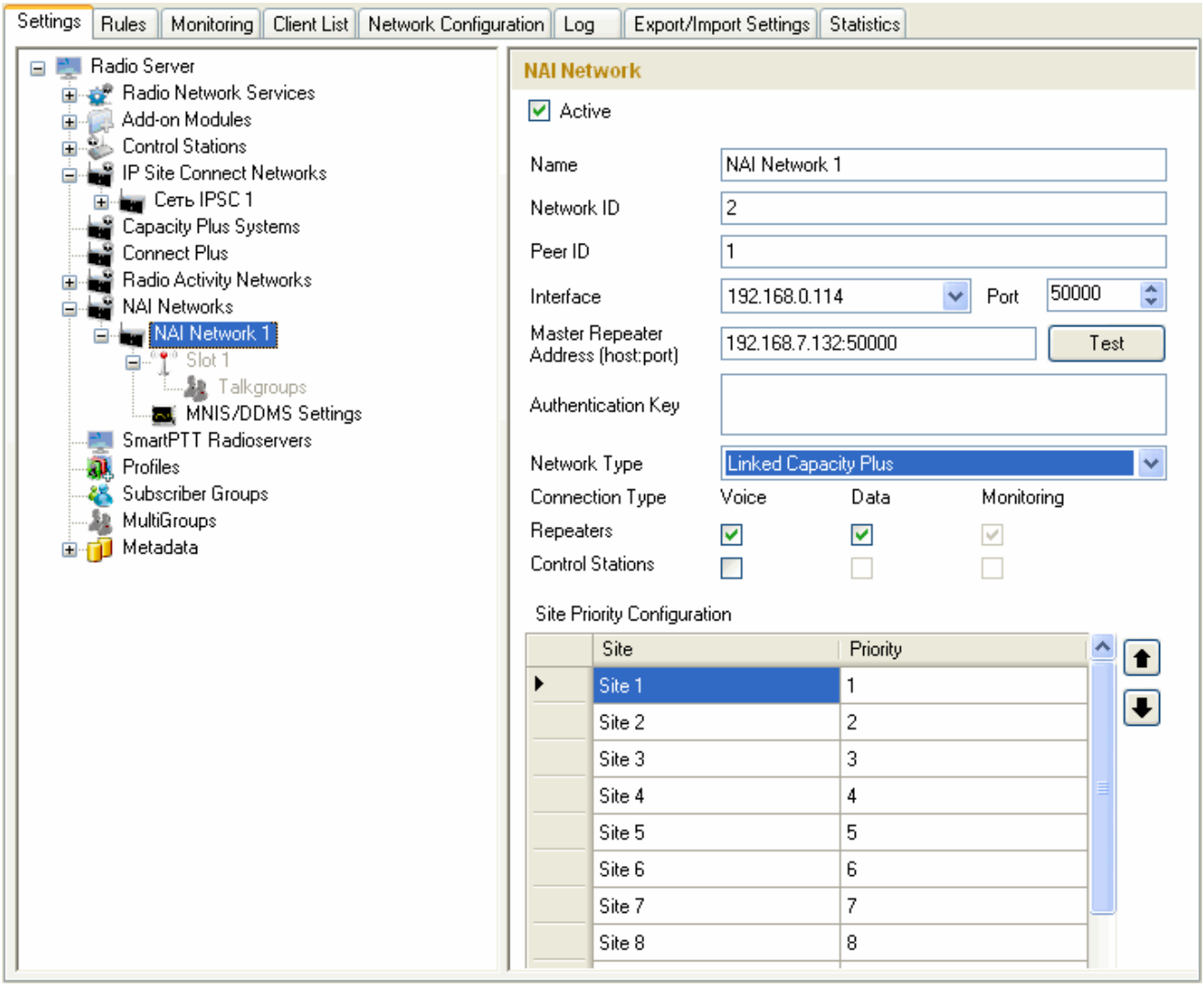
The Device Discovery and Mobility Service (DDMS) is a service that monitors the presence of ARS capable radio units and reports their parameters (IP address, Radio ID, etc.) to interested applications, such as SmartPTT Radioserver and MNIS.

3.2.8.1 How to Configure NAI

To add NAI network, right-click **NAI Networks** in the setting tree of SmartPTT Radioserver Configurator, point to **Add** and then click **NAI**.



At that, the **NAI Network** window opens.



Name – network name.

Network ID – unique ID of the network. The network ID must not match any ID of the other SmartPTT Radioserver networks.

Peer ID – unique ID of the virtual repeater in the network. The virtual repeater ID must not match any of the other repeater IDs in this network.

Interface – local IP address of the virtual repeater in the network, i.e. SmartPTT Radioserver. Specify the IP address of the PC where the radioserver is installed. This IP address is used by other virtual repeaters as the primary gateway for connection with repeaters over the network.

Port – port number of the virtual repeater. It should differ from the corresponding ports in other networks.

Master repeater address (host:port) – IP address and port number of the network Master repeater.

Click **Test** to check connection between the virtual (i.e. the radioserver) and Master repeaters.

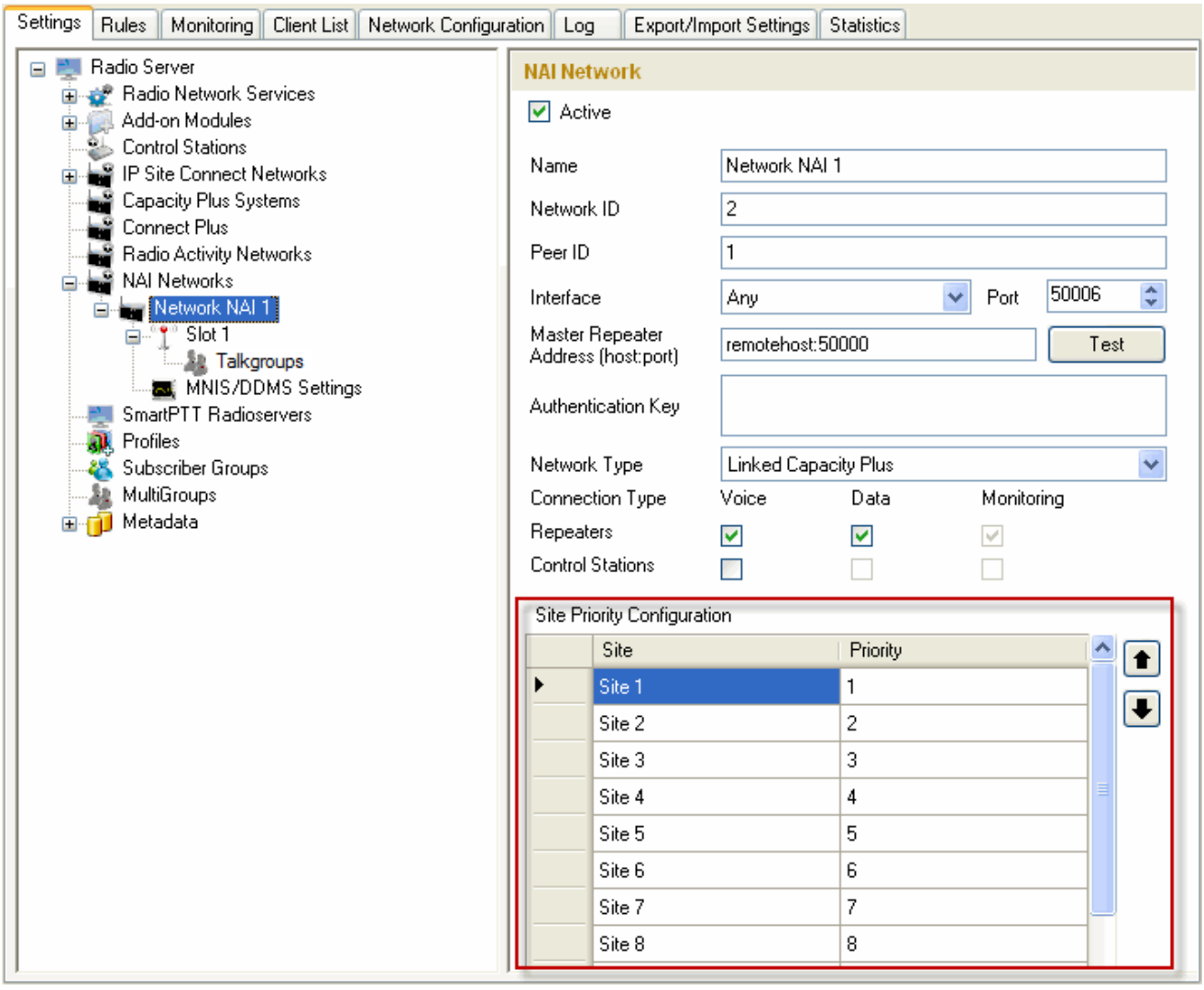
Authentication Key – repeater authorization key (to be equal to the **Authentication key** in the repeater settings in MOTOTRBO CPS).

Network Type – type of network, which can be built based on NAI protocol. There are three network types: IP Site Connect, Capacity Plus, and Linked Capacity networks.

Connection type – defines the type of data transmitted over the network: voice, data, and monitoring data packets.

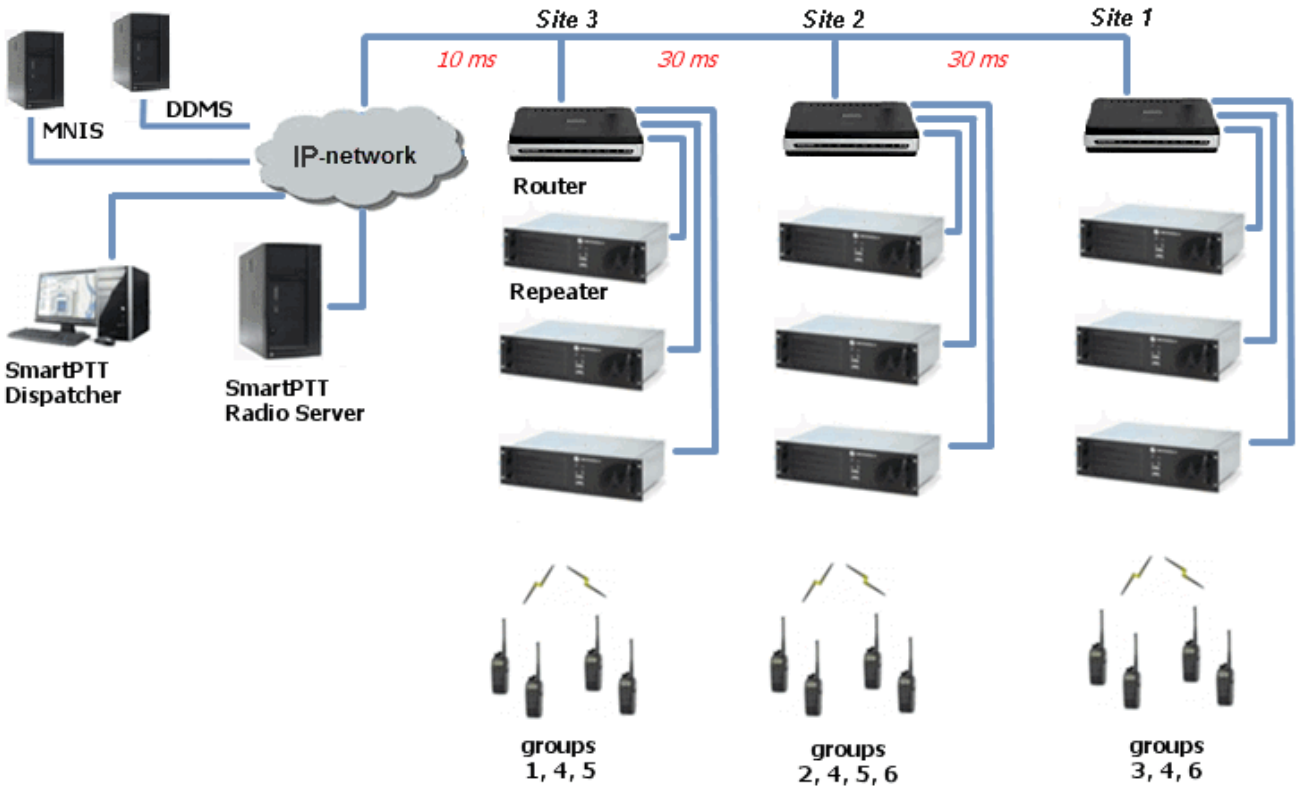
There are two ways how to transmit voice packets: via repeaters and via control stations. When transmitting voice via control stations only group calls can be made.To transmit voice data via control stations, configure control station parameters. To transmit voice data via repeaters, configure virtual control station channels and talkgroups of the channel. The number of channels depends on the network type.

When selecting the *Linked Capacity Plus* network type for voice data transmission via repeaters, the **Site Priority Configuration** table appears in the **NAI Network** window.



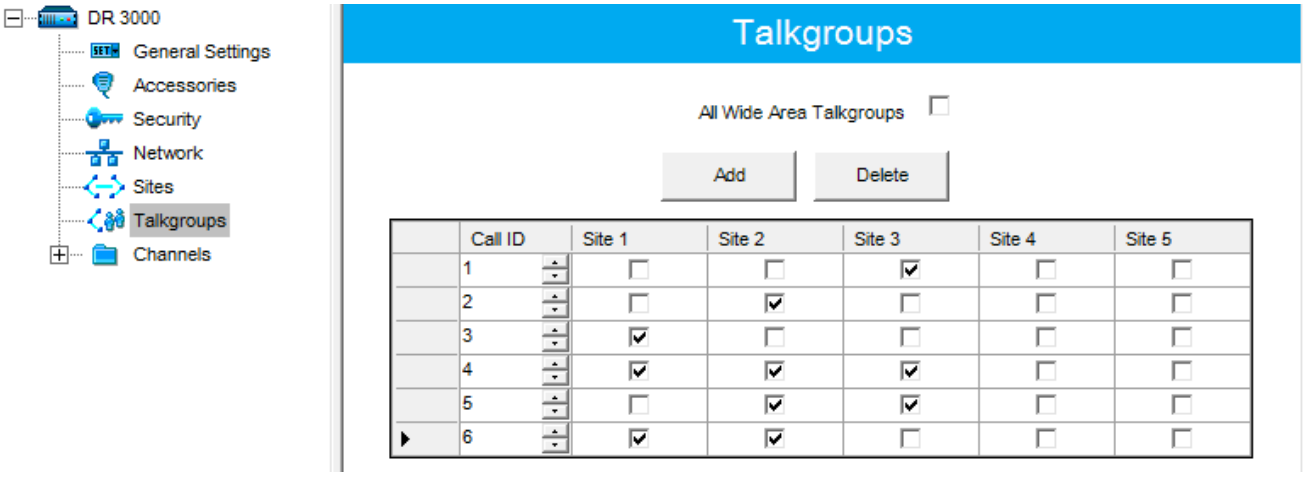
Filling this table allows you to reduce delay in data transmission over the network.

The following example describes site location in respect to the radioserver and talkgroup distribution at sites.



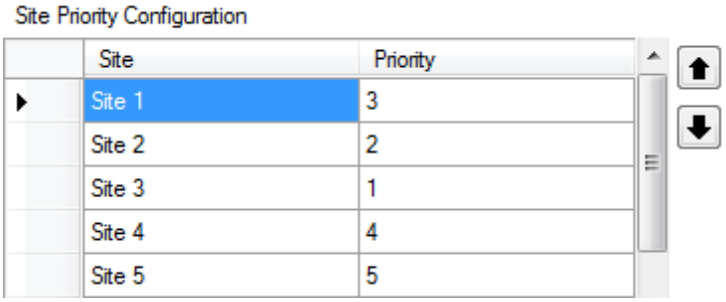
Here, talkgroups 3, 4, 6 are assigned to Site 1; talkgroups 2, 4, 5, 6 – to Site 2; talkgroups 1, 4, and 5 – to Site 3.

The **Talkgroups** tab of repeater MOTOTRBO CPS settings allows you to configure group calls as wide area calls on the specific sites. It presents this schema in the following way.



By default, repeater sends data to Site 1. Then, voice data will be sent from Site 1 to other sites. For example, when you call to talkgroup 4, total time delay amounts 130 ms.

Setting up the site priorities in the manner that sites with less time delay are associated with a higher priority allows sending voice data to the nearest site, from which it is distributed to other sites. Ultimately, total time delay in case of talkgroup 4 reduces up to 70 ms.

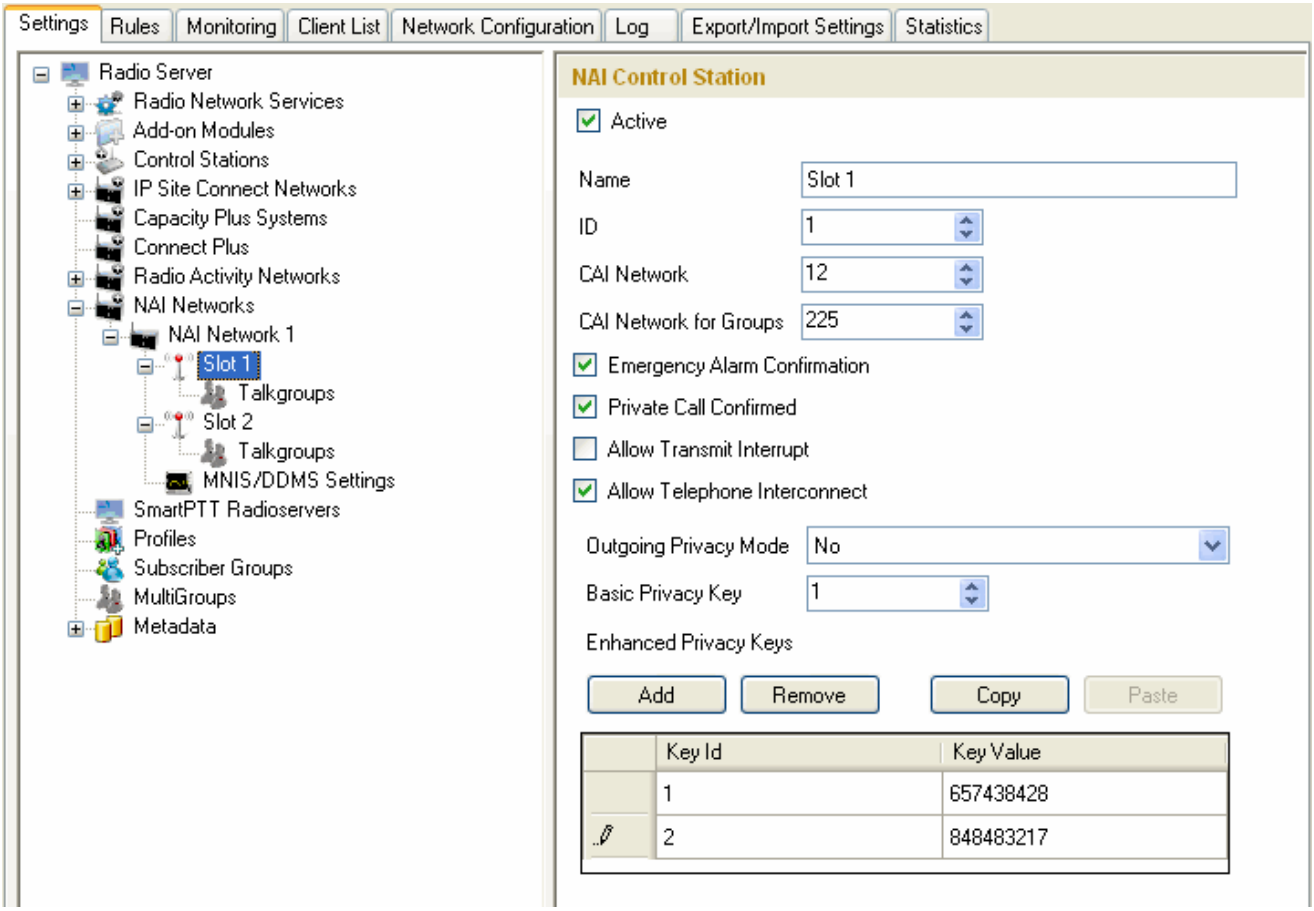


If connection with site of the highest priority fails, the radioserver tries to work through the site of lower priority.

To assign site priority, drag the site name to the desired location or use arrows on the right to the table.

Note: Talkgroup distribution data is provided by the **Talkgroups** table on each site (repeater settings in MOTOTRBO CPS).

After you have selected the network type, configure the slots. In order to do that, go to the **Slot 1** item in the setting tree of SmartPTT Radioserver Configurator. At that, the following window appears.



Note: When configuring Capacity Plus or Linked Capacity Plus networks, there is only one slot to be configured.

Name – slot name.

ID – unique ID of a virtual control station corresponding to the network slot.

CAI Network – CAI-network ID. Use the default value of *12* (must match MOTOTRBO CPS settings).

CAI Network for Groups – CAI-network for groups ID. Use the default value of *225* (must match MOTOTRBO CPS settings).

Emergency Alarm Confirmation – determines if the emergency alarm is allowed to be acknowledged.

Private Call Confirmed – this feature sets private calls on the current digital channel as confirmed.

Allow Transmit Interrupt – enables or disables the ability to interrupt a radio subscriber.

Allow Telephone Interconnect – enables telephone calls on the slot.

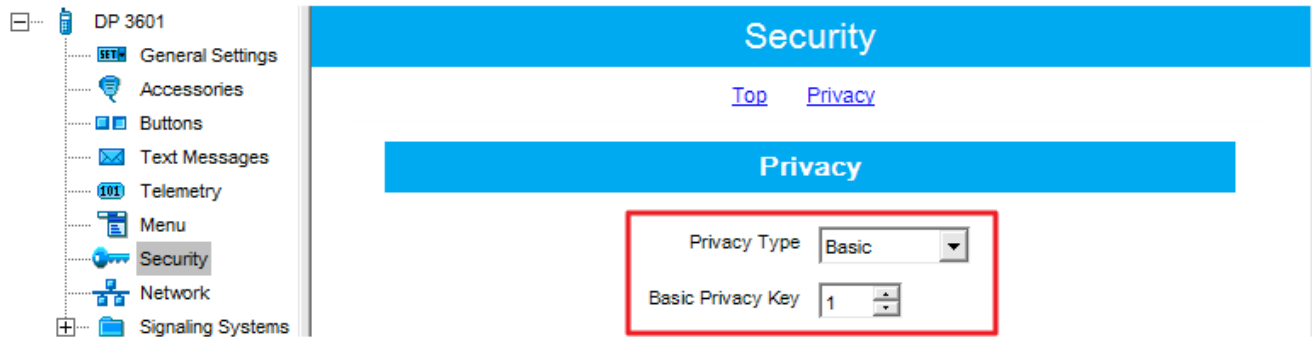
Outgoing Privacy Mode – choice of the encryption mode on the side of SmartPTT Dispatcher for voice only.

There are three types of **Outgoing Privacy Mode**:

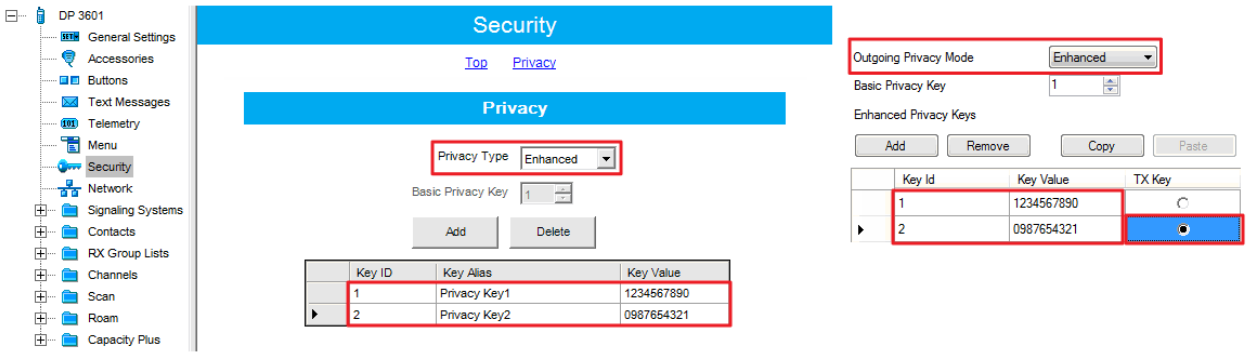
- *No*
- *Basic*
- *Enhanced*

If *No* is set, radioserver does not support outbound traffic encryption.

To ensure the *Basic* mode, set the key value in the **Basic Privacy Key** field. Make sure that **Basic Privacy Key** set in SmartPTT Radioserver Configurator matches **Basic Privacy Key** set in radio settings in MOTOTRBO CPS. A radio can have only one key. You can specify any value for the **Basic Privacy Key** from the range from *1* to *255*.



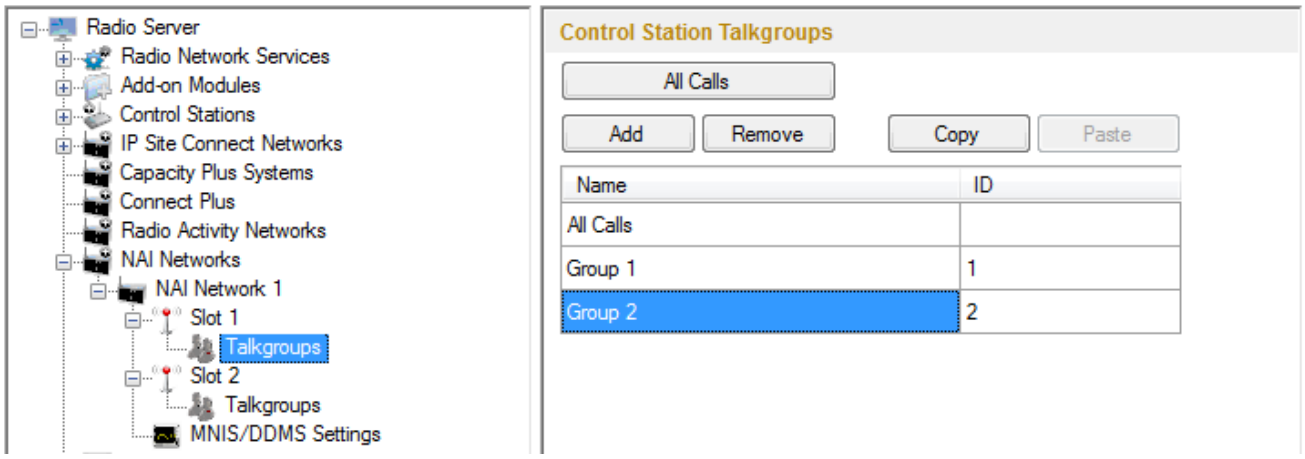
To ensure the *Enhanced* mode for outbound traffic encryption, add enhanced privacy keys for incoming and outgoing calls. There can be many enhanced privacy keys for incoming calls, and only one key for outgoing calls. To select the key for outgoing calls, first select *Enhanced* in the **Outgoing Privacy Mode** field. At that, a new column **TX Key** will appear. In the **TX Key** column select the key used for encryption of the outgoing calls.



If the values in the **Key ID** fields are the same, but the values in the **Key Value** fields do not match, the receiving radio hears only a distorted voice. If **Key ID** specified in the MOTOTRBO CPS of the radio does not match any of the **Key IDs** specified in the table, the dispatcher hears nothing during transmission.

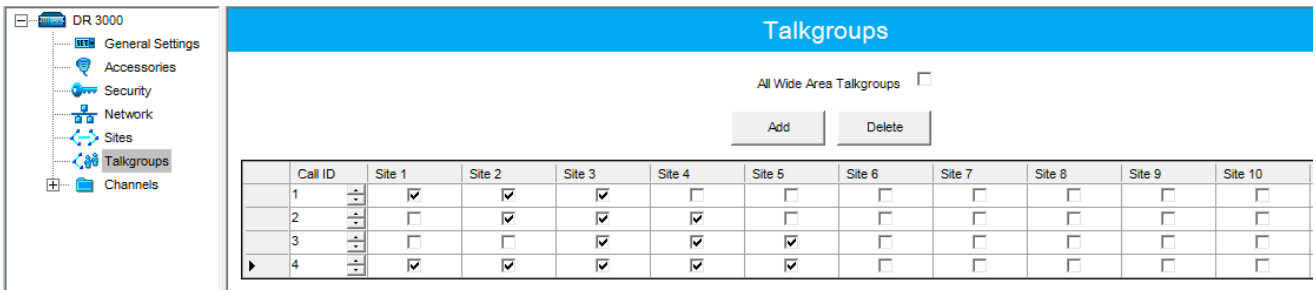
If the radioserver is configured to transmit outbound traffic without encryption (**Outgoing Privacy Mode** = *No*), and **Basic Privacy Key** and **Enhanced Privacy Keys** are set, the encrypted data received from the radios can be decrypted correctly.

To configure slot groups, click **Talkgroups** in the setting tree of SmartPTT Radioserver Configurator. At that, the **Control Station Talkgroups** window opens.

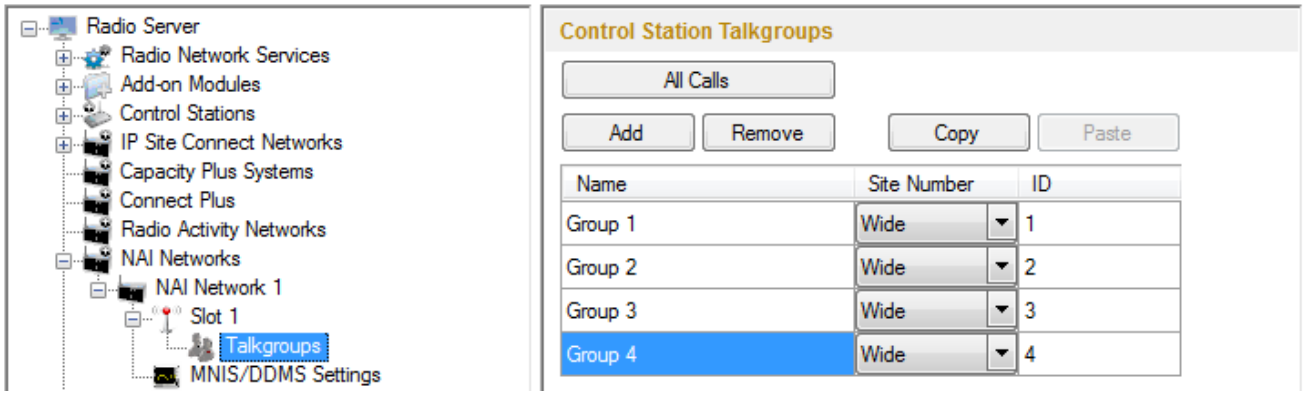


Note: The configuration process of the virtual control station talkgroups for NAI network (with **Network type** = *IP Site Connect* or *Capacity Plus*) is absolutely similar to the configuration of MOTOTRBO control station talkgroups.

Configuring Linked Capacity Plus network type, the parameters of wide area and local talkgroups are also set in the **Control Station Talkgroups** window. All the configured groups are displayed in SmartPTT Dispatcher. For more information about wide area and local groups of Linked Capacity Plus network see Motorola System Planer. The wide area group calls are accessible to the subscribers that are in the coverage area of sites designated in MOTOTRBO CPS for this talkgroup. Select checkboxes in the required columns of the **Talkgroups** tab in the repeater MOTOTRBO CPS settings. Each column corresponds to the site where the talkgroup is available for a call.



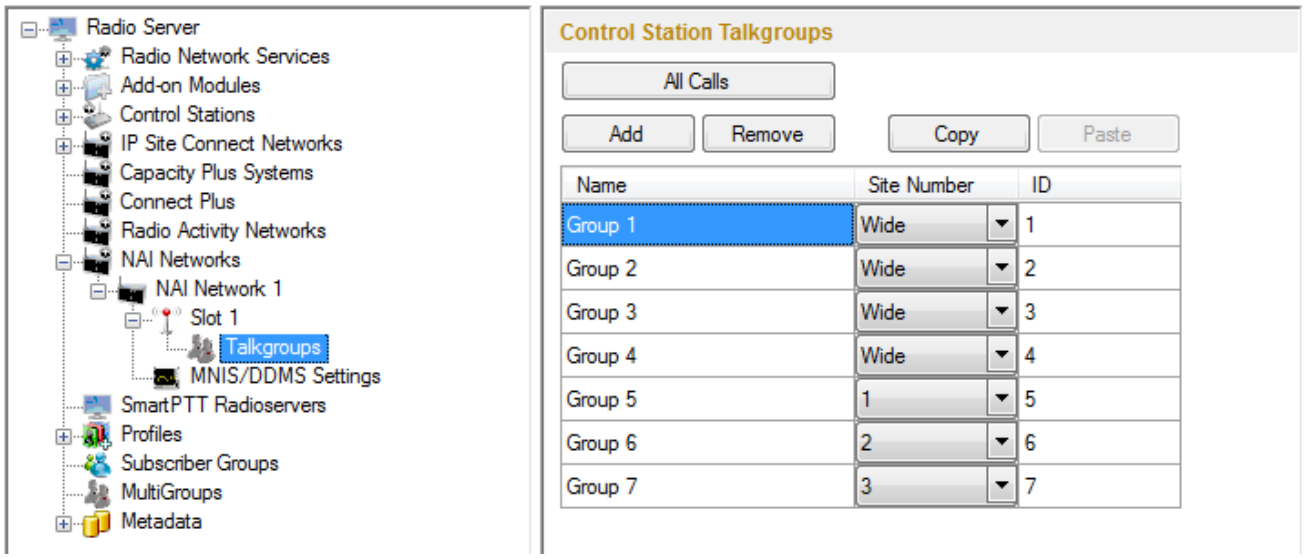
In order to display wide area talkgroups by the SmartPTT Dispatcher application, add necessary talkgroups in SmartPTT Radioserver Configurator, define talkgroup identifiers that correspond to the identifiers of the wide area talkgroups in the repeater MOTOTRBO CPS settings and select *Wide* in the **Site Number** field.



The talkgroups that are absent in the repeater MOTOTRBO CPS settings are considered as local talkgroups. The local talkgroup call does not go beyond the site where the call is initiated.

Add the required local talkgroups in SmartPTT Radioserver Configurator, define identifiers for them and select site number from the list in the **Site Number** field.

Note: Wide area and local talkgroup identifiers must not match.

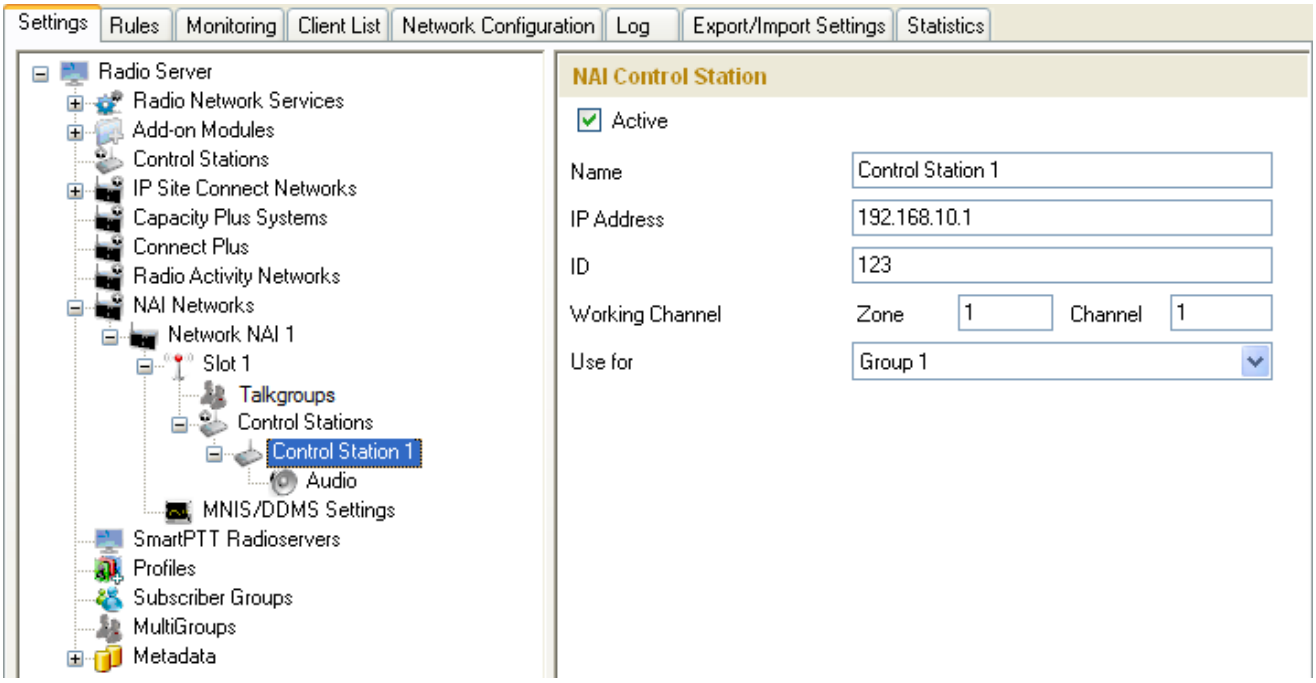


It is important to specify all talkgroups actually supported by the system in SmartPTT Radioserver Configurator. Otherwise, the operator can't initiate a call to such a talkgroup until the talkgroup member has made a group call

to the operator.

To transmit voice packets over control station, you need to configure its parameters. Control station settings become available, when you select voice packet transmission over control stations, not repeaters.

To configure the control station settings, right-click **Control Stations** and click **Add**. At that, a new setting window appears.



Name – control station name.

IP Address – local IP address of the control station. The following address format and range are used: *(001-223).(000-255).(000-255).(001-253)*. Users can use any address except 127.x.x.x in the range from 1.x.x.x to 223.x.x.x. We recommend to use the address *192.168.10.1* by default, and in case of conflicts with other network interfaces you should select a different IP address.

Note: If two or more control stations are connected to the computer, one of the first three octets of the IP address must be unique for each control station.

ID – unique radio station identifier used during communication with it. In the IP Site Connect system, the ID is to

be set in the range from *1* to *16776415*. In the Capacity Plus or Linked Capacity Plus systems, the ID is to be set in the range from *1* to *65535*.

Working Channel – select the channel and the zone to be set at the control station at the radioserver launch.

Use for – select the talkgroup, which the control station will be listening to. This parameter is available only for Linked Capacity Plus and Capacity Plus systems.

Warning! Use one control station per one talkgroup.

To select audio devices and set up VoIP parameters, click **Audio** in the setting tree of SmartPTT Radioserver Configurator.

Audio Input – an audio device to which the control station audio output is connected.

Input Line – audio mixer line used for connections. The control station audio output can be connected to the line input of the audio device.

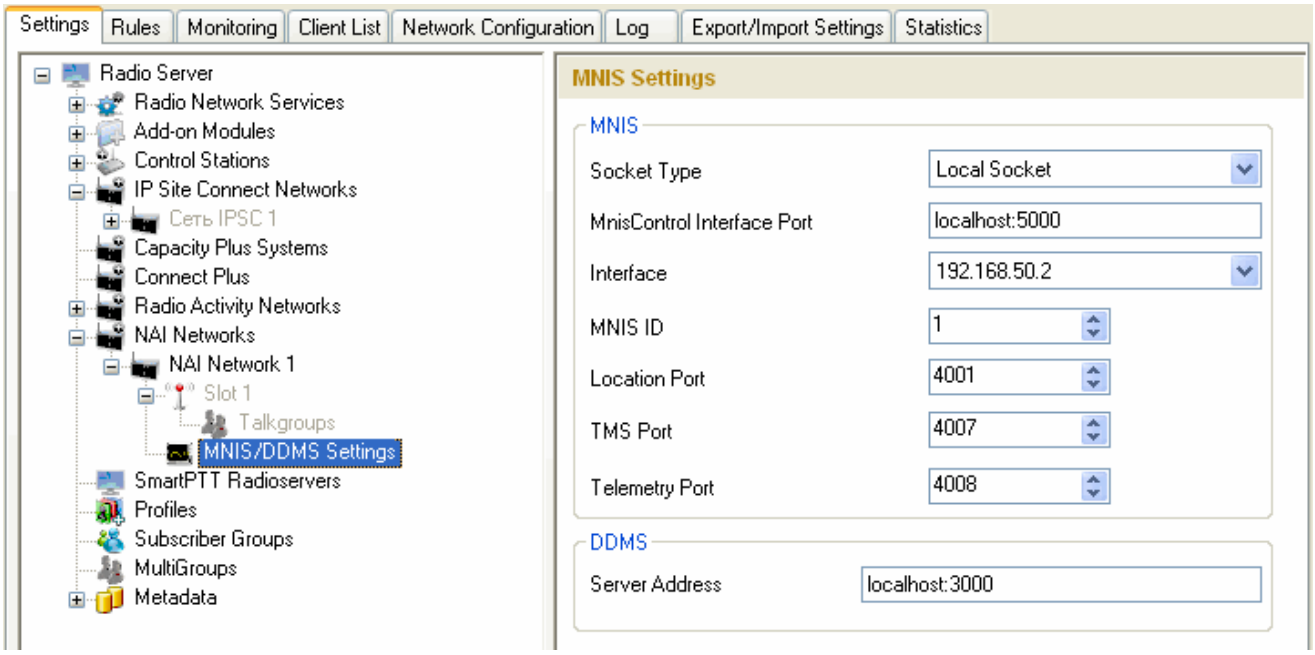
Codec – outgoing audio stream compression method.

Format – sampling frequency of an outgoing audio stream.

> **Example**:
>
> Specifications of the codec format **8000 Hz, 20 ms, 64 (89) kbps**:
>
> **8000Hz** is the sampling rate
>
> **20 ms** is the frame size
>
> **64 kbps** is the voice data bit rate
>
> **89 kbps** is a full bit rate (required network bandwidth)

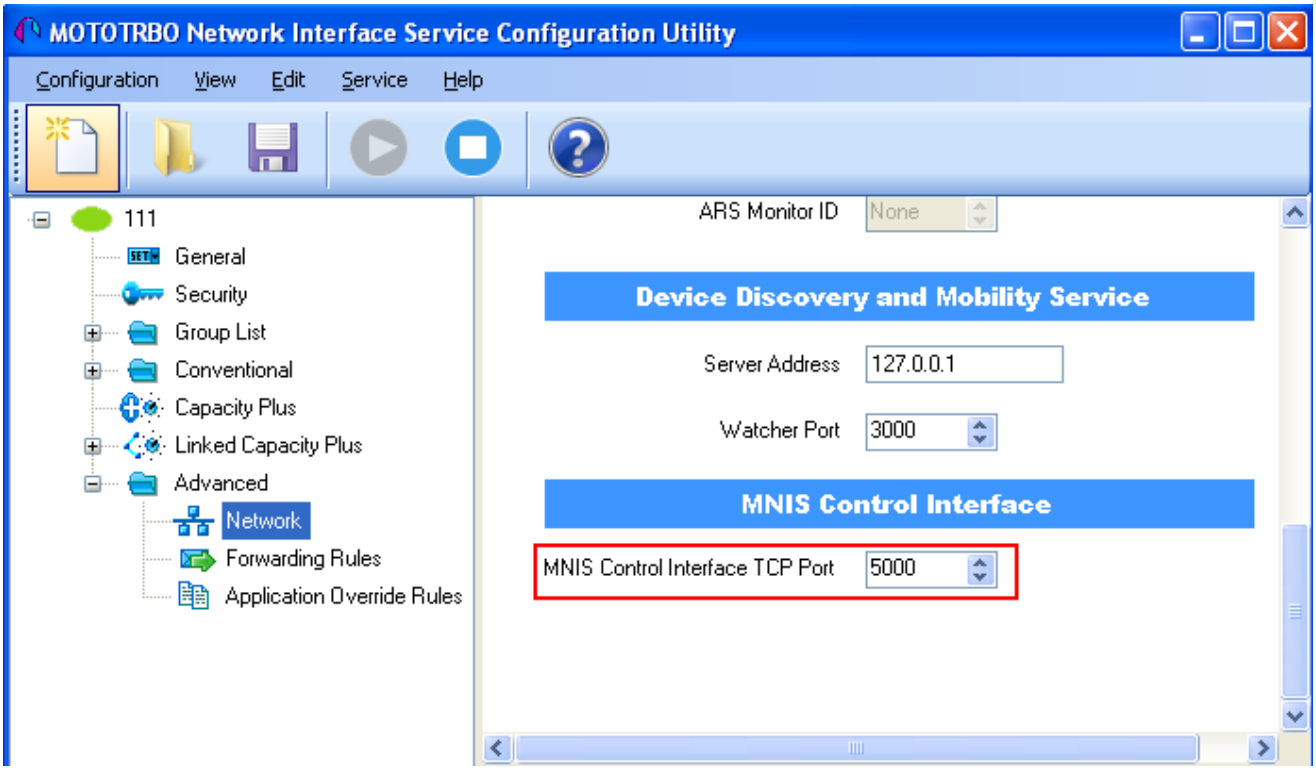
Audio Output – an audio device to which the control station audio input is connected.

