

SmartPTT PLUS 9.5

# Radioserver Configurator User Guide

April 2019

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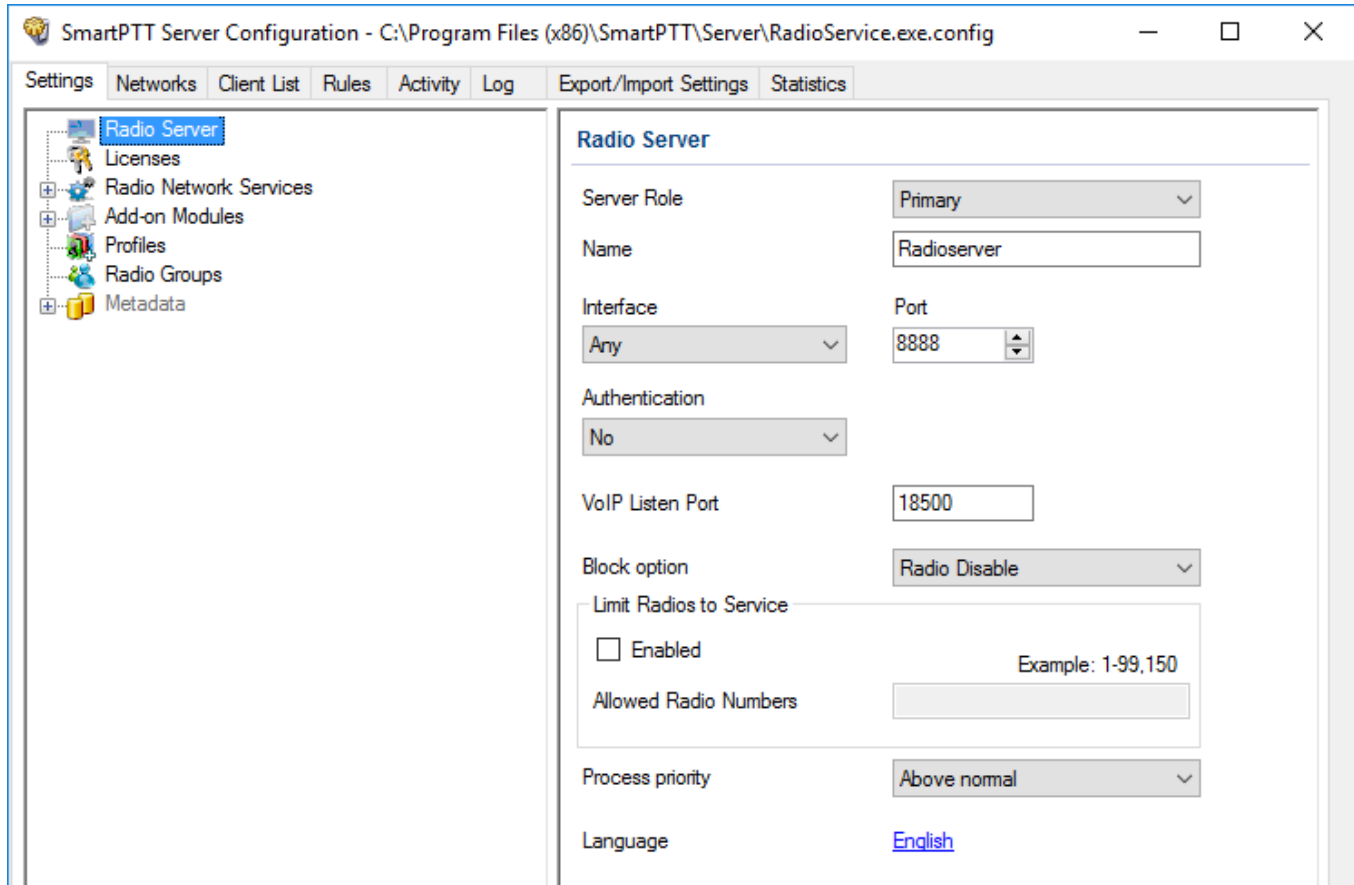
# 1 Settings

In this tab you can configure the general settings of SmartPTT Radioserver:

- [Radioserver](#)
- [Licenses](#)
- [Radio network services](#)
- [Add-on Modules](#)
- [Profiles](#)
- [Radio groups](#)
- [Metadata](#)

## 1.1 Radioserver

To set up the radioserver, click **Radio Server** in the left list of the *SmartPTT Radioserver Configurator* window. The **Radio Server** window appears.




**Server Role:** Sets the radioserver role (*Primary* or *Redundant*). Primary radioserver can have only one redundant radioserver and vice versa. To configure the redundant radioserver settings, see the [Redundant Radio Server](#) section.

**Name:** Radioserver alias. You cannot type more than 20 characters into this field.

**Interface** and **Port:** Radioserver IP address, i.e. the IP address of the computer where the radioserver is installed. Default port is *8888*.

### NOTE

If the specified port is occupied, you will see the 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. Select *No* to set anonymous authentication. Select *Windows* to set Windows authentication.

**NOTE**

If *Windows* is selected, to connect, the dispatcher must use the user name and password of the account where the radioserver service was started.

**VoIP Listen Port:** Number of a UDP port for receiving voice data from the dispatcher.

**Block option:** Allows selecting the way of blocking the radio. When *Radio Disable* is applied, radioserver sends the *Radio Disable* command to block the radio. The *Deny Channel* option denies the radio to work on the given channel.

**NOTE**

The **Deny Channel** option is applicable only to NAI based configurations.

**NOTE**

When the *Block Radio* command is sent from one radio to another, the radio will be blocked, even if *Deny Channel* is selected.

**Limit Radios to Service:** Allows to manage the number of radios allowed in the network. Here you can specify which radios are to be controlled by the system and which are not.

**Enabled:** Select to make this functionality active.





**Allowed Radio Numbers:** Enter IDs of radios which can be managed from a dispatch console.

**WARNING**

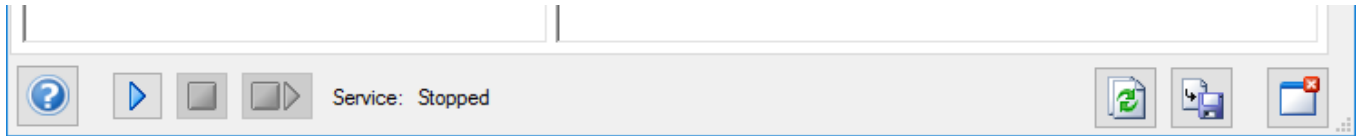
Dispatcher cannot connect to radios whose IDs are not specified.

**Process priority:** Allows selecting the priority that the system associates with a process. By setting this parameter you can speed up or slow down SmartPTT performance. The highest possible priority is *Real time*. Use it wisely, because it may cause malfunctioning of the whole system. We recommend to use the *Normal* priority.

**Language:** Allows selecting languages of the user interface of the *SmartPTT Radioserver Configurator* program.

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** ( ▶◻ ).



## 1.2 Redundant Radioserver

Redundant radioserver is activated in case of primary server breakdown. Switching between the servers is made automatically, however, the redundant server is activated only if the last connection to the primary server was no later than 31 days ago. Primary radioserver can have only one redundant radioserver.

### IMPORTANT

To activate a redundant radioserver, install the corresponding license. For details, see [Licenses](#).

Values and parameters of primary and redundant servers must not be the same. You need to set new parameters for a redundant radioserver. The primary radioserver settings are copied to the redundant server in accordance with the parameters set in the correspondence table. For details, see [Configuring the Correspondence Table](#).

If the primary server parameters were changed after the redundant radioserver start, you need to update the correspondence table.

### NOTE

After configuring redundant and primary radioservers, you need to add them in SmartPTT Dispatcher.

For information on adding radioservers, see "Radioservers" in *Dispatcher User Guide*.

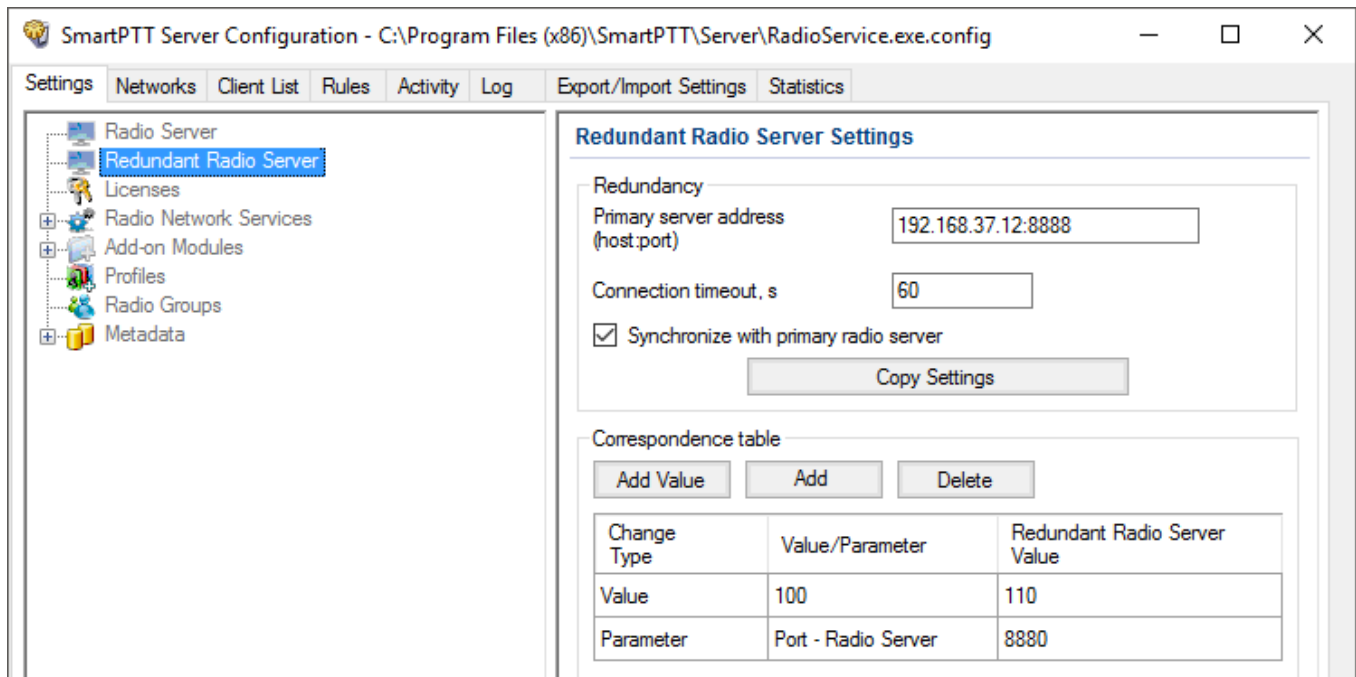
You can also configure automatic radioserver redundancy error notifications. For details, see [Configuring Server Redundancy Error Notifications](#).

For information on configuring a redundant radioserver, see the sections below.

## 1.2.1 Redundant Radio Server Settings

The **Redundant Radio Server** node appears in the left pane of the **Settings** tab when you select the *Redundant* radioserver role in the **Radio Server** node.

When you expand the **Redundant Radio Server** node, the **Redundant Radio Server Settings** pane appears, which consists of two areas.



The **Redundancy** area provides the following elements:

### Primary server address (host:port)

IP address and port of a primary radioserver computer.

### Connection timeout, s

Time interval after which the redundant server becomes active (starting from the primary server shutdown). The minimum value is 20 seconds.

### Synchronize with primary radio server

Activates the automatic synchronization of the redundant server with primary server after the primary server restart.

### NOTE

When the **Synchronize with primary server** check box is selected, only the **Activity**, **Export/Import Settings** and **Statistics** tabs are available for editing.

## Copy Settings

Copies primary radioserver settings to the redundant server.

The **Correspondence table** area provides the following elements:

### Add Value

Adds a new value entry to the correspondence table. You can enter a new value in the entry to replace it on the redundant server.

### Add

Opens the **Parameter Overriding** window where you can select a parameter and its value that will replace the corresponding parameter of the primary server. In the correspondence table the selected parameter name is displayed in the **Value/Parameter** column, and its value is displayed in the **Redundant Radio Server Value** column.

### Delete

Deletes the selected value or parameter from the correspondence table.

## Correspondence table

Contains values and parameters that will be replaced on the redundant radioserver. The table consists of the following columns:

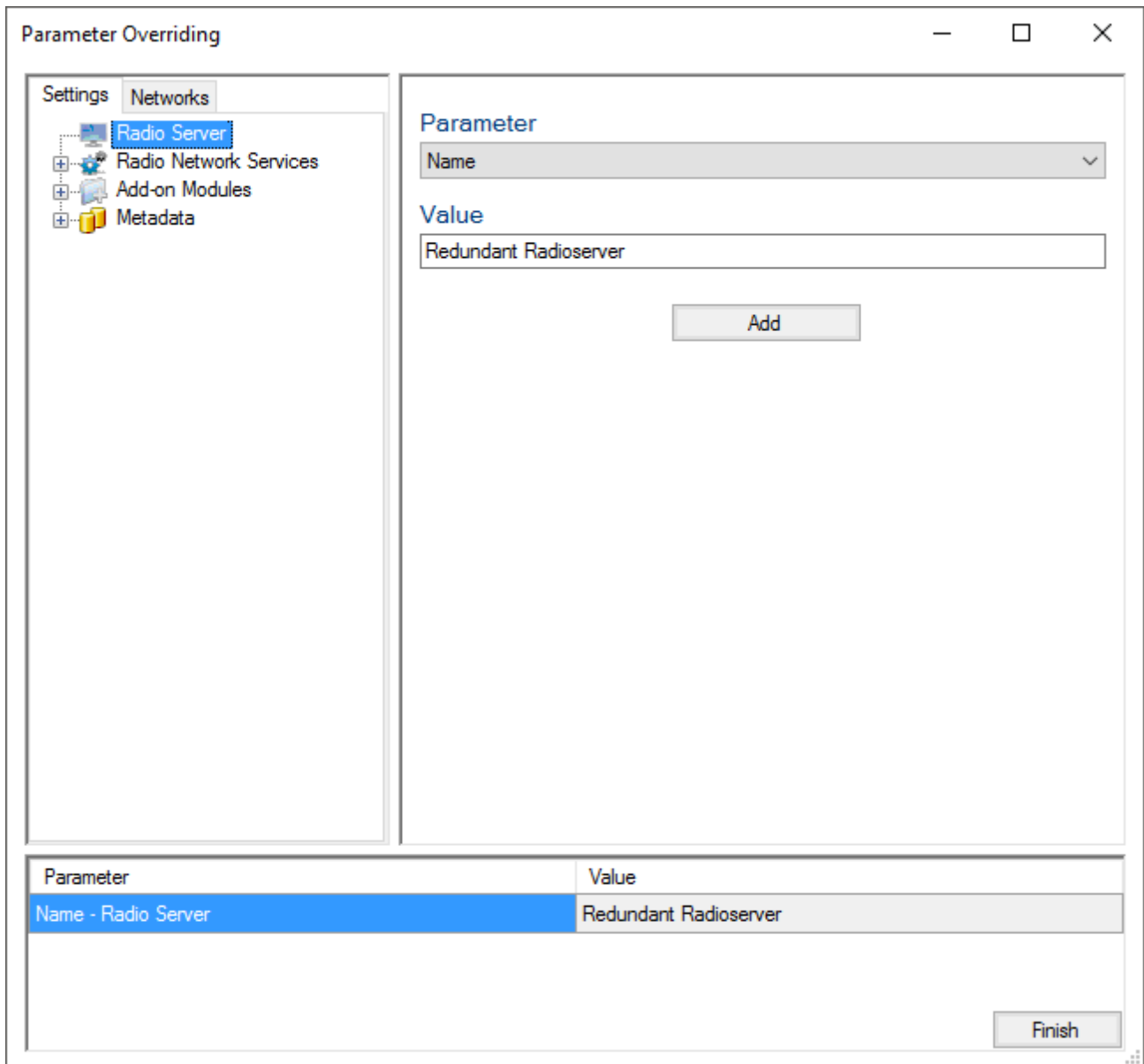
- The **Change Type** column displays the replacement type.
- The **Value/Parameter** column contains the value or parameter name that will be replaced on the redundant radioserver.
- The **Redundant Radio Server Value** column contains a new value, or the selected parameter that will be used on the redundant radioserver.

For information on configuring the table, see [Configuring the Correspondence Table](#).

You can sort the values and parameters in the table by columns and arrange the entries in ascending or descending order by clicking the name of the desired column. You can sort entries only by one column, clicking the name of another column automatically discards the sorting order applied earlier.

### 1.2.1.1 Parameter Overriding Window

The **Parameter Overriding** window appears at adding or editing a parameter in the **Correspondence table** area. In the window you can select the desired parameter and its value that will replace the corresponding parameter of the primary server.



The **Parameter Overriding** window consists of the following areas:

- Area with **Settings** and **Networks** tabs with the structure that corresponds to the structure of the primary server tabs.

- Area with non-editable table which contains all added parameters.
- Area for selecting parameters and their values. The area consists of the following elements:

**Parameter**

Contains a list of available parameters. Depending on the selected node, the list contains different parameters.

**Value**

Depending on the selected parameter, contains a check box, a list, or a box for changing the parameter value.

**Add**

Adds the parameter and its value to the table below and to the correspondence table.

## 1.2.2 Configuring Redundant Radioserver

Follow the procedure to add and configure the redundant radioserver.

**Prerequisites:**

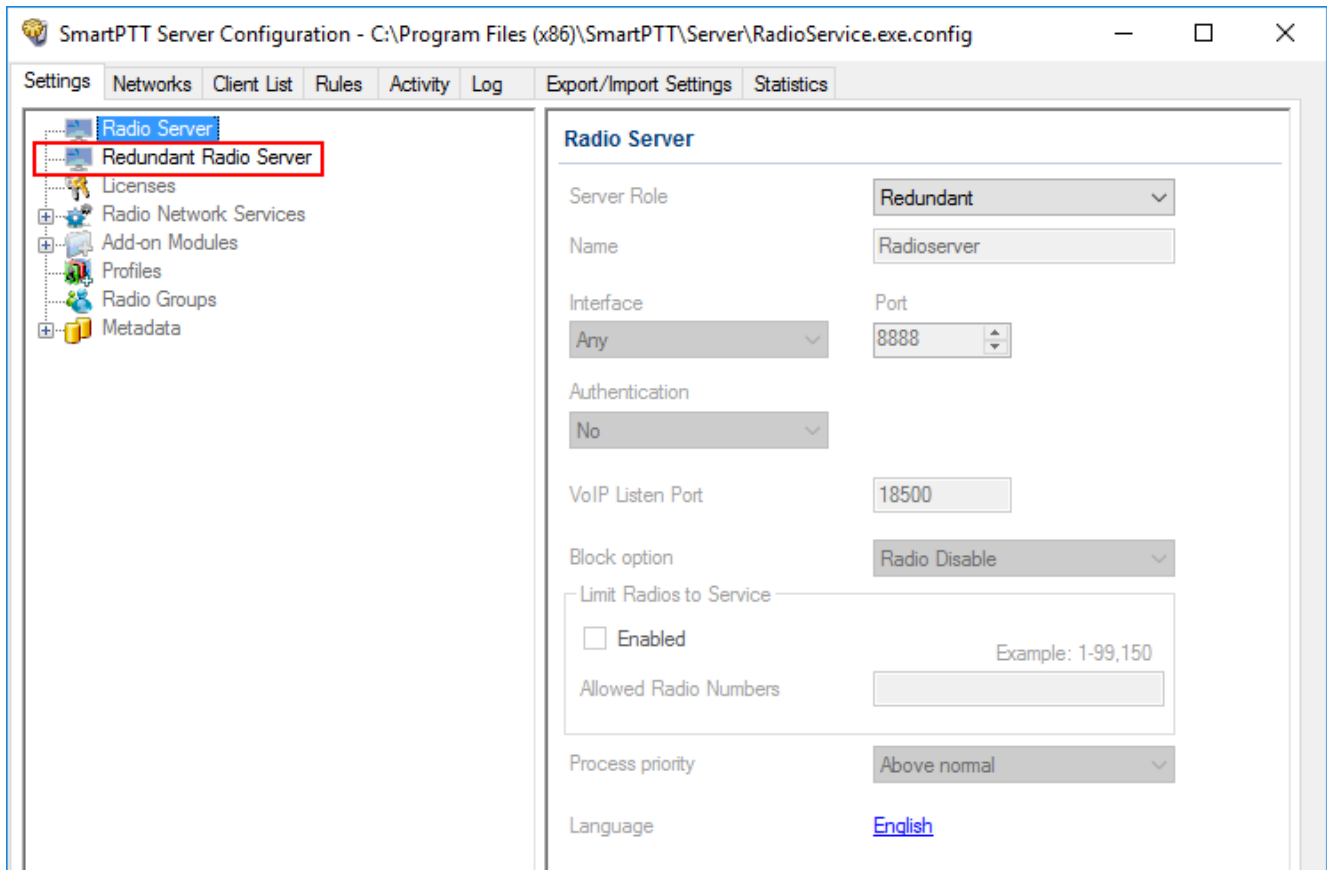
- Ensure all parameters of the primary server are saved, and it is started. If the parameters were changed, save the changes and restart the primary server.
- Obtain the primary server IP address.

**Procedure:**

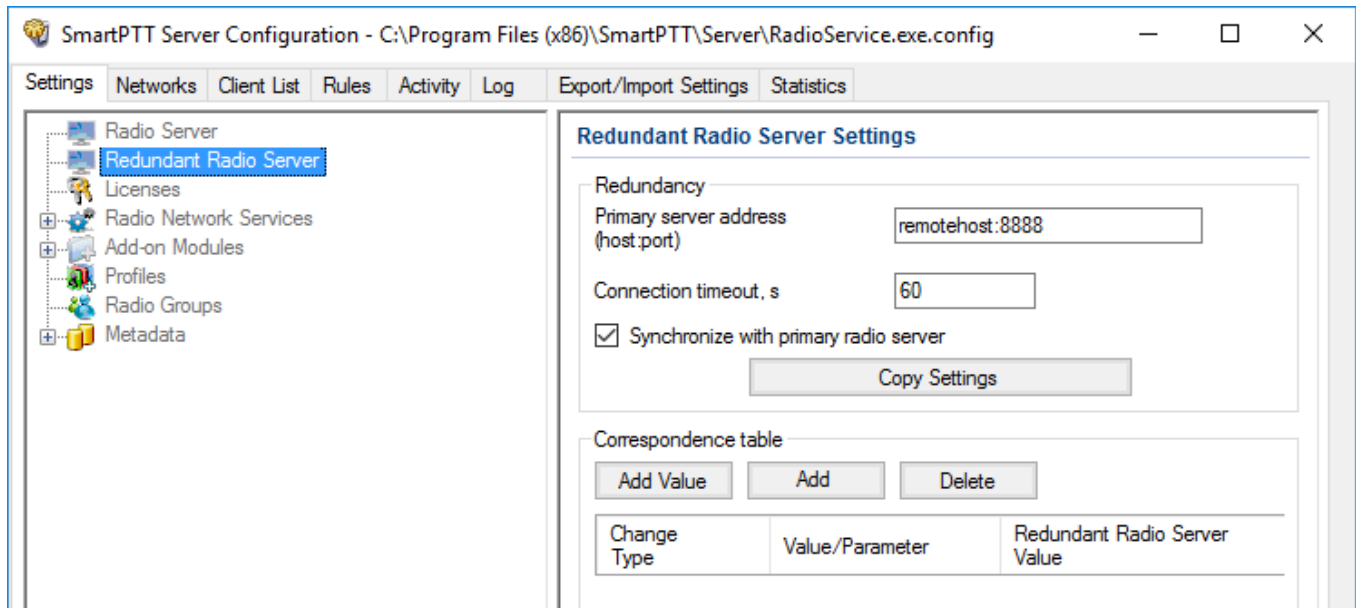
1. In the left pane of the **Settings** tab, click **Radio Server**.



2. In the **Radio Server** pane, from the **Server Role** list, select *Redundant*.  
In the left pane, the **Redundant Radio Server** node appears.



3. In the left pane of the **Settings** tab, click **Redundant Radio Server**.  
The **Redundant Radio Server Settings** pane appears.



4. In the **Redundant Radio Server Settings** window, perform the following actions:
  - a. In the **Primary server address (host: port)** box, enter the primary radioserver IP address and port.
  - b. *Optional:* In the **Connection timeout (s)** field, enter time interval after which the redundant server becomes active.
  - c. Click **Copy Settings** to copy primary radioserver settings to the redundant server.
  - d. Select the **Synchronize with primary radio server** check box to activate the automatic synchronization of redundant server with primary server after the primary server restart.
5. Configure the correspondence table.  
For information on configuring the table, see [Configuring the Correspondence Table](#).



## 1.2.3 Configuring the Correspondence Table

Follow the procedure to configure the correspondence table for the redundant radioserver.

### Prerequisites:

- Ensure all parameters of the primary server are saved, and it is started.
- Ensure the **Synchronize with primary radio server** check box in the **Redundancy** area is selected.

### Procedure:

1. Set or edit an existing values or parameters for replacing.  
For details, see [Setting Values](#) and [Setting Parameters](#).
2. At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.
3. Click **Restart** (  ) to restart SmartPTT Radioserver and apply changes.

### 1.2.3.1 Setting Values

Follow the procedure to set a replacing value for the redundant server in the correspondence table.

#### WARNING

The value in the correspondence table changes all similar values copied from the primary server parameters.

### Procedure:

1. In the **Correspondence table** area, click **Add Value**.  
In the correspondence table below, a new entry appears.
2. In the **Value/Parameter** box, type the desired value for replacing.
3. In the **Redundant Radio Server Value** field, type a new value for the redundant radioserver.

### Postrequisites:

To edit a value, double-click it in the correspondence table, and then type a new value.

## 1.2.3.2 Setting Parameters

Follow the procedure to set a replacing parameter for the redundant server in the correspondence table.

### Procedure:

1. In the **Correspondence table** area, click **Add**.  
The **Parameter Overriding** window appears.
2. In the left pane of the **Parameter Overriding** window, select the desired tab, and then expand the desired node.  
In the right pane, the area for selecting the parameter and its value appears.
3. From the **Parameter** list, select the required parameter:
  - For NAI - IP Site Connect, NAI - Capacity Plus and NAI - Linked Capacity Plus network topologies replace **Peer ID** parameters values.
  - *Optional:* Replace IP-addresses.
  - *Optional:* Replace databases names.

### NOTE

If you configure **Clients Connection**, you do not need to replace its parameters for the redundant server.

4. In the **Value** area, set the value in one of the following ways:
  - Type the value in the box
  - Select the value from the list
  - Select/clear the check box.
5. Click **Add** to add the parameter to the correspondence table.
6. Click **Finish** to close the window.

### Postrequisites:

To edit a parameter or its value, double-click it in the correspondence table, and then select another parameter, or change the selected earlier value.

## 1.3 Licenses

In the **Licenses** menu you can see the services which are available to you in SmartPTT and install a new license if needed.

License	Quantity	Expiration Date
Telephone Interconnect Service	1	12/31/2017
Repeater IP Connections	10	12/31/2017
Additional Dispatchers	5	12/31/2017
Radio Network Bridging Service	1	12/31/2017
Monitoring Service	1	12/31/2017
SNMP Service	1	12/31/2017
Web Service	1	12/31/2017

Availability of the services is regulated by the license file. It contains licenses – permissions to use the particular number of particular services. Those licenses are being called here as services.

At the fresh start, SmartPTT generates demo license file which works for a small period of time. You cannot extent its activity period and you should obtain a regular license file.

Regular license file binds to the hardware of the primary radioserver computer or redundant radioserver computer. Hardware ID (HID) is required for the binding.

---

To obtain hardware ID via *SmartPTT Radioserver Configurator*:

1. Run *SmartPTT Radioserver Configurator*.
2. In the **Settings** tab click **Licenses**.
3. Click the **Collect** button in the **Activation** area of the **Licenses** window. The code which appears in the **Hardware ID** field is the hardware ID.
4. Click **Copy** to copy the hardware ID to the clipboard.

To obtain hardware ID without *SmartPTT Radioserver Configurator*, please, refer to the [following article](#) on the SmartPTT Technical Support Center website.

When you get the license file, you should install it.

To install a license file, follow these steps:

1. Run *SmartPTT Radioserver Configurator*.
2. In the **Settings** tab click **Licenses**.
3. Click **Change License**.
4. Open the received license file. The **License Installation** window appears:

License Installation

Licensed to: SmartPTT Customer Name  
License key ID: 1BE7813E  
Update subscription expiration date: 4/30/2018  
Contacts:  
Address:

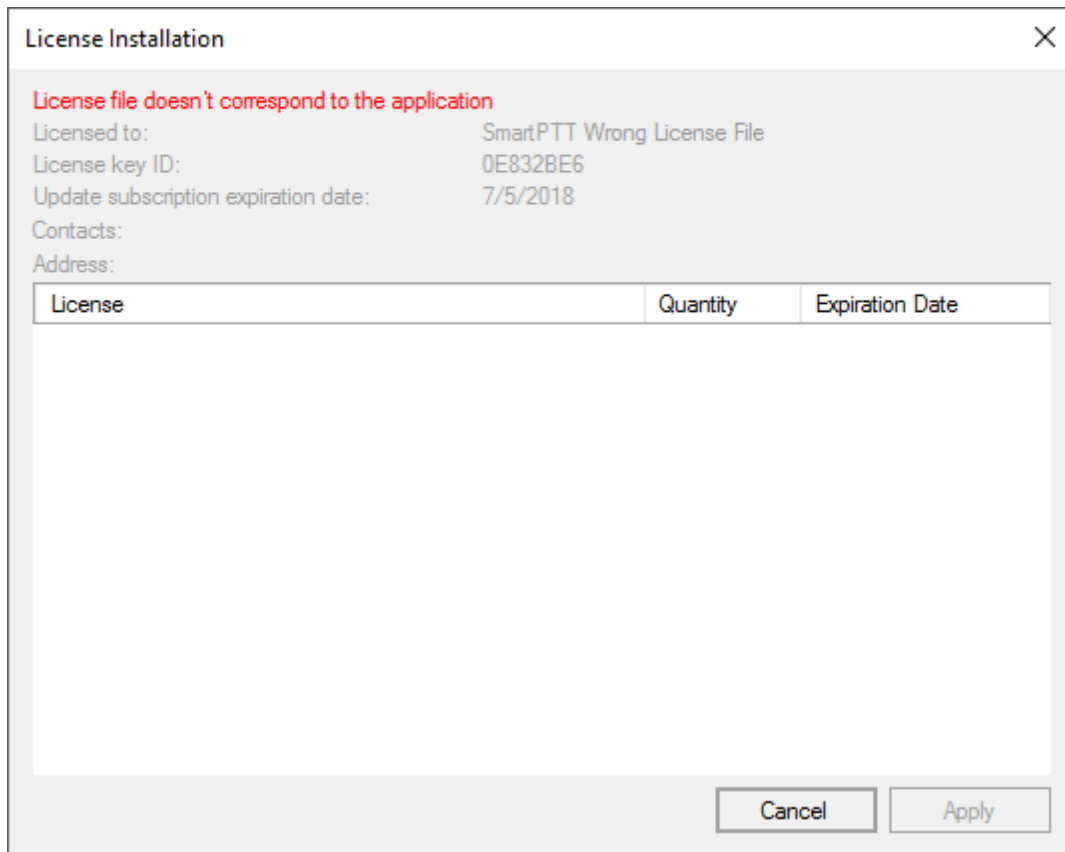
License	Quantity	Expiration Date
Web Service	1	4/30/2018
Indoor Tracking	1	4/30/2018
Connect Plus Voice Support	1	4/30/2018
Connect Plus Data Support	1	4/30/2018
NAI Voice for IP Site Connect	2	4/30/2018
NAI Voice for Capacity Plus	2	4/30/2018
NAI Voice for Linked Capacity Plus	2	4/30/2018
GPS Positioning	1	4/30/2018
Voice Recording	1	4/30/2018
NAI Data for IP Site Connect	2	4/30/2018



Cancel Apply

5. Check the information in the **License Installation** window. Pay attention to the table to check if you have all the services you need.

**NOTE**

If the license does not match the product or the hardware, **Licensed to** text will be red and the services table will be empty.



6. To accept the license click **Apply**. To cancel the license installation click **Cancel**.
7. Click **OK** in the notification window.
8. At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.
9. Click **Restart** (  ) to restart SmartPTT Radioserver and apply changes.

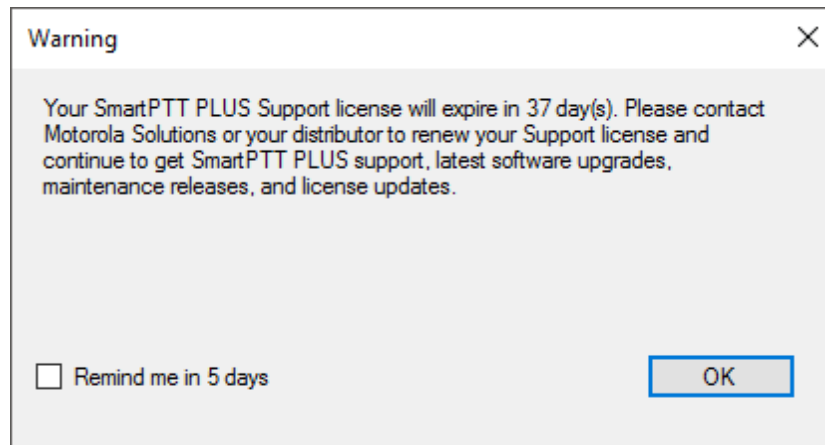
After the license installation in the **Licenses** window the available services will appear as they were in the **License Installation** window.



Different services may have different expiration date. When the service is expired, it will be written red in the table.

When the expiration data approaches, you will start to get notifications at the start of *SmartPTT Radioserver Configurator*:

You can select the **Remind me in 5 days** check box to remind about the license updating in 5 days.



In addition, yellow triangle will appear near the dates, notifying about the approaching of the expiration date.

SmartPTT Server Configuration - C:\Program Files (x86)\SmartPTT\Server\RadioService.exe.config

Settings | Networks | Client List | Rules | Activity | Log | Export/Import Settings | Statistics

Radio Server  
 Licenses  
 Radio Network Services  
 Add-on Modules  
 Profiles  
 Radio Groups  
 Metadata

### Licenses

Licensed to: SmartPTT Customer Name  
 License key ID: 1BE7813E  
 Contacts:  
 Address:  
 Support expiration date: 12/31/2017 ⚠

License	Quantity	Expiration Date
Telephone Interconnect Service	1	12/31/2017
Repeater IP Connections	15	12/31/2017
Additional Dispatchers	10	12/31/2017
Radio Network Bridging Service	1	12/31/2017
Monitoring Service	1	12/31/2017
SNMP Service	1	12/31/2017
Web Service	1	12/31/2017

Change License

Activation  
 Hardware ID  
  
 Collect Copy

Service: Stopped ⚠

You cannot update or upgrade to SmartPTT released later of the expiration date of annual support. Nevertheless, your current software will continue to operate without any limitations until the licensed services are not expired. You could also be provided with the limited technical support for SmartPTT.

To use the newest version of SmartPTT with all new features, please, renew the annual support.

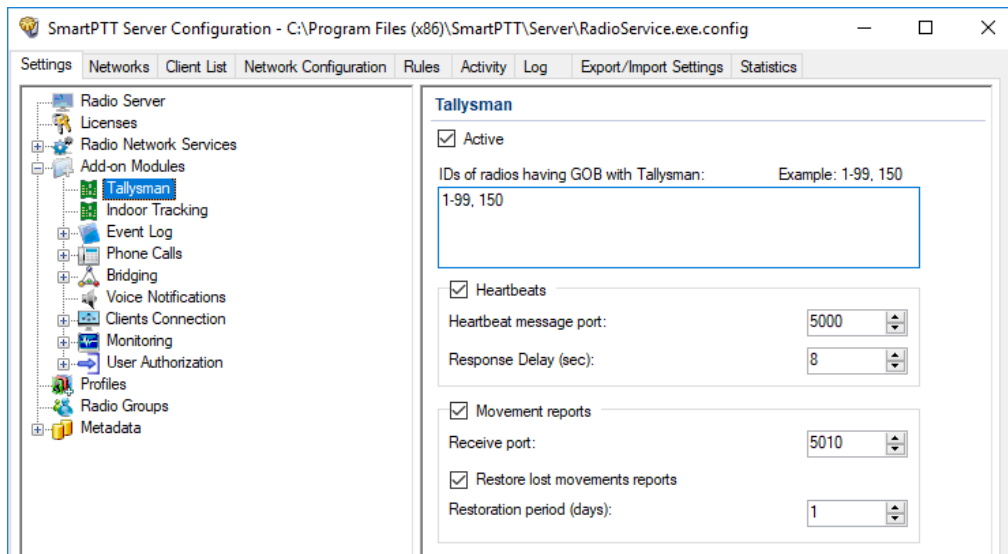
## 1.4 Add-on Modules

### 1.4.1 Tallysman

SmartPTT supports MOTOTRBO™ generic option boards (GOB) programmed with the [Tallysman Sprite™ software](#). With those GOBs, SmartPTT provides the following features:

- Heartbeats. For details, see [Heartbeats](#).
- Movement Reports Restoration. For details, see [Movement Reports Restoration](#).

The settings of those features appear in the right pane of the SmartPTT Radioserver Configurator (the **Tallysman** pane) when users select **Tallysman** in the **Add-on Modules** node.



In the **Tallysman** pane, the following general settings are available:

#### Active

The check box activates GOB support and unlocks the GOB feature settings.

#### IDs of radios having GOB with Tallysman

You should enter Radio IDs of subscriber units that has GOB configured to send GPS batches only. You do **not** need to enter Radio IDs of subscriber units that use Heartbeats. To enter multiple IDs properly, use the example available on the right above the box.

#### WARNING

All Radio IDs must be unique across all dispatched radio systems.

The **Heartbeats** area is related to the Heartbeats feature settings. It provides the following controls:

**Heartbeats**

The check box activates the feature support and unlocks its settings.

**Heartbeat message port**

The UDP port number used to receive presence messages from the radios. This number must be the same as the Host UPD Port configured in the Tallysman Sprite Configurator. The default Host UPD Port is *5000*.

**Response delay (sec)**

The delay between moments of time when SmartPTT Radioserver receives the heartbeat message and acknowledges its receiving to the radio. The parameter must not exceed the maximum acknowledgment delay set in the GOB using Tallysman Sprite Configurator.

The **Movement reports** area is related to the Movement Reports Restoration feature settings. It provides the following controls:

**Movement reports**

The check box activates the features and unlocks its settings.

**Port for reports receiving**

The UDP port number used to receive the coordinates. It must be the same as the Base UDP Port parameter in Tallysman Sprite Configurator. The default port number is *5010*.

**Restore lost movements reports**

The check box activates the movement reports restoration in SmartPTT Radioserver.

**Restoration period (days)**

Number of days for which the coordinates must be requested and restored. Each day is equal to 24 hours. For example, if you enter 3 in this box, SmartPTT Radioserver will request coordinates received within the last 72 hours. Value ranges are the following: minimum value is *1* (24 hours); maximum value is *31* (744 hours); increment is *1* (24 hours); default value is *1*.

For information on configuring Tallysman, see the sections below.

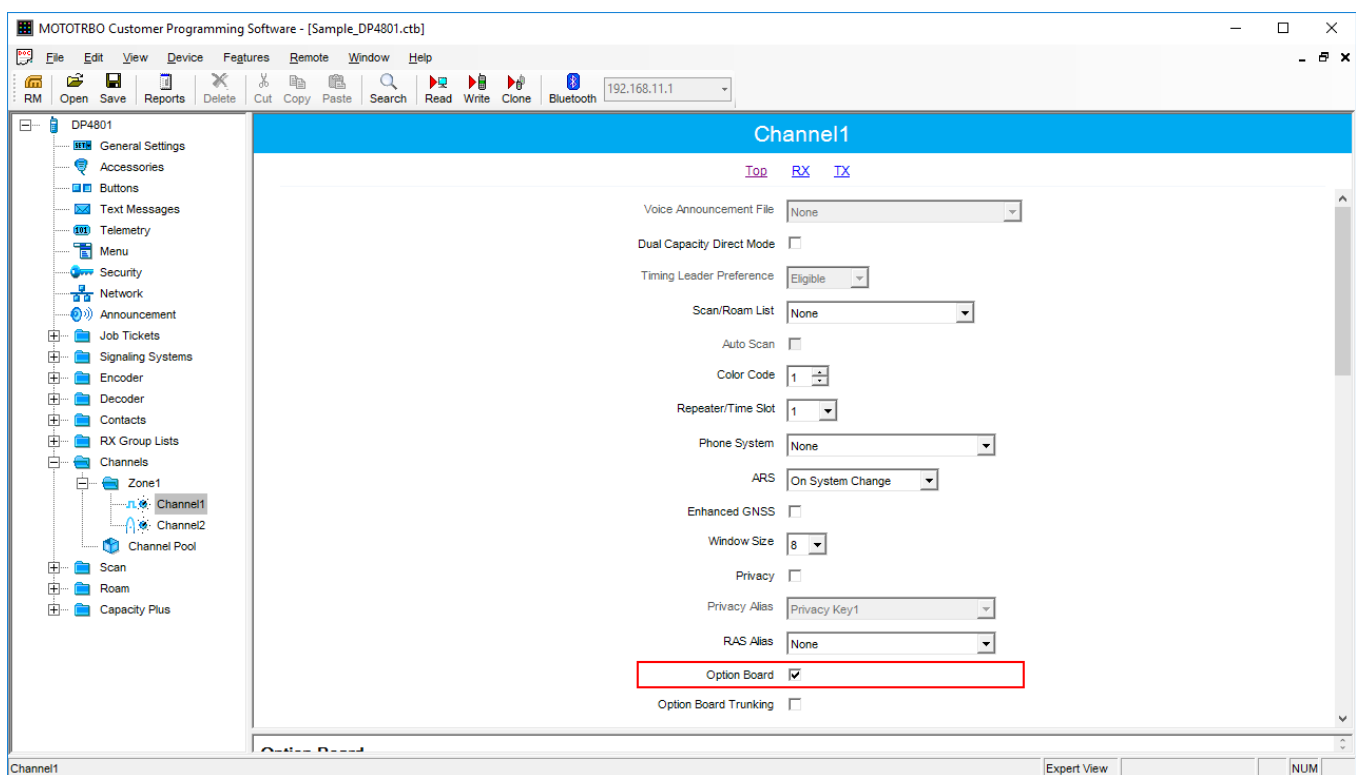
### 1.4.1.1 Configuring Radios to Support GOB

Follow the procedure to configure the radio to use MOTOTRBO™ option board.

#### Procedure:

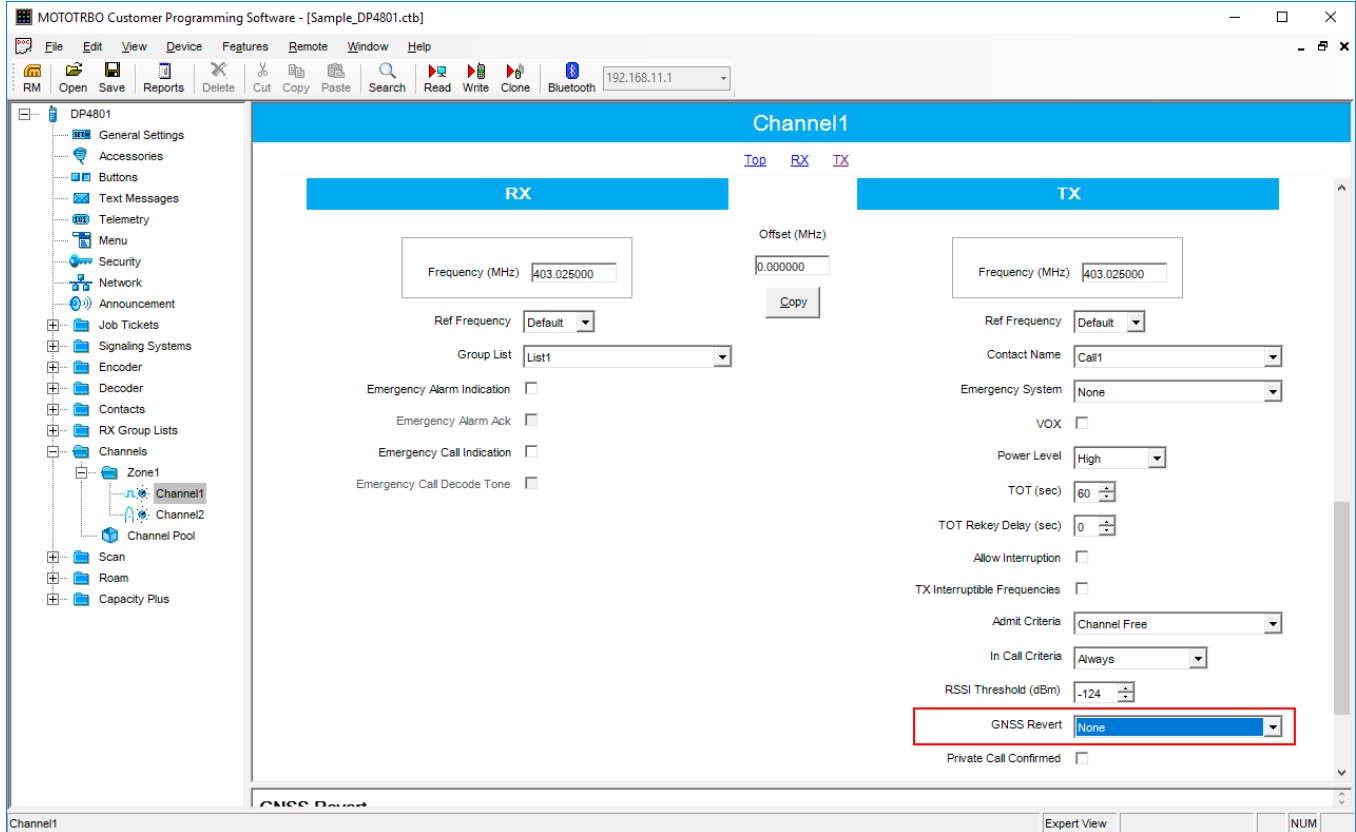
1. Start MOTOTRBO CPS.
2. Open the radio codeplug.
3. In the left pane, expand **Channels** → **<Zone Name>**, and then select the desired digital channel.

The **<Channel Name>** pane appears.



4. At the top of the **<Channel Name>** pane, click **Top**.
5. In the top area, select the **Option Board** check box.

6. For the Movement Reports Restoration feature only, perform the following actions:
  - a. At the top of the <Channel Name> pane, click **TX**.  
Transmission settings appear.

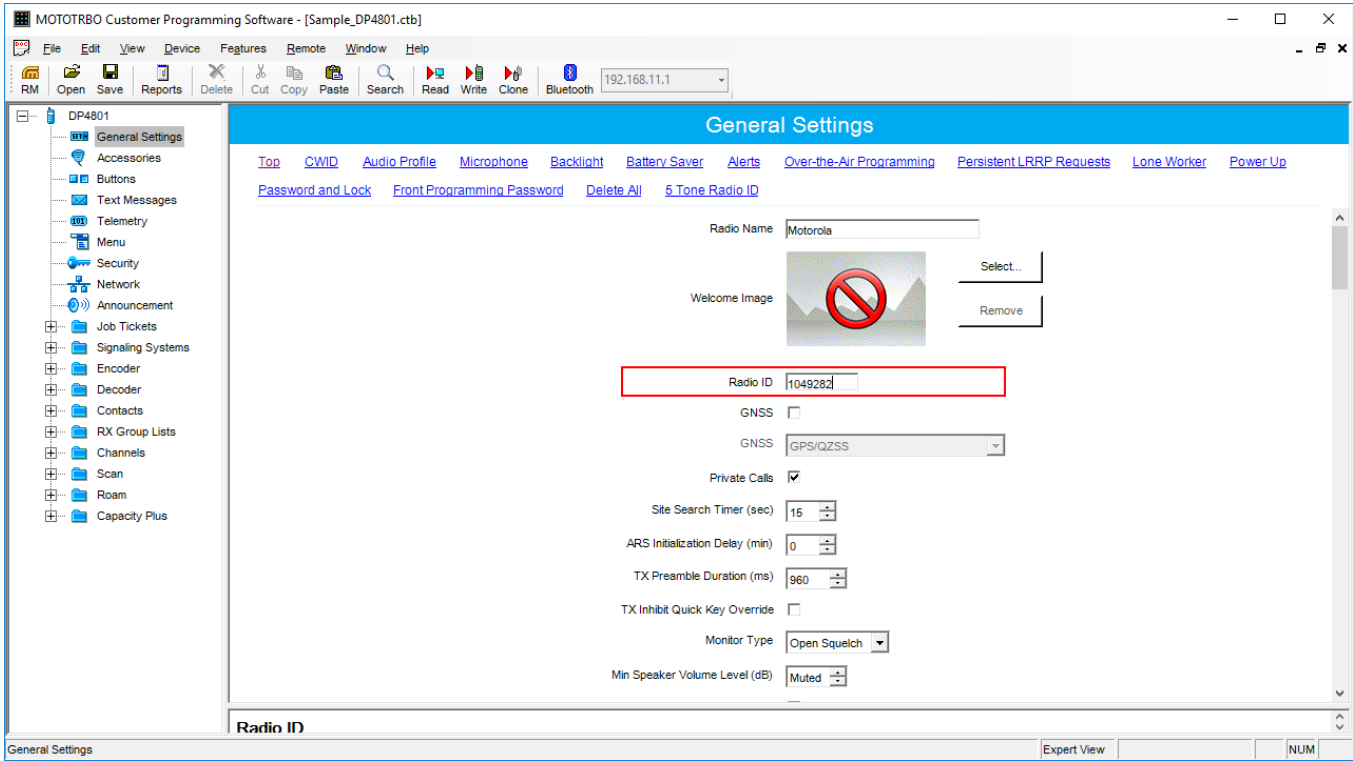


- b. In the **TX** area, from the **GNSS Revert** list, select *None*.

### WARNING

If the channel is used as a GNSS revert channel, Movement Reports Restoration will be unavailable.

- c. In the left pane, expand **<Radio Model>**, and then select **General Settings**.  
The **General Settings** pane appears.



- d. At the top of the **General Settings** pane, click **Top**.
- e. In the **Radio ID** field, view the Radio ID value. You need this to add the Radio ID to the list of radios.
7. Save changes to the codeplug and write them to the radio.

### 1.4.1.2 Heartbeats

Heartbeats is an option board feature that inform SmartPTT dispatchers that the radio is online now and continues to be online. Messages are sent periodically and SmartPTT Radioserver acknowledges each message to indicate its own presence. If SmartPTT Radioserver does not receive the message in time, the radio considers to be offline. If SmartPTT Radioserver does not send the acknowledgment in time, or the radio channel is busy, the radio informs its user that SmartPTT dispatchers are unavailable.

The feature is unavailable in the Connect Plus radio systems due to the use of alternative option boards.

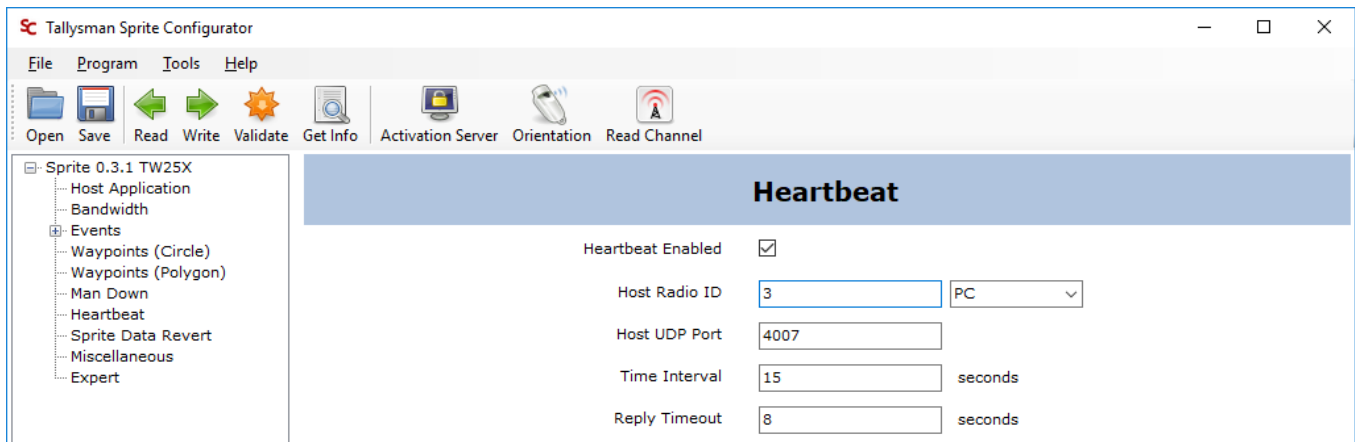
For configuring the Heartbeats feature, see [Programming GOB for Heartbeats](#) and [Configuring SmartPTT to Support Heartbeats](#).

### 1.4.1.2.1 Programming GOB for Heartbeats

Follow the procedure to view and/or modify MOTOTRBO™ option board settings required to support Heartbeats in SmartPTT.

#### Procedure:

1. Start the Tallysman Sprite Configurator, and then ensure that its version is 0.2.68.
2. Open the option board codeplug.
3. In the left pane, expand **<Codeplug Internal Name>**, and then select **Heartbeat**. Heartbeat settings appear in the right pane.



4. In the right pane, select the **Heartbeat Enabled** check box.
5. In the **Host Radio ID** field, type the system-specific SmartPTT Radioserver identifier.
6. From the list after the **Host Radio ID** field, select **PC**.
7. In the **Host UDP Port** field, type the unlocked UPD port number of the computer with SmartPTT Radioserver.
8. In the **Time Interval** field, type the send period for radio heartbeat messages.



- In the **Reply Timeout** field, type the the maximum delay of the SmartPTT Radioserver response waiting after the heartbeat message is sent.
- Save changes to the codeplug and write them to the option board.

### 1.4.1.2.2 Configuring SmartPTT to Support Heartbeats

Follow the procedure to configure the support of Heartbeats between the dispatch system and radios. SmartPTT Radioserver responds to all radios that send heartbeat messages to it.

#### Prerequisites:

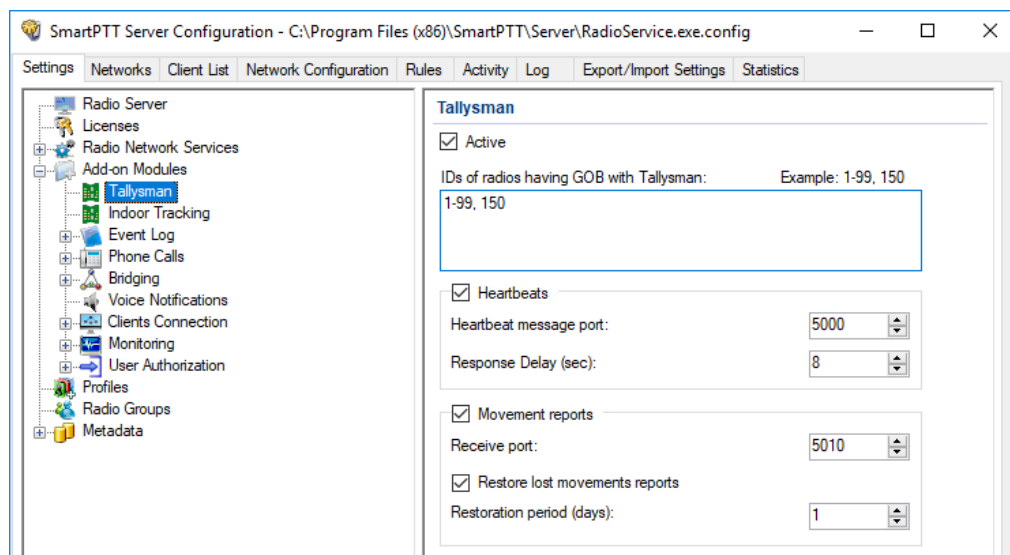
Using Tallysman Sprite Configurator, obtain the following parameters:

- Host UDP Port
- Reply Timeout

For details, see [Programming GOB for Heartbeats](#).

#### Procedure:

- Start SmartPTT Radioserver Configurator.
- In the **SmartPTT Server Configuration** window, select the **Settings** tab.
- In the left pane, expand **Add-on Modules**, and then select **Tallysman**.





- In the **Tallysman** pane, select the **Active** check box.
- Select the **Heartbeats** check box.

6. In the **Heartbeat Message Port** field, set the value of the **Host UPD Port** parameter set in Tallysman Sprite Configurator.
7. In the **Response Delay** field, set the value of the **Reply Timeout** parameter set in Tallysman Sprite Configurator.

**NOTE**

You can enter the smaller value if needed.

8. At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.
9. Click **Restart** (  ) to restart SmartPTT Radioserver and apply changes.

**Postrequisites:**

In the firewall software on the computer, unlock UPD port.

### 1.4.1.3 Movement Reports Restoration

When the radio leaves the radio coverage zone, the outdoor location request can be performed by the option board itself. At some configurations, the request rate can be higher than that of the MOTOTRBO radio. Option board stores the requested coordinates and provide all of them to SmartPTT Radioserver by a request. SmartPTT Radioserver receives these coordinates, updates the database, and provides the information to the active dispatch applications. Using new information, applications can create highly-detailed reports and tracks.

The feature is available to perform over the local control stations connected over USB. Other control station connections are not supported. In repeater-based systems, the feature is unassailable in Connect Plus due to the use of alternative option boards.

### 1.4.1.3.1 Programming GOB for Movement Reports Restoration

Follow the procedure to view and/or modify MOTOTRBO™ option board settings required to support movements restoration in SmartPTT.