To set up data transfer over NAI network, click **MNIS/DDMS Settings** in the setting tree of SmartPTT Radioserver Configurator. At that, the **MNIS/DDMS Settings** window opens.



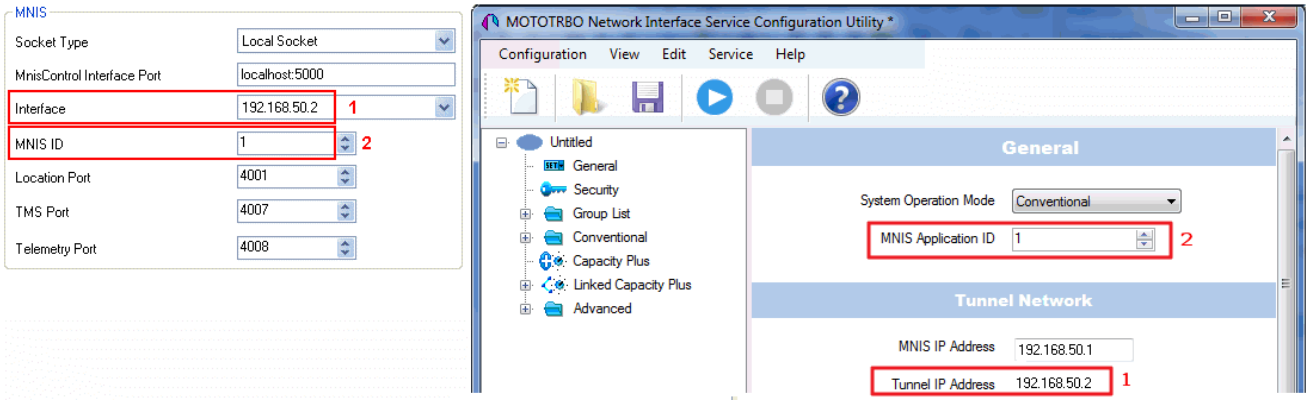
Socket type – defines the software interface type to enable communication between processes. Select the *Local Socket* value if the MOTOTRBO Network Interface Service Configuration Utility application is installed on the same PC as SmartPTT Radioserver. Select *Remote Socket* if MOTOTRBO Network Interface Service Configuration Utility and SmartPTT Radioserver are installed on a different PCs. In this case, information exchange between the processes is supported by the MNIS Relay application.

MNIS Control Interface Port – use *localhost*, if MOTOTRBO Network Interface Service Configuration Utility is installed on the same PC as the radioserver. If MOTOTRBO Network Interface Service Configuration Utility and the radioserver are installed on different PCs, use the interface entered in the **MNIS Relay Address** field. The port should match the port number specified in the **MNIS Control Interface TCP Port** field in MOTOTRBO Network Interface Service Configuration Utility settings:



Interface – the IP address of MOTOTRBO Network Interface Service Configuration Utility is installed. It must match the IP address specified in the **Tunnel IP Address** field of MOTOTRBO Network Interface Service Configuration Utility.

MNIS ID – the Common Air Interface (CAI) ID of the MNIS in the radio network. The ID is used by other calling radios when addressing MOTOTRBO Network Interface Service. Make sure **MNIS ID** matches the **MNIS Application ID** field (the **General** tab) in MOTOTRBO Network Interface Service Configuration Utility. It is also recommended that **MNIS ID** match the **Slot ID** field value in the radioserver settings.

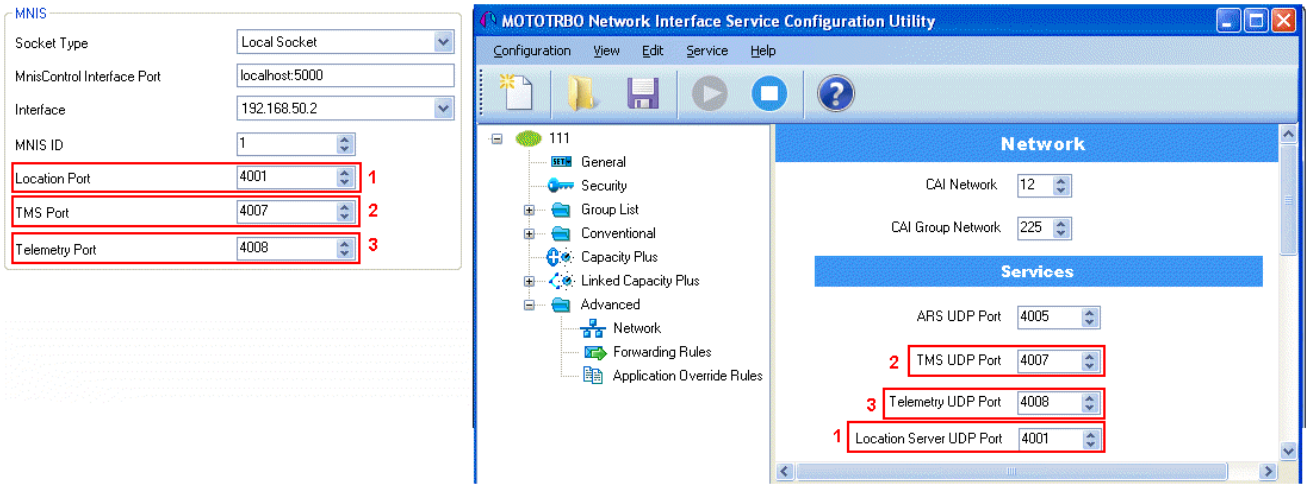


Location Port – the port where the radioserver will expect GPS data.

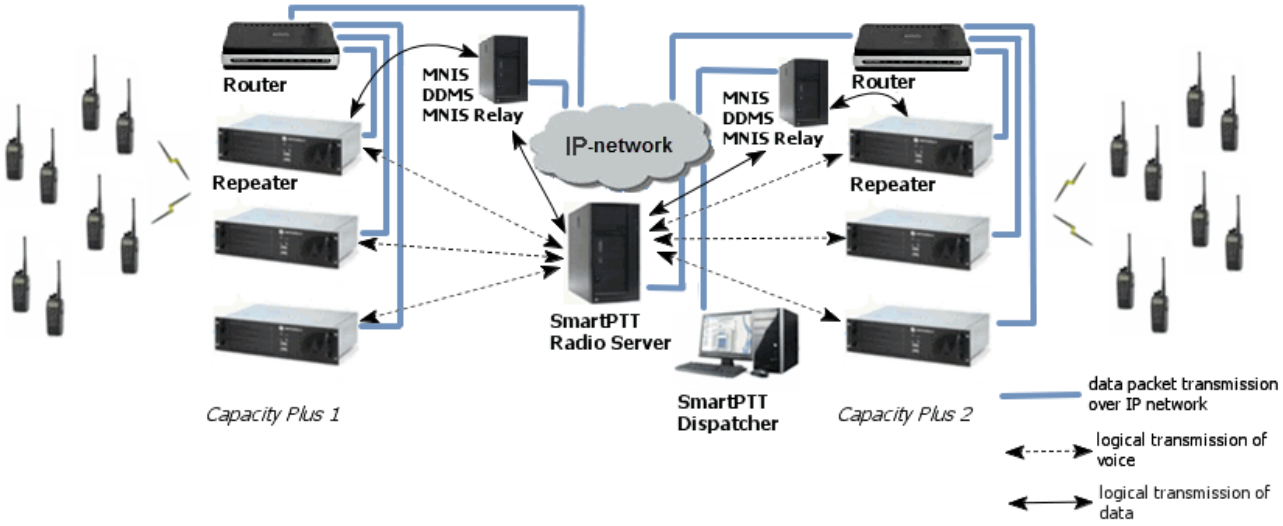
TMS Port – the port where the radioserver will expect text messages.

Telemetry Port – the port where the radioserver will expect telemetry data.

The ports should match the ports set in the **TMS UDP PORT**, **Telemetry UDP Port** and **Location Server UDP Port** fields in MOTOTRBO Network Interface Service Configuration Utility (**Advanced** > **Network**).



Remote Socket is used when you want to connect more than one network such as Capacity Plus or Linked Capacity Plus to SmartPTT Radioserver. To ensure the proper functioning of all connected networks (voice and/or data transmission), each network requires separate MNIS and DDMS services set up and running. At the same time, multiple MNIS and DDMS can't be installed on one PC. To work around this problem, you should install and configure MOTOTRBO Network Interface Service Configuration Utility, MOTOTRBO DDMS Administrative Client and MNIS Relay applications on multiple PCs. The number of PCs depends on the number of networks (Capacity Plus or Linked Capacity Plus) connected to SmartPTT Radioserver. Thus, the transmission of voice data from repeaters to SmartPTT Radioserver is carried out directly, and data transfer – via PC with MNIS Relay and the MNIS and DDMS service applications.

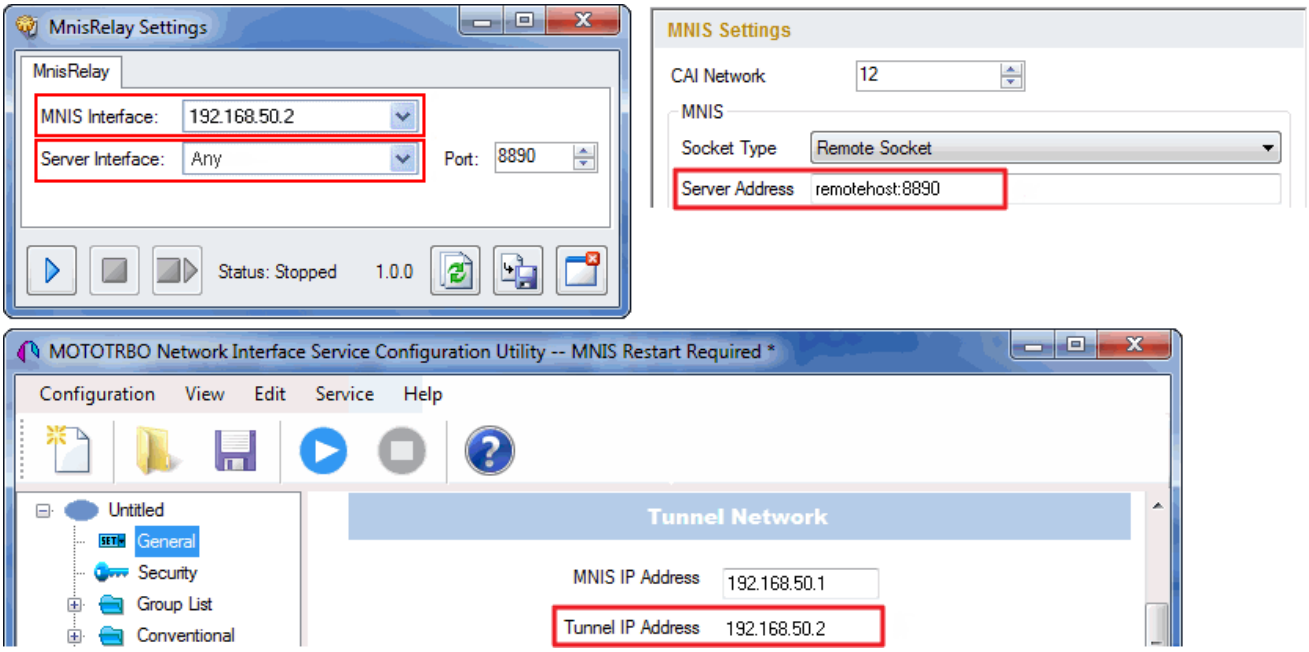


Run MNIS Relay and do the the following settings.

MNIS Interface – interface that is created by the MOTOTRBO Network Interface Service Configuration Utility application. The value in this field must match the value in the **Tunnel IP Address** field (the **General** tab) of MOTOTRBO Network Interface Service Configuration Utility.

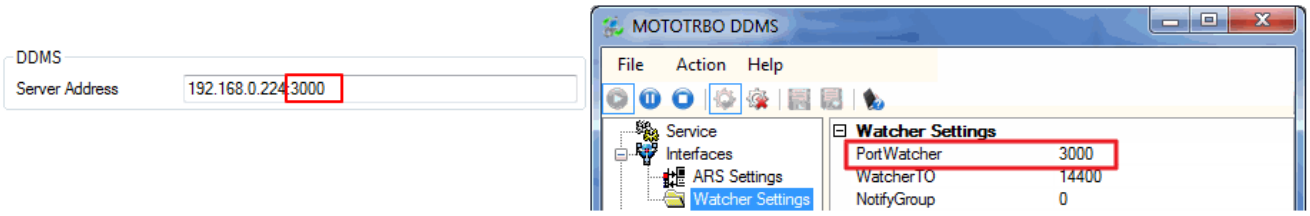
Server Interface – specify IP address of the PC with the MNIS Relay application explicitly, or select *Any* (the service is available from any network interface) or *Loopback* (the service is available from the local interface only).

Port – port number for the MNIS Relay application. The default value – *8890*.



Save the settings in the MNIS Relay application and start the service by clicking .

Server Address – IP address of the PC with the MOTOTRBO DDMS Administrative Client application installed on it, and port number of the DDMS server. The port number in this field must match the port number in the **PortWatcher** field of the MOTOTRBO DDMS Administrative Client (**Interfaces > Watcher Settings**).

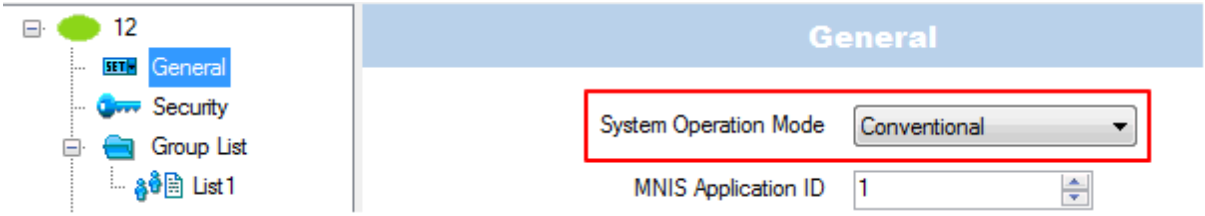


The following section describes MNIS service settings in MOTOTRBO Network Interface Service Configuration

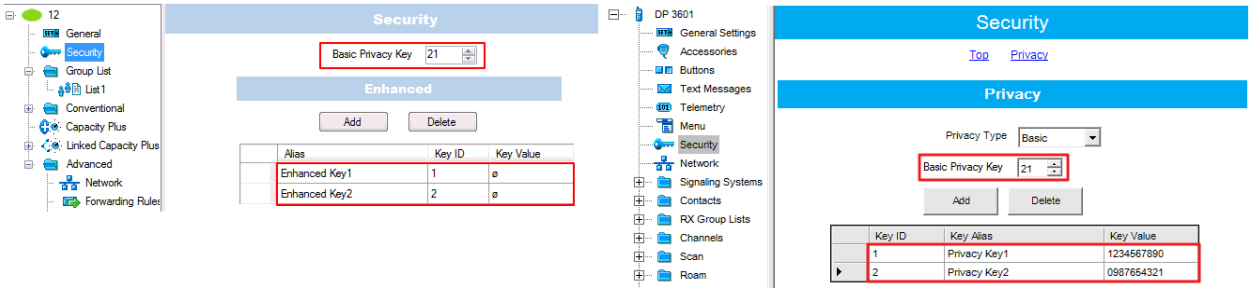
Utility and DDMS service settings in MOTOTRBO DDMS Administrative Client, which are necessary for proper data transmission over the network (**Connection Type** = *Data* or *Voice* + *Data*).

You should configure the following settings in the MOTOTRBO Network Interface Service Configuration Utility application:

1. Select the network type matches the network type in SmartPTT Radioserver Configurator in the **System Operation Mode** field of the **General** section.

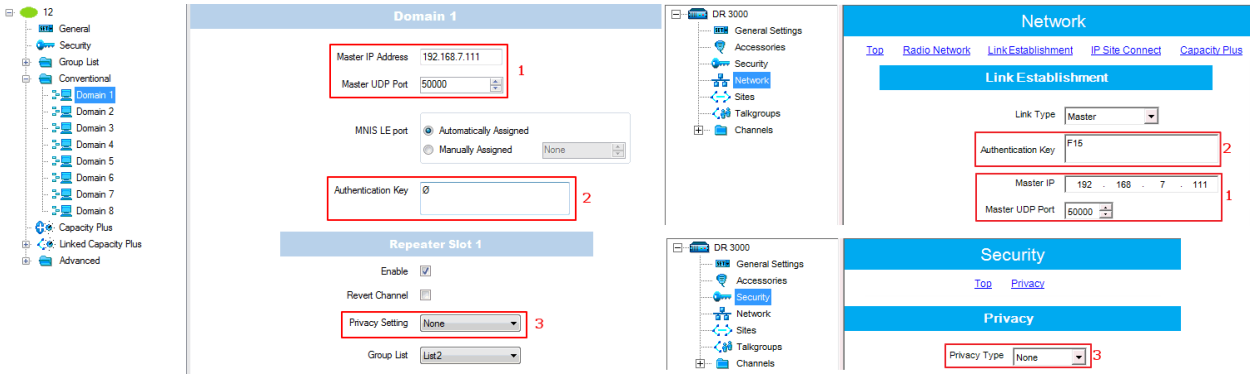


2. Set the encryption keys in the **Security** section that match the keys specified in the radio MOTOTRBO CPS settings.

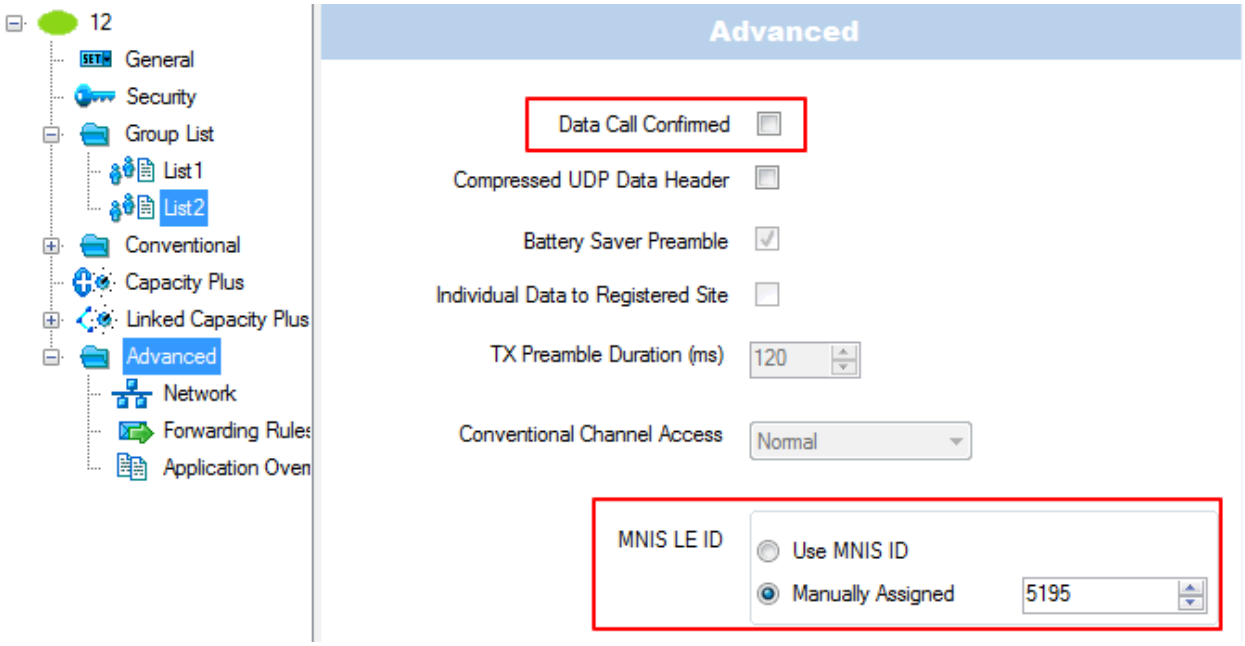


3. Configuring IP Site Connect/Capacity Plus/Linked Capacity Plus network type, you should set up the parameters in the Conventional/Capacity Plus/Linked Capacity Plus section respectively:

- IP-address and UDP-port of the Master repeater in the **Master IP Address** and the **Master IP Port** fields. This values must match the values in the corresponding fields in the Master repeater MOTOTRBO CPS settings and in the network settings of SmartPTT Radioserver Configurator.
- authentication key, if it is set in the repeater MOTOTRBO CPS settings.
- privacy settings that matches the encryption settings for repeater in MOTOTRBO CPS.



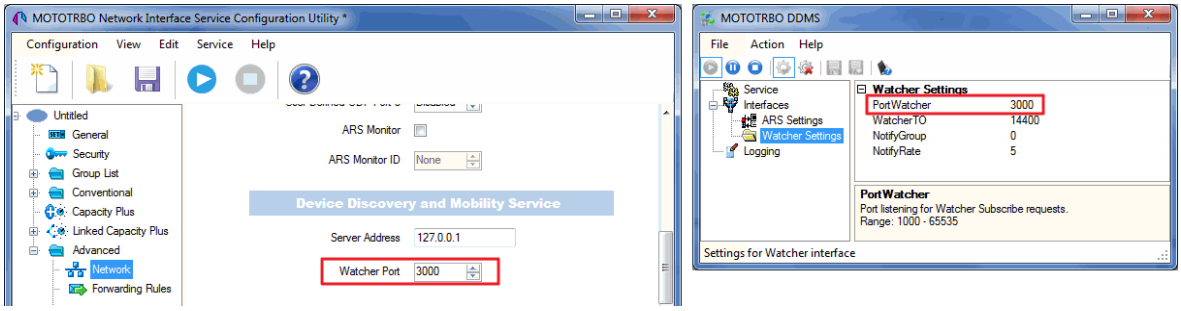
4. It is recommended to clear the **Data Call Confirmed** field in the **Advanced** section and to specify the identifier in the **MNIS LE ID** field explicitly.



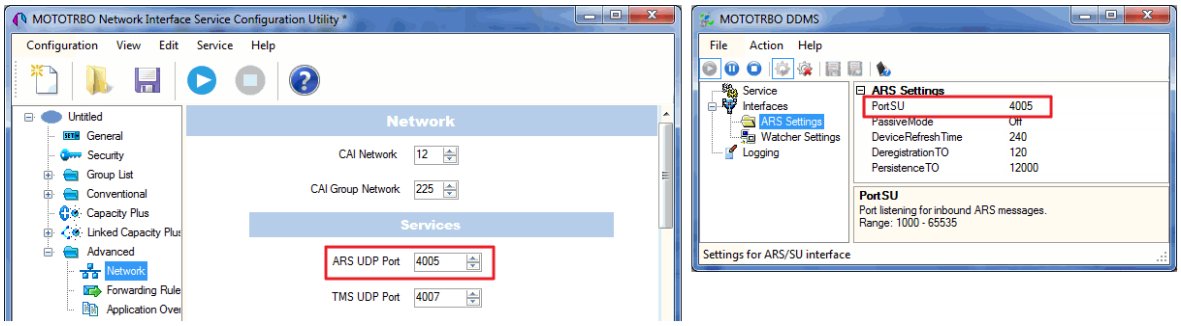
DDMS operation is closely connected to MNIS for data exchange (MNIS serves as DDMS Watcher). DDMS filteres the registration service packets (ARS), received by the repeater, and information on the radio presence in the network is sent to all systems for further processing.

Therefore, when you configure DDMS settings, make sure that:

a) The **PortWatcher** field in MOTOTRBO DDMS Administrative Client matches the **WatcherPort** field in MOTOTRBO Network Interface Service Configuration Utility settings (**Advanced > Network**).

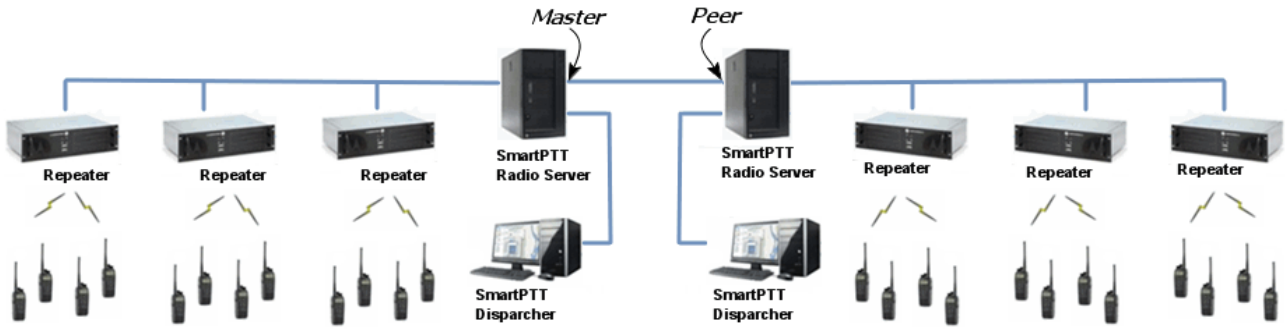


b) The **PORT SU** field (**Interfaces > ARS Settings**) in MOTOTRBO DDMS Administrative Client matches the **ARS UDP Port** field in MOTOTRBO Network Interface Service Configuration Utility (**Advanced > Networks**).



SmartPTT Radioservers

SmartPTT Bridging service allows joining two radioservers into a single radio network with the help of intelligent means of patching for voice and data streams. Thus, radios or talkgroups of radios, being under control of one radioserver, become available to another radioserver for voice call and data packet transmissions.



Note: Currently, bridging service between two radioservers is supported only with the IP Site Connect network configuration.

SmartPTT Bridging service allows joining radio networks, managed by two different radioservers, to cover distributed regions. The important advantages of the network are dynamic redirection of private and group calls and data packets from one radioserver to another, short voice delay (60 ms).

How to Configure SmartPTT Radioservers

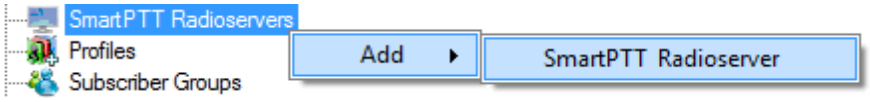
Configuration of bridging service between two radioservers includes:

1. Adding an external radioserver:
    - Basic configuration of the external radioserver
    - configuration of the external radioserver control station
    - talkgroup configuration
2. Activating bridging service
3. Configuring bridging settings in SmartPTT Dispatcher

Mentioned actions are required for both joined radioservers in the system.

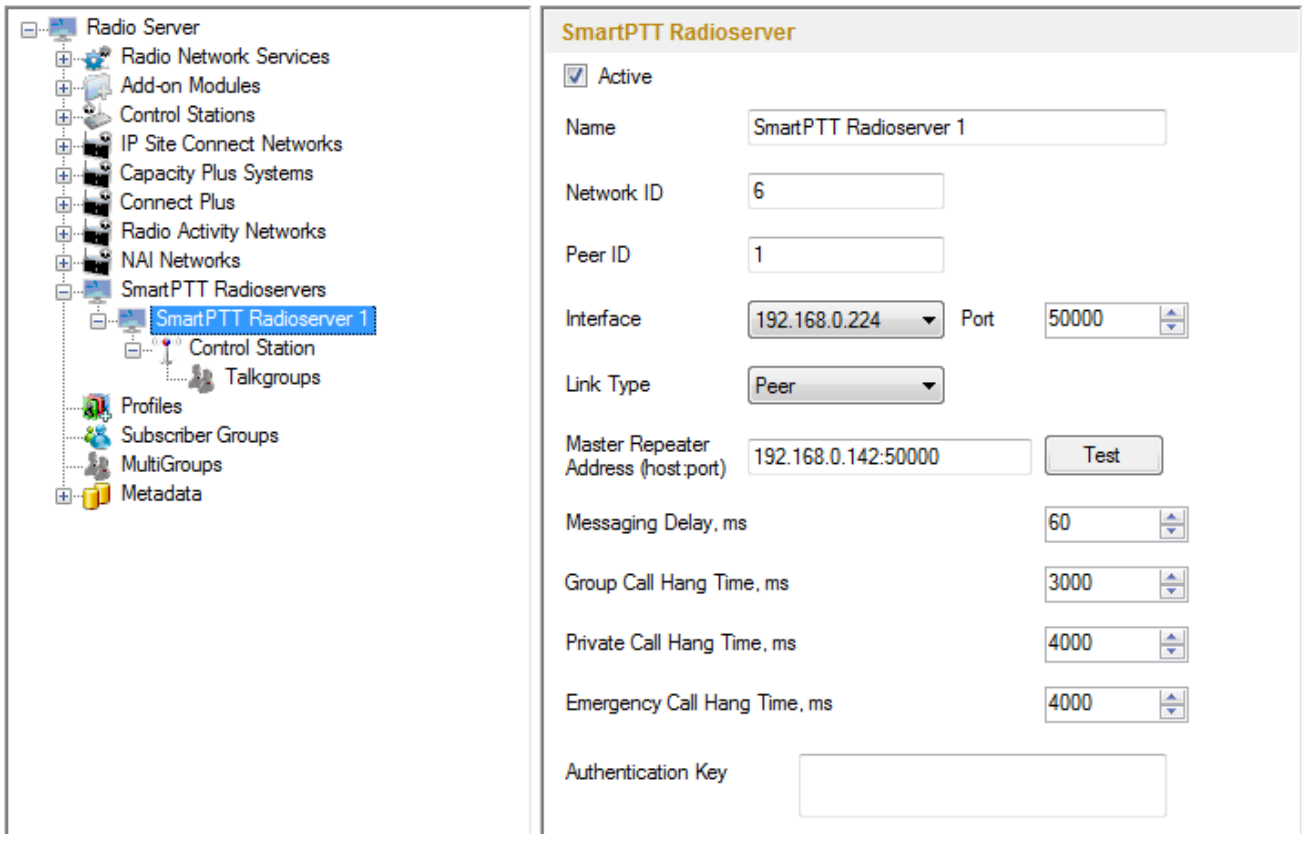
SmartPTT Radioservers

To add a new external radioserver, right-click **SmartPTT Radioservers** in the setting tree of SmartPTT Radioserver Configurator, point to **Add** and click **SmartPTT Radioserver**.



Configuring SmartPTT Radioserver

To configure the newly added network, click **SmartPTT Radioserver 1** under **SmartPTT Radioservers**. At that, the following window opens.



Name – SmartPTT radioserver system name.

Network ID – unique ID of the SmartPTT radioserver system.

Peer ID – unique ID of the radioserver in the network.

Warning! Peer ID must be unique. No other repeater in this network can have the same ID.

Interface – IP address of the local SmartPTT Radioserver. Specify the IP address of the PC where the radioserver is installed..

Port – a port number associated with an IP address of the local SmartPTT Radioserver.

Warning! Port number must be unique.

Link Type – select the role of the local SmartPTT Radioserver: Peer or Master.

Master repeater address (host:port) – IP address and port of the other SmartPTT Radioserver, which plays the role of the Master in the network.

Note: Select **Master** in the **Link Type** field for one of the radioservers, acting as a master, select **Peer** for another. If **Master** is selected in the **Link Type** field, the **Master repeater address** field becomes dimmed. If **Peer** is selected in the **Link Type** field, make sure that the **Master repeater address** field contains the interface and port number of the master repeater, that is the second radioserver.

TX Preamble Duration (ms) – duration of TX preamble.

Messaging Delay (ms) – message exchange delay between repeaters.

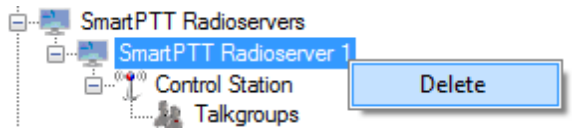
Group Call Hang Time (ms) – duration for which the repeater reserves the channel after the end of a group call transmission. During this time, only members of the talkgroup that the channel is reserved for can transmit. After expiration of the group call hang timer, the radio will transmit using the TX contact name (digital group) specified for this channel in MOTOTRBO CPS.

Private Call Hang Time (ms) – duration for which the repeater reserves the channel after the end of a private call transmission. During this time, only members of the private call that the channel is reserved for can transmit. After the hang timer expires, the radio transmits using the TX contact name specified for this channel in MOTOTRBO CPS.

Emergency Call Hang Time (ms) – duration for which the repeater reserves the channel after the end of an emergency call transmission. During this time, only members of the talkgroup that the channel is reserved for can transmit.

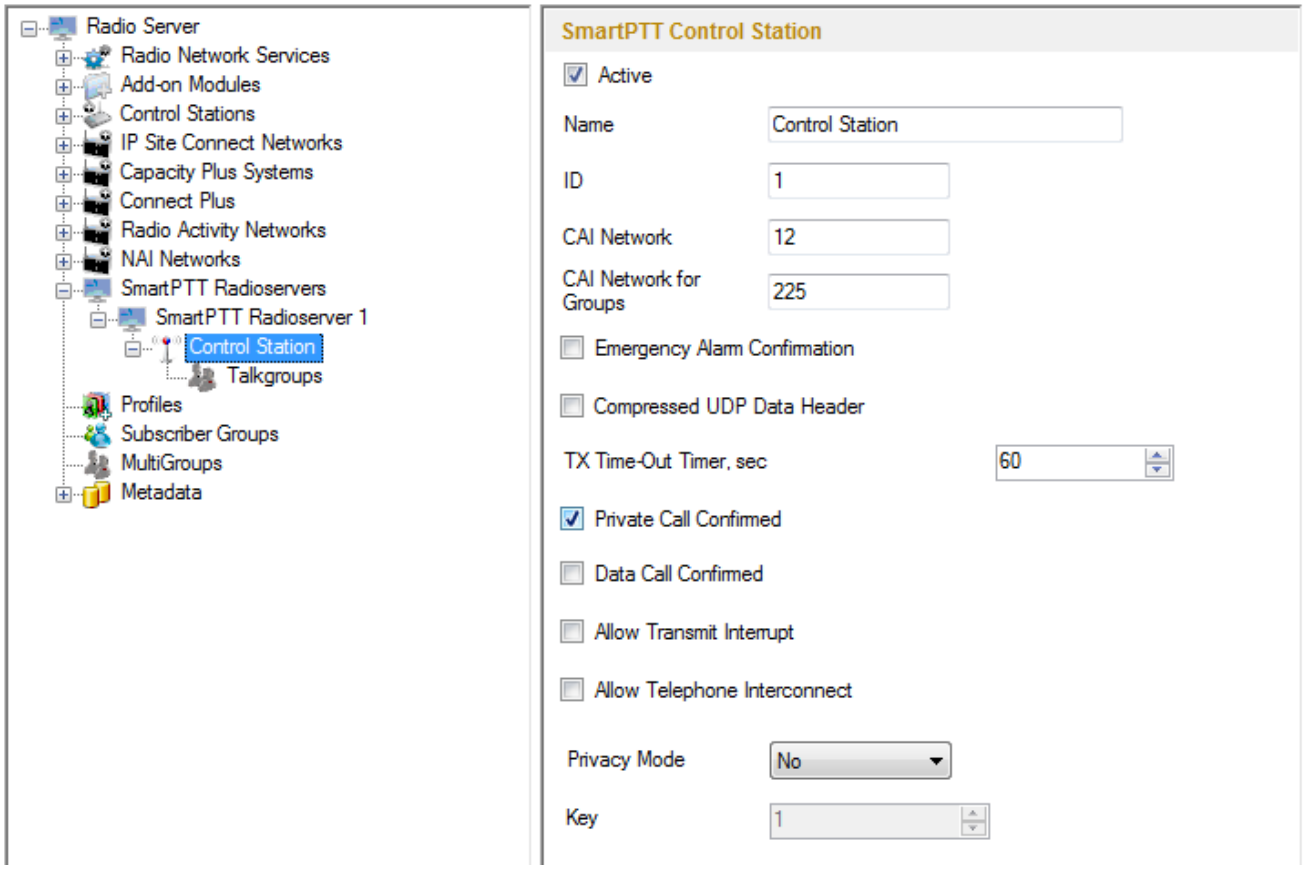
Authentication Key – repeater authorization key (to be equal to the **Authentication key** in MOTOTRBO CPS).

To delete the SmartPTT radioserver, right-click on the selected SmartPTT Radioserver system and choose **Delete**.



Control Station Configuration

To set up the SmartPTT radioserver control station, click **Control Station** under **SmartPTT Radioserver 1** in the setting tree of SmartPTT Radioserver Configurator. At that, the following window opens.



Name – virtual control station name.

ID – ID of a virtual control station of the network.

CAI Network – CAI-network ID. Use default value of *12*.

CAI Network for Groups – CAI-network for groups ID. Use default value of *225*.

Emergency Alarm Confirmation – determines if the emergency alarm is allowed to be acknowledged.

Compressed UDP Data Header – enabling this item reduces delays data transmissions.

TX Time-Out Timer, sec – continuous radio transmission timeout. After this time the transmission is interrupted.

Private Call Confirmed – this feature sets private calls on the current digital channel as confirmed.

Data Call Confirmed – this feature enables individual packets in data calls (ARS, GPS and Text Message) on the current digital channel or personality to be confirmed.

Allow Transmit Interrupt – enables or disables the ability to interrupt a radio subscriber.

Allow Telephone Interconnect – allow telephone interconnect on the slot.

Encrypt Transmission – encrypt transmission on the side of SmartPTT Dispatcher.

Privacy Mode – choice of the encryption mode. Privacy is a software-based scrambling solution that is not robust, and is only meant to prevent eavesdropping. A radio must have privacy enabled on the channel to transmit a privacy-enabled transmission, but this is not necessary for a receiving radio. Privacy-enabled channels are still able to receive clear (unscrambled) transmissions. A visual indication appears on all display radios if the channel is privacy-enabled. The radio LED lights up green when transmitting and blinks rapidly when receiving an ongoing privacy-enabled transmission. The same behavior will be observed during scan operations. This is a radio-wide feature. This feature is not available for some radio models.

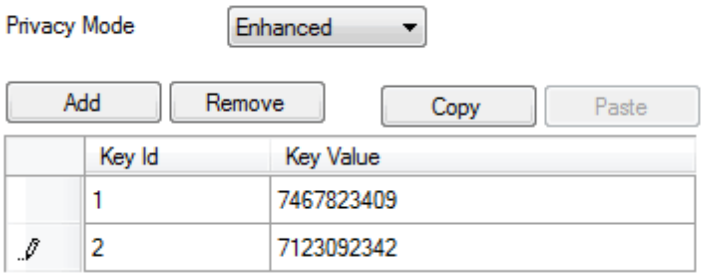
There are three types of **Privacy Mode**:

- *No*
- *Basic*
- *Enhanced*

If *No* is set, radioserver does not support outbound traffic encryption.

To ensure the *Basic* mode, set the key value in the **Key** field. Make sure that **Key** set in SmartPTT Radioserver Configurator matches **Basic Privacy Key** set in radio settings in MOTOTRBO CPS. A radio can have only one key. The value ranges from *1* to *255*.

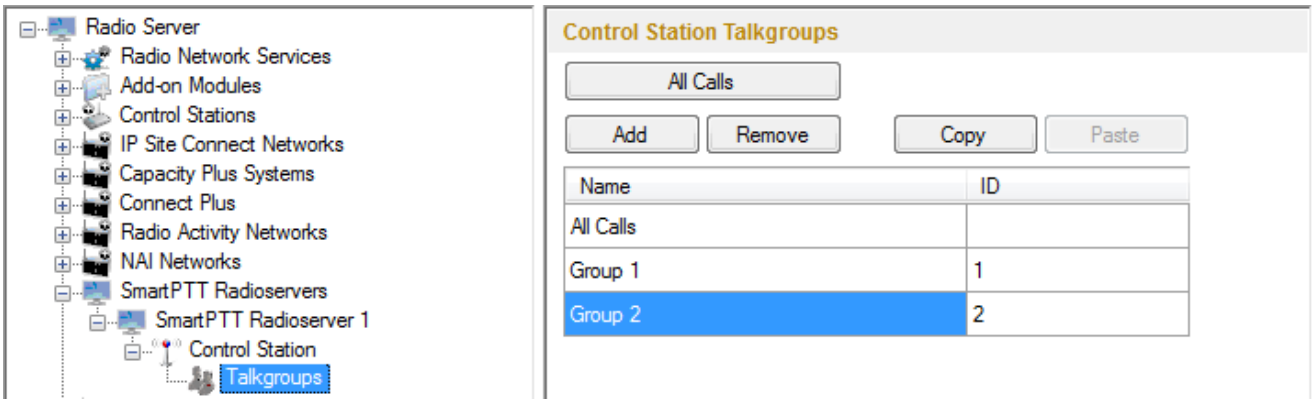
To ensure the *Enhanced* mode for traffic encryption, add enhanced privacy keys for incoming and outgoing calls. There can be multiple enhanced privacy keys for incoming calls, and only one key for outgoing calls. To select the key for outgoing calls, first select *Enhanced* in the **Privacy Mode** field. At that, a new table with **Key ID** and **Key Value** appears. In this table add the **Key ID** and the **Key Value** which matches the **Key ID** and the **Key Value** set in the radio settings in MOTOTRBO CPS.



If the values in the **Key ID** fields are the same, but the values in the **Key Value** fields do not match, the receiving radio hears only a distorted voice. If **Key ID** specified in the MOTOTRBO CPS of the radio does not match any of the **Key IDs** specified in the table, the dispatcher hears nothing during transmission.

Configuring Talkgroups

To configure talkgroups, click **Talkgroups** in the setting tree of SmartPTT Radioserver Configurator. At that, the **Control Station Talkgroups** window opens.



Note: Configuration process of SmartPTT Radioserver control station talkgroups for this network is similar to the configuration of control station talkgroups (see Control Station > Talkgroups).

Bridging Service

To activate the bridging service, click **Bridging** in the setting tree of SmartPTT Radioserver Configurator. In the opened window select the **Active** checkbox (see the Bridging section in the Help of SmartPTT Radioserver Configurator).

Bridging Service in SmartPTT Dispatcher

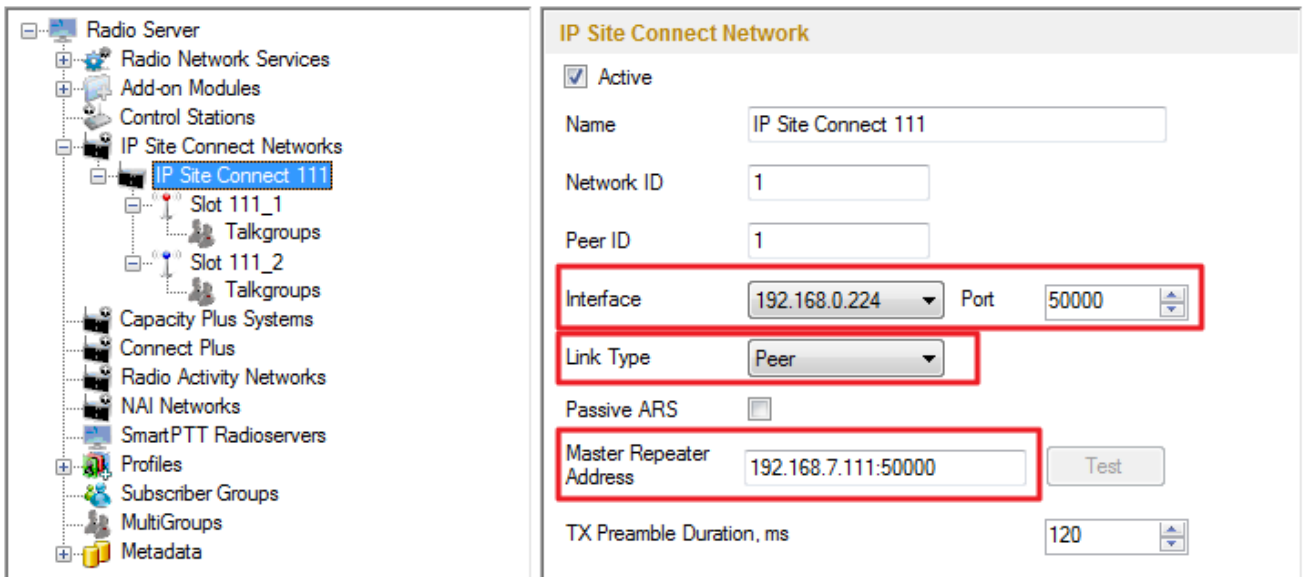
To set up the redirection of voice calls and data packets correctly, configure routes, route groups and profiles for the bridging service in SmartPTT Dispatcher. For more information see Bridging in the Help file of SmartPTT Dispatcher.

The following example presents bridging configuration between two radioservers. Each of them works with the IP Site Connect network topology .

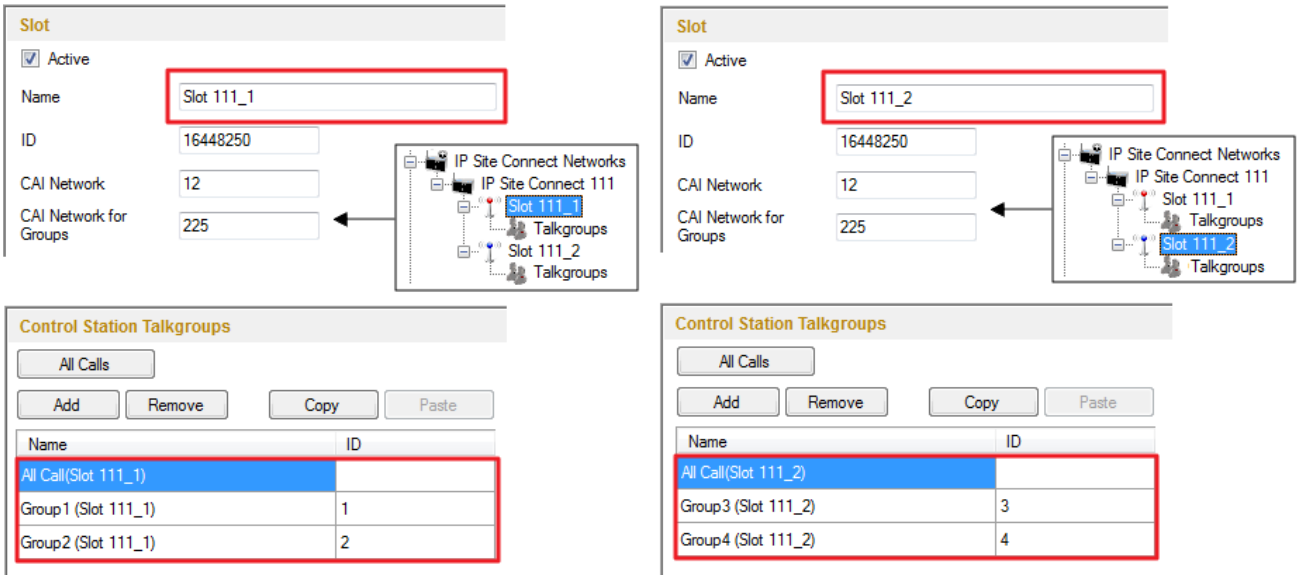
User 1 (in SmartPTT Radioserver Configurator) makes the settings for direct connection of the radioserver to repeaters' network, functioning in IP Site Connect system (**Network ID** = *1*).

The IP address and port number of the master repeater must be specified in the **Master Repeater Address** field (the example displays connection settings only with one repeater).

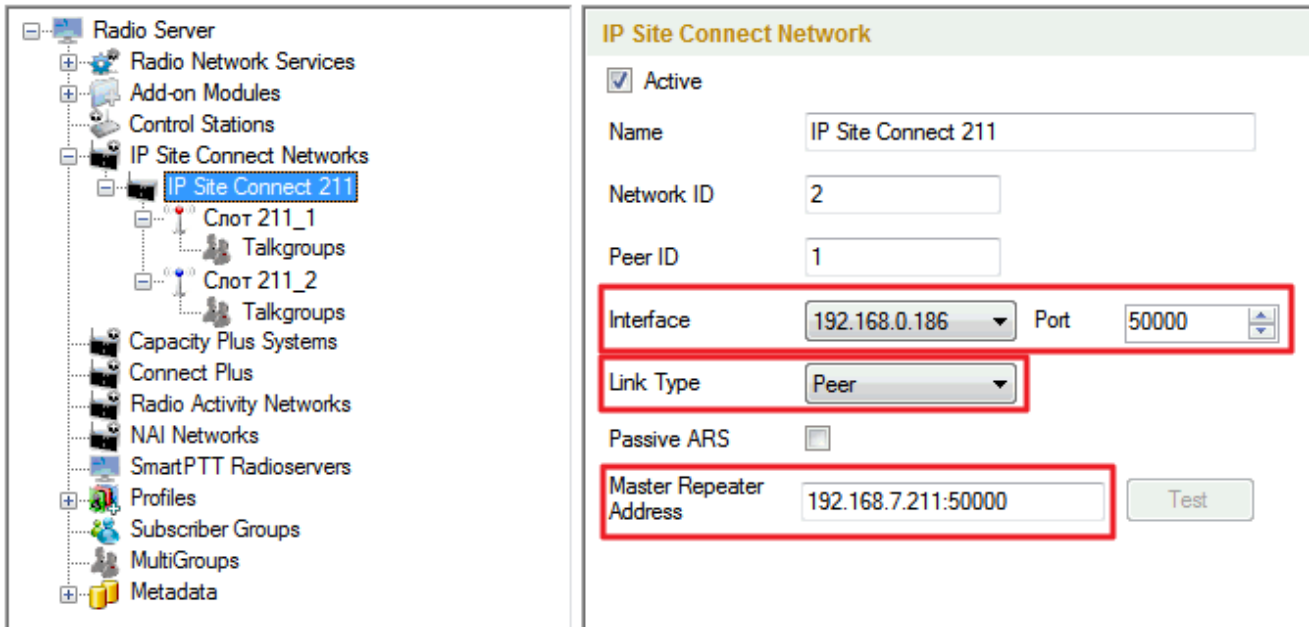
In the **Interface** field select the IP address of the virtual repeater in the network with **Network ID** = *1*.



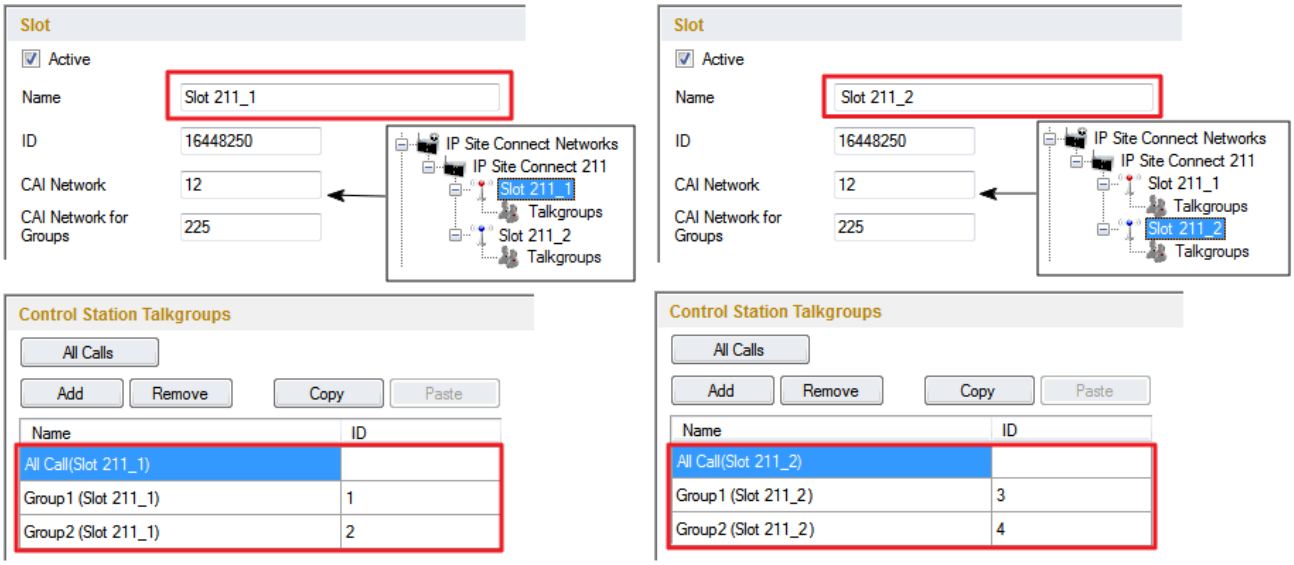
Slot and group settings for IP Site Connect network with **Network ID** = *1*



User 2 also configures the IP Site Connect network connection (**Network ID** = *2*) in SmartPTT Radioserver Configurator. Fill in the **Master Repeater Address** and the **Interface** fields with data corresponding to the network with **Network ID** = *2*.

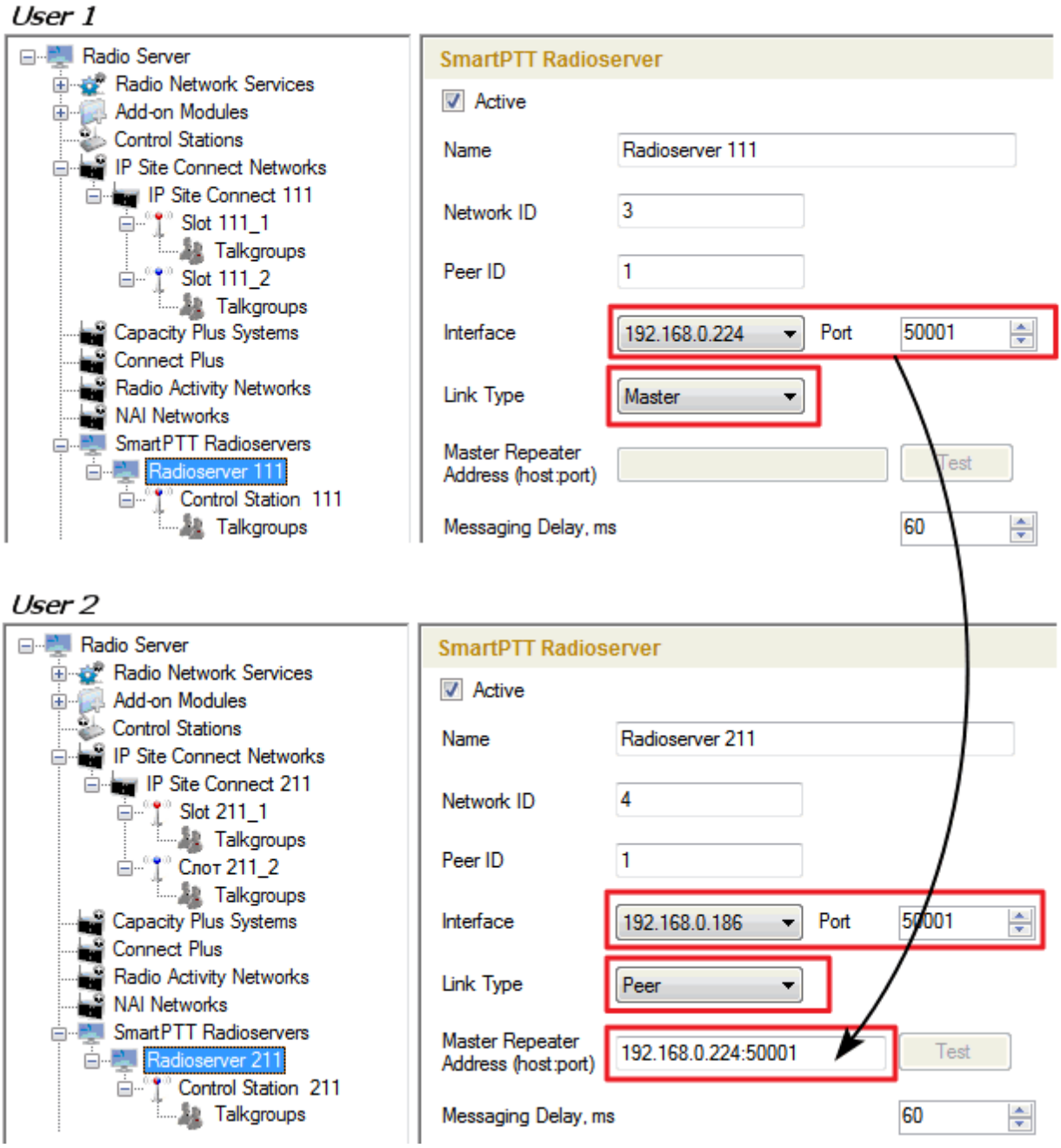


Slot and talkgroup settings for IP Site Connect network with **Network ID** = *2*

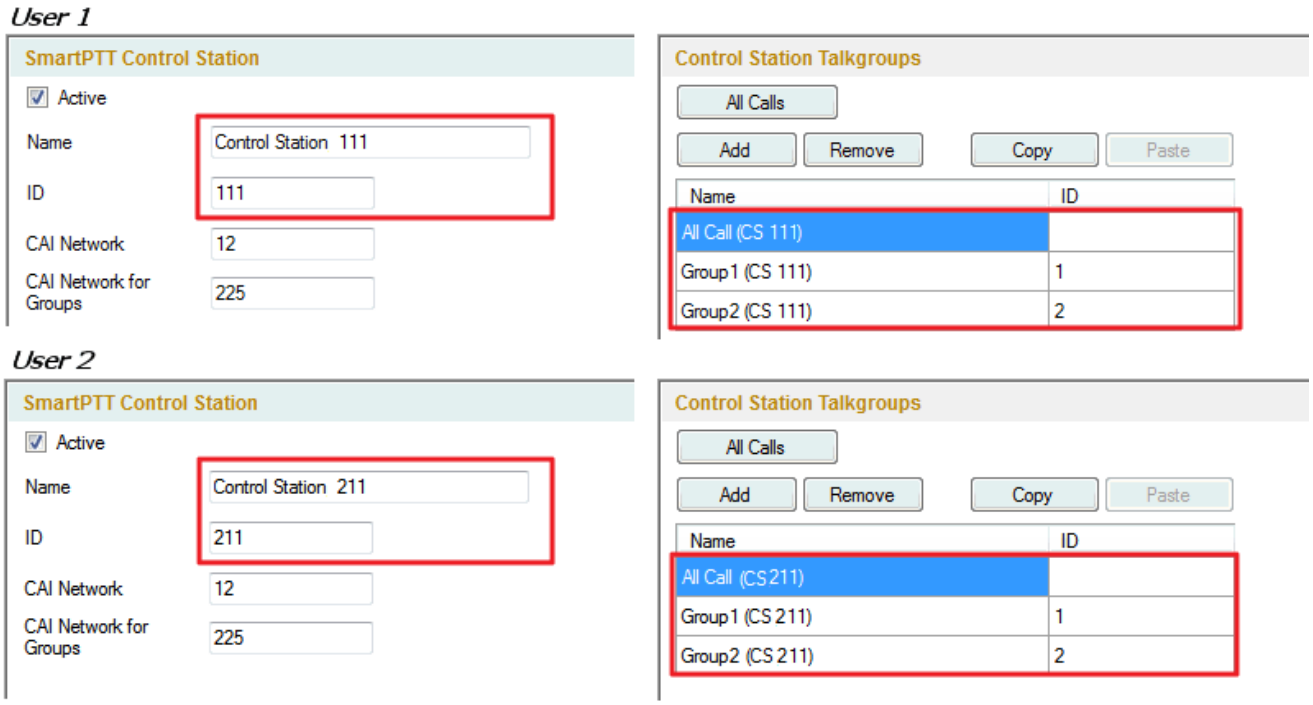


Next, *user 1* adds an SmartPTT radioserver (Radioserver 111) with the **Master** link type and chooses the corresponding IP address in the **Interface** field of SmartPTT Radioserver Configurator.

User 2 also adds an SmartPTT radioserver (Radioserver 211) and defines its connection type as a **Peer**. **Master Repeater Address** is filled with the IP address and port number according to the **Interface** and **Port** values of the **Master**.



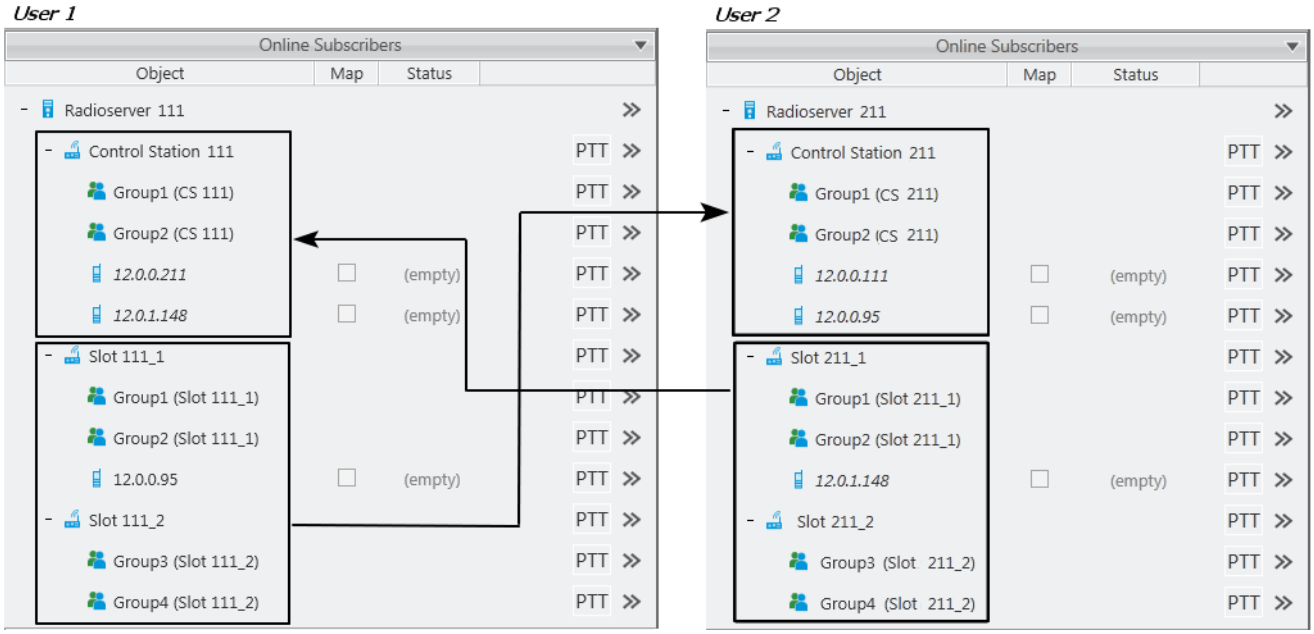
Settings for control station and its talkgroups of the radioservers



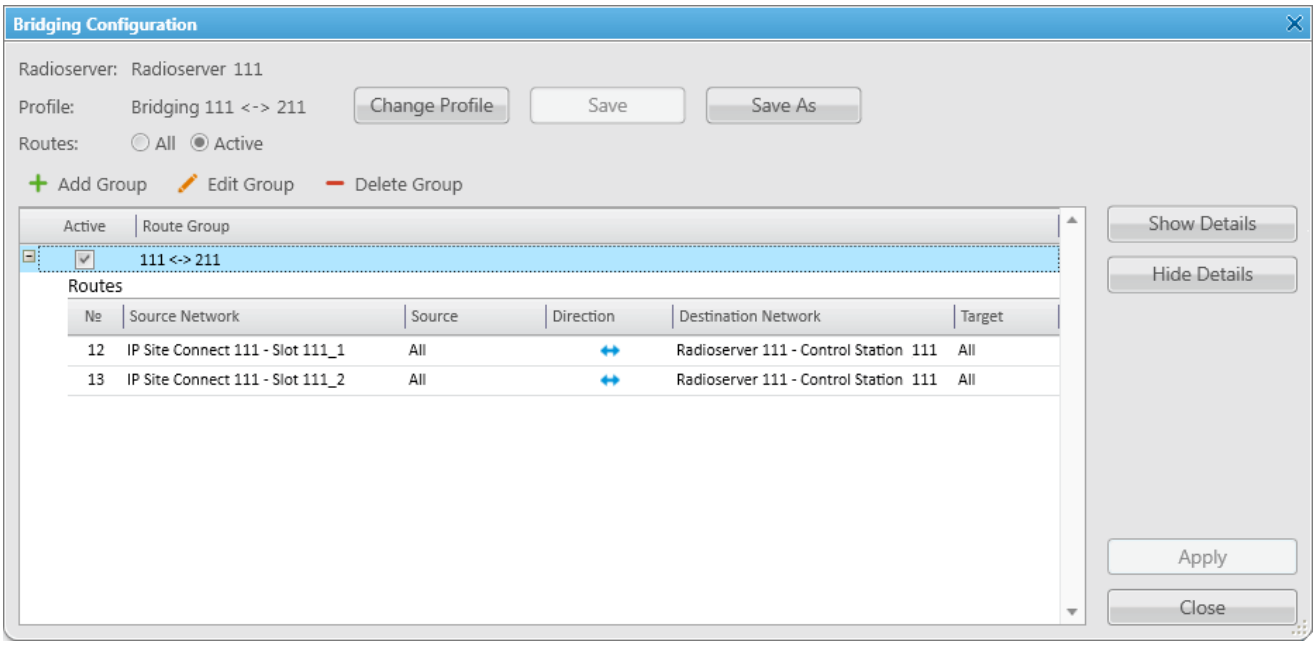
After that, both *user 1* and *user 2* activate the bridging service in SmartPTT Radioserver Configurator.

To apply settings, click **Save** and restart the service in SmartPTT Radioserver Configurator (for *user 1* and *user 2*).

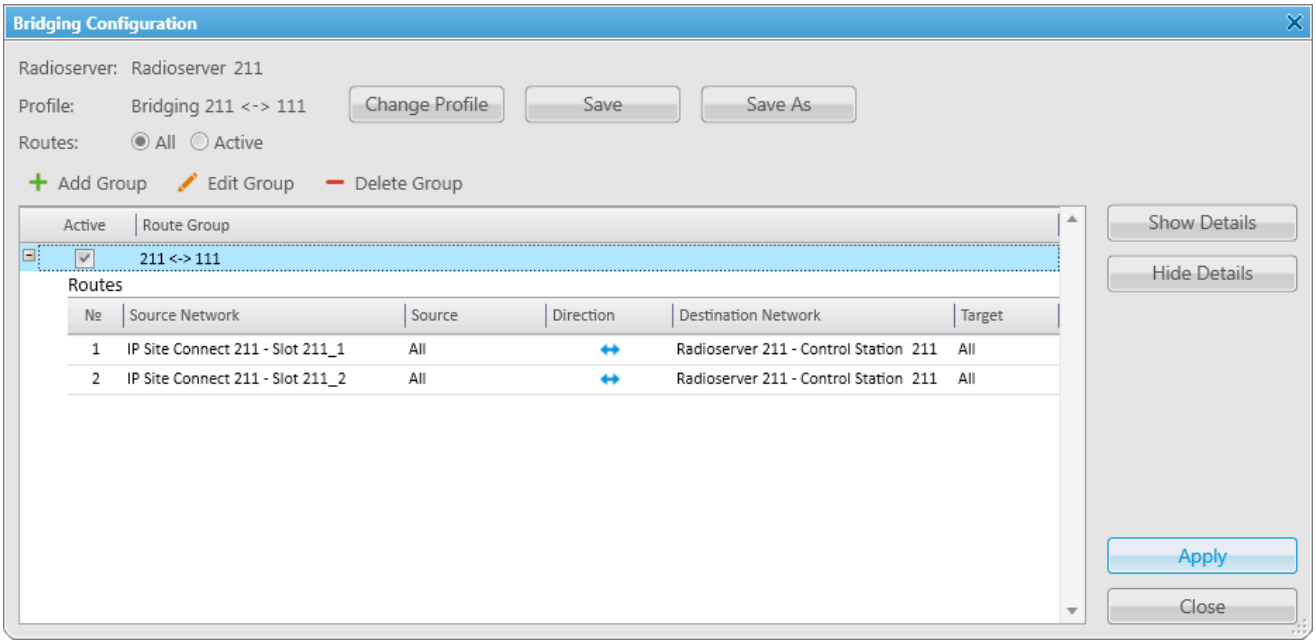
In the SmartPTT Dispatcher application of *user 1* (Master), a radio with the **IP address** = *12.0.0.95* is registered at Slot 111_1. The SmartPTT radioserver (*user 2*) with its radios and talkgroups is shown in the *user 1* system as Control Station 111. In SmartPTT Dispatcher of *user 2*, a radio with the **IP address** = *12.0.1.148* is registered at Slot 211_1. SmartPTT radioserver (*user 1*) in respect to *user 2* is displayed as Control Station 211.



In SmartPTT Dispatcher of *user 1* set up the bridging service of voice calls and data. To do this, create a group with routes to redirect calls of all types in duplex mode (from Slot 111_1 and Slot 111_2 to Control Station 111). Make this route group active.



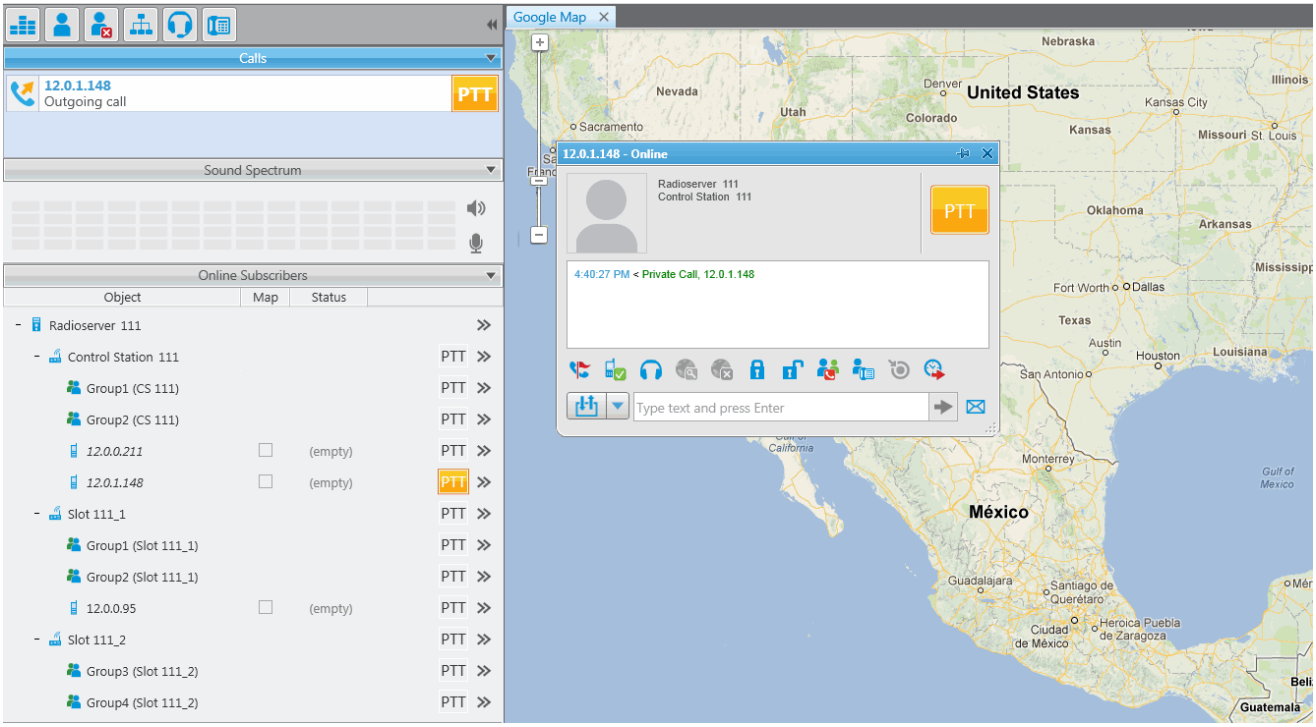
Make similar settings in SmartPTT Dispatcher for *user 2.*



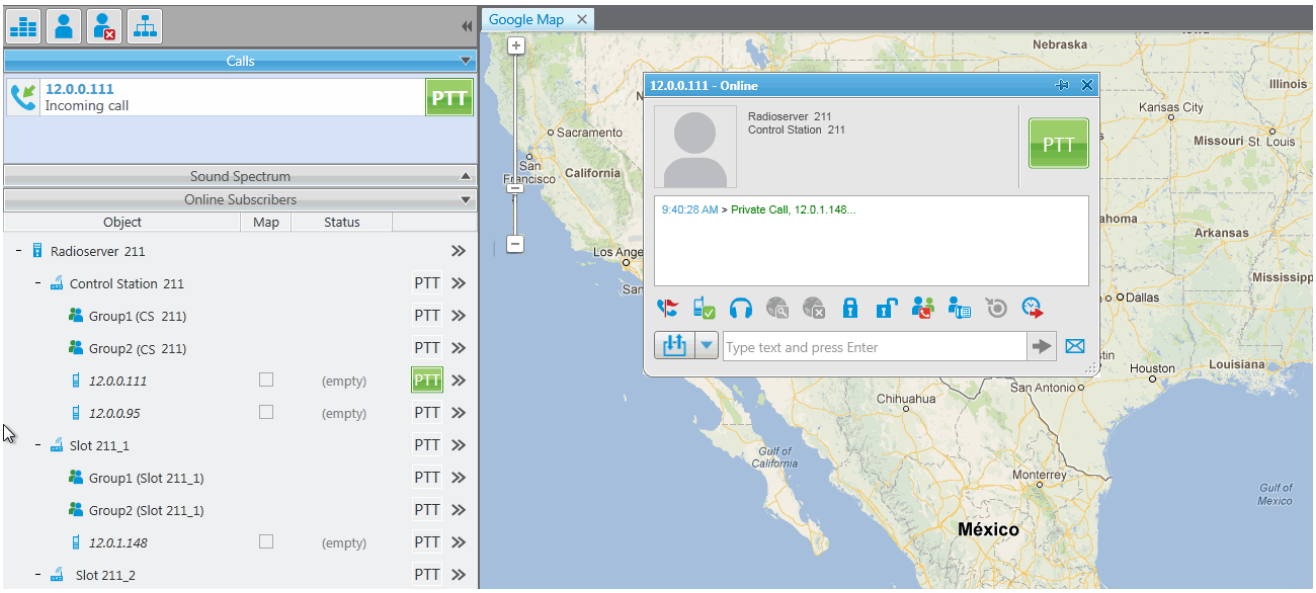
System verification:

1. *User 1* makes a private call to the radio registered in the system of *user 2*.

User 1 (an outgoing call)



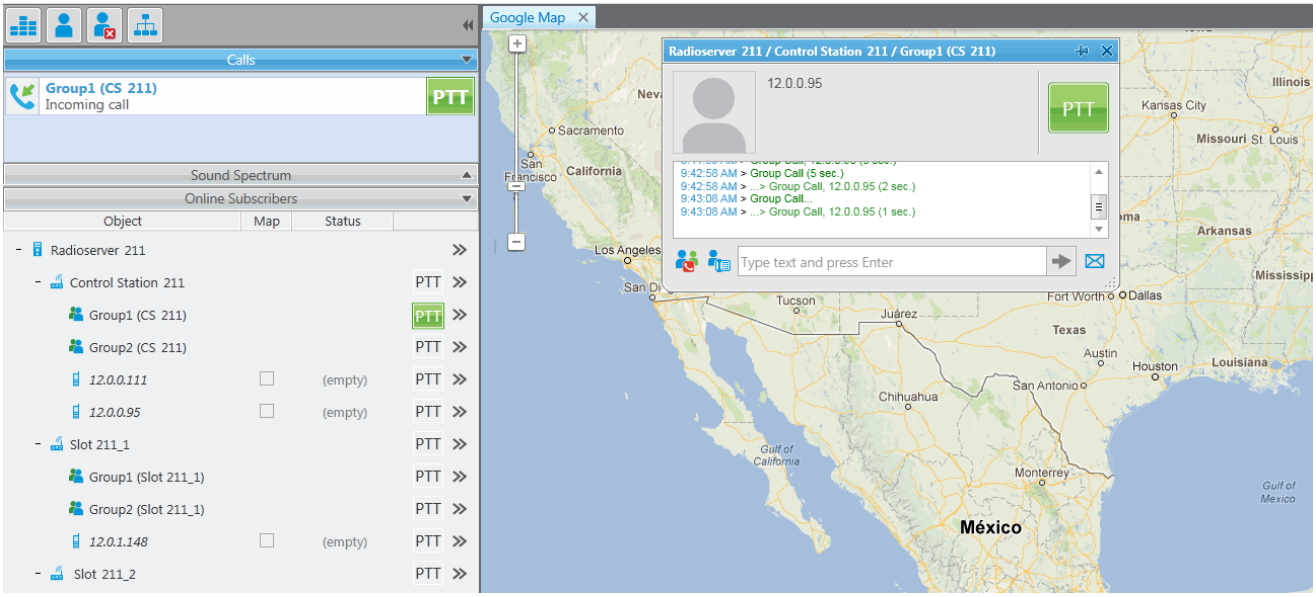
User 2 (incoming call, a radio has a corresponding indication about the incoming call)



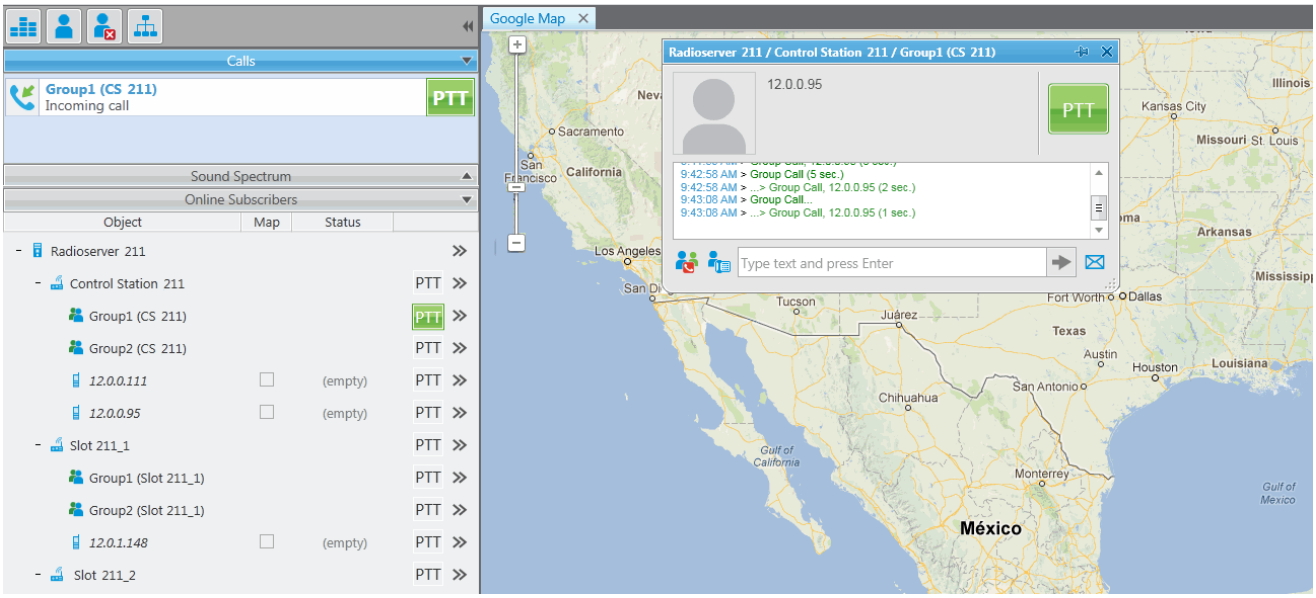
2. A group call is initiated by the radio registered in the system of *user 2*.

The radio, registered in the network of *user 2*, makes a group call. In this case, the group call is redirected to the appropriate group of Control Station 111 (*user 1*).

User 2:

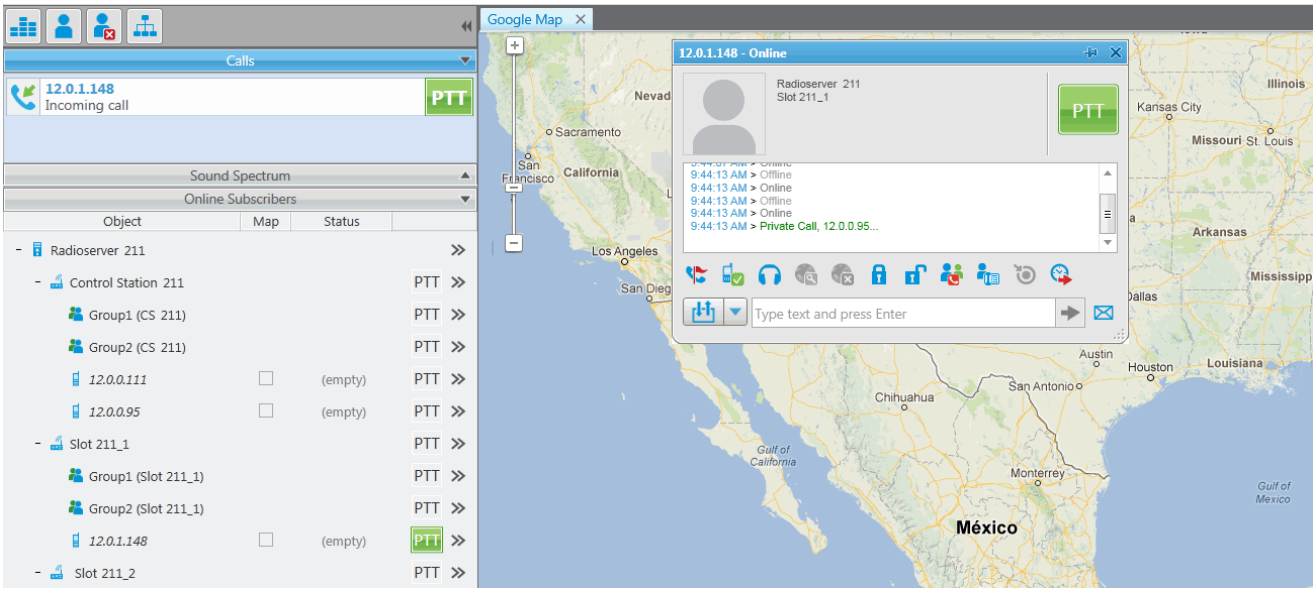


User 1:

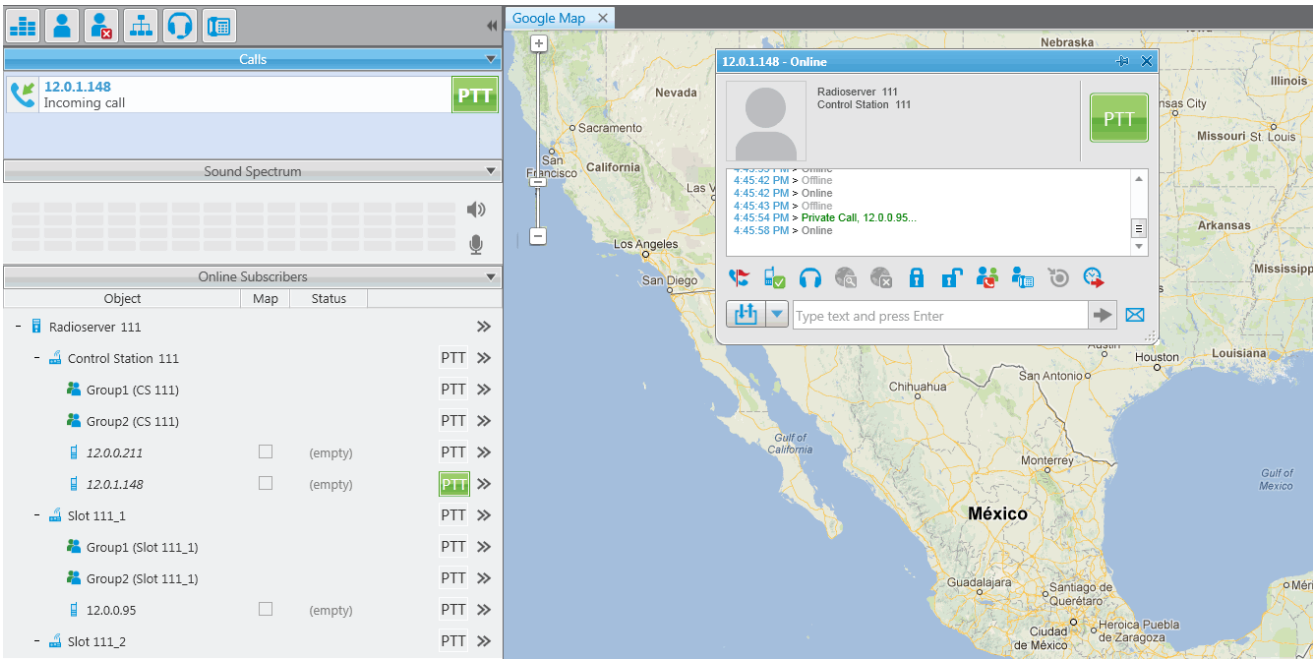


3. A private call from the radio, listed in the system of *user 2*, to the radio of *user 1*.

User 2:

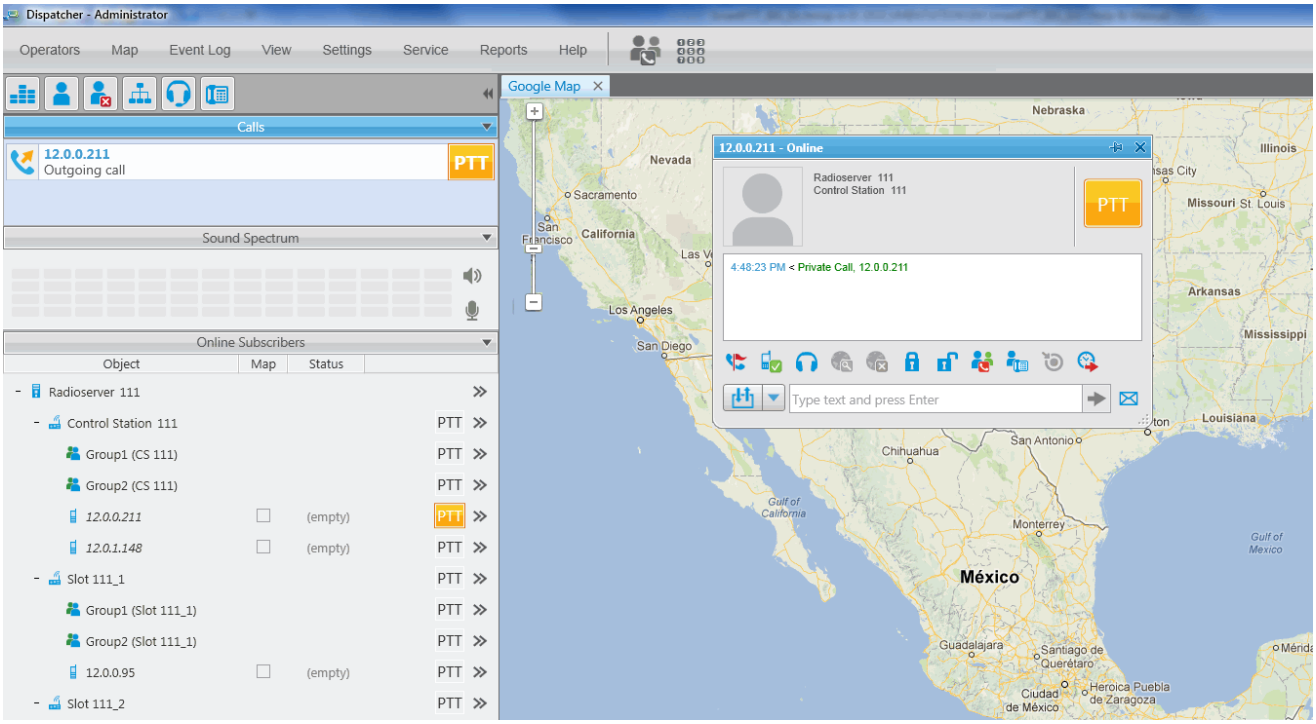


User 1:

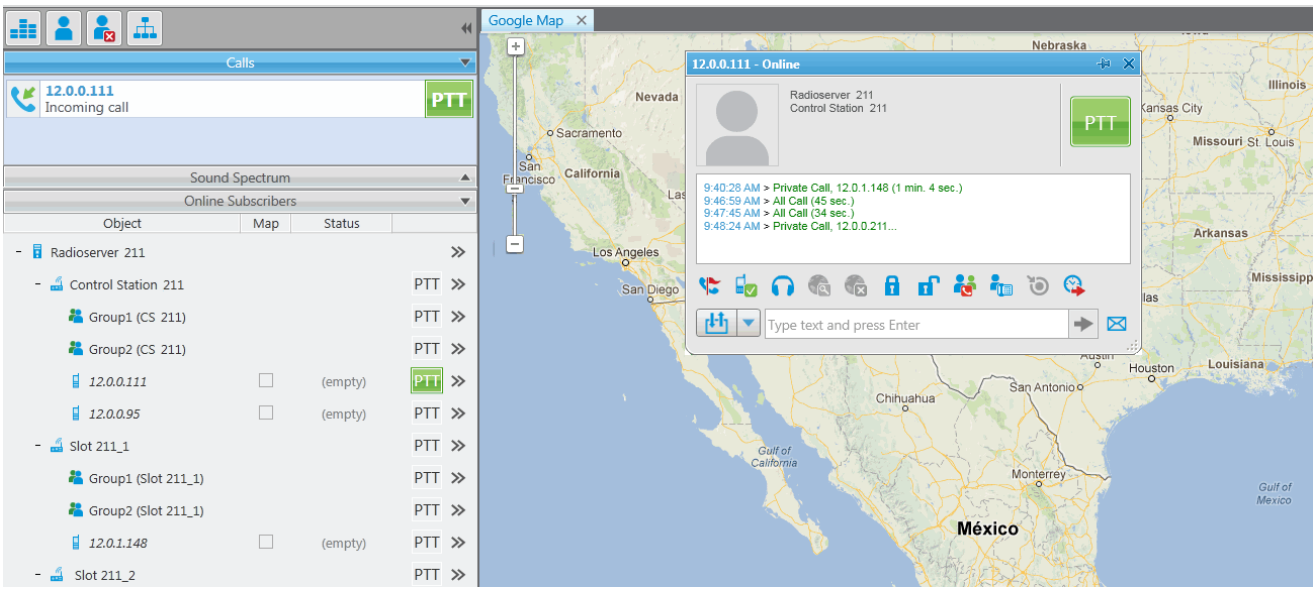


4. A call from the control station of *user 1* to the control station of *user 2*.

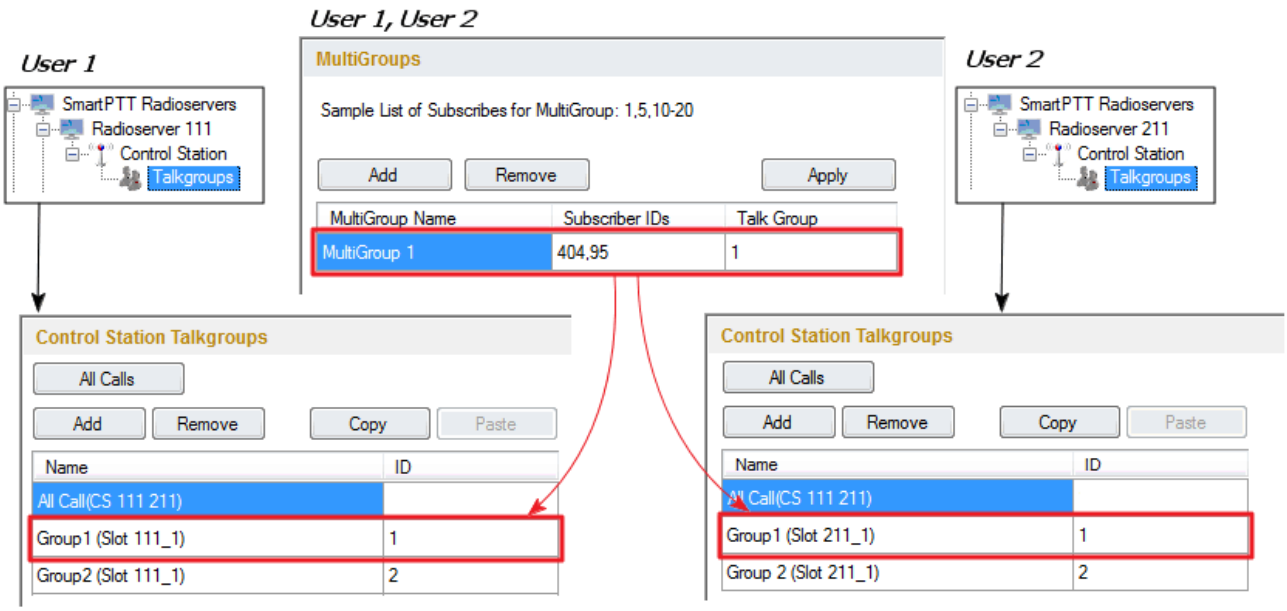
User 1:


Dispatcher - Administrator
Operators
Map
Event Log
View
Settings
Service
Reports
Help
Calls
12.0.0.211
Outgoing call
PTT
Sound Spectrum
Online Subscribers
Object
Map
Status
Radioserver 111
Control Station 111
Group1 (CS 111)
Group2 (CS 111)
12.0.0.211
12.0.1.148
Slot 111_1
Group1 (Slot 111_1)
Group2 (Slot 111_1)
12.0.0.95
Slot 111_2
(empty)
Google Map
12.0.0.211 - Online
Radioserver 111
Control Station 111
4:48:23 PM < Private Call, 12.0.0.211
Type text and press Enter
Nebraska
Nevada
Sacramento
San Francisco
California
Los Angeles
San Diego
Illinois
Missouri
St. Louis
Arkansas
Mississippi
Louisiana
San Antonio
Chihuahua
Monterrey
México
Guadalajara
Santiago de Querétaro
Ciudad de México
Heroica Puebla de Zaragoza

User 2:

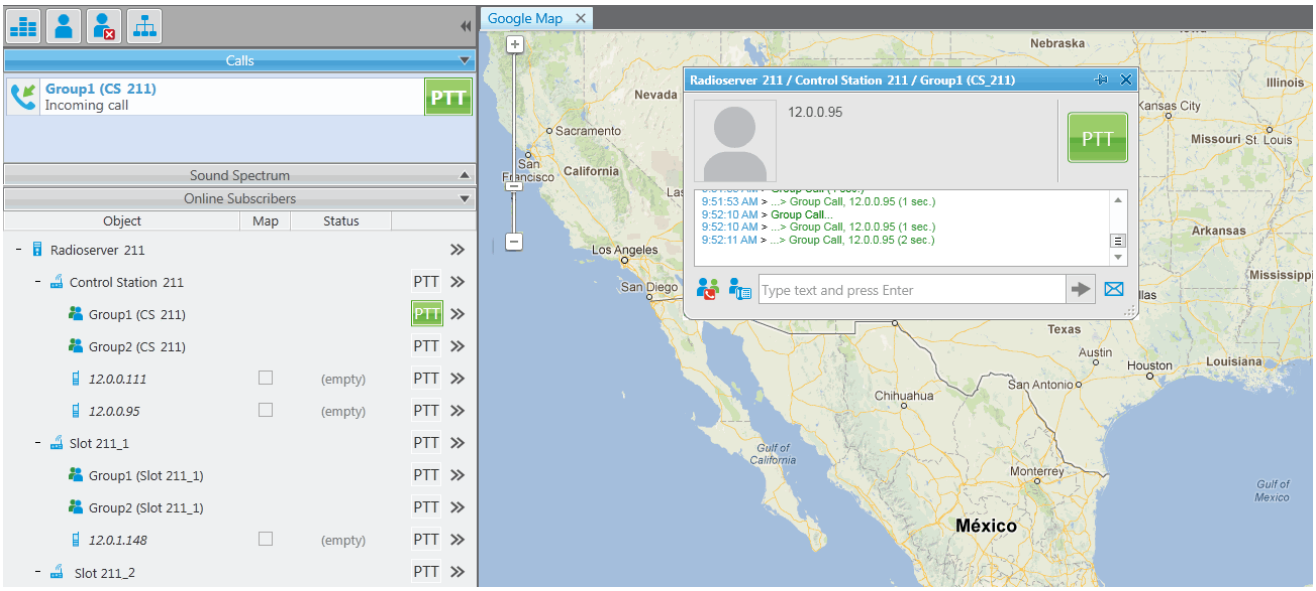

Calls
12.0.0.111
Incoming call
PTT
Sound Spectrum
Online Subscribers
Object
Map
Status
Radioserver 211
Control Station 211
Group1 (CS 211)
Group2 (CS 211)
12.0.0.111
12.0.0.95
Slot 211_1
Group1 (Slot 211_1)
Group2 (Slot 211_1)
12.0.1.148
Slot 211_2
(empty)
Google Map
12.0.0.111 - Online
Radioserver 211
Control Station 211
9:40:28 AM > Private Call, 12.0.1.148 (1 min. 4 sec.)
9:46:59 AM > All Call (45 sec.)
9:47:45 AM > All Call (34 sec.)
9:48:24 AM > Private Call, 12.0.0.211...
Type text and press Enter
Nebraska
Nevada
Sacramento
San Francisco
California
Los Angeles
San Diego
Illinois
Missouri
St. Louis
Arkansas
Louisiana
Houston
San Antonio
Chihuahua
Monterrey
México

To redirect only group calls between two radioservers without setting up routes in SmartPTT Dispatcher, create multigroups with the list of radios, that support group call bridging in SmartPTT Radioserver Configurator (for both radioservers). For more details see the Multigroups section in the Help of SmartPTT Radioserver Configurator.

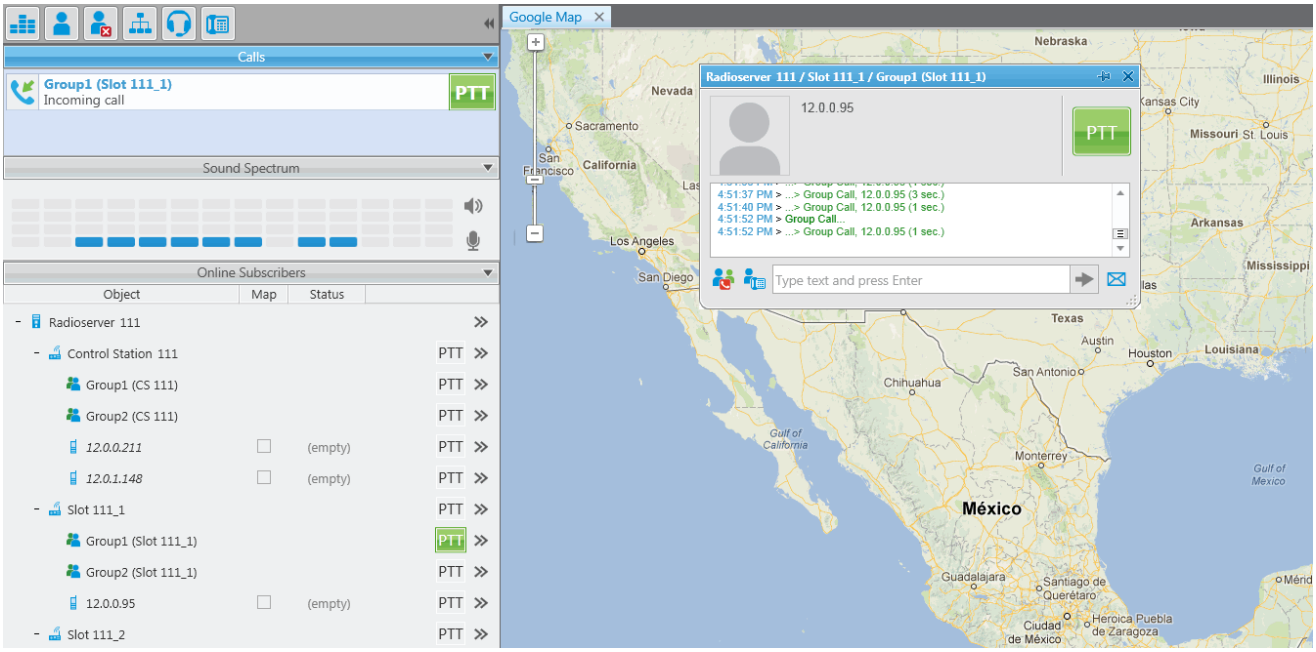


The following example demonstrates a call to Group 1. Group 1 corresponds to the created Multigroup 1 with the a list of radios – 95 (**IP address** = *12.0.0.95*) and 404 (**IP address** = *12.0.1.148*). The radio with the **IP address** = *12.0.1.148* (**ID** = *404*) initiates a group call. The radio with the **IP address** = *12.0.0.95* (**ID** = *95*) is also able to participate in the call due to Multigroup 1.

User 2:


Calls
Group1 (CS 211)
Incoming call
PTT
Sound Spectrum
Online Subscribers
Object
Map
Status
Radioserver 211
Control Station 211
Group1 (CS 211)
Group2 (CS 211)
12.0.0.111
12.0.0.95
Slot 211_1
Group1 (Slot 211_1)
Group2 (Slot 211_1)
12.0.1.148
Slot 211_2
(empty)
Google Map
Radioserver 211 / Control Station 211 / Group1 (CS_211)
12.0.0.95
9:51:53 AM > ...> Group Call, 12.0.0.95 (1 sec.)
9:52:10 AM > Group Call...
9:52:10 AM > ...> Group Call, 12.0.0.95 (1 sec.)
9:52:11 AM > ...> Group Call, 12.0.0.95 (2 sec.)
Type text and press Enter
Nebraska
Illinois
Nevada
Sacramento
San Francisco
California
Missouri
St. Louis
Arkansas
Los Angeles
San Diego
Texas
Austin
Houston
Louisiana
San Antonio
Chihuahua
Monterrey
Gulf of California
Gulf of Mexico
México

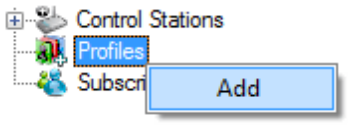
User 1:


Calls
Group1 (Slot 111_1)
Incoming call
PTT
Sound Spectrum
Online Subscribers
Object
Map
Status
Radioserver 111
Control Station 111
Group1 (CS 111)
Group2 (CS 111)
12.0.0.211
12.0.1.148
Slot 111_1
Group1 (Slot 111_1)
Group2 (Slot 111_1)
12.0.0.95
Slot 111_2
(empty)
Google Map
Radioserver 111 / Slot 111_1 / Group1 (Slot 111_1)
12.0.0.95
4:51:37 PM > ...> Group Call, 12.0.0.95 (3 sec.)
4:51:40 PM > ...> Group Call, 12.0.0.95 (1 sec.)
4:51:52 PM > Group Call...
4:51:52 PM > ...> Group Call, 12.0.0.95 (1 sec.)
Type text and press Enter
Nebraska
Illinois
Nevada
Sacramento
San Francisco
California
Missouri
St. Louis
Arkansas
Los Angeles
San Diego
Texas
Austin
Houston
Louisiana
San Antonio
Chihuahua
Monterrey
Gulf of California
Gulf of Mexico
México
Guadalajara
Santiago de Querétaro
Heroica Puebla de Zaragoza
Ciudad de México

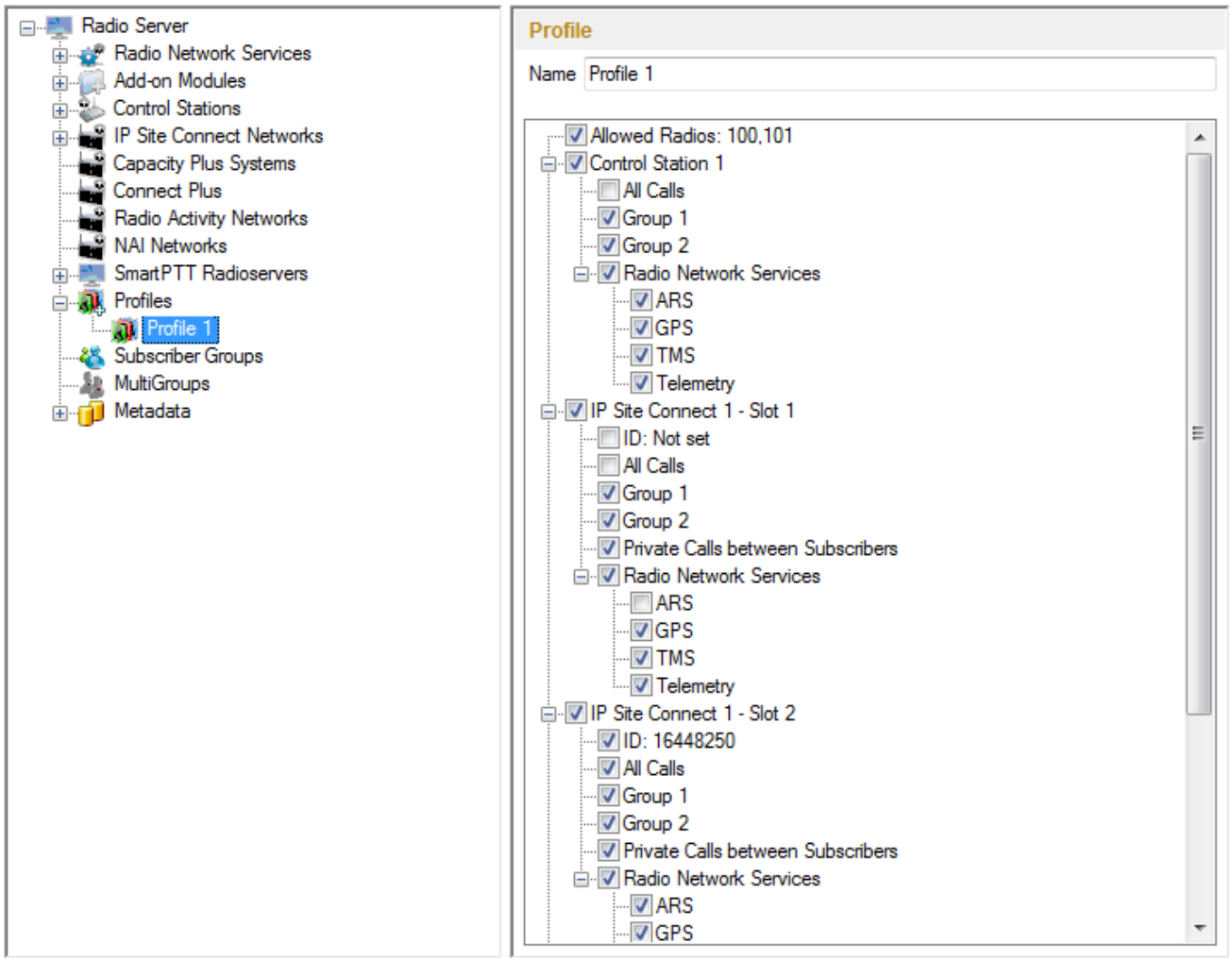
Profiles

SmartPTT Radioserver Configurator allows creating permission profiles. The permission profiles are used to limit operator access to objects managed by SmartPTT Radioserver (control stations, talkgroups, services, IP Site Connect slots), and to provide additional opportunities in the organization of calls between dispatchers and radio subscribers.

To create a profile right-click **Profiles** in the setting tree of SmartPTT Radioserver Configurator and click **Add**.



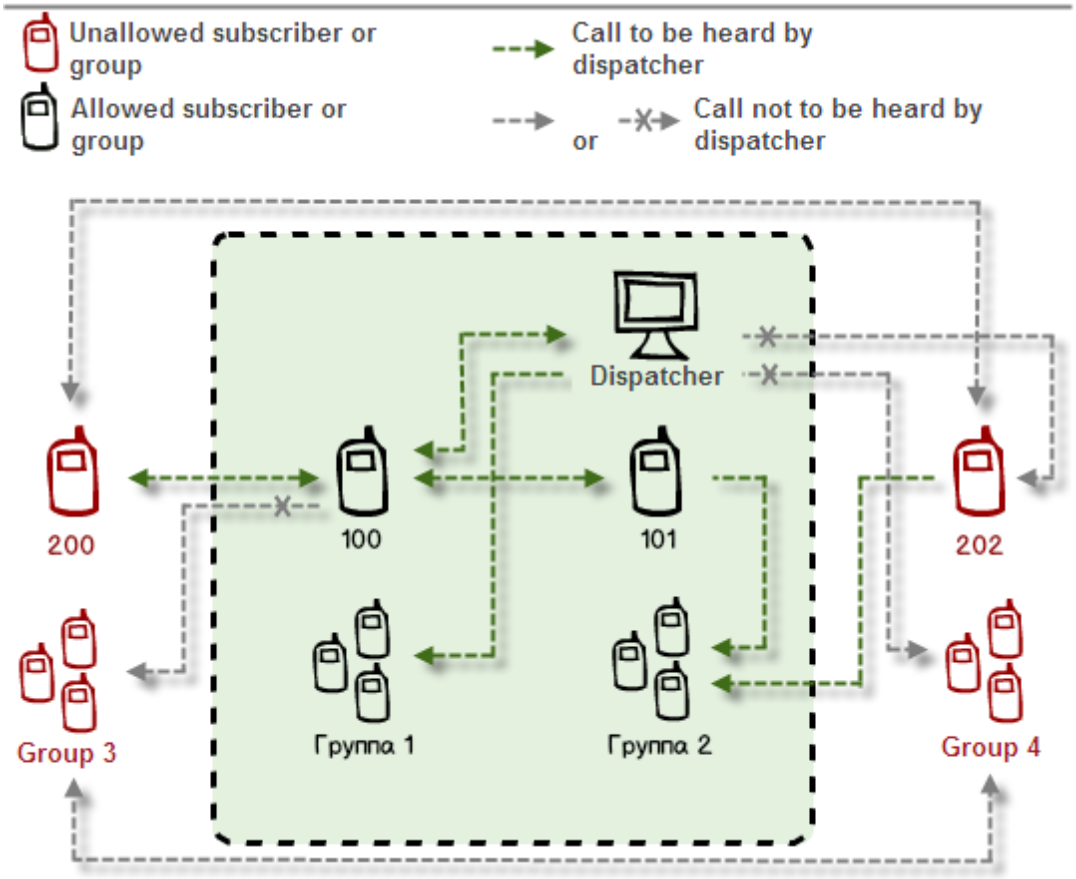
At that, the following window opens.



Use **Name** field to specify the profile name. Select control stations, talkgroups, IP Site Connect slots, services that will be available to the operator working under the profile.

If there is more than one operator on the same channel, set unique **ID** for each operator. This will allow radio subscribers to make private calls to particular operators, dialing the specified ID instead of the **Slot ID**. This feature is available only in IP Site Connect network configuration.

Also, it is possible to limit the number of radios per operator. To do this, select the **Allowed Radios** checkbox and enter the radio IDs which will be allowed for this profile. Radios whose IDs were not added will be ignored by the operator. The following scheme shows how it works:



This is how this scheme can be presented in the table:

Call From	Call To				
	Allowed group	**Unallowed group**	**Allowed radio**	**Unallowed radio**	**Dispatcher**
Unallowed radio	allowed	Not allowed	allowed	Not allowed	Not allowed
Allowed radio	allowed	Not allowed	allowed	allowed	allowed
Dispatcher	allowed	Not allowed	allowed	Not allowed	allowed

Note: When adding allowed radios make sure that the same radios are specified in the **Limit Radios to Service** section (if this setting is enabled). Otherwise, the radios not registered in both lists will be regarded as unallowed.

Private Calls between Subscribers, if enabled, allows the dispatcher to hear private calls among radio subscribers, read their messages. This feature is available for networks with direct connection to repeater, e.g., IP Site Connect, Capacity Plus.

To allow the dispatcher to make an all or group call, select the corresponding checkbox. To allow the dispatcher

to use services like ARS, GPS, TMS, telemetry, select the corresponding checkboxes.

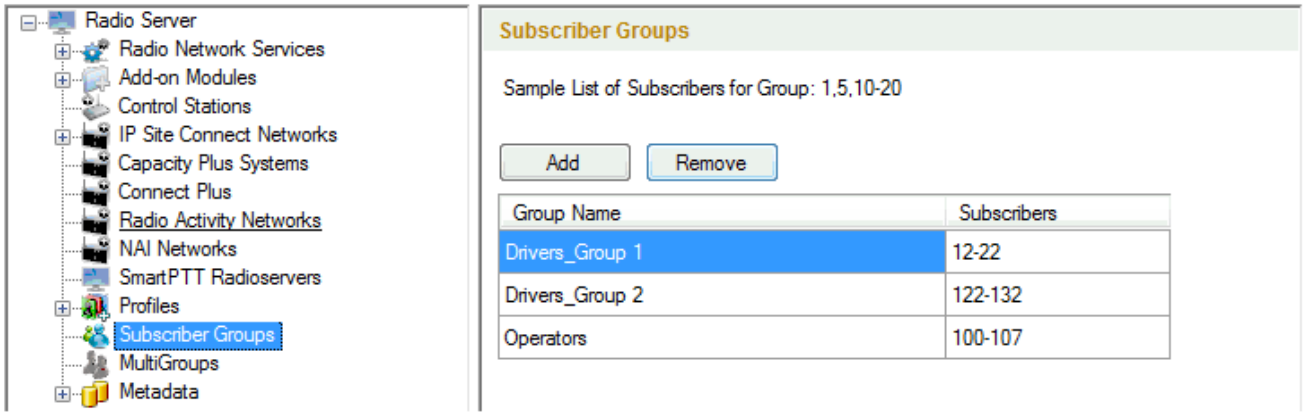
Save changes and restart the server to apply the new profile.

Note: Profile assignment is carried out at the dispatch console under the administrative account and described in the Help document of SmartPTT Dispatcher.

Subscriber Groups

Subscriber groups are used in many places, for example, to organize dynamic bridging of individual calls, or to control telephone calls, or to set different location update intervals.

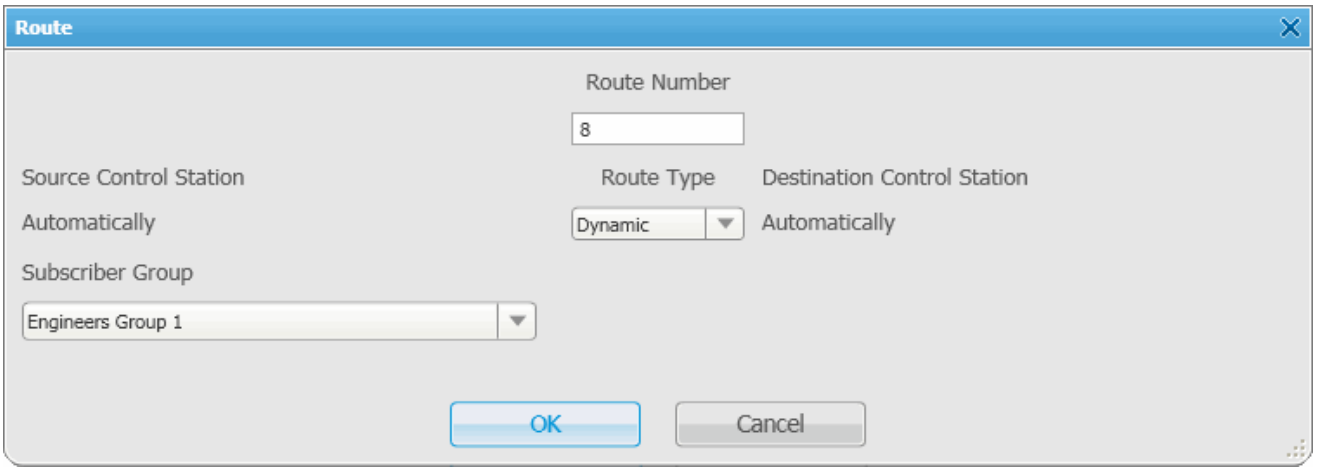
To add subscriber groups, click **Subscriber Groups** in the setting tree of SmartPTT Radioserver Configurator window. At that, **Subscriber Groups** window is displayed on the right.



Group Name – subscriber group name.

Subscribers ID – the list of radio IDs that will be included in the created group.

Dynamic routing is configured in SmartPTT Dispatcher in the **Route** window.



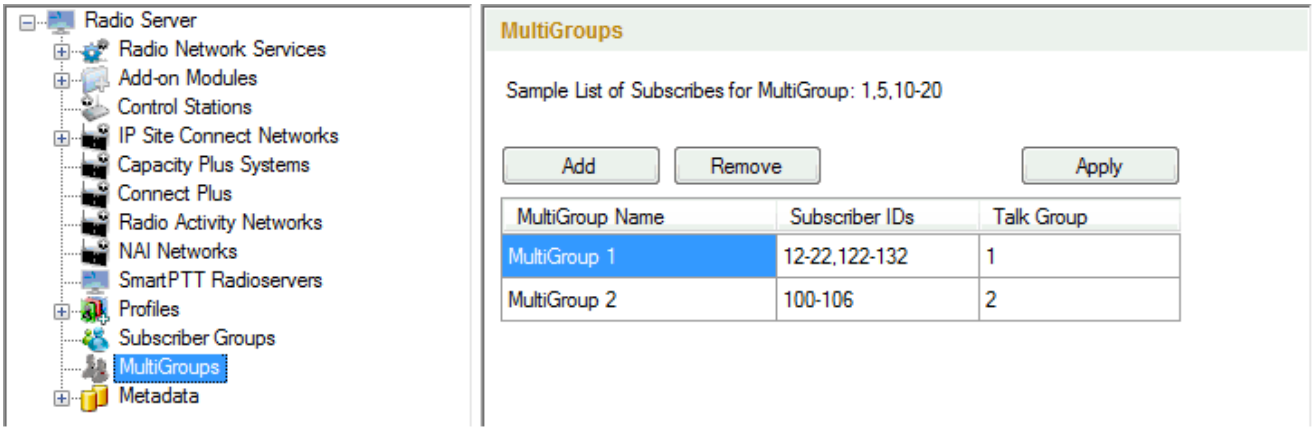
Select **Dynamic** in the **Route Type** list. Select the group in **Subscriber Group** list.

Note: Routing configuration is described in details in SmartPTT Dispatcher help (Bridging).

Multigroups

Multigroups are used to organize dynamic routing of group calls between sites without any bridging service enabled.

To add multigroups, click **Multigroups** in the list in SmartPTT Radioserver Configurator. At that, **Multigroups** window opens on the right.



Multigroup Name – random name of a multigroup.

Subscribers IDs – radio IDs that are included in the multigroup.

Talk Group – group ID (subscriber calls of this talkgroup will be routed dynamically).

There can be the following scenarios:

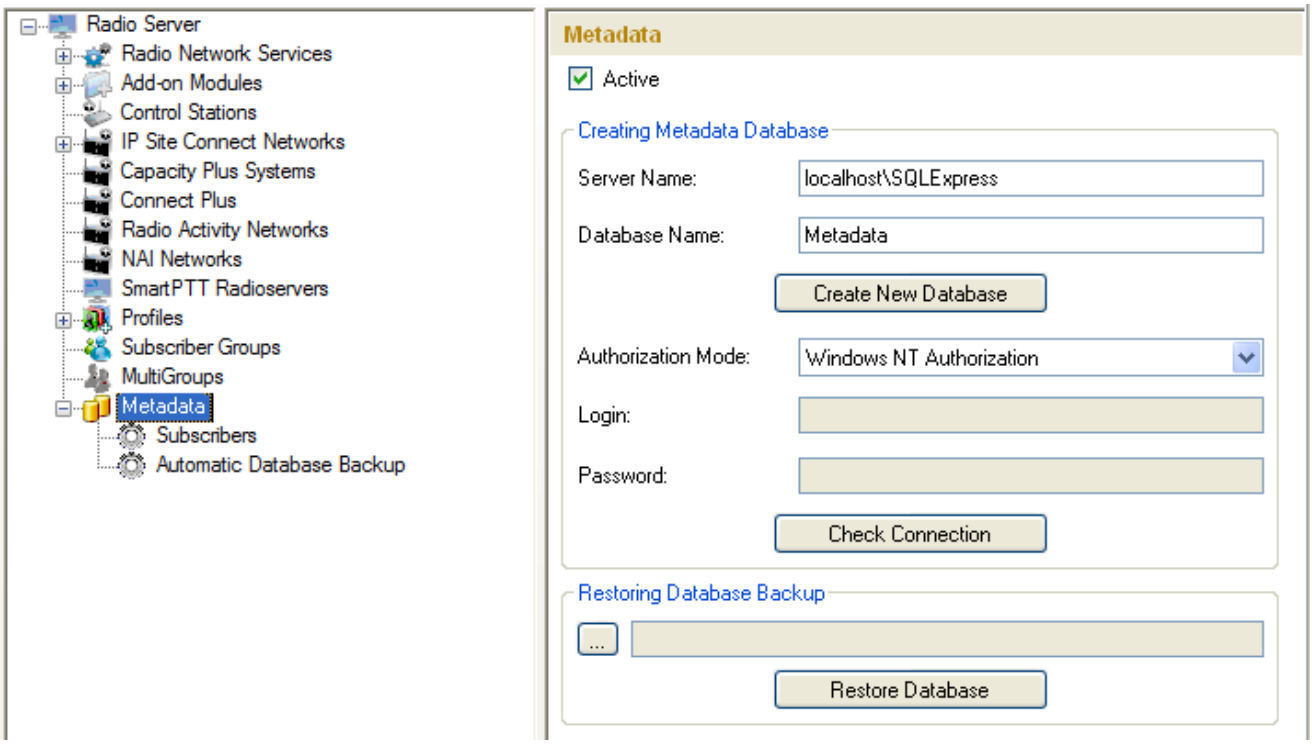
1. The initiator of the group call belongs to the multigroup;
2. The initiator of the group call does not belong to the multigroup;
3. The initiator of the group call does not belong to the multigroup, but at least one subscriber, to whom the call is addressed, belongs to the multigroup.
    1) If a group call is initiated by the subscriber included in the multigroup, this group call will be passed to all of the radios from the same talk group on all time slots and regardless of the IP Site Connect system.
    2) If a group call is initiated by the subscriber which is not included in the multigroup, this group call will be passed only to the subscribers of the talkgroup from the same time slot, which the initiator of the call is currently using.
    3) If a group call is initiated by the subscriber which is not included in the multigroup, and there is one or more subscribers who are included in the multigroup, this group call will be passed to all of the radios from the same talk group on all time slots and regardless of the IP Site Connect system.

Note: When you add, change or delete a multigroup, it is not necessary to restart the radioserver. Click **Apply** to make multigroup settings come into effect.

Metadata

To provide several dispatch consoles with one consistent list of subscribers it was decided to keep subscriber metadata, e.g., radio ID, radio subscriber name, and whether it supports GPS. This data appears in SmartPTT Dispatcher automatically as soon as the radioserver is up and running.

To create the database for subscriber metadata, select **Metadata** in SmartPTT Radioserver Configurator:



Type in the **Server Name** and the **Database Name** fields, and click **Create New Database**. If creation is successful, a message about successful database creation is displayed. If a database is not created, the cause of failure will be displayed at the bottom of the window.

Note: For the database server installed together with the radioserver enter the name using the following format: Name of computer\SQLExpress (for example, MYCOMP\SQLExpress).

Select **Authorization Mode** between the two:

SQL Server Authorization – you must have the login name and password of the account with SQL server access.

Windows NT Authorization – the user who has logged into the Windows system, must be listed in the SQL server's list of users to make connection.

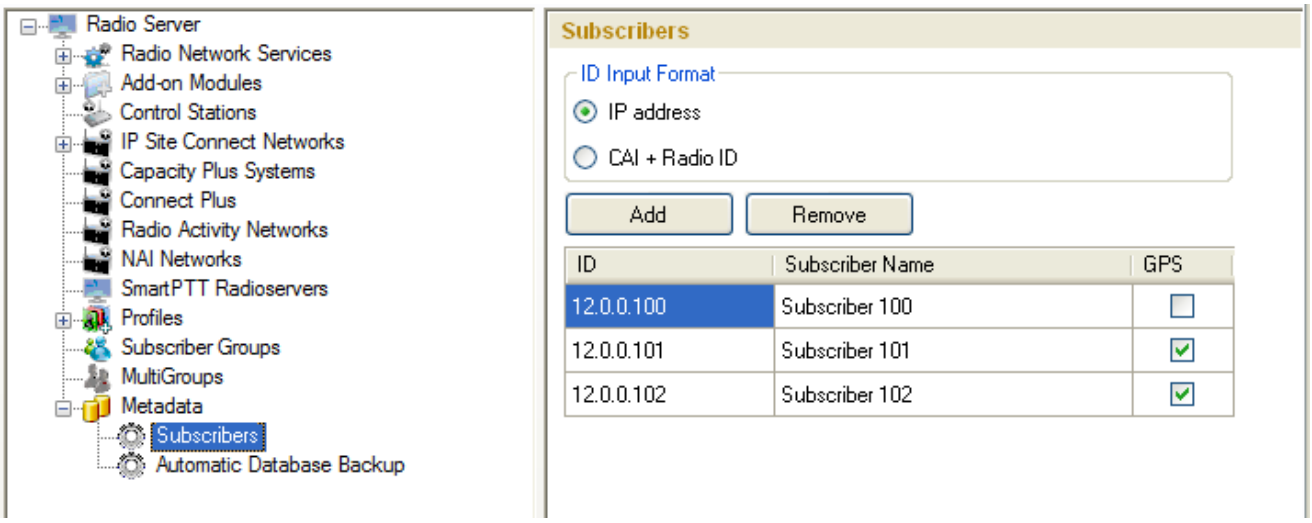
Click **Check Connection**. In case of successful authorization the message "The connection is established successfully!" is displayed. If authorization fails, the cause will be displayed at the bottom of the window.

To restore the database from the backup folder, select the required database backup file in **Restoring Database Backup** and click **Restore Database**.

Note: To set up the auto backup of the database, go to the Automatic Database Backup window.

Subscribers

To add subscriber metadata, select **Radio Subscribers**:



ID Input Format – allows you to select the radio ID format to use.

To add a radio to the list, click on **Add**. At that, a window for entering the radio ID opens up. The ID format depends on the selection in the **ID Input Format** section. In the **Subscriber Name** column enter the name of the added radio subscriber. In the **GPS** column select whether the radio supports GPS.

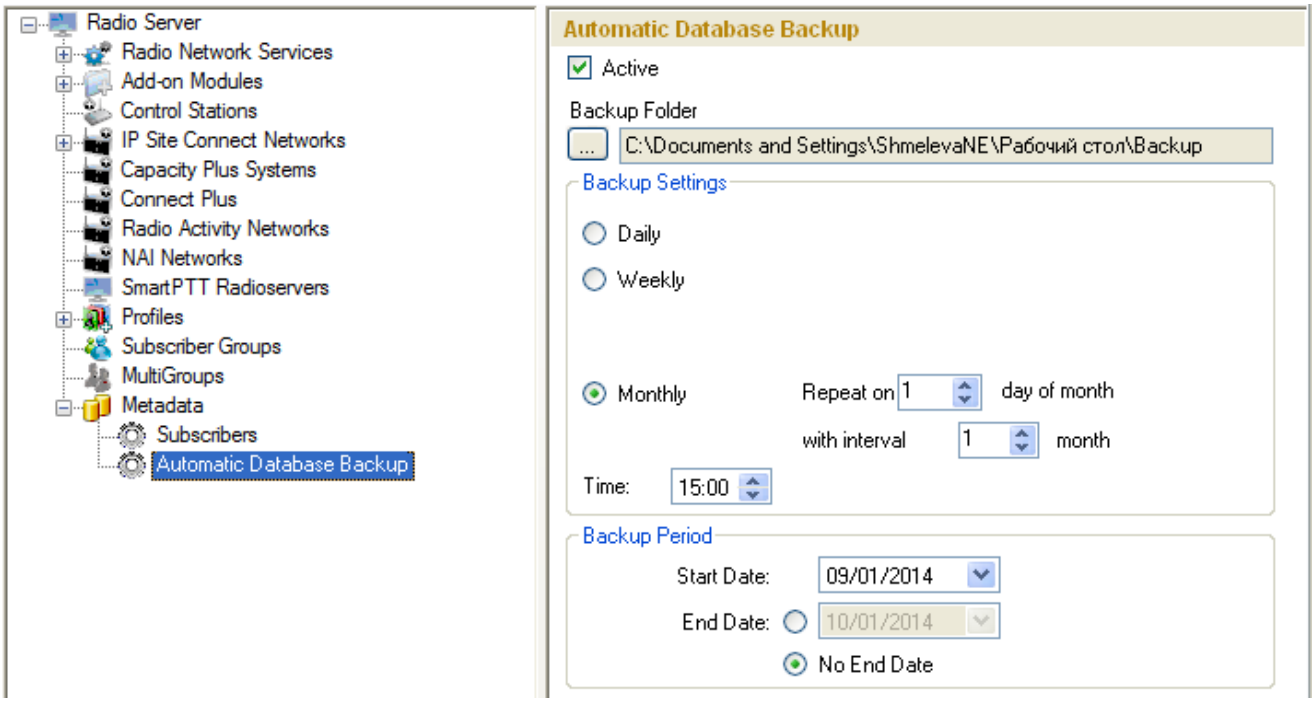
To delete the radio subscriber from the database, select it in the list and click on **Remove**.

Click **Save** to keep changes and restart the radioserver to see the newly added radio subscribers in the dispatch console.

Automatic Database Backup

Backing up data on a regular basis helps to protect it from being erased in case of the server hardware or software failure. SmartPTT Radioserver Configurator allows user to back up the monitoring database automatically.

In order to set up automatic backup schedule of the metadata, select **Automatic Database Backup** under **Metadata** in the setting tree of SmartPTT Radioserver Configurator.



Active – select the checkbox to enable the ability to create database backups in the automatic mode.

Backup Folder – full path to the file for saving the database backup.

Backup Settings – schedule for creating the current database backup:

- **Daily** – every fixed day at the specified time (for example, every day, every third day at 9:00 a.m.).
- **Weekly** – every fixed day of the week at the specified time (for example, every Monday, Wednesday and Friday at 11:00 p.m.).
- **Monthly** – once a month on the fixed day of the selected month and at the specified time.