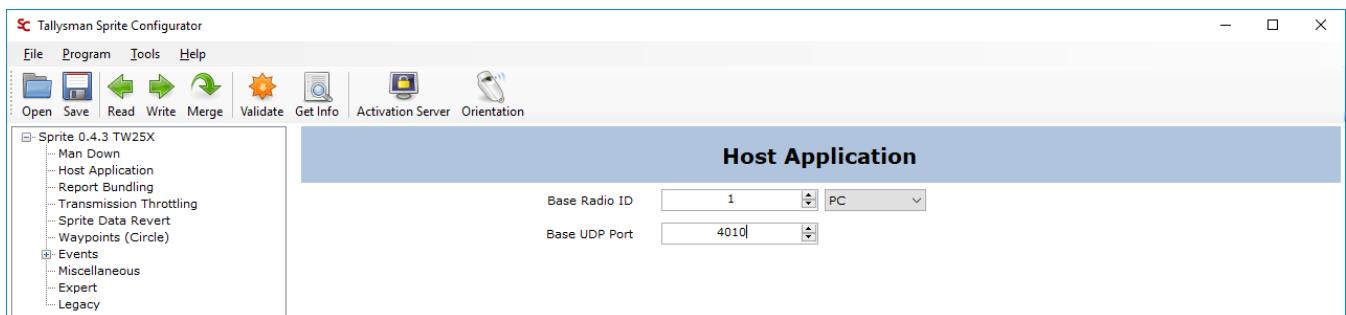
#### Prerequisites:

Using SmartPTT Radioserver Configurator, obtain the following information:

- SmartPTT Radioserver identifier in the radio system:
  - For control station, obtain the Radio ID.
  - For IP Site Connect, or Capacity Plus, obtain the Radio ID of the slot.
  - For NAI systems (NAI - IP Site Connect, NAI - Extended Range Direct Mode, NAI - Capacity Plus, and NAI - Linked Capacity Plus), or Capacity Max, obtain MNIS Application ID.
- Whether the channel of a control station or IP Site Connect is configured as Data Channel.

#### Procedure:

1. Start the Tallysman Sprite Configurator, and then ensure that its version is 0.3.16.
2. Open the option board codeplug.
3. In the left pane, expand the **<Codeplug Internal Name>**, and then click **Host Application**.  
Host settings appear in the right pane.

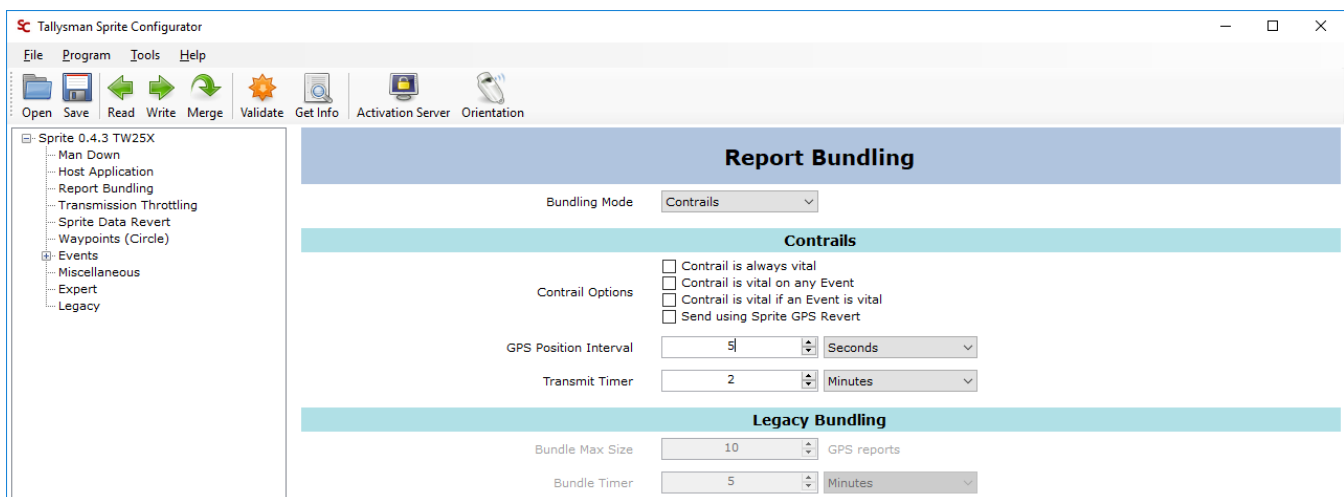


4. In the right pane, enter the SmartPTT Radioserver identification information:
  - a. In the **Base Radio ID** field, set the system-specific SmartPTT Radioserver identifier.
  - b. From the list after the box, select **PC**.
  - c. In the **Base UPD Port** field, set the unlocked port of the computer with SmartPTT Radioserver.

**NOTE**

If default value is applicable, leave the parameter unchanged.

5. In the left pane, click **Report Bundling**.  
Report settings appear.



6. In the right pane, from the **Bundling Mode** list, select **Contrails**.
7. Clear the following check boxes:
  - Contrail is always vital
  - Contrail is vital on any Event
  - Contrail is vital if an Event is vital
8. Set up the revert mode for control station or IP Site Connect radio system:

If you configured a channel as a Data Channel,

set up the data revert in the option board. For details, see [Configuring GOB Revert Channel Settings](#).

---

If you do not have Data Channels in your radio systems,

clear the **Send using Sprite GPS Revert** check box.

---

9. Set up the location request interval:
  - a. From the list after the **GPS Position Interval** field, select the desired measurement units.
  - b. In the **GPS Position Interval** field, set the desired period of time. The recommended value is *10 s*.
10. Set up the location transmission attempt interval:
  - a. From the list after the **Transmit Timer** field, select the desired measurement units.
  - b. In the **Transmit Timer** field, set the desired period of time. The recommended value is *2 s*.
11. In the left pane, expand **Events**.
12. For each subnode of the **Events** node, perform the following actions:
  - a. Click the subnode.
  - b. In the right pane, clear the **Event Enabled** check box.
13. Save changes to the codeplug and write them to the option board.

### 1.4.1.3.2 Configuring GOB Revert Channel Settings

Follow the procedure to to configure the location data provision from the option board over the revert channel. This option is available in NAI - IP Site Connect only.

#### **WARNING**

This configuration is incompatible with the Enhanced GPS mode in IP Site Connect.

#### **Prerequisites:**

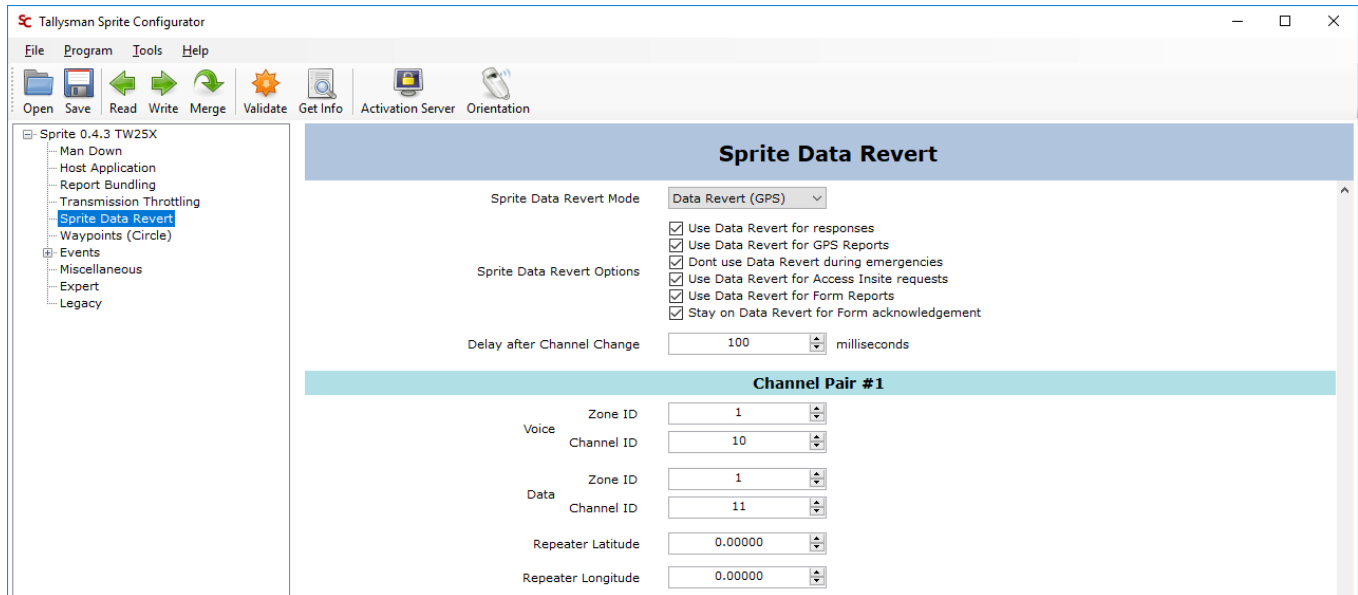
Obtain the Zone ID and Channel ID of both IP Site Connect channels from the radio codeplug.

#### **Procedure:**

1. Start the Tallysman Sprite Configurator, and then ensure that its version is 0.3.16.
2. Open the option board codeplug.

- In the left pane, expand the **<Codeplug Internal Name>**, and then click **Sprite Data Revert**.

Data revert settings appear in the right pane.



- In the right pane, from the the **Sprite Data Revert Mode** list, select **Data Revert (GPS)**.
- To the right of the **Sprite Data Revert Options** heading, select all check boxes.
- Optional:* In the **Delay after Channel Change** field, set the delay between the data channel selection and location data sending.
- In the **Channel Pair #1** area, on the right of the **Voice** heading, perform the following actions:
  - In the **Zone ID** field, set the Zone ID of the voice channel.
  - In the **Channel ID** field, set the Channel ID of the voice channel.
- Repeat the previous step for boxes to the right of the **Data** heading.
- If the configuration is complete, save changes to the codeplug and write them to the option board.

### Postrequisites:

Turn off the GPS revert in NAI - IP Site Connect channels in the following software and hardware:

- Radio codeplug
- Repeater codeplug

- MNIS configuration file

### 1.4.1.3.3 Configuring SmartPTT to Restore Movement Reports

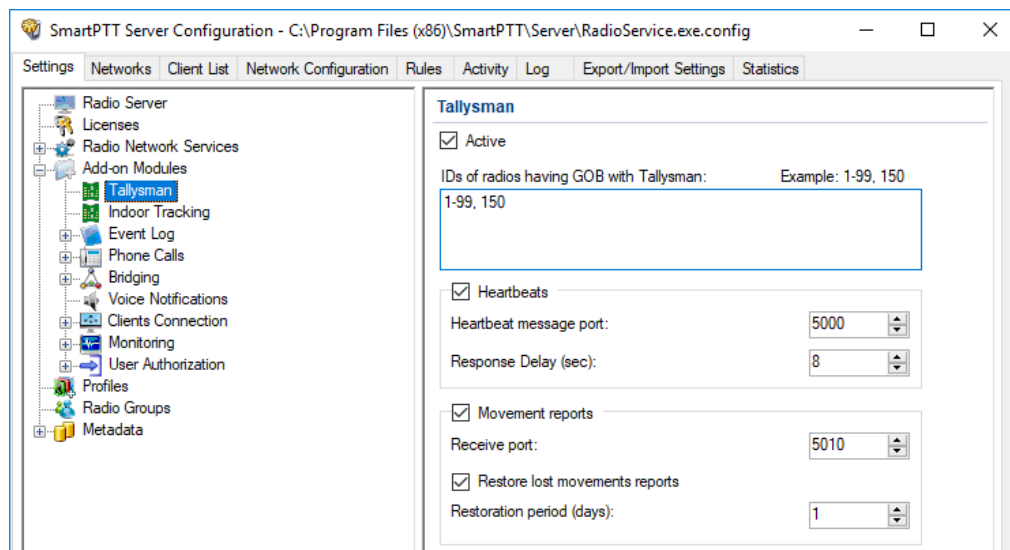
Follow the procedure to to configure movement reports restoration in the dispatch system.

#### Prerequisites:

- Obtain Radio IDs of radios that have option boards configured for the feature. For details, see [Configuring Radios to Support GOB](#).
- Using Tallysman Sprite Configurator, obtain the following parameters:
  - Base Radio ID
  - Base UDP PortFor details, see [Programming GOB for Movement Reports Restoration](#).
- Determine the necessity of the restoration period limitation and determine the limiting value.

#### Procedure:

1. Start SmartPTT Radioserver Configurator.
2. In the **SmartPTT Server Configuration** window, select the **Settings** tab.
3. In the left pane, expand **Add-on Modules**, and then select **Tallysman**.





4. In the **Tallysman** pane, select the **Active** check box.

5. In the **IDs of radios having GOB with Tallysman** field, type Radio IDs of subscriber units with properly configured option boards.
6. Select the **Movement reports** check box.
7. In the **Port for reports receiving** field, set the value of the **Base UPD Port** parameter from the Tallysman Sprite Configurator.
8. To limit the restoration period, perform the following actions:
  - a. Select the **Restore lost movements reports** check box.
  - b. In the **Restoration period (days)** field, set the restoration period in days.

**NOTE**

The day unit here is equal to 24 hours. If you type 3, SmartPTT Radioserver requests coordinates collected on the GOB within the last 72 hours.

9. At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.
10. Click **Restart** (  ) to restart SmartPTT Radioserver and apply changes.

**Postrequisites:**

In the firewall software on the computer, unlock UPD ports.

## 1.4.2 Indoor Tracking

Big organizations with huge premises require constant control over their employees displacement inside buildings. For this purpose Indoor Tracking system was implemented.

Currently, SmartPTT system supports the following technologies and products:

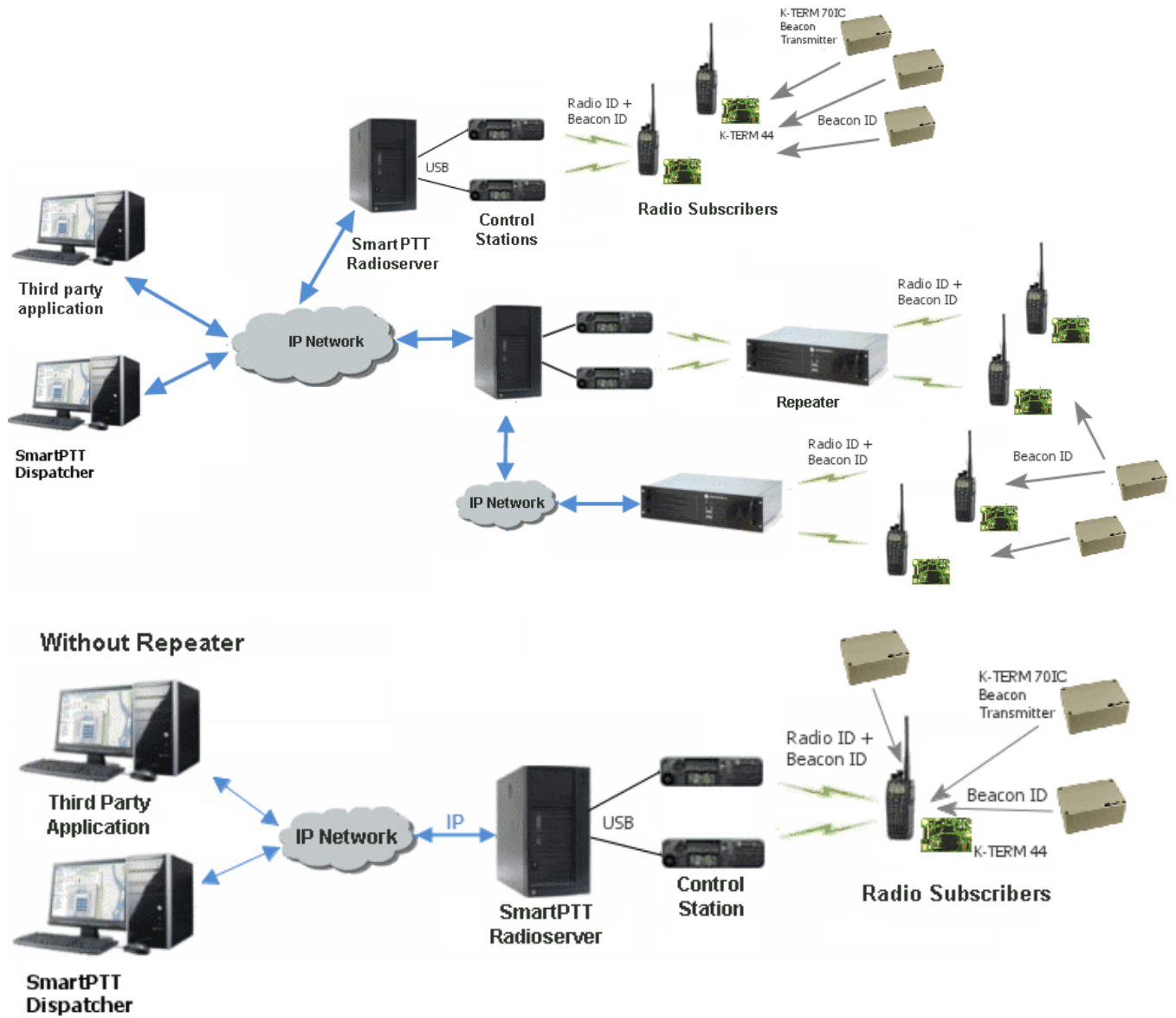
- **iBeacon technology:** With MOTOTRBO radios with the firmware version 2.6 and above, and beacons that support iBeacon technology.
- **BluFi Wireless:** With option boards (Connect-RTLS RF800) and beacons (Connect-RTLS RF800).
- **Kilchherr Elektronik AG:** With option boards (K-TERM 44) and beacons (K-TERM 70IC Beacon Transmitter).

Connect Plus systems support Indoor Tracking based on the iBeacon technology only.



**IMPORTANT**  
Indoor Tracking functionality requires the corresponding license. For more information on how to install licenses, see [Licenses](#).

The following scheme shows how SmartPTT Radioserver gets radio location data:



**iBeacon-based technology scheme**

Each installed beacon is transmitting at an interval ranging from a fraction of a second to several minutes the data packages in the following format:

- *iBeacon prefix*: A title of a package
- *UUID*: A unique identifier of the beacon
- *Major*: A group parameter of the beacon
- *Minor*: The individual parameter of the beacon in the group
- *Tx power*: The strength of the signal, transmitting by the beacon

The radio with the preconfigured CPS settings receives the data packages from the beacons which identifiers (UUID) are set in the CPS settings, and transmits them to SmartPTT Radioserver via repeater or control station.

## BluFi scheme

The RF800 beacons operate in a continual **Sleep** → **Transmit** → **Sleep** → **Transmit** mode. When a beacon awakes from its sleep cycle, it transmits its allocated code during the transmit phase, and then returns to sleep phase.

Portable radios operate in the **Sleep** → **Listen** → **Sleep** → **Listen** mode. When a portable radio awakes from its sleep cycle, it listens for any transmitted beacon codes during its listen phase, and then determines the current active beacon. If a new active beacon is different from the previous active beacon, a beacon update status message (a special TMS message) is sent via the radio network to SmartPTT Radioserver. For information on BluFi beacons and option boards, see the manufacturer's documentation on the products.

### NOTE

Connect-RTLS RF800 option boards transmit data in TMS messages. Therefore, it is necessary to have TMS enabled.

## Kilchherr scheme

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. For information on Kilchherr beacons and option boards, For information on the manufacturer's documentation on the products.

**WARNING**

For the **Kilchherr** and **BluFi** option boards, in network systems with MNIS service enabled, make sure that the ID set in the option board settings (where data is to be sent) should match **MNIS Application ID**. In network systems without MNIS service enabled, any ID can be set in the option board settings (where data is to be sent). However, it is necessary that **Data call confirmed** should be unselected in the radio settings. In networks based on control stations it is necessary that the ID set in the option board settings should match **Radio ID** set in the control station settings.

To use the **Indoor Tracking** feature based on the iBeacon technology, ensure that the MOTOTRBO radio meets the following requirements:

- The radio [supports Indoor-positioning](#)
- The radio is [configured properly](#) in MOTOTRBO CPS

## 1.4.2.1 Configuring Indoor Tracking in MOTOTRBO CPS

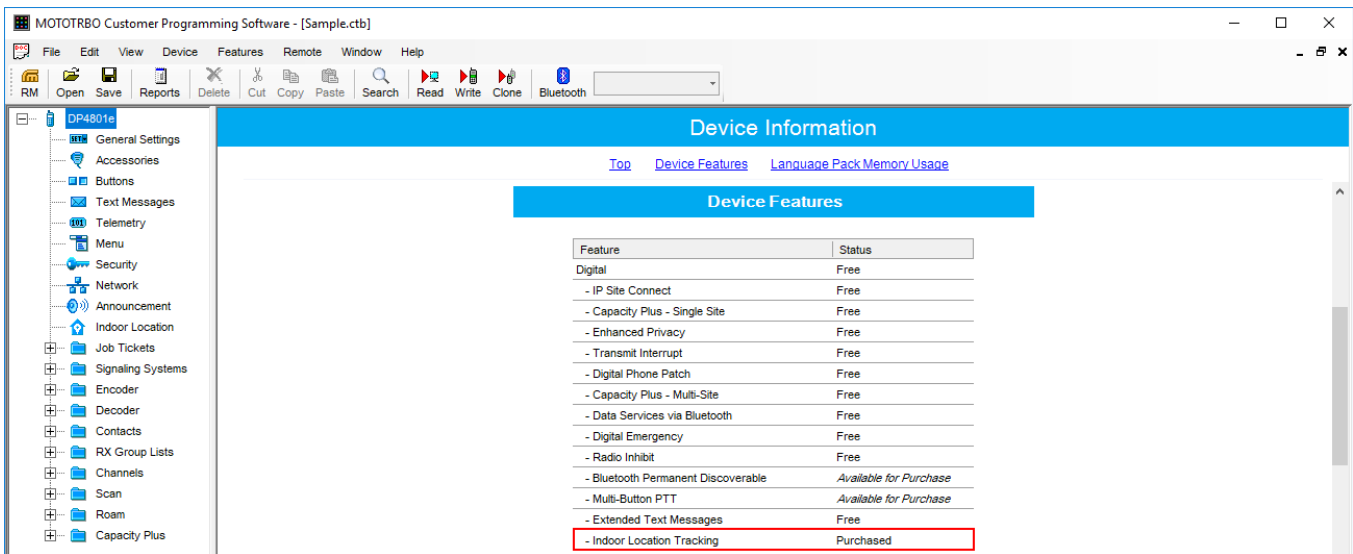
### NOTE

Below is a description of the Indoor settings only.

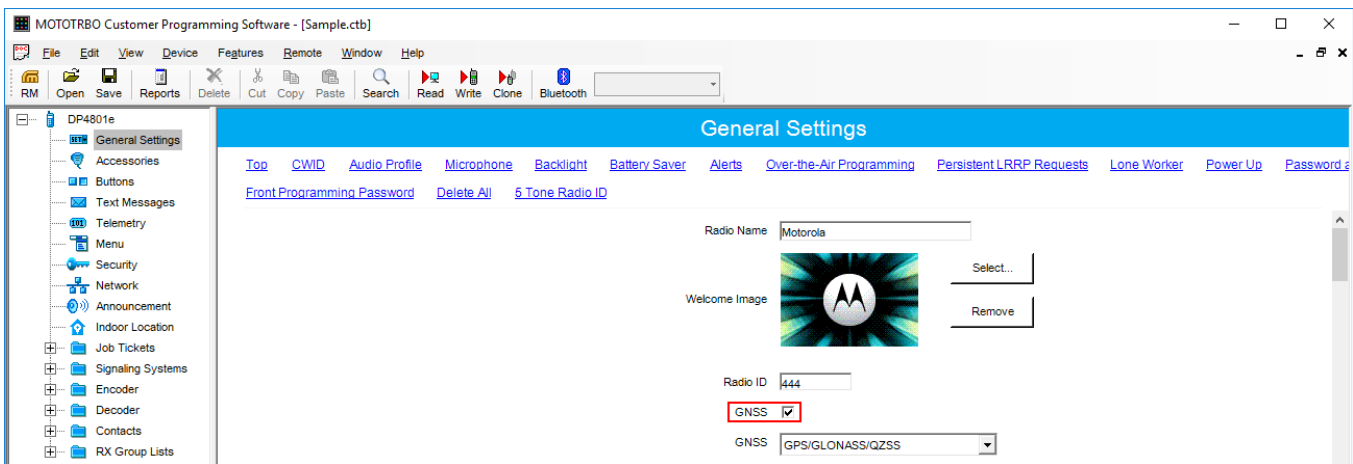
For information on programming the MOTOTRBO equipment, see *MOTOTRBO CPS Online Help*.

To configure the MOTOTRBO radio for use of the Indoor Tracking feature based on the iBeacon technology, follow these steps:

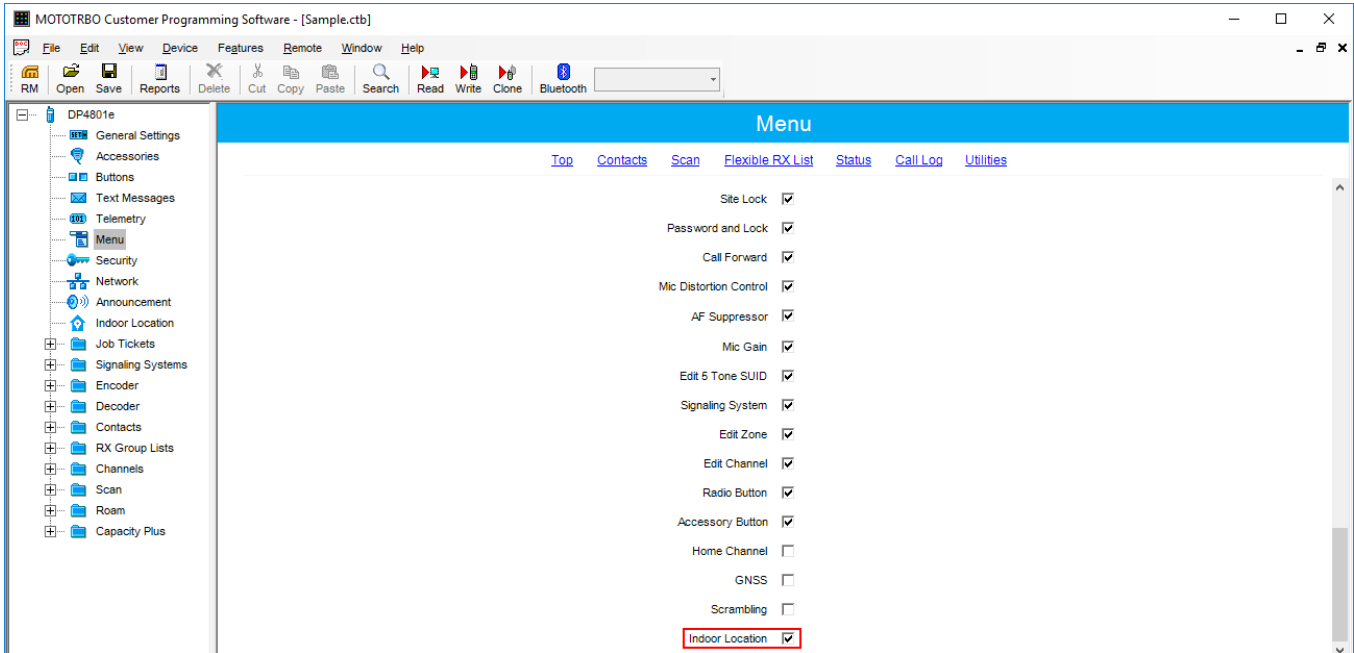
1. Launch MOTOTRBO CPS with the 13.0 version or above, and perform the following actions:
  - a. In the left pane, select the desired radio and in the **Device Information** tab verify the **Indoor Location Tracking** field has the *Purchased* value.



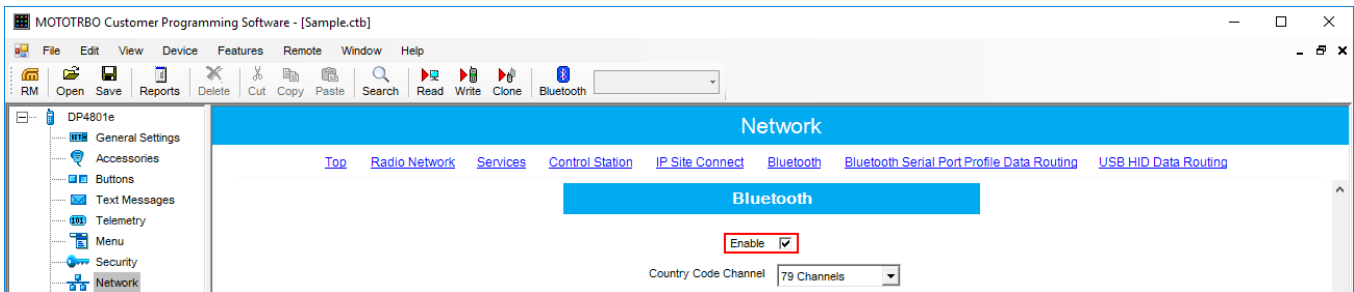
- b. In the left pane, select **General Settings**. In the **General Settings** window, select the **GNSS** check box.



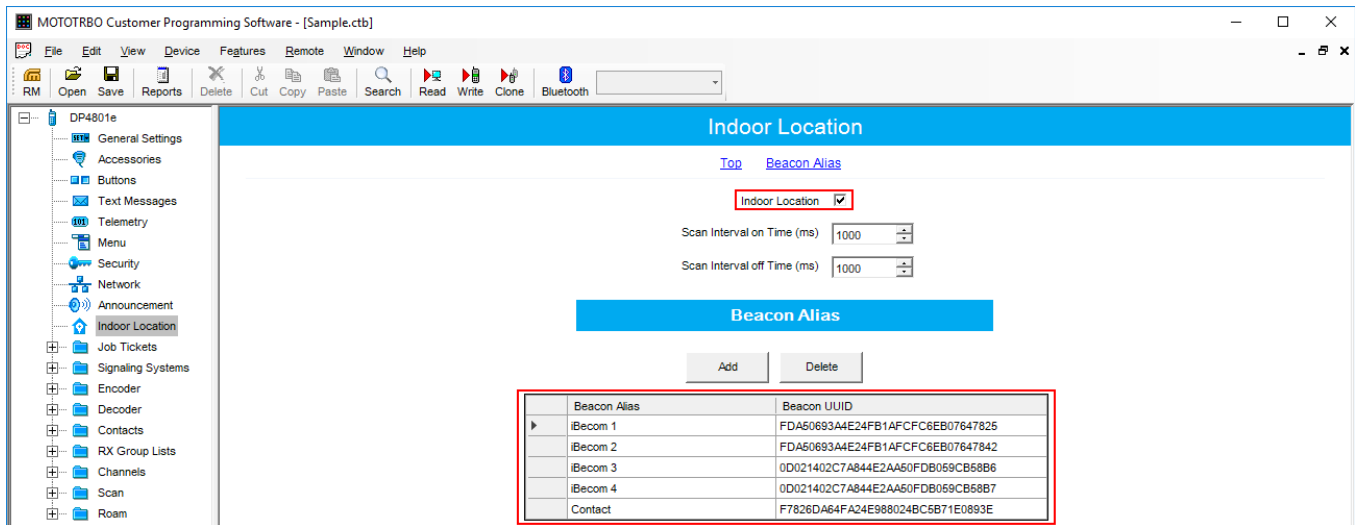
- c. In the left pane, select **Menu**. In the **Utilities** area of the **Menu** pane, select the **Indoor Location** check box.



- d. In the left pane, select **Network**. In the **Bluetooth** area of the **Network** pane, select the **Enable** check box.



- e. In the left pane, select **Indoor Location**. In the **Indoor Location** pane, select the **Indoor Location** check box.

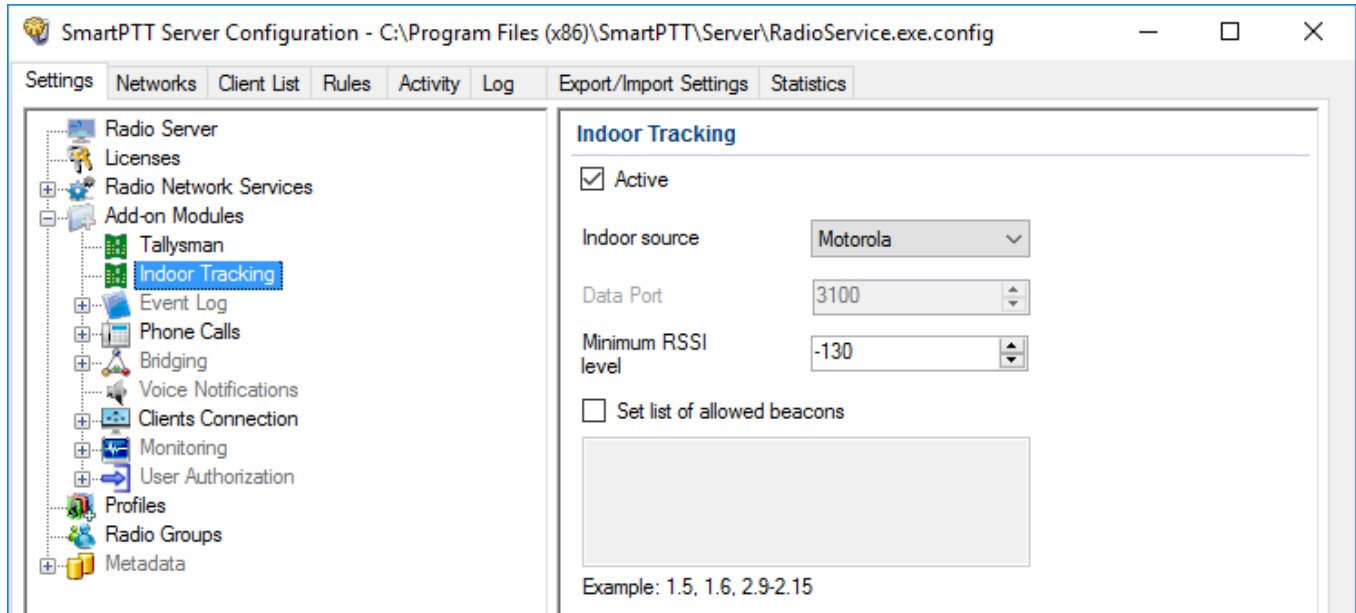


- f. In the **Beacon Alias** area, add the beacons and specify their names and identifiers (UUID).
2. Configure Bluetooth in the radio to activate Indoor-positioning. For that, with use of radio menu buttons, perform the following actions:
    - a. Set the parameter **Main Menu** → **Bluetooth** → **My Status** → **On**.
    - b. Set the parameter **Main Menu** → **Bluetooth** → **Indoor Location** → **Enabled**.

## 1.4.2.2 Configuring Indoor Tracking

To configure **Indoor Tracking** in SmartPTT Radioserver Configurator, follow these steps:

1. In the left pane of *SmartPTT Radioserver Configurator*, select **Indoor Tracking**.



2. In the **Indoor Tracking** pane, perform the following actions:
  - a. Select the **Active** check box to activate Indoor Tracking.
  - b. From the **Indoor source** list, select the desired Indoor-positioning technology:
    - *Motorola*: If you use iBeacon technology
    - *BluFi*: If you use BluFi Wireless technology
    - *Kilchherr*: If you use Kilchherr Elektronik AG technology
3. Only for *Kilchherr* technology: In the **Data Port**, enter the UDP port for listening to Beacon ID.
4. Only for *iBeacon* technology: In the **Minimum RSSI level**, enter the minimum value of the signal strength, that radio receives from the beacon.

### NOTE

SmartPTT Radioserver does not process the signals with power that is lower than the specified level.

5. *Optional:* Select the **Set list of allowed beacons** check box and specify the numbers of the beacons which data must be processed by SmartPTT Radioserver. Use the following format:
- If you use *Motorola* technology: Specify the numbers of the beacons in the *Major.Minor* format, where the *Major* is the beacons number, *Minor* is the individual number of the beacon in the group.
  - For the *BluFi* or *Kilchherr* technology: Specify the Beacon IDs set in the beacons parameters.

**NOTE**

If the **Set list of allowed beacons** check box is not selected, the radioserver processes data from all the beacons.

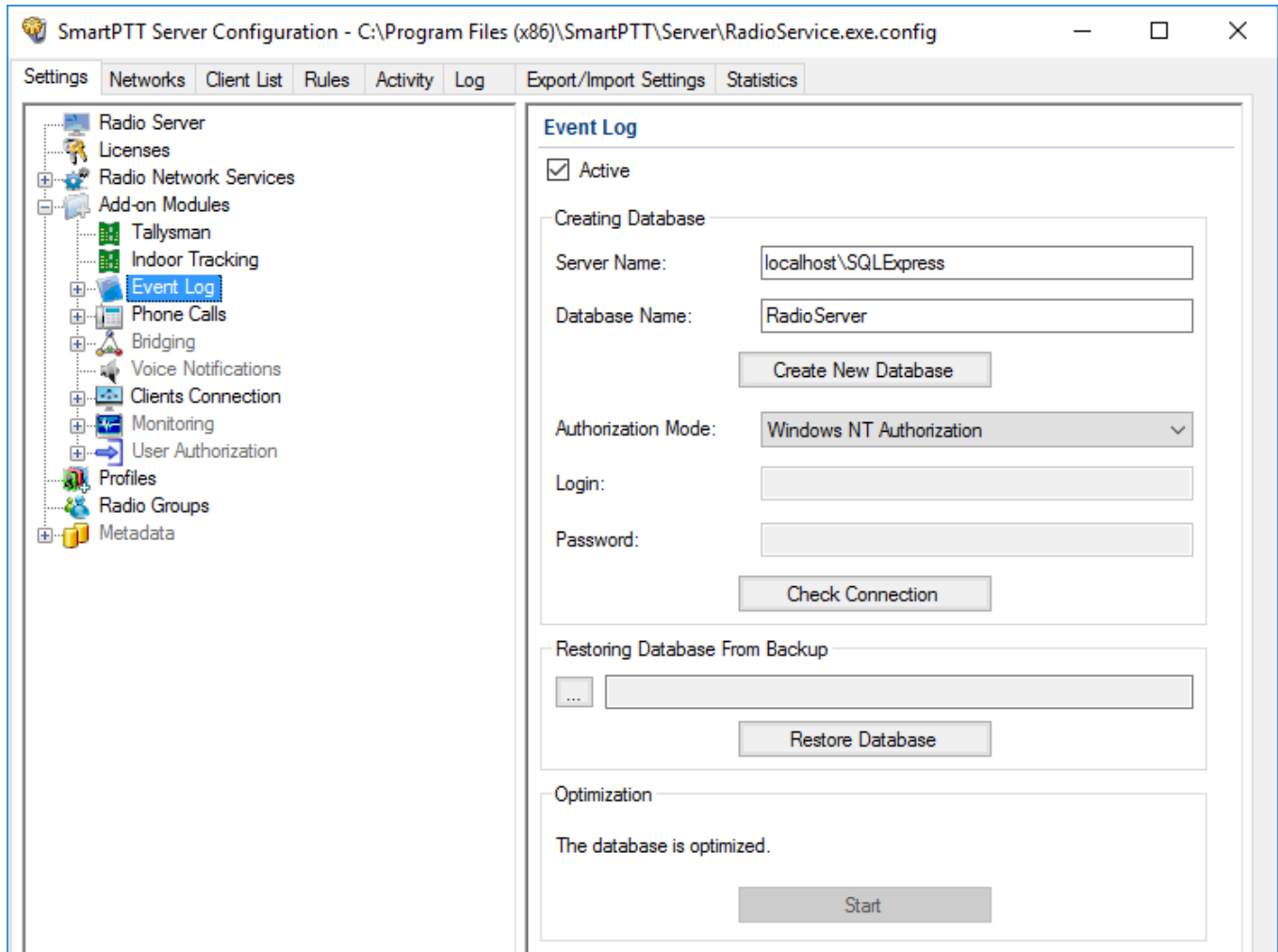


## 1.4.3 Event Log

Event Log 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.

Activate the event log by clicking **Settings** → **Add-on Modules** → **Event Log**, and selecting the **Active** check box.

Then create the database for the log.



To create a new database, enter the server name and the database name in the **Server Name** and the **Database Name** fields, and click **Create New Database**. If creation is successful, a message about successful database creation appears. 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*.

For the database server installed together with the SmartPTT Radioserver enter the name using the following format: *<Name of computer\SQLExpress>* (for example, *MYCOMP\SQLExpress*).

Select **Authorization Mode** between the two:

- **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.
- **SQL Server Authorization:** You must have the login name and password of the account with SQL server access.

Click **Check Connection**. In case of successful authorization the message *"The connection is established successfully!"* appears. 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 optimize the event log database, click the **Start** button in the **Optimization** block. The optimization of the event log database accelerates the database query processing when getting a large amount of GPS data or events. For example, when building the **Radio Activity Reports**, **Radio Locations**, **Events for Period** and other reports in *SmartPTT Dispatcher*.

**NOTE**

The optimizing feature is applicable only to non-optimized event log databases created before the release of SmartPTT 9.0 and higher.

Before performing the optimization, ensure that the radioserver is stopped.

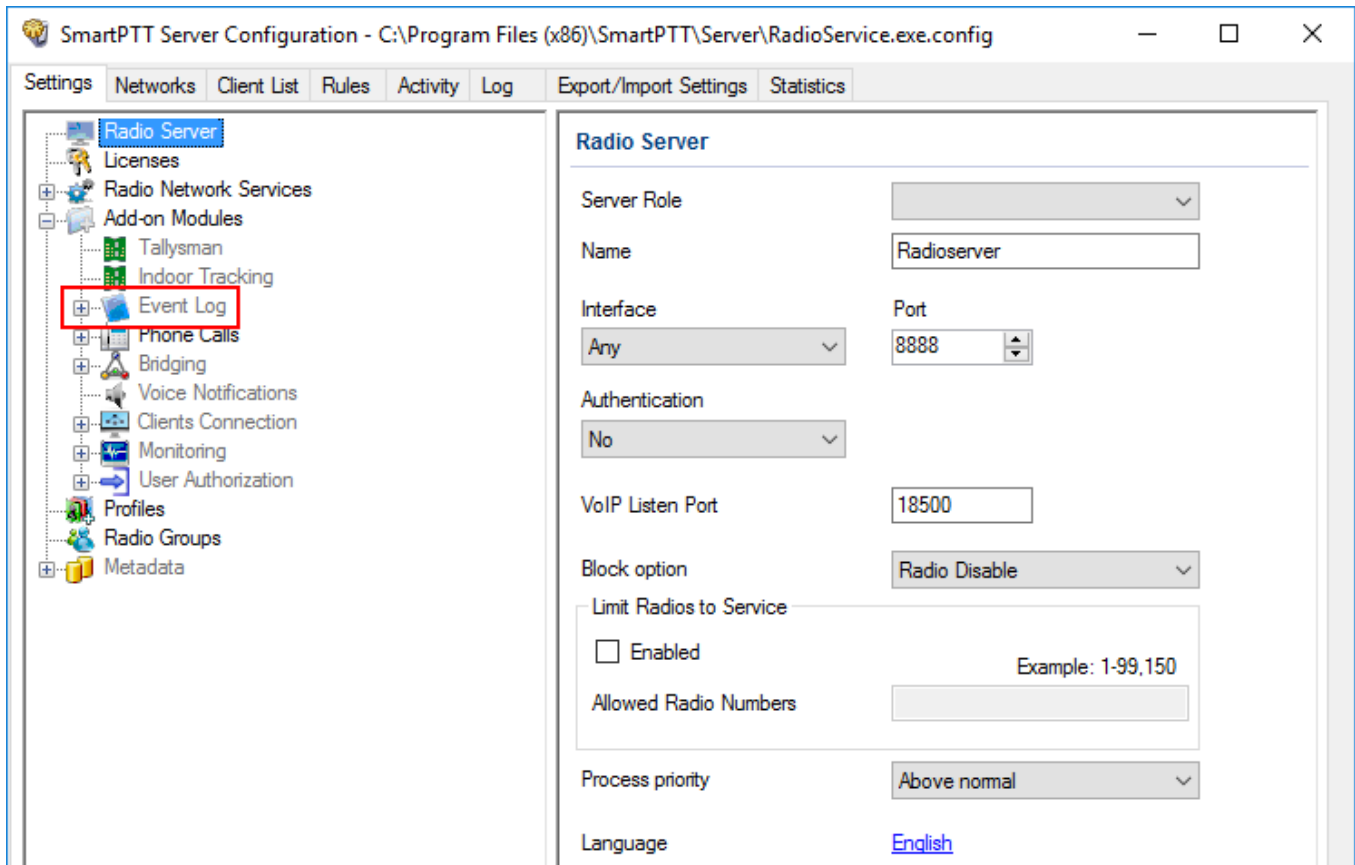
If the event log database is optimized, the **Optimization** block shows the corresponding message and the **Start** button is inactive.

The following instructions are related to the event log:

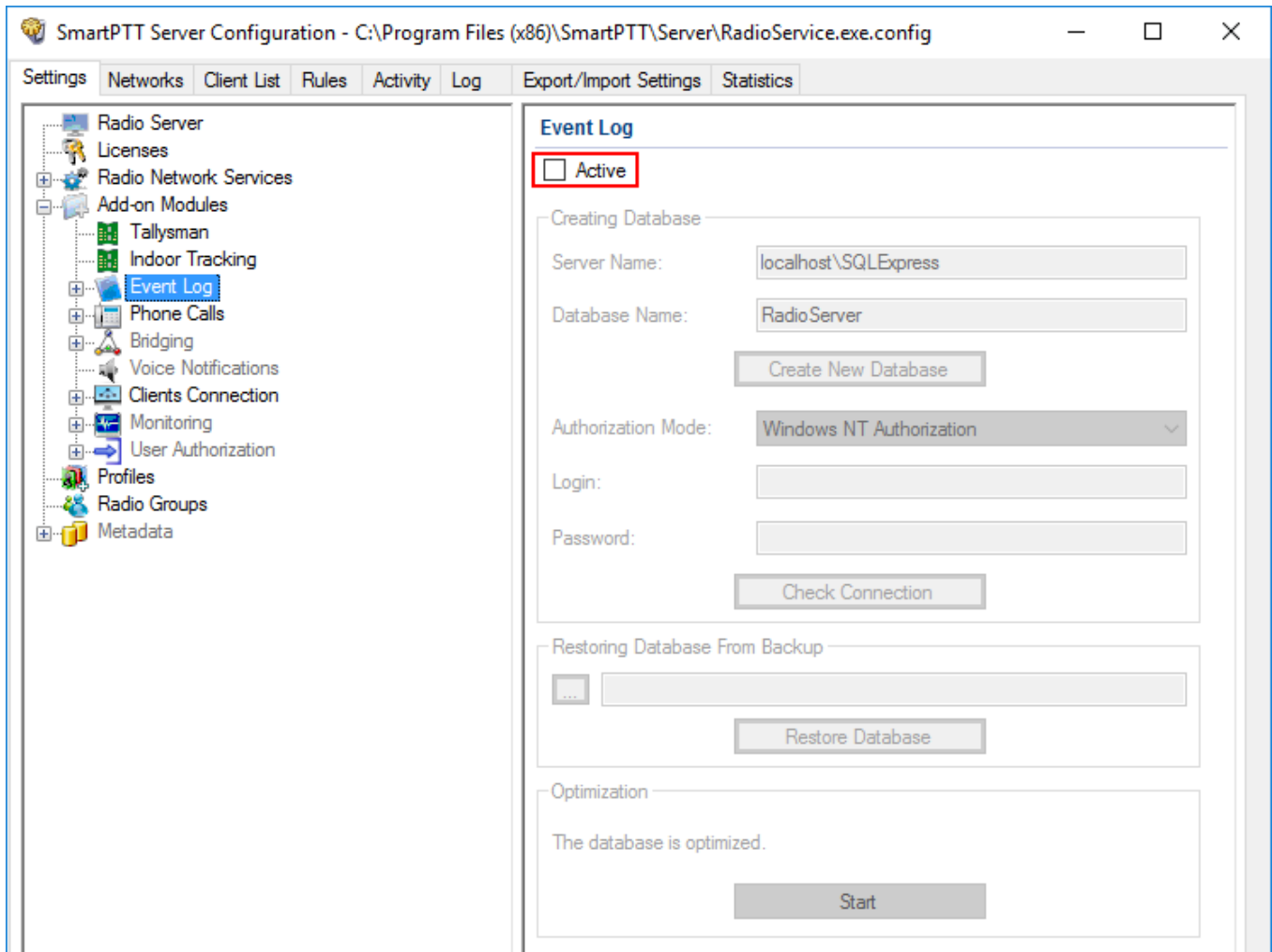
## Creating Database

To create the event Log database, follow these steps:

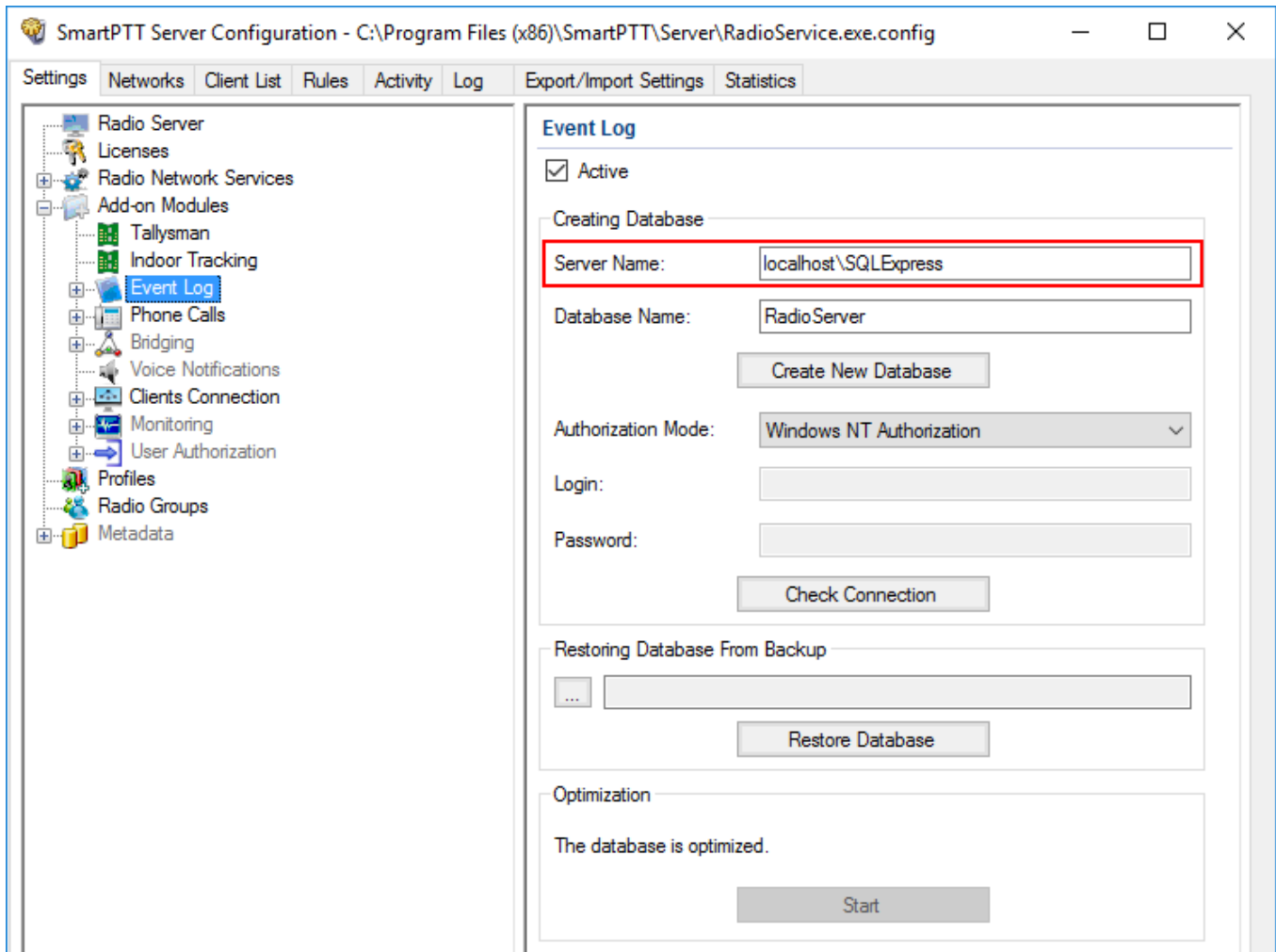
1. In the left pane of the **Settings** tab, expand **Add-on Modules** node and click **Event Log**.



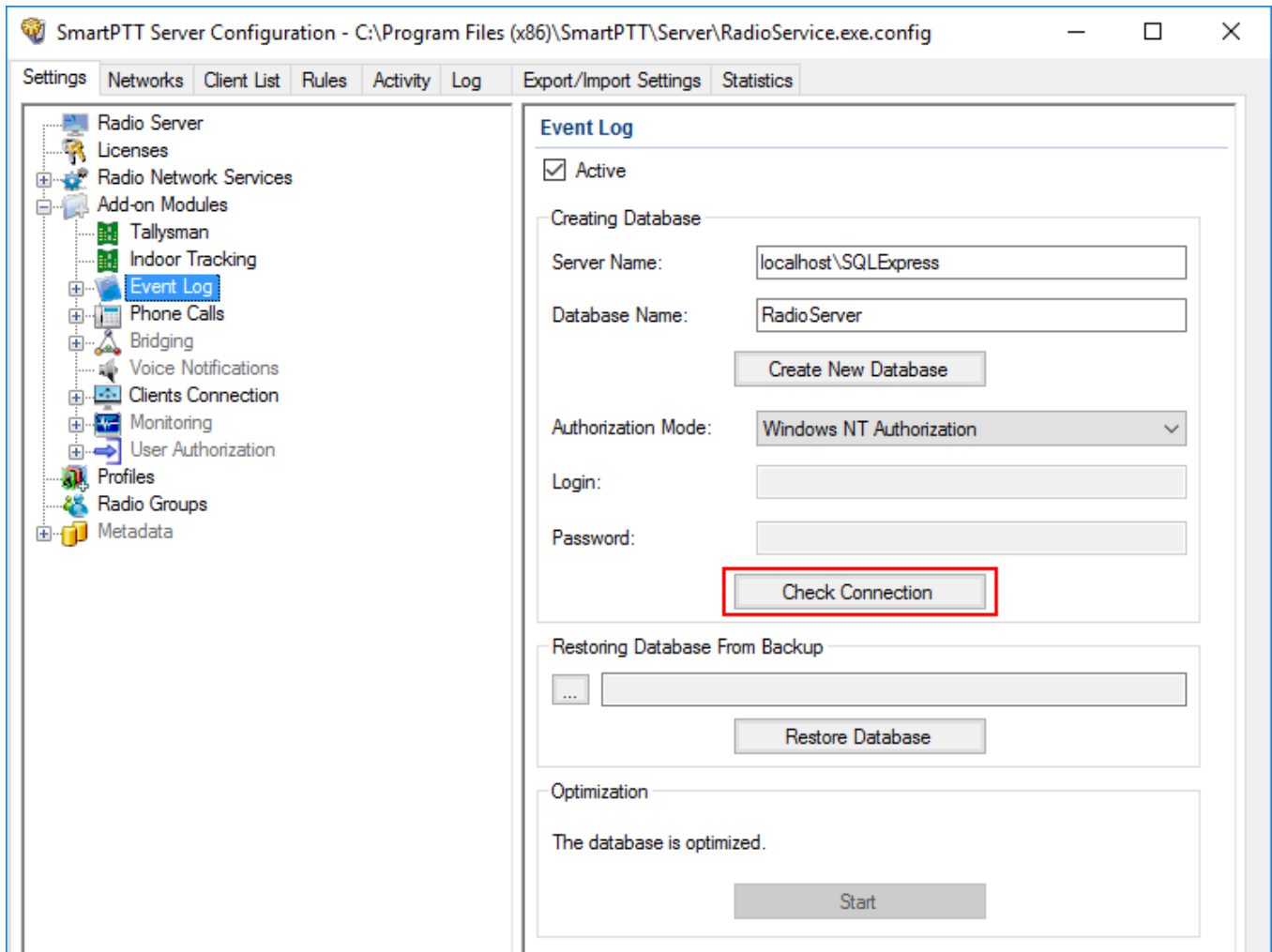
2. Make sure that the **Active** check box is selected in the **Event Log** pane.



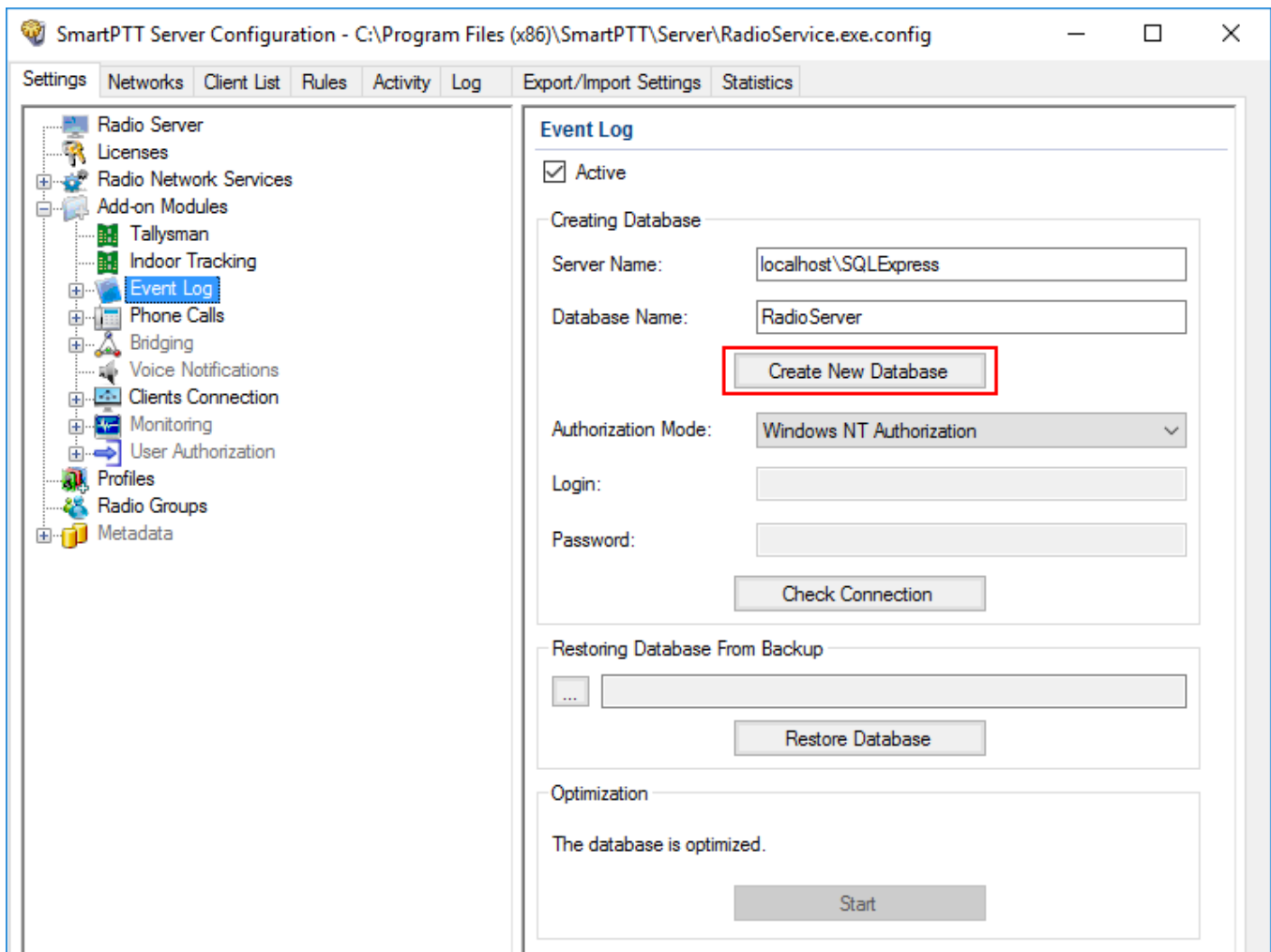
3. In the **Server name** field, enter the name of the SQL Server. You can use either *<IP-address of your computer>\<Your SQL Server name>* or *localhost\<Your SQL Server name>* format:



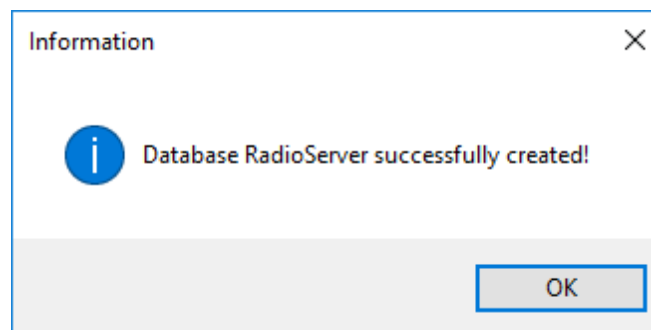
4. In the **Database Name** field, enter the name of a local event log database.



5. Click **Create New Database**.



If creation is successful, the following message appears.



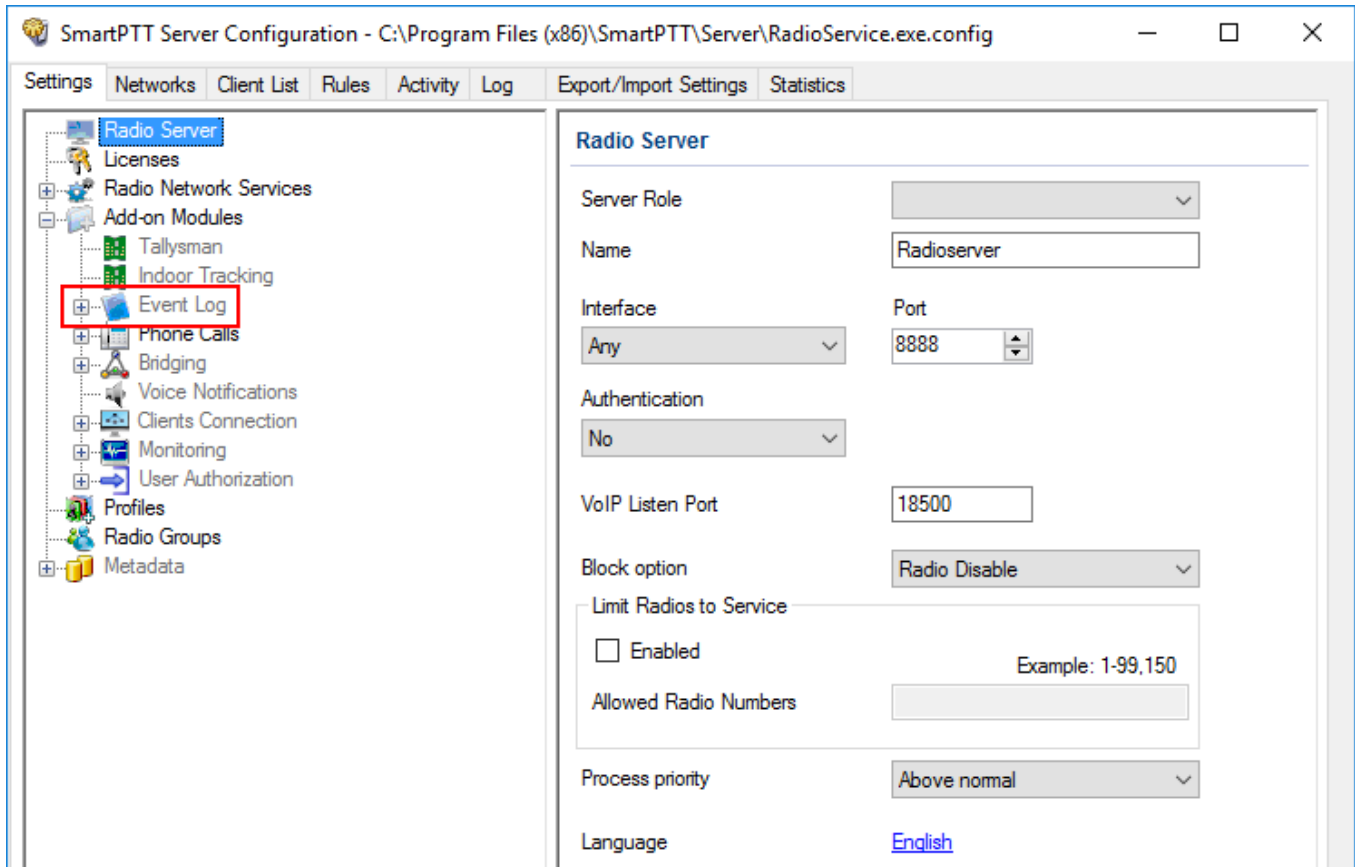
6. At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.

7. Click **Restart** (  ) to restart SmartPTT Radioserver and apply changes.

## Connecting Local Database

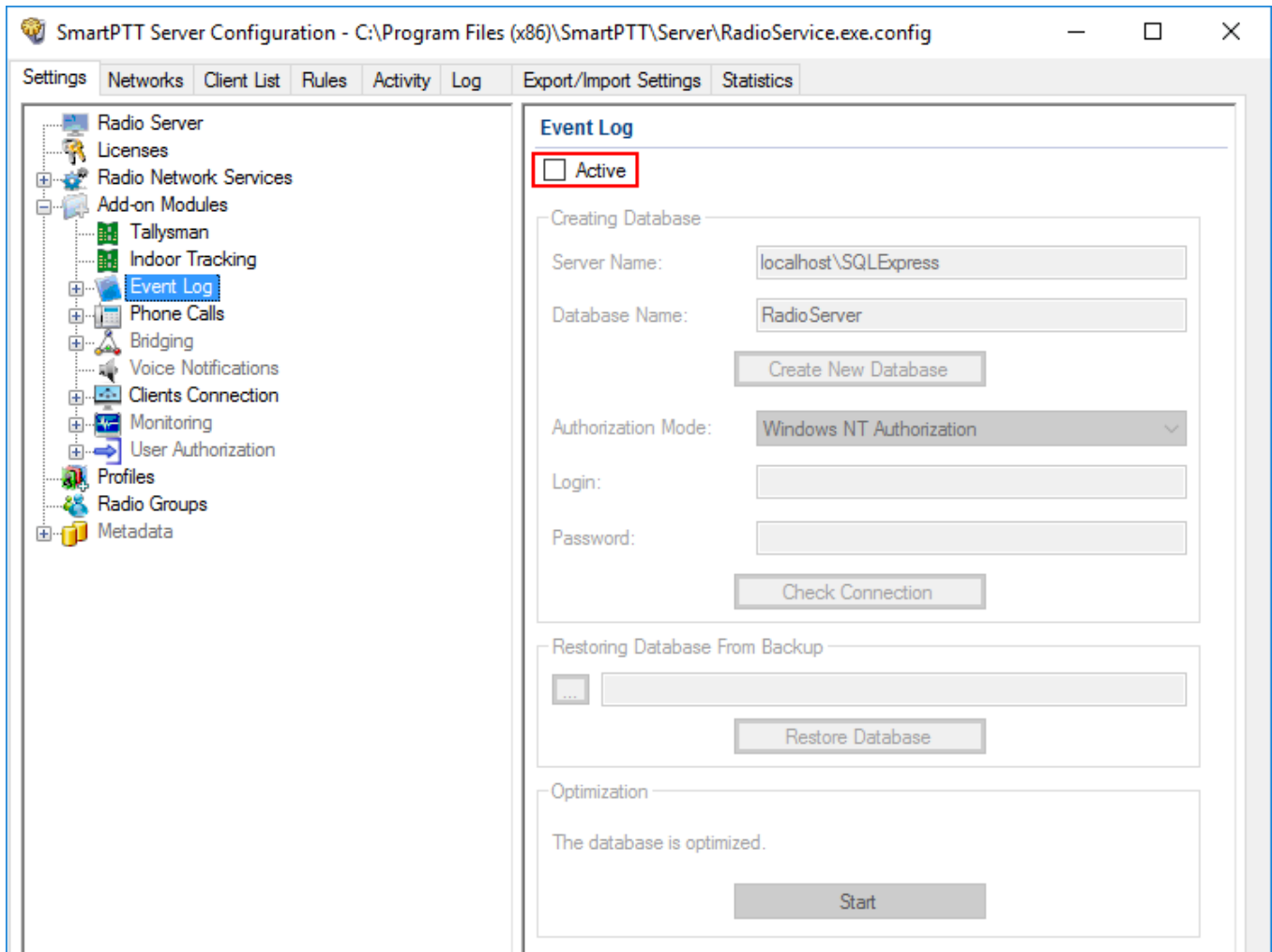
To connect to the local event Log database, follow these steps:

1. In the left pane of the **Settings** tab, expand **Add-on Modules** node and click **Event Log**.

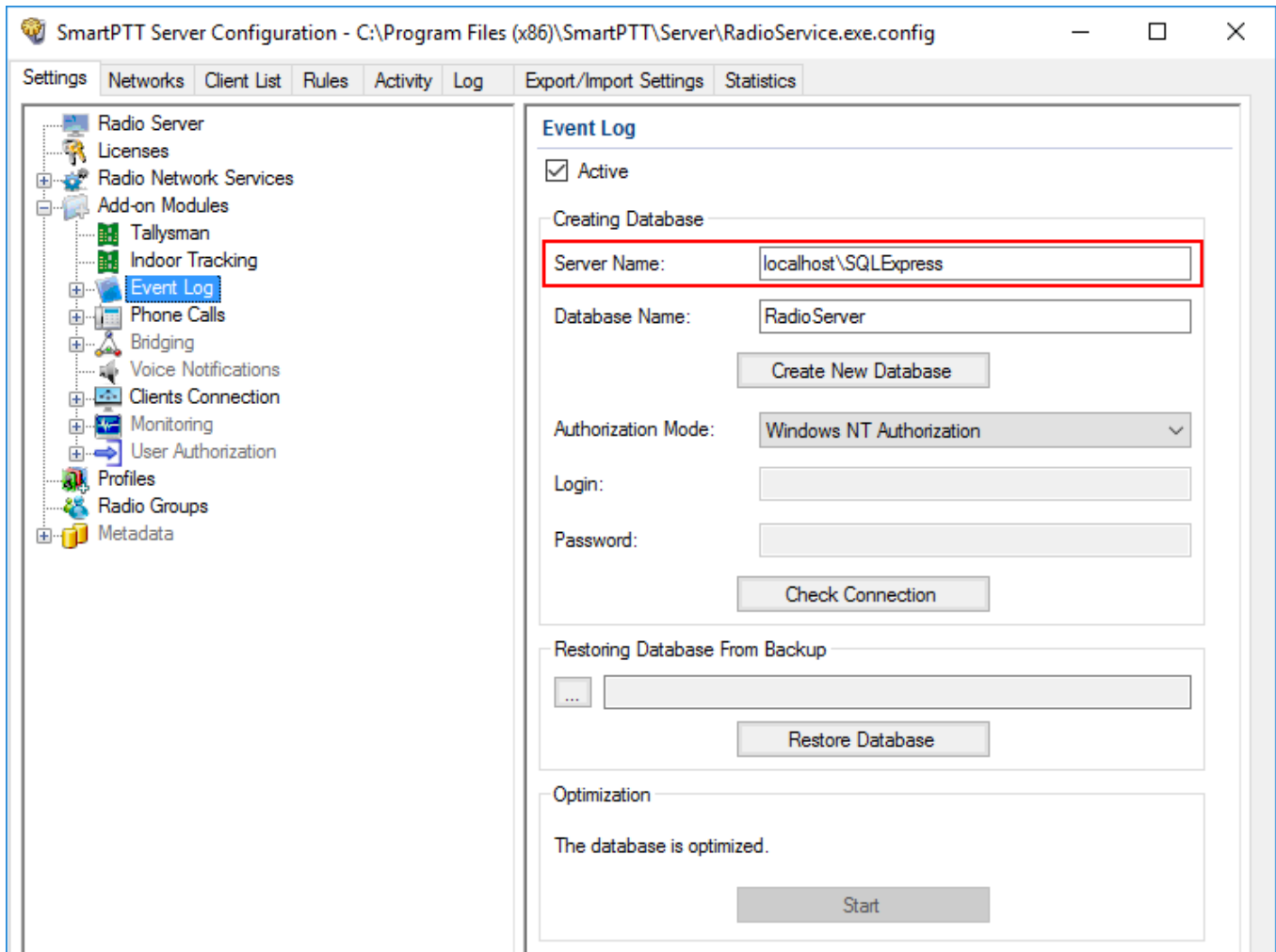




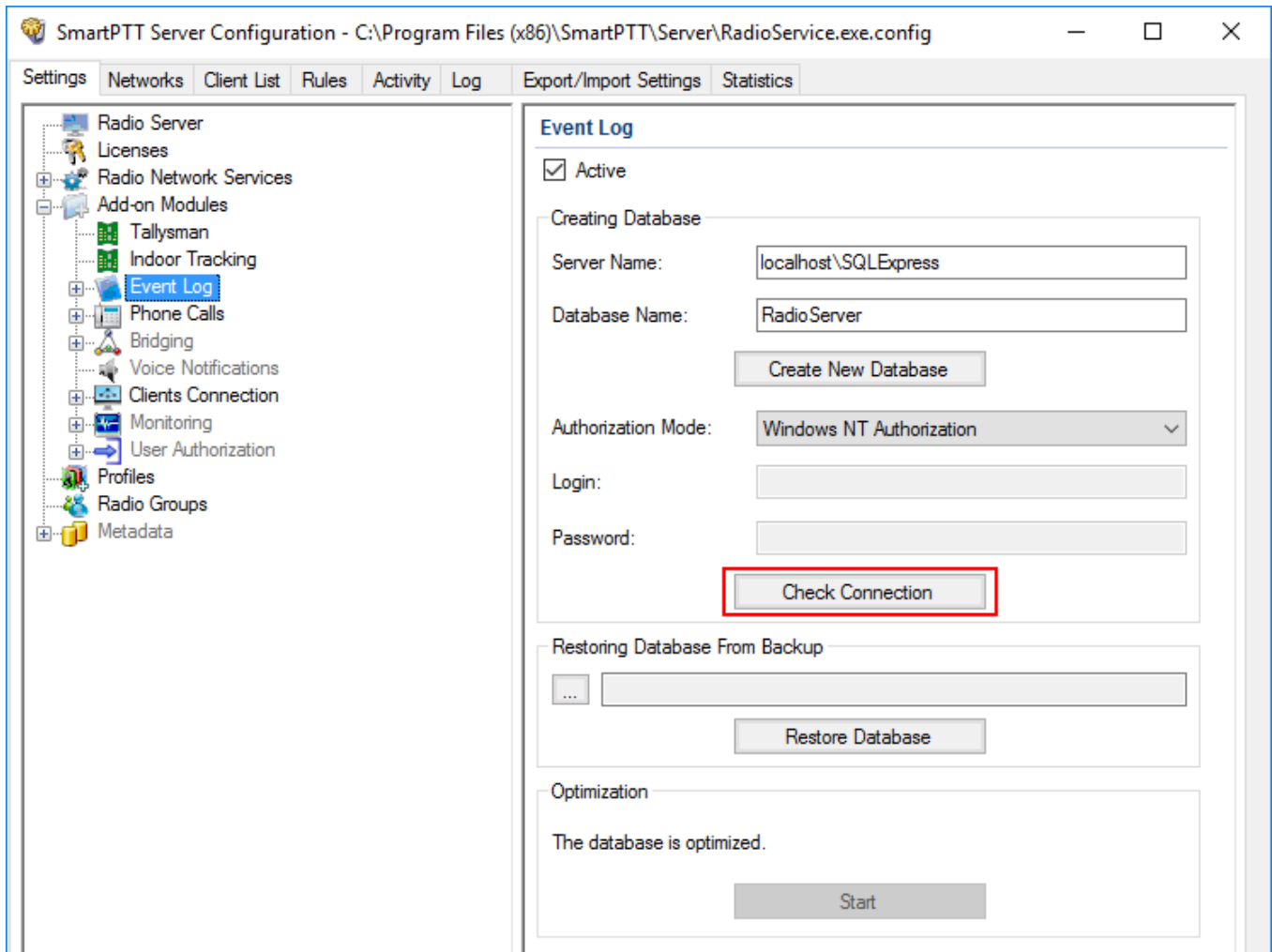
2. Make sure that the **Active** check box is selected in the **Event Log** pane.



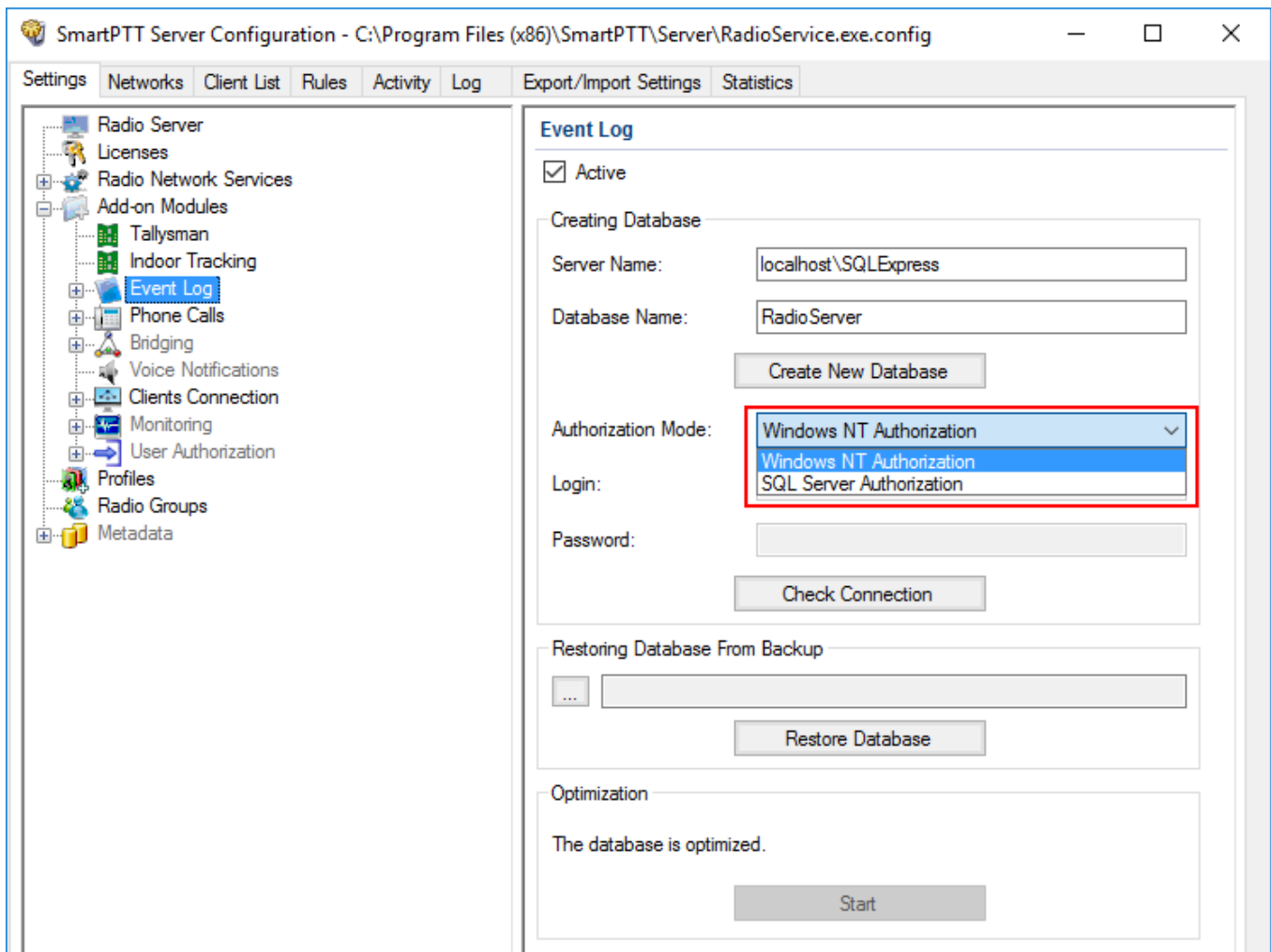
3. In the **Server name** field, enter the name of the SQL Server. You can use either *<IP-address of your computer>\<Your SQL Server name>* or *localhost\<Your SQL Server name>* format:



4. In the **Database Name** field, enter the name of a local Event Log database.



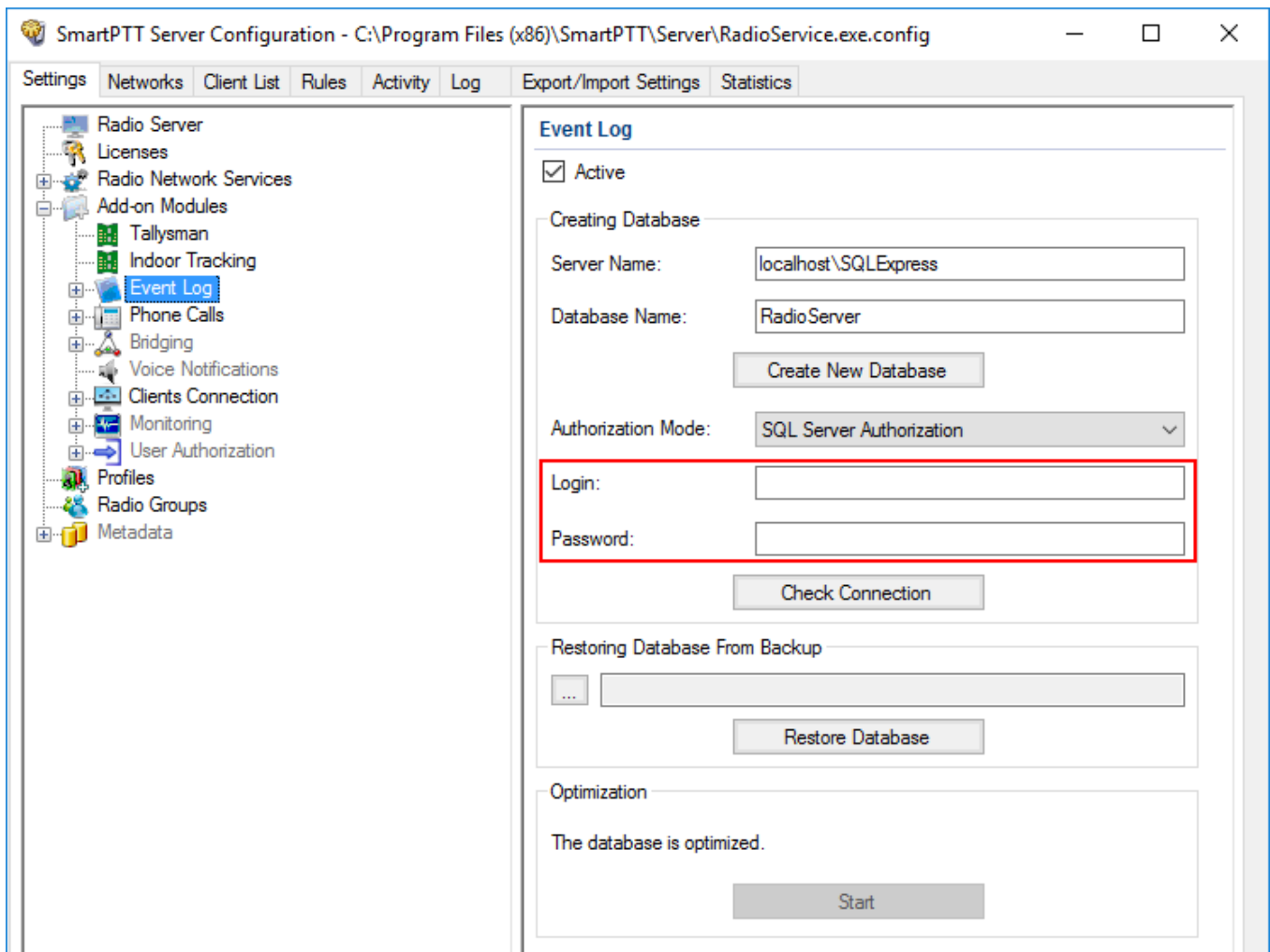
5. From the **Authorization Mode** list, select the needed authorization mode:



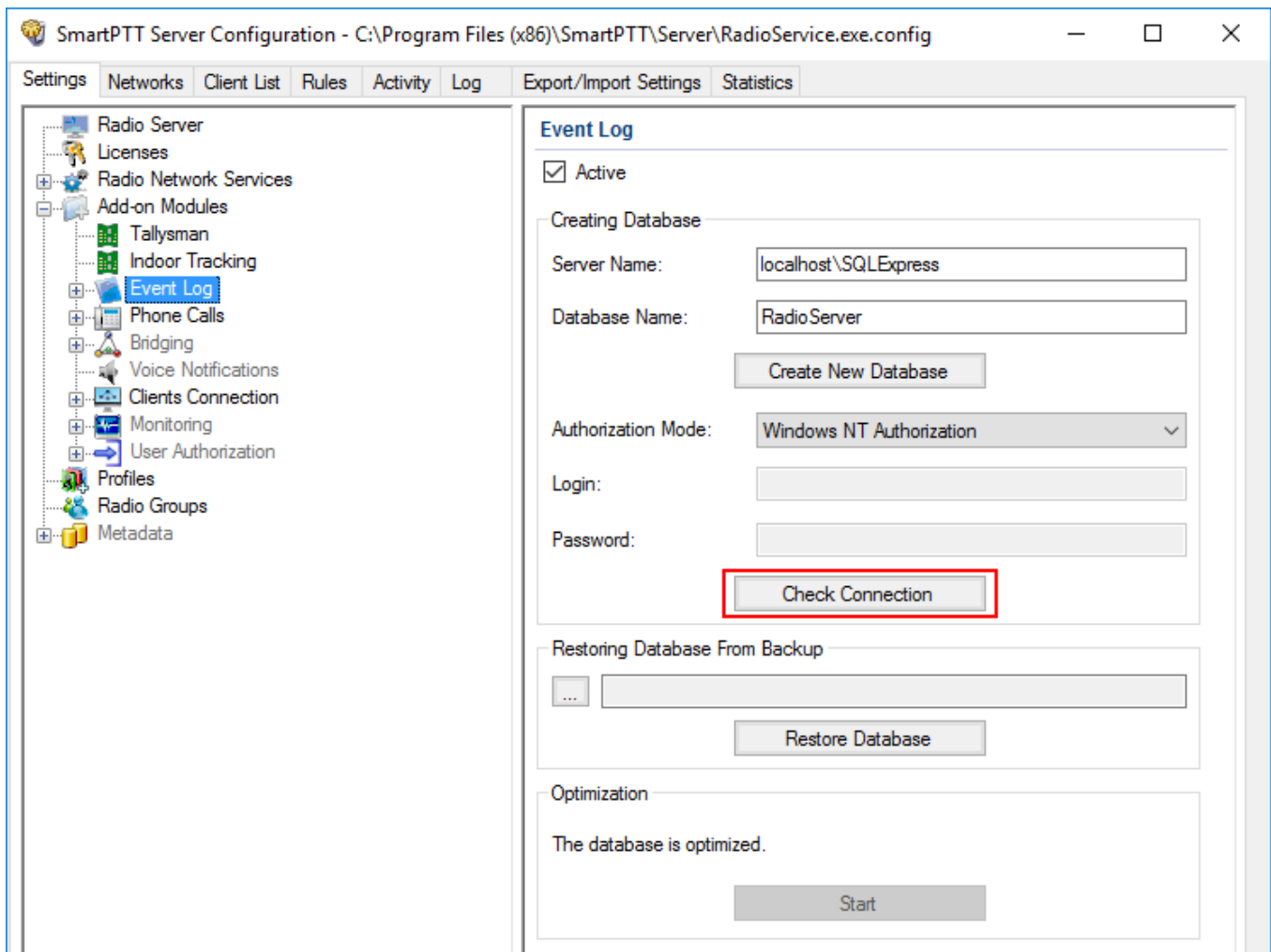
**Windows NT Authorization:** Select to use Windows account for connecting to the local SQL Server.

**SQL Server Authorization:** Select to use SQL Server account for connecting to the local SQL Server.

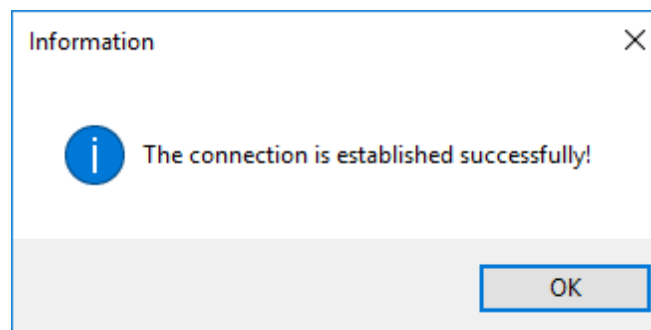
6. If **SQL Server Authorization** is selected, enter login and password.





7. Click **Check Connection**.



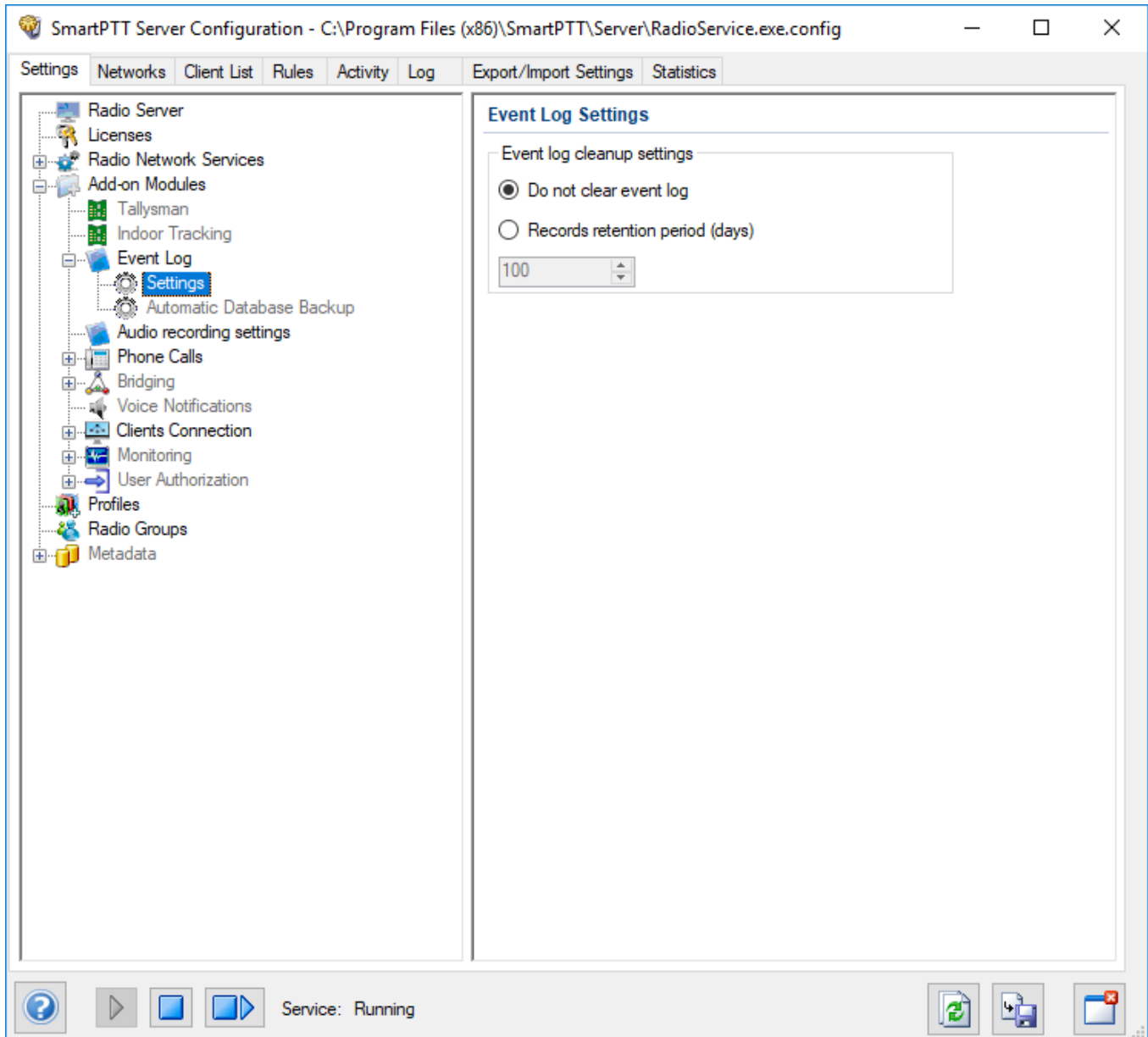
If the connection is successful, the following message appears.



8. At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.
9. Click **Restart** (  ) to restart SmartPTT Radioserver and apply changes.

### 1.4.3.1 Event Log Settings

The Event Log cleanup settings can be configured in the **Event Log Settings** pane on the **Settings** tab in SmartPTT Radioserver Configurator (**Add-on Modules** → **Event Log** → **Settings**).



In the **Event Log Settings** pane you can select one of the following Event Log cleanup options:

**Do not clear event log**

If selected, the Event Log entries will not be deleted. They will be stored for as long as there is available disk space.

**Records retention period (days)**

If selected, the Event Log entries will be deleted after the specified period of time. You can specify the desired retention period in the box below.

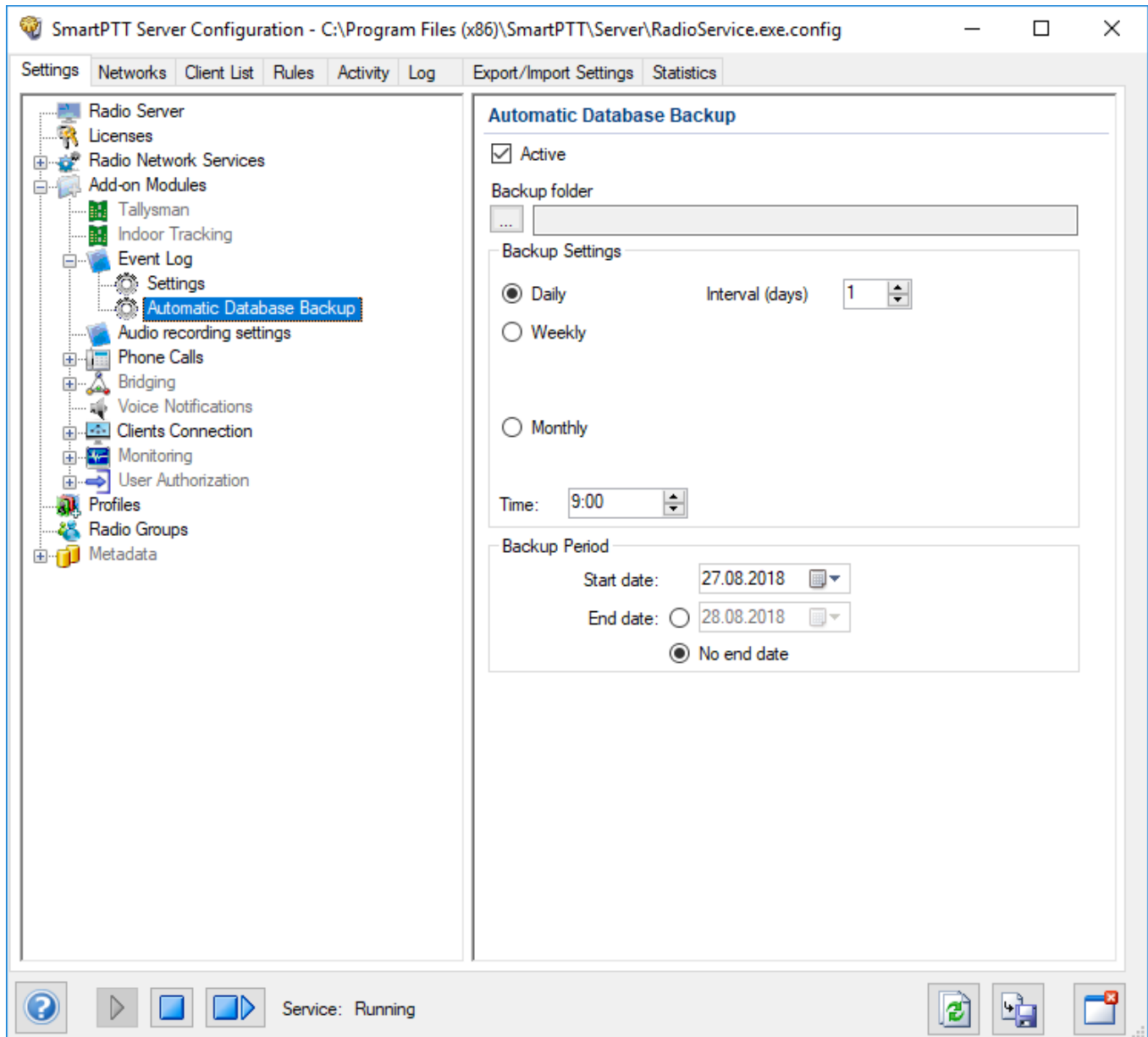
Available values range from *1* to *9999*. The default retention period is *100* days.



### 1.4.3.2 Event Log Database Automatic Backup

Automatic Event Log database backup helps to prevent data loss in case of the SmartPTT Radioserver hardware or software failure.

The Event Log backup settings can be configured in the **Automatic Database Backup** pane on the **Settings** tab in SmartPTT Radioserver Configurator (**Add-on Modules** → **Event Log** → **Automatic Database Backup**).




The **Automatic Database Backup** pane provides the following elements:

### Active

Activates automatic Event Log database backup.

### Backup Folder

The folder for storing the generated database backup files. You can select the desired folder by clicking the Browse (  ) button.

### NOTE

The specified folder can store up to three backup files, after which the oldest one will be replaced with a new one.

The **Backup Settings** area provides controls for configuring the backup settings. The area provides the following elements:

### Daily

Activates regular automatic backup with a specified day interval.

When selected, to the right appears the **Interval (days)** box where you can set the desired interval in days.

### Weekly

Activates regular automatic backup with a specified week interval.

When selected, to the right appear controls for selecting the desired days for performing the backup. You can select one or multiple week days by selecting the corresponding check boxes. In the **Interval (weeks)** box you can set the desired backup interval in weeks.

### Monthly

Activates regular automatic backup with a specified month interval.

When selected, to the right appear the **Day of month** and **Interval (month)** fields where you can set the desired day of the month and interval in months for performing the backup.

### Time

Sets the time for performing the database backup.

The default value is 9:00.

The **Backup Period** area provides controls for specifying the period of time that will be covered by the backup. The following parameters are available:

**Start date**

The first day of the backup period starting from which the Event Log database will be backed up.

**End date**

The last day of the backup period starting from which the Event Log database will not be backed up.

**No end date**

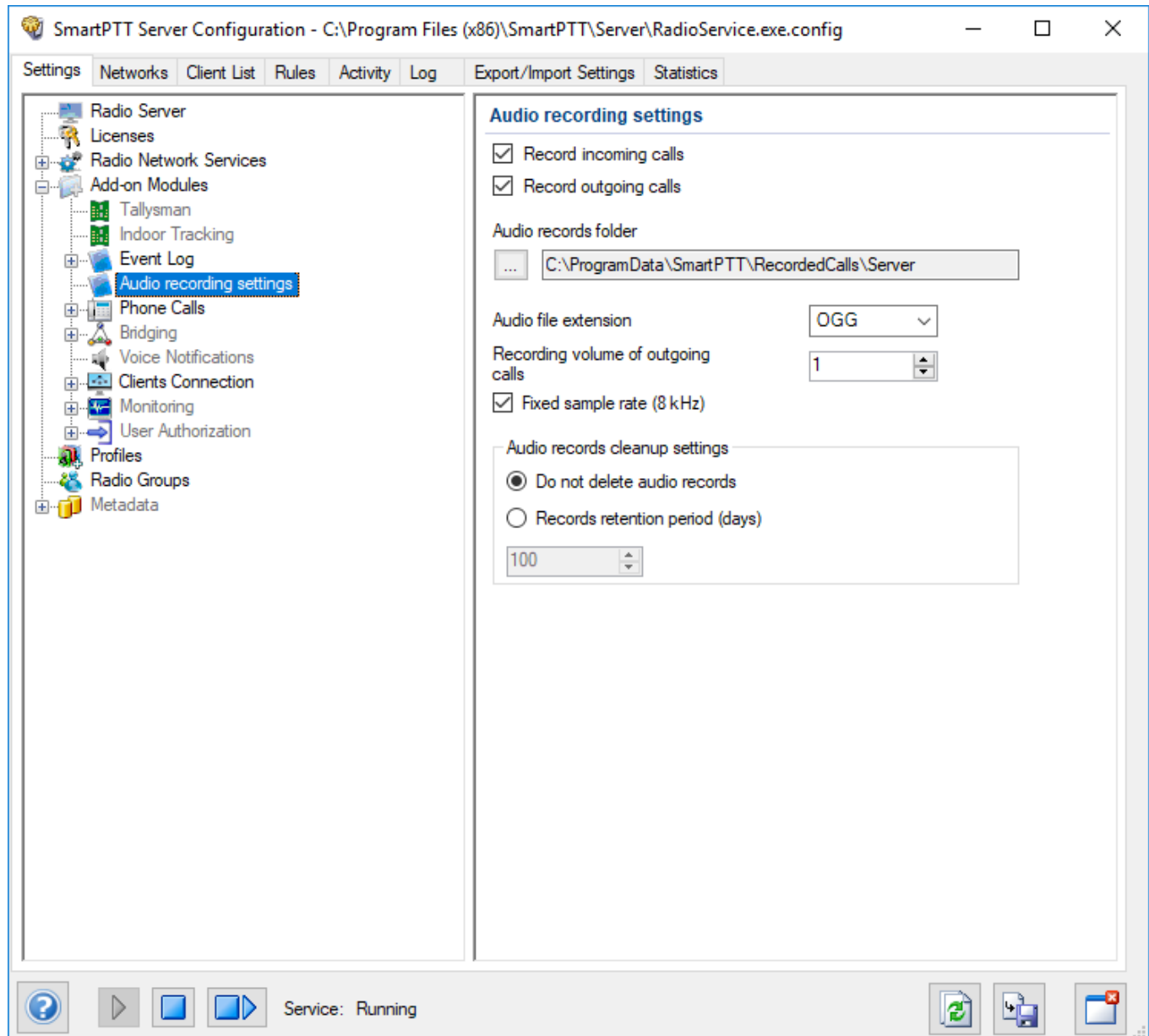
If selected, the database will be backed up from the **Start Date** up to the day of the performed backup.

For information on recovery of the Event Log database from automatically generated backup files, see [Event Log](#).

## 1.4.4 Audio Recording Settings

SmartPTT provides the ability to record incoming and outgoing calls in the radio system and save them as audio files to a local folder.

The audio recording settings can be configured in the **Audio Recording Settings** pane on the **Settings** tab in SmartPTT Radioserver Configurator (**Add-on Modules** → **Audio Recording Settings**).



The **Audio recording settings** pane provides the following elements:

**Record incoming calls**

Activates recording of the voice calls initiated by radios.

**Record outgoing calls**

Activates recording of the voice calls initiated by dispatchers.

**Audio records folder**

The folder where the voice call records are stored.

**Audio file extension**

The call recordings extension. The following options are available:

- MP3
- OGG
- WAV

By default, call recordings are saved as .ogg audio files.

**Recording volume of outgoing calls**

The sound increase ratio applied to the current sound volume when recording calls initiated by dispatchers.

You can select a value from the range of 1 to 5. The default value is 1. If left unchanged, the sound volume of outgoing calls does not change when recorded.

**Fixed sample rate (8 kHz)**

Sets the fixed sample rate of 8 kHz for all recorded voice calls. Such sample rate reduces the size of the saved audio files due to certain audio quality loss.

The **Audio records cleanup settings** area provides controls for configuring parameters of the voice calls automatic cleanup.

The following options are available:

**Do not delete audio records**

If selected, call recordings are not deleted. The audio files are stored for as long as there is available disk space.

**Records retention period (days)**

If selected, call recordings are automatically deleted after the specified period of time. You can specify the desired retention period in the box below.

Available values range from 1 to 9999. The default retention period is *100* days.

## 1.4.5 NexLog Recording System

NexLog Recording System provides the ability to record and upload data from various communications systems to NexLog recorders.

Starting from version 9.4, SmartPTT provides compatibility with the NexLog Recording System service and can be configured to upload audio records of incoming and outgoing calls to the NexLog server.

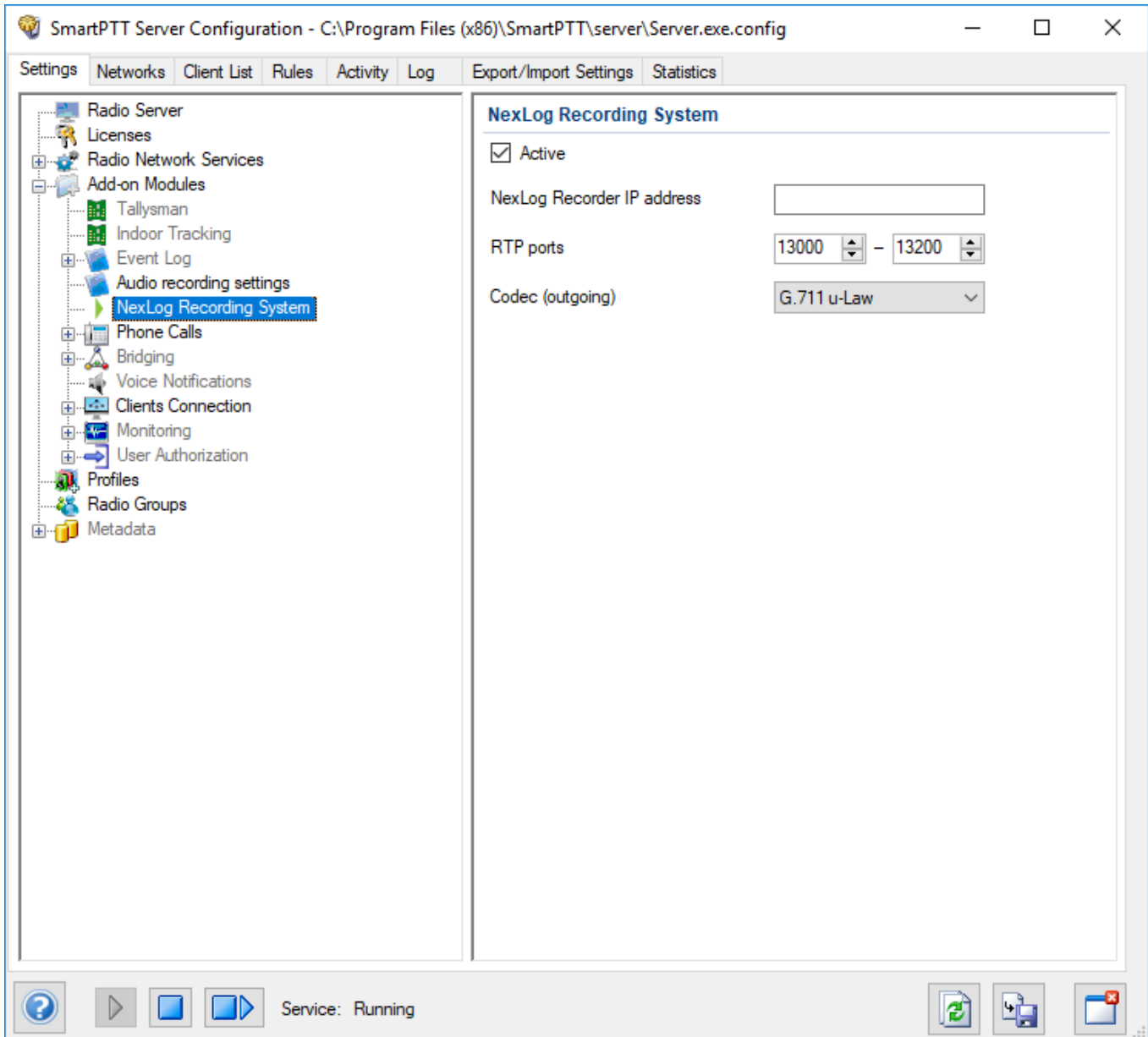
**NOTE**

Access to the **NexLog Recording System** functionality requires the NexLog license. For details, see [Licenses](#).

Parameters of the SmartPTT Radioserver connection to the NexLog recorder can be configured in the **NexLog Recording System** pane on the **Settings** tab in SmartPTT Radioserver Configurator (**Add-on Modules** → **NexLog Recording System**).

**NOTE**

The **NexLog** node is not displayed in the SmartPTT Radioserver Configurator settings tree if the corresponding license is not installed.



The **NexLog Recording System** pane provides the following elements:

**Active**

Activates uploading records of the incoming and outgoing voice calls from the radio system to the NexLog recorder.

**NexLog Recorder IP address**

IP address of the NexLog recorder used by SmartPTT Radioserver for connection.

**RTP ports**

The UDP ports of the NexLog call recorder used by SmartPTT Radioserver for data transmit. The default range is from 13000 to 13200. It is strongly recommended that you leave the default values unchanged.

**Codec (outgoing)**

The codec used for processing the call recordings audio.

You can select one of the following audio codecs:

- G.711 u-Law
- G.711 a-Law

By default, the G.711 u-Law codec is selected.

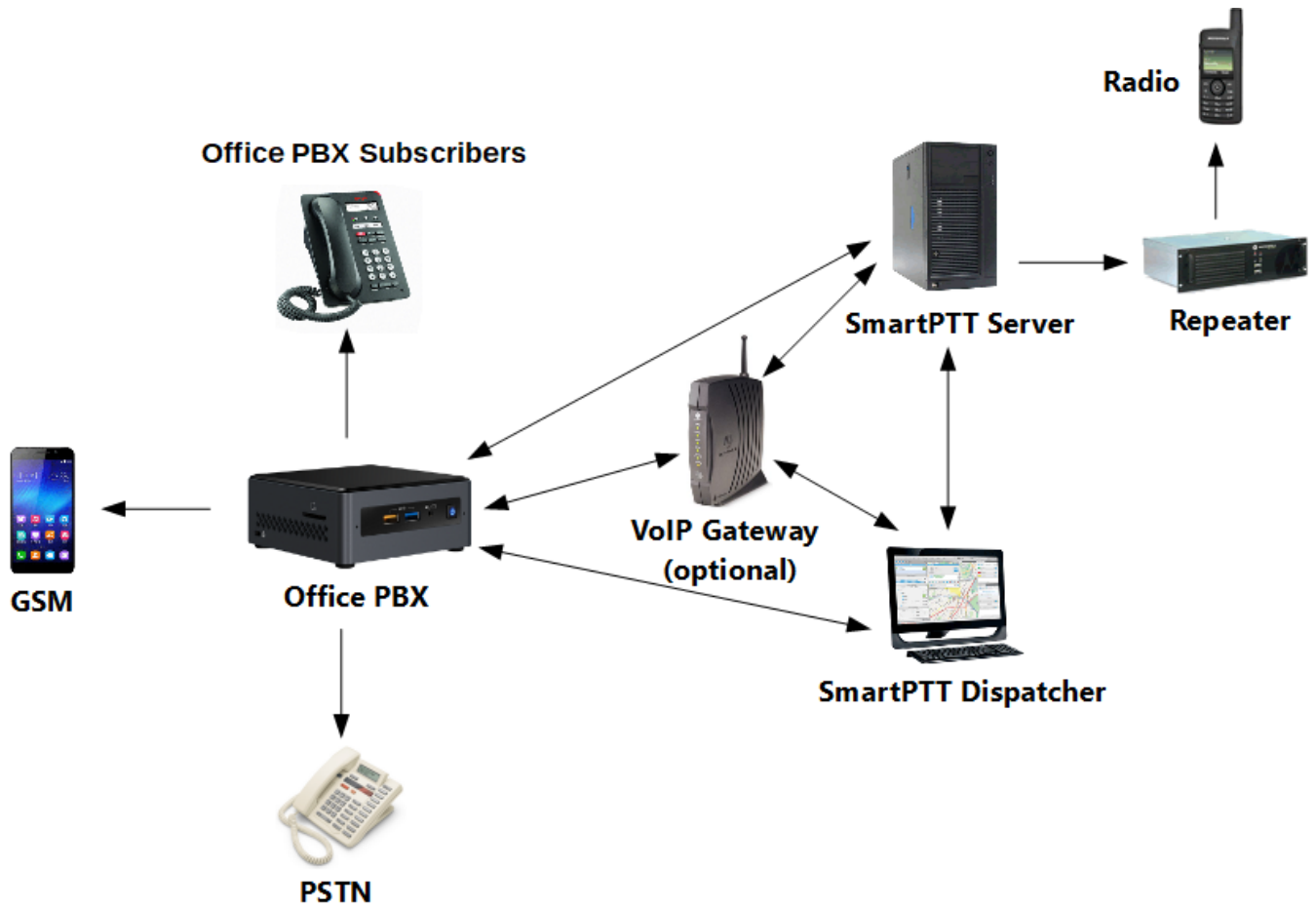
## 1.4.6 Phone Calls

SmartPTT provides the ability to connect radios, talkgroups, and dispatchers with telephone subscribers using the Telephone Interconnect feature.

A VoIP gateway is a device bridging conventional telephone networks and equipment to VoIP telephone networks. Connection between SmartPTT Radioserver and the PBX may be established with or without the VoIP gateway.



The following scheme shows how the connection is established using standard VoIP gateways:

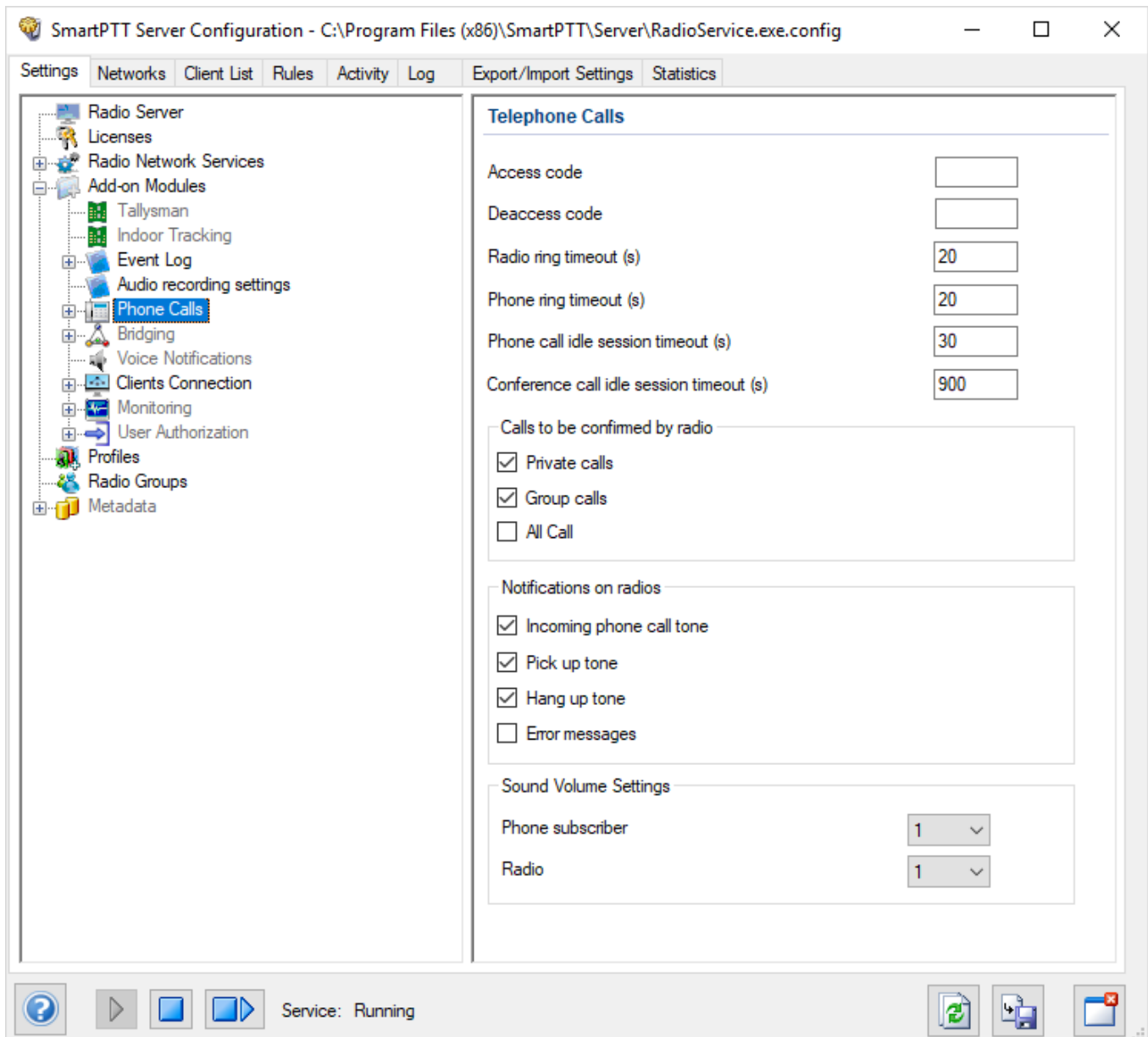


A Private Branch eXchange (PBX) is a telephone exchange normally used in offices.