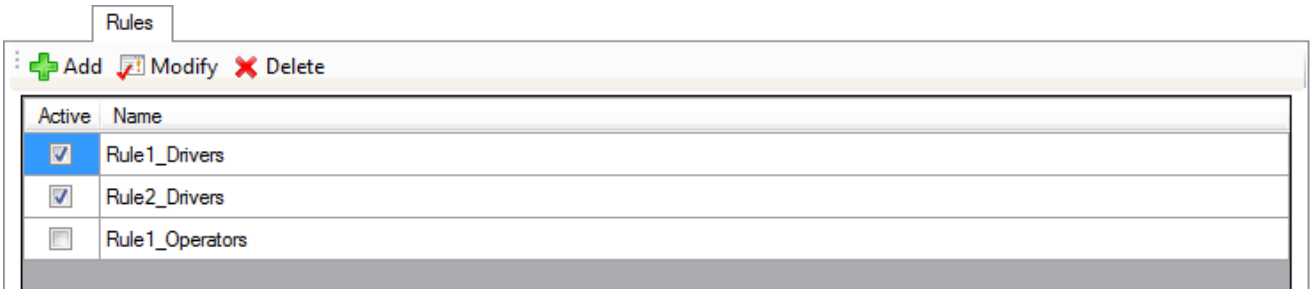
Backup Period – allows you to set time period when automatic database backup is to be made according to the selected backup settings.

Note: The number of stored backup files in the same folder is limited to 3. Otherwise, when creating a new copy, the old files are deleted.

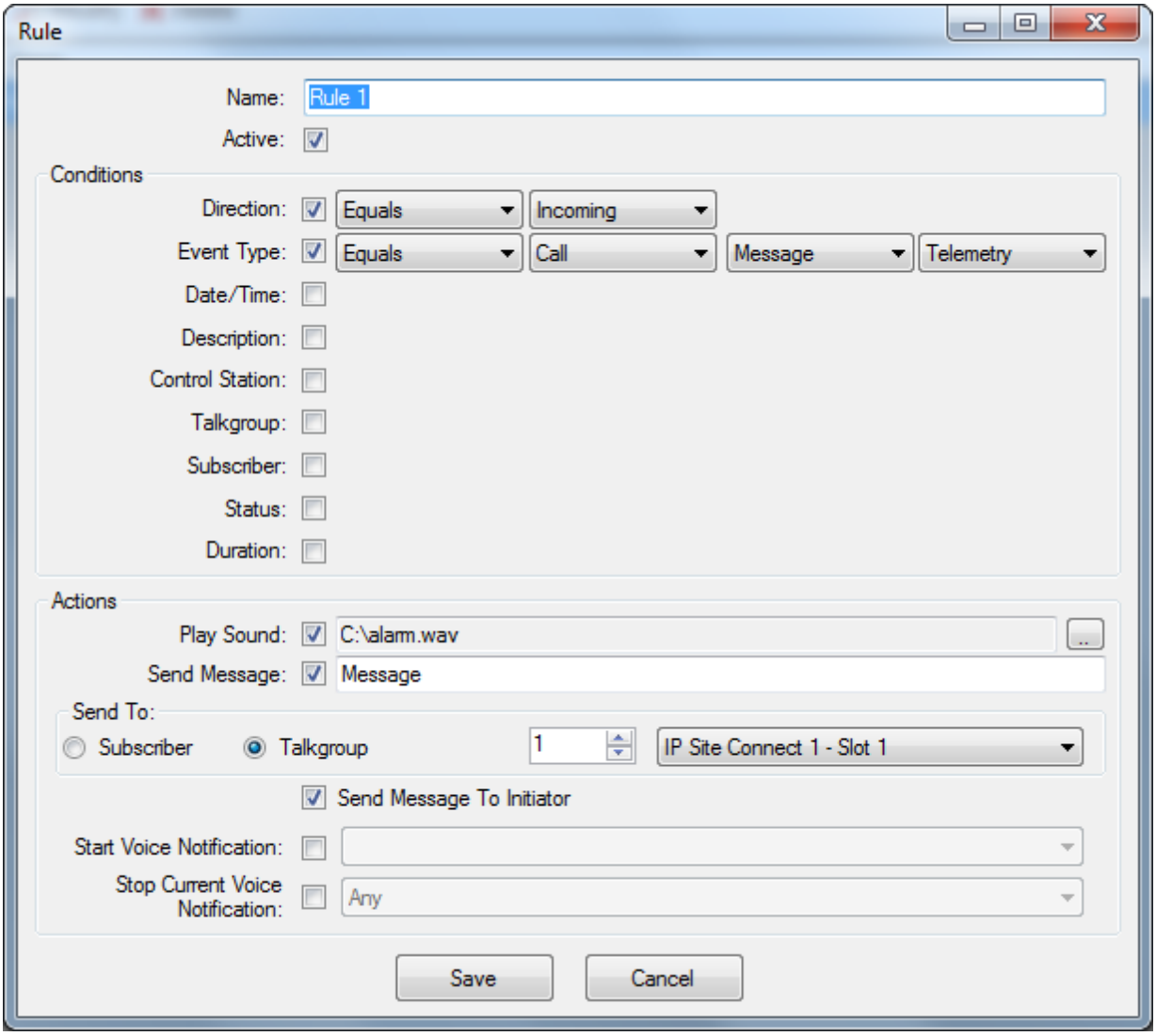
Rules

SmartPTT Radioserver allows setting rules to perform automatic actions (playback sounds, send messages, play predefined voice notifications) based on conditions specified in the **Rules** tab in SmartPTT Radioserver Configurator.

To set up rules, open the **Rules** tab in SmartPTT Radioserver Configurator.



To create a new rule, click **Add**. To change the existing rule, click **Modify** or double-click on the rule name in the list of rules.



Name – any name of the rule.

Active – activates the rule.

The **Conditions** area defines the set of rule criteria. Each condition is described by:

- Rule name.
- Operation – mathematical operations to be performed on the attribute value.
- Value – condition value.

Name	Operation	Value
Direction	Equals	Incoming, Outgoing
Event Type	Equals, Not Equals	ARS, Call, Message, Telemetry, Alarm, Status, Block
Date/Time	In Interval	Time interval
Description	Equals, Contains	Type event description text
Control Station	Equals, Contains	Control station name
Subscriber	Equals, Not Equals	Subscriber ID
Talkgroup	Equals, Contains	Talkgroup name
Status	Equals, Not Equals	Status from the list of statuses
Duration	Equals, Not Equals, Greater, Greater than or Equal, Less, Less than or Equal, In Interval	Duration of time (seconds)

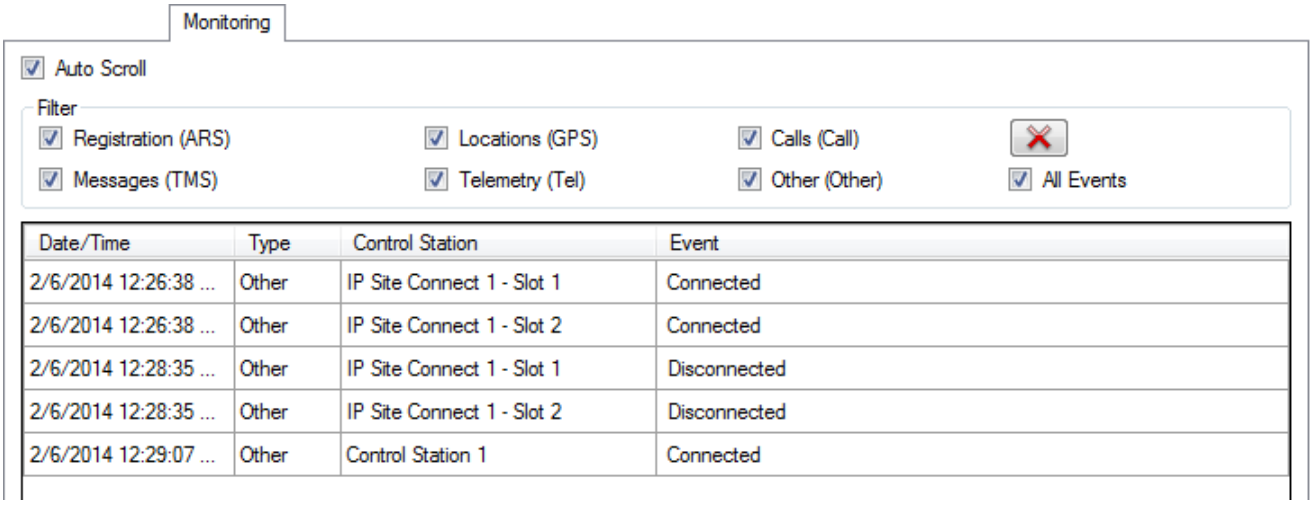
Under **Actions** you can define the actions that the system will perform when the rule conditions are fulfilled:

- **Play Sound** – when selected you can specify the path to the folder with the audio file to play, and select a subscriber or a talkgroup to who you want it to be sent. Supported audio file format – .wav.
- **Send Message** – when selected, there is a field for short text messages; options defining text message recipients (Subscriber or Talkgroup, specified by ID and Channel); and the **Send Message to Initiator** option.
- **Start Voice Notification** – when selected you can specify the notification to play (to learn how to create a voice notification, see Voice Notifications). If the rule conditions were fulfilled at the moment when the operator played a voice notification, the voice notification specified in the rule actions won't play. To avoid this, select **Stop Current Voice Notification**. You can also specify which notification must be stopped.

Monitoring

The **Monitoring** tab displays events going on the radio network. Mostly, it is used for debugging purposes, but it can be useful for Administrators too.

To open **Monitoring**, click in the **Monitoring** tab in SmartPTT Radioserver Configurator.



There are six types of monitored events:

1. Registration
2. Messages
3. Location
4. Telemetry
5. Calls
6. Other (includes connection or disconnection of slots or control stations)

Select an event to monitor it.

Date/Time – date and time of the event.

Type – one of the six event types.

Control Station – source of the event.

Event – short description of the event and its status.

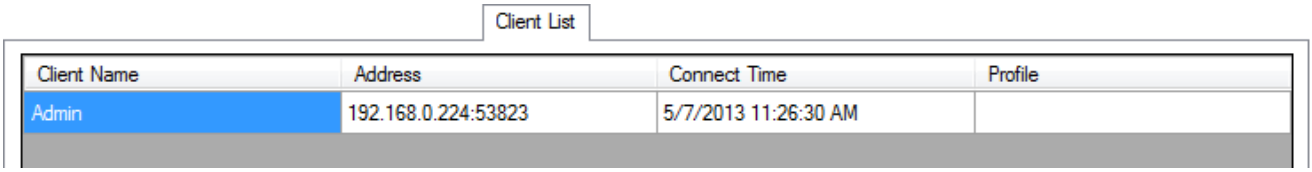
Auto Scroll – by default the list of monitored events scrolls down to the latest recording. If you want to switch off the automatic scrolling, unselect this option.

The **Clear Event Log** button deletes all the records of the registered events and cleans the log.

Client List

The **Client List** tab shows the list of dispatch consoles connected to the radioserver.

To open the **Client List**, click in the **Client List** tab.



To connect the dispatch console to the radioserver, go to the **Settings > Radioservers** in SmartPTT Dispatcher and select the radioserver to which you want to be connected. At that, in the **Client List** tab of SmartPTT Radioserver Configurator the connected dispatch console will show up.

Client Name – name of the dispatch console. It is always a "Dispatcher".

Address – the IP address of the dispatch console.

Connect Time – time of the last session.

Profile – assigned profile to the dispatcher.

Note: Profiles are assigned in SmartPTT Dispatcher under **Settings > Radioservers**. For more information about profiles see Profiles in the Help document.

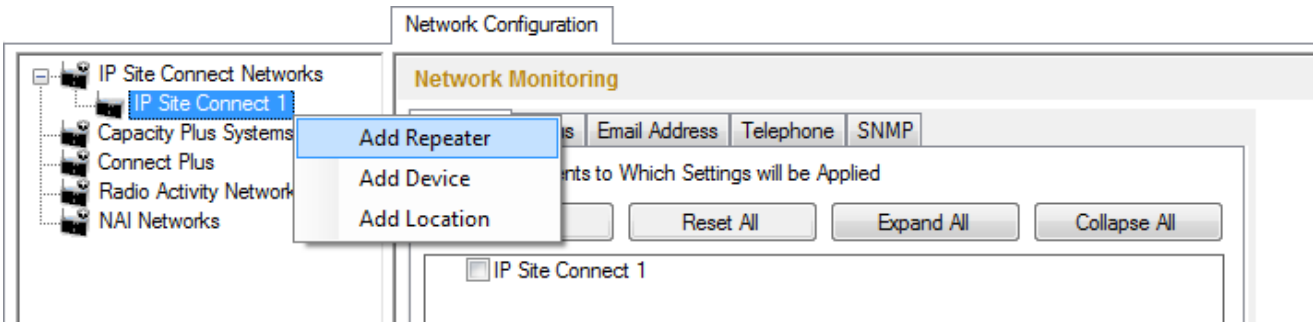
Network Configuration

In the **Network Configuration** tab you can set up elements of the networks used in the system. The added elements will be displayed in the **Topology** tab. You can also define parameters for alarm notification sending.

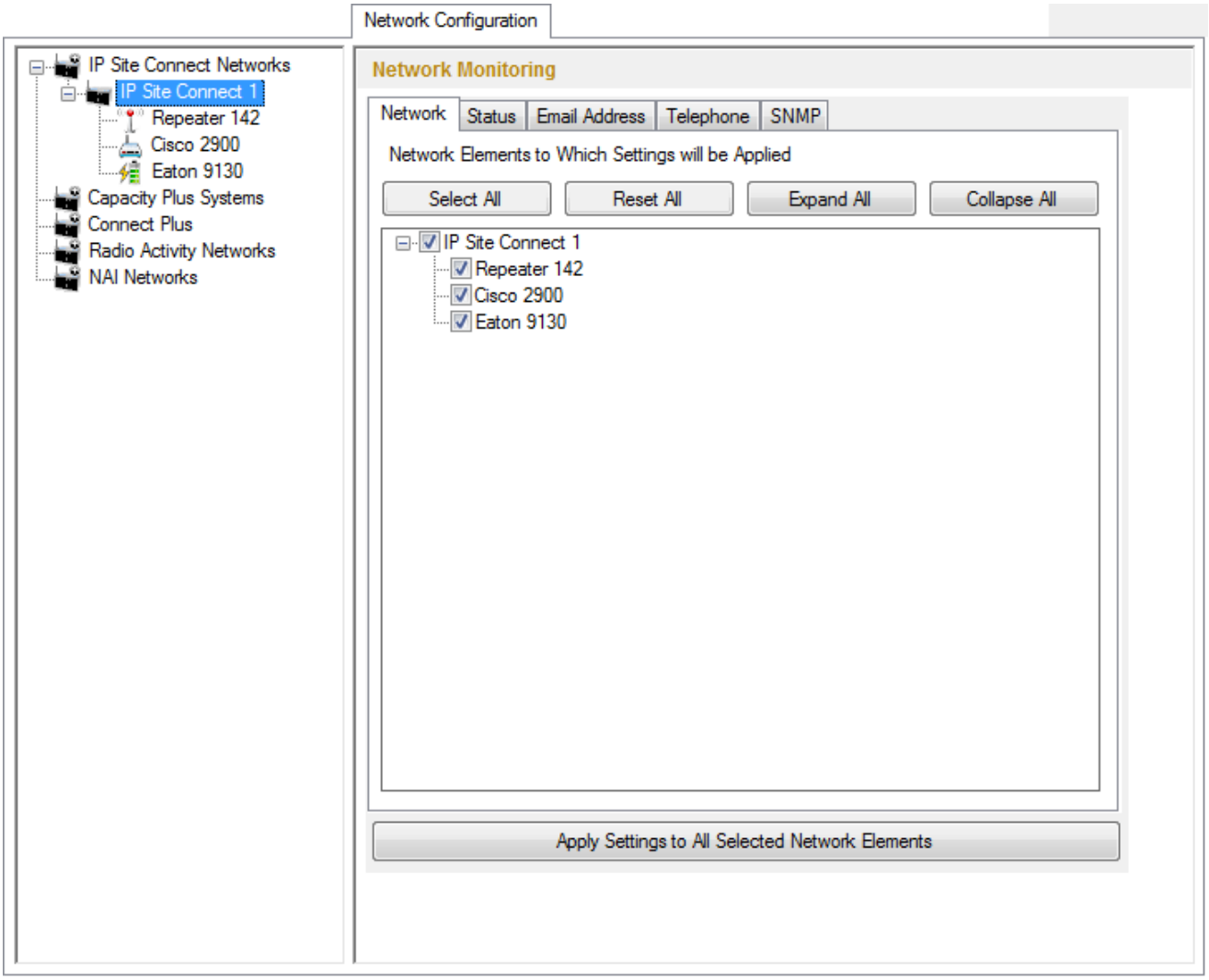
Note: This tab is available only if there is a license for monitoring. If you have it, make sure you have selected the **Active** checkbox in the Monitoring window.

To add elements of the network, select the network in the list. The supported network elements include: repeaters, routers, UPS and location. To add devices, open the context menu by right-clicking on the existing network. The context menu contains the following options:

- Add Repeater
- Add Device
- Add Location

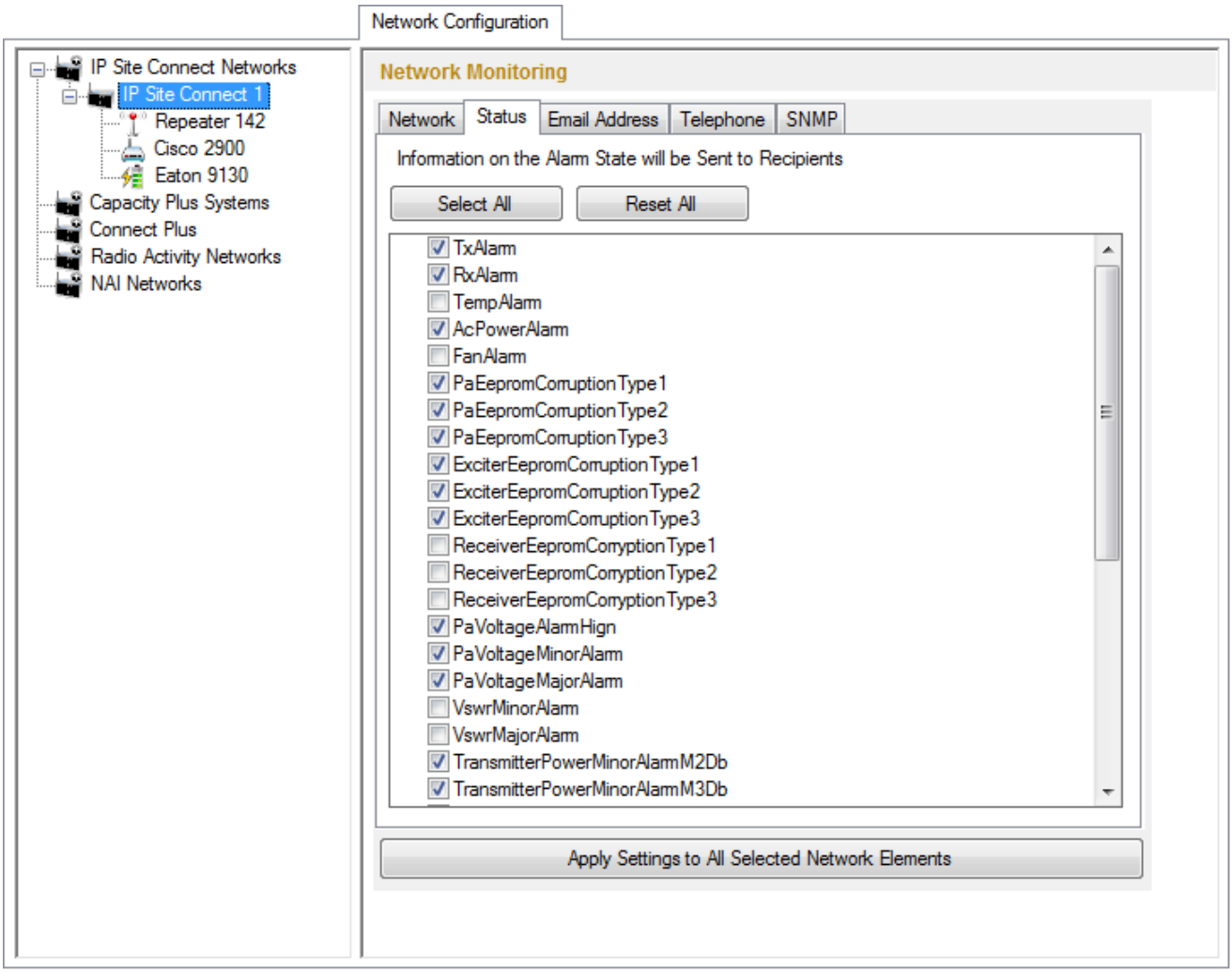


The **Network** tab shows all the added elements. You can select, clear, expand and collapse the elements. This tab can be used for setting up common parameters, i.e., applied to all elements.



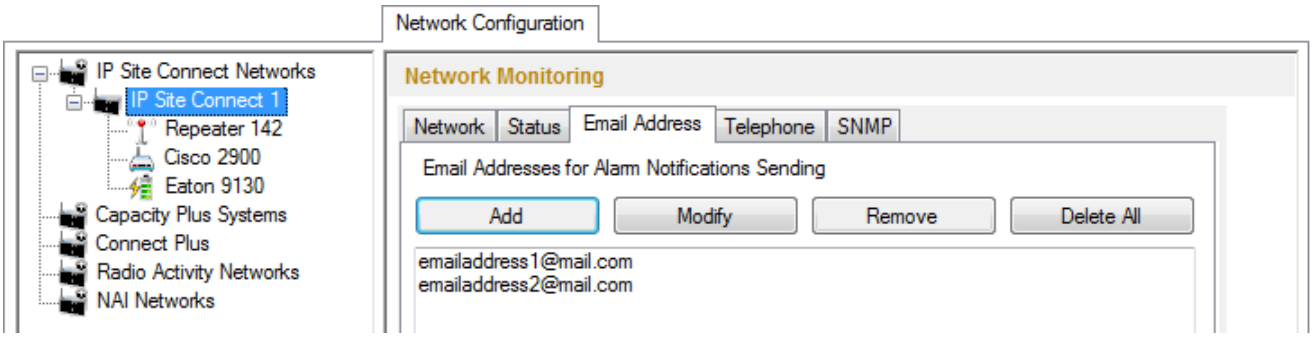
The other tabs (**Status**, **Email Address**, **Telephone**, **SNMP**) are used for alarm notification settings.

In the **Status** tab you can select alarms that will trigger alarm notification sending:

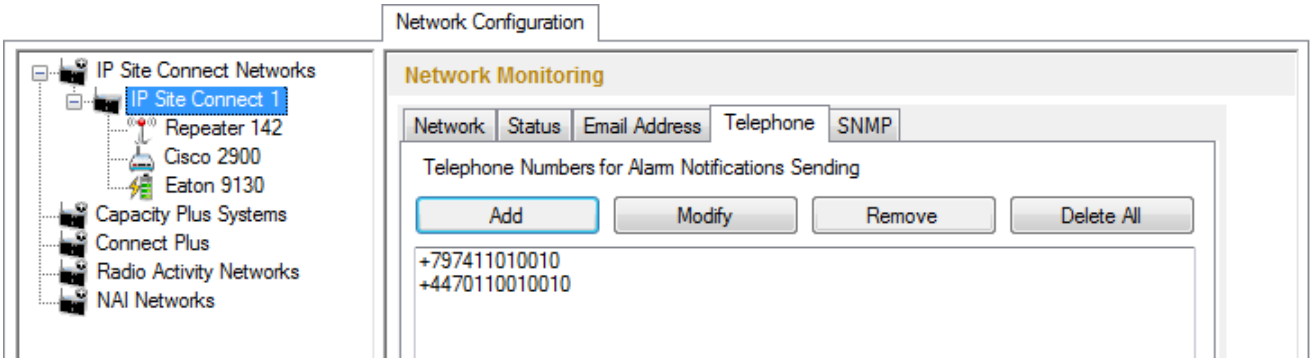


To save the list of alarms for all the selected elements of the network (see the list of network elements), click **Apply Settings to All Selected Network Elements**.

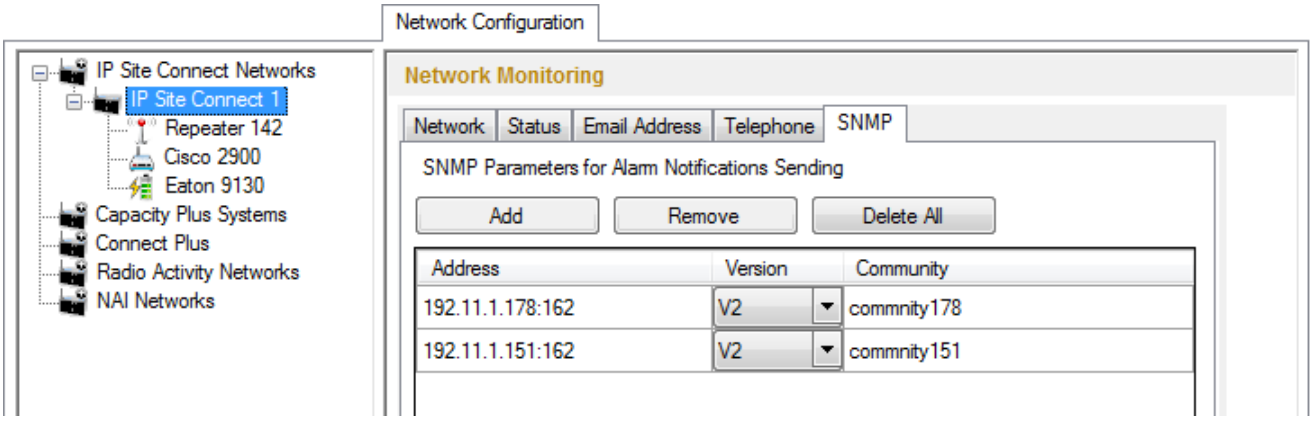
In the **Email Address** tab define email addresses where the alarm notifications are to be sent:



In the **Telephone** tab define telephones where the alarm notifications are to be sent:



In the **SNMP** tab define SNMP clients where the alarm notifications are to be sent:



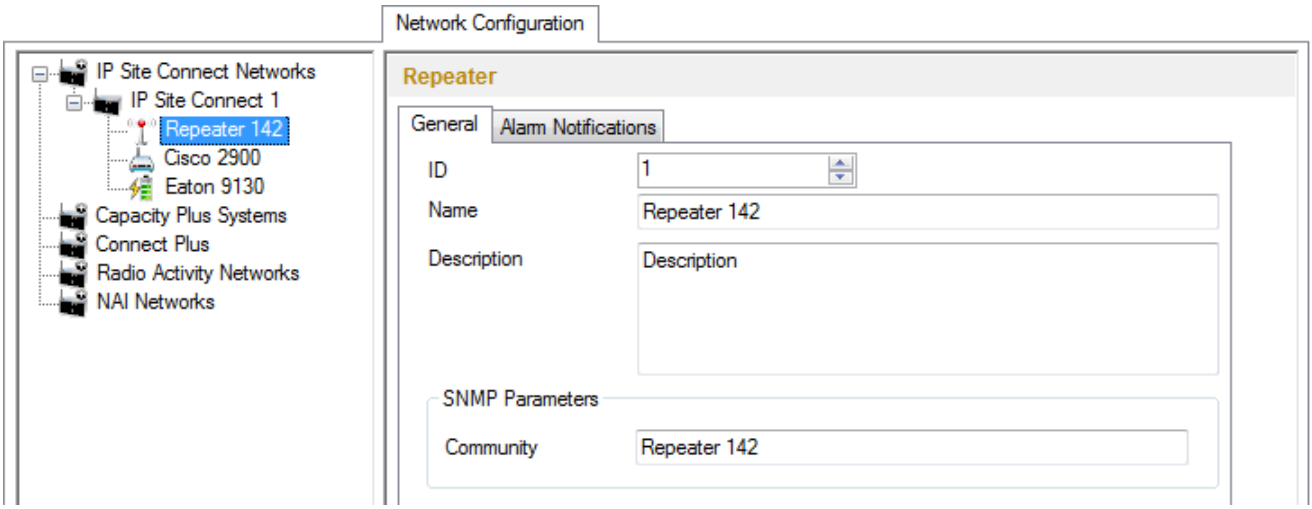
Address – address and port of the PC to receive the data. Use port 162 as default. Remember to have SNMP client installed on the PC.

Version – version of the SNMP data received. The SNMP client must be able to read it.

Community – community name, which is used as password for connecting to the SNMP client on the PC.

How to Add Repeaters

To add a repeater, select the **Add Repeater** option in the context menu. At that, the window for setting up repeater parameters opens.



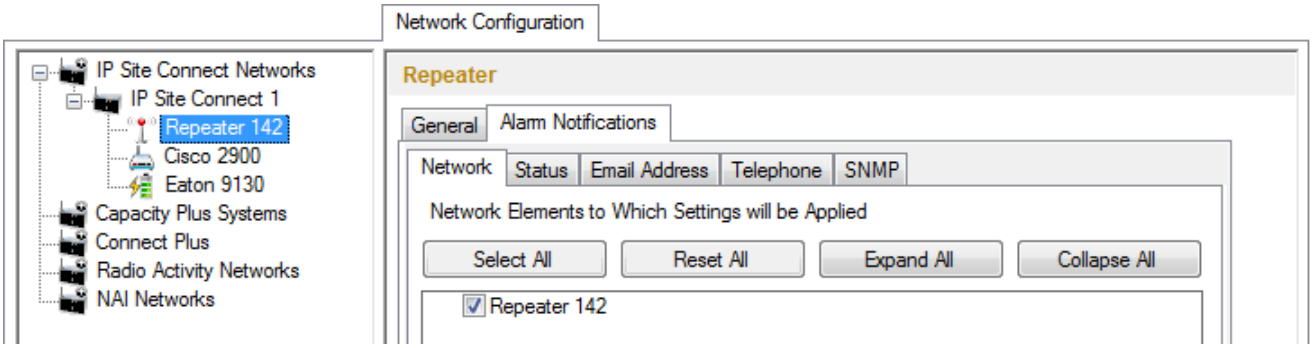
ID – unique identifier of the repeater.

Name – any random name of the repeater. The name will be used in the **Topology** tab in SmartPTT Dispatcher.

Description – random description of the repeater.

SNMP Parameters – here you can set up the community name, which is used as a password for connecting to the repeater by an external SNMP client.

Apart from getting information about repeater performance on request, you can get alarm notifications from the repeater as soon as malfunctioning or errors are observed by the repeater. You can decide how to get the information: you can have it sent to your email, your cell phone or to an SNMP clinet. To set up the automatic alarm notifications for this repeater go to the **Alarm Notifications** tab.



For the email or cell phone, click **Add** in the preferred section and add the telephone number or the email address.

For the SNMP client fill the following fields:

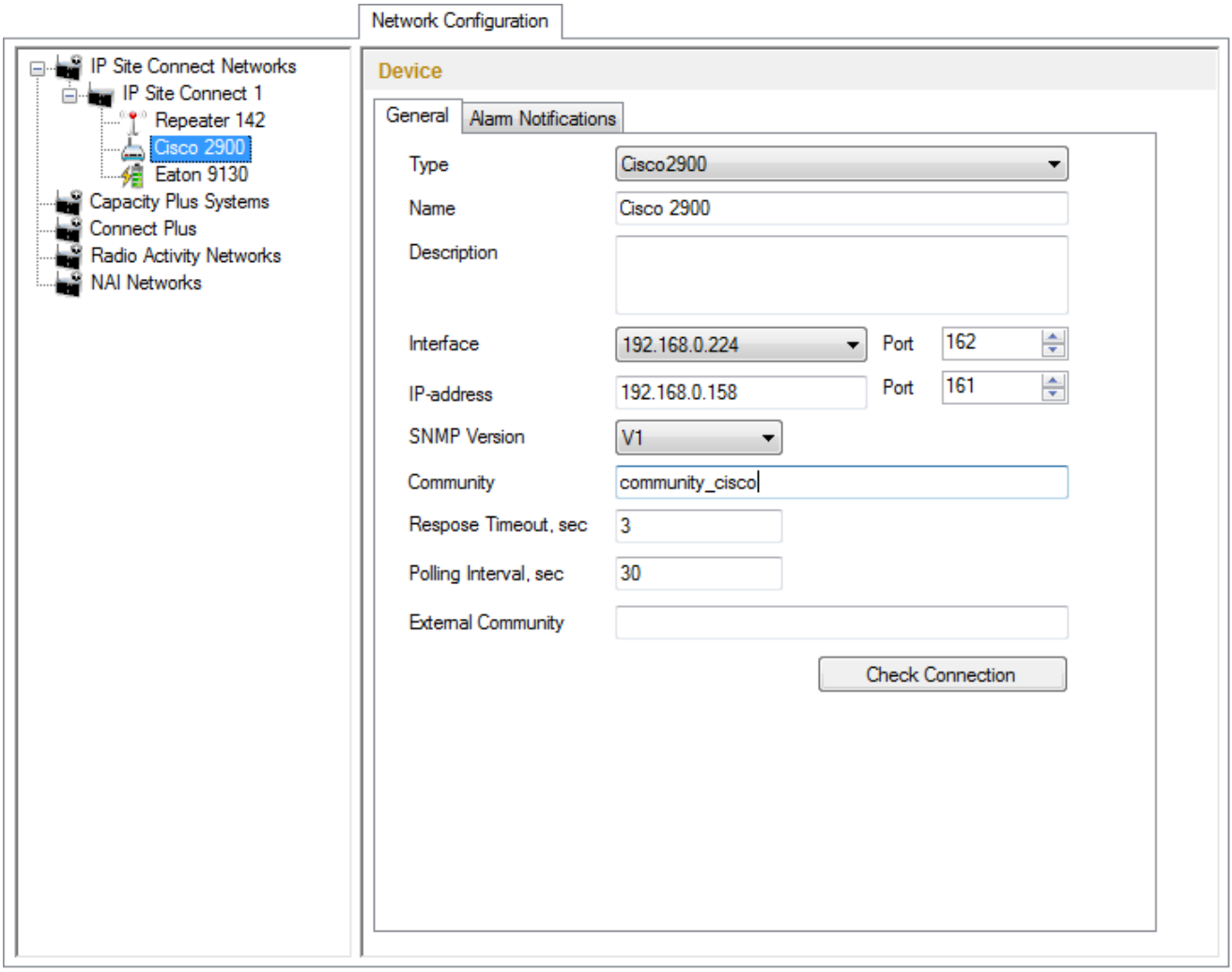
Address – address and port of the PC which must receive the data. Use port *162* as default. Remember to have SNMP client installed on the PC.

Version – version of the SNMP data received. The SNMP client must be able to read it.

Community – community name, which is used as password for connecting to the SNMP client on the machine.

How to Add UPS and Routers

The supported devices include a router and an uninterruptable power supply (UPS). To add a device, select the **Add Device** option in the context menu. At that, the following window opens.



Type – device type. There are three device types to choose from:

- Cisco2900 (router)
- Eaton9130 (UPS)
- Unknown (for devices other than Cisco2900 and Eaton9130)

Name – random name of the device which is displayed in **Topology** in SmartPTT Dispatcher.

Description – random description of the device.

Interface – the radioserver IP address used for interacting with the device.

IP address – device IP address.

SNMP version – version of SNMP protocol used in the system. There are two options: versions 1 and 2 (*V1* and *V2*).

Community – community name, which is used as password to locally connect to the device over SNMP protocol.

Response Timeout, sec – time during which the server expects a response from the device. The maximum value is *10* sec.

Polling Interval, sec – time period at the end of which the radioserver sends a request to the device. The default value is *30* sec.

External Community – special community name which is used as password to connect to the device via external SNMP client.

Check Connection – checks if there is a connection to the device. At clicking the button a new window with the information on the connection status opens.

To set up the automatic alarm notifications for this device, go to the **Alarm Notifications** tab.

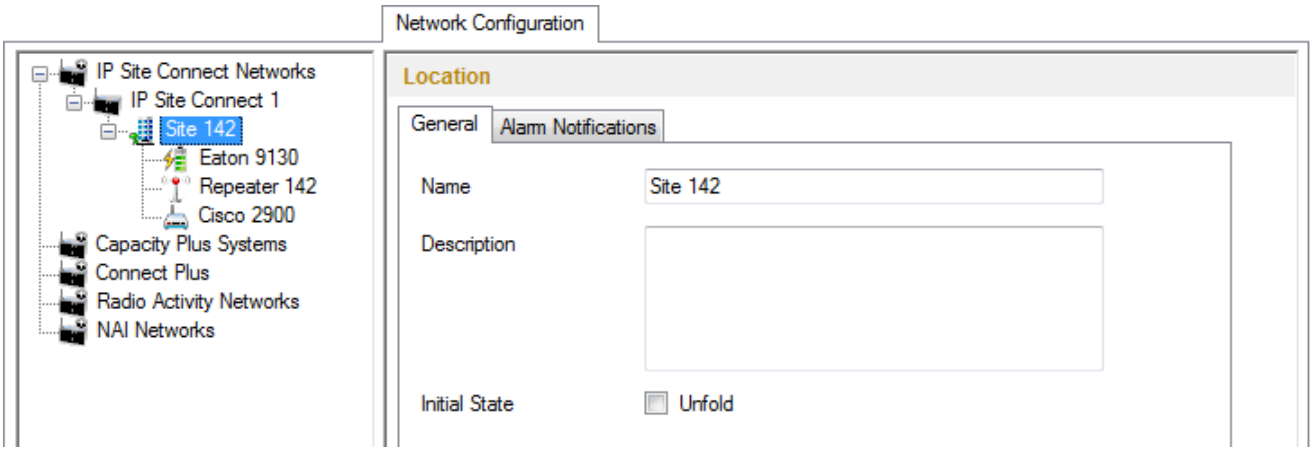
To add a telephone number or/and email address, click **Add** in the preferred section. The user can add more than one telephone number or email address. To remove the telephone number or email address from the list, select the record and click **Remove**.

How to Add Location

If there are many repeaters and devices, they can be grouped by location.

To add a location, select the **Add Location** option in the context menu.

At that, the following window opens.



Name – any random name of the location. The name is displayed in the **Topology** tab in SmartPTT Dispatcher.

Description – random description of the location which is displayed in the **Topology** tab in SmartPTT Dispatcher when hovering the mouse pointer over the object.

Initial State – defines how the object, representing location, is to be displayed in the **Topology** tab in SmartPTT Dispatcher. If the checkbox is selected, all the devices and repeaters allocated to the location will be displayed by default. If the checkbox is not selected, the devices won't be seen inside the location by default. In this case, to see the devices, click on the location object in the **Topology** tab.

To add or remove a device or repeater from the location, simply drag it into another place.

To delete the created object, right-click on the object and then select **Remove Repeater**, **Remove Device** or **Remove Location** respectively.

Note: When deleting a location with devices and repeaters allocated to it, all the devices will be deleted together with the location.

To set up the automatic alarm notifications for the devices in this location, go to the **Alarm Notifications** tab. For the email or cell phone, click **Add** under the box you need and add the telephone number or the email address.

For the SNMP client fill the following fields:

Address – address and port of the PC which must receive the data. Use port *162* as default. Remember to have SNMP client installed on the PC.

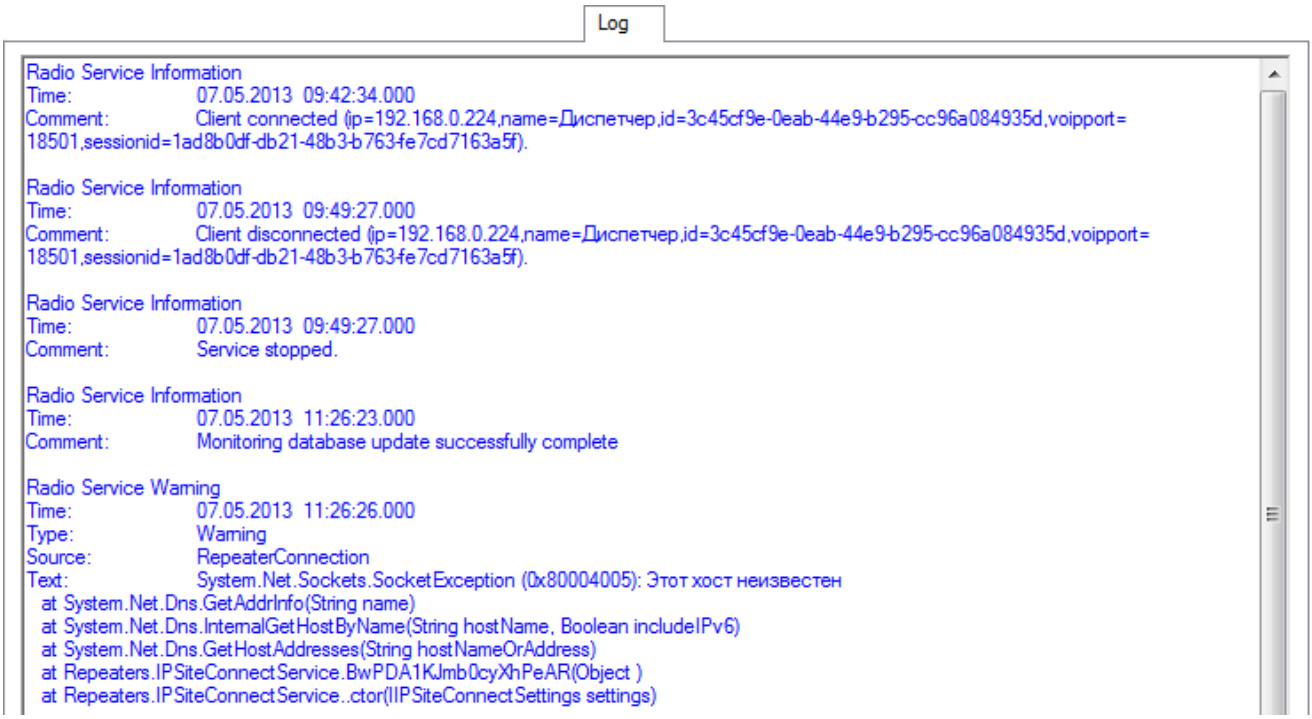
Version – version of the SNMP data received. The SNMP client must be able to read it.

Community – community name, which is used as password for connecting to the SNMP client on the machine.

Log

The **Log** tab was designed to give information about the radio service system events. Mostly it is used for debugging purposes.

To see the log of the radio service, open the **Log** tab.