The Public Switched Telephone Network (PSTN) is the wired phone system over which landline telephone calls are made using circuit switching.

SmartPTT Radioserver Configurator provides controls for configuring general radio system settings required for establishing connection between radios and telephone subscribers.

The telephone calls settings are available in the **Telephone Calls** pane in SmartPTT Radioserver Configurator (**Add-on Modules** → **Phone Calls**).



The screenshot displays the SmartPTT Server Configuration application window. The title bar reads "SmartPTT Server Configuration - C:\Program Files (x86)\SmartPTT\Server\RadioService.exe.config". The interface includes a menu bar with "Settings", "Networks", "Client List", "Rules", "Activity", "Log", "Export/Import Settings", and "Statistics". A tree view on the left shows the configuration hierarchy, with "Phone Calls" selected under "Add-on Modules". The main pane is titled "Telephone Calls" and contains the following settings:

- Access code:
- Deaccess code:
- Radio ring timeout (s):
- Phone ring timeout (s):
- Phone call idle session timeout (s):
- Conference call idle session timeout (s):
- Calls to be confirmed by radio:
  - Private calls
  - Group calls
  - All Call
- Notifications on radios:
  - Incoming phone call tone
  - Pick up tone
  - Hang up tone
  - Error messages
- Sound Volume Settings:
  - Phone subscriber:
  - Radio:

The bottom status bar shows "Service: Running" and several system icons.

The **Telephone Calls** pane provides the following elements:

**Access Code**

The DTMF code dialed on the radio to initiate the phone call on SmartPTT Radioserver. For details, see “Access Code” in *MOTOTRBO CPS Online Help*.

**Deaccess Code**

The DTMF code dialed on the radio to finish the phone call on SmartPTT Radioserver. For details, see “Deaccess Code” in *MOTOTRBO CPS Online Help*.

**Radio ring timeout (s)**

The time period during which the radioserver waits for the radio user to press the PTT button on the called radio. The default value is 20 s.

**Phone ring timeout (s)**

The time period during which the radioserver waits for the telephone subscriber to answer the call. The default value is 20 s.

**Phone call idle session timeout (s)**

The time period after the last PTT button press on the radio in a private call after which the call will be automatically finished. The maximum timeout value is 600 s. The default value is 20 s.

**NOTE**

The **Phone call idle session timeout** value must not exceed the **TX Time-Out Timer** value that is set on the **Networks** tab in *SmartPTT Radioserver Configurator* and in the repeater settings.

**Conference call idle session timeout (s)**

The time period after the last PTT button press on the radio in a conference call after which the call on that radio will be automatically finished. The maximum timeout value is 3600 s. The default value is 900 s.

The **Calls to be confirmed by radio** area provides the ability to set the dial tone playback for telephone subscribers until the called radio user presses the PTT button. This option is available for the following call types:

- Private Call
- Group Call
- All Call

If the check box is selected, the call starts only after the PTT button press on the called radio. Until then, telephone subscribers will hear the dial tone playing. If the check box is clear, the call starts immediately after its processing on the server.

**NOTE**

If you select the **All Call** check box, ensure that the value in the **Contact Name** field in the radio channel settings is *All Call*. Otherwise, the call will be dropped when the radio user presses the PTT button on the radio. For details, see *MOTOTRBO CPS Online Help*.

The **Notifications on radios** area provides the ability to set notifications for radio users informing them of major events during the call with a tone or a message. You can activate notifications by selecting the desired check box. The following options are available:

**Incoming phone call tone**

Indicates that the called telephone subscriber's line is open and the call was received by the addressee.

**Pick up tone**

Indicates that the telephone subscriber answered the call.

**Hang up tone**

Indicates that the telephone subscriber finished the call.

**Error messages**

Indicates that an error occurred while the server was trying to establish connection to the telephone subscriber (for example, the telephone subscriber was not available).

The **Sound Volume Settings** area provides controls for setting the call sound volume for phone subscribers and radios. The sound volume values range from 0,1 to 10. You can select the desired value from the expandable list to the right of the corresponding parameter. The default value is 1. The following controls are available:

#### **Phone subscriber**

The sound volume during incoming and outgoing calls on connected telephones.

#### **Radio**

The sound volume during incoming and outgoing calls on radios.

For information on the Telephone Interconnect settings, see [Telephone Interconnect Settings](#).

For information on recommended Telephone Interconnect settings, see [Configuring Telephone Interconnect Settings](#).

For information on recommended Conference Calls settings, see [Configuring Conference Calls Settings](#).

### 1.4.6.1 Telephone Interconnect

The Telephone Interconnect feature provides the ability to connect radios, talkgroups, and dispatchers with telephone subscribers using a connected PBX.

Connection to telephone subscribers is established over the SIP protocol. Voice transmission is performed over the RTP protocol.

Voice is transmitted in half-duplex mode. The call direction (transmitting or receiving) is determined by the radio. When the radio user presses the PTT button, voice transmission starts. When the PTT button is not pressed, the radio switches to the receiving mode. Telephone subscribers cannot control the call direction.

SmartPTT Radioserver provides the following connection options:

- A telephone subscriber initiates a private call.
- A telephone subscriber initiates a group call.
- A radio initiates a call to a telephone subscriber.
- Dispatcher connects a radio or a talkgroup with a telephone subscriber.

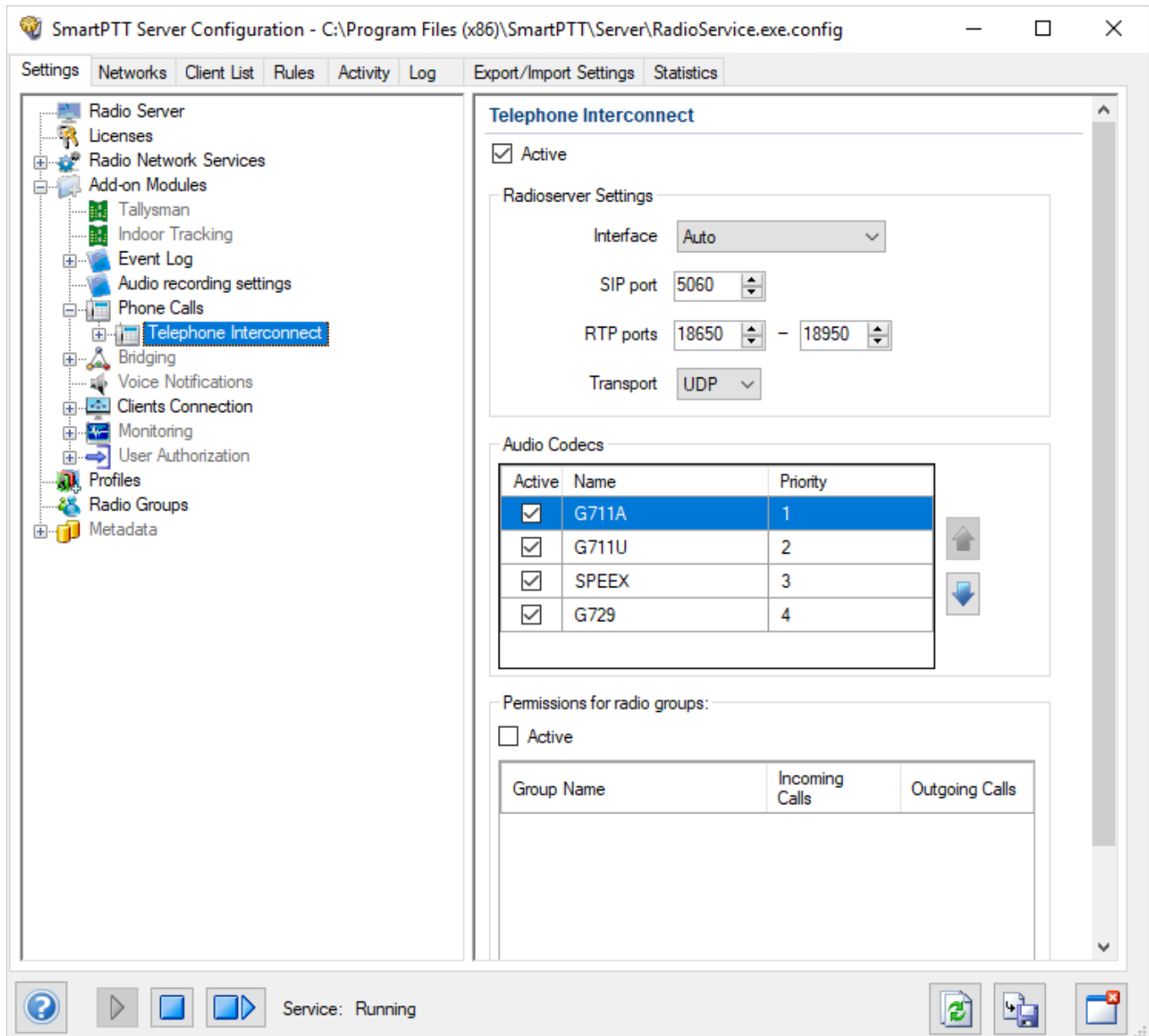
For correct functioning of the Telephone Interconnect functionality, you need to configure the radioserver settings and ensure their compliance with the relevant PBX settings.

**IMPORTANT**

The Telephone Interconnect feature requires installing the Telephone Interconnect license. For details, see [Licenses](#).

The Telephone Interconnect feature settings are available in the **Telephone Interconnect** pane in SmartPTT Radioserver Configurator (**Add-on Modules** → **Phone Calls** → **Telephone Interconnect**).

The **Telephone Interconnect** pane provides controls for configuring the settings required for establishing direct connection between radios and telephone subscribers using a PBX.



The **Telephone Interconnect** pane consists of the following areas:

- Radioserver Settings
- Audio Codecs
- Permissions for radio groups

The **Active** check box at the top of the pane activates the Telephone Interconnect feature. It provides access to the PBX, which makes direct connection between radios and telephone subscribers possible.

If the check box is not selected, connection can be established only using the Conference Calls feature. For details, see “Conference Calls” and “Configuring Conference Calls Settings” in *SmartPTT Dispatcher User Guide*.

The **Radioserver Settings** area provides the following controls for configuring the SmartPTT Radioserver parameters required for the PBX connection:

### Interface

The IP address of the computer where SmartPTT Radioserver is installed. It is used for voice and SIP commands transmit to and from the connected PBX. The list contains both physical and virtual network interfaces.

By default, the *Auto* option is selected. In this case, SmartPTT Radioserver will use all available physical interfaces. It is recommended that you select the desired interface manually.

### SIP port

Number of the UDP or TCP port used for receiving and sending SIP data packets during the SIP session initiation and termination. The port specified in this box must be available for incoming and outgoing traffic. The default value is *5060*.

### RTP ports

UDP ports used for receiving and sending voice to telephone subscribers.

Each connection to a telephone subscriber occupies two ports. Even port numbers are used by the RTP protocol. Uneven port numbers are used by the RTCP protocol. The ports you specify must be available both for incoming and outgoing traffic. The default range is from *18650* to *18950*.

### IMPORTANT

In SmartPTT, the Network Address Translation (NAT) mechanism is not supported. The specified IP address and ports must be real.

### NOTE

If SmartPTT Dispatcher and SmartPTT Radioserver are installed on the same computer, they must be assigned different RTP ports. For example, port 5060 for SmartPTT Radioserver and port 5061 for SmartPTT Dispatcher.



## Transport

The protocol (TCP or UDP) used for SIP commands transmit.

The **Audio Codecs** area contains a table where you can specify which audio codecs must be used for voice data processing and their priority.

Currently, SmartPTT provides support for the following audio codecs:

- G711A
- G711Q
- SPEEX
- G729

### NOTE



The G729 codec reduces audio quality due to a higher data compression ratio, which makes it suitable for low-capacity systems.

The **Audio Codecs** table consists of the following columns:

- The **Active** column contains the check box indicating the codec activation status. By selecting or clearing the check box, you can activate or deactivate the codec. Inactive codecs will not be used for the incoming audio processing.

### IMPORTANT

If the codecs supported by the connected PBX are deactivated on SmartPTT Radioserver, voice data will not be transmitted.

- The **Name** column contains the audio codec name.
- The **Priority** column contains the number indicating the codec current priority level. Audio codecs with higher priority will be used for audio processing in the first place. The priority levels range from 1 to 4, from highest to lowest respectively. You can set the desired priority using the **Raise priority** (  ) and **Lower priority** (  ) buttons located to the right of the table.

When the radioserver connects to a PBX, it uses the codec priorities specified in the PBX settings. Some PBXs ignore the priorities specified in the radioserver settings.

The **Permissions for radio groups** area contains a table where you can configure access to the Telephone Interconnect functionality for radio groups.

For information on managing radio groups on SmartPTT Radioserver, see [Radio Groups](#).

**Active**

Activates the permission settings specified in the table.

**IMPORTANT**

If the **Active** check box is selected but the table is empty, communication between radios and telephone subscribers will be impossible.

The table contains all radio groups configured on SmartPTT Radioserver and consists of the following columns:

- The **Group Name** column contains the name of the radio group.
- The **Incoming Calls** column contains information on the incoming calls permission status for the radio group. By selecting or clearing the check box, you can permit or deny the ability to receive calls from telephone subscribers.
- The **Outgoing Calls** column contains information on the permission status of outgoing calls. By selecting or clearing the check box, you can permit or deny the ability to initiate calls to telephone subscribers.

For information on the incoming calls settings, see [Incoming Calls Settings](#).

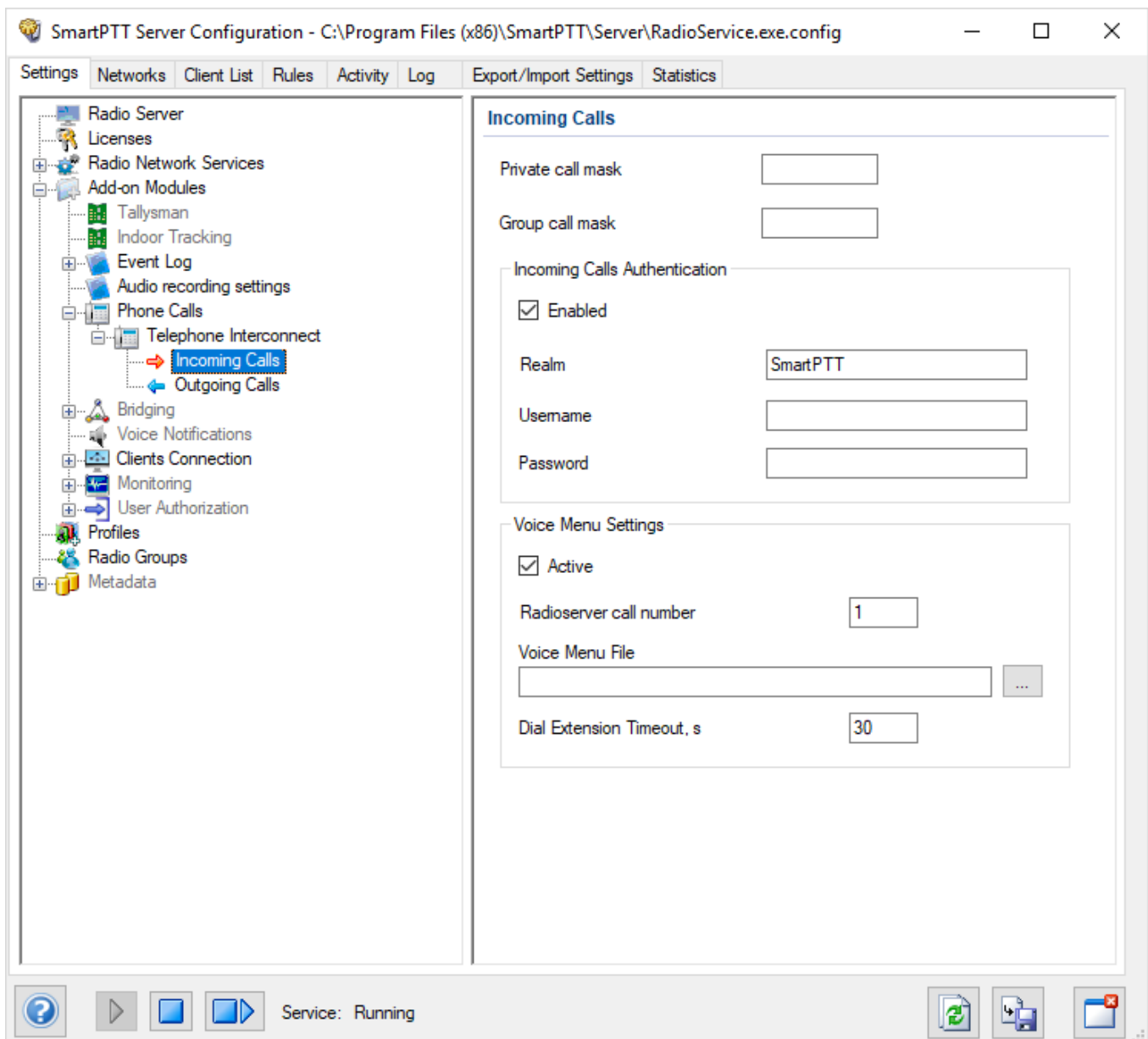
For information on outgoing calls settings, see [Outgoing Calls Settings](#).

For information on general Phone Calls settings, see [Phone Calls](#).

For information on recommended Telephone Interconnect settings, see [Configuring Telephone Interconnect Settings](#).

### 1.4.6.1.1 Incoming Calls Settings

The **Incoming Calls** pane provides controls for configuring the incoming calls settings.



In SmartPTT, incoming calls are calls from telephone subscribers to radios. The following types of calls can be initiated by telephone subscribers:

- Private call (to a specific radio, requires the radio ID for initiation)
- Group call (to radios in a talkgroup, requires the group ID for initiation)

SmartPTT Radioserver supports the use of masks, regular expressions providing information on whether the incoming call is a private call or a group call. You can specify the masks values in the corresponding boxes:

### Private call mask

Regular expression indicating a private incoming call.

It is recommended that the box is left empty.

### Group call mask

Regular expression indicating a group incoming call.

The recommended value is 0.

### NOTE

If both boxes are left empty, all incoming calls from telephone subscribers are treated as private.

The following table contains information on the symbols used in masks:

Symbol	Description
.	Wild card symbol that can match any single character.
[m-n]	Matches any character within the range from m to n.
[a,b,c] or [abc]	Matches any character specified in the brackets.
T	Matches any number of characters. Normally is used to represent the addressee's number.
(.)	Unites several regular expressions into one.
{ }	Inserts everything inside the curly brackets into the number.
N	Matches the radio network ID. When there is only one network, the recommended value is 0.  The parameter is relevant only for the <b>Group call mask</b> box.

Symbol	Description
S	<p>Depending on the network, the <b>S</b> symbol can represent the following parameters:</p> <ul style="list-style-type: none"> <li>• In IP Site Connect networks, it represents the slot number. Possible values are 1 and 2.</li> <li>• In Capacity Plus networks, the parameter is not relevant. The only possible value is 0.</li> <li>• In Linked Capacity Plus networks, it represents a local group specifying the LCP site number. It can take any value.</li> </ul> <p>If <b>S</b> is represented by 0, the call is treated as a wide group call.</p> <div style="background-color: #f0f0f0; padding: 5px;"> <p><b>NOTE</b> The parameter is relevant only for the <b>Group call mask</b> box.</p> </div>

### Example

If the **Private Call Mask** value is 31 or 31T and the **Group Call Mask** value is 32NSST, the dialed numbers will mean the following:

- **31403 (31 403)** - a private call to a radio with ID = 403.
- **3200013 (32 0 00 13)** - a wide group call to a talkgroup with ID = 13. In this case, ID 13 must be either unique for the radioserver or belong to the only network connected to the radioserver.
- **3210013 (32 1 00 13)** - a wide group call to a talkgroup with ID = 13 belonging to a network with ID = 1.
- **32112123 (32 1 12 123)** - a local group call to a talkgroup with ID = 123 on site 12 belonging to a network with ID = 1.

The **Incoming Calls Authentication** area contains controls for configuring authentication parameters for incoming calls:

#### Enabled

Activates the incoming calls authentication. If the check box is not selected, the radioserver connects telephone subscribers with radios immediately after processing the call.

**Realm**

The parameter used for the incoming telephone calls authentication.

When the radioserver receives a call from a telephone subscriber, it requires the username and password valid for the specified realm. If the caller replies with valid credentials, the radioserver connects the telephone subscriber with the called radio or talkgroup.

If the parameter is not specified, any valid username and password will be accepted.

**Username**

The username required for authentication. Must be valid for the specified realm.

**Password**

The password required for authentication. Must be valid for the specified realm.

The **Voice Menu Settings** area contains controls for configuring the interactive voice response (IVR) feature that provides telephone subscribers with the ability to interact with radios through the use of voice navigation and DTMF tones. Using this feature, telephone subscribers can reach the desired radio or talkgroup using the information recorded in the voice menu file.

**Enabled**

Activates the voice menu playback on incoming calls.


**Radioserver call number**

The number using which telephone subscribers can call the radioserver.

**Voice Menu File**

The audio file that will be played to the telephone subscriber when they call the radioserver.

The required audio file sampling frequency is 8000 Hz.

You can select the desired audio file by clicking the Browse (  ) button.

**NOTE**

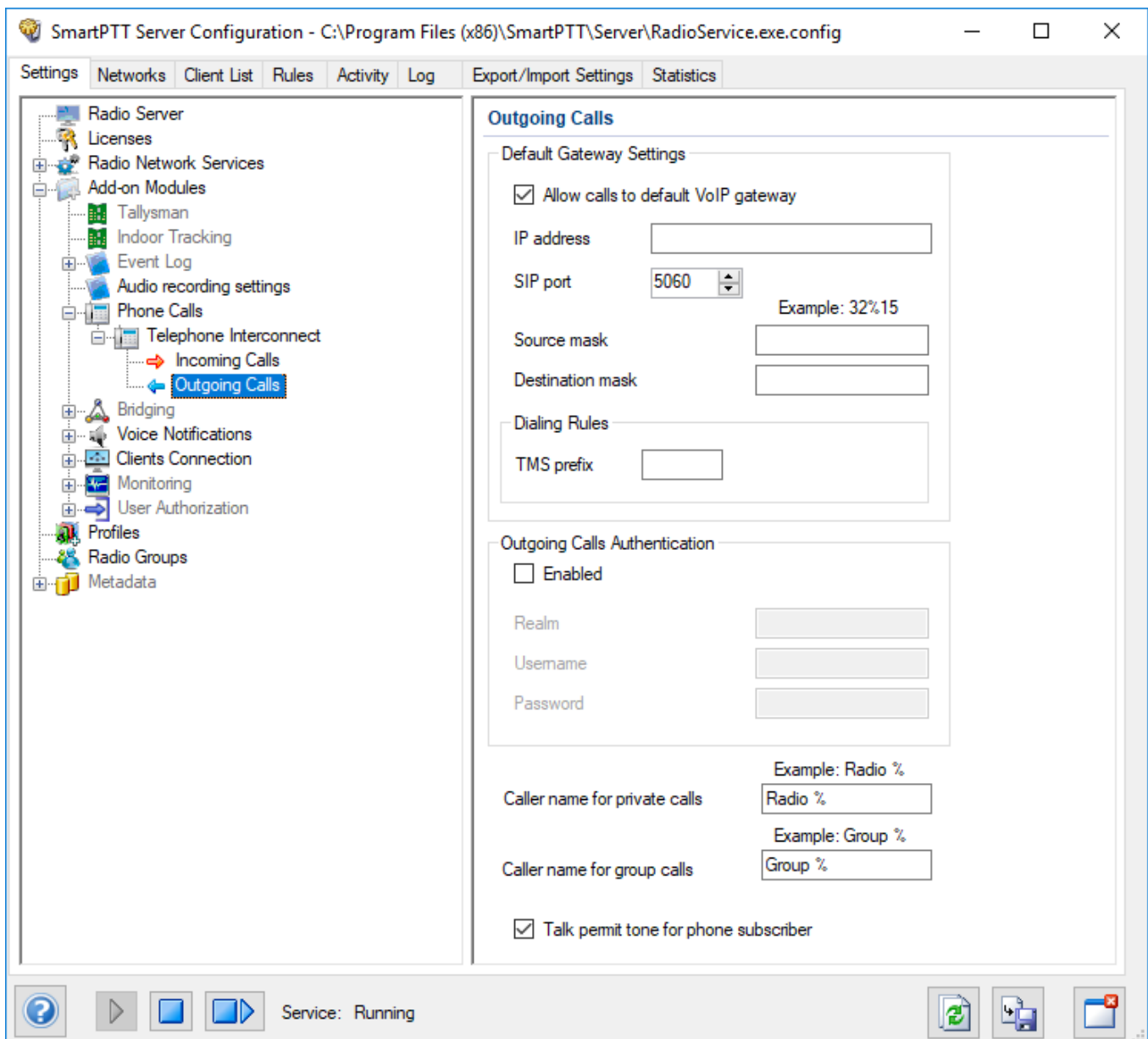
In SmartPTT, the IVR feature provides the ability to route telephone calls from the radioserver to a radio or talkgroup by dialing the desired radio object ID. It does not present a caller with a list of menu options and questions about the nature of the call. For this reason, it is recommended that you select a voice menu file with a recorded message that prompts the telephone subscriber to dial the desired radio or talkgroup ID.

**Dial Extension Timeout**

The period in seconds during which the caller can dial the radio or talkgroup ID after the voice menu audio file playback. If the caller does not dial the ID before the specified timeout expires, the call is dropped.

### 1.4.6.1.2 Outgoing Calls Settings

The **Outgoing Calls** pane provides controls for configuring the outgoing calls settings.



The **Default Gateway Settings** area contains controls for configuring default parameters applied to the calls initiated by radios.

#### IMPORTANT

If default gateway settings are not specified, SmartPTT Radioserver will not be able to connect to the called telephone subscribers.

## Allow Calls to Default VoIP gateway

Activates default parameters that are used when radios initiate calls to telephone subscribers.

### IP address

IP address of the PBX used for connecting radios with telephone subscribers.

### SIP port

Number of the UDP or TCP port on the PBX used for receiving and sending SIP data packets.

The specified port must be available for incoming and outgoing SIP packets transmission. The default value is *5060*.

### Source mask

The prefix automatically added to the ID of the calling radio or talkgroup that must be used by the telephone subscriber for calling back. The **Source mask** parameter must match the corresponding prefix specified in the radioserver SIP trunk settings on the PBX.

If the source mask is not specified, the called subscriber will only see the calling radio or talkgroup ID. To call back, the prefix must be dialed manually.

### Destination mask

The prefix automatically added to the telephone subscriber's number that must be used for correct call addressing. The **Destination mask** parameter must match the corresponding prefix specified in the radioserver SIP trunk settings on the PBX.

If the destination mask is not specified in the PBX settings, radio users need to dial the prefix before the number of the called telephone subscriber manually.

### TMS prefix

The prefix using which radio users can call telephone subscribers by sending a text message. The text message must contain the prefix at the beginning and the desired telephone subscriber's number after it.

#### NOTE

In radio systems that use control stations for outgoing voice transmissions, radio users can initiate calls using DTMF codes. This functionality is unavailable in the radio systems that do not use control stations.



The **Outgoing Calls Authentication** area provides the following controls for configuring authentication parameters for outgoing calls:

**Enabled**

Activates the outgoing calls authentication settings.

If the check box is selected, the specified parameters are used for replying to the PBX authentication requests.

If the check box is not selected and authentication on the connected PBX is not configured, the radioserver connects radios with telephone subscribers immediately after processing the call.

If the check box is not selected and authentication on the connected PBX is configured, the call will be denied by the PBX.

**Realm**

The parameter used for the outgoing telephone calls authentication.

When a radio user calls a telephone subscriber, SmartPTT Radioserver must reply to the PBX authentication requests with the username and password valid for the specified realm.

If the parameter is not specified, SmartPTT Radioserver replies with the specified username and password to all authentication requests from the PBX.

**Username**

The username required for authentication. Must be valid for the specified realm.

**Password**

The password required for authentication. Must be valid for the specified realm.

**Caller name for private calls**

The name that appears on the telephone subscriber's device screen on receiving a call from the radio.

The percent symbol ( % ) will be automatically replaced by the radio number.

**Caller name for group calls**

The name that appears on the telephone subscriber's device screen on receiving a call from the talkgroup.

The percent symbol ( % ) will be automatically replaced by the talkgroup number.

**Talk permit tone for phone subscriber**

Activates the playback of a special tone to the called telephone subscriber indicating that they can start speaking.

## 1.4.6.2 Telephone Interconnect Configuration

To ensure correct functioning of the Telephone Interconnect feature, you need to configure minimum required settings that provide access to its main functionality.

For information on configuration of basic required Telephone Interconnect settings, see [Configuring Telephone Interconnect Settings](#).

For information on configuration of the Conference Calls functionality, see [Configuring Conference Calls Settings](#).

### 1.4.6.2.1 Configuring Telephone Interconnect Settings



Follow the procedure to configure minimum required Telephone Interconnect feature settings in SmartPTT Radioserver Configurator.

#### Prerequisites:

- Ensure that you have the Telephone Interconnect license. For details, see [Licenses](#).
- Ensure that the Telephone Interconnect functionality is activated in the slot settings of the desired radio system. For details, see [Configuring Local Slots](#) for NAI radio systems and [MNIS VRC Gateway](#) for Capacity Max.
- Obtain the access and deaccess codes configured in the radio settings. For details, see “Access Code” and “Deaccess Code” in *MOTOTRBO CPS Online Help*.

#### Procedure:

1. In the **SmartPTT Radioserver Configuration** window, on the **Settings** tab, expand the **Add-on Modules** node, and then click **Phone Calls**.  
The **Telephone Calls** pane appears in the right part of the window.
2. In the **Access code** and **Deaccess code** boxes, specify the codes configured on the connected radios.
3. Expand the **Phone Calls** node, and then click **Telephone Interconnect**.  
The **Telephone Interconnect** pane appears in the right part of the window.
4. In the **Telephone Interconnect** pane, select the **Active** check box.

5. In the **Telephone Interconnect** pane, in the **Radioserver Settings** area, in the **Interface** box, select the server IP address that will be used for connection to telephone subscribers.
6. Expand the **Telephone Interconnect** node, and then click **Incoming Calls**. The **Incoming Calls** pane appears in the right part of the window.
7. In the **Incoming Calls** pane, type 0 in the **Group call mask** field.
8. Expand the **Telephone Interconnect** node, and then click **Outgoing Calls**. The **Outgoing Calls** pane appears in the right part of the window.
9. In the **Outgoing Calls** pane, in the **Default Gateway Settings** area, perform the following actions:
  - a. Select the **Allow calls to default VoIP gateway** check box.
  - b. In the **IP address** box, specify the connected PBX IP address that will be used for connection to telephone subscribers.
  - c. *Optional:* In the **Source mask** box, specify the prefix used as the source mask.
  - d. *Optional:* In the **Destination Mask** box, specify the prefix used as the destination mask.
10. *Optional:* If outgoing calls authentication is configured on the connected PBX, in the **Outgoing Calls** pane, in the **Outgoing Calls Authentication** area, perform the following actions:
  - a. Select the **Enabled** check box.
  - b. In the **Realm**, **User Name** and **Password** fieldes, specify the credentials required for the PBX authentication.
9. At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.
10. Click **Restart** (  ) to restart SmartPTT Radioserver and apply changes.



### 1.4.6.2.2 Configuring Conference Calls Settings

Follow the procedure to to configure minimum required Conference Calls settings on SmartPTT Radioserver.

#### Prerequisites:

Obtain the access and deaccess codes configured in the radio settings. For details, see “Access Code” and “Deaccess Code” in *MOTOTRBO CPS Online Help*.

#### Procedure:

1. In the SmartPTT Radioserver Configurator window, on the **Networks** tab, expand the desired radio system node and click the name of the desired slot.  
The selected slot settings appear in the right part of the window.
2. In the slot settings, select the **Allow Telephone Interconnect** check box.
3. In the SmartPTT Radioserver Configurator window, on the **Settings** tab, expand **Add-on Modules** → **Phone Calls**.  
The **Telephone Calls** pane appears in the right part of the window.
4. In the **Access code** and **Deaccess code** boxes, specify the codes configured on the connected radios.
5. At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.
6. Click **Restart** (  ) to restart SmartPTT Radioserver and apply changes.

#### Postrequisites:

For information on configuring conference calls settings in SmartPTT Dispatcher, see “Configuring Conference Calls Settings” in *SmartPTT Dispatcher User Guide*.

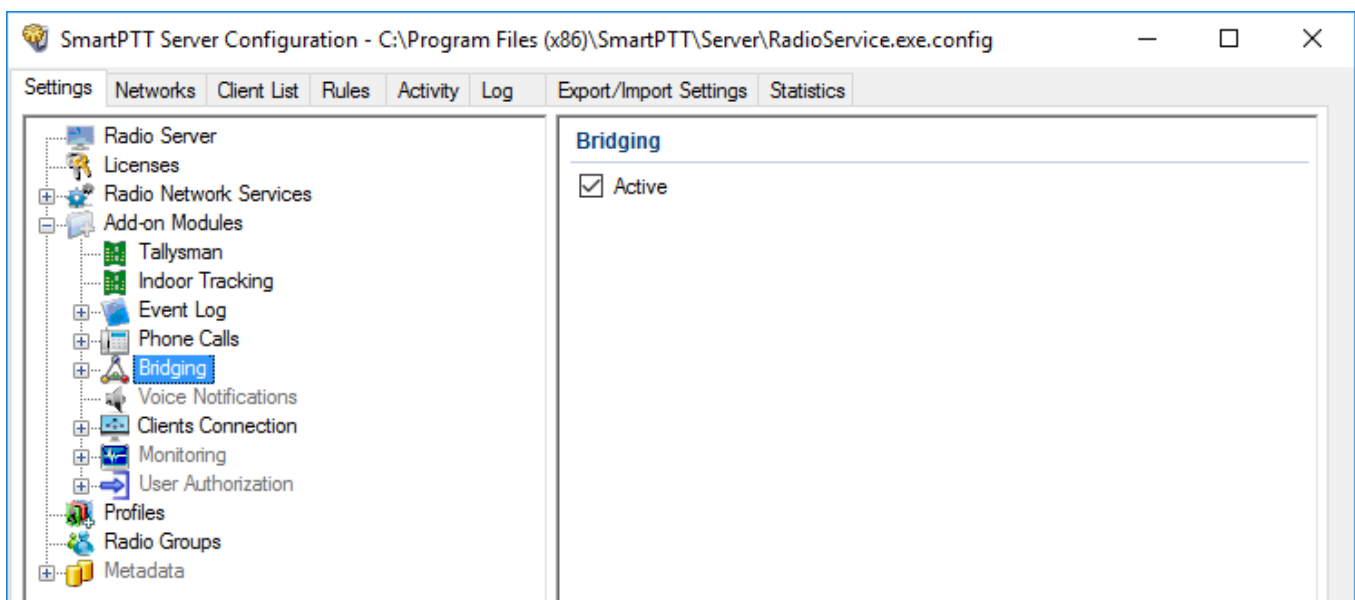
## 1.4.7 Bridging

In SmartPTT you can use bridging service to interconnect multiple networks. The bridging service is implemented by SmartPTT Radioserver and provides intelligent means of routing voice calls among multiple networks.

### IMPORTANT

To activate the bridging service, install the corresponding license. For information on installing licenses, see [Licenses](#).

You can activate the bridging service by clicking the **Bridging** node in the **Add-on Modules** of the **Settings** tab.



### NOTE

After activating the bridging service, you need to restart SmartPTT Radioserver.

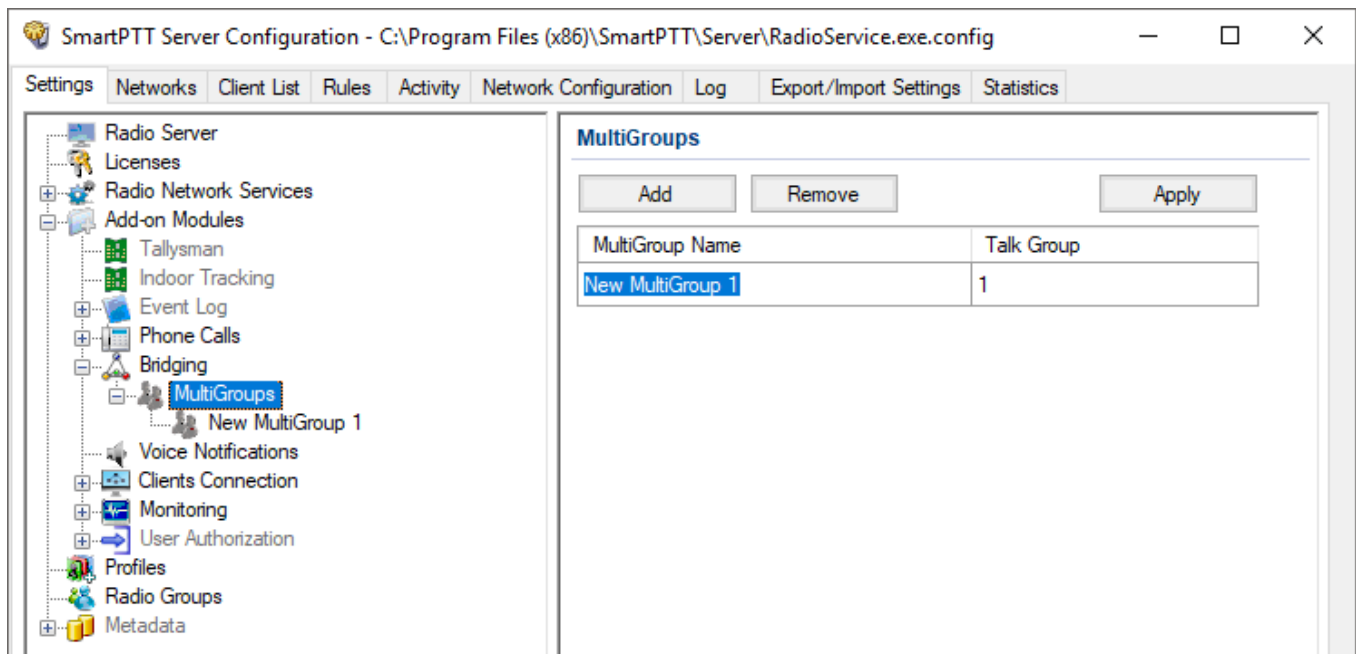
For information on configuring and adding multigroups, see the sections below.

### 1.4.7.1 Multigroups

When you activate the bridging service, you can configure multigroups for routing group calls to other channels or radio systems. Routing of group calls can be global or limited to predefined channels.

Configuration of multigroups does not require any bridging settings in SmartPTT Dispatcher. For information on adding multigroups, see [Adding Multigroups](#).

You can open the **Multigroups** pane by clicking **Multigroups** in the **Bridging** node.



The **Multigroups** pane provides the following elements:

### Add

Adds a new multigroup. The added multigroup appears in the table, and under the **Multigroups** node.

### Remove

Removes the selected multigroup from the table. It also removes the multigroup from the **Multigroups** node.

### Apply

Activates the multigroup without restarting SmartPTT Radioserver.

### Multigroup Table

Contains all added multigroups.

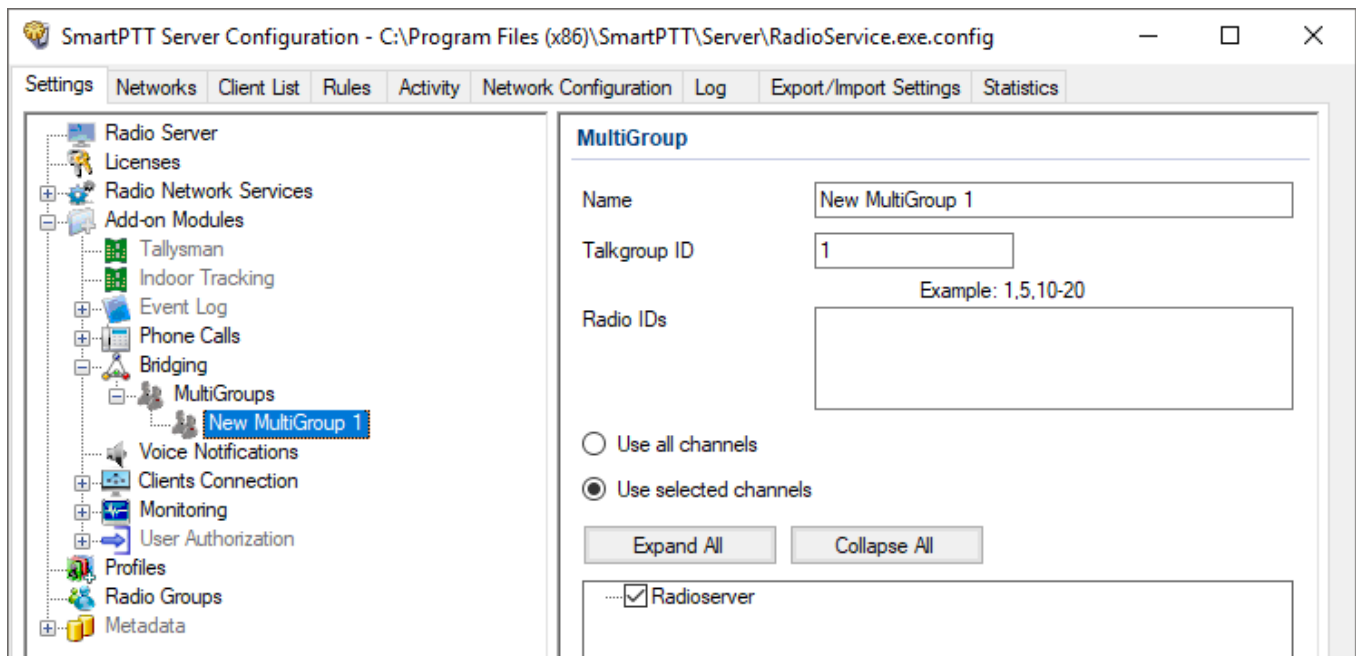
The table provides the following elements:

- The **Multigroup Name** column contains a multigroup name where you can rename it.
- The **Talkgroup** column contains the talkgroup ID where you can change it.

### Multigroup Pane

All added multigroups appear under the **Multigroups** node. By clicking the multigroup name,

you can open the **Multigroup** pane.



The **Multigroup** pane provides the following elements:

### Name

A multigroup name. You can leave the default name, or type the desired name.

### Talkgroup ID

A talkgroup ID. Group calls to this ID will be routed from any radios in the dispatch system.

### Radio IDs

Contains a list of radios which should be registered on the selected channels to route the group calls.

### Use all channels

Routes group calls within all channels of radio systems dispatched by SmartPTT. The group call will be routed to the talkgroups on all channels that include at least one radio ID set in the multigroup.

### Use selected channels

Routes group calls to the selected channels of radio systems dispatched by SmartPTT. The group call will be routed to the talkgroups only on the selected channels that include at least one radio ID set in the multigroup.

## Expand All / Collapse All

The buttons are active when **Use selected channels** is selected. Buttons expand or collapse tree of elements in the area located below.

### 1.4.7.2 Adding Multigroups

Follow the procedure to add a new multigroup.

#### Prerequisites:

Ensure the bridging service is active, and SmartPTT Radioserver is restarted. For details, see [Bridging](#).

#### Procedure:

1. In the left pane of the **Settings** tab, expand the **Add-on Modules** → **Bridging** node, and click **Multigroups**.
2. In the **Multigroups** pane, click **Add**.  
A new multigroup appears in the multigroups table; the multigroup appears under the **Multigroups** node.
3. In the left pane, click the multigroup name.  
The **Multigroup** pane appears.
4. *Optional:* In the **Name** field, type the name of the multigroup.
5. In the **Talkgroup ID** field, type the ID of the talkgroup.
6. In the **Radio IDs** field, type the radio IDs.
7. Select the way of routing calls:
  - Select **Use all channels** to route group calls within all channels of all SmartPTT radio systems.
  - Select **Use selected channels** to route group calls to the selected channels, and select the desired channels in the area below.
8. In the **Multigroups** pane, click **Apply** to activate the multigroup.

#### NOTE

When you add or change a multigroup, it is not necessary to restart the radioserver.



- At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.

### Postrequisites:

To remove the multigroup, in the **Multigroups** pane, select the desired group, and click **Remove**.

## 1.4.8 Voice Notifications

In SmartPTT the Voice Notifications feature provides the ability to play preconfigured audio files for selected talkgroups and inform them of emergencies or deliver other important information. You can use preconfigured audio files for voice notifications.

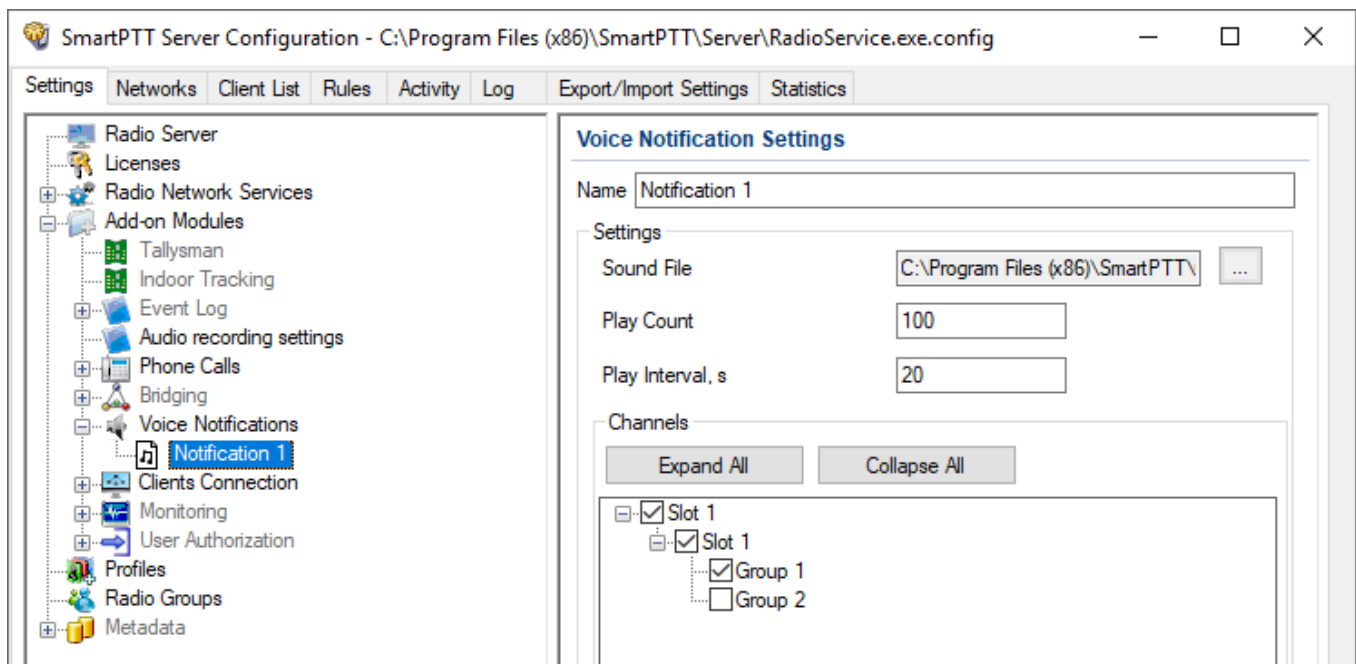
You can add and configure voice notifications in SmartPTT Radioserver Configurator. Their playback is performed in SmartPTT Dispatcher.

For information on playing voice notifications, see “Voice Notifications” in *Dispatcher User Guide*.

For information on adding and configuring voice notifications, see the sections below.

### 1.4.8.1 Voice Notification Settings

The **Voice Notification Settings** pane appears when you add a new voice notification.



The **Voice Notification Settings** pane provides the following elements:

### Name

Name of the voice notification displayed in SmartPTT Dispatcher.

### Sound File

Audio file that will be played as the voice notification.

The audio file must meet the following requirements:

Parameter	Value
Encoding Algorithm	16-bit PCM
Sample Rate	8–48 kHz for MP3 8–48 kHz for WAV 8–192 kHz for OGG
Number of Audio Channels	Single channel (mono audio)
Maximum Volume	-22dBFS (-10 dBm)
File Format	WAV MP3 OGG
Audio Frequency Range	200–3400Hz
Audio Length	1–60 seconds The recommended audio file length is <i>10 s</i>

### Play Count

Number of the voice notification playbacks. You can select a value from the range from 1 to 9999.

### Play Interval, s

Time interval between the voice notification playbacks. The default value is *20 s*.

### Channels

Contains the tree of control station channels and talkgroups for which you can add voice notifications. You can configure the voice notification playback for a channel or a talkgroup.

**NOTE**

Voice notification playback is treated as an outgoing call by the SmartPTT Radioserver. The channel becomes unavailable for other transmissions until the playback is over.

For this reason, you can select either the All Call, or the Group Call playback option for each of the channels.

**Expand All / Collapse All**

Expands or collapses the tree of objects (channels and talkgroups) in the box located below the buttons.

## 1.4.8.2 Adding Voice Notifications

Follow the procedure to add a voice notification.

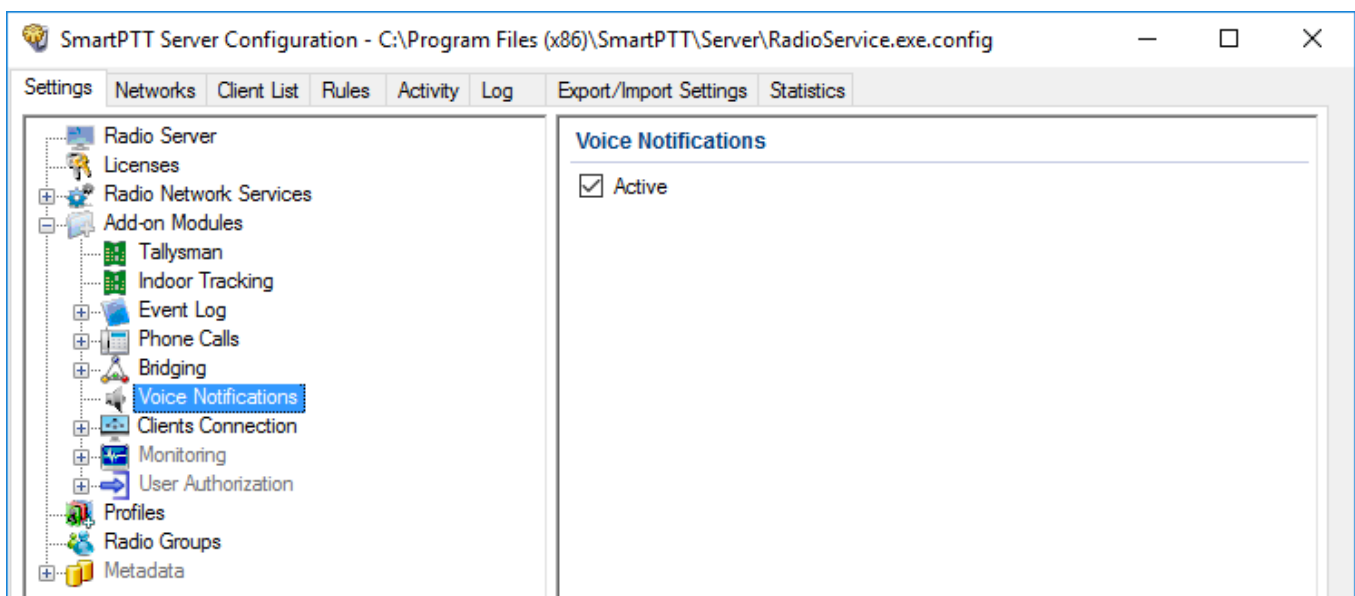
**Prerequisites:**

Ensure that the desired audio file meets the requirements.

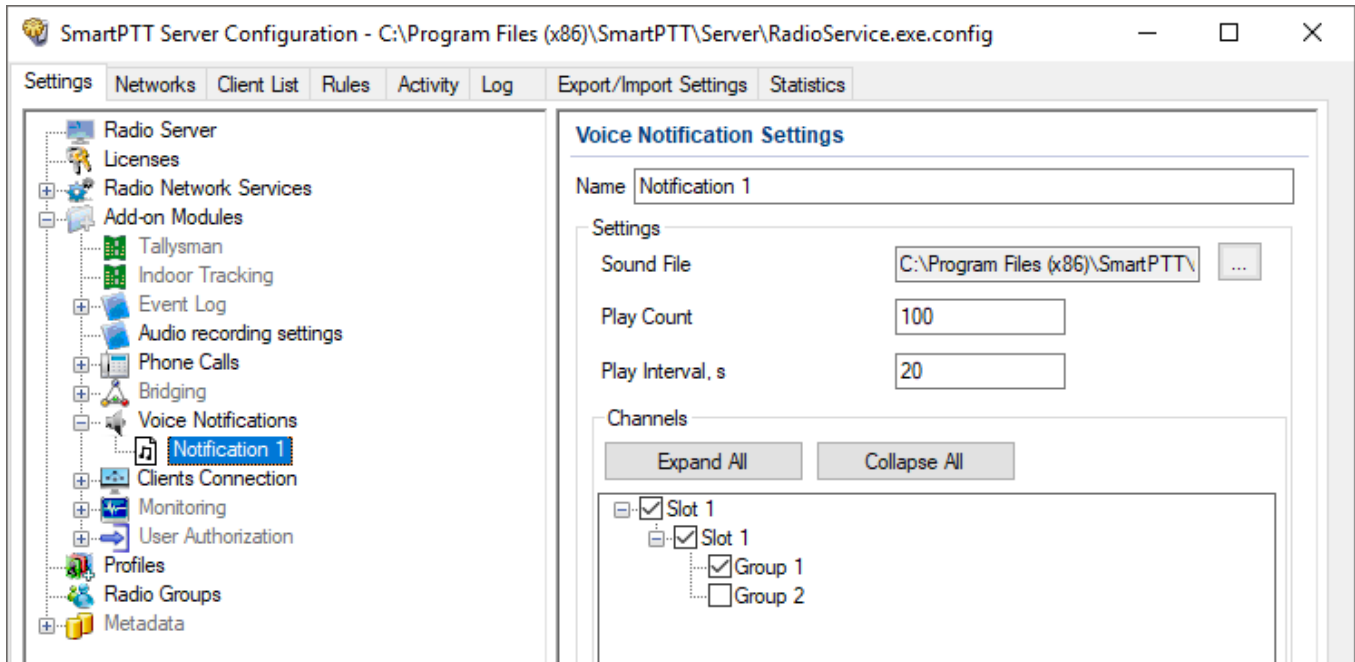
For details, see [Voice Notification Settings](#).



**Procedure:**



1. In the left pane of the **Settings** tab, expand **Add-on Modules** → **Voice Notifications**.  
The **Voice Notifications** pane appears.



2. If not selected, select the **Active** check box.
3. In the left pane, right-click the **Voice Notification** node, and then click **Add**.  
A new node appears in the tree. The settings of the added voice notification are displayed in the right pane.



4. In the **Voice Notification Settings** pane, in the **Name** field, type the voice notification name.
5. To the right of the **Sound File** field, click the Browse (  ) button, and in the window that appears, select the desired file.  
The path to the selected file appears in the **Sound File** box.
6. In the **Play Count** field, type the desired number of the voice notification playbacks.
7. In the **Play Interval** field, type the desired interval between the voice notification playbacks.
8. In the **Channels** area, click **Expand All** to expand all nodes in the box below, or click the Expand button (  ) to expand the node containing the desired radio object.
9. Select the check boxes next to the desired channel or talkgroup.

10. At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.
11. Click **Restart** (  ) to restart SmartPTT Radioserver and apply changes.

**Postrequisites:**

- To edit the added voice notification, open the **Voice Notification Settings** pane, and then change the desired parameter.
- To delete the added voice notification, right-click the notification name, and then click **Delete**.

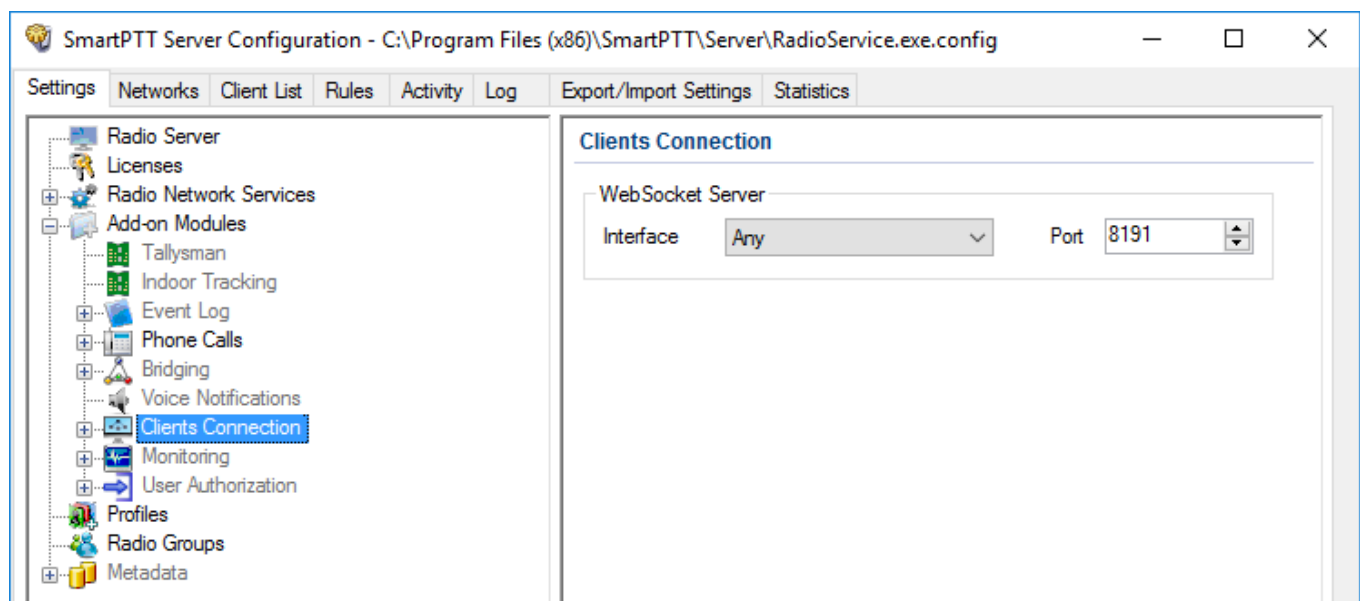
## 1.4.9 Clients Connection

SmartPTT provides the dedicated interface for supplemental applications. The interface is used by SmartPTT Web Clients, third-party applications (those that use Server API), and SmartPTT SCADA.

**WARNING**

Interface redundancy is **not** an ordinary SmartPTT functionality. Applications should be connected to the primary SmartPTT Radioserver only.

The interface settings are available in the right pane of the SmartPTT Radioserver Configurator (the **Clients Connection** pane) when users select the corresponding subnode under the **Add-on Modules** node on the **Settings** tab.



The following settings are available in the **Clients Connection** pane:

### Interface

The parameter sets the IP address to which applications must send IP packets. The list shows IP addresses for all network interfaces detected on the computer. It also includes the *Any* option (accepts IP packets from any of the detected IP address) and the *Loopback* option (accepts IP packets from the localhost only).

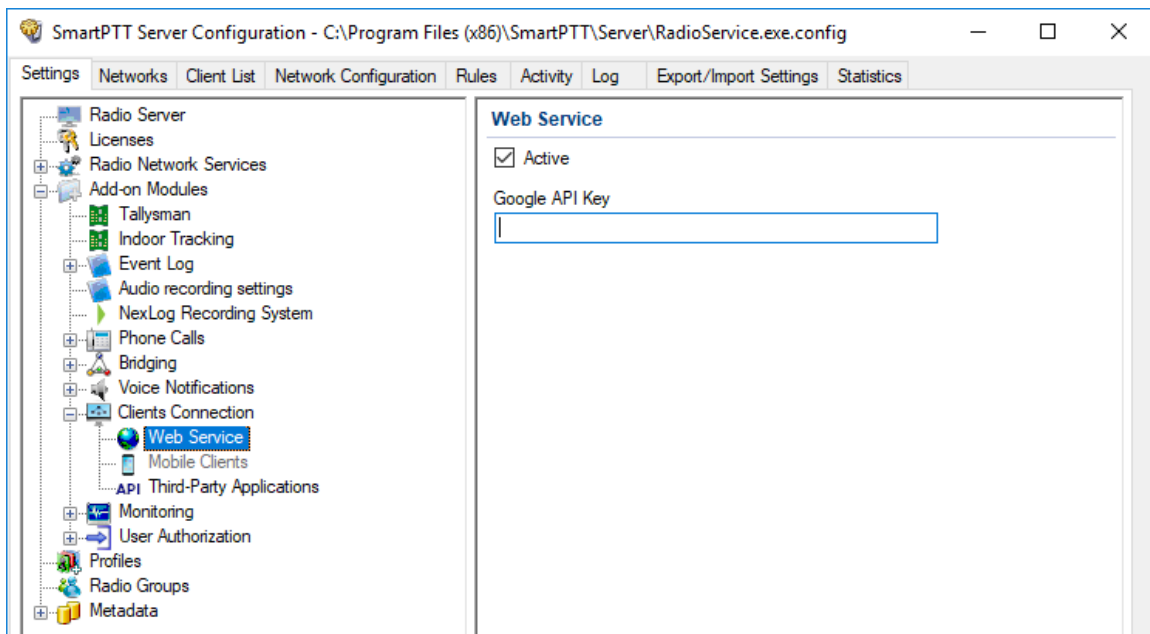
### Port

The parameter sets the target port number to which applications must send the IP packets. The port ranges are the following: minimum value is 0, maximum value is 65535, increment is 1, default value is 8191.

All the supplemental client applications require corresponding licenses. For details, contact SmartPTT dealers in your region.

## 1.4.9.1 Web Service

The **Web Service** node provides settings to configure Web Client access to the SmartPTT Radioserver. Web Client is a web application that provides text messaging functions and GPS location features.



In the **Web Service** pane, the following settings are available:

## Active

Check box turns on and off the support of Web Clients in SmartPTT Radioserver.

## Google API Key

Field for the code that turns on the support of Google Maps in Web Clients. This key must be purchased by SmartPTT Customer. For details, see

<https://developers.google.com/maps/documentation/embed/get-api-key>.

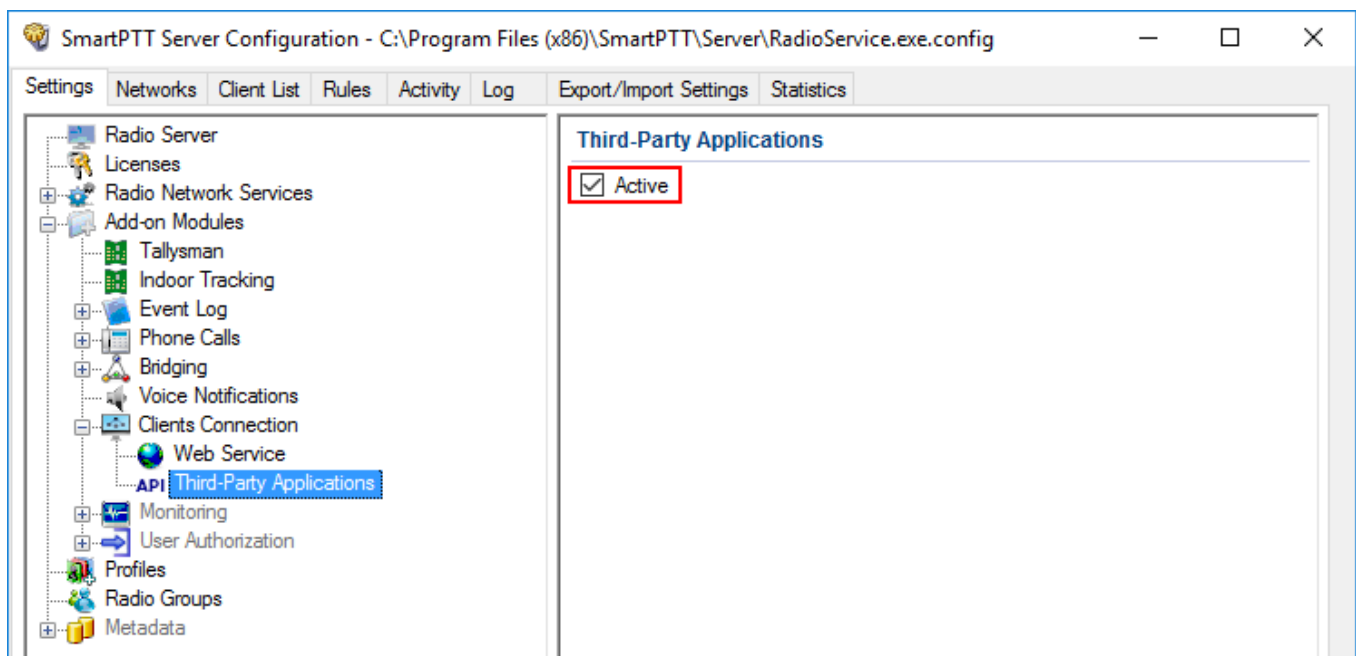
## IMPORTANT

For Web Clients, the **Web Service** license is required in SmartPTT.

For installation and configuration instructions on Web Client, see *SmartPTT Web Client Setup and User Guide*.

## 1.4.9.2 Third-Party Applications

SmartPTT supports third-party applications that use the licensed SmartPTT Server API. For such applications, the dedicated interface must be configured and the **Active** check box must be selected in the **Third-Party Applications** area of the SmartPTT Radioserver Configurator.



The same check box must be selected to support the SCADA module in SmartPTT starting the 9.4 release.

### 1.4.9.3 Configuring Client Connections

Follow the procedure to configure client connections to support SmartPTT Web Client, third-party applications, and SCADA module in SmartPTT.

**Prerequisites:**

- Determine the computer IP address responsible for LAN or WAN connection.
- Determine the free TCP port.
- Ensure that you have the required licenses.

**Procedure:**


1. In SmartPTT Radioserver Configurator, open the **Settings** tab.
2. In the left pane, expand **Add-On Modules**, and then click **Client Connections**.
3. In the right pane, in the **Web Socket Server** area, perform the following actions:
  - a. From the **Interface** list, select the required IP address.
  - b. In the **Port** field, set the required TCP port.
4. In the left pane, expand **Client Connections**, and then activate support of the required application types:

To support SmartPTT Web Client,	perform the following actions: <ol style="list-style-type: none"> <li>1. Click <b>Web Service</b>.</li> <li>2. In the right pane, select the <b>Active</b> check box.</li> <li>3. In the <b>Google API Key</b> field, enter Google API.</li> </ol>
To support third-party applications or SmartPTT SCADA,	perform the following actions: <ol style="list-style-type: none"> <li>1. Click <b>Third Party Applications</b>.</li> <li>2. In the right pane, select the <b>Active</b> check box.</li> </ol>



**WARNING**

SmartPTT Mobile is **not** supported in the current SmartPTT release.



5. To save changes, at the bottom of the SmartPTT Radioserver Configurator window, click **Save Configuration** (  ).

**Postrequisites:**

- To apply changes immediately, at the bottom of the SmartPTT Radioserver Configurator window, click **Start** (  ) or **Restart** (  ).
- In the firewall software, unlock the set TCP port and at least one UDP port for each type of applications except for SCADA.
- Create accounts to authorize applications. For details, see [Client List](#).

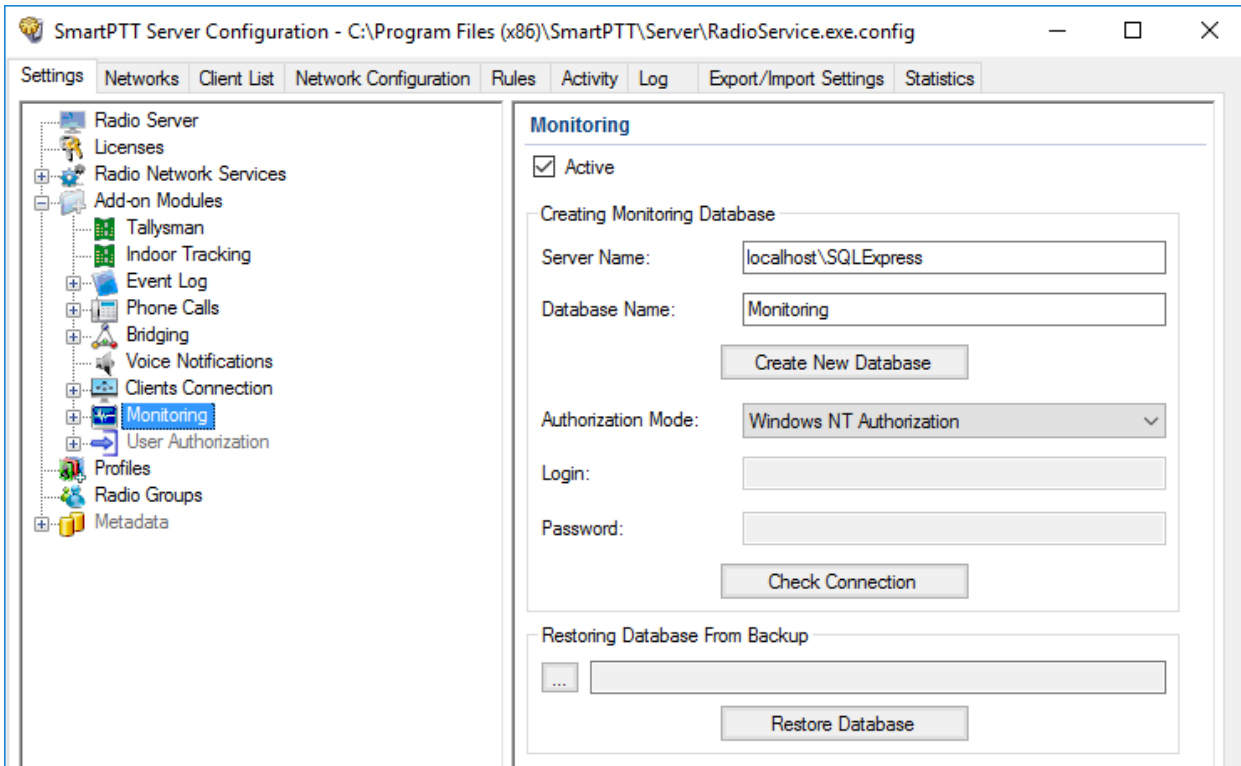
## 1.4.10 Monitoring

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.

**IMPORTANT**

Monitoring service requires the corresponding license. For more information on how to install licenses, see [Licenses](#).

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 **Server Name** and **Database Name** fields, and click **Create New 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**:

- **SQL Server Authorization: Login 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.

**NOTE**

To restore the monitoring database from the backup, select the required database backup file in the **Path** field and click **Restore Database**.

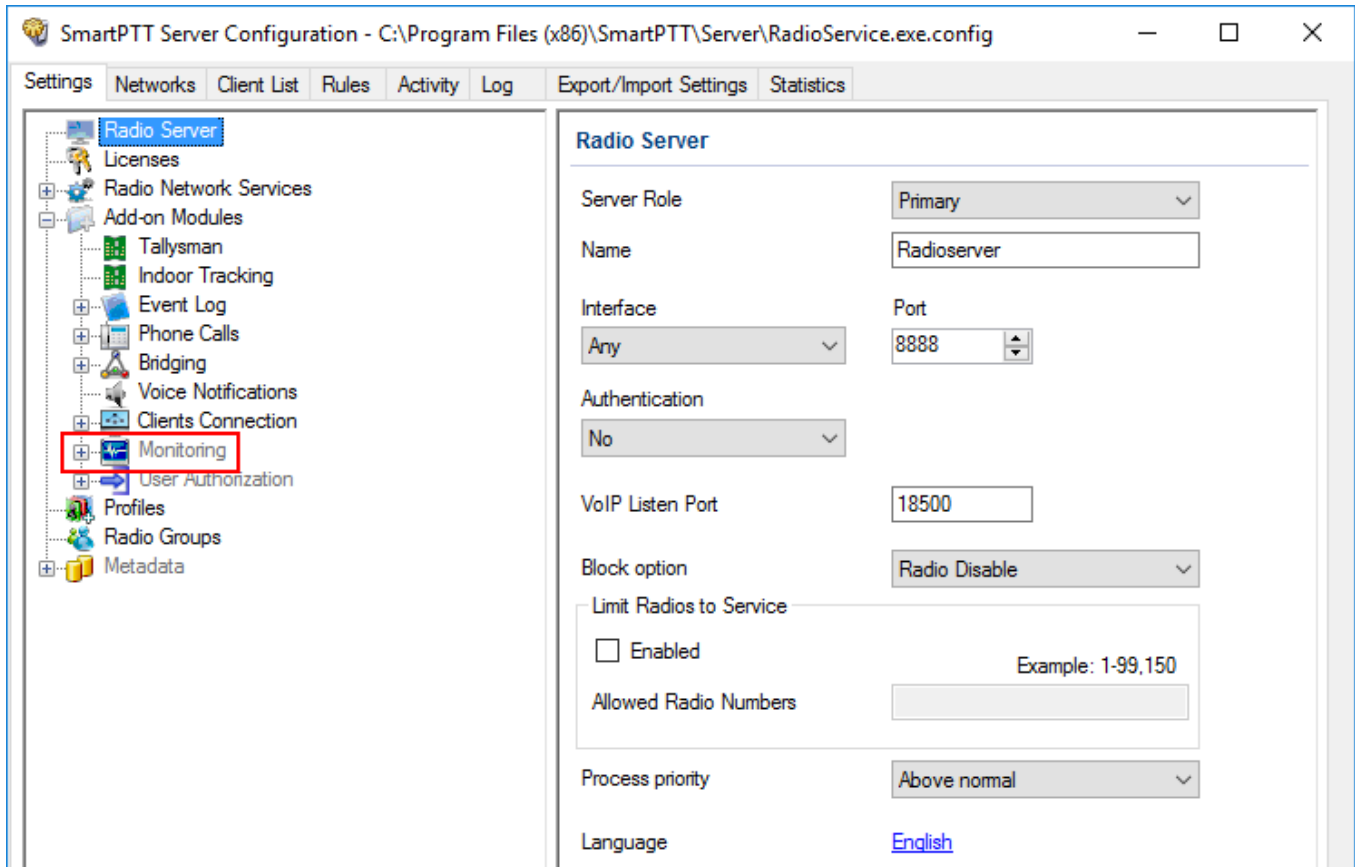
**NOTE**

To set up the auto backup of the monitoring database, go to the [Automatic Database Backup](#) window.

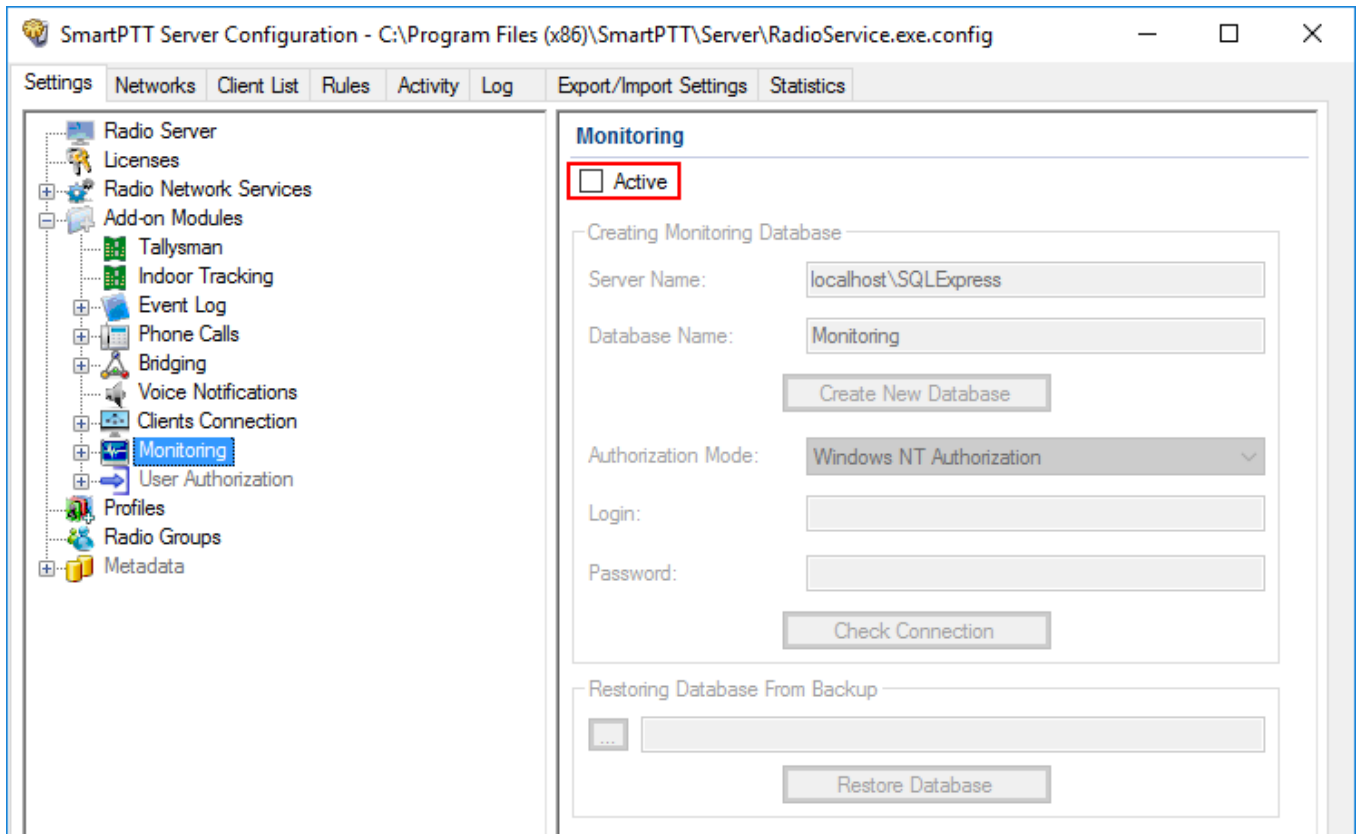
## Creating Database

To create the monitoring database, follow these steps:

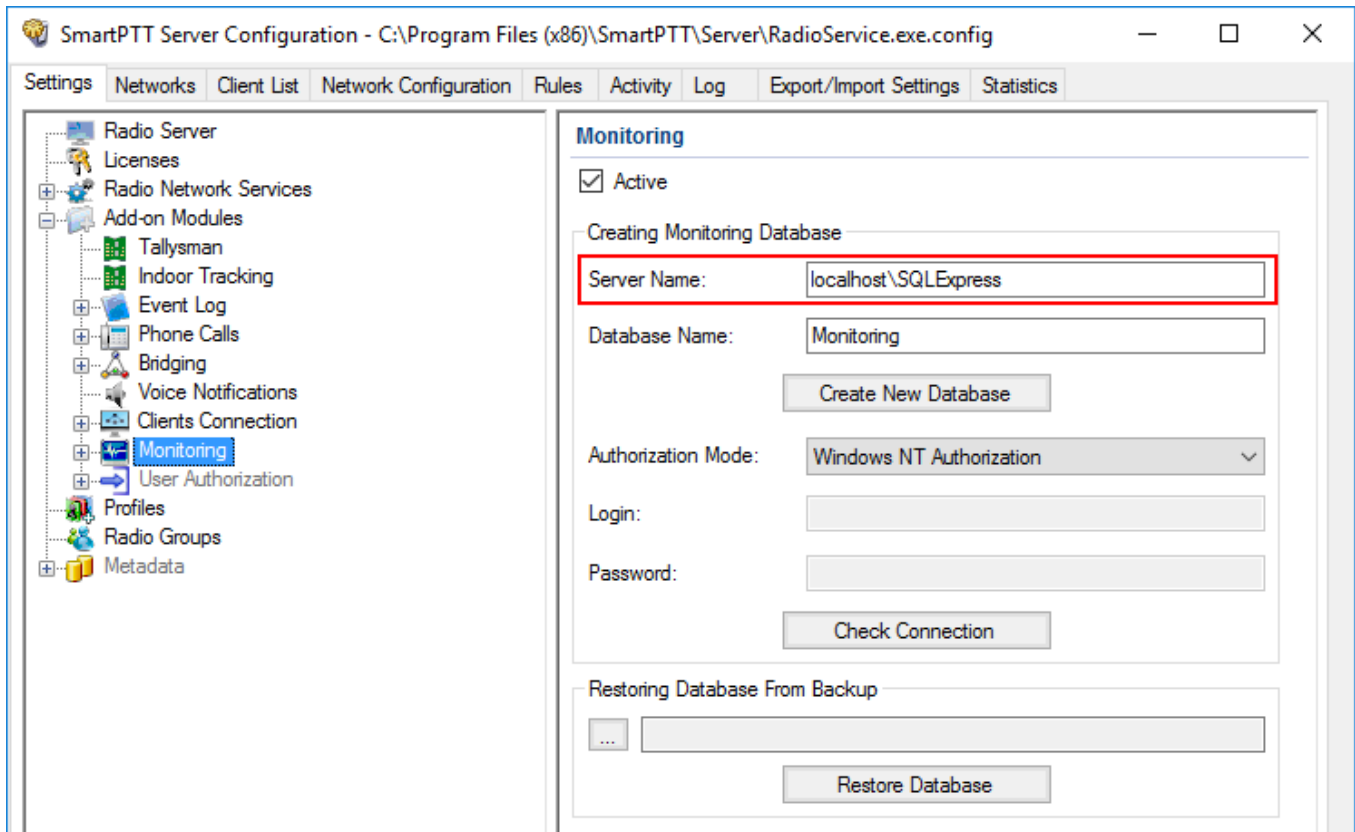
1. In the left pane of the **Settings** tab, expand **Add-on Modules** node and click **Monitoring**.



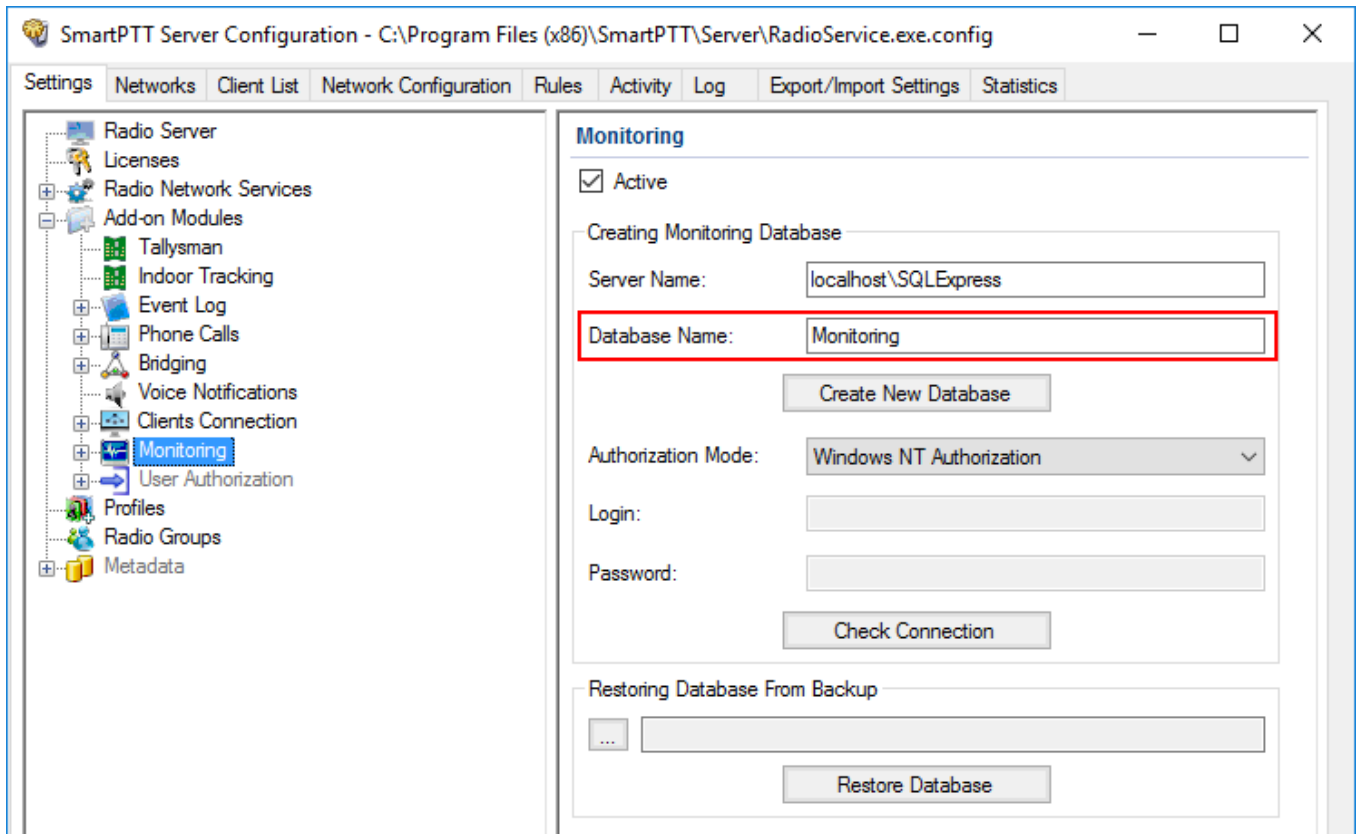
2. Make sure that the **Active** check box is selected in the **Monitoring** pane.



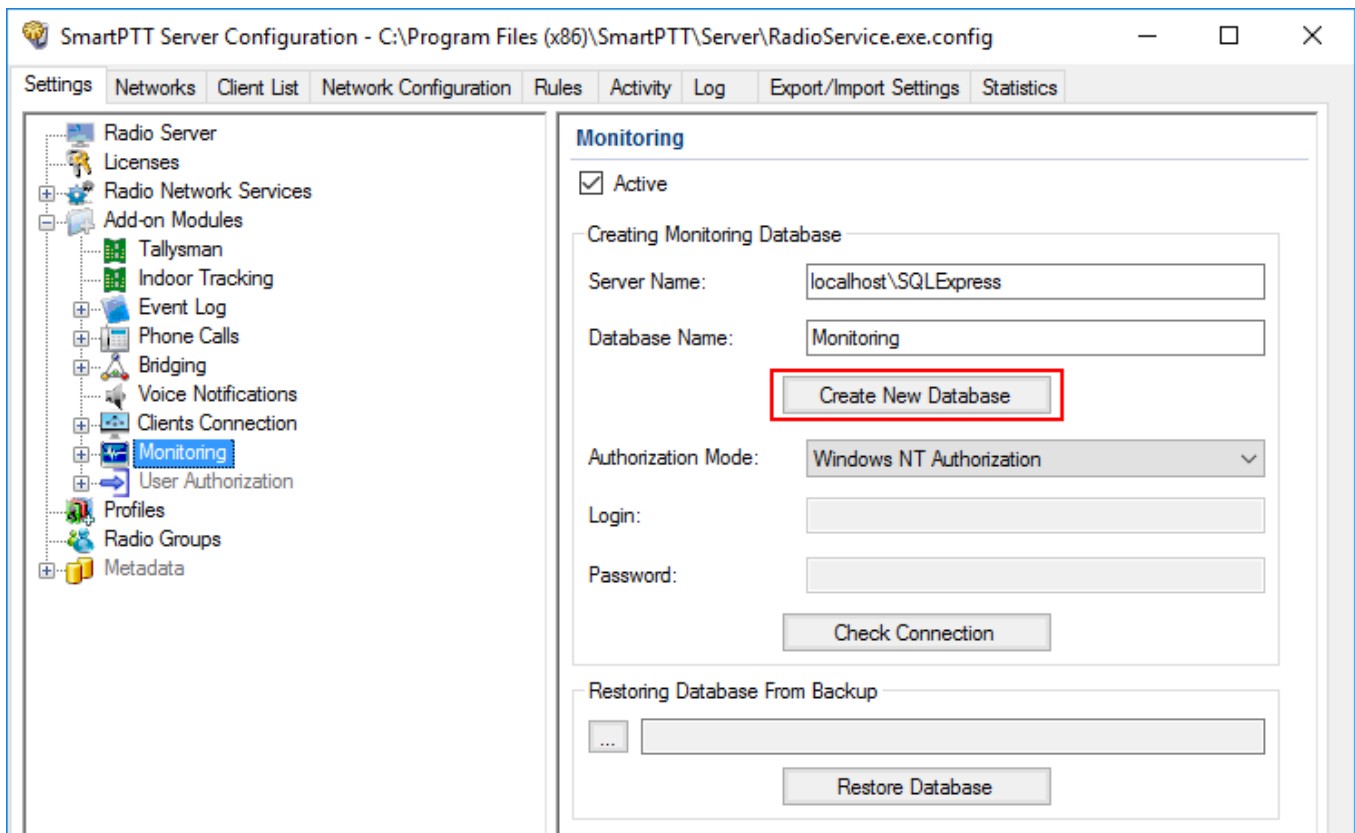
3. In the **Server name** field, enter the name of the SQL Server. You can use either *<IP-address of your computer>\<Your SQL Server name>* or *localhost\<Your SQL Server name>* format:



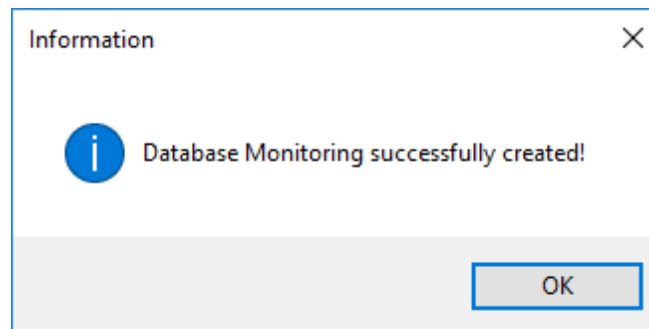
4. In the **Database Name** field, enter the name of a local monitoring database.





5. Click **Create New Database**.



If creation is successful, the following message appears.



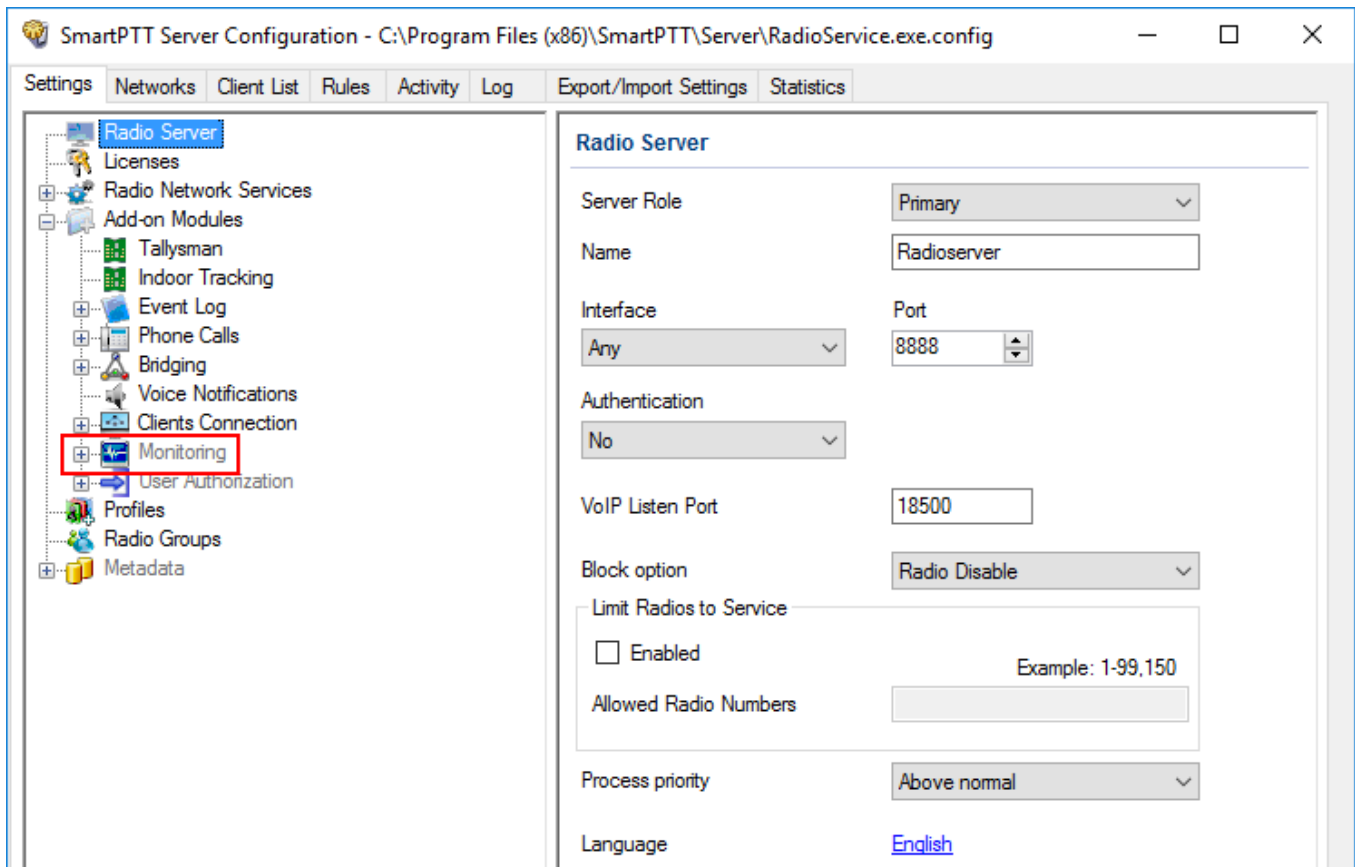
6. At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.
7. Click **Restart** (  ) to restart SmartPTT Radioserver and apply changes.



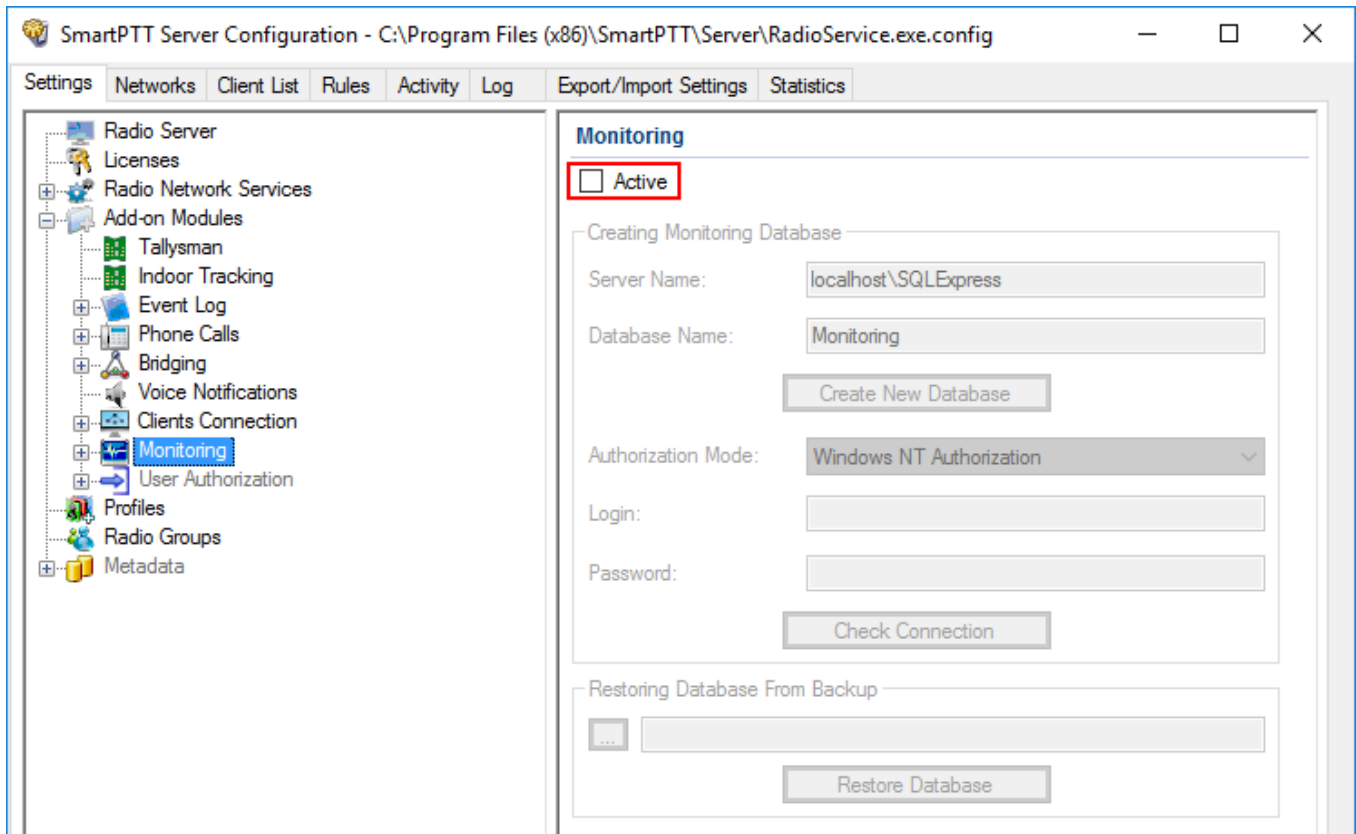
## Connecting Local Monitoring Database

To connect to the local monitoring database, follow these steps:

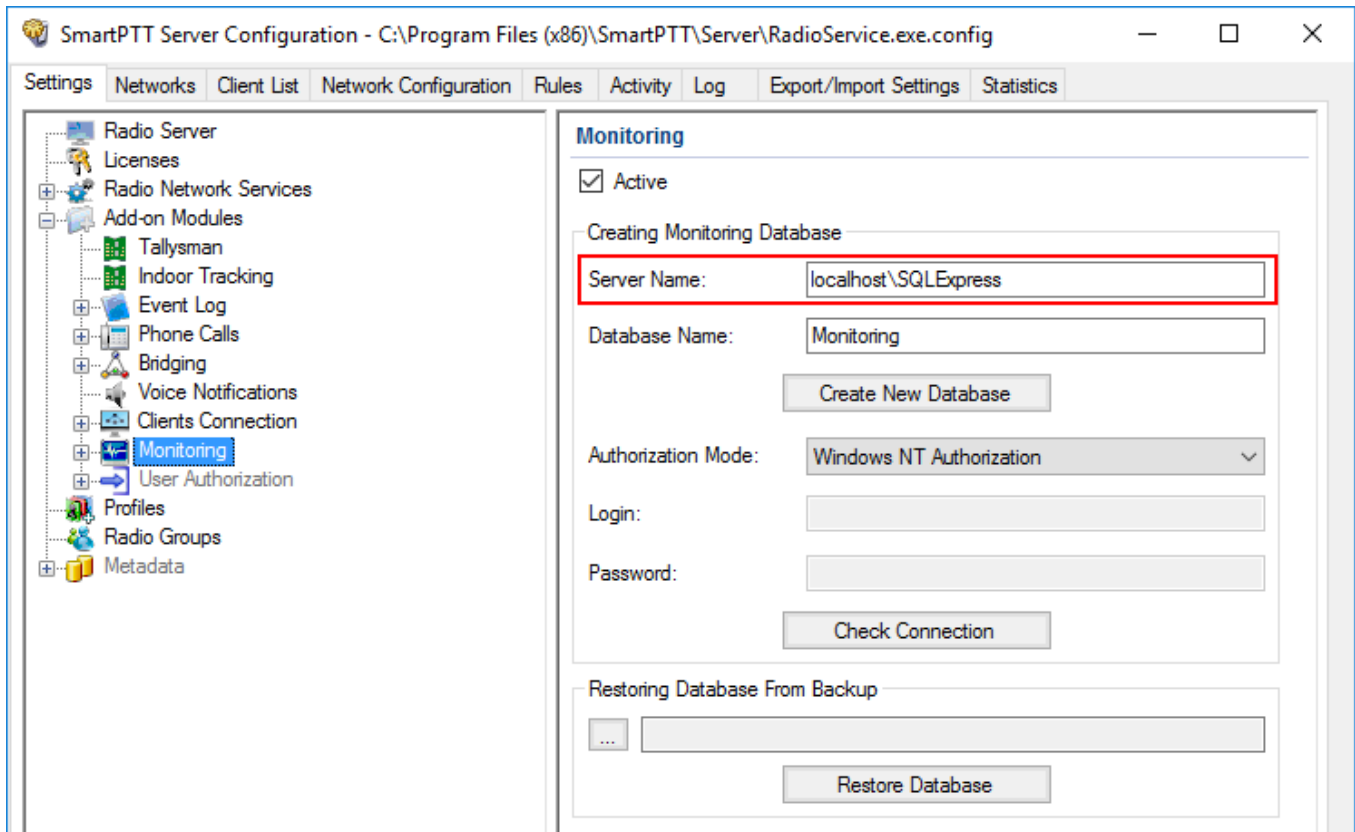
1. In the left pane of the **Settings** tab, expand **Add-on Modules** node and click **Monitoring**.



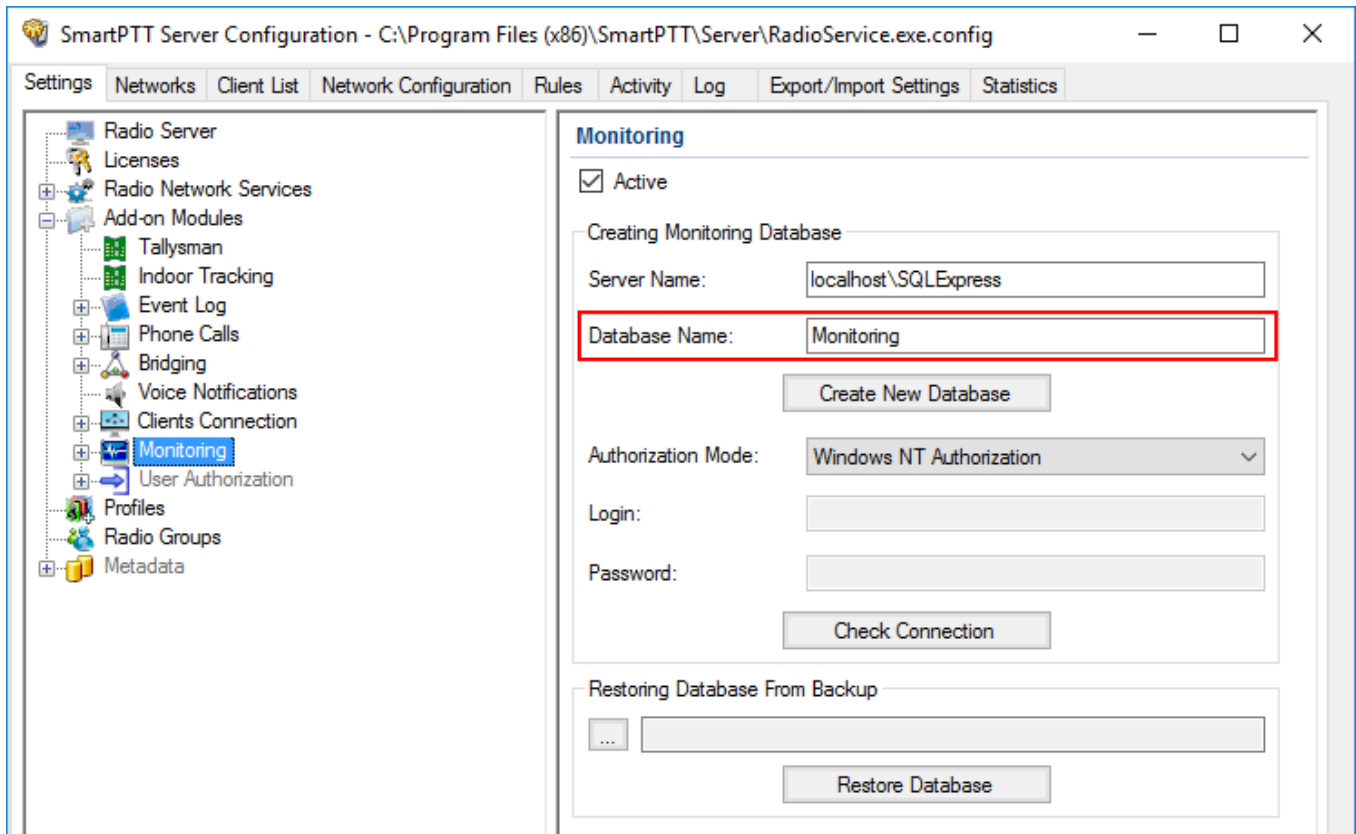
2. Make sure that the **Active** check box is selected in the **Monitoring** pane.



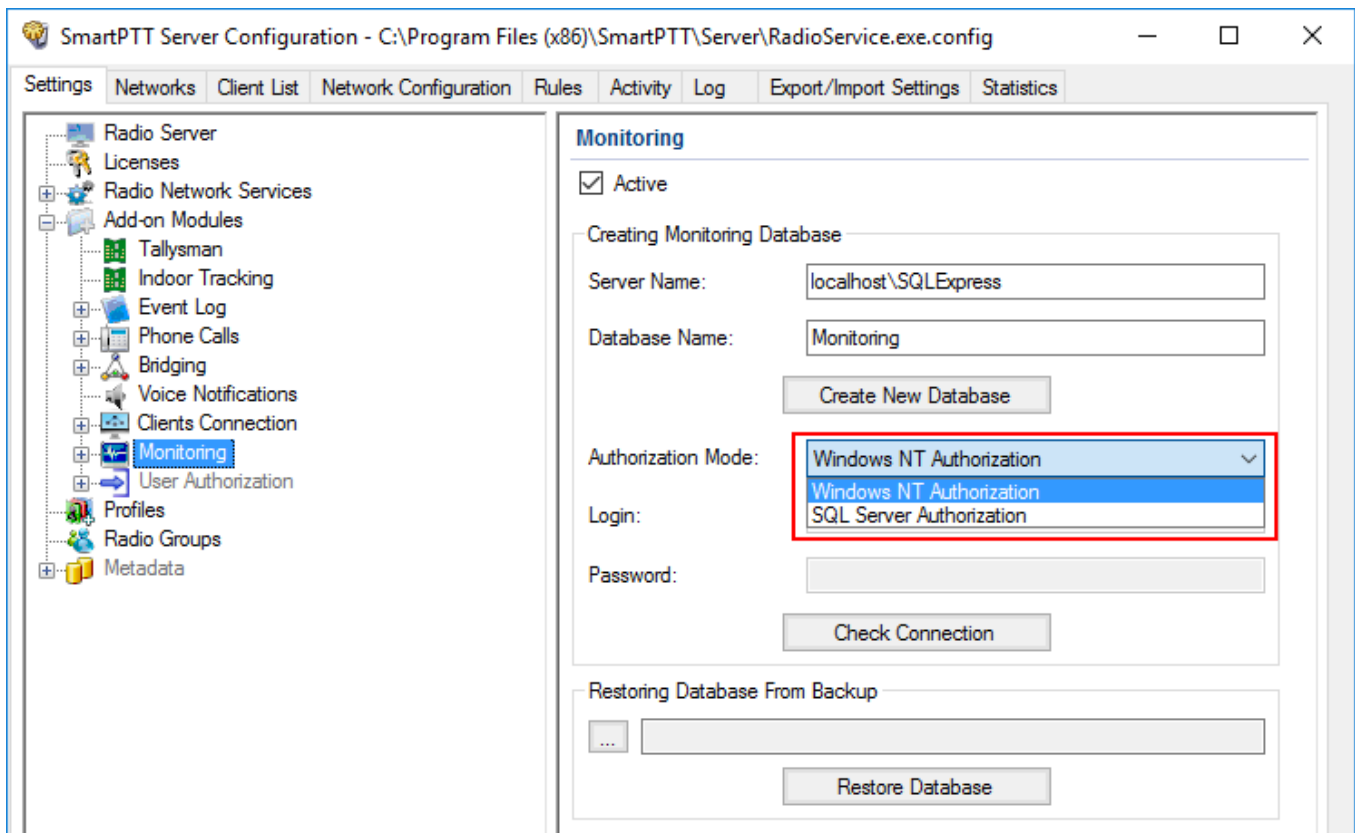
3. In the **Server name** field, enter the name of the SQL Server. You can use either *<IP-address of your computer>\<Your SQL Server name>* or *localhost\<Your SQL Server name>* format:



4. In the **Database Name** field, enter the name of a local Monitoring database.



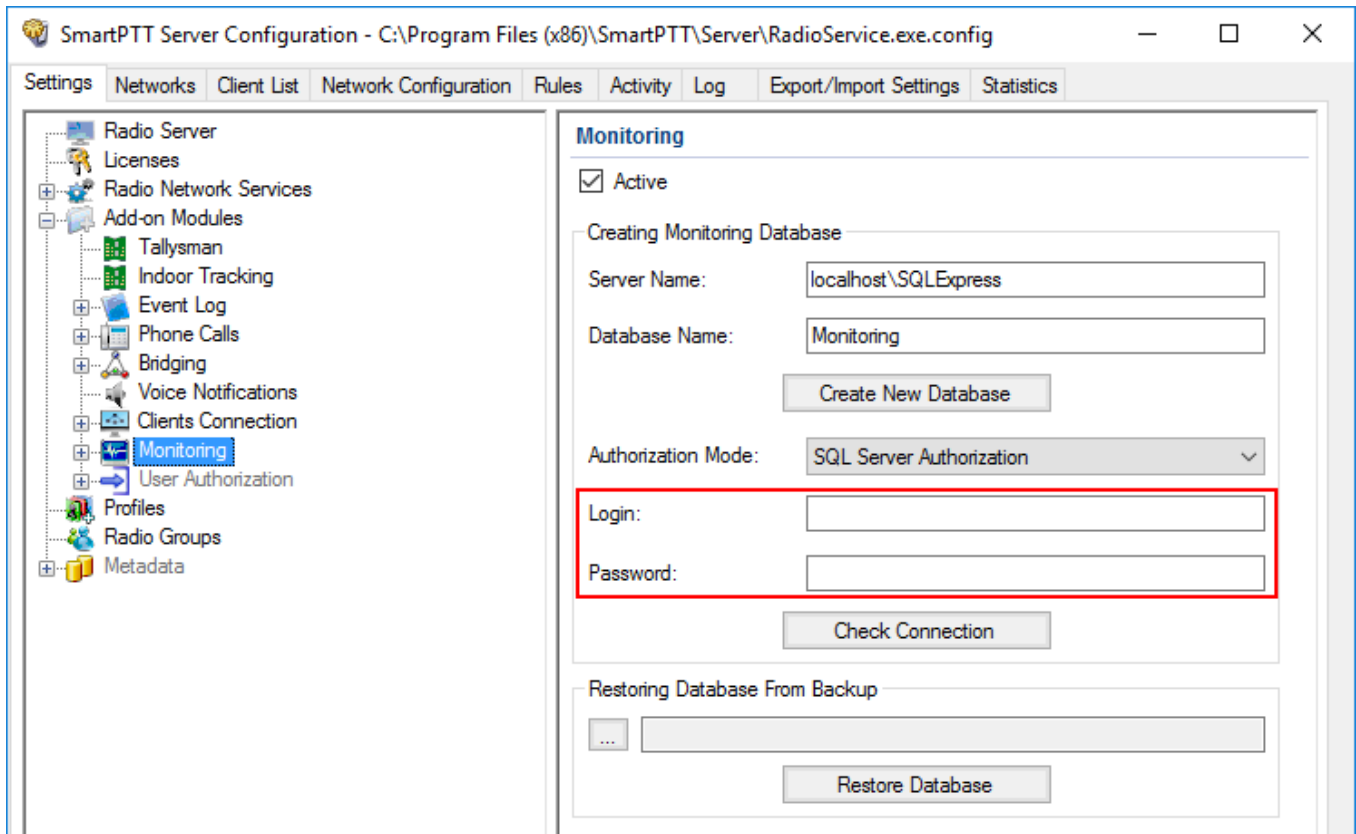
5. From the **Authorization Mode** list, select the needed authorization type:



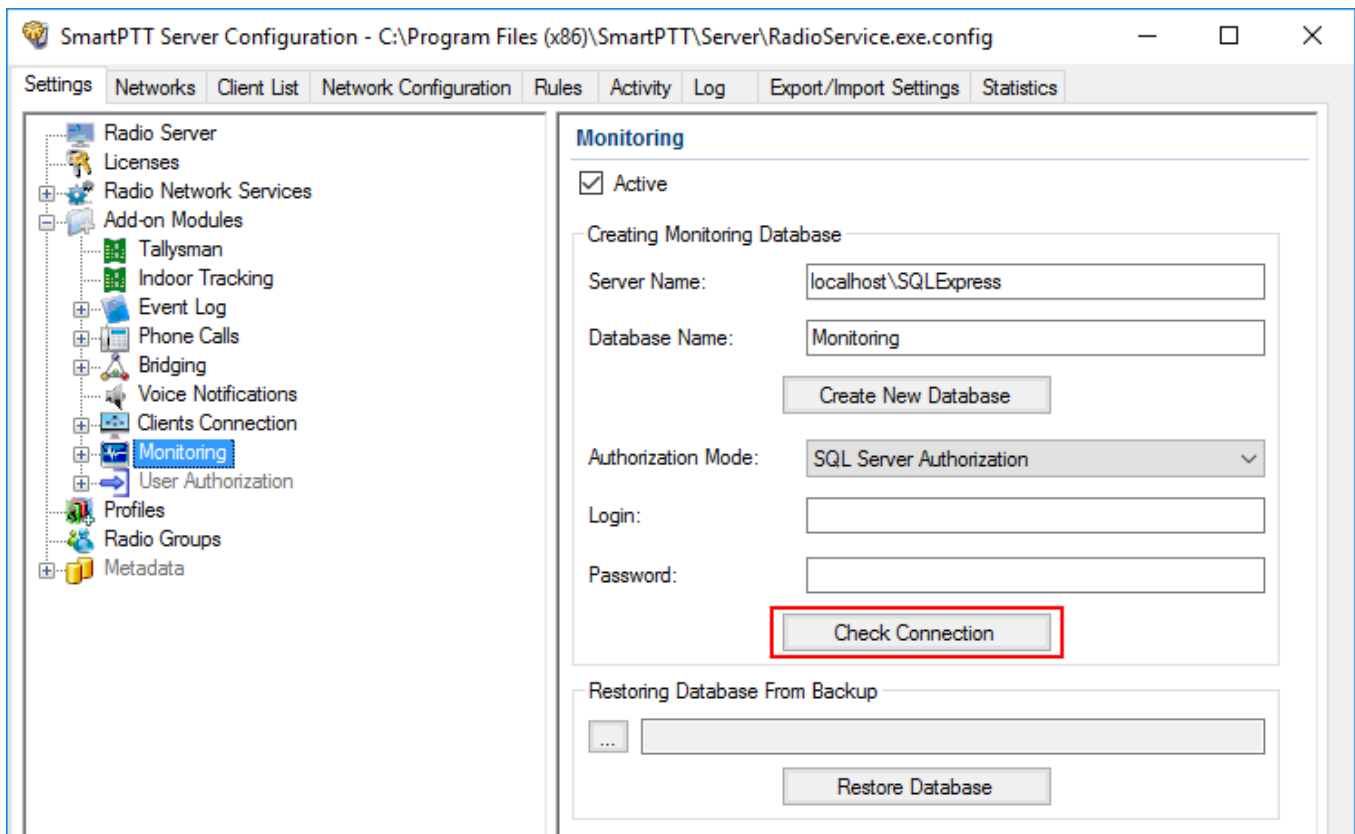
**Windows NT Authorization:** Select to use Windows account for connecting to the local SQL Server.