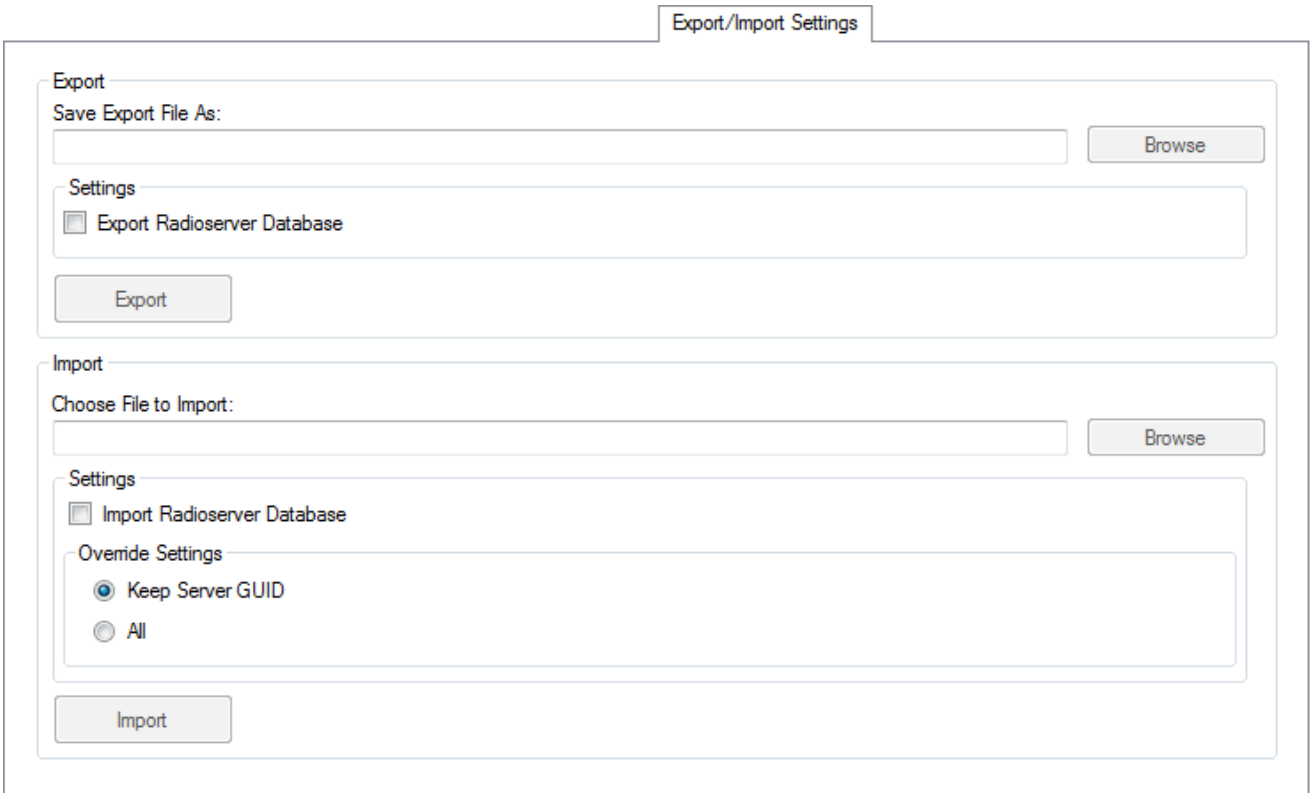


Export/Import Settings

SmartPTT Radioserver allows exporting configuration settings and database from one radioserver and importing them into another. Thus, the process of setting up new radioserver(s) with similar configuration settings becomes much easier and quicker.

How to Export or Import Settings

To export or import the radioserver settings or/and the database, click **Export/Import Settings**.



Note: Before exporting or importing the radioserver configuration settings and the database, stop the server. Otherwise, the buttons **Browse**, **Export** and **Import** will be unavailable.

Exporting the Settings and/or the Database

To export the settings and/or the database of the radioserver, take the following steps:

1. Stop the radioserver.
2. Select the file where you want the settings to be exported by entering the path to the file in the **Save Export File As** field or by clicking **Browse**.
3. Select **Export Radioserver Database** if you want the database to be exported too.
4. Click **Export**.

Note: You cannot export the radioserver database separately, i.e., without the settings.

Importing the Settings and/or the Database

To import the settings and/or the database to the radioserver, take the following steps:

1. Stop the radioserver.
2. Select the file from where you want the settings to be imported by entering the path to the file in the **Choose File to Import** field or by clicking **Browse**.
3. Select **Import Radioserver Database** if you want the database to be imported too.
4. Select the import mode:
    1) **Keep Server GUID** – import mode when the server globally unique ID is left unchanged. After importing, there are two servers with same configuration settings, but different globally unique GUID's.
    2) **All** – import mode when all the server configuration settings, including the GUID, are replaced with the imported values. After importing, there are two servers with absolutely identical settings and GUID's.
5. Click **Import**.

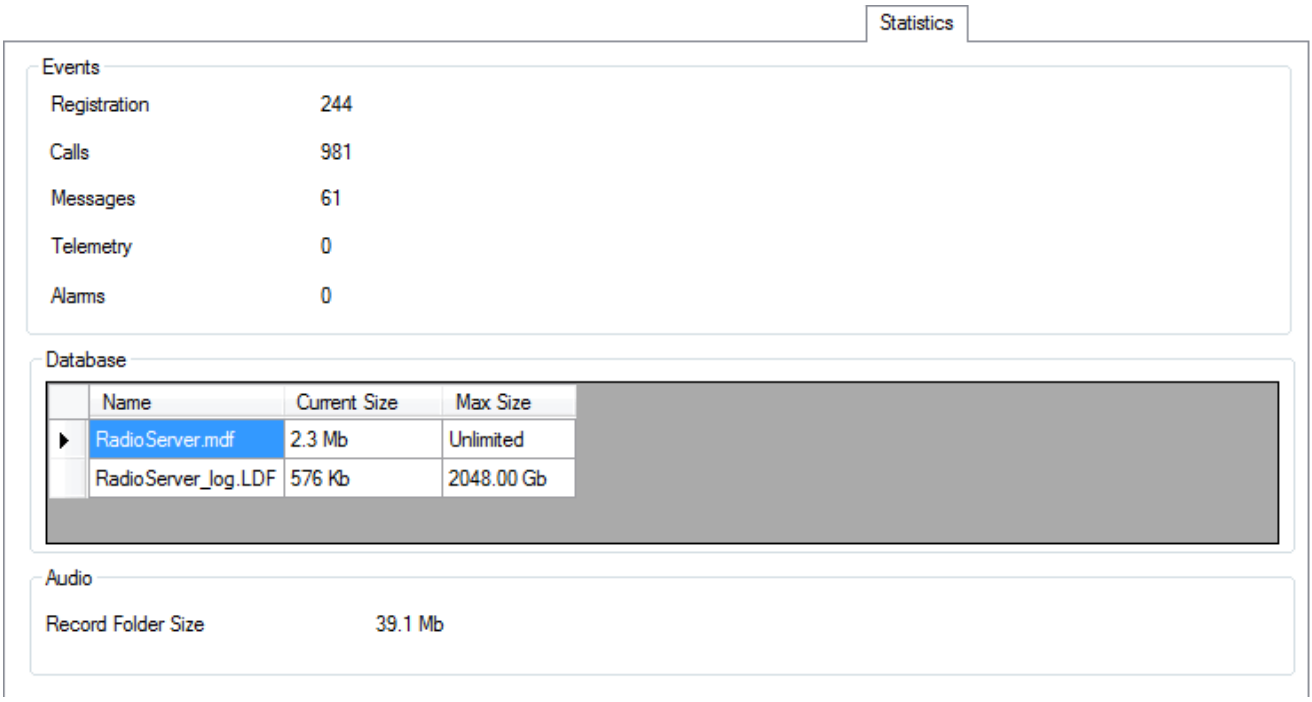
Note: After importing the radioserver settings with the option to override all the existing settings (**All**), it is important to delete one of the two servers to avoid GUID conflict.

Statistics

The **Statistics** tab was designed to give you information on:

1. The total number of events taking place on the radioserver.
2. Free space of the used databases.
3. The size of the folder with audio recordings.

To open the window click in the **Statistics** tab.



Troubleshooting

Can't launch SmartPTT Dispatcher and/or Radioserver

Can't install SQLExpress

Can't create database

No connection between SmartPTT Dispatcher and Radioserver

Slots are not displayed in SmartPTT Dispatcher

Control station is not displayed in SmartPTT Dispatcher, but Radioserver is there

Radio subscribers are offline

Can't get GPS coordinates

Calls do not get through

Remote monitoring does not work

Orange button does not work, emergency alarm signal does not get through

Telephone subscribers can hear themselves through interlocutor

Unacceptable sound quality

No sound

Radio coordinates are displayed in the corner or outside the raster map

Channel name of the control station is displayed in the dispatch console as “1:0”, “1:1”, “1:2”, etc.

Can't launch SmartPTT Dispatcher and/or Radioserver

1. *(for control stations)* Make sure you have a sound card on your computer. If SmartPTT Dispatcher and radioserver are installed on one PC, there must be two sound cards (this is true if there is only one control stations connected to the radioserver). Each additional control stations connected to the radioserver requires additional sound card (if the control station is used for transmitting both data and voice).
2. Make sure the installed license is correct (for example, the license for the Basic version can be installed for the Enterprise version and vice versa).
3. Select the correct interface in SmartPTT Radioserver Configurator.
4. Make sure that the ports used by SmartPTT system are available by other applications.
5. Open the sound card properties in Windows audio configuration interface and check if the card functionality is enabled.
6. Connect your microphone to the sound card. Sometimes, when microphone is not connected, audio input is not defined.

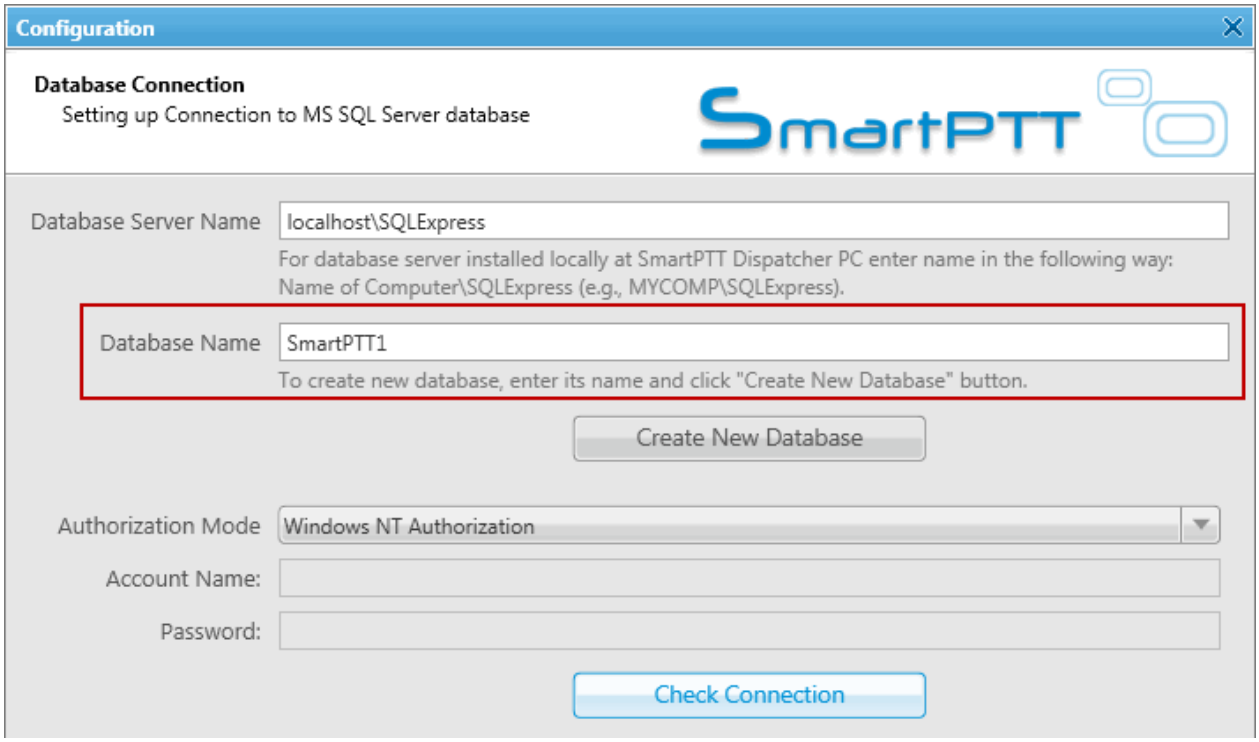
Can't install SQLExpress

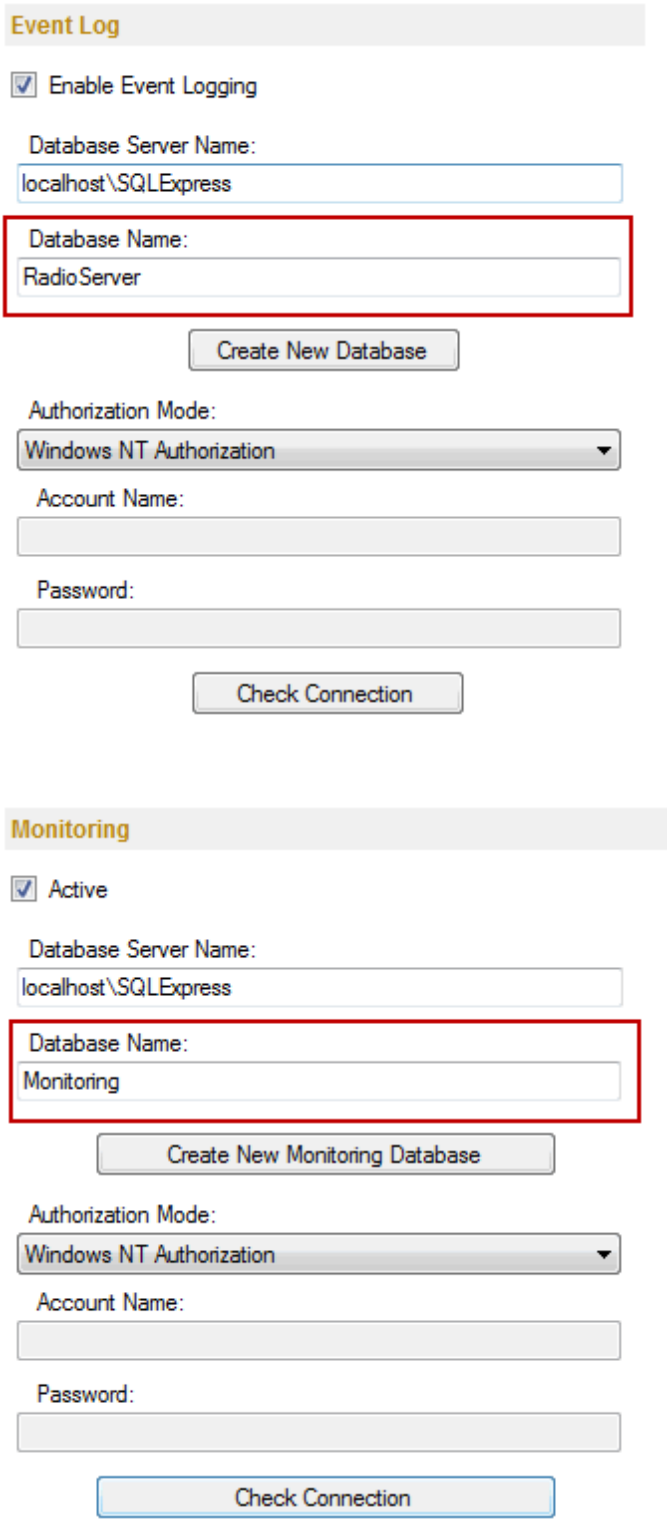
1. Make sure Windows user name and Computer name are different.
2. To install SQL Express to run on x64 Windows, download SQL Server 2008 R2 Express 64-bit here: *http://www.microsoft.com/betaexperience/pd/SQLEXP08V2/enus/default.aspx*

or *http://www.microsoft.com/en-us/download/details.aspx?id=26729*

Can't create database

1. Make sure the **Database Name** field is filled correctly. Read carefully the comments below the **Database Name** field. Right-click **My Computer** and select **Properties** to find the computer name in the **Computer Name** tab. Make sure that the computer name in the **Database Name** field is specified without the domain name, that is only the first part of the name that goes before the dot.
2. Your database name must be other than *database*. This name is used by SQL Server.
3. Make sure **Database Name** is filled correctly. There can be three different databases. One for registering events on SmartPTT Dispatcher (mandatory). Use unique database names.

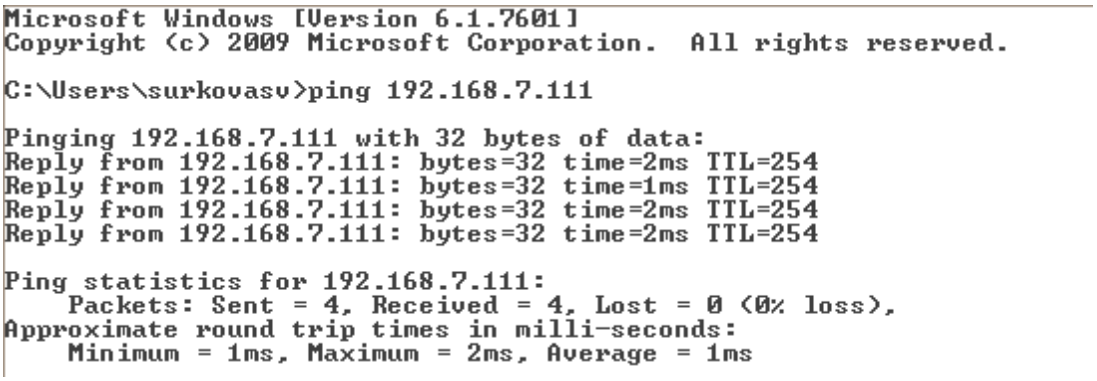



Event Log
Enable Event Logging
Database Server Name:
localhost\SQLExpress
Database Name:
RadioServer
Create New Database
Authorization Mode:
Windows NT Authorization
Account Name:
Password:
Check Connection
Monitoring
Active
Database Server Name:
localhost\SQLExpress
Database Name:
Monitoring
Create New Monitoring Database
Authorization Mode:
Windows NT Authorization
Account Name:
Password:
Check Connection

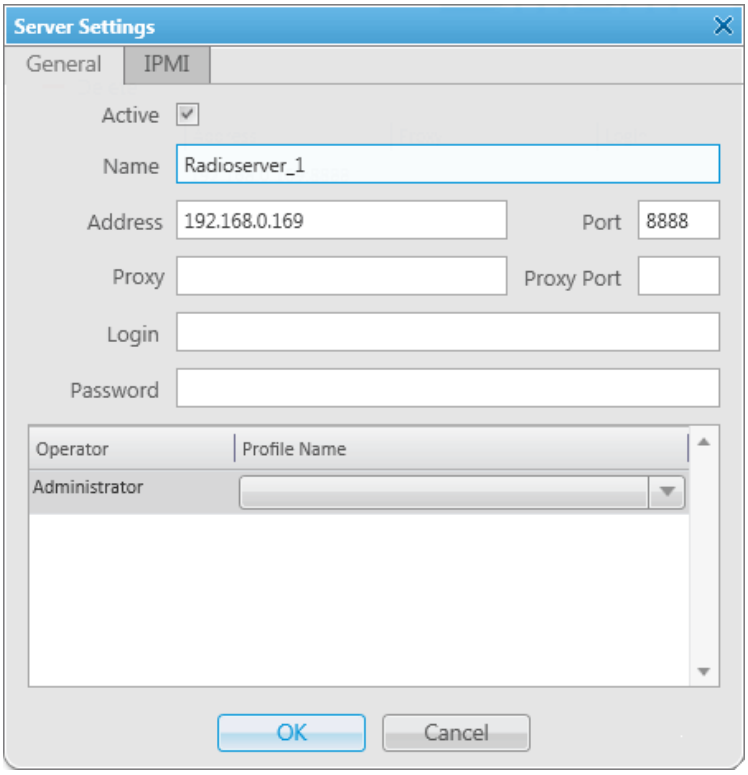
4. Check authentication type. By default, **Windows NT Authorization** is used.

No connection between SmartPTT Dispatcher and Radioserver

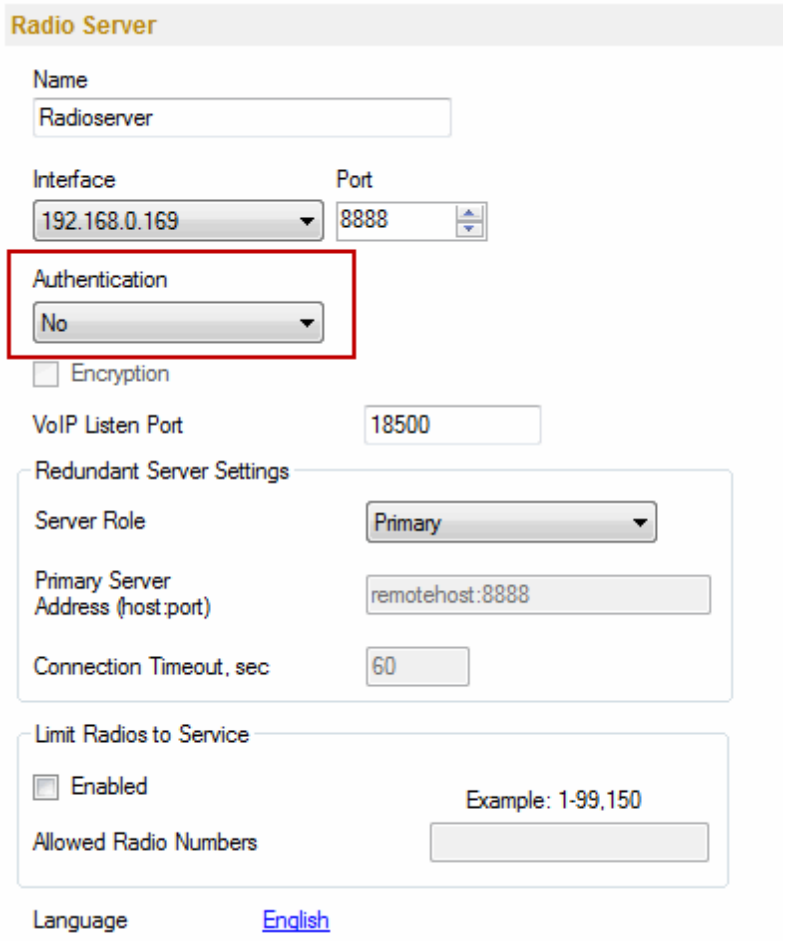
1. If SmartPTT radioserver and dispatch console are installed on different PCs, check network connection between them by executing the ping command.



2. Make sure that SmartPTT Dispatcher and radioserver are configured correctly (**Settings > Radioservers**), that is host:port, login, password, proxy, if necessary.



3. Check the **Authentication** field in SmartPTT radioserver settings. If *No* is selected in the **Authentication** field, the fields **Login** and **Password** must be empty (SmartPTT Radioserver Configurator, **Settings > Radio Servers**). If *Windows* authentication is used, read documentation on Windows Authentication.

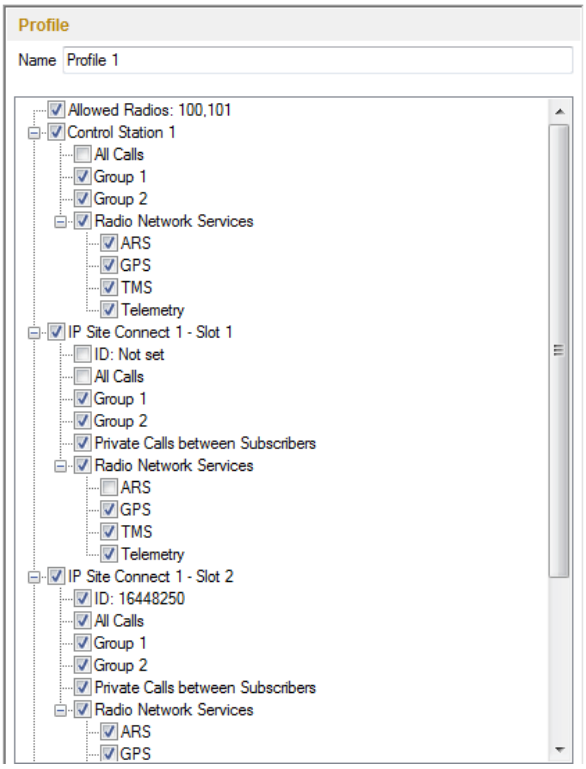


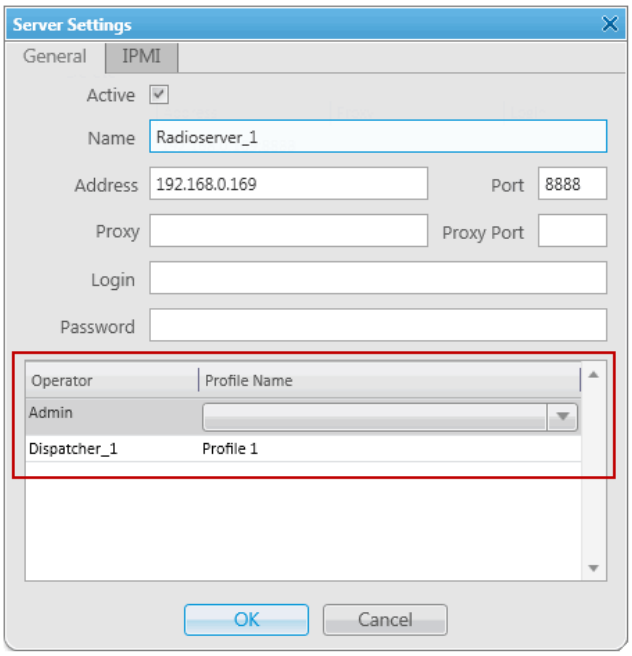
4. Check if Windows Firewall is disabled.

Slots are not displayed in SmartPTT Dispatcher

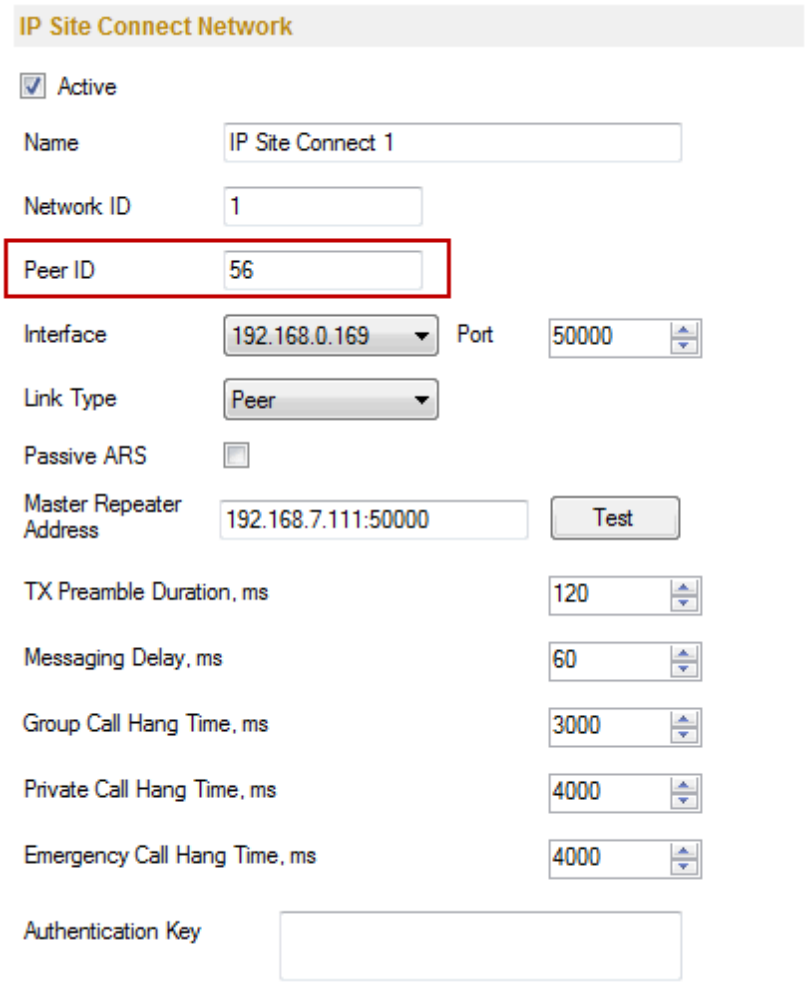
1. Check if Windows Firewall is disabled.

2. Check whether a profile (**Settings > Radio Servers > Operator (Profile name)**) for this dispatcher is added and allows using this system. If a profile name is added in the radioserver settings, delete it, in case it was not designed to restrict functionality.



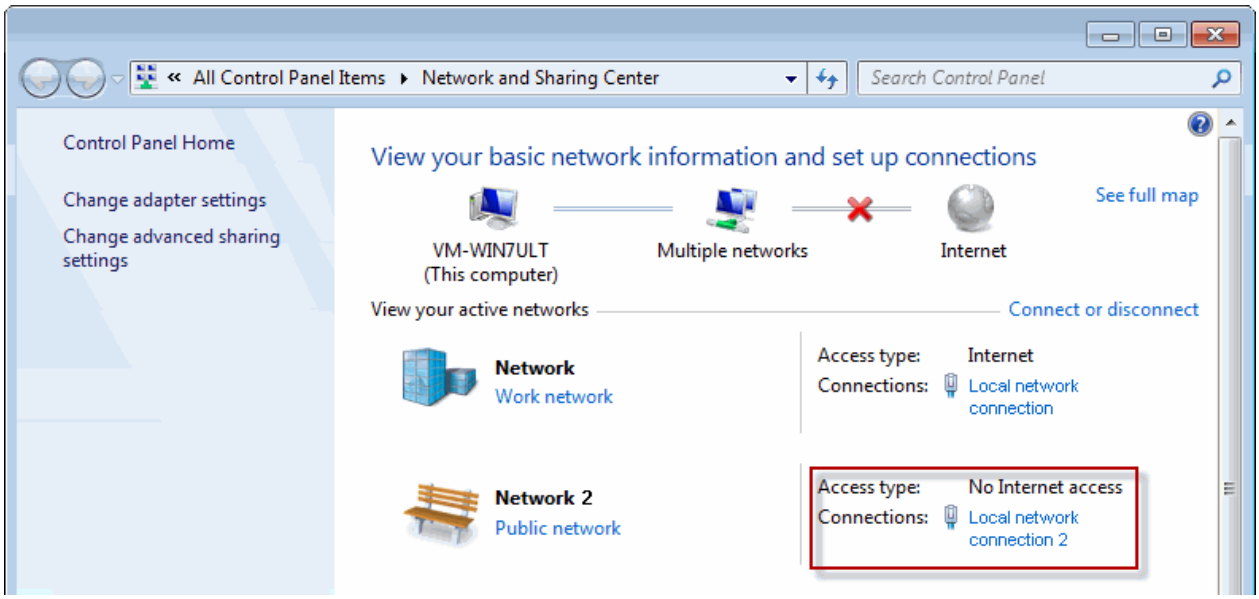


3. **Peer ID** specified in SmartPTT Radioserver Configurator must be unique. Other peer ID's in the system must be different. Make sure that none of the repeaters in the system has the same peer ID.

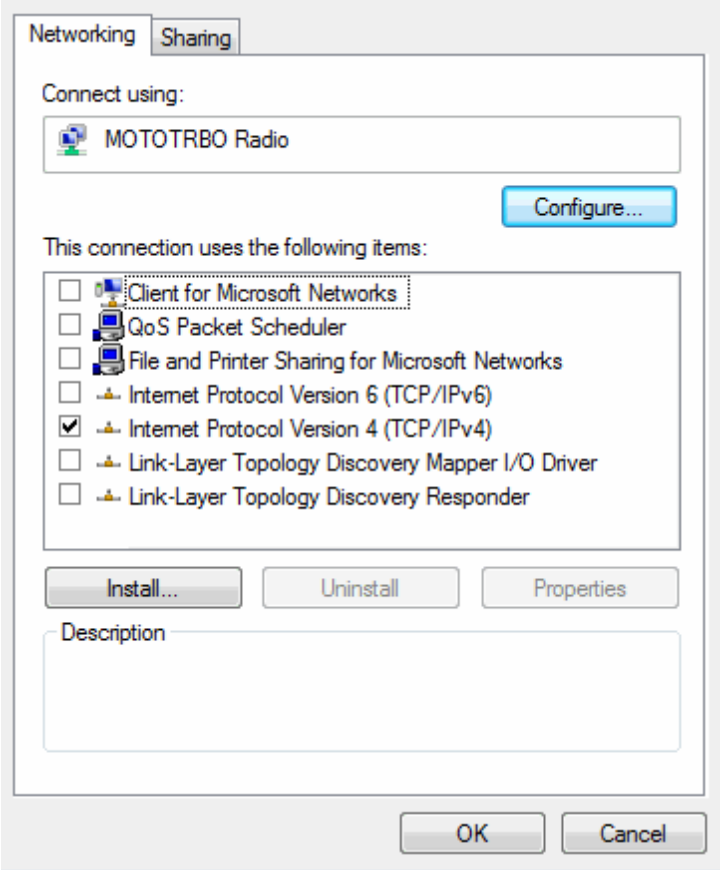


Control station is not displayed in SmartPTT Dispatcher, but Radioserver is there

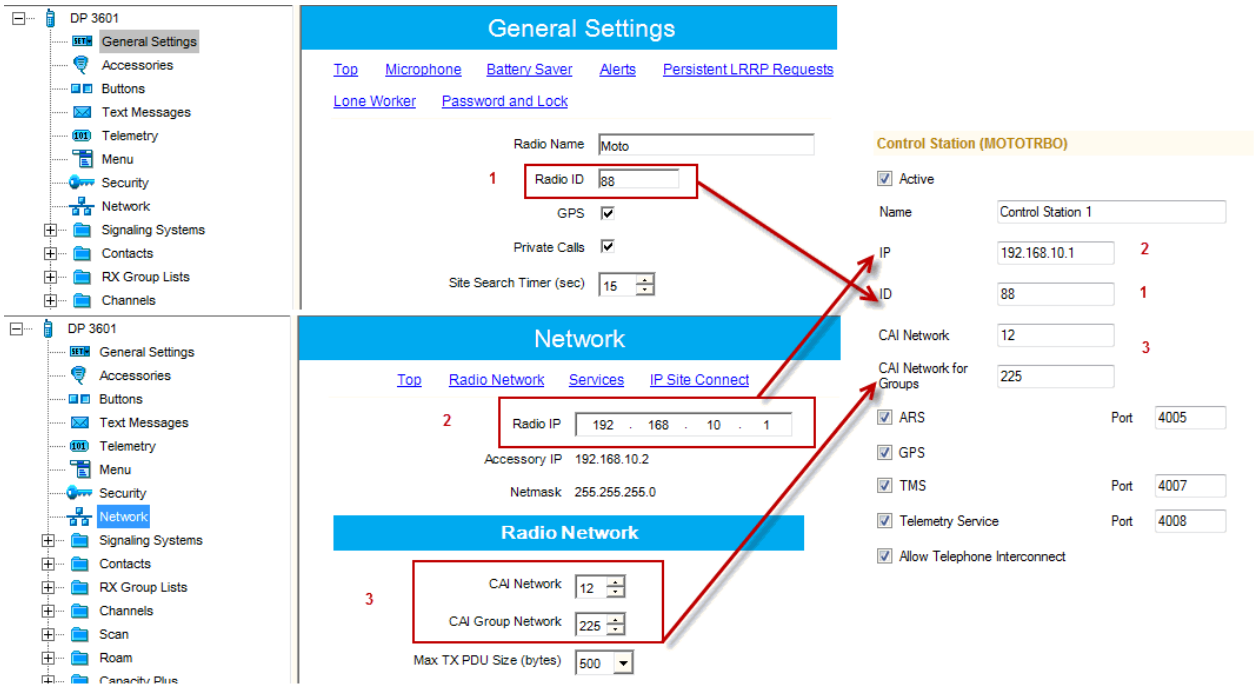
1. Make sure MOTOTRBO control station is installed properly on the computer where the radioserver is installed (MOTOTRBO Radio connection should appear in the state **Connected** in the **Network Connection Properties** window).



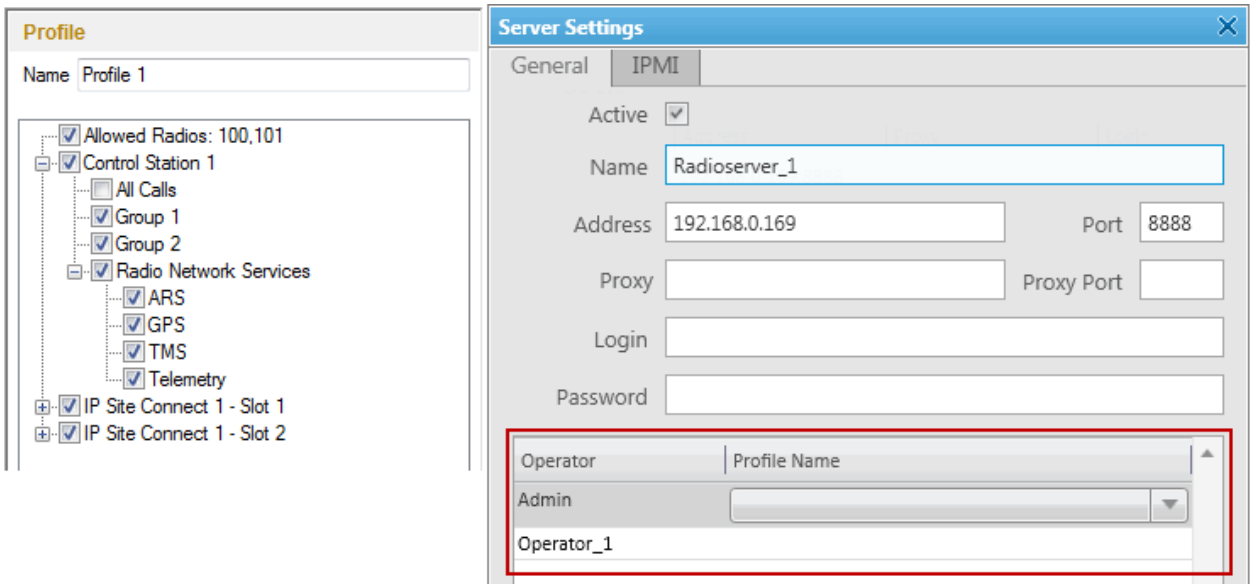
2. In the network connection properties of MOTOTRBO, which is created automatically at connecting the control stations to the computer via USB, disable all the interfaces except for TCP/IP v4.



3. Please check that the control station settings in SmartPTT Radioserver Configurator match the settings of the control station in MOTOTRBO CPS (**IP Address**, **CAI Network**, **CAI Network for Groups**).



4. Please check whether a profile (**Settings > Radio Servers > Operator (Profile name)**) for this dispatcher exists and allows using this control station. If a profile name is added in the **Server Settings** window, delete it, in case it was not designed to restrict functionality.

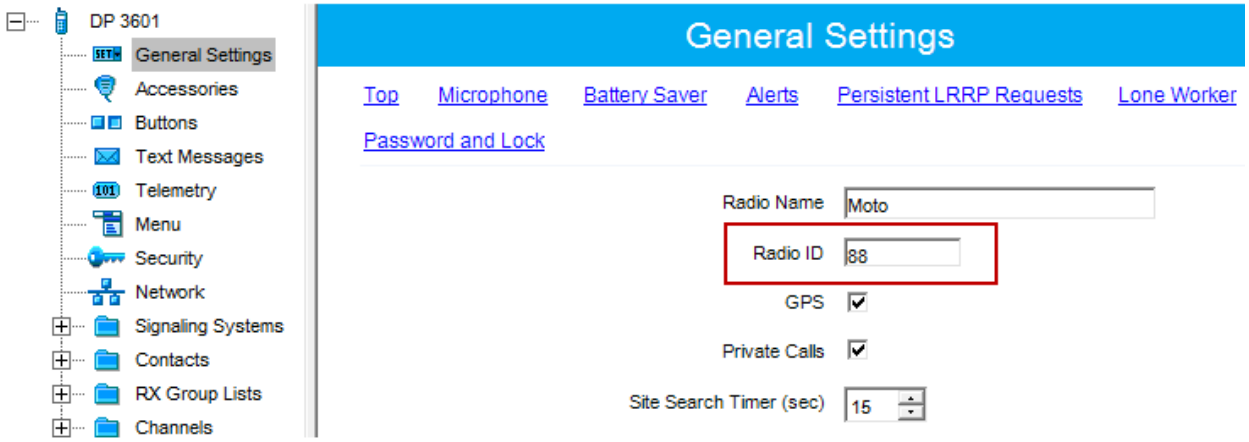


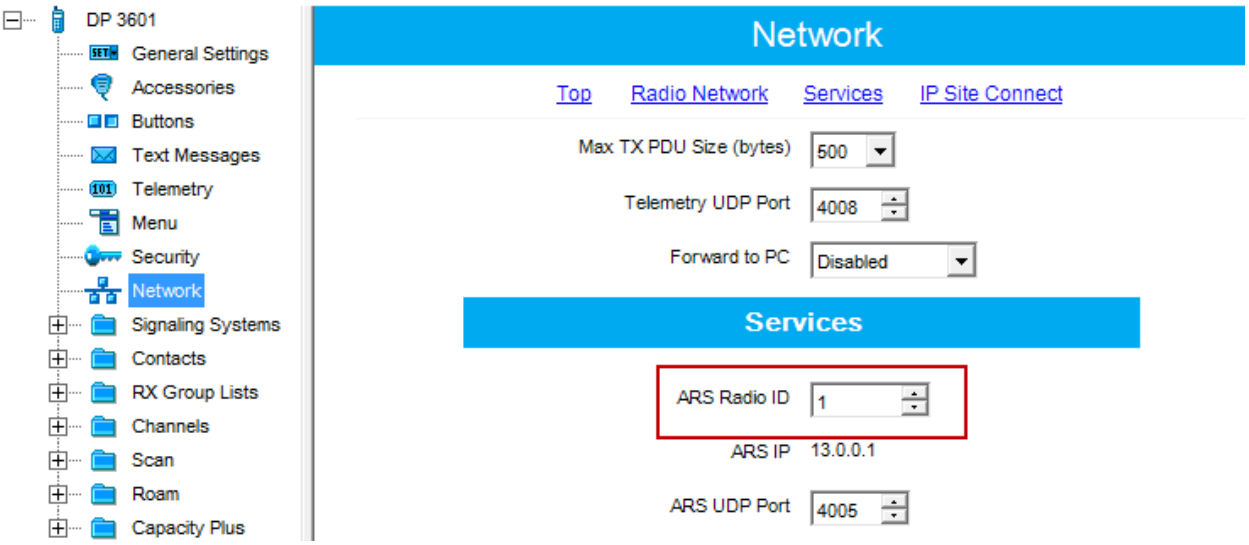
Radio subscribers are Offline

1. *(for control stations)* Check subscriber radio settings in MOTOTRBO CPS. The **Radio ARS ID** value of the radio (the **Network** section) and the **Radio ID** value (the **General Settings** section) must match.