**SQL Server Authorization:** Select to use SQL Server account for connecting to the local SQL Server.

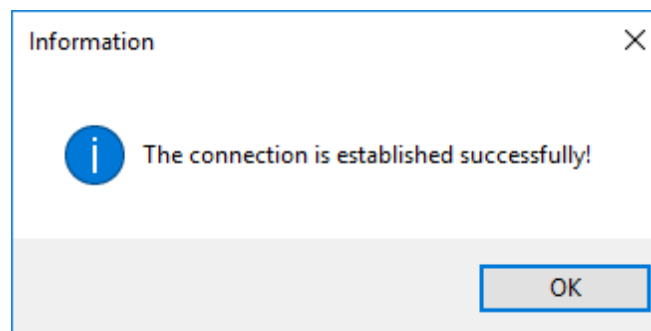
6. If **SQL Server Authorization** is selected, enter login and password.





## 7. Click **Check Connection**.



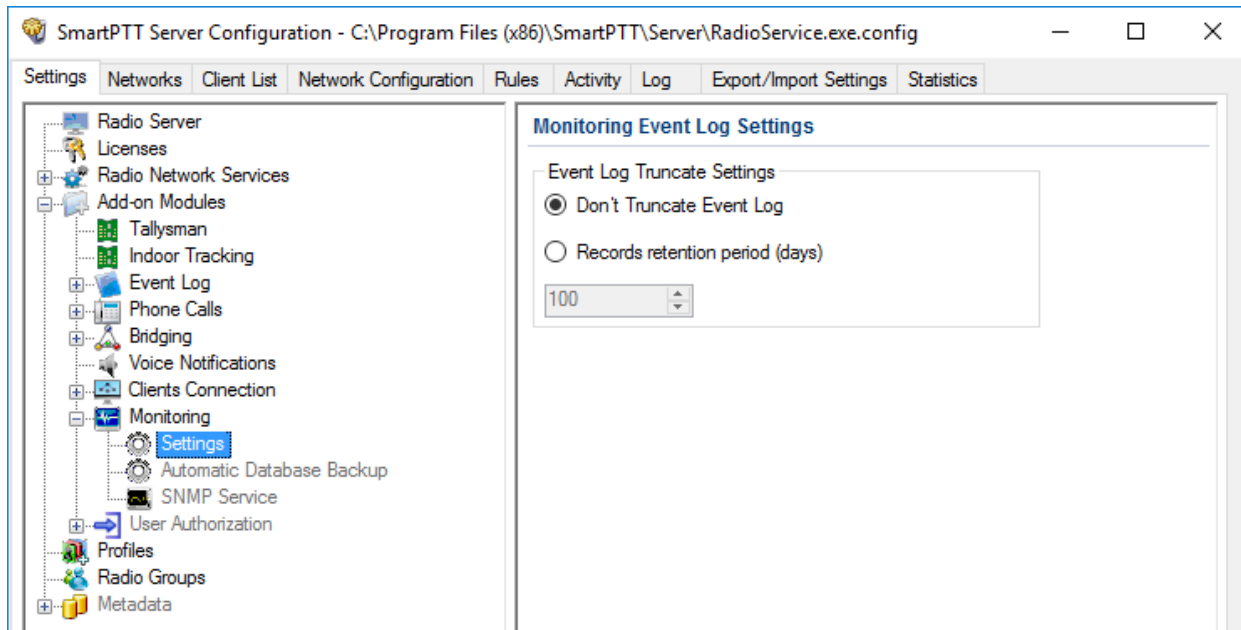
If the connection is successful, the following message appears.



- At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.
- Click **Restart** (  ) to restart SmartPTT Radioserver and apply changes.

## 1.4.10.1 Settings

To configure automatic cleaning for the monitoring event log, go to the **Settings** section of the monitoring in *SmartPTT Radioserver Configurator*. The following window appears:



**Don't Truncate Event Log:** If selected, monitoring event log is not cleared automatically.

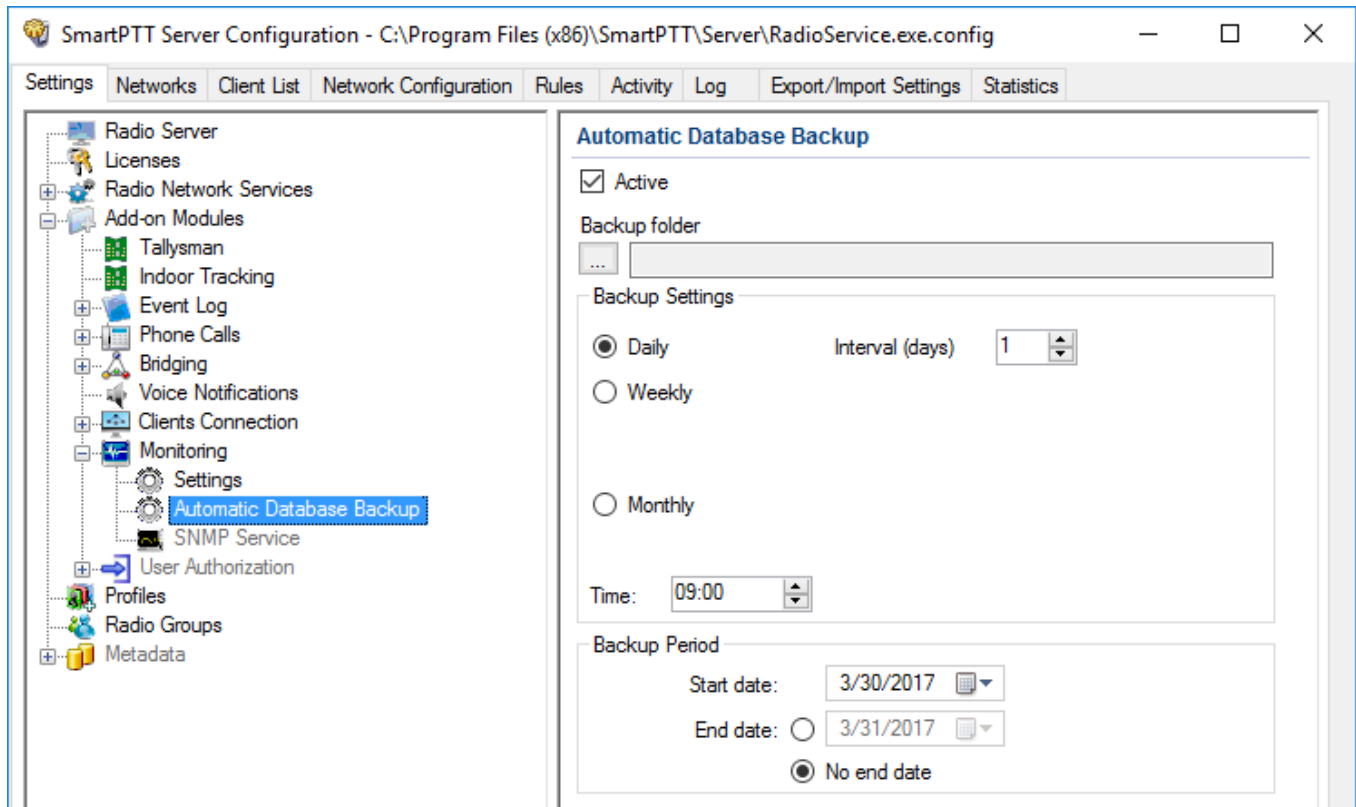
**Records retention period (days):** If selected, the system will delete records older than the number of days set in the field. By default, it is set to 100 days.



## 1.4.10.2 Monitoring Database Automatic 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 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 check box 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.

### 1.4.10.3 SNMP Service

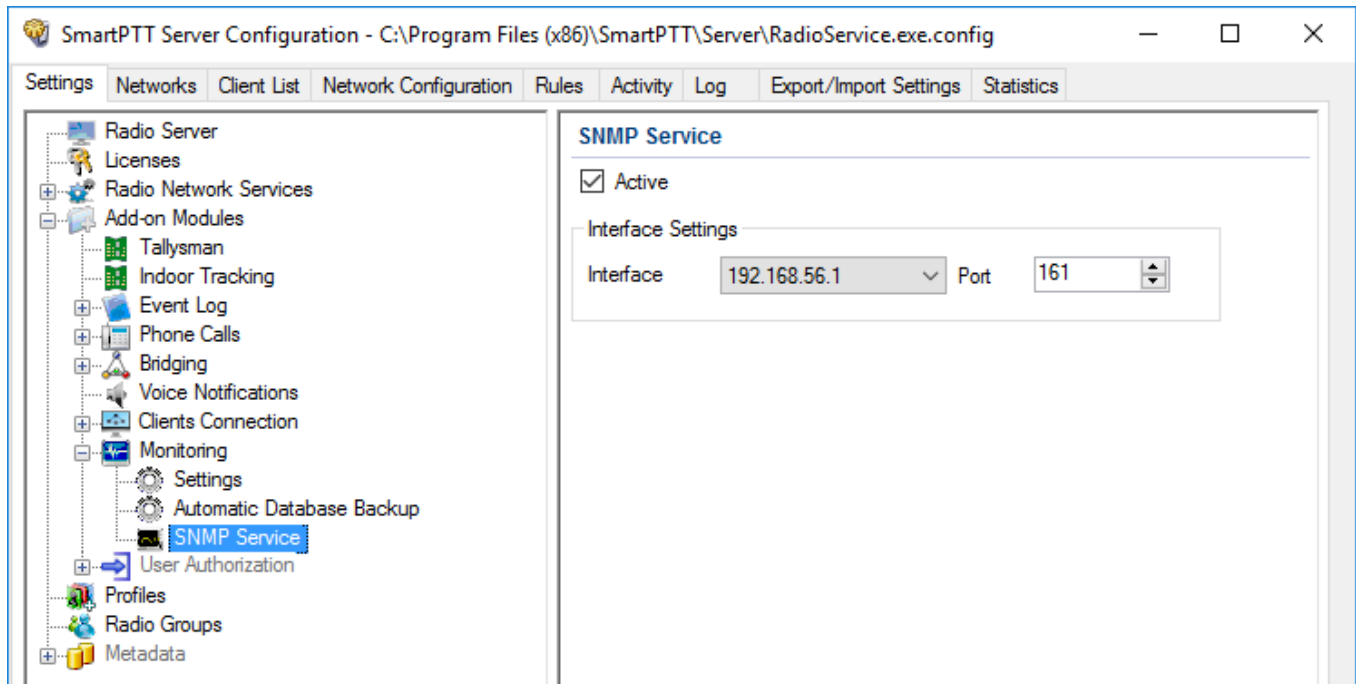
SNMP service allows to monitor network-attached devices such as repeaters, routers and uninterruptible power supplies (UPS).

To be able to get information about the state of a device, you need to have an SNMP client application installed. Use versions 1 and 2 of SNMP client applications. **Monitoring** must be activated, otherwise you won't be able to enable **SNMP Service**.

**IMPORTANT**

SNMP service requires the corresponding license. For more information on how to install licenses, see [Licenses](#).

After you have obtained the license, enable SNMP service. To do that, select **Add-on Modules** → **Monitoring** → **SNMP Service**. The following window appears:

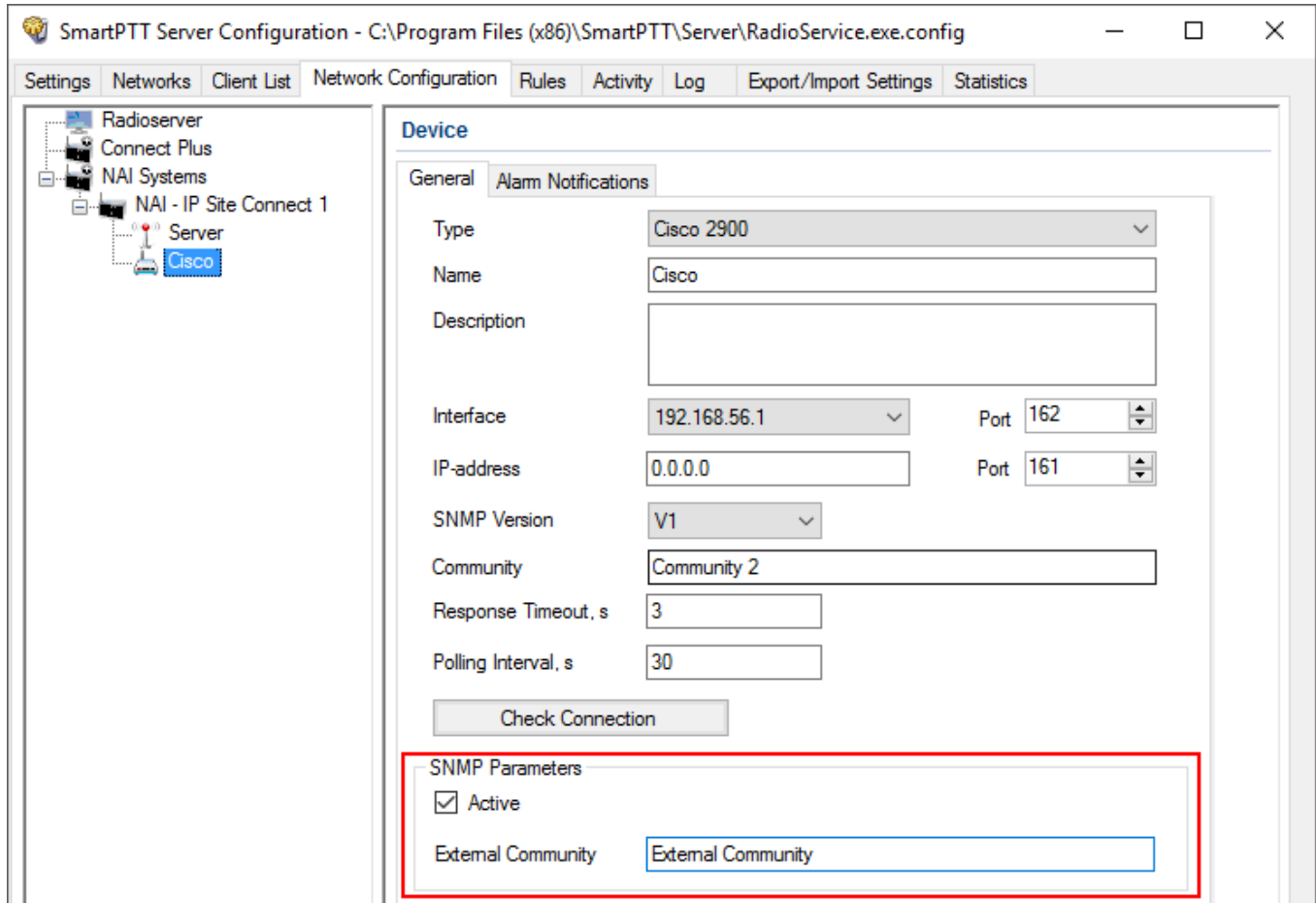


Select the **Active** check box to enable the service. The **Interface Settings** will become available.

**Interface:** The IP address of SmartPTT Radioserver.

**Port:** Port to listen to the data from the devices. By default, it is set to port 161.

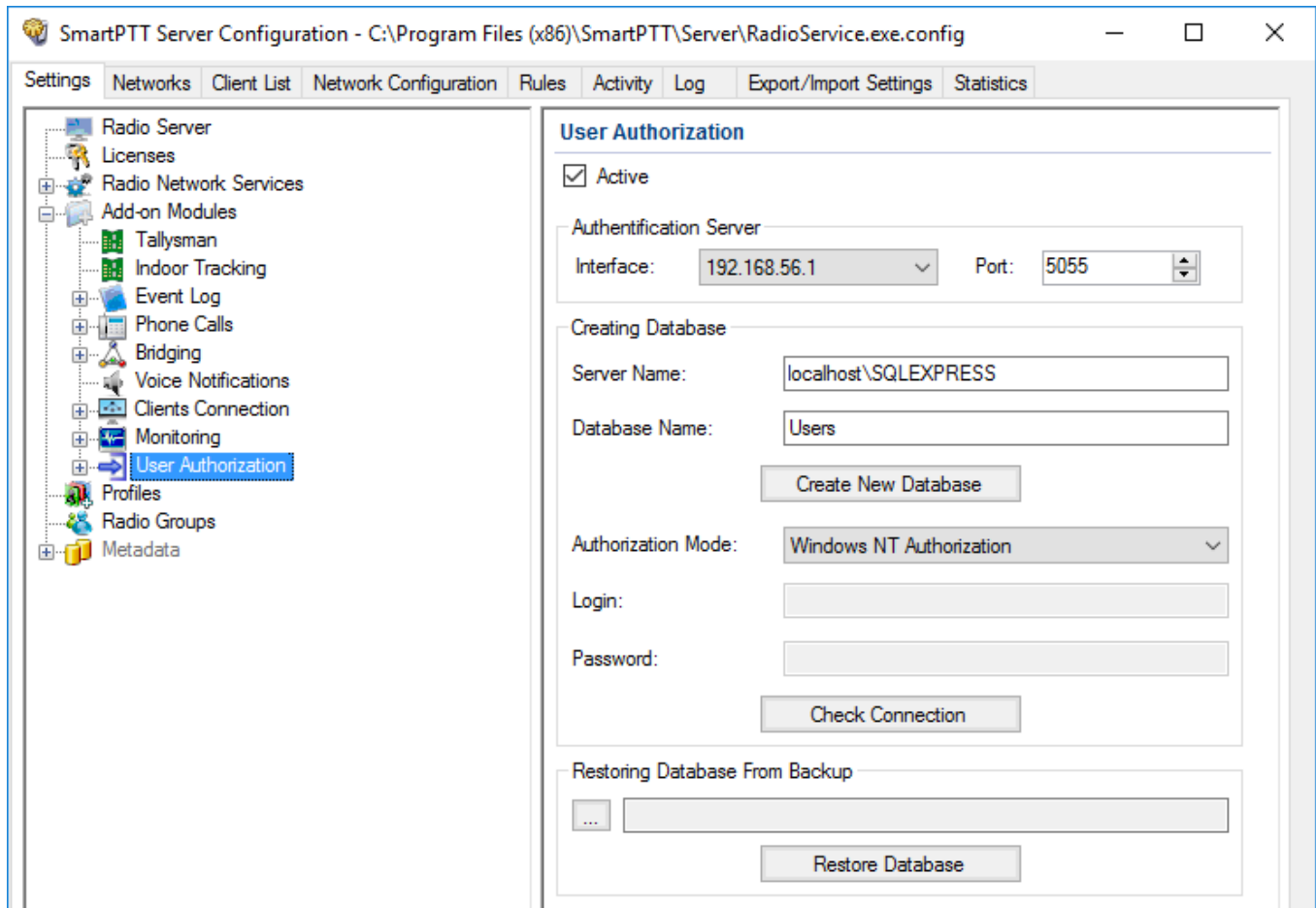
Then, install SNMP client application. Configure its settings to contain the IP address of the radioserver to get information on the devices, and the **External Community** to get information on particular device parameters. The **External Community** can be found in *SmartPTT Radioserver Configurator* 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.

## 1.4.11 User Authorization

Companies with a great number of staff members often require control and accounting of radio use, namely to know the current radio user. For this purpose user authorization is implemented in SmartPTT Radioserver.



User authorization allows the dispatcher to identify the worker using the channel.

For proper work of the user authorization you should preconfigure the radio and set specific networks. The radio is configured in the *MOTOTRBO CPS* program. NAI networks are configured in the *MOTOTRBO DDMS* program and Capacity Max networks are configured in the *Radio Management* program.

### NOTE

To display users in SmartPTT Dispatcher, **Show radio user name** check box should be selected in the **General Settings** window of SmartPTT Dispatcher.

For details, see *Dispatcher User Guide*.

MOTOTRBO CPS, MOTOTRBO DDMS and *Radio Management* settings include:

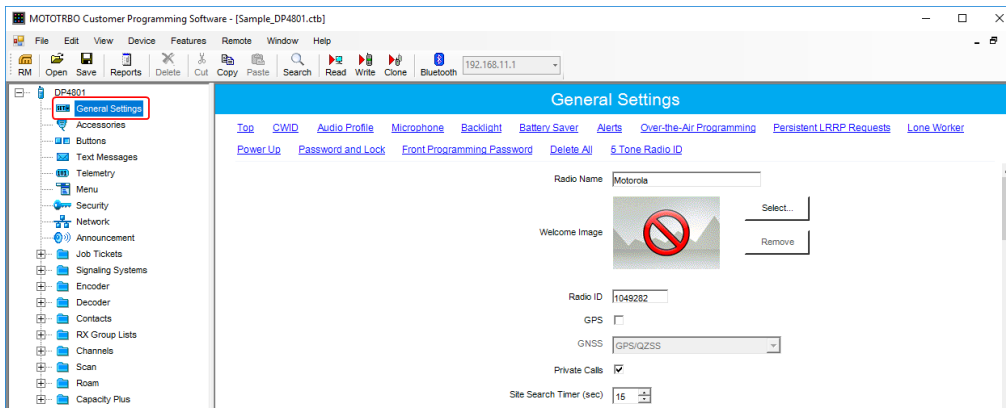
## Configuring Radio

The following section describes the configuration of the radio in MOTOTRBO CPS. There are two ways to configure the radio:

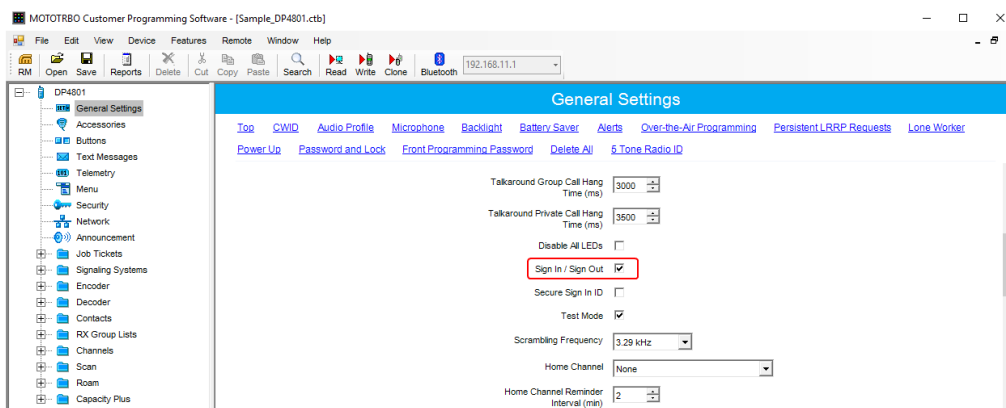
- To connect the radio to the computer and to update its firmware.
- To preconfigure the firmware file and to use it for updating the radio firmware.

To configure the radio, follow these steps:

1. Run MOTOTRBO CPS.
2. Read the radio firmware or open the radio firmware file.
3. In the left pane, click **General Settings**.



4. In the **General Settings** pane, select the **Sign In/Sign Out** check box.




### WARNING

Do not unplug your cable from the radio or computer until the radio firmware update complete.

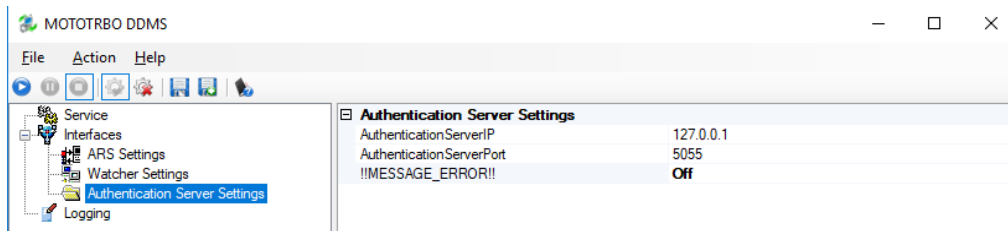
- Update the radio firmware or save the radio firmware file for the following updating.




## Configuring DDMS service

To configure MOTOTRBO DDMS settings, follow these steps:

- Run MOTOTRBO DDMS.
- If the **Stop** (  ) button on the toolbar of MOTOTRBO DDMS is active, click it to stop the DDMS service.
- In the left pane, expand the **Interfaces** node, and then click **Authentication Server Settings**.

The **Authentication Server Settings** node appears in the right pane.



- If the **Authentication Server Settings** node is collapsed, click Expand (  ) to expand it.
- In the right pane, in **AuthenticationServerIP**, type the IP-address of the authentication server.
- In **AuthenticationServerPort**, type the number of the authentication server port.
- If the **!!MESSAGE\_ERROR!!** value is *Off*, double-click **!!MESSAGE\_ERROR!!**. The **!!MESSAGE\_ERROR!!** value changes to *On*.
- Click **Save Configuration** (  ).
- Click **Start** (  ) to start DDMS service.

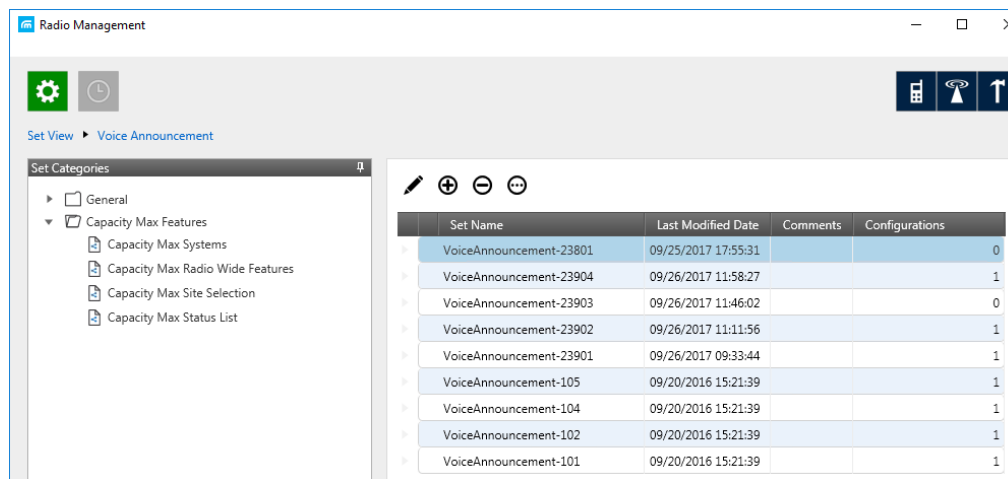
## Configuring Capacity Max


For proper work of the authentication server, you should set Capacity Max networks. Capacity Max networks are configured in the program *Radio Management*.

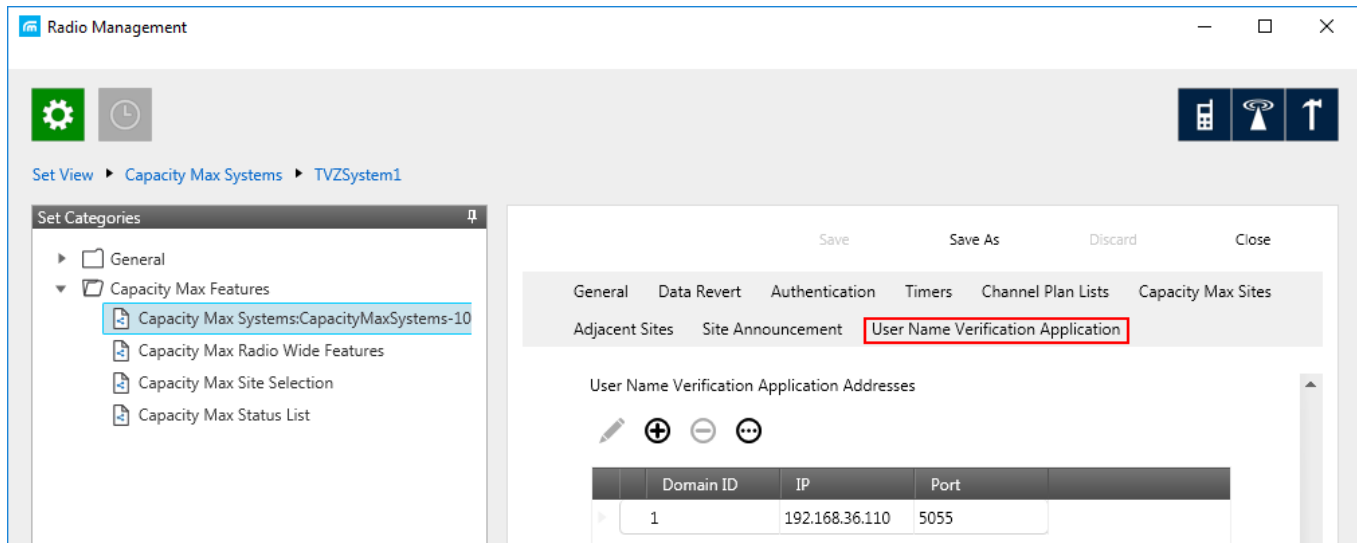
To configure Capacity Max settings in *Radio Management*, follow these steps:

- Run *Radio Management*.
- Click **Actions** (  ).

3. From the **Manage** list, select **Sets**.
4. In the **Set Categories** pane, expand the **Capacity Max Features** node.



5. Click **Capacity Max Systems**.
6. In the right pane, click the required Capacity Max System.
7. Click **Edit** (  ).
8. Click **User Name Verification Application**.



9. In **User Name Verification Application Addresses** pane, specify the following parameters:

**IP:** Enter the IP-address of the authentication server.





**NOTE**

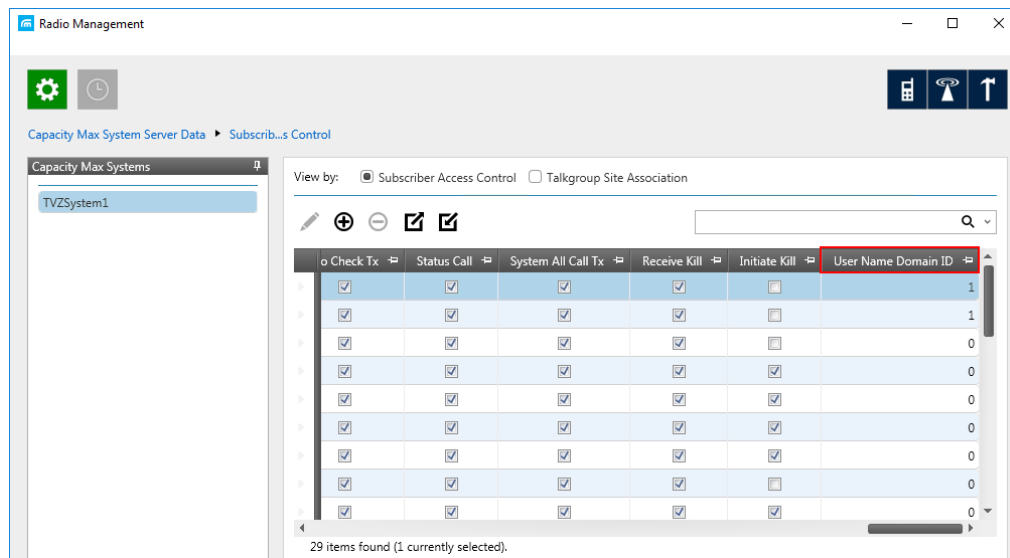
By default, the authentication server has the IP address of the primary SmartPTT Radioserver.


**Port:** Enter the port of the authentication server.

**Domain ID:** Specify ID for authentication server in Radio Management.

After this, perform the following actions to save the changes in the *Radio Management* program.

1. Click **Radio View** (  ) to open the main menu.
2. Click **Actions** (  ).
3. From the list, select **Manage** → **Capacity Max System Server Data**.
4. In the right pane, click the desired radio.
5. In the **User Name Domain ID** field, specify the value from 0 to 16.



6. Click **Radio View** (  ) to open the main menu.
7. Right-click on the radiostation that was modified.
8. Select **Schedule job**.

9. In the **Schedule job** window, click **OK**.

The screenshot shows a 'Schedule Job' dialog box with the following settings:

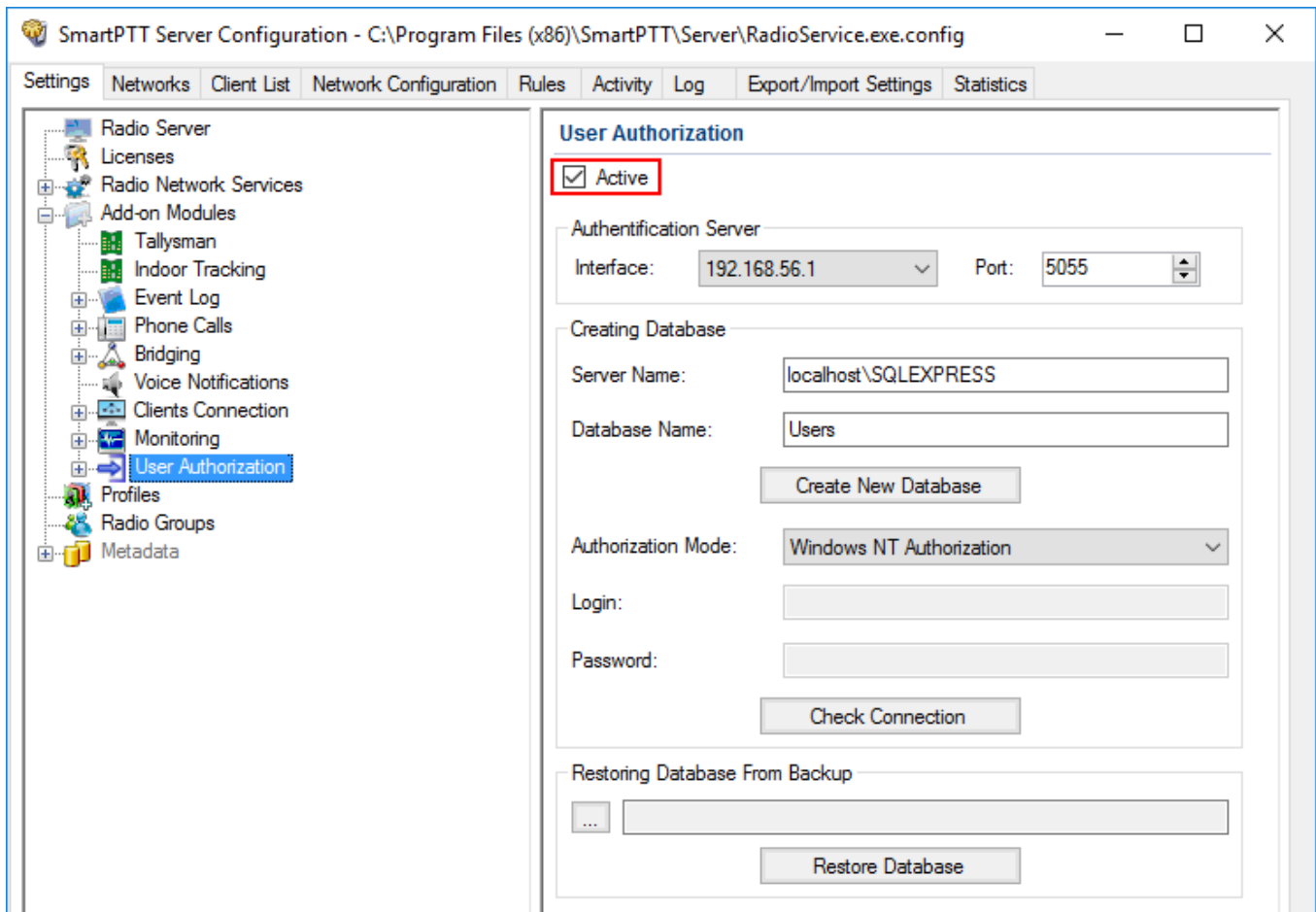
- Job Type:** Write (selected), No Switchover (checked), Switchover (unchecked), Read (unchecked), Generate configuration (unchecked), Apply to radio (unchecked).
- Connection Method:** USB + Wireless (LAN) (unchecked), IP Program (selected), Over the Air (unchecked), Any (unchecked).
- Suppress ARS after Switchover:** (unchecked)
- Switchover Timer (min):** 0
- Job Name:** (empty text field)
- Time Zone:** (dropdown menu)
- Start after:** (two empty text fields)
- End before:** (two empty text fields)
- Buttons:** OK, Cancel

When preliminary configuration of radio equipment complete, User authorization configuration should be made. This includes the following:

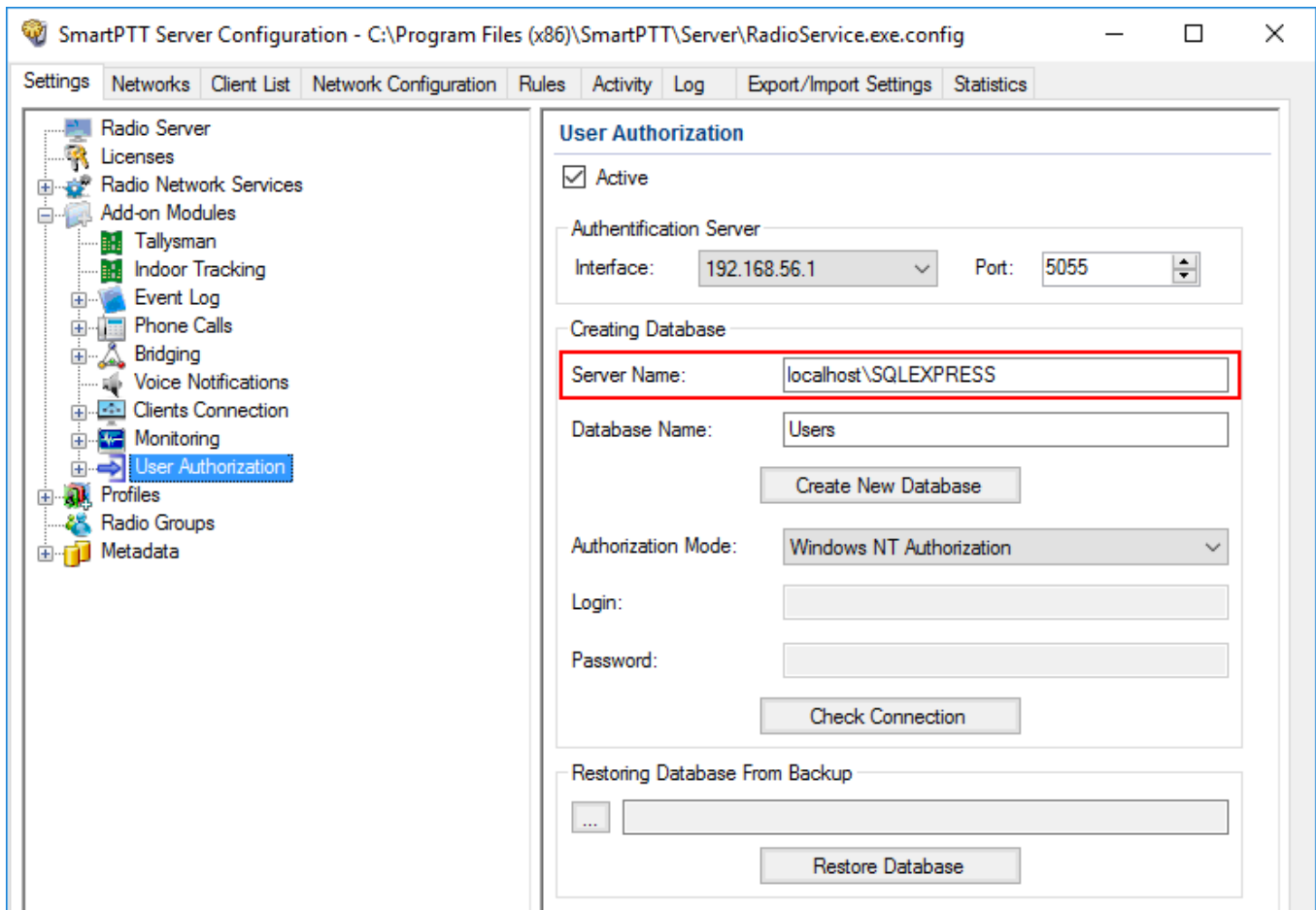
## Creating User Authorization Database

To create the authentication server database, follow these steps:

1. In the left pane of the **Settings** tab, expand the **Add-on Modules** node and click **User Authorization**.
2. In the **User Authorization** pane, select the **Active** check box.

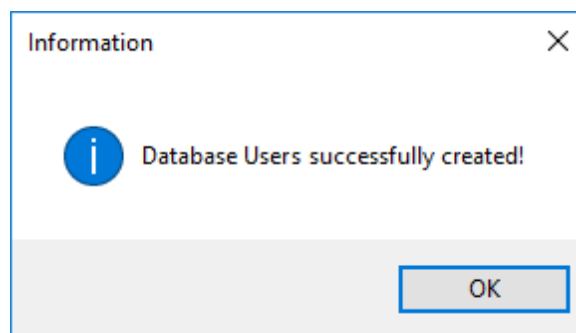




3. In the **Server Name** field of the **Creating Database** area, enter the name of the SQL Server. You can use either **<IP address of your computer>\<Your SQL Server name>** or **localhost\<Your SQL Server name>** format:



4. In the **Database Name** field, enter the name of the authentication server database and click **Create New Database**.

If the creation is successful, the following message appears.

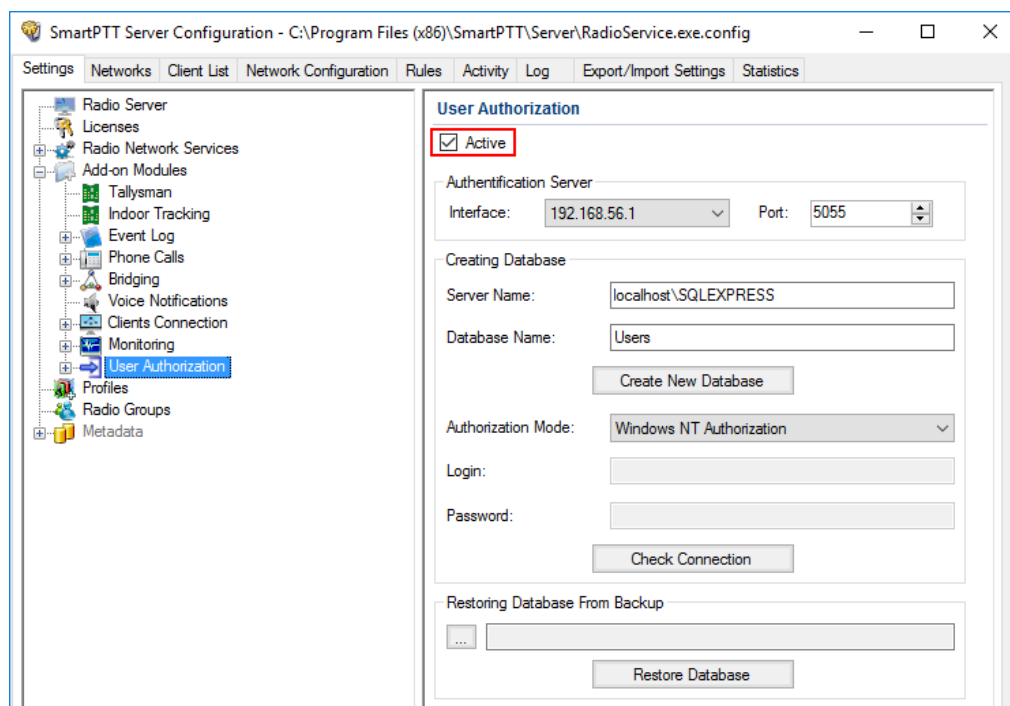


5. At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.
6. Click **Restart** (  ) to restart SmartPTT Radioserver and apply changes.

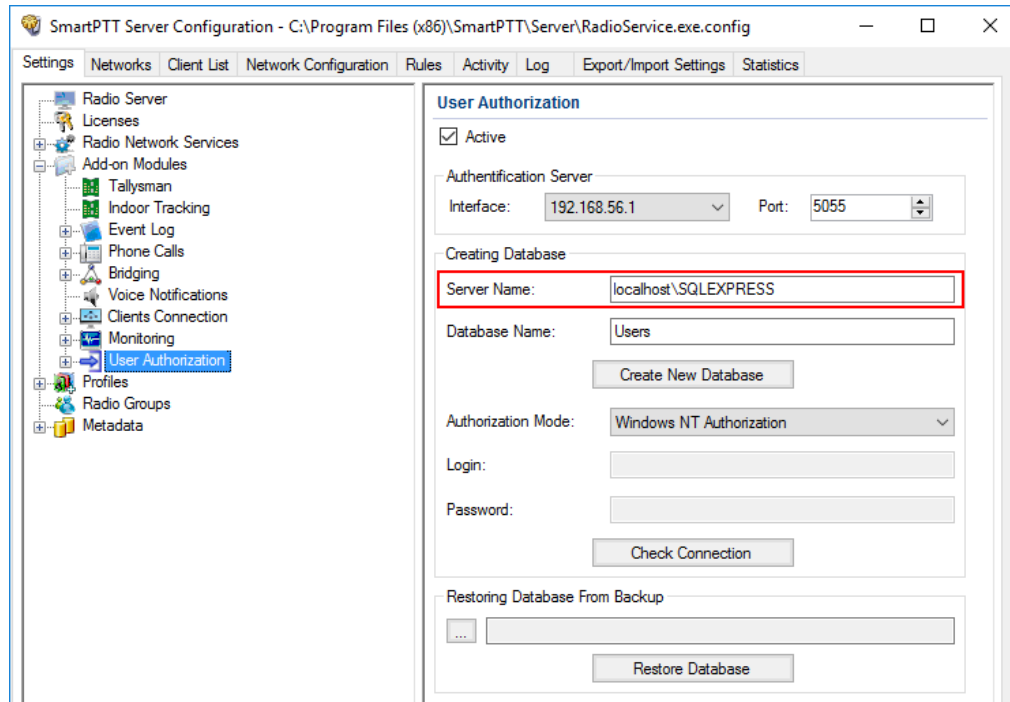
## Connecting User Authorization Database

To connect to the authentication server database, follow these steps:

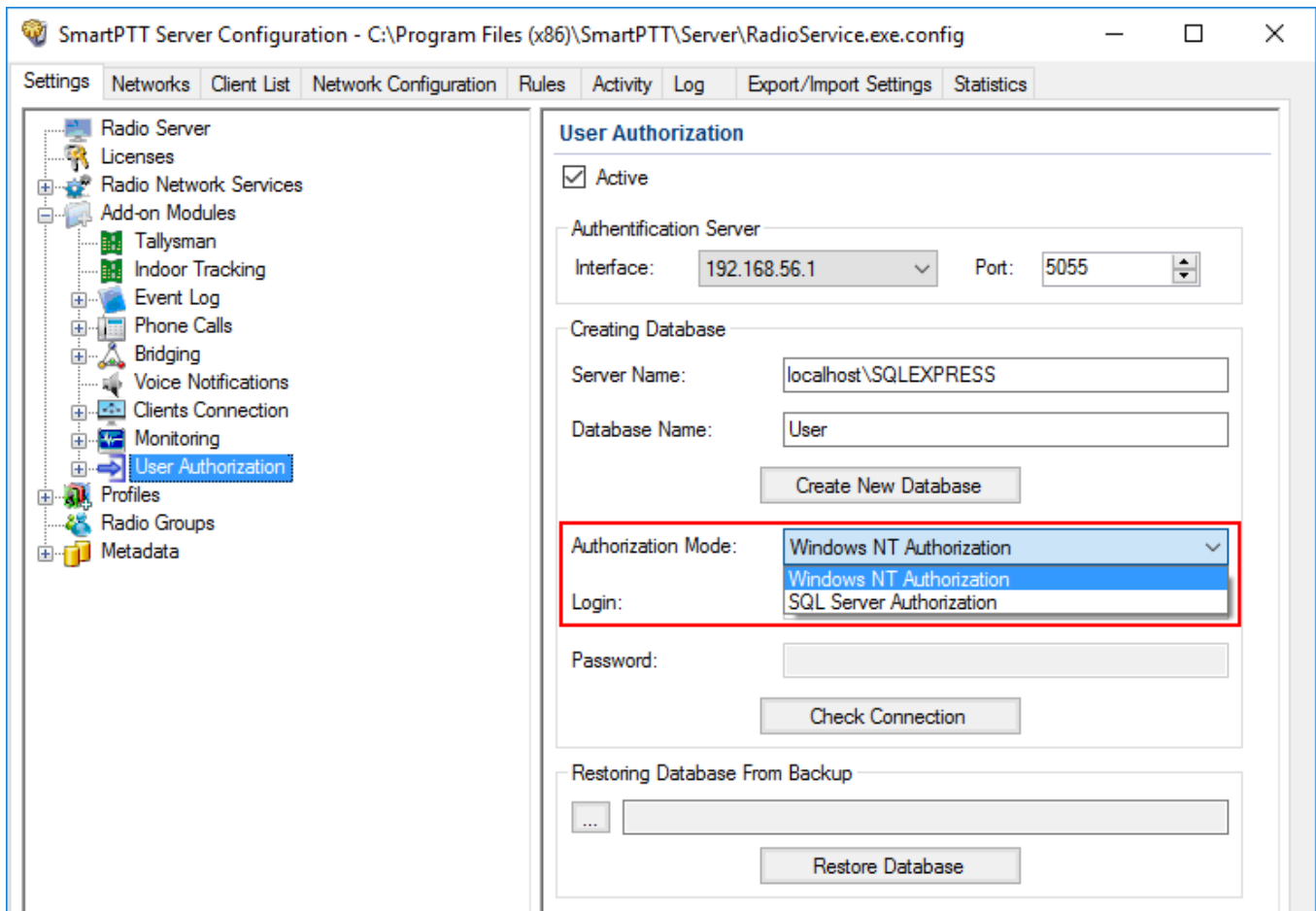
1. In the left pane of the **Settings** tab, expand the **Add-on Modules** node and click **User Authorization**.
2. In the **User Authorization** pane, select the **Active** check box.



3. In the **Server Name** field of the **Creating Database** area, enter the name of the SQL Server. You can use either **<IP-address of your computer>\<Your SQL Server name>** or **localhost\<Your SQL Server name>** format.
4. In the **Database Name** field, enter the name of the needed database.

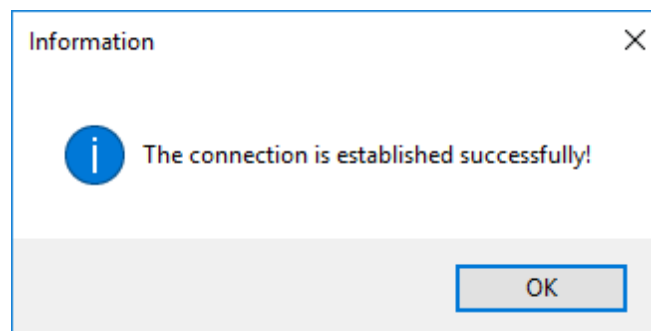




5. From the **Authorization Mode** list, select the needed authorization mode:
  - **Windows NT Authorization:** Select to use Windows account for connecting to the local SQL Server.
  - **SQL Server Authorization:** Select to use SQL Server account for connecting to the local SQL Server.



6. If **SQL Server Authorization** is selected, enter **Login** and **Password** and then click **Check Connection**.

If the connection is successful, the following message appears.

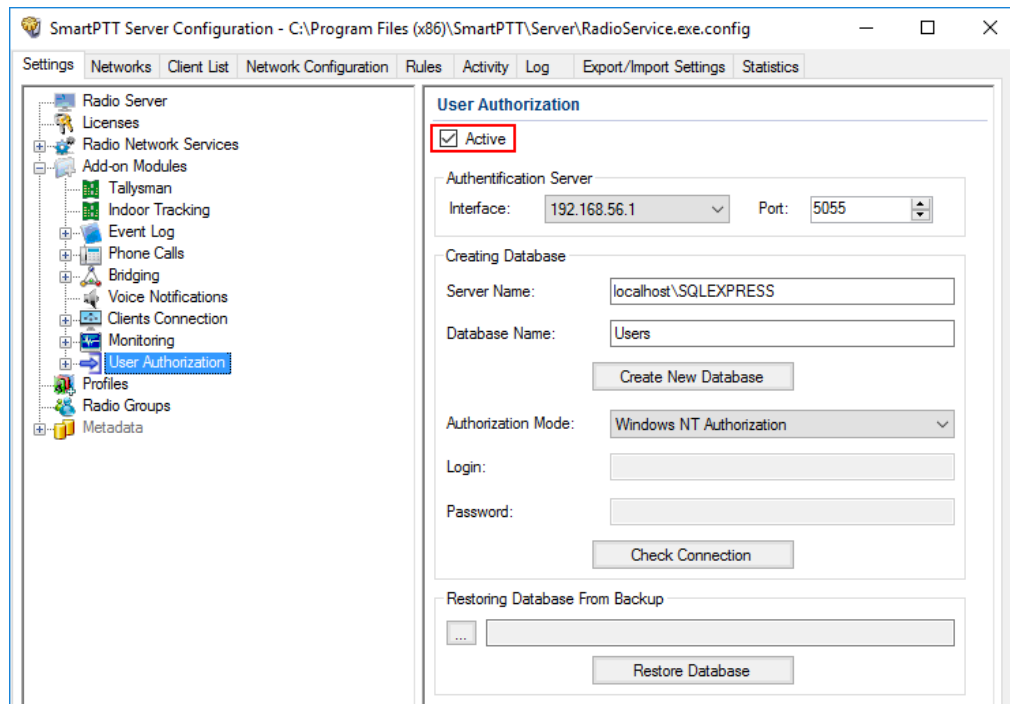


7. At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.
8. Click **Restart** (  ) to restart SmartPTT Radioserver and apply changes.

## Restoring Database from Backup

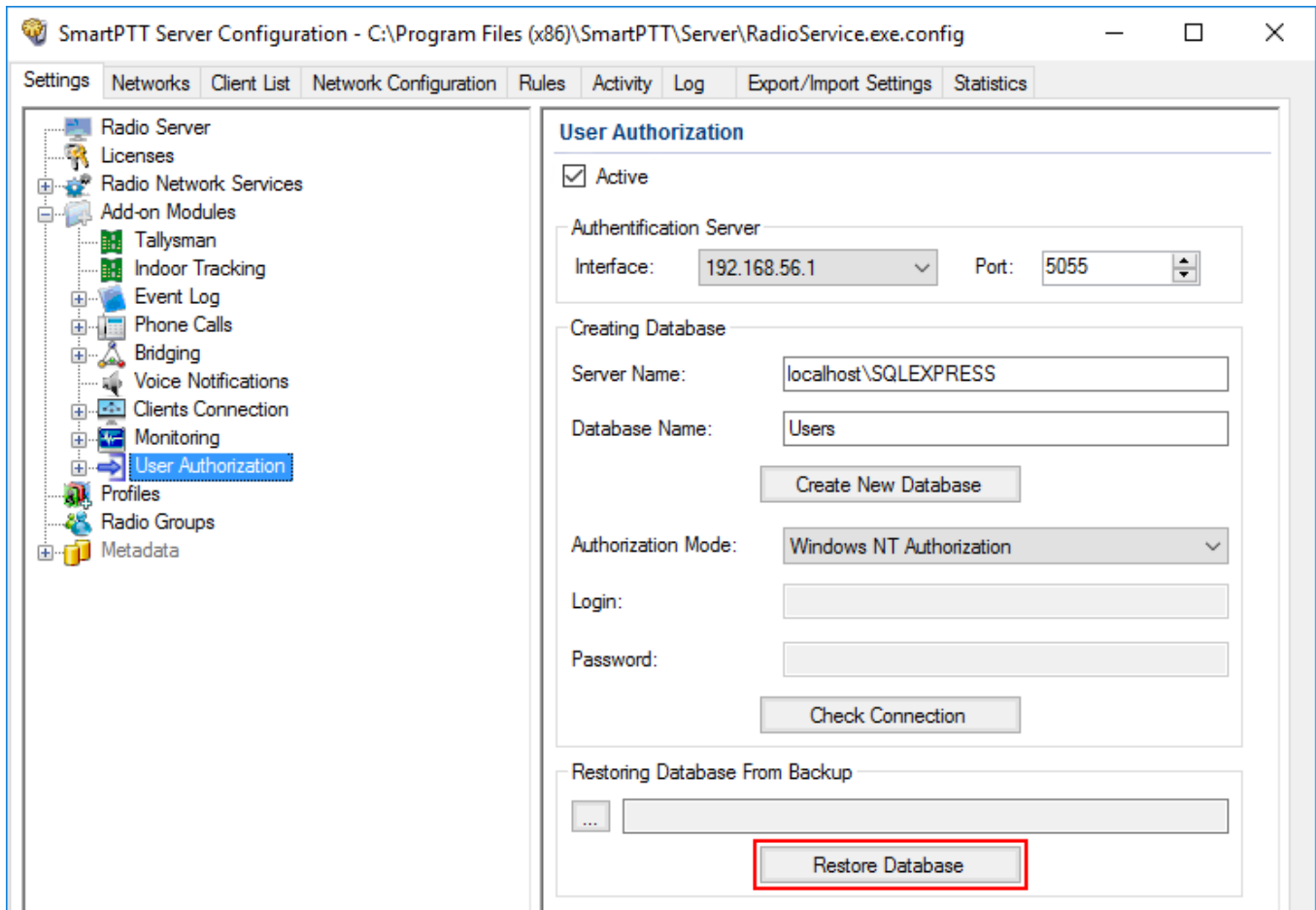
To restore database from backup, follow these steps:

1. In the left pane of the **Settings** tab, expand the **Add-on Modules** node and click **User Authorization**.
2. In the **User Authorization** pane, select the **Active** check box.





3. In the **Restoring Database Backup** area of the **User Authorization** pane, select the required database backup file and click **Restore Database**.

**NOTE**

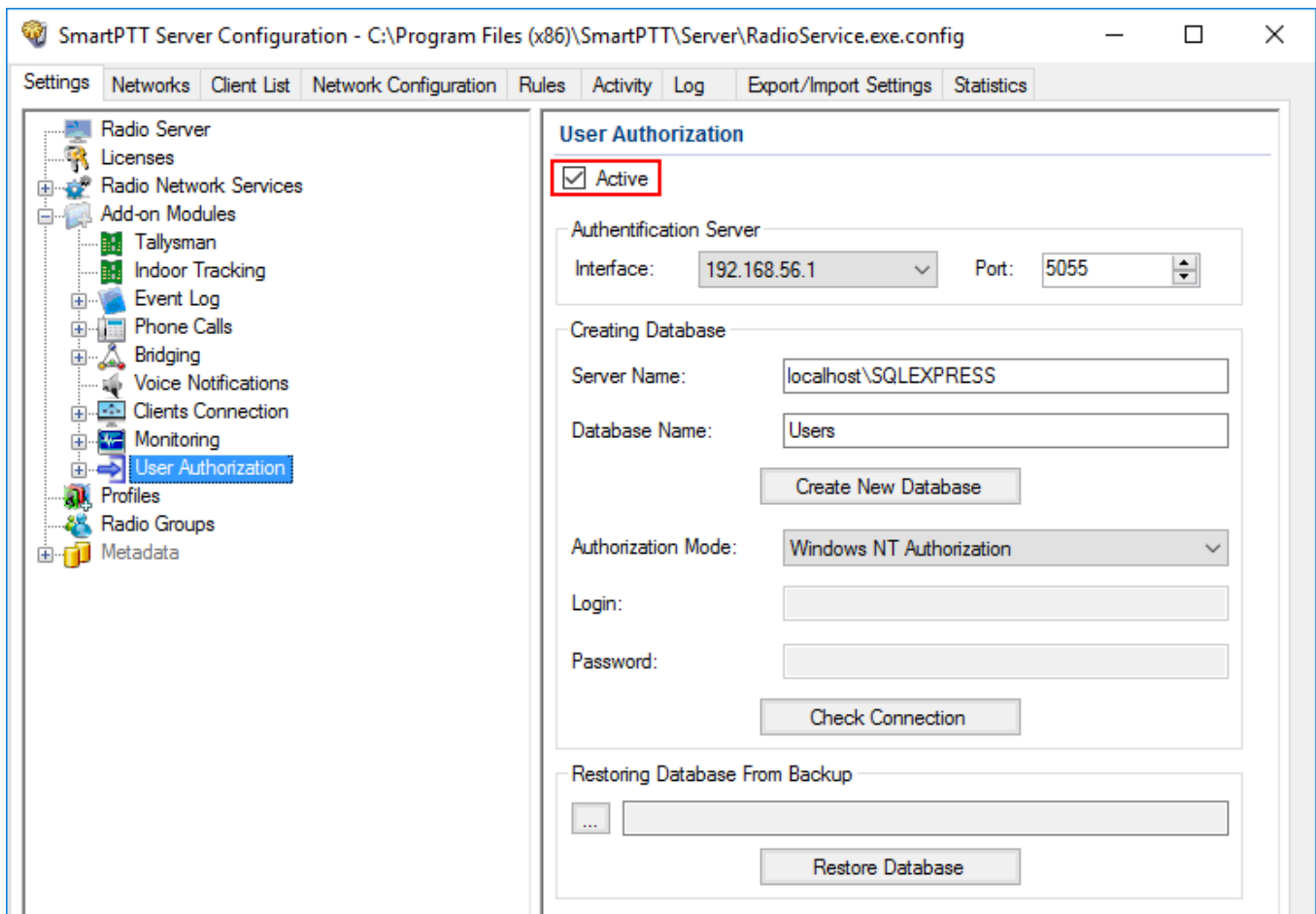
To set up the auto backup of the database, please refer to [Automatic Database Backup](#).

**Connecting Authentication Server**

To connect to the authentication server, follow these steps:

1. In the left pane of the **Settings** tab, expand the **Add-on Modules** node and click **User Authorization**.

2. In the **User Authorization** pane, select the **Active** check box.



3. In the **Interface** field of the **Authentication Server** area, enter the IP-address of the SmartPTT Radioserver.

#### NOTE

By default, the authentication server has the IP-address of the primary radioserver.

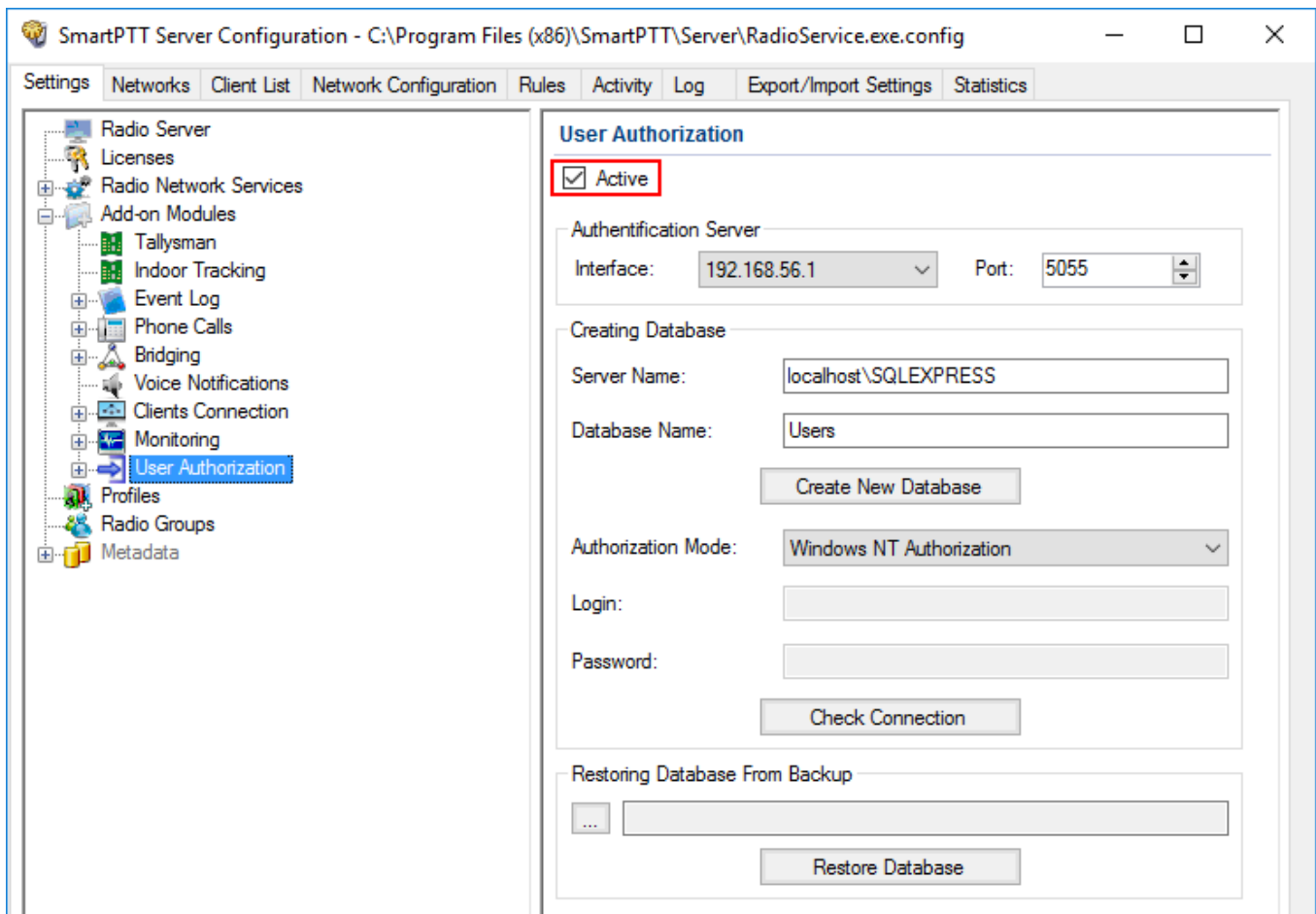
4. In the **Port** field, enter the port number.



## Activating User Authorization

To activate the user authorization, follow these steps:

1. In the left pane of the **Settings** tab, expand the **Add-on Modules** node and click **User Authorization**.

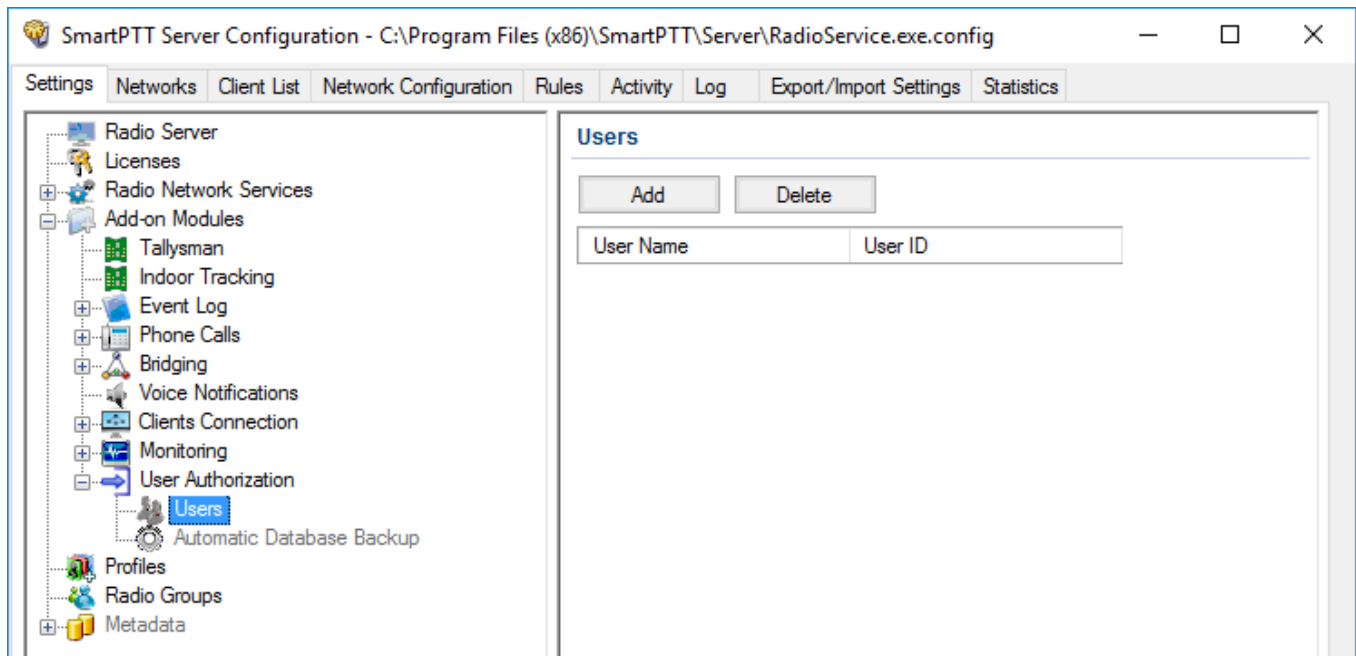
2. In the **User Authorization** pane, select the **Active** check box.



3. At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.
4. Click **Restart** (  ) to restart SmartPTT Radioserver and apply changes.

### 1.4.11.1 Users

In *SmartPTT Radioserver Configurator* you can create a list of users. This list contains the names of the users with corresponding unique identifiers. When the radio user enters the unique identifier on the radio, the corresponding name becomes visible in *SmartPTT Dispatcher*.



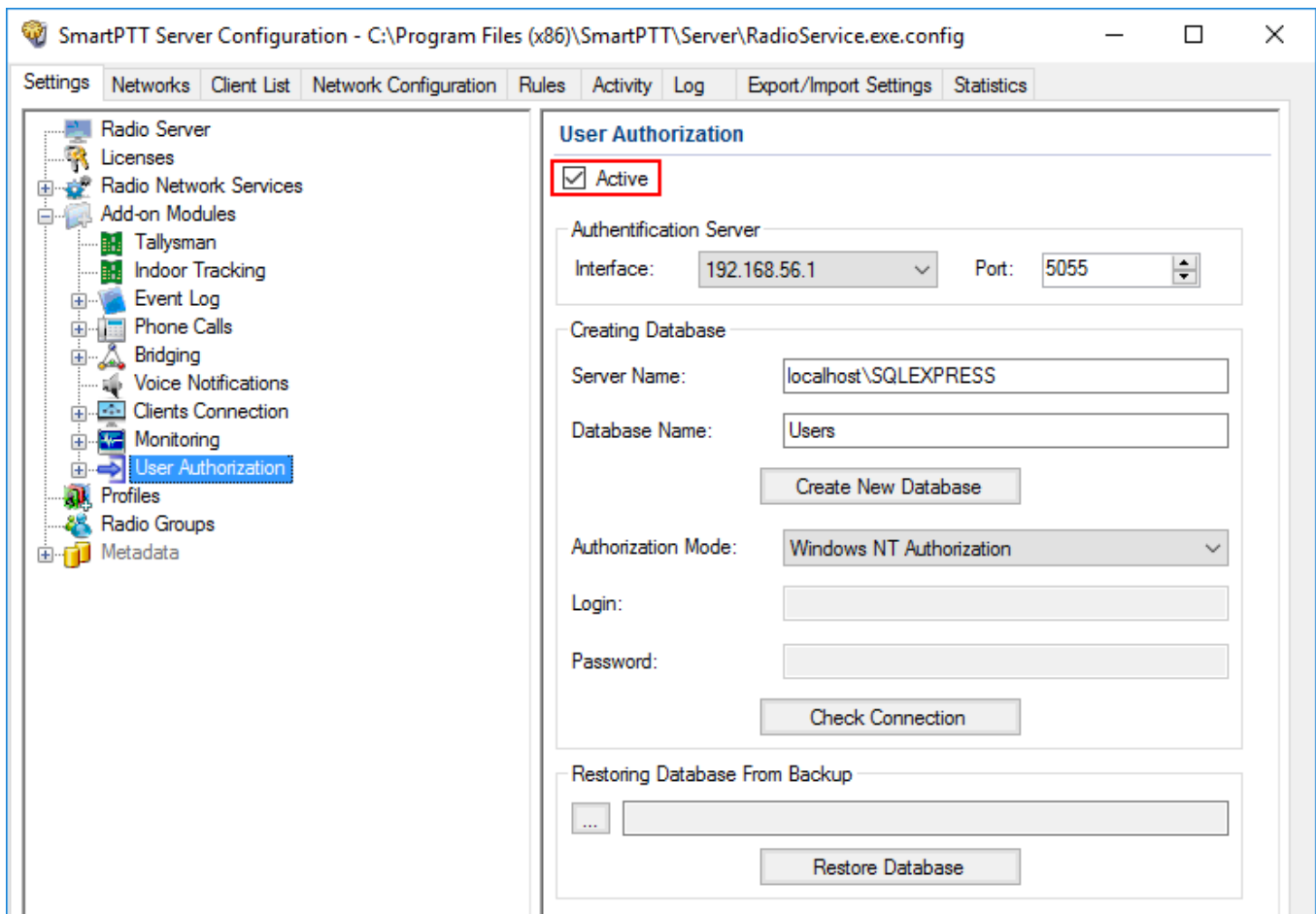
Configuration of the list of users includes:

#### Adding users to the list

To add a user to the list, follow these steps:

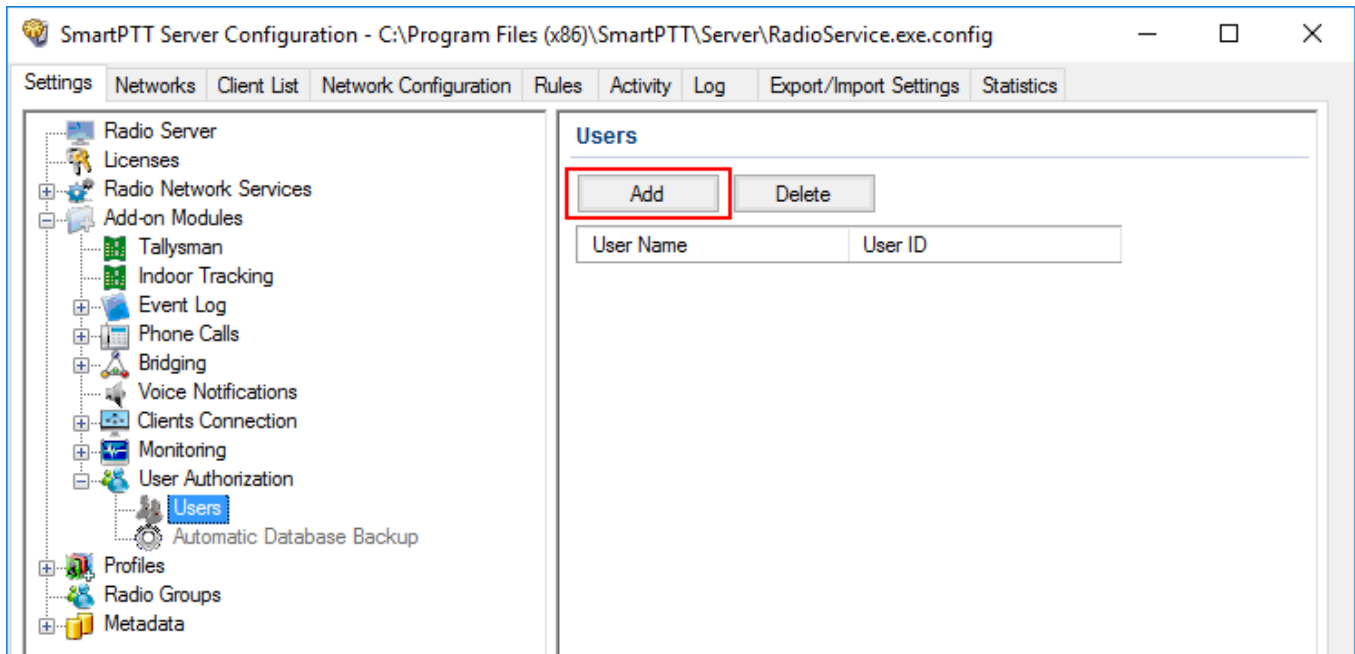
1. In the left pane of the **Settings** tab, expand the **Add-on Modules** node and click **User Authorization**.

2. In the **User Authorization** pane, select the **Active** check box.

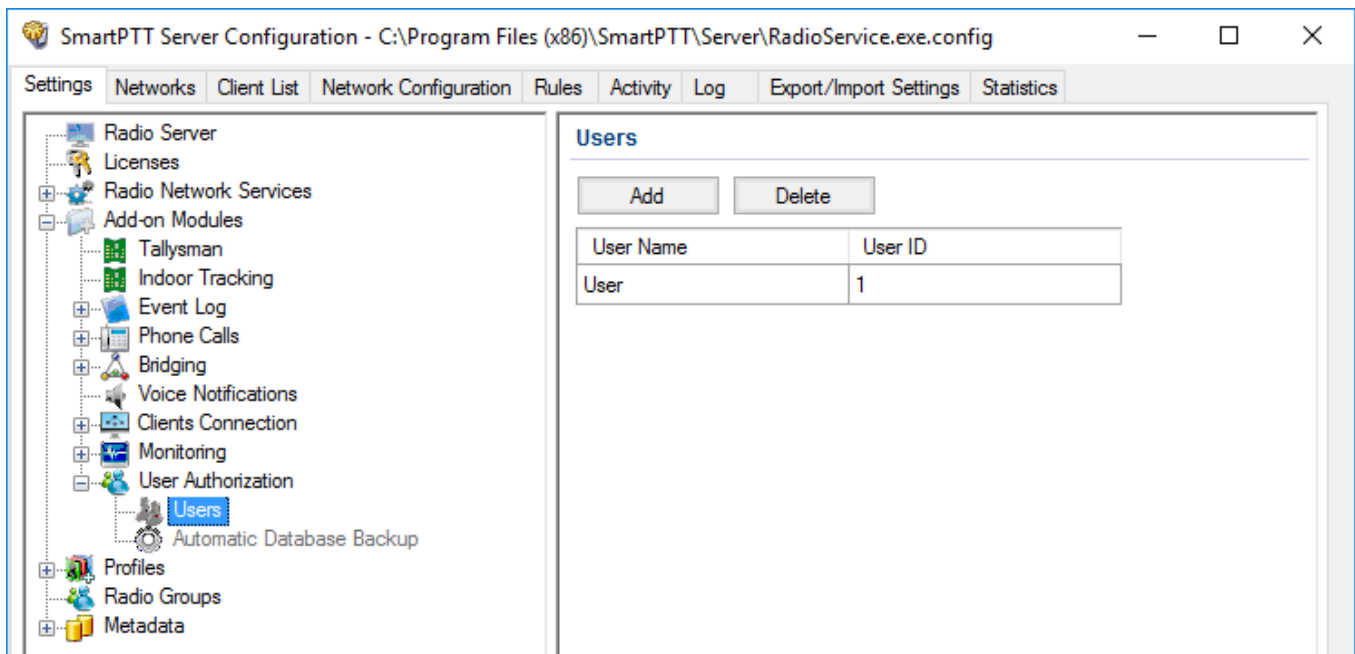


3. In the left pane of the **Setting** tab, expand the **User Authorization** node and click **Users**.

4. In the **Users** pane, click **Add**.





5. In the **Name** field, enter the name of a user.
6. In the **ID** field, enter the radio ID.



7. Add more users if needed.

**NOTE**

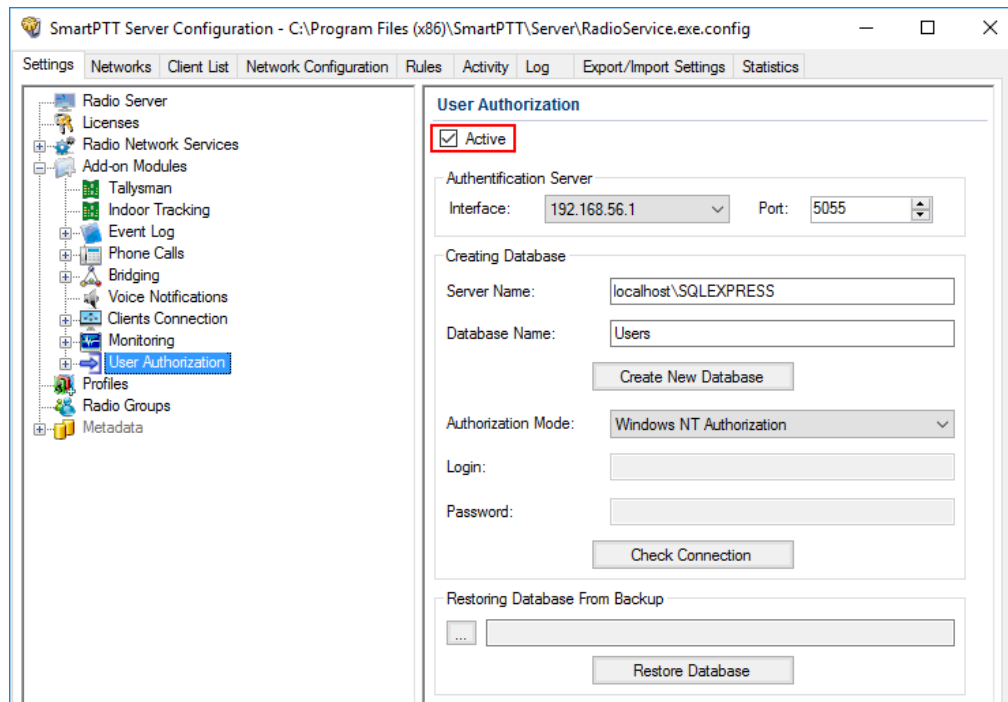
User names cannot be the same.

- At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.
- Click **Restart** (  ) to restart SmartPTT Radioserver and apply changes.

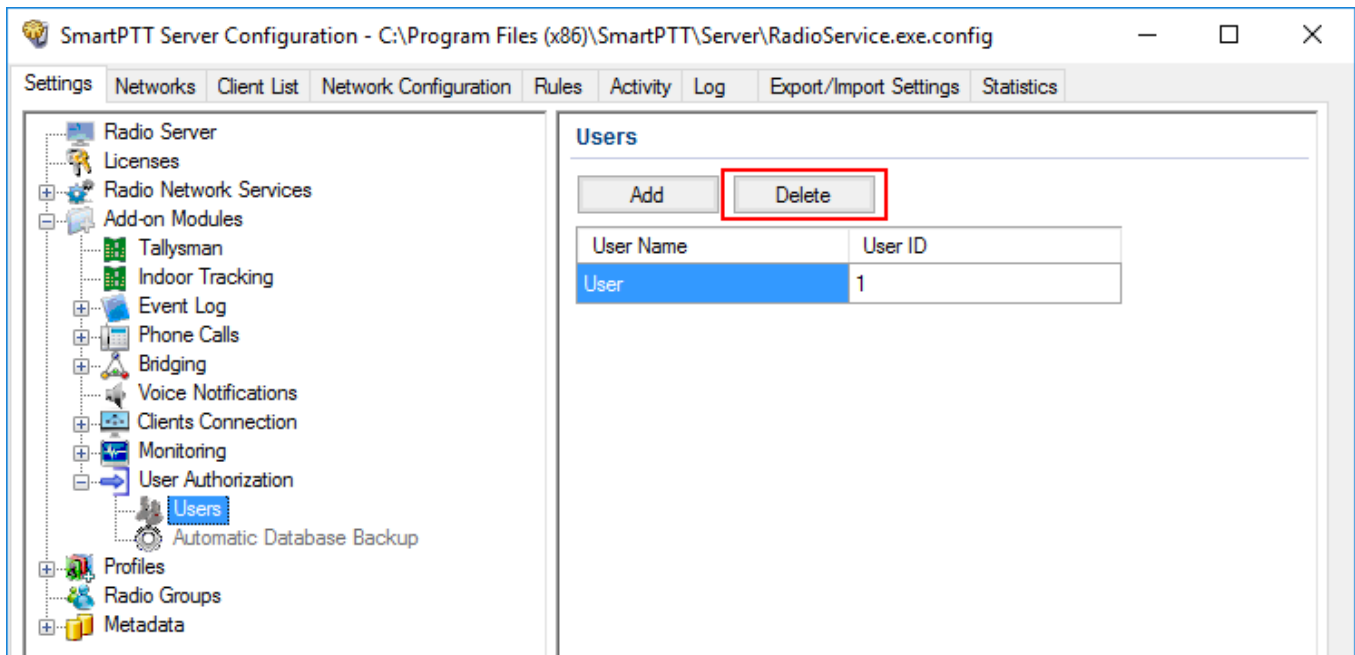
**Removing users from the list**

To remove a user from the list, follow these steps:

- In the left pane of the **Settings** tab, expand the **Add-on Modules** node and click **User Authorization**.
- In the **User Authorization** pane, select the **Active** check box.



- In the left pane of the **Setting** tab, expand the **User Authorization** node and click **Users**.
- In the **Users** window click the name of the user you want to delete and then click **Delete**.



### 1.4.11.2 Automatic Database Backup

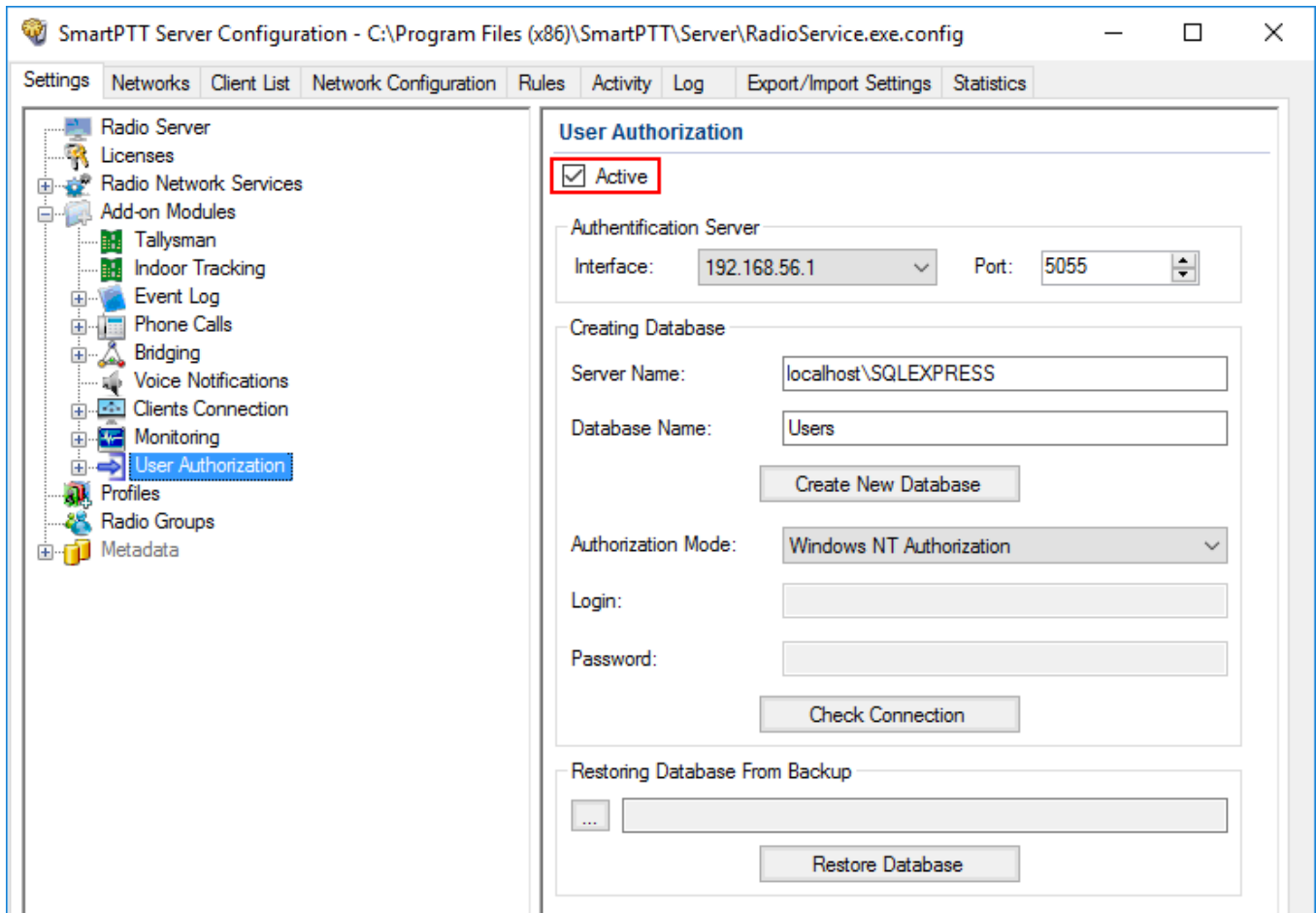
Backing up data on a regular basis helps to protect it from being erased in case of the server hardware or software failure. *SmartPTT Radioserver Configurator* allows to back up the authentication server database automatically.

To set up automatic backup schedule of the authentication server, follow these steps:

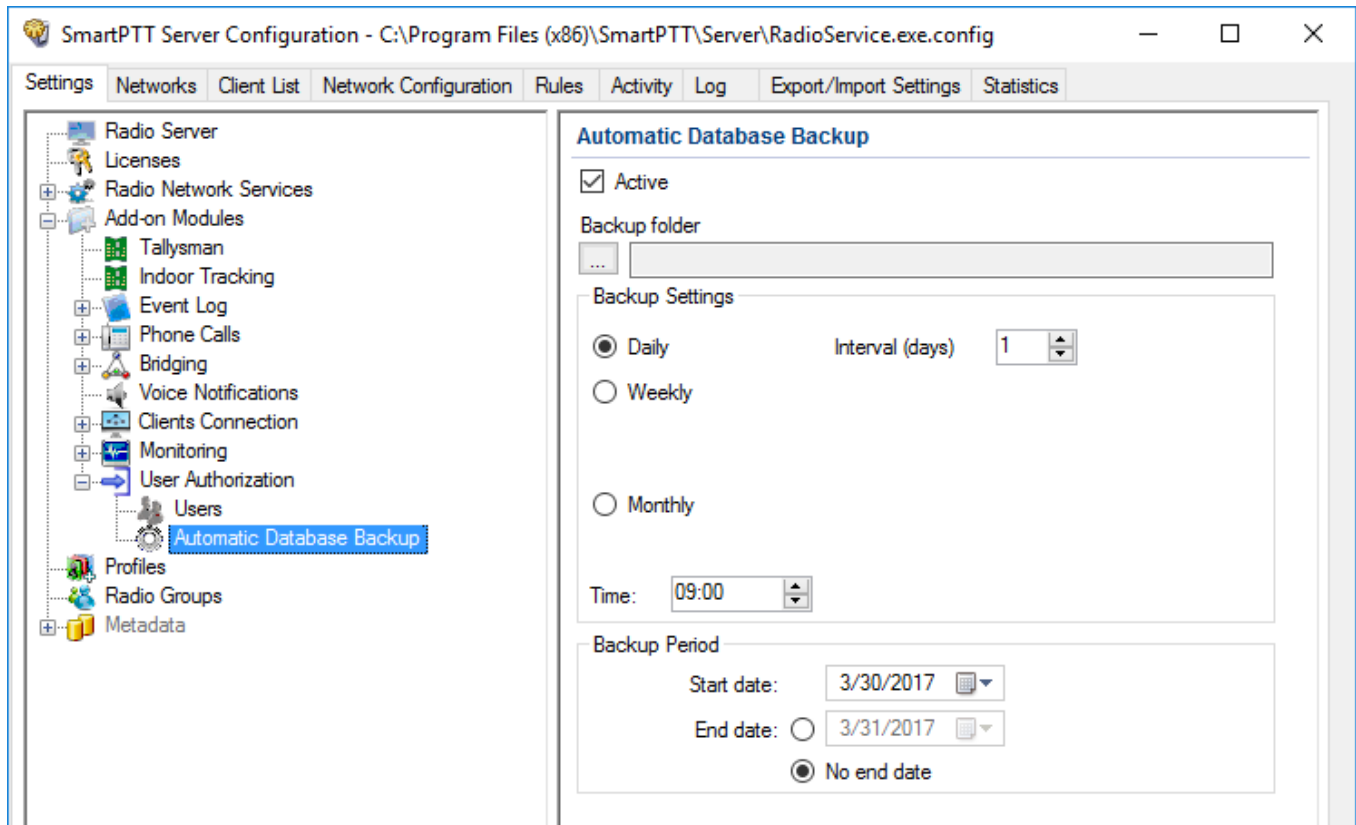
1. In the left pane of the **Settings** tab, expand the **Add-on Modules** node and click **User Authorization**.





2. In the **User Authorization** pane, select the **Active** check box.



- In the left pane of the **Setting** tab, expand the **User Authorization** node and click **Automatic Database Backup**.



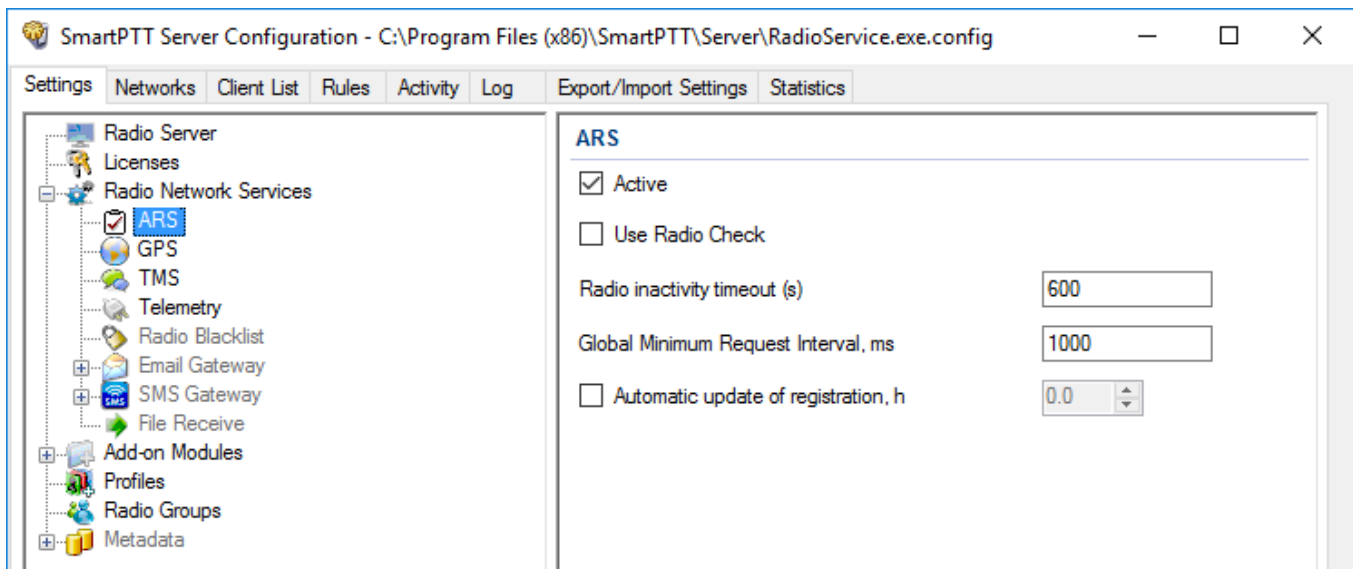
- In the **Automatic Database Backup** pane, select the **Active** check box. The database backup becomes active in the automatic mode.
- In **Backup folder** enter the path to the file for saving the database backup.
- In the **Backup settings** area of the **Automatic Database Backup** pane, configure the following parameters:
  - Daily:** Every fixed day at the specified time (for example, every day, every third day).
  - Interval (days):** Set the interval for the database backup.
  - Weekly:** Every fixed day of the week at the specified time (for example, every Monday and/or Wednesday).
  - Monthly:** Once a month on the fixed day of the selected month and at the specified time.
  - Time:** Set the time for the automatic database backup. This setting is common for all the intervals.

7. In the **Backup Period** area, set the time period when automatic database backup is to be made according to the selected backup settings. It can be either a restricted period of time or a period of time without end date.
8. At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.
9. Click **Restart** (  ) to restart SmartPTT Radioserver and apply changes.

## 1.5 Services

### 1.5.1 ARS

ARS or registration service provides information on the availability of radios 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. A new pane appears on the right:



**Active:** Select to enable the service.

**Use Radio Check:** This setting defines the mechanism used for checking radio presence in the network. If selected, the system uses the **Radio Check** command. This option was implemented for radios that do not support ARS.

**Radio Inactivity Timeout, s:** Time period, after which the radio that did not display any activity becomes potentially absent. In this case the system includes this radio into a special presence check process.

**NOTE**

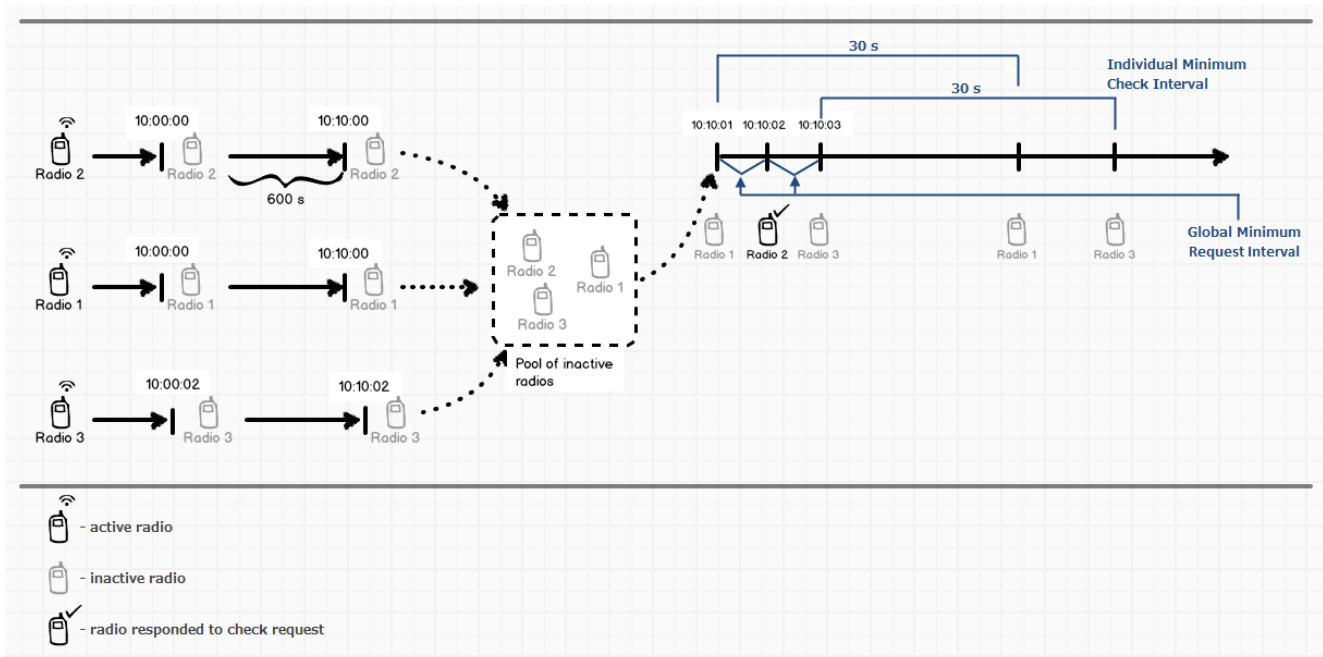
Radio activity includes the following events: GPS location, telemetry signal, text message or voice call.

Generally, a radio can be sent 5 presence check requests successively with a 30-second interval. This parameter is called Individual Minimum Check Interval and equals to 30 s; it can't be changed in *SmartPTT Radioserver Configurator*. This parameter sets the interval between presence check requests sent to one radio. Therefore, it can be increased depending on the number of radios to check. If the radio does not respond to the presence check requests and does not display any activity, it will acquire the Offline status after the 5th unsuccessful presence check request.

**Global Minimum Request Interval, ms:** Sets the minimum interval between presence check requests sent to all inactive radios in all networks. Instead of sending presence check requests to all inactive radios at one time, the system puts them on a queue and sends one presence check request to one radio at a time with the interval set in the Global Minimum Request Interval field. This method allows us to eliminate the risk of sending too many presence check requests at one time, thus removing traffic overload on the channel and spreading network load evenly.

## Example

There are three radios active till 10:00:00 and 10:00:02 (see figure below). Then, for the following 600s they do not display any activity. So, the radio activity timeout for Radios 1 and 2 runs out at 10:10:00 and for Radio 3 at 10:10:02. When it happens, the system creates a pool of inactive radios. The system puts the radios on a queue and starts sending presence check requests with the interval set in the **Global Minimum Request Interval** field. Radio 2 responds to the presence check request and is no longer regarded as potentially offline. Radios 1 and 3 do not respond to the presence check request and do not display any activity, so the system sends another request in 30s to each radio. After the 5th presence check request, the radios get the Offline status.



**Automatic update of registration, h:** If selected, the radio will send its ARS data to server at specified intervals.

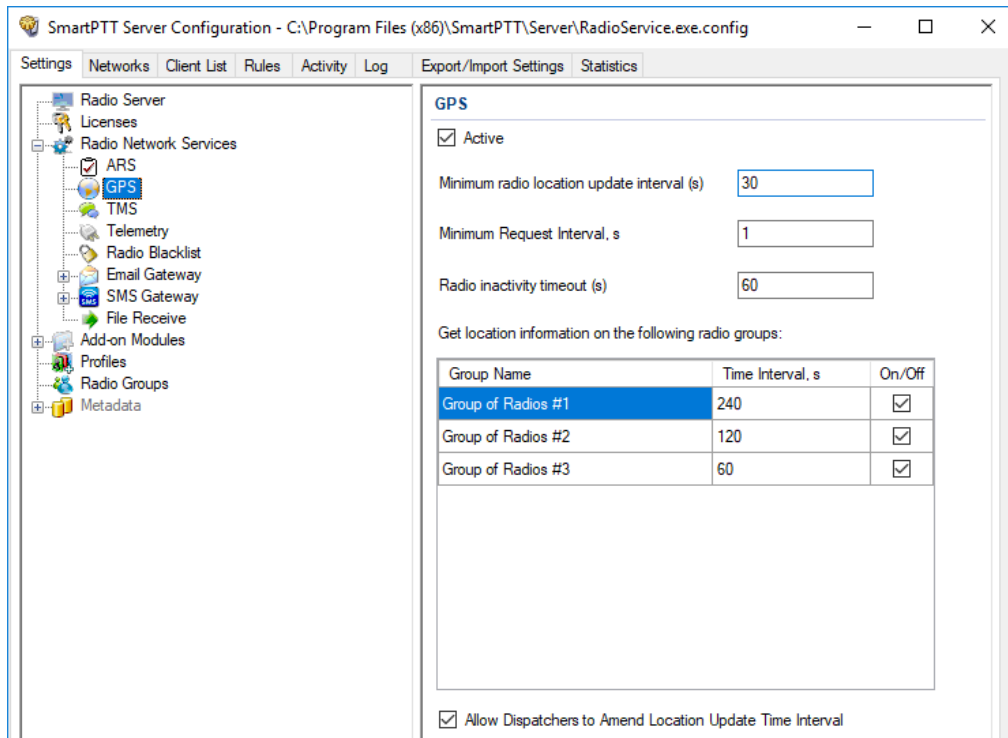
### NOTE

We recommend to specify the automatic registration update interval larger than the radio inactivity timeout interval.

## 1.5.2 GPS

GPS or location service provides coordinates of radios with a GPS receiver so you can determine their current location.

To set up location service parameters, in the **Settings** pane of the *SmartPTT Radioserver Configurator* window click **GPS**. The **GPS** pane appears:



**Active:** Select to activate the location service.

**Minimum location update interval, s:** Minimum update time interval. If the time interval specified by the dispatcher is less than **Minimum location update interval**, the new value set by the dispatcher will be ignored, and radio location will be updated within **Minimum location update interval**.

**Minimum Request Interval, s:** The minimum interval between GPS requests sent to the radios within one network. The requests can be sent automatically or initiated by the dispatcher. This method allows us to eliminate the risk of sending too many GPS requests at one time, thus removing traffic overload on the channel and spreading network load evenly.

**Radio Inactivity Timeout, s:** Time period, after which the radio that has not send GPS becomes potentially absent. In this case the radio receives a location update request.

The **Get location information on the following radio groups** table contains the radio groups added in the [Radio Groups](#) pane.

**Group Name:** The radio group name added in the [Radio Groups](#) pane.

**Time Interval, s:** The location update time interval for a certain radio group. It can be set in two ways:

- In the **Time Interval** field type the needed location update interval and press Enter.
- Select the **On/Off** check box and type the needed location update interval in the **Time Interval** field instead of the appeared default value.

You can set a range of fixed values for the location update time interval. The values for different GPS transmission modes can be the following:

- If the Data mode is on, you can set *30 s, 60 s, 120 s, 240 s* or *480 s* location update time interval.
- If the CSBK mode is on, you can set *15 s, 30 s, 60 s, 120 s, 240 s* or *480 s* location update time interval.
- If the Enhanced CSBK mode is on, you can set *7.5 s, 15 s, 30 s, 60 s, 120 s, 240 s* or *480 s* location update time interval.

**NOTE**

You can set 7.5 s interval using 7 or 8 values only.

**On/Off:** Select the check box to set location update time interval default value (*240 s*). If the check box is not selected, it will be selected automatically after typing the location update time interval in the **Time Interval** field.

**NOTE**

Each time you select or clear the **On/Off** check box again, the location update time interval in the **Time Interval** field automatically resets to its default value (*240 s*).

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 **Minimum location update interval**, the new value set by the dispatcher will be ignored, and radio location will be updated within **Minimum location update interval**. 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.

**WARNING**

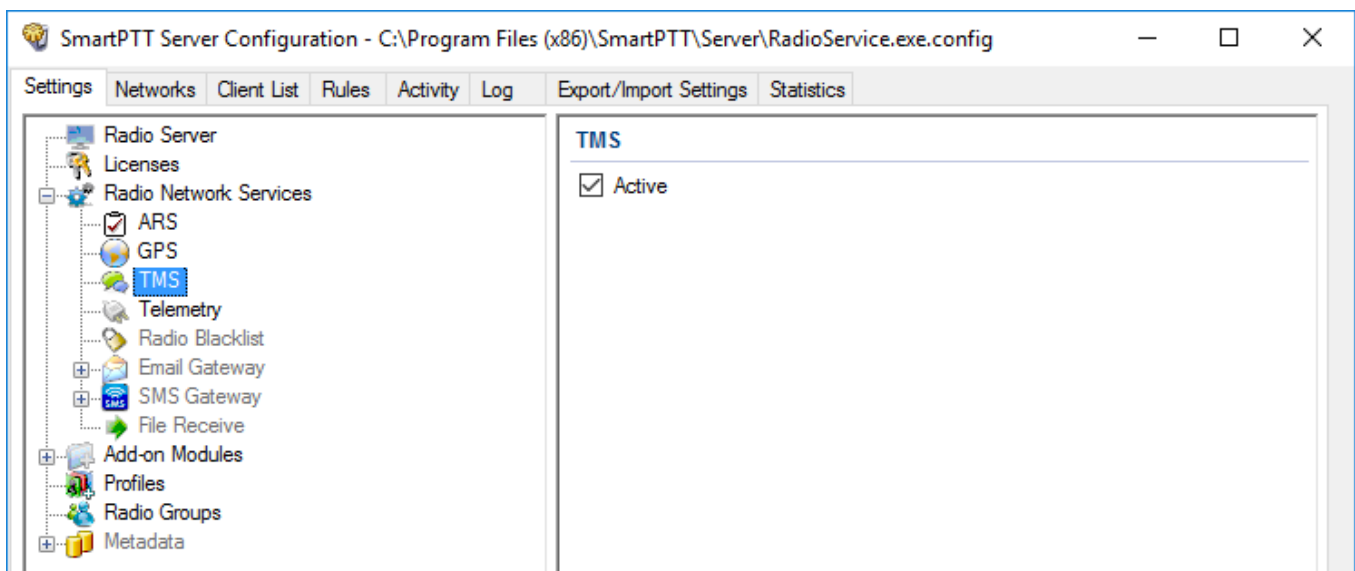
If **Allow Dispatchers to Amend Location Update Time Interval** check box is clear and the table is empty, the dispatcher will not receive any radio location data.

### 1.5.3 TMS

TMS or text messaging service is used to exchange text messages between radios and SmartPTT Dispatcher.

To set up the messaging service parameters, follow these steps:

1. In the left pane of the **Settings** tab click **TMS**.
2. In the **TMS** pane, select the **Active** check box.



### 1.5.4 Telemetry

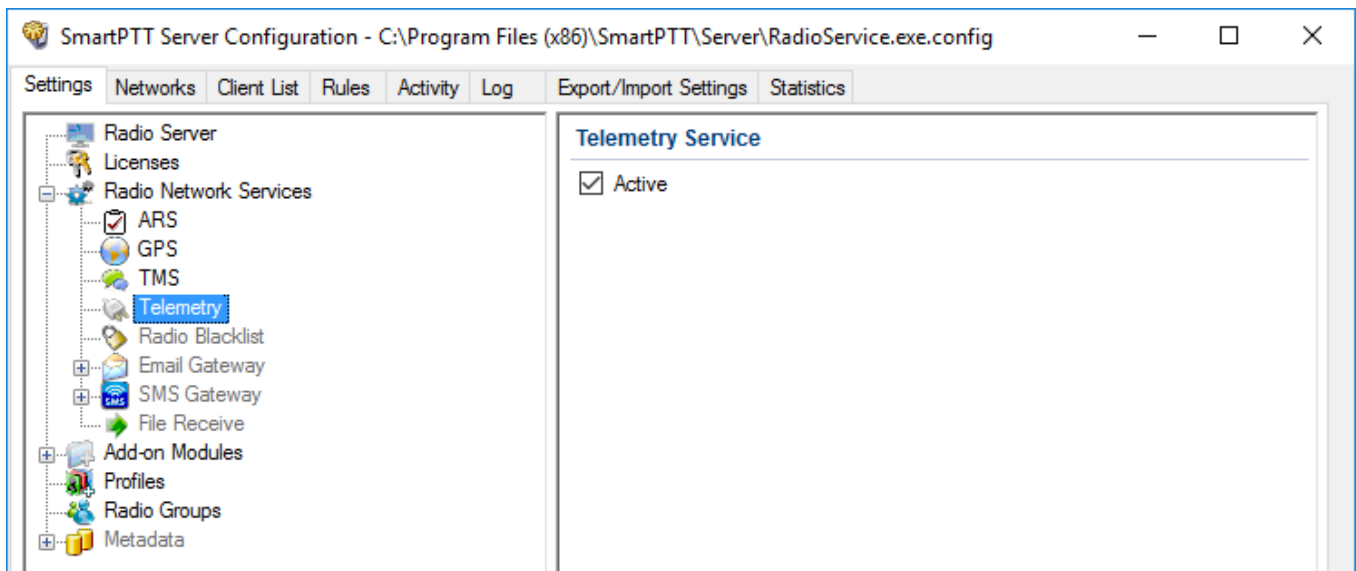
Telemetry is used for transmission and processing of telemetry signals between *SmartPTT Dispatcher* and radios.

To set up telemetry parameters, follow these steps:

1. In the left pane of the **Settings** tab, click **Telemetry**.

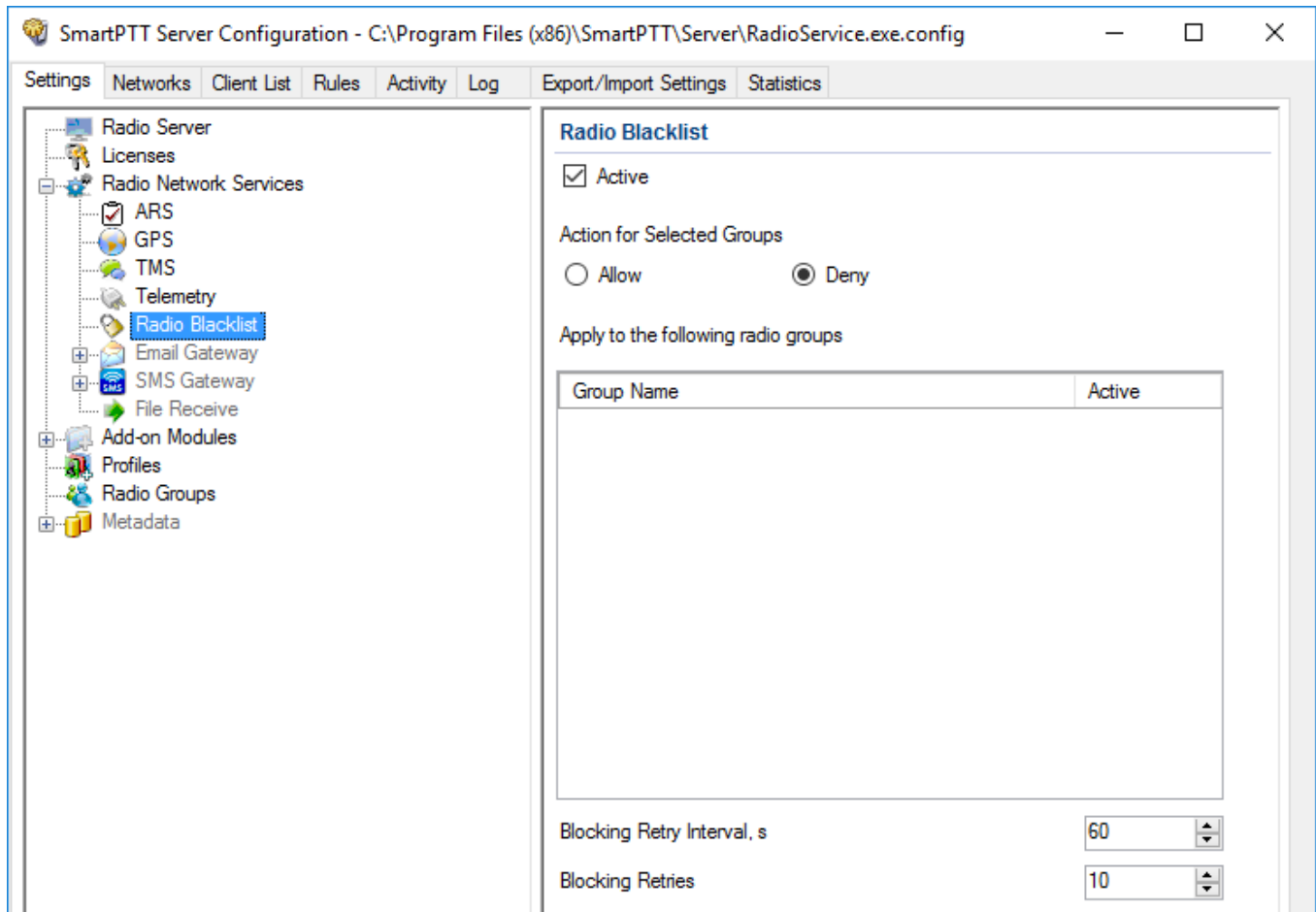


2. In the **Telemetry Service** pane, select the **Active** check box.



## 1.5.5 Radio Blacklist

**Radio Blacklist** is used for blocking radios. You can block only registered radios when they go online and included into the certain [radio group](#). Besides the blacklist you can also create a “whitelist”, in other words to block all other radios except those who are in the selected groups.



To block the radio, you should preconfigure this feature using *MOTOTRBO CPS*.

If the radio is not blocked, *SmartPTT Radioserver Configurator* performs several attempts of blocking according to the settings.

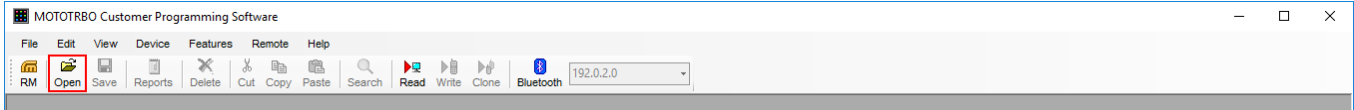
Configuration of the blacklist includes the following steps:

## Configuring the Firmware File

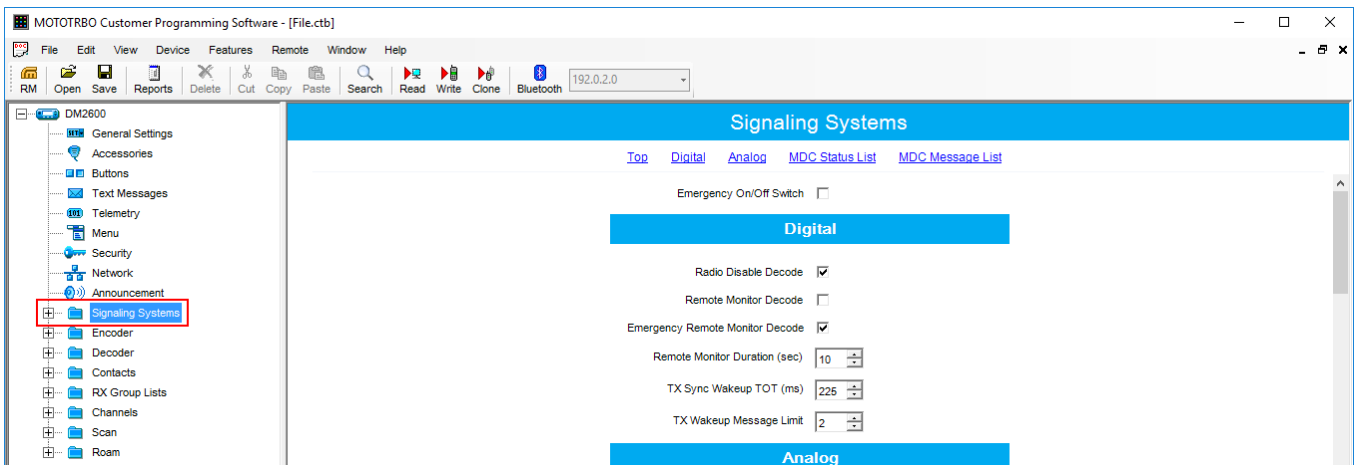
This topic contains information about the firmware file configuration. It is alternative to the [Configuring Radio](#) procedure.