Control Station

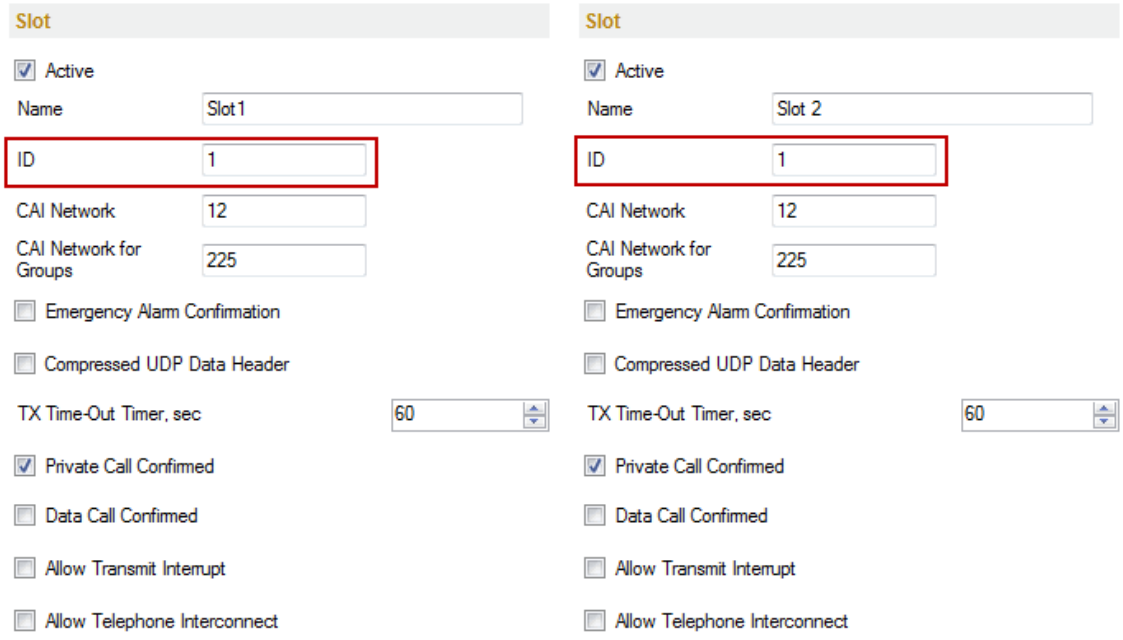
Radio



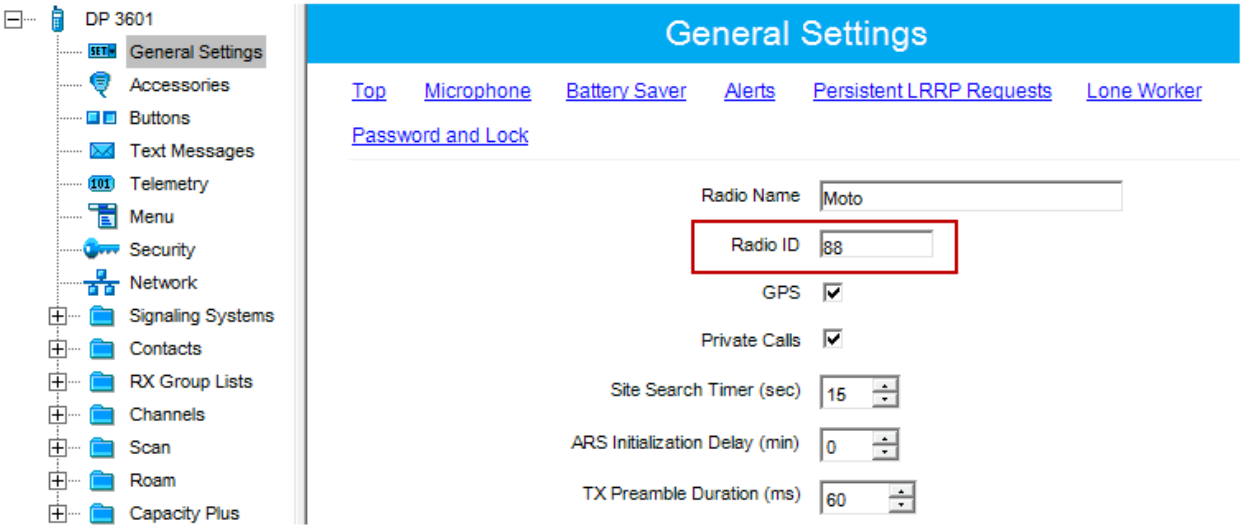


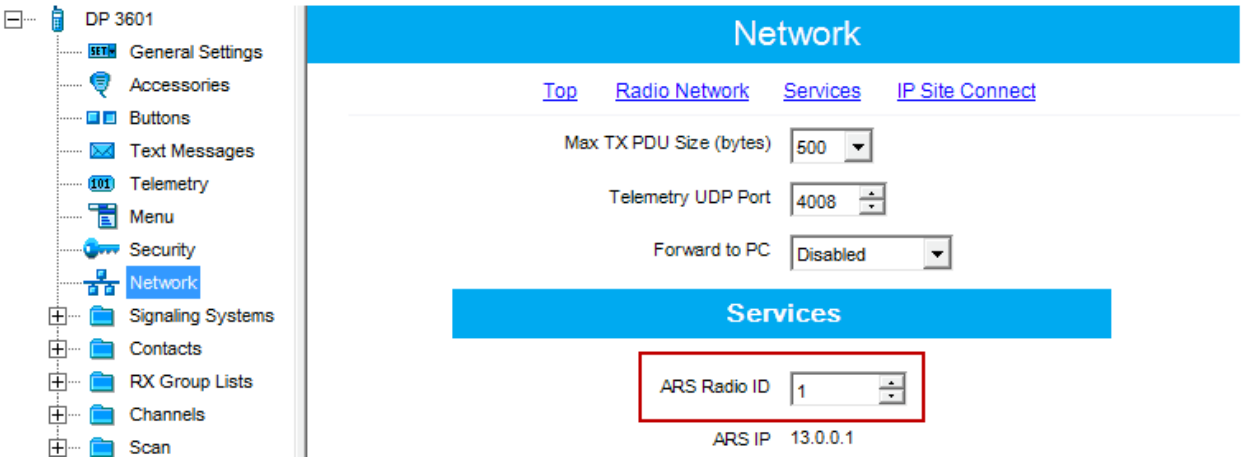
2. *(for system configuration)* Check radio settings in MOTOTRBO CPS. The **Radio ARS ID** and **ID** values of both slots 1 and 2 in SmartPTT Radioserver Configurator in the IP Site Connect system must match.

Radio Server (IP Site Connect)

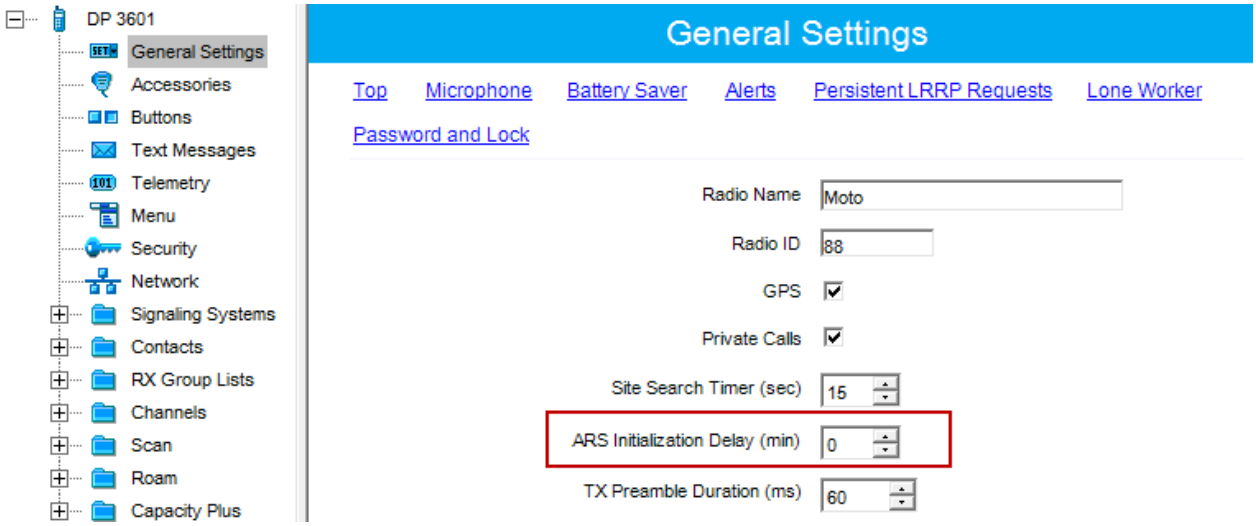


Radio

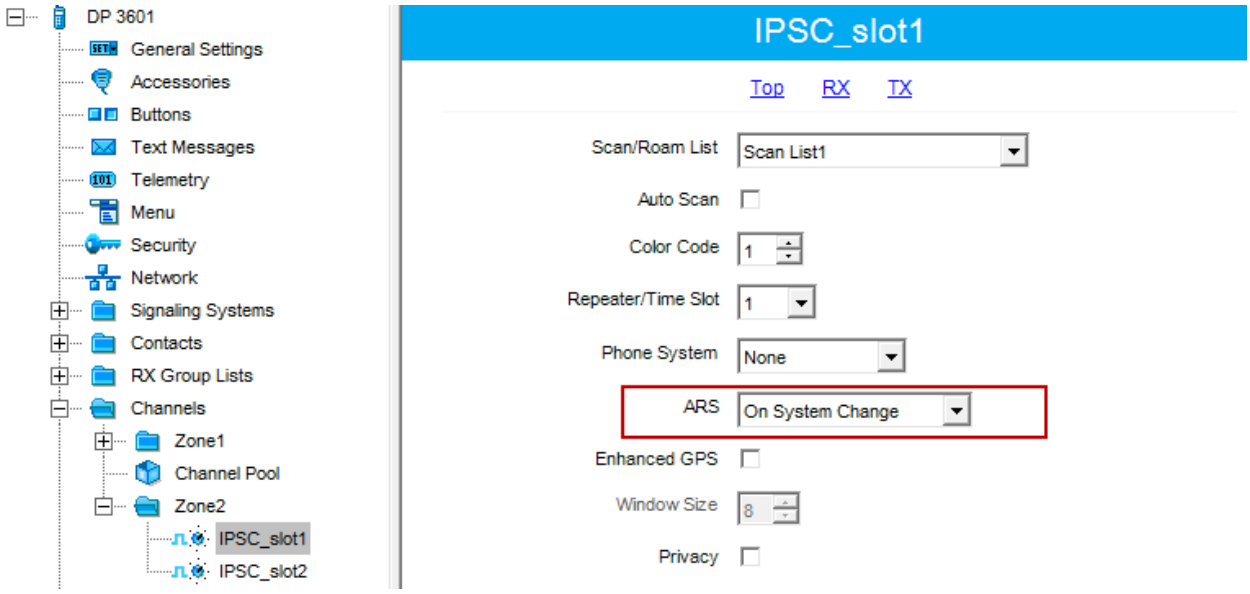




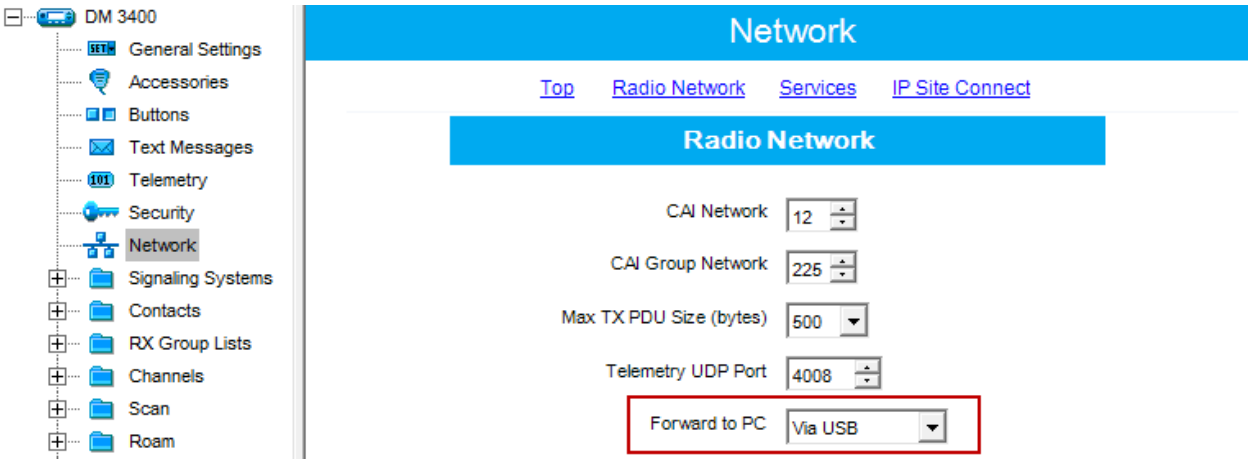
3. Set the **ARS Initialization Delay** value to *0* in the **General Settings** section of the radio in MOTOTRBO CPS.



4. Enable **ARS** in MOTOTRBO CPS in the channel settings of the radio. Select either *On System Change* or *On System/Site Change*.



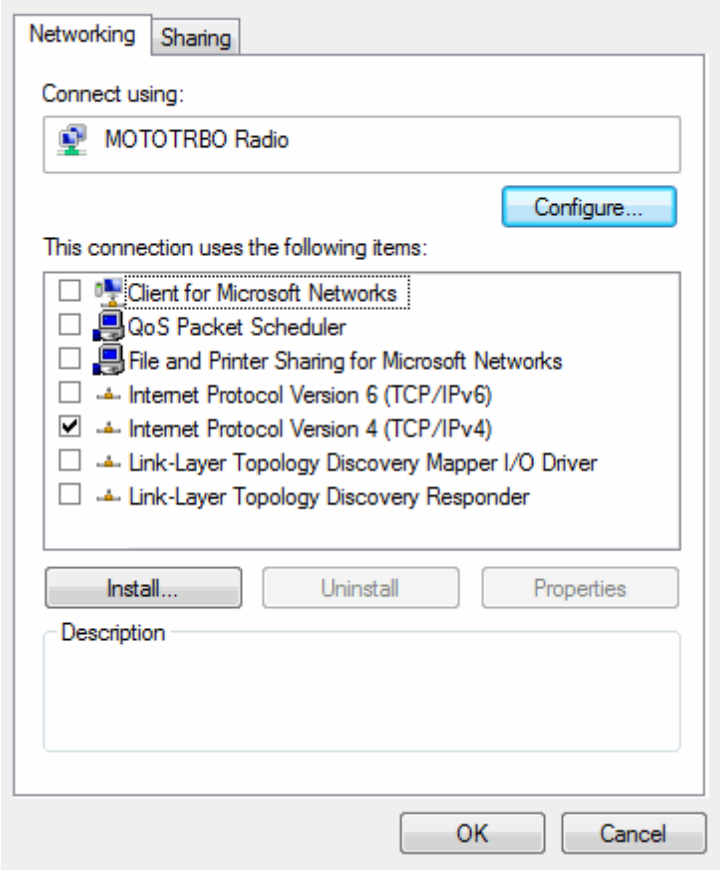
5. *(for control stations)* In the **Forward to PC** field select *Via USB* in the **Network** settings in MOTOTRBO CPS.



6. *(for IP Site Connect configuration)* Make sure that both slots 1 and 2 are selected in the **Network** section in the repeater codeplug.

7. Check **Privacy Type** set for the radio, repeater and SmartPTT radioserver. It is important that the **Privacy Types** and **Privacy Keys** values match. Otherwise, the radio should transmit without privacy set up.

8. *(for control stations)* In the network connection properties of MOTOTRBO, which is created automatically at connecting the control stations to the computer via USB, disable all the interfaces except for TCP/IP v4.



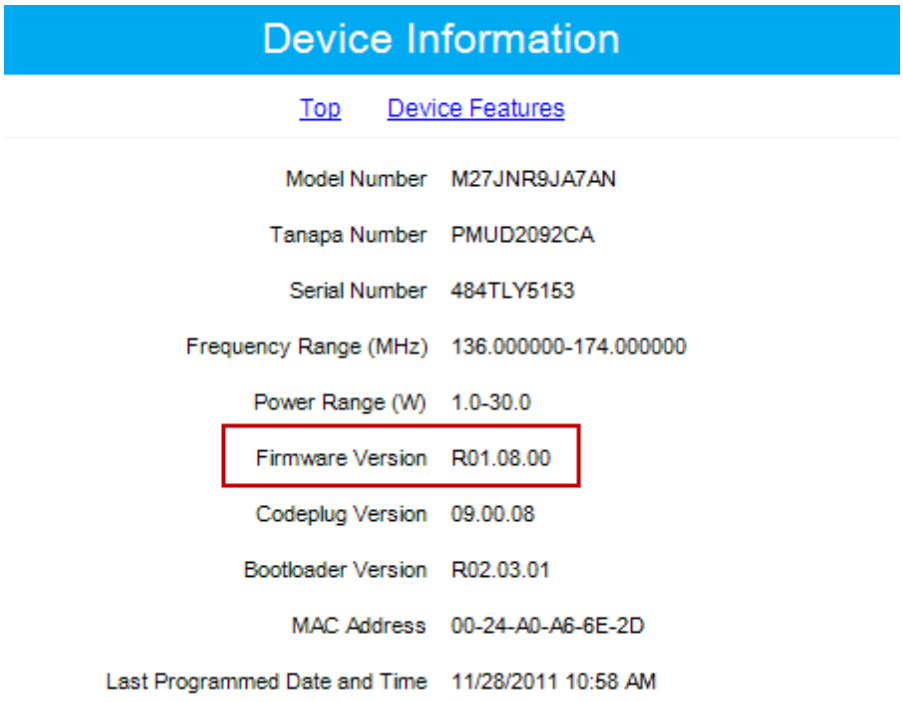
9. Check if Windows Firewall is disabled.

10. *((for control stations) (SmartPTT v7.2.0 and older))* Make sure that routing is configured for the control stations. If the dynamic rout is not added in the routing table, add the following static route:

route -p add 12.0.0.0 mask 255.0.0.0 192.168.10.1, where ***192.168.10.1*** is the IP address of the control station.

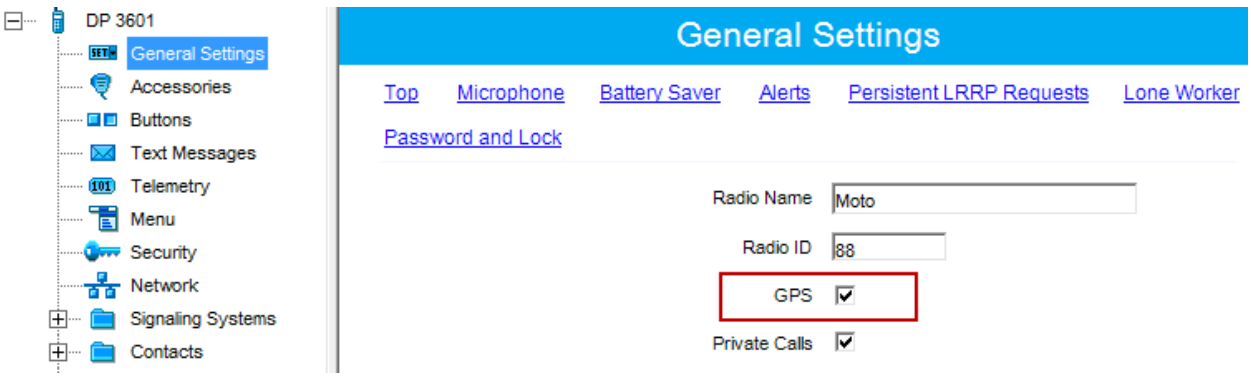
Can't get GPS coordinates

1. In one radio system control stations, repeater and all the subscriber radios must share the same firmware version. Firmware version can't be older than R01.07.00. The recommend version is R01.08.00 and later.

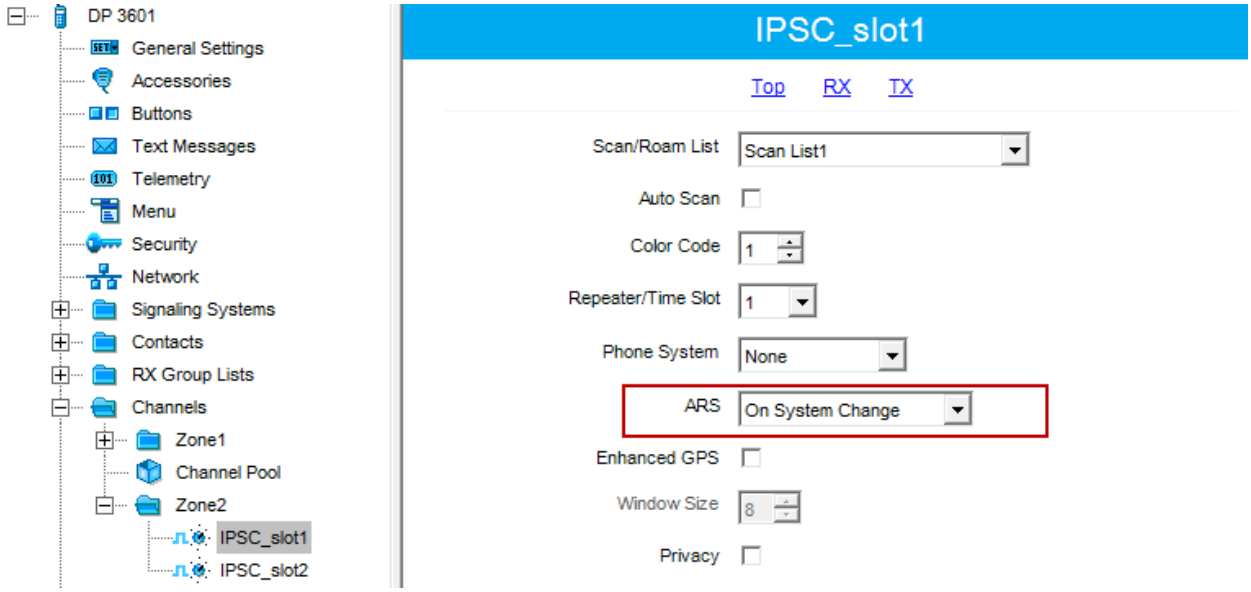


2. Subscriber radios must have an inbuilt GPS module (models DP/DM 3401/3601). The control station can be of any model, even without the GPS module.

3. Enable **GPS** functionality in the **General Settings** of the subscriber radio in MOTOTRBO CPS.



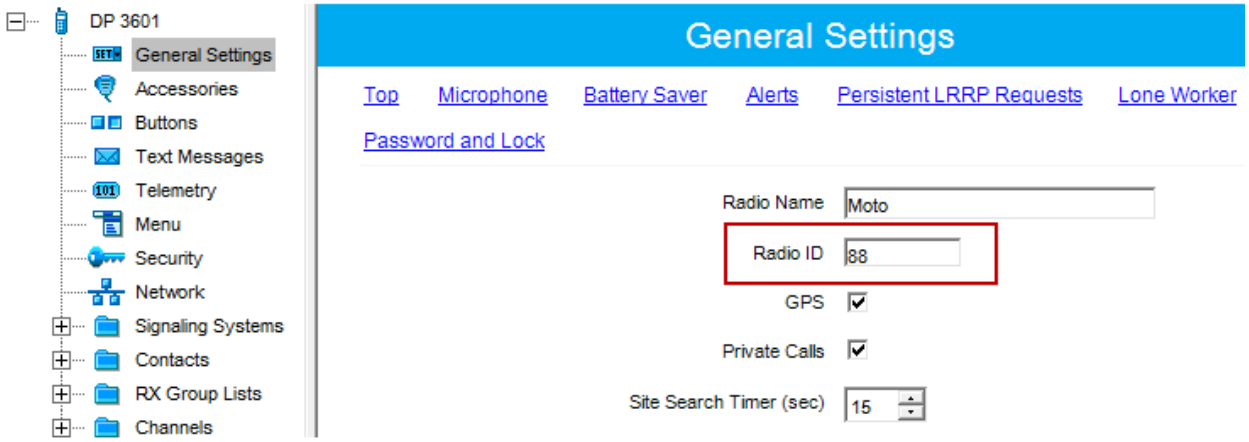
4. Enable **ARS** in the channel settings of the radio in MOTOTRBO CPS. Select either *On System Change* or *On System/Site Change*.

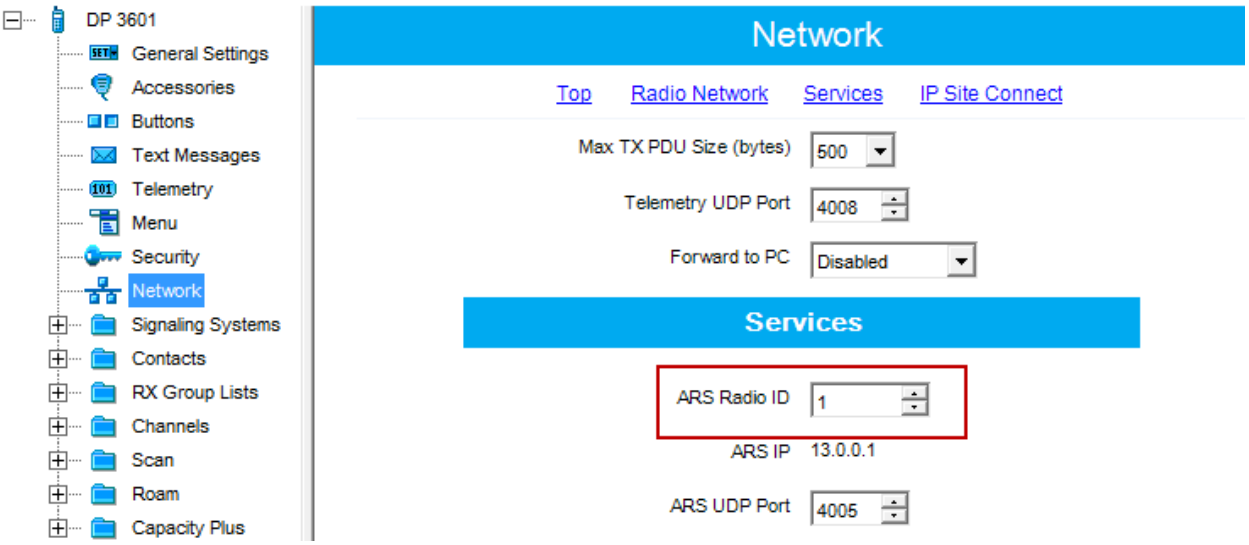


5. *(for control stations)* Check subscriber radio settings in MOTOTRBO CPS. The **Radio ARS ID** of the radio (the **Network** section) and the **Radio ID** (the **General Settings** section) must be the same.

Control Station

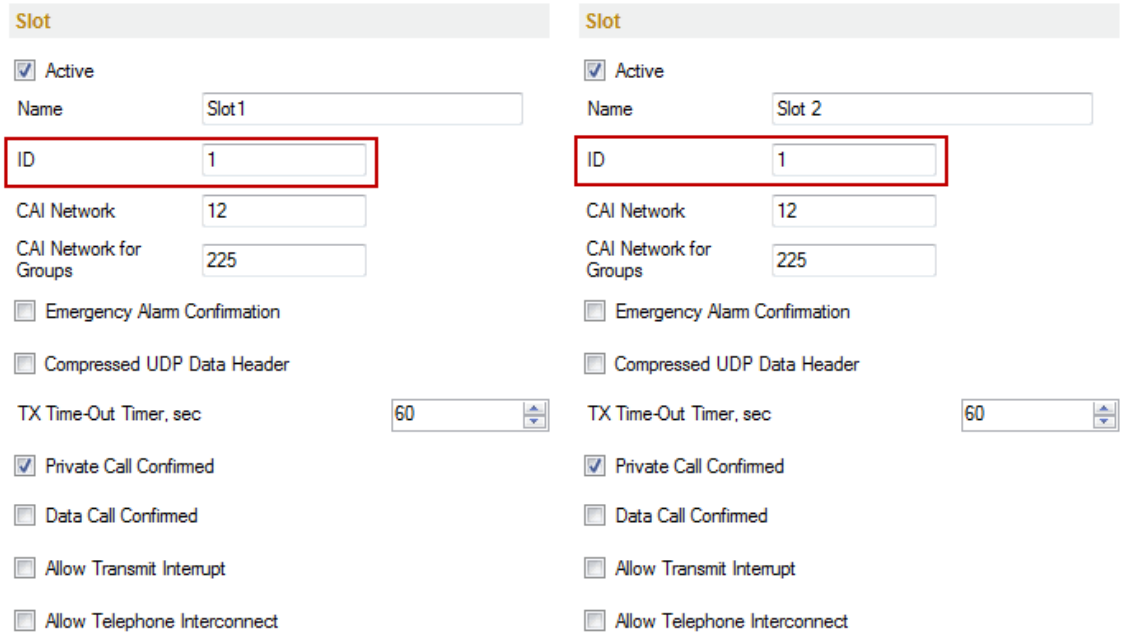
Radio



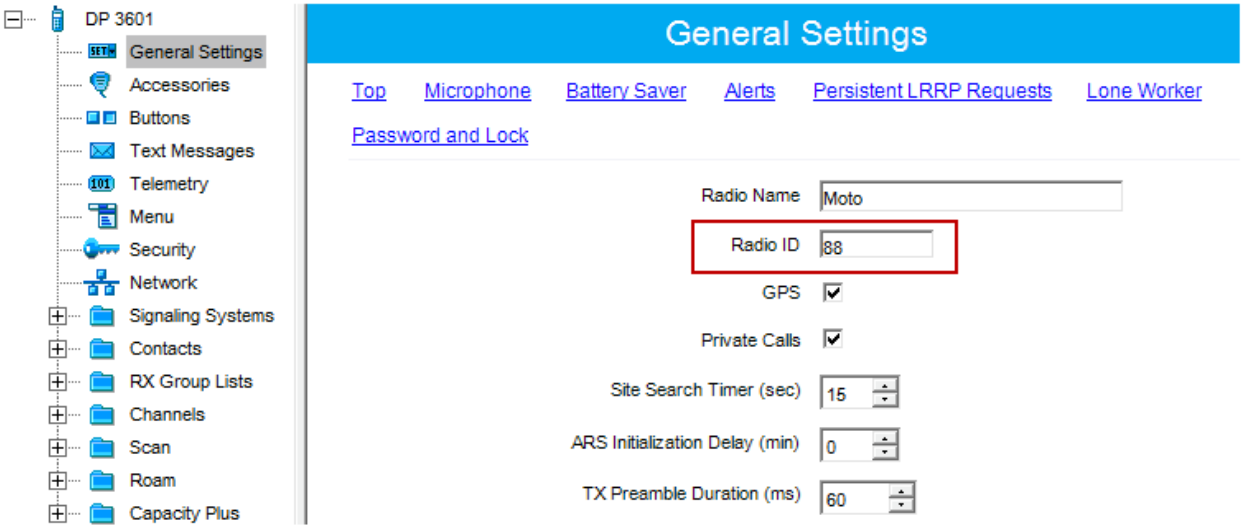


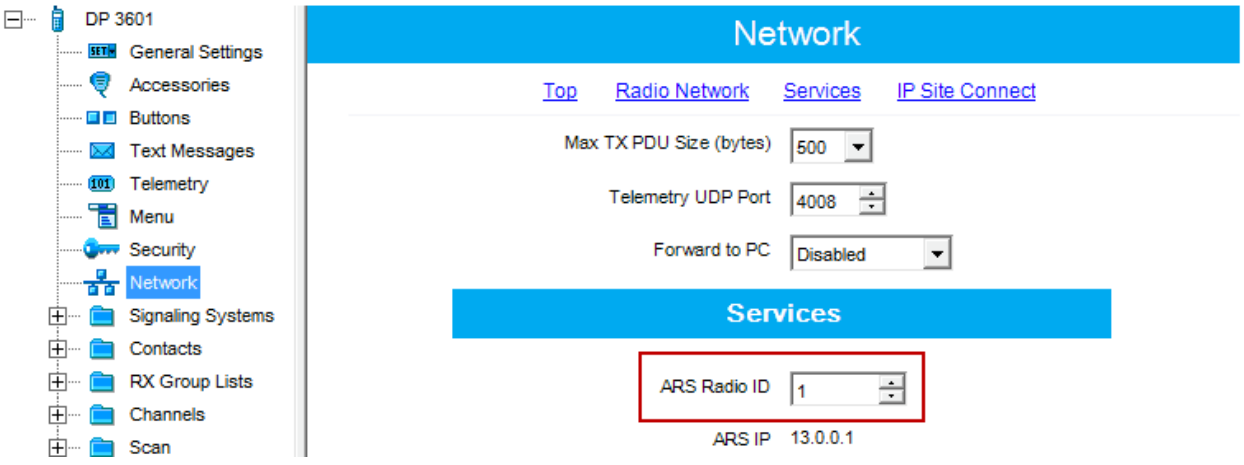
6. *(for system configuration)* Check radio settings in MOTOTRBO CPS. The **Radio ARS ID** and **ID** values of both slots 1 and 2 in SmartPTT Radioserver Configurator in the system must be the same.

Radio Server (IP Site Connect)



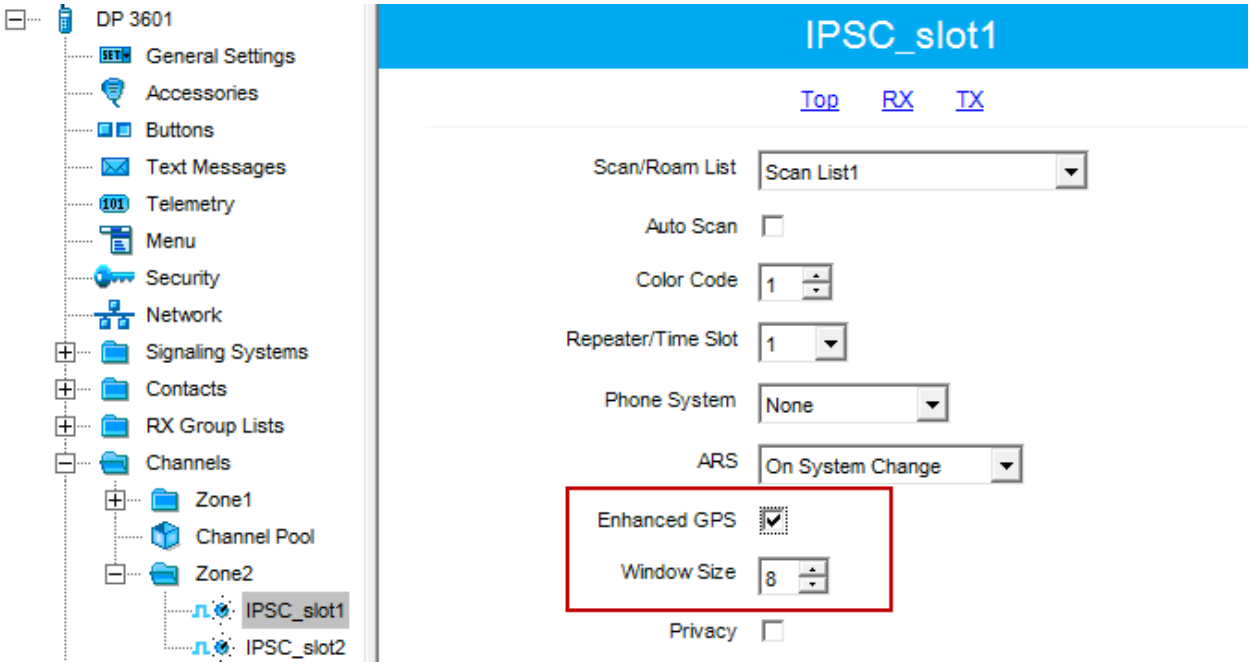
Radio





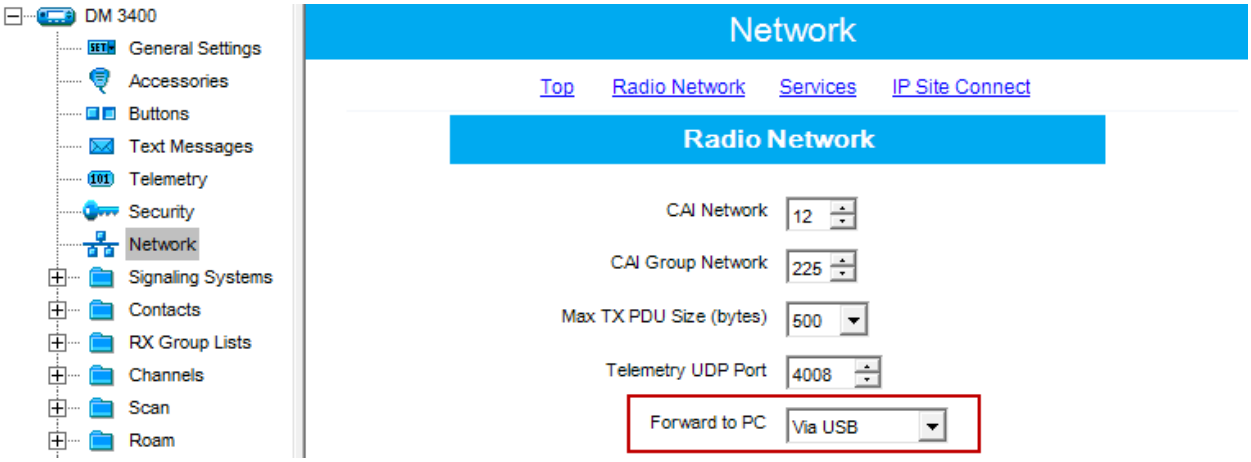
7. *(for system configuration)* Make sure that both slots 1 and 2 are selected in the **Network** section in the repeater codeplug.

8. If enhanced GPS is used, check that the **Window size** is set to *8* in the channel settings of the repeater and subscriber radios in MOTOTRBO CPS.

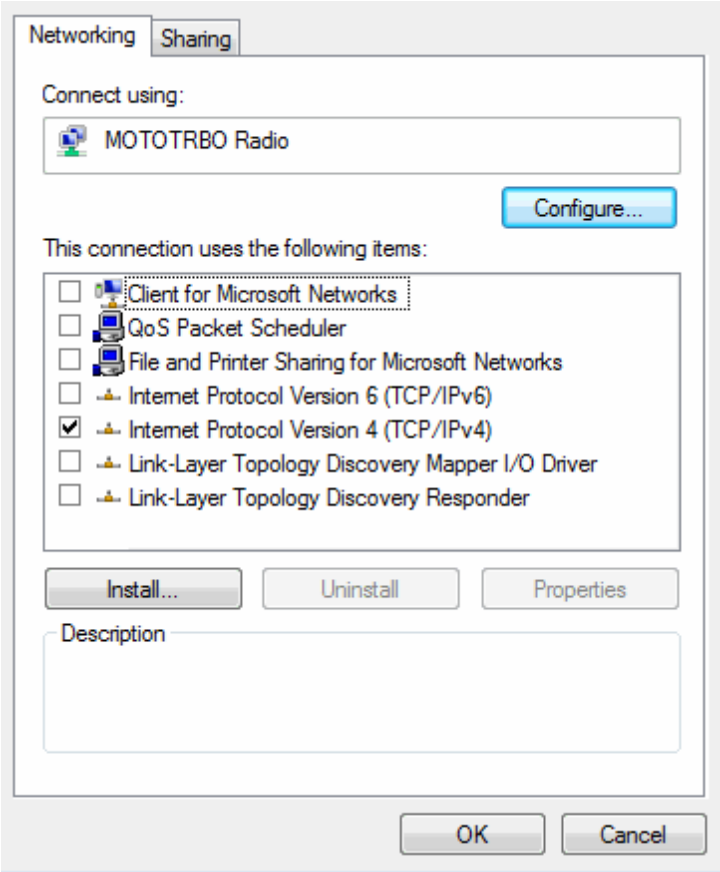


9. Check if Windows Firewall is disabled.

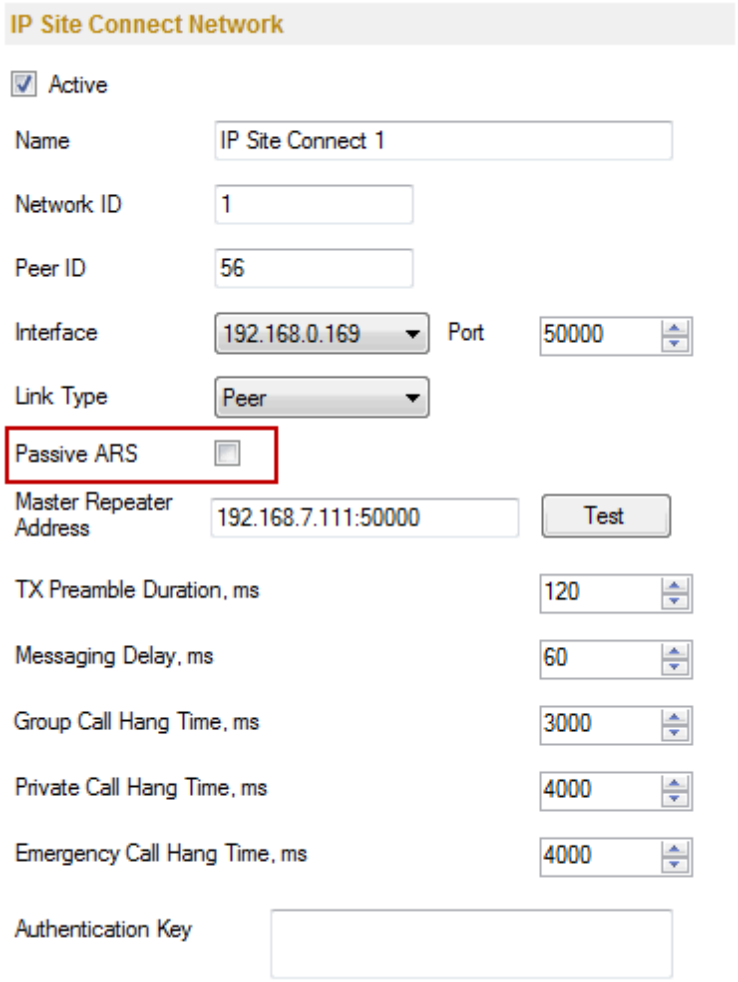
10. *(for control stations)* For the field **Forward to PC** select *Via USB* in the **Network** settings in MOTOTRBO CPS.



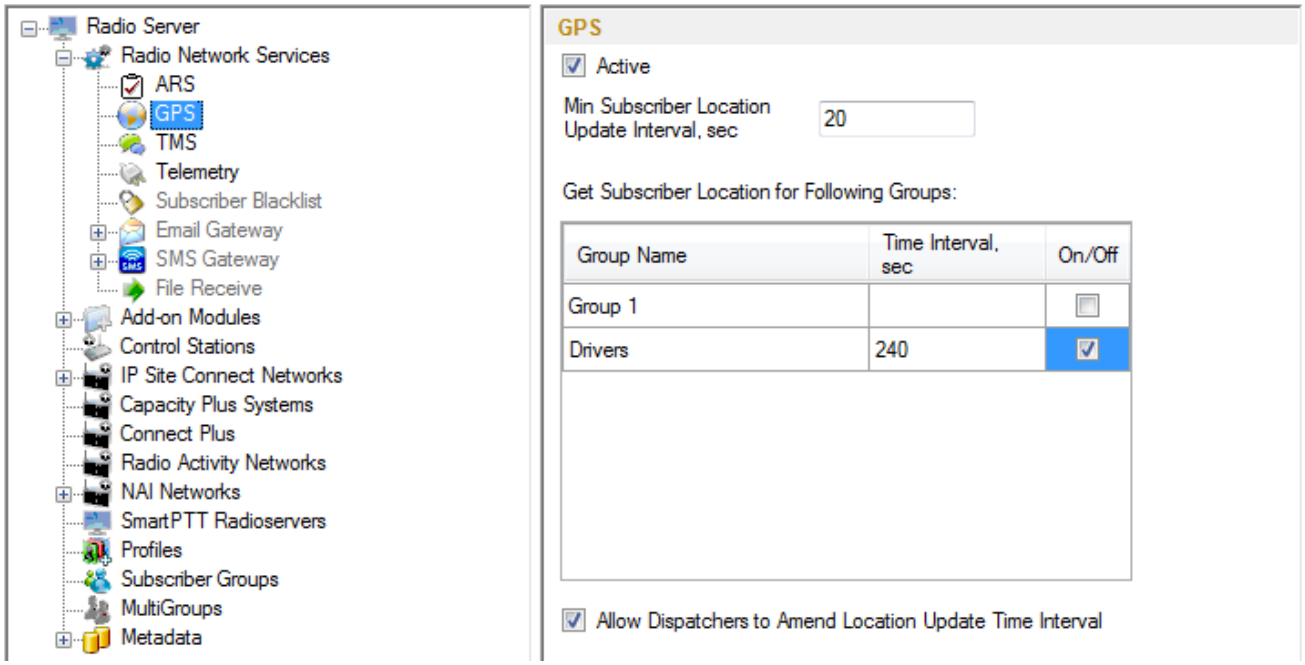
11. *(for control stations)* In the network connection properties of MOTOTRBO, which is created automatically at connecting the control stations to the computer via USB, disable all the interfaces except for TCP/IP v4.



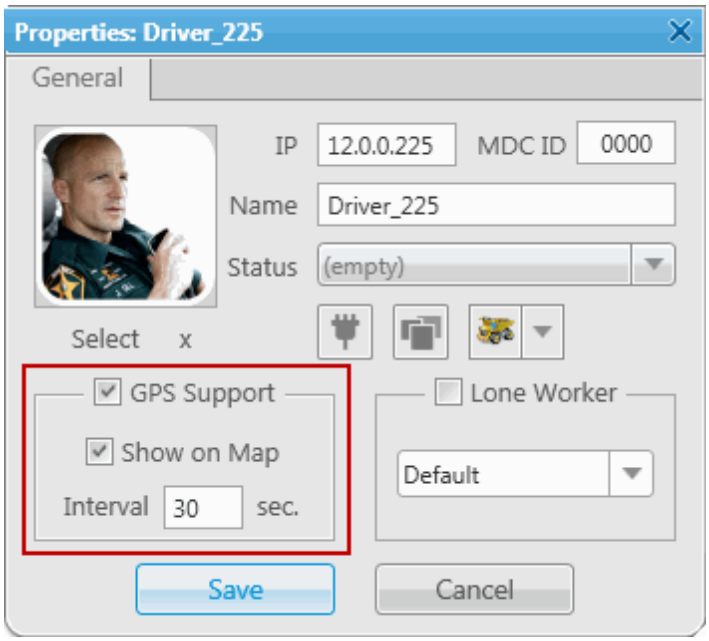
12. *(for system configuration)* Clear the **Passive ARS** checkbox in the system settings in SmartPTT Radioserver Configurator.



13. Check the **Location Service** settings in SmartPTT Radioserver Configurator. If the **Allow Dispatcher to Amend Location Update Time Interval** checkbox is not selected, the dispatcher won't be able to change the location update time interval, which is specified in SmartPTT Radioserver Configurator for a group of radio subscribers. If the **Allow Dispatcher to Amend Location Update Time Interval** checkbox is not selected and **Location Service** is disabled for a particular group of radio subscribers, the dispatcher won't be able to receive GPS coordinates from the radio subscribers of this group.



14. If the **Allow Dispatcher to Amend Location Update Time Interval** checkbox is selected in the **Location Service** window of SmartPTT Radioserver Configurator, make sure that in the **Subscriber Properties** window of SmartPTT Dispatcher the **Show on Map** checkbox is selected, and the time interval for GPS coordinates update is set.



15. *(for control stations) (SmartPTT v7.2.0 and older))* Make sure that routing is configured for the control stations properly. If the dynamic rout is not added, add the following static route:

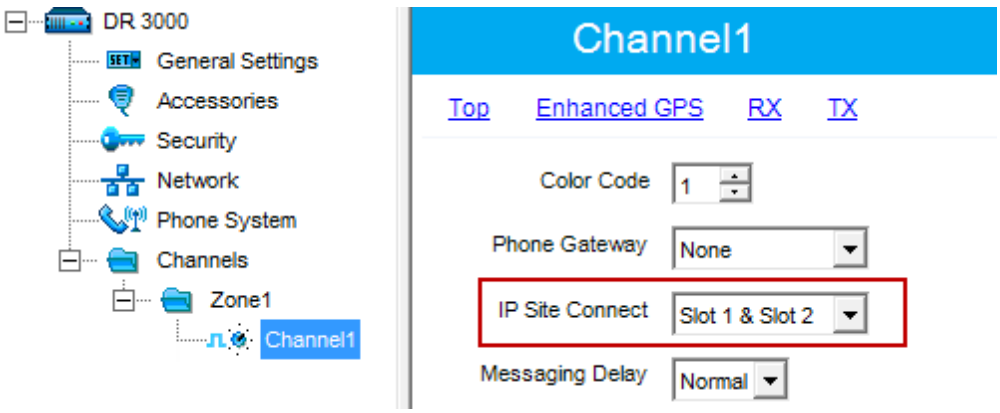
route -p add 12.0.0.0 mask 255.0.0.0 192.168.10.1, where ***192.168.10.1*** is the IP address of the control station.

Calls do not get through

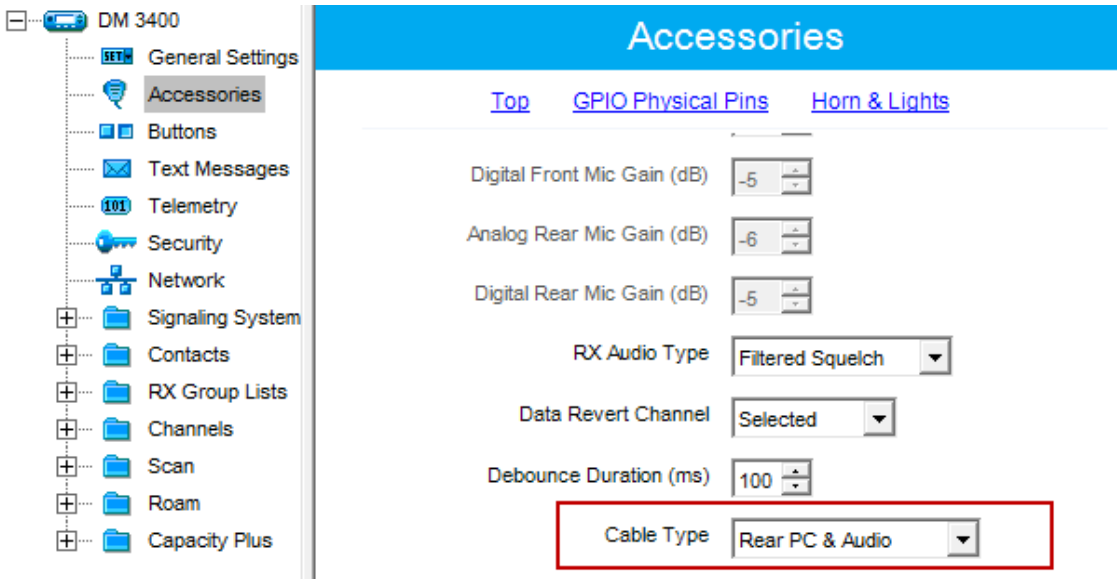
1. Reboot your PS(s) where SmartPTT Radioserver Configurator and SmartPTT Dispatcher are installed.

2. Switch off/on the control station and/or repeater.

3. *(for system configuration)* Make sure that both slots 1 and 2 are selected in the **Network** section in the repeater codeplug.



4. Select *Rear PC and Audio* in the control station settings (**MOTOTRBO > Accessories > Cable Type**).



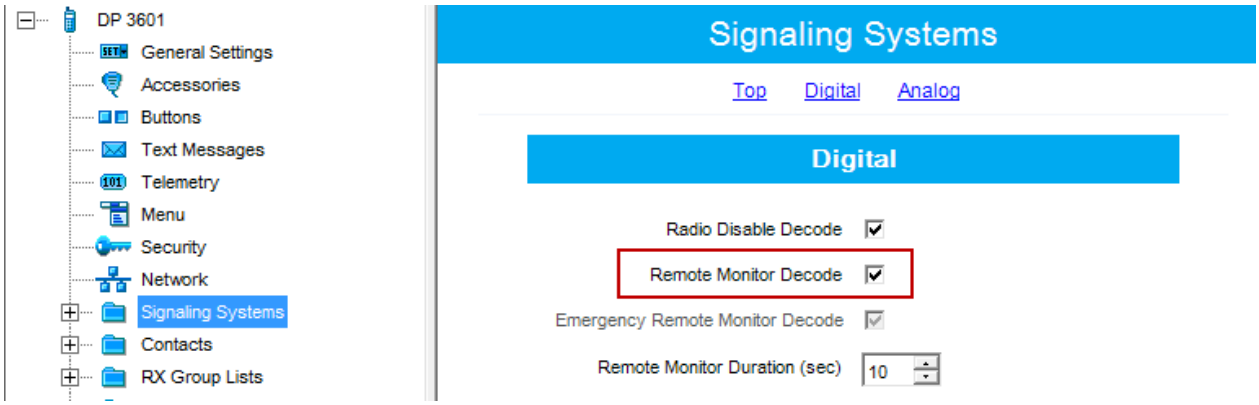
5. Make sure that the radios and repeaters or base stations are programmed correctly.

6. Test the cable connecting the control stations and the computer for correct pinouts.

7. Disable Windows Firewall.

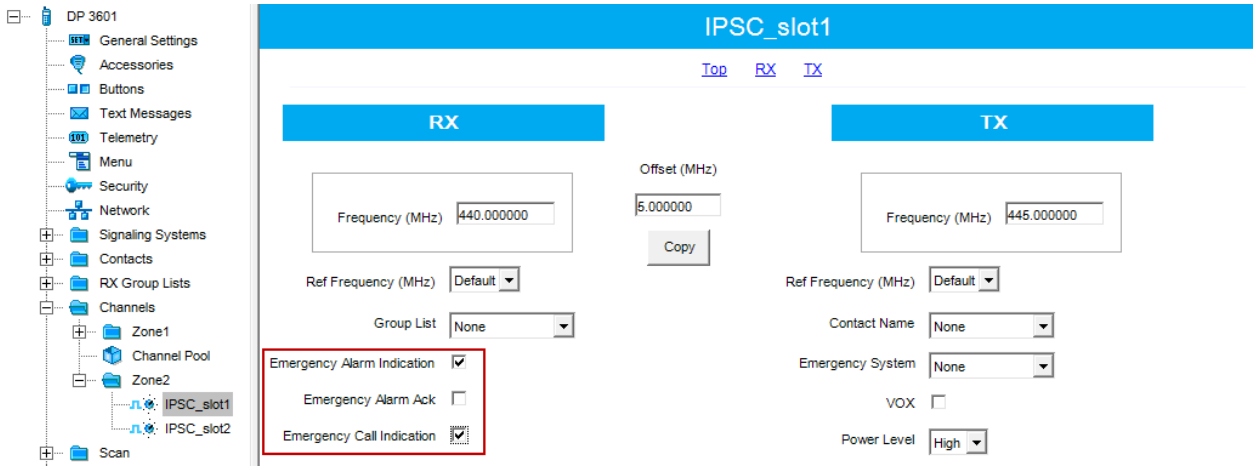
Remote monitoring does not work

To enable remote monitoring, clear the **Remote Monitor Decode** checkbox in in the **Signaling Systems** section of the radio configuration settings in MOTOTRBO CPS.

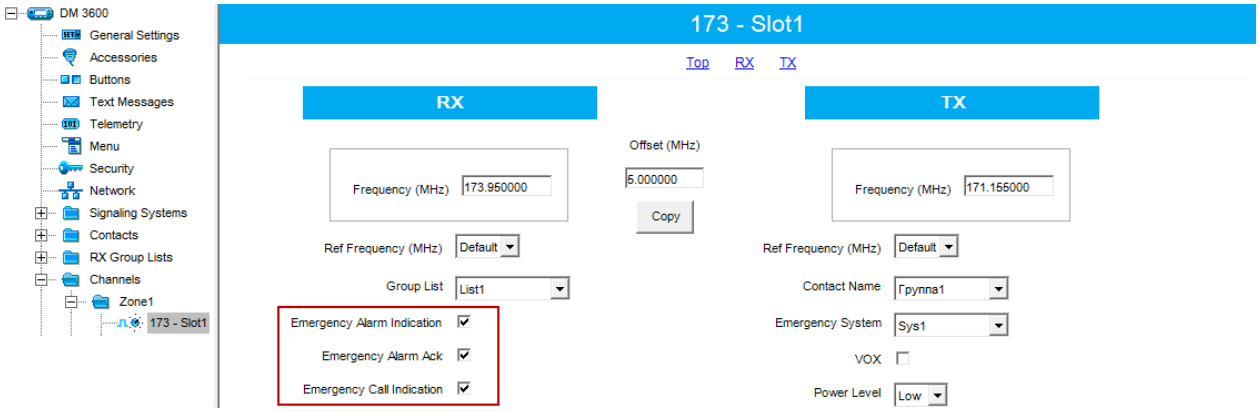


Orange button does not work, emergency alarm signal does not get through

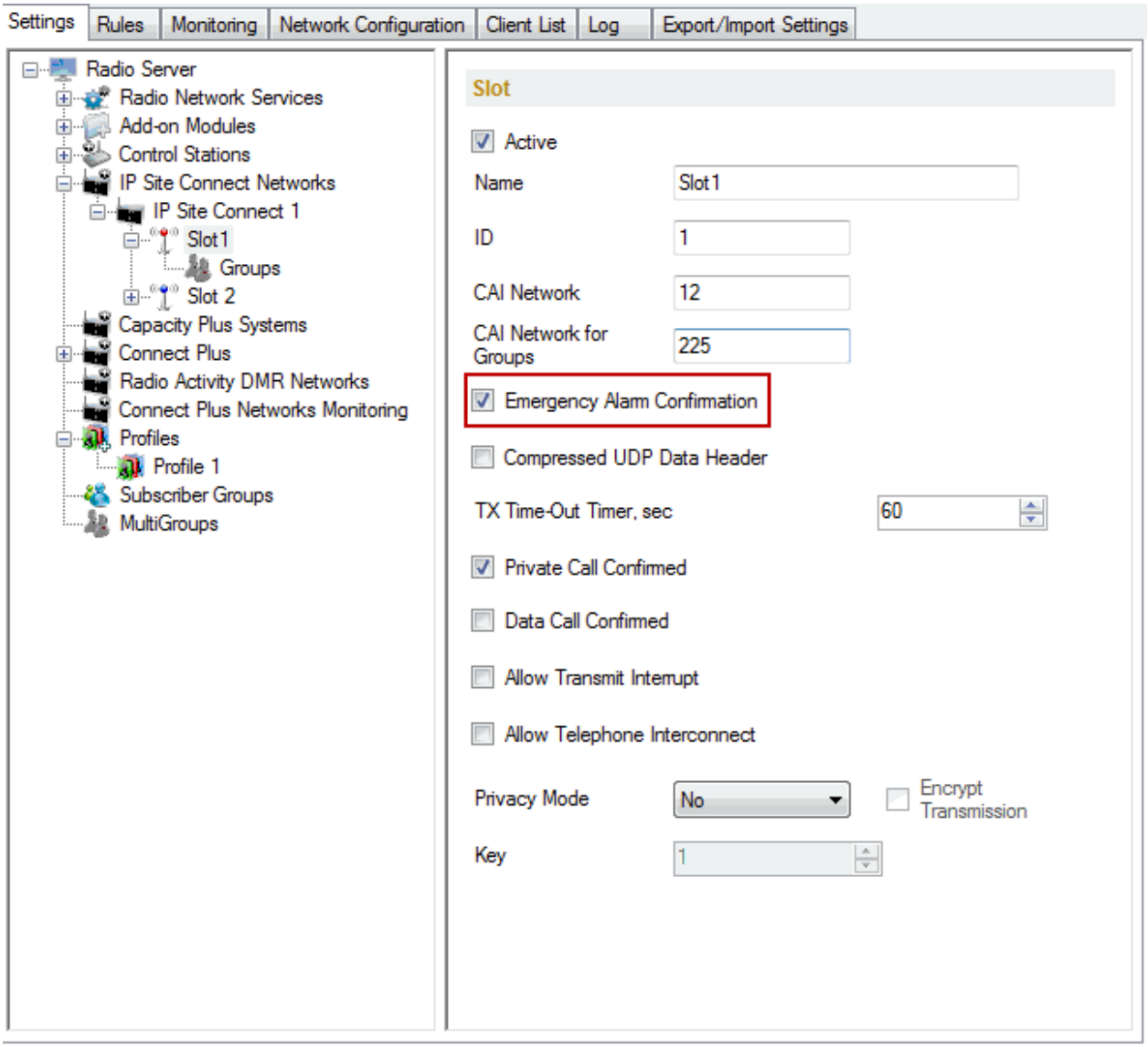
1. Clear the **Emergency Alarm Indication** and **Emergency Call Indication** checkboxes in the channel settings of the subscriber radio in MOTOTRBO CPS.



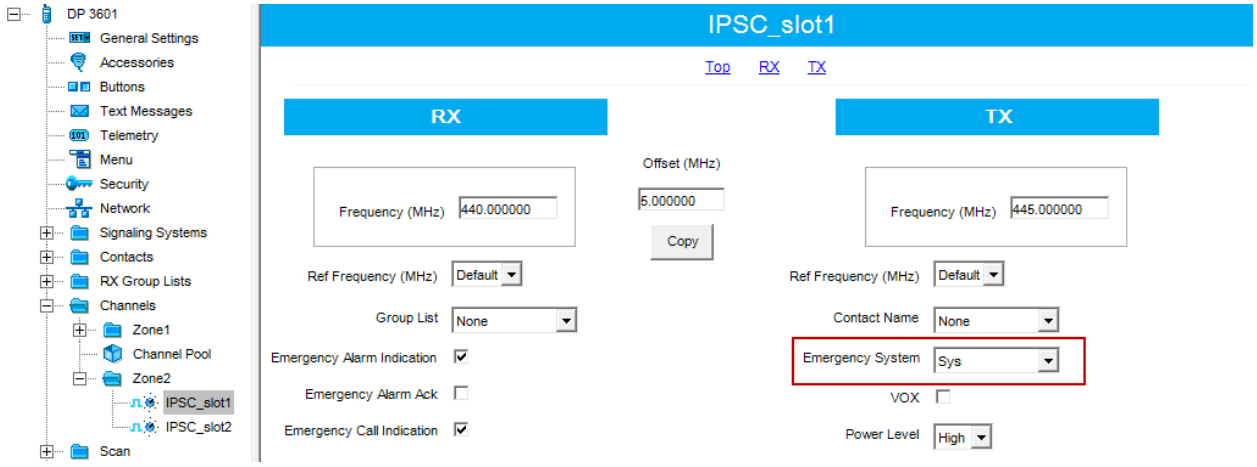
2. *(for control stations)* Clear the **Emergency Alarm Indication**, **Emergency Alarm Ack** and **Emergency Call Indication** checkboxes in the channel settings of the subscriber radio in MOTOTRBO CPS.



3. *(for system configuration)* Clear the **Emergency Alarm Confirmation** checkbox for both slots 1 and 2 in SmartPTT Radioserver Configurator. Save the changes and restart the service.

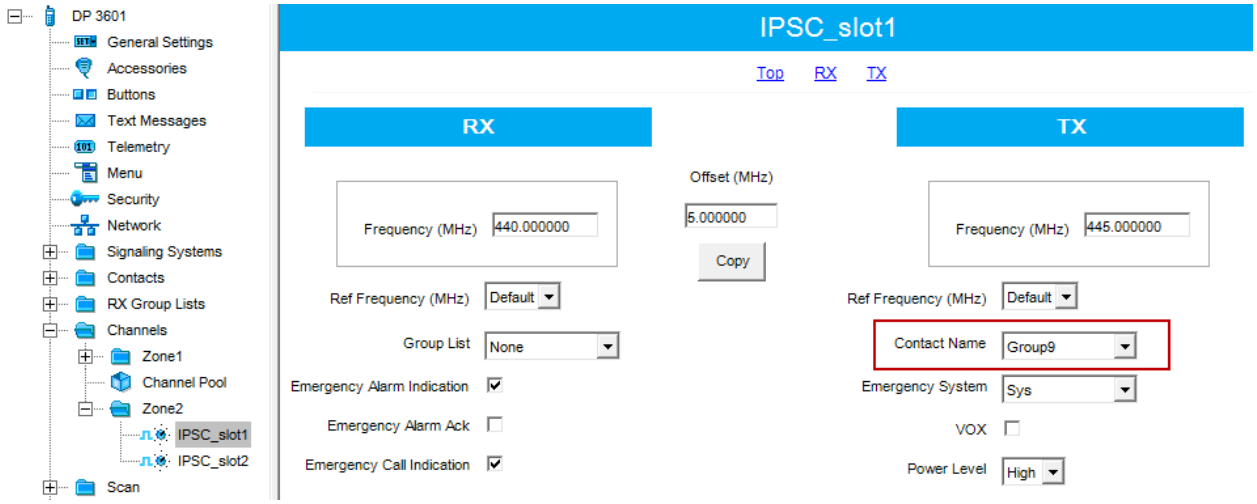


4. Make sure that the **Emergency Signaling System** in the channel settings of a subscriber radio in MOTOTRBO CPS is configured properly (**Signaling Systems > Digital Emergency**).



5. Select *Group Call* in the **Contact Name** field in the channel settings of a subscriber radio.

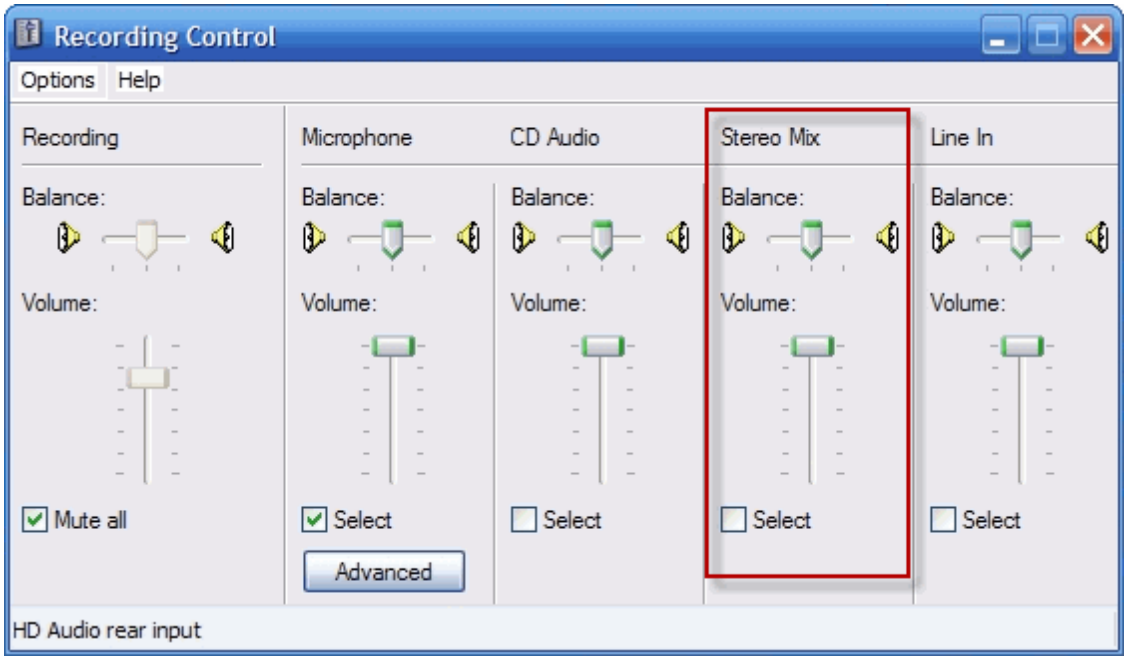
Add **Group Call** in the **Contacts** section in advance and then select the newly added group call in the **Channels** settings.



6. *(for control stations)* Make sure that its model is one of the following with a display DM3600/3601/4600/4601 . Otherwise, the emergency call will be displayed as a usual group call. In order to receive emergency alarm signal, the control stations must confirm it. For this purpose the **Emergency Alarm Confirmation** checkbox should be selected in MOTOTRBO CPS. Control stations without screen do not have the ability to confirm emergency alarm.

Telephone subscribers can hear themselves through interlocutor

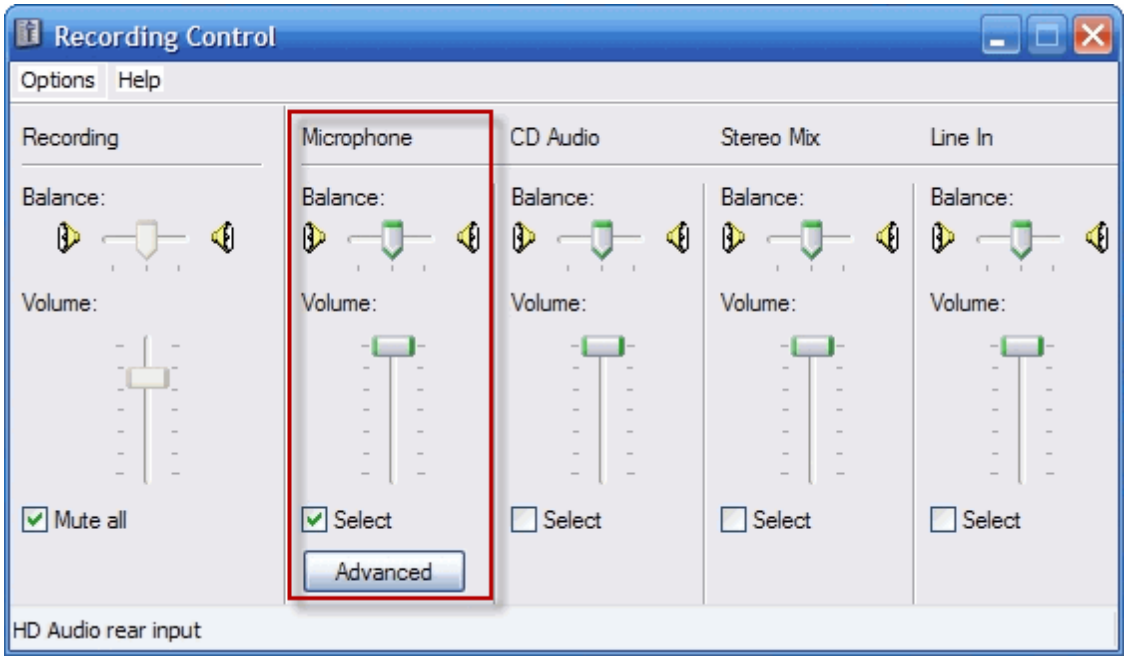
Switch off **Stereo Mix** in the sound card settings.



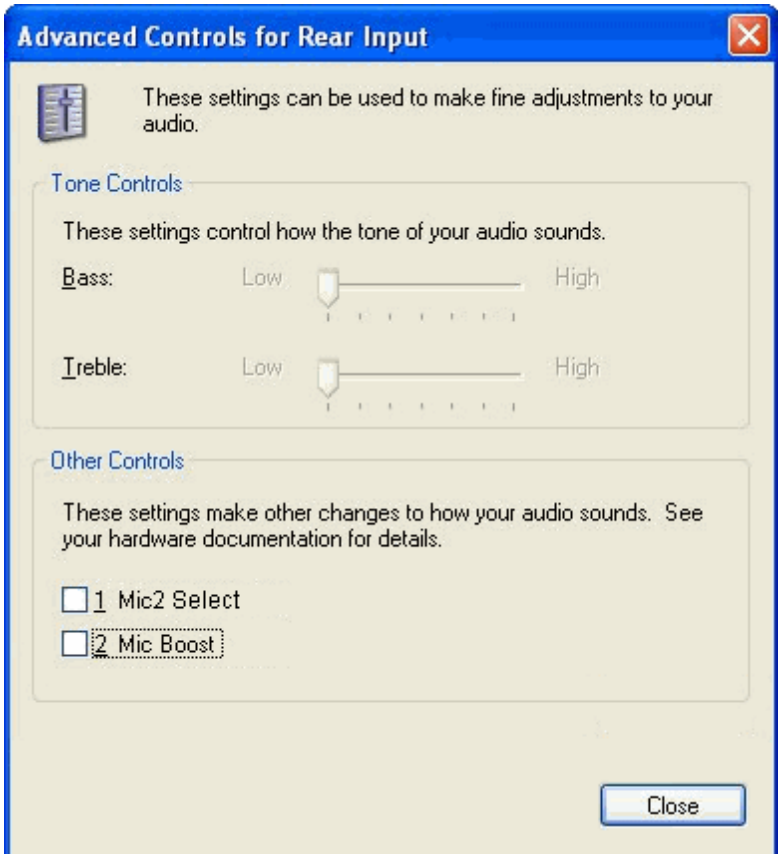
Unacceptable sound quality

1. *(for control stations)* Test the cable which connects the control stations and the computer for correct pinouts.

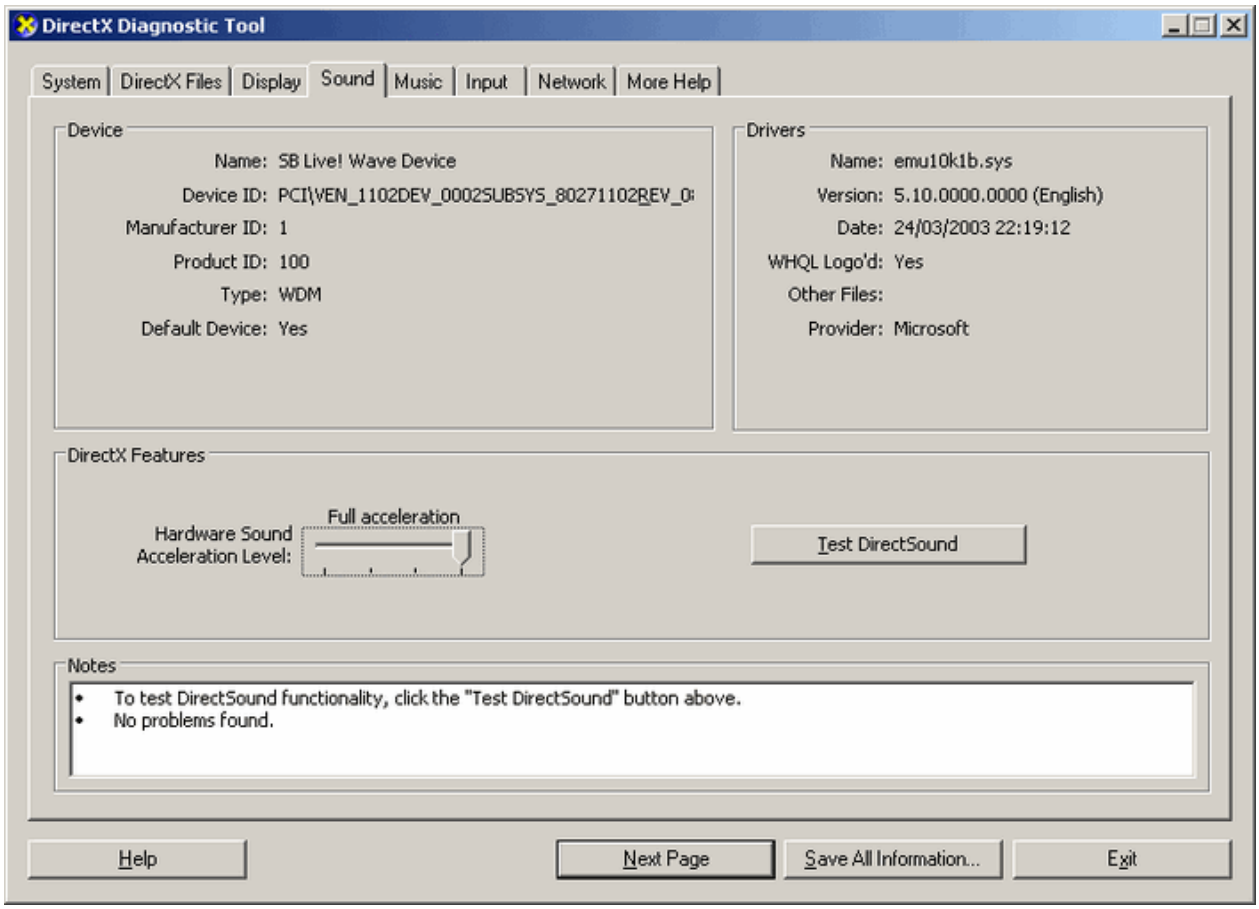
2. Reduce microphone sound level.



3. Clear **MIC Boost**.



4. Configure basic hardware acceleration of the sound card. Basic hardware acceleration is configured in the **DirectX Diagnostic Tool** window (go to **Start** menu, click the **Run** button, type **dxdiag**) in the **Sound** tab, with the help of **Hardware Sound Acceleration Level**.



5. Check if the microphone is working. Record an audio file by the **Sound Recorder** application (**Start Menu > All Programs > Entertainment > Sound Recorder**) and play it back. Make sure the sound is recorded and you can play it back.

6. Disable Windows Firewall.

No sound

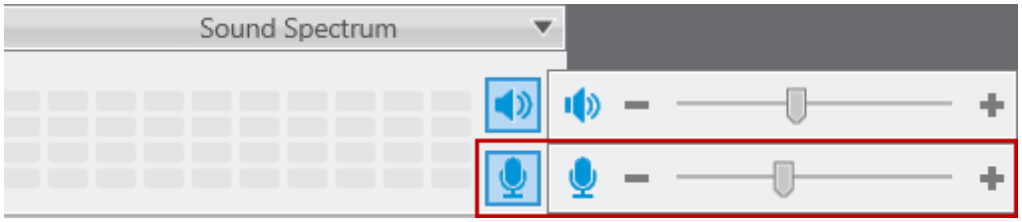
1. *(for control stations)* Test the cable connecting the control stations and the computer for correct pinouts.

2. Check if the microphone is working. Record an audio file by the **Sound Recorder** application (**Start Menu > All Programs > Entertainment > Sound Recorder**) and play it back.

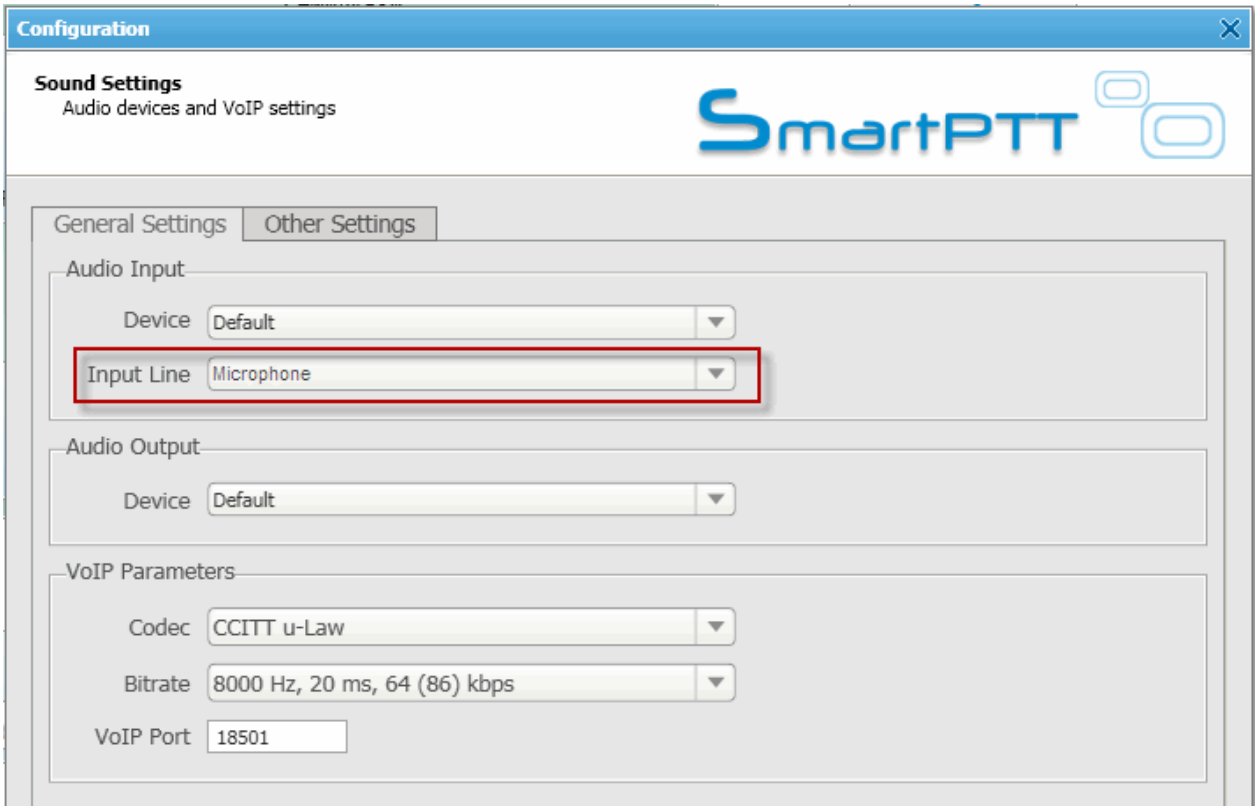
3. Make sure that the audio input and output are selected correctly in the sound settings of SmartPTT system.

4. *(for control stations)* Make sure you have a sound card on your computer. If SmartPTT Dispatcher and radioserver are installed on one PC, there must be two sound cards (this is true if there is only one control station connected to the radioserver). Each additional control station connected to the radioserver requires additional sound card (if the control station is used for transmitting both data and voice).

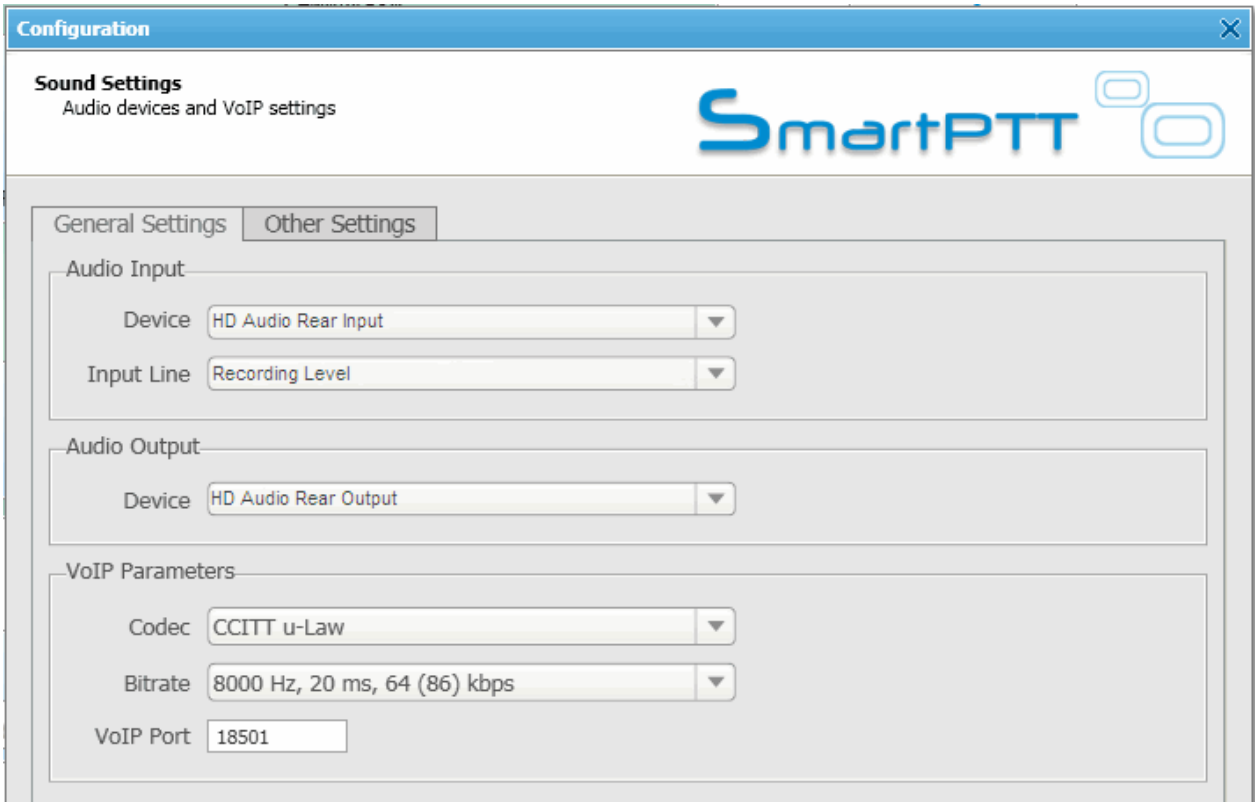
5. Check if **Microphone Audio Setting** is available in SmartPTT Dispatcher.



6. If **Microphone Audio Setting** is not available, open the **Sound** settings window in SmartPTT Dispatcher (**Settings > Sound**). In the **Audio Input** section, select *Microphone* in the **Input Line** field and then click **Finish**.



7. If **Microphone Audio Settings** is still unavailable or *Microphone* was already selected in the **Input Line** field, select *Recording Level* and click **Finish**.

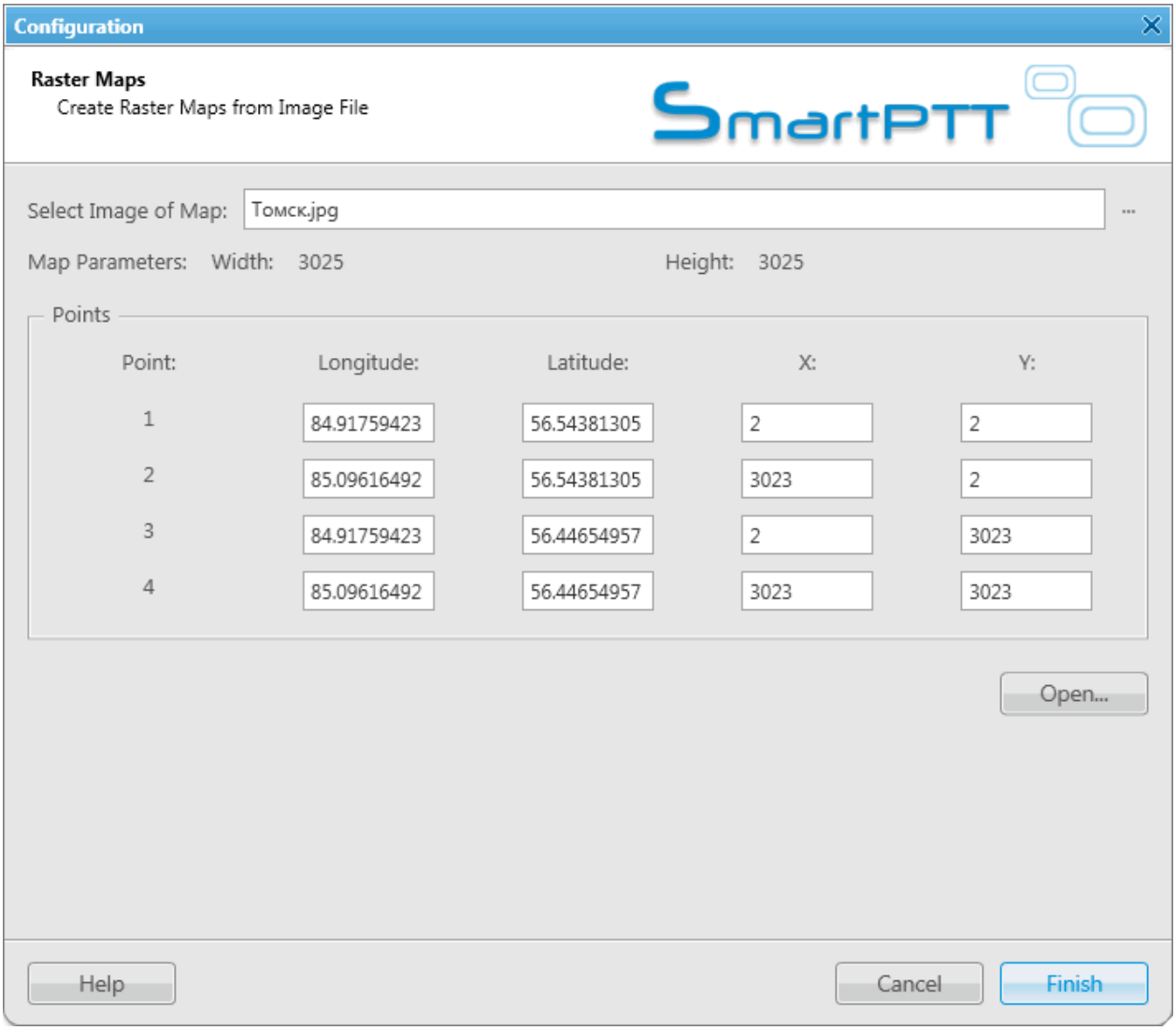


8. Disable Windows Firewall.

Radio coordinates are displayed in the corner or outside the raster map

Latitude, longitude, X or Y values are mixed up when assigning coordinates to points in the **Raster Maps Settings** window.

Note: If you took the coordinates from the polish format of the map, note that the first coordinate on the left is latitude and the second - longitude.



Channel name of control station is displayed in the dispatch console as “1:0”, “1:1”, “1:2”, etc.

Use SmartPTT Radioserver Configurator to make sure that the channels specified for the control station correspond to the channels programmed by MOTOTRBO CPS.