To configure a firmware file, follow these steps:

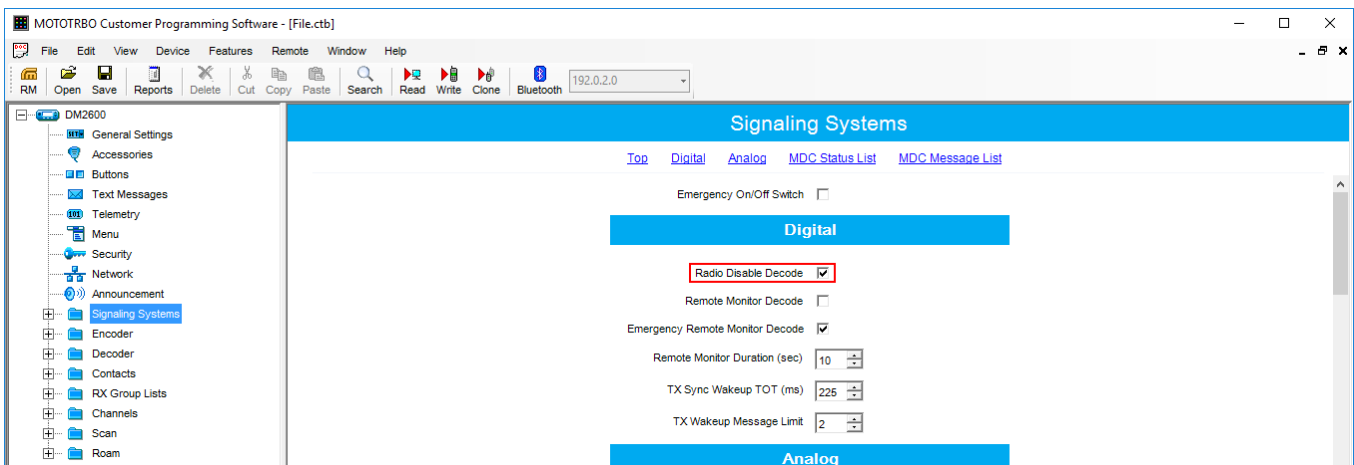
1. In *MOTOTRBO CPS*, click **Open** and select the firmware file.



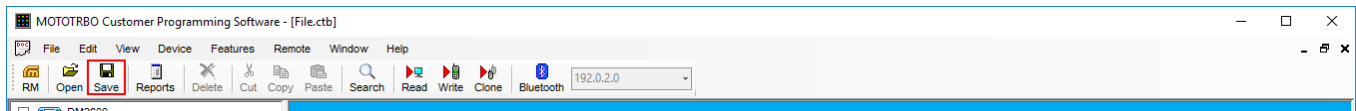
2. In the left pane, click **Signaling Systems**.



3. In the **Signaling System** pane, select **Radio Disable Decode**.



#### 4. Click **Save**.



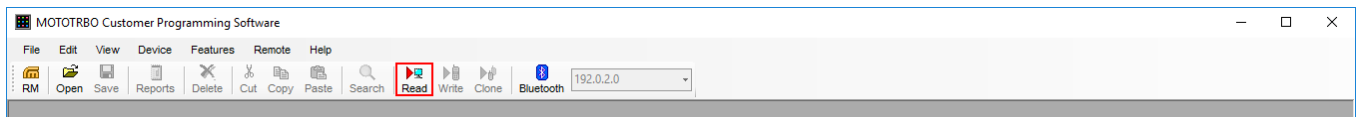
To allow blocking the radio, update the radio firmware using the saved file.

## Configuring Radio

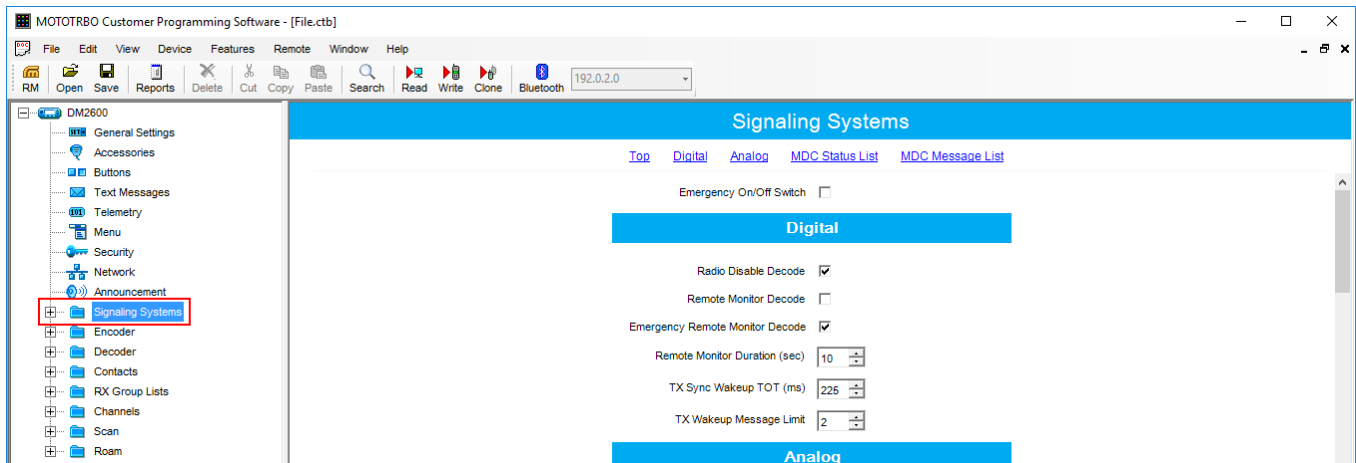
This topic contains information about radio configuring. It is alternative to the [Configuring Firmware File](#) procedure.

To configure a radio, follow these steps:

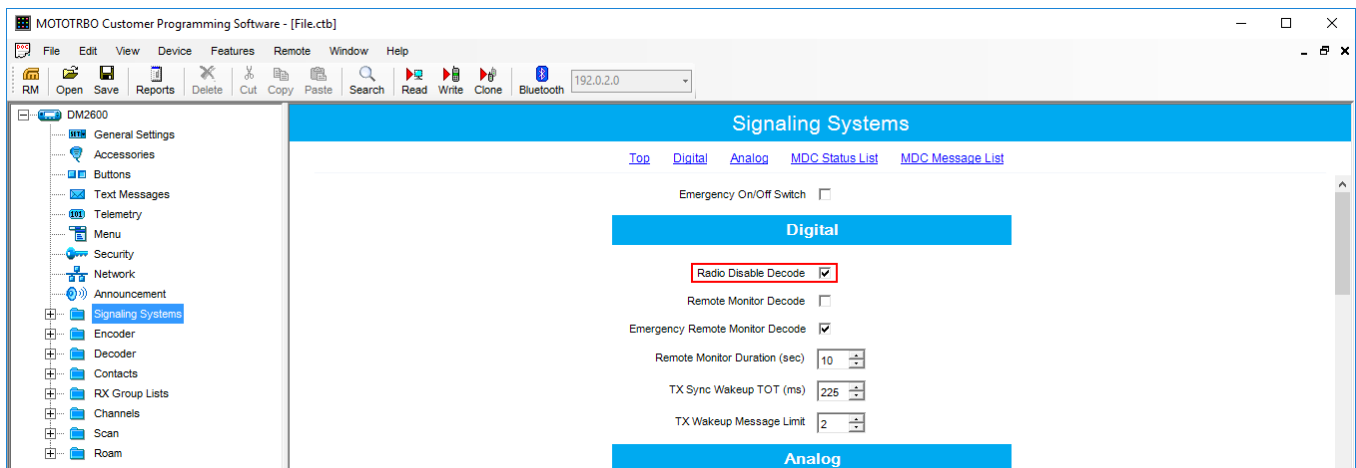
1. Connect the radio to the computer with special cable and wait for driver installation. *MOTOTRBO CPS* must be installed on the computer previously.
2. Run *MOTOTRBO CPS* and click **Read**.



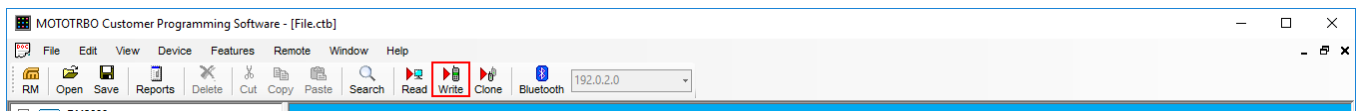
#### 3. In the left pane, click **Signaling Systems**.



4. In the **Signaling System** pane, select **Radio Disable Decode**.



5. Pause your antivirus software to provide successful firmware update.
6. Click **Write** to update radio firmware.



### WARNING

Do not unplug your cable from the radio or computer until the radio firmware update complete.

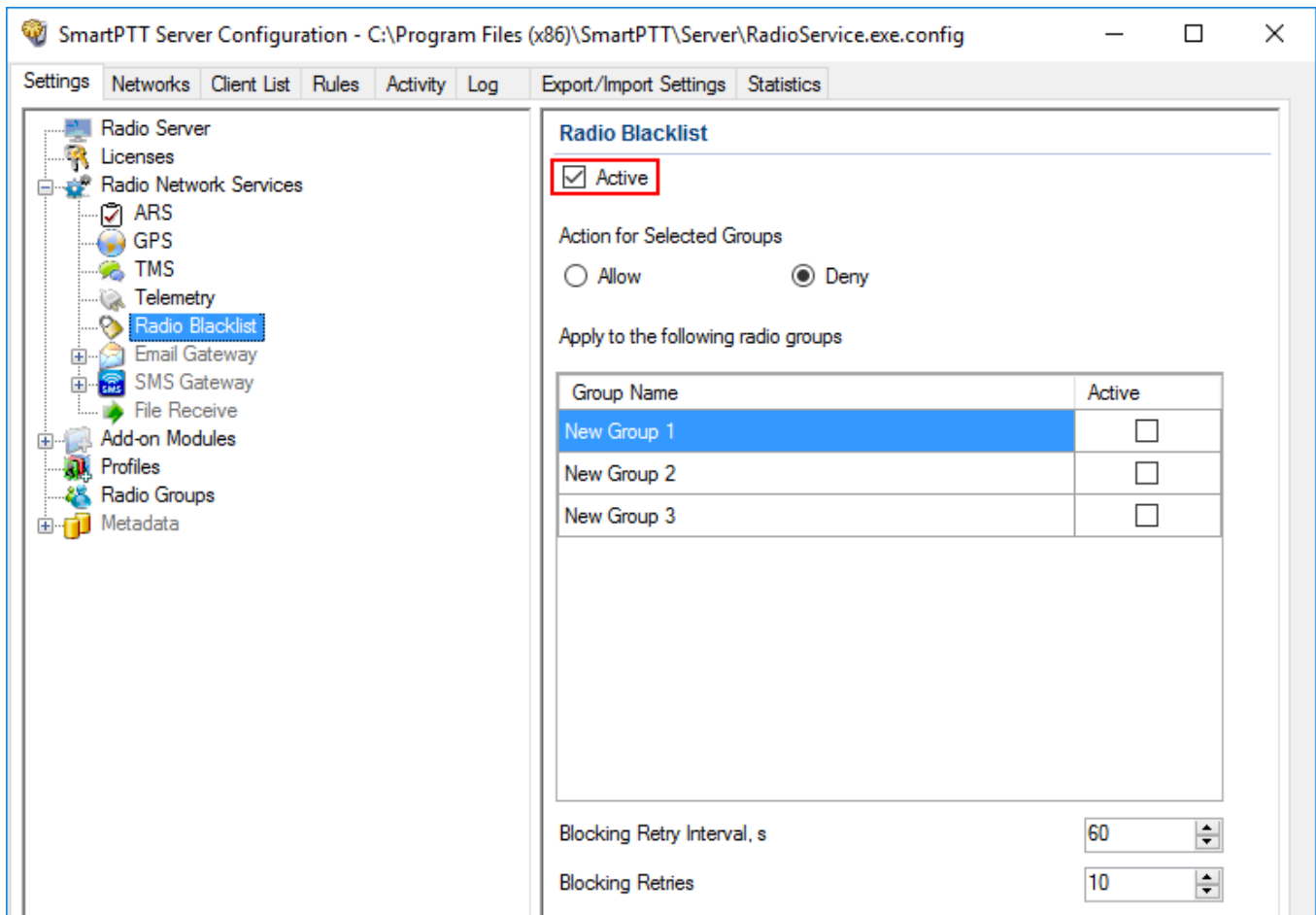
7. Wait for the successful update and close *MOTOTRBO CPS*.
8. Eject the radio properly and unplug the cable from your computer.

## Configuring Radio Blacklist

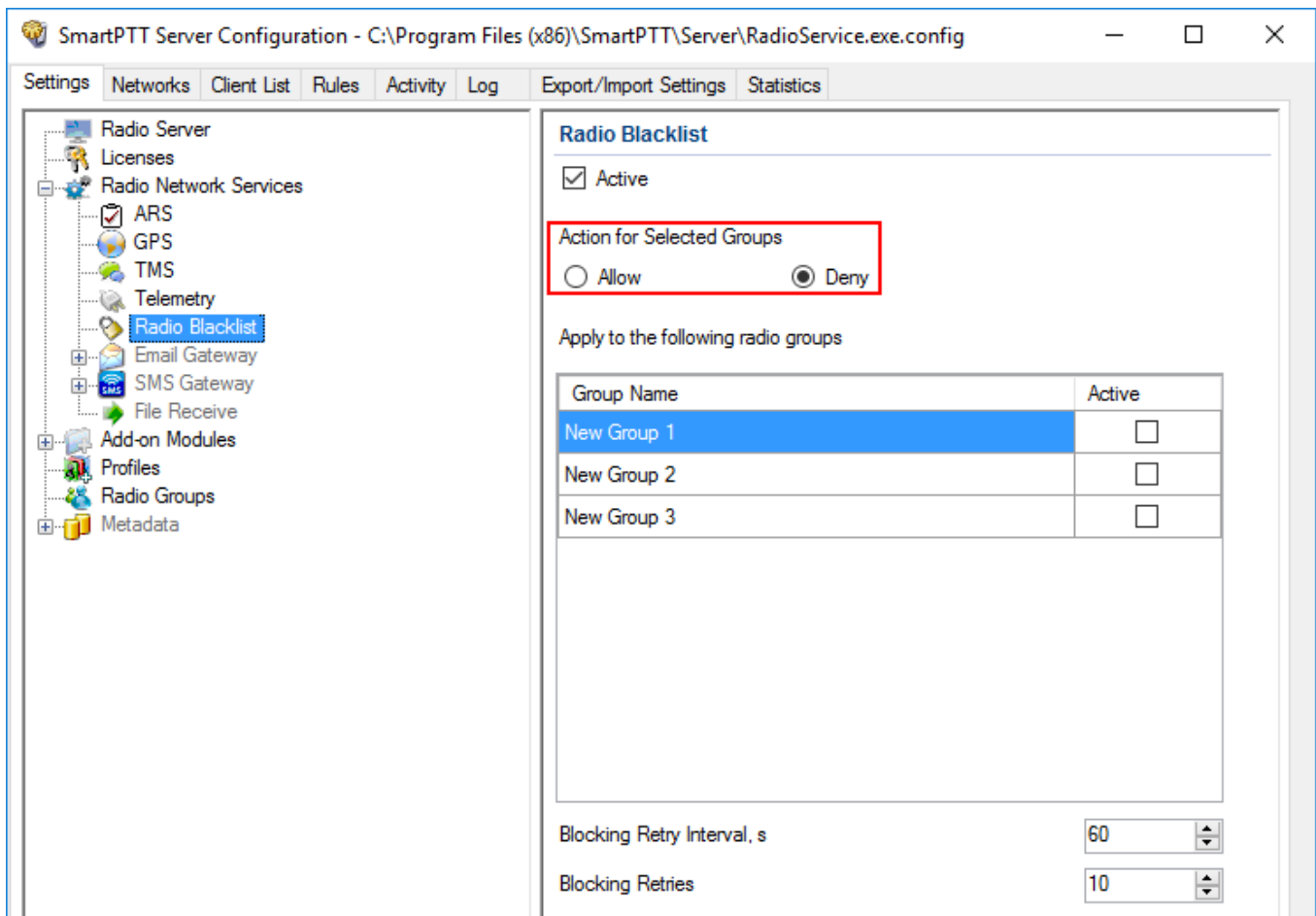
To begin the configuration of the Radio Blacklist you should create radio groups (see [Adding Radio Groups](#)).

To configure Radio Blacklist, follow these steps:

1. In the left pane of the **Settings** tab, click **Radio Blacklist**.
2. In the **Radio Blacklist** pane, select **Active**.



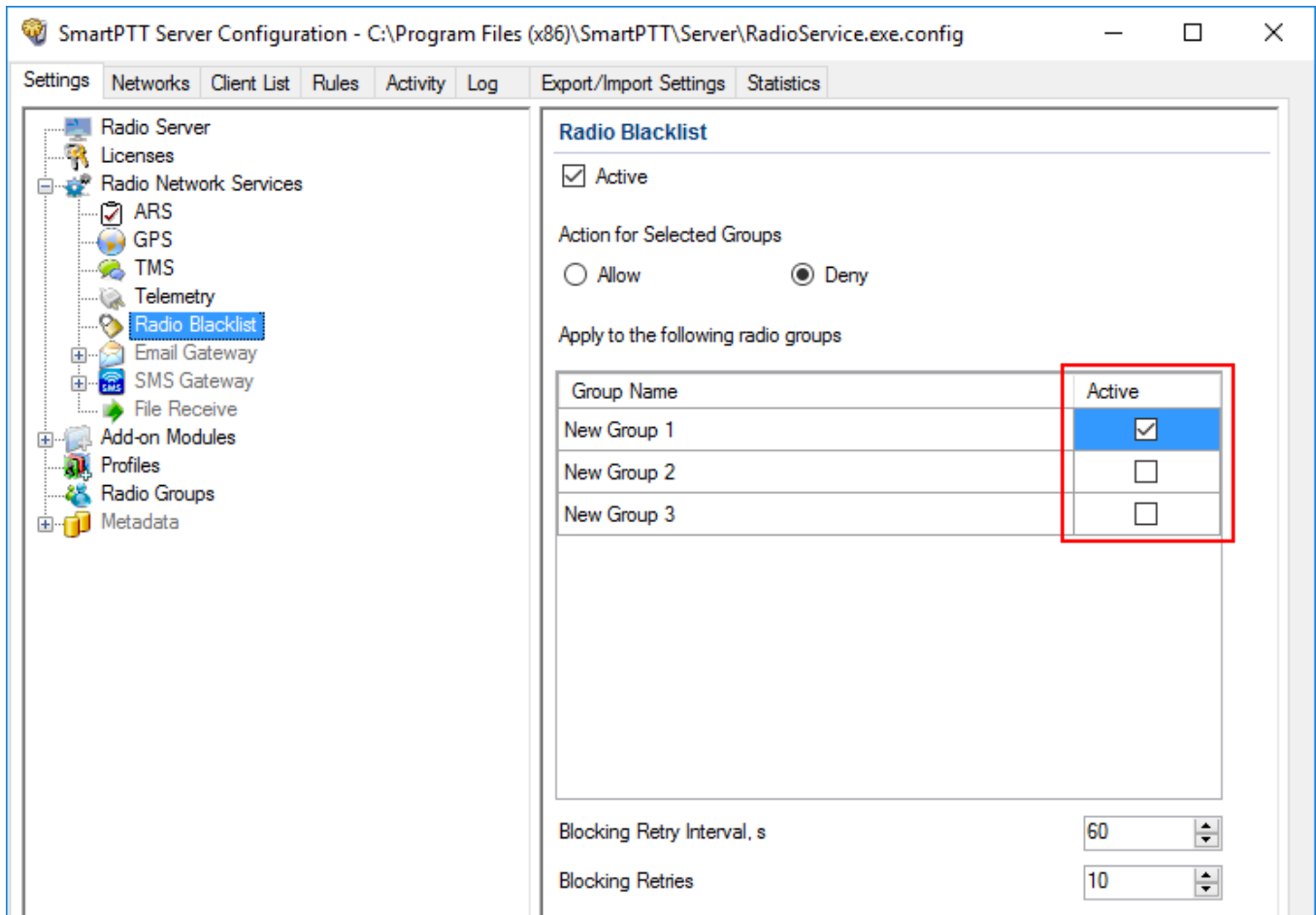
3. Select needed type of the list for radio groups.



**Deny:** Blocks selected radio groups.

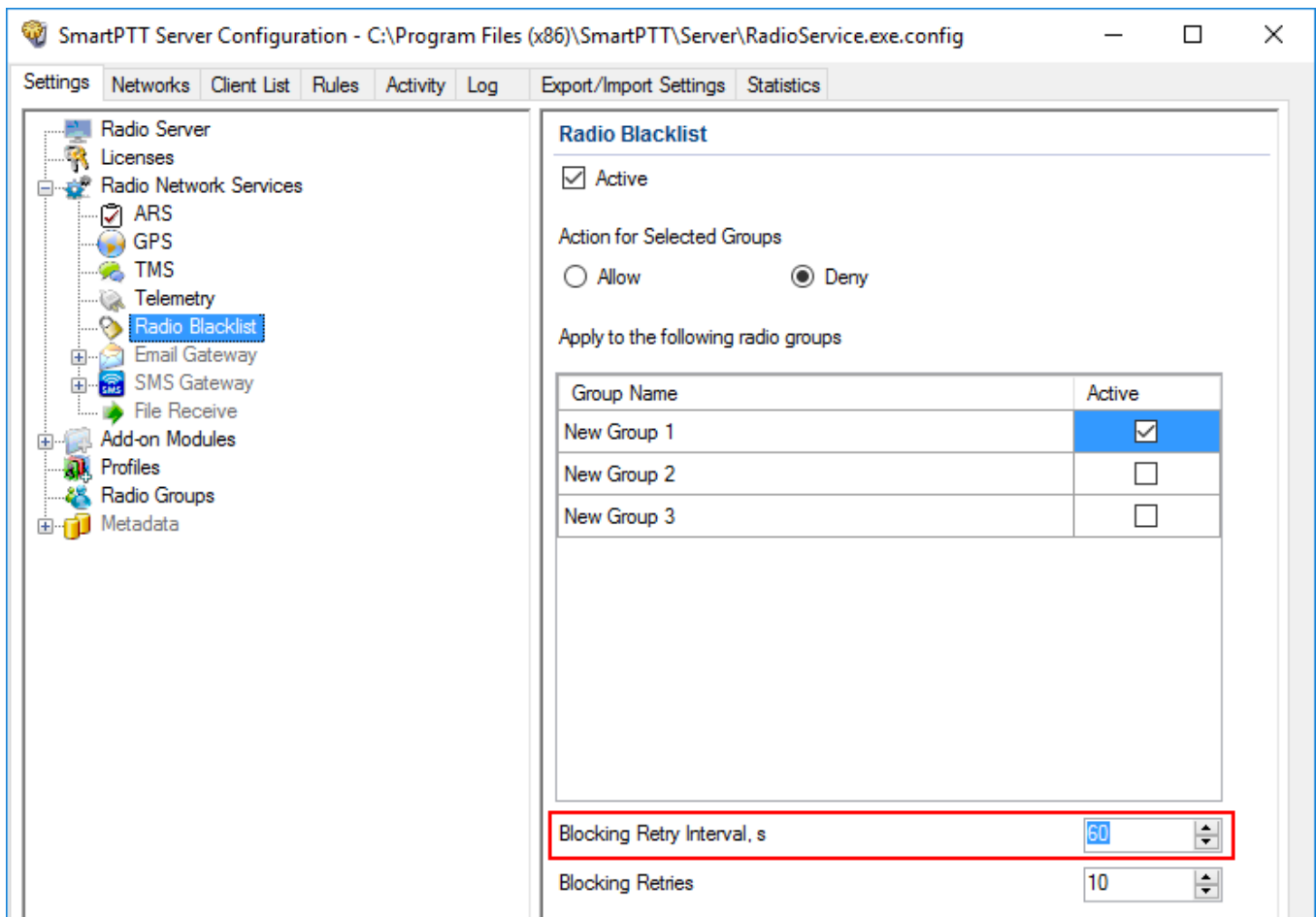
**Allow:** Blocks other groups except of the selected ones.

4. Select the desired radio groups.

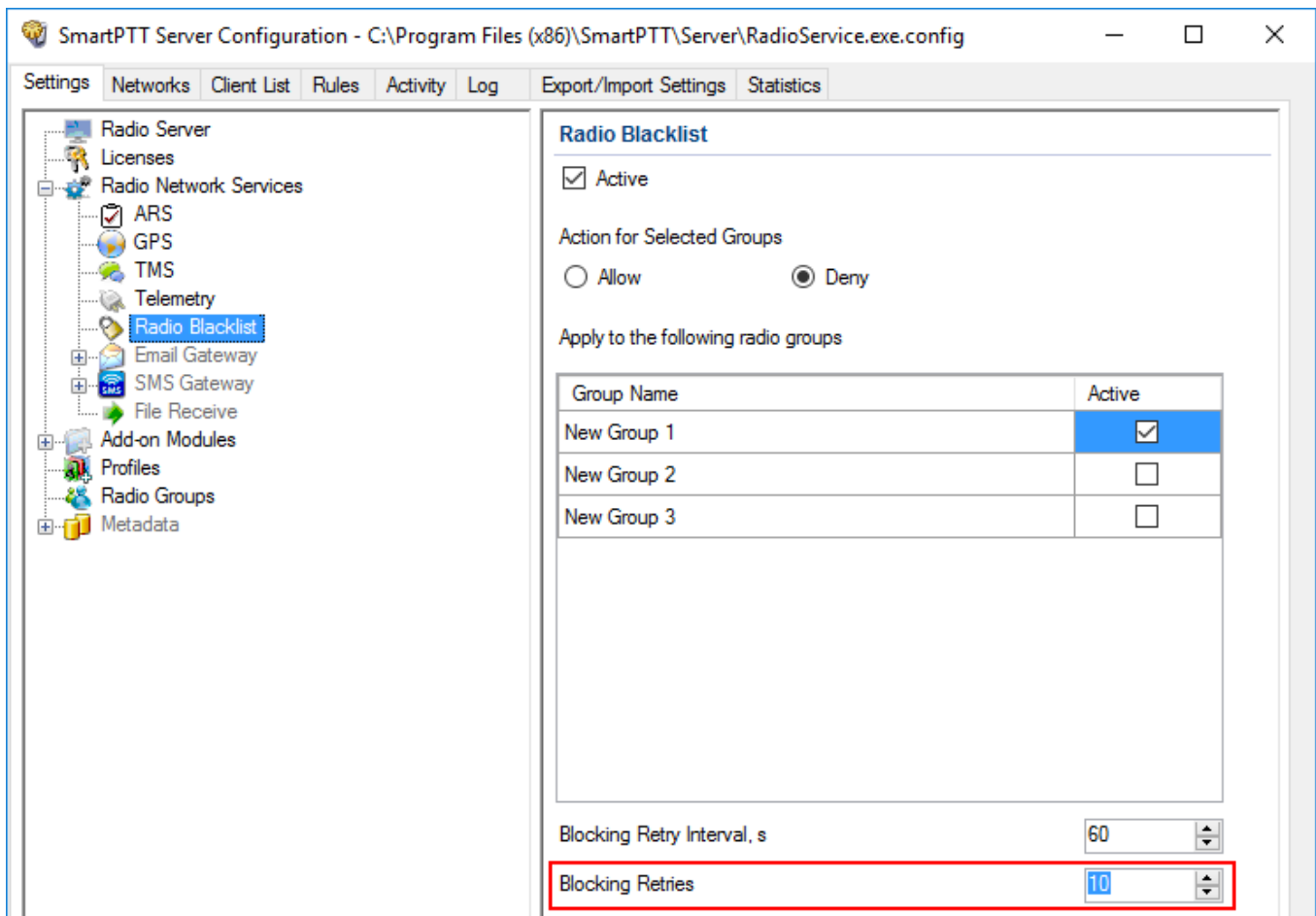




5. In the **Blocking Retry Interval** field, enter an interval between attempts of blocking.





6. In the **Blocking Retries** field enter a number of groups blocking retries.



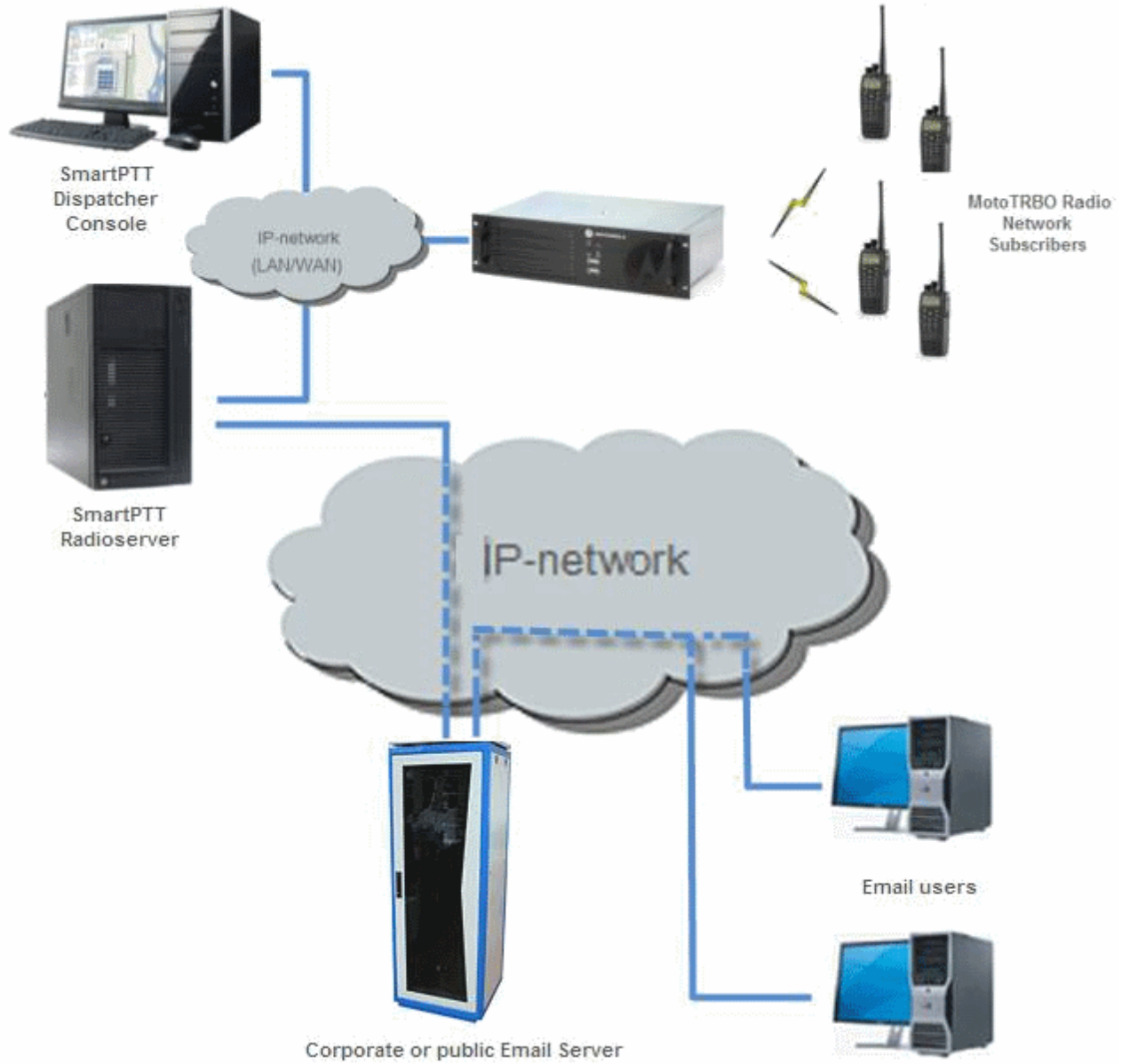
#### NOTE

If blocking is failed after retry number, SmartPTT Radioserver Configurator stops attempting until the restart.

7. At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.
8. Click **Restart** (  ) to restart SmartPTT Radioserver and apply changes.

## 1.5.6 Email Gateway

Email gateway is used for exchanging digital messages between email users and MOTOTRBO radios:



To be able to exchange email messages between radios and email users you need to configure radioserver.

For text message exchange you can use POP3 or IMAP4 protocol.

Before configuring radioserver, ensure your email account is configured properly:

- POP is activated for all email (including downloaded)
- IMAP is activated

If you use an email client (for example, Microsoft Outlook), the following settings are required for the outgoing messages:

- Plain text as a message format
- Unicode (UTF-8) encoding for outgoing images (with Base64 encoding)

For information on configuring and using email gateway, see the sections below.

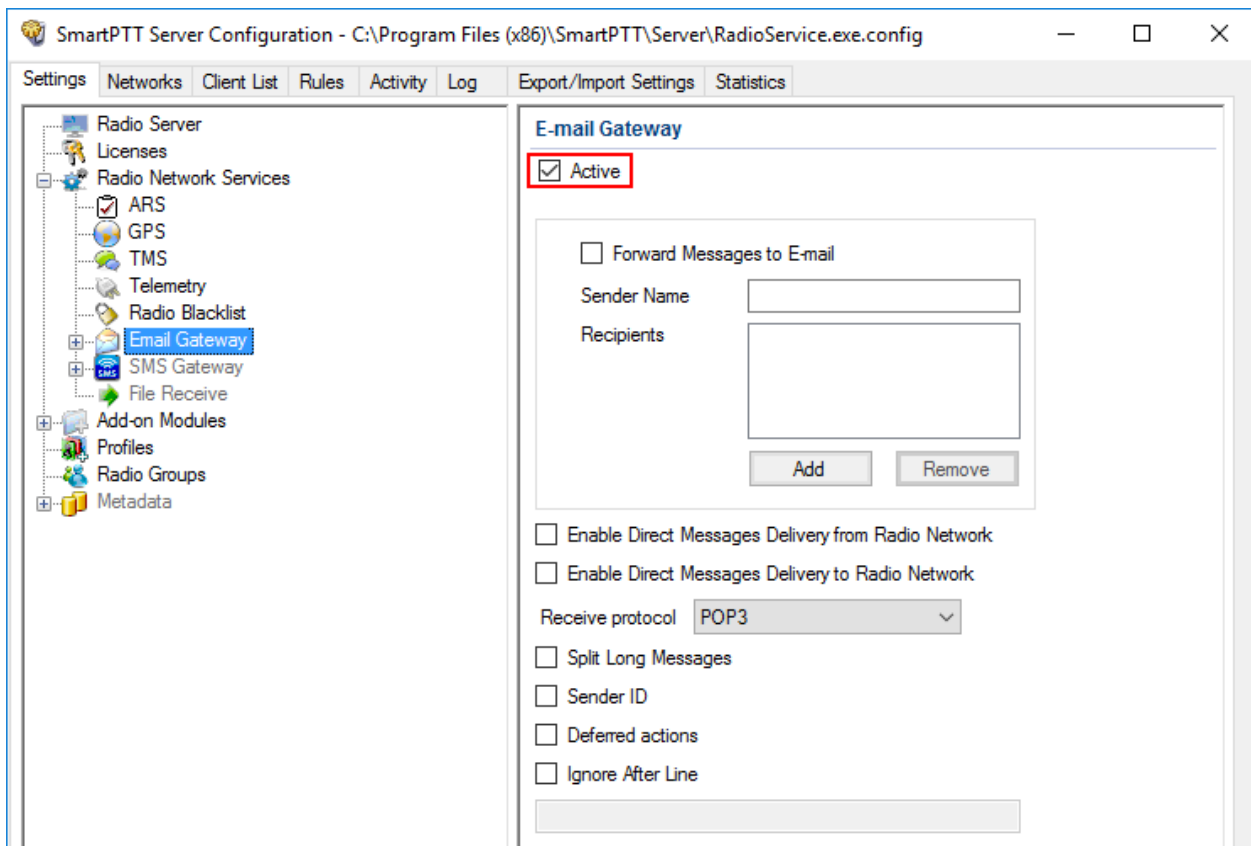
### 1.5.6.1 Configuring Radioserver

Follow the procedure to configure SmartPTT Radioserver.

**Procedure:**

1. In the **Settings** tab of SmartPTT Radioserver, expand **Radio Network Services** and click **Email Gateway**.

2. In the **Email Gateway** pane, select the **Active** check box.





3. Select the **Forward Messages to E-mail** check box to activate message forwarding from radios to the email addresses specified in the **Recipients** list.

#### NOTE

When a radio sends a text message to another radio and if it was successfully sent or/and delivered, all recipients added to the **Recipients** list receive the according confirmation messages.

4. In the **Sender Name** field, enter the domain name from which email messages are sent.
5. In the **Recipients** field, enter the list of email addresses to receive forwarded text messages.
6. *Optional:* Select the **Direct Message Delivery from Radio Network** check box to forward mail messages directly from radios.
7. *Optional:* Select the **Direct Message Delivery to Radio Network** check box to forward mail messages directly to radios.

8. *Optional:* From the **Receive protocol** list, select the protocol for email message receiving (*POP3* or *IMAP4*).
9. *Optional:* Select the **Split Long Messages** check box to split the original message into several packages during transmission without losing information.
10. *Optional:* Select the **Sender ID** check box to insert the sender email address to the received message.
11. *Optional:* Select the **Deferred actions** check box to deliver an information to the offline radio. When radio becomes online, it will immediately receive it.
12. *Optional:* Select the **Ignore After Line** check box to ignore everything after a certain string in the received email message.
13. At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.
14. Click **Restart** (  ) to restart SmartPTT Radioserver and apply changes.

**NOTE**

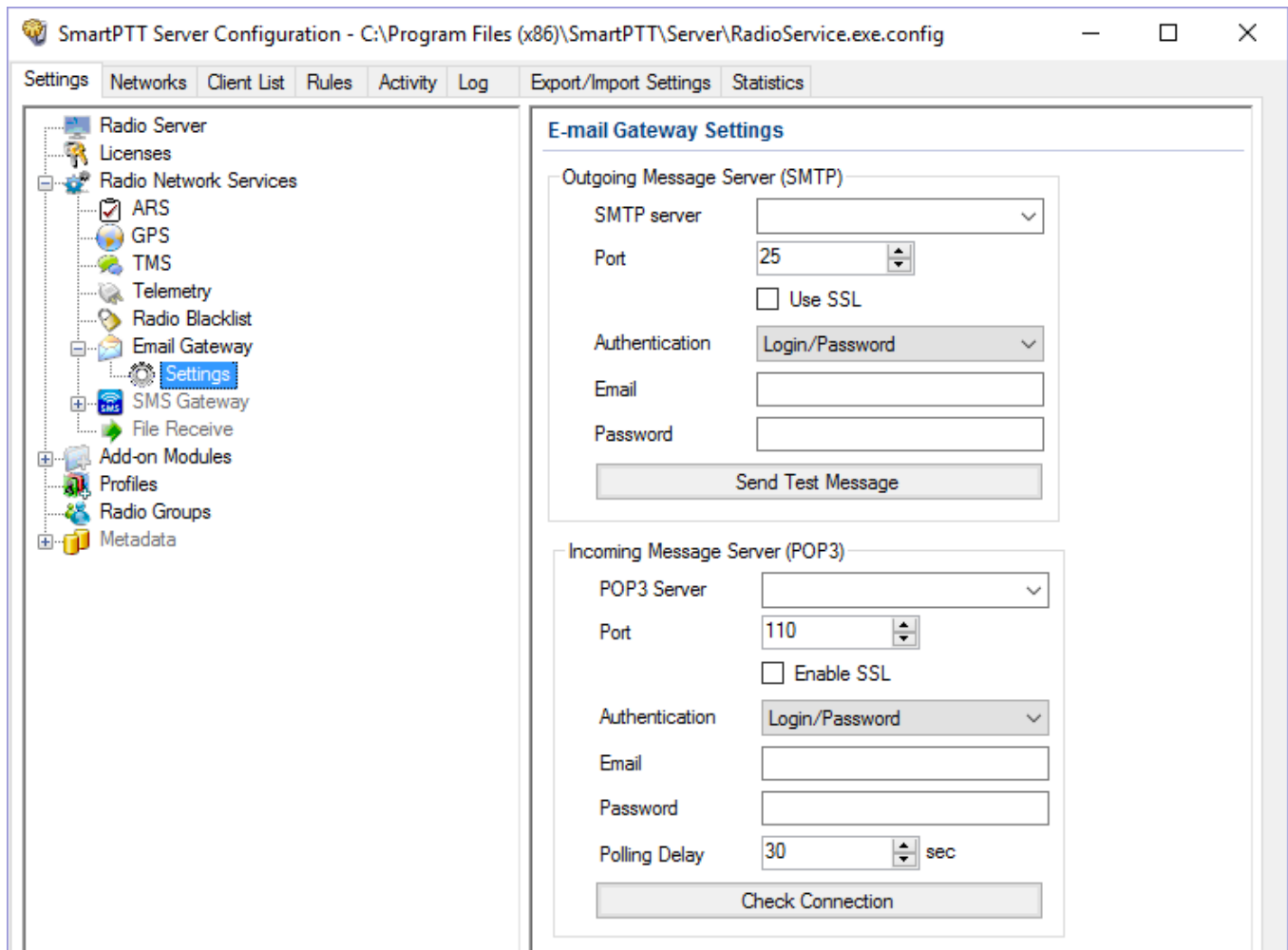
When **Forward Messages to E-mail** is enabled together with the options of receiving messages from the radio network and from the email, all messages sent or received by email users will be duplicated to the specified email addresses.

### 1.5.6.1.1 Configuring Outgoing Messages Server

Follow the procedure to configure outgoing message server settings.



#### Procedure:

1. In the **Settings** tab of SmartPTT Radioserver, expand **Radio Network Services** → **Email Gateway** and click **Settings**.



2. In the **Outgoing Message Server (SMTP)** area of the **E-mail Gateway Settings** pane, perform the following actions:
  - a. In the **SMTP server** field, enter the domain name of SMTP server which is used for delivering outgoing email messages.
  - b. In the **Port** field, enter the port number SMTP server.
  - c. *Optional:* If you want to establish a secure connection with SMTP server, select the **Use**

**SSL** check box.

- d. From the **Authentication** list select the authentication method for SMTP server:
    - i. *Anonymous* – to connect to the SMTP server anonymously.
    - ii. *Windows* – to connect to the SMTP server using Windows Authorization.
    - iii. *Login/Password* – to connect to the SMTP server with Login/Password specified.
  - e. *If the Login/Password authentication is selected:* In the **Email** field, enter an email address required by the mail server.
  - f. *If the Login/Password authentication is selected:* In the **Password** field, enter the password.
3. Click **Send Test Message** to check server connection.  
If connection is successful and the settings are correct, the mail user specified above will receive a test email message.
  4. At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.
  5. Click **Restart** (  ) to restart SmartPTT Radioserver and apply changes.

### 1.5.6.1.2 Configuring Incoming Messages Server

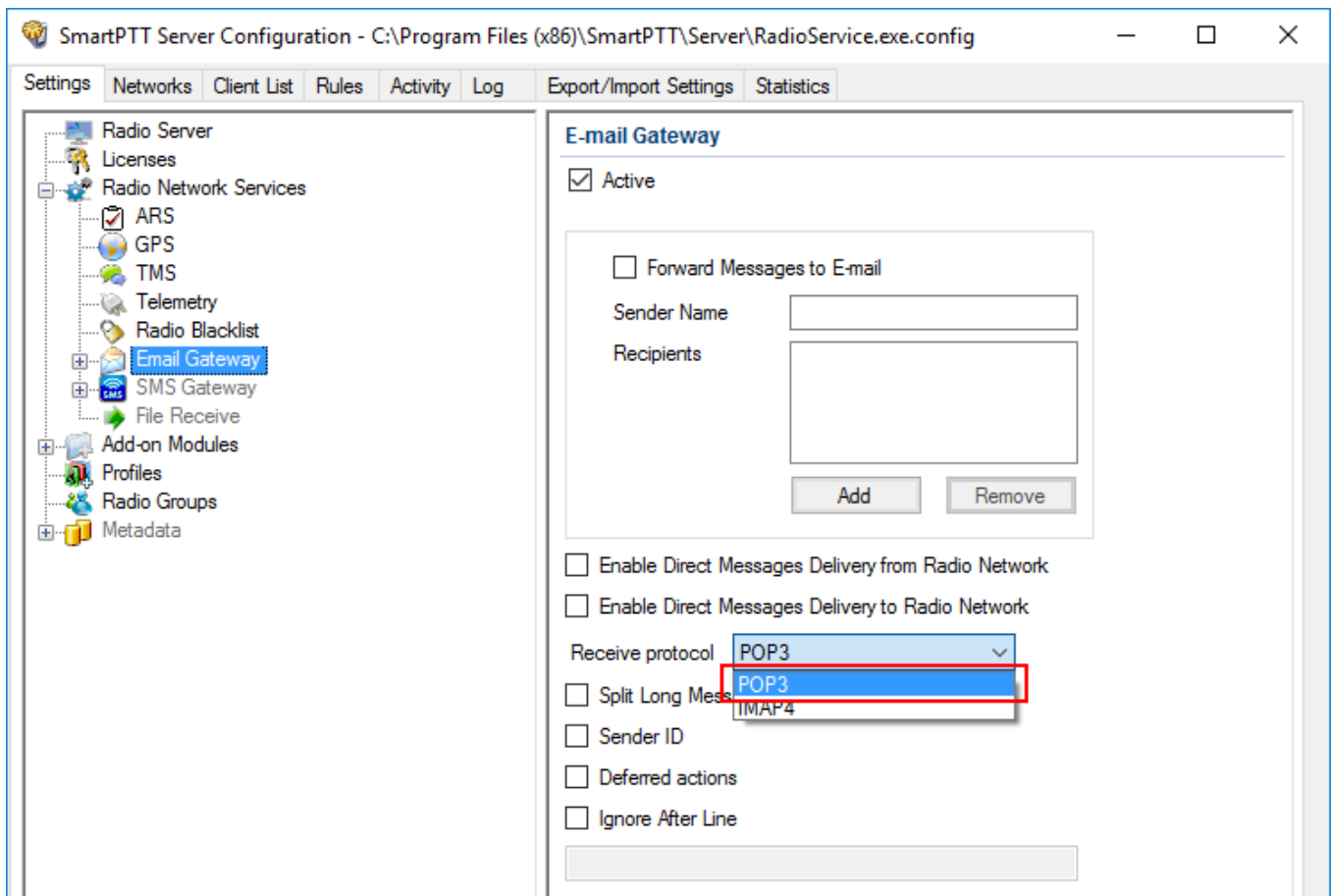
Follow the procedure to configure incoming message server settings.

#### **Procedure:**

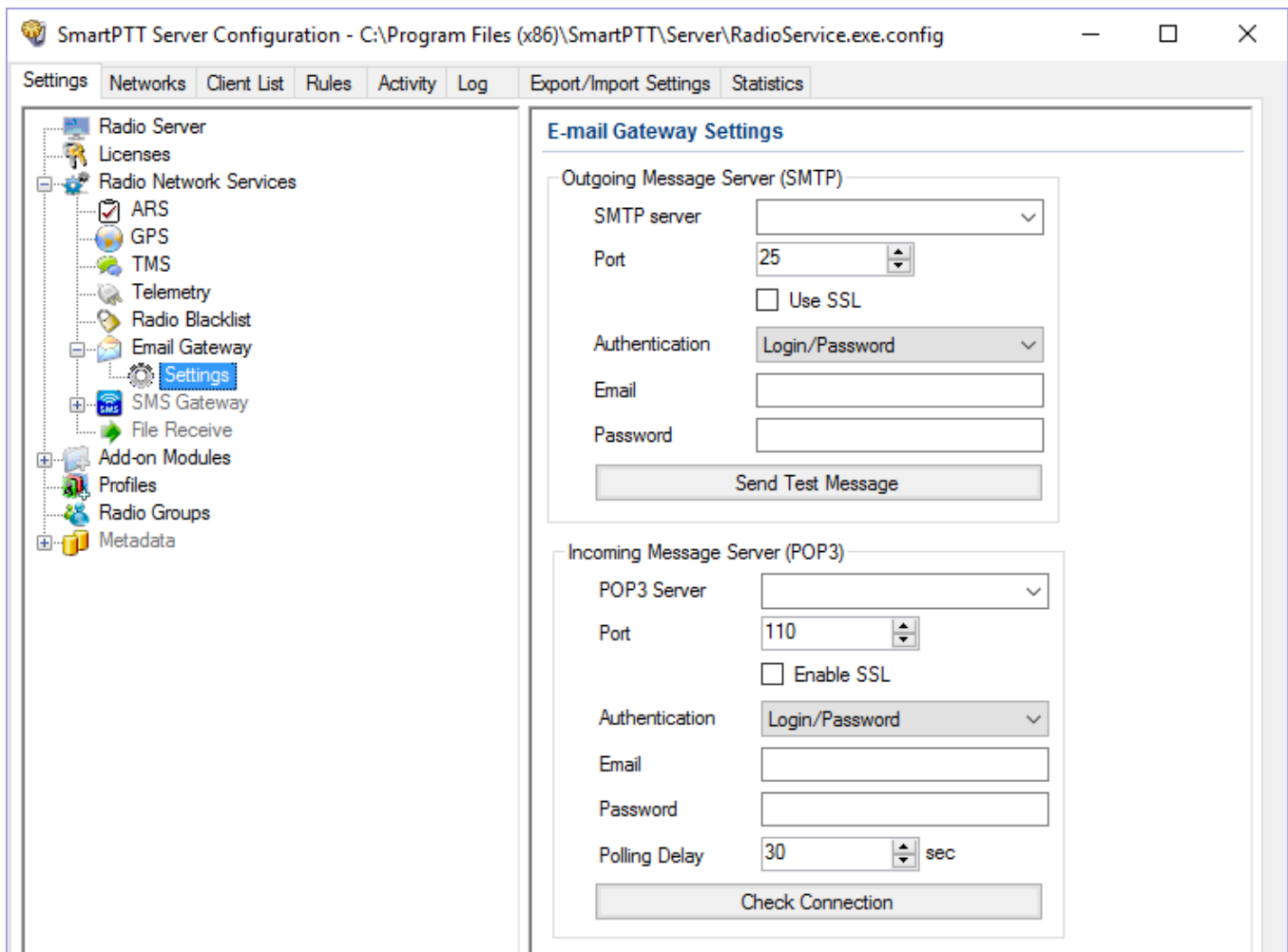
1. In the **Settings** tab of SmartPTT Radioserver, expand **Radio Network Services** and click **Email Gateway**.





2. In the **Email Gateway** pane, from the **Receive protocol** list, select *POP3* or *IMAP4*.



3. Expand **Email Gateway** and click **Settings**.



4. In the **Incoming Message Server** area of the **Email Gateway Settings** pane, perform the following actions:
- In the **POP3 Server** (or **IMAP4 Server**) field, specify domain name of the server which is used to deliver incoming email messages.
  - In the **Port** field, enter the port number server.
  - Optional:* If you want to establish a secure connection with server, select the **Use SSL** check box.
  - From the **Authentication** list select the authentication method for server:
    - Anonymous* – to connect to the server anonymously.
    - Login/Password* – to connect to the server with Login/Password specified.

- e. *If the Login/Password authentication is selected:* In the **Email** field, enter an email address required by the mail server.
  - f. *If the Login/Password authentication is selected:* In the **Password** field, enter the password.
  - g. In the **Polling Delay** field, specify the polling interval for the mail server.
5. Click **Check Connection**.  
If connection is successful, the pop-up window displays the number of unread email messages in your email box.
  6. At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.
  7. Click **Restart** (  ) to restart SmartPTT Radioserver and apply changes.

## 1.5.6.2 Sending Messages

In SmartPTT you can use the Email Gateway in the following ways:

- Sending text messages from email accounts to radios. For details, see [Sending Messages to Radios](#).
- Sending text messages from radios to email users. For details, see [Sending Messages from Radio Subscribers to Email Users](#).

### 1.5.6.2.1 Sending Messages to Radios

Follow the procedure to send an email message to a radio.

**Procedure:**

1. Sign in to your email account.
2. Compose the message:
  - a. Enter the prefix **:** (colon symbol) indicating that this message is addressed to a radio or a talkgroup.
  - b. Enter the radio/talkgroup ID or IP address in the **<ID|IP>** format.

**NOTE**

If a radio or talkgroup ID is more than 255, you can send an email message only by entering the radio or talkgroup IP address.

- c. Enter the space symbol that indicates the beginning of a text message body.
- d. Enter your message.

**Example**

- The email message *:12.0.0.77 Hello!* received from the mail server will be forwarded to the radio or talkgroup with IP *12.0.0.77*.
- The email message *:77 Hello!* received from the mail server will be forwarded to the radio with ID *77*.
- The email message *:12.0.0.80,12.0.0.81,12.0.0.82,12.0.0.50 Hello! or :80,81,82,50 Hello!* received from the mail server will be forwarded to the radios with corresponding IDs.

### 1.5.6.2.2 Sending Messages to Email Address

Follow the procedure to send a message from a radio to an email user.

**Procedure:**

1. Open the **Messages** menu on the radio.
2. To enter the message text in the field, perform the following actions:
  - a. Enter the prefix **:** (colon symbol) indicating that this message is addressed to email user.
  - b. Enter the email address of the contact or several contacts, separated with the coma (,) symbol in the **<email\_address>** format.

- c. Enter the space symbol that indicates the beginning of the message body.
- d. Enter your message.



### Example

- The message *:email\_address@example.com Hello!* from a radio will be forwarded to the email user with the email address *email\_address@example.com*.
- The message *:email\_address1@example.com, email\_address2@example.com Hello!* from a radio will be forwarded to the email users *email\_address1@example.com* and *email\_address2@example.com*.

## 1.5.7 SMS Gateway

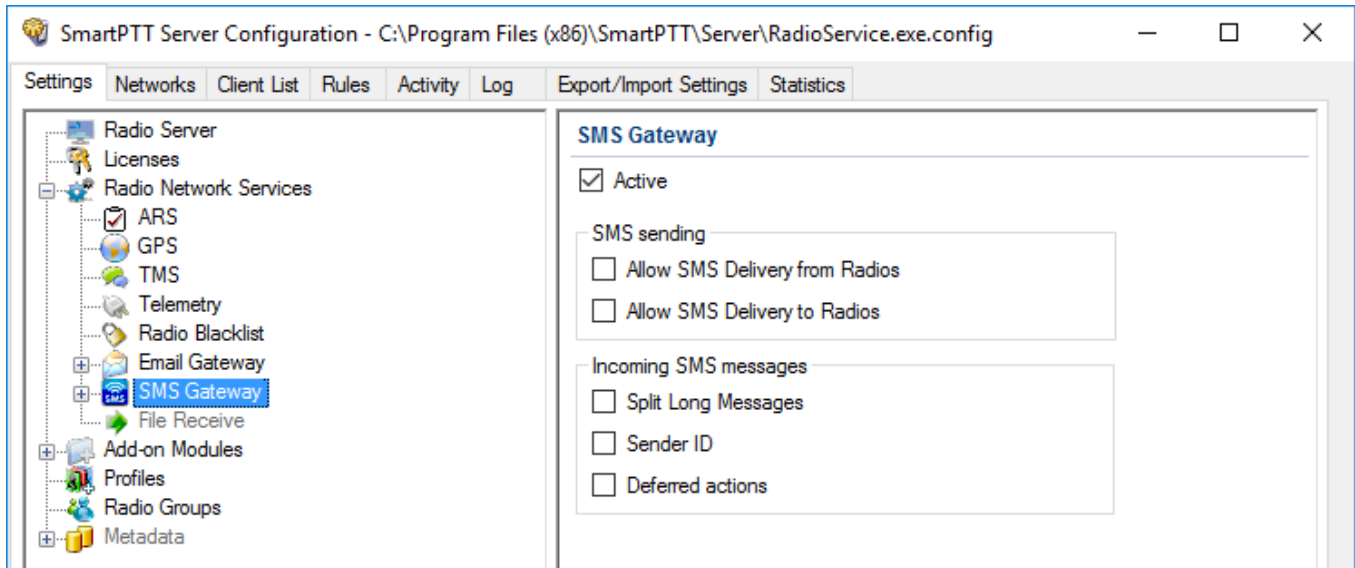
SmartPTT Radioserver has an integrated SMS Gateway service, which allows establishing communication between radios and mobile phones. There are two possible ways to communicate between each other:

- A radio sends an SMS to a phone subscriber
- A phone subscriber sends an SMS to a radio

To be able to send an SMS, it is necessary to do preliminary settings on both modem and SmartPTT Radioserver.

## Configuring SmartPTT Radioserver and Incoming Messages

In the left pane of the Settings tab, click **SMS Gateway**.



**Active:** Select to enable SMS Gateway service.

**Allow SMS Delivery from Radios:** Select this option if you need to forward SMS directly from radios.

**Allow SMS Delivery to Radios:** Select this option if you need to forward SMS directly to radios.

**Split Long Messages:** If selected, a long message, i.e. a message that contains more characters than allowed in one message in the radio network sent to a radio, will be split into several messages. If not selected, a long message addressed to a radio is trimmed to not exceed the limit (some information will be lost).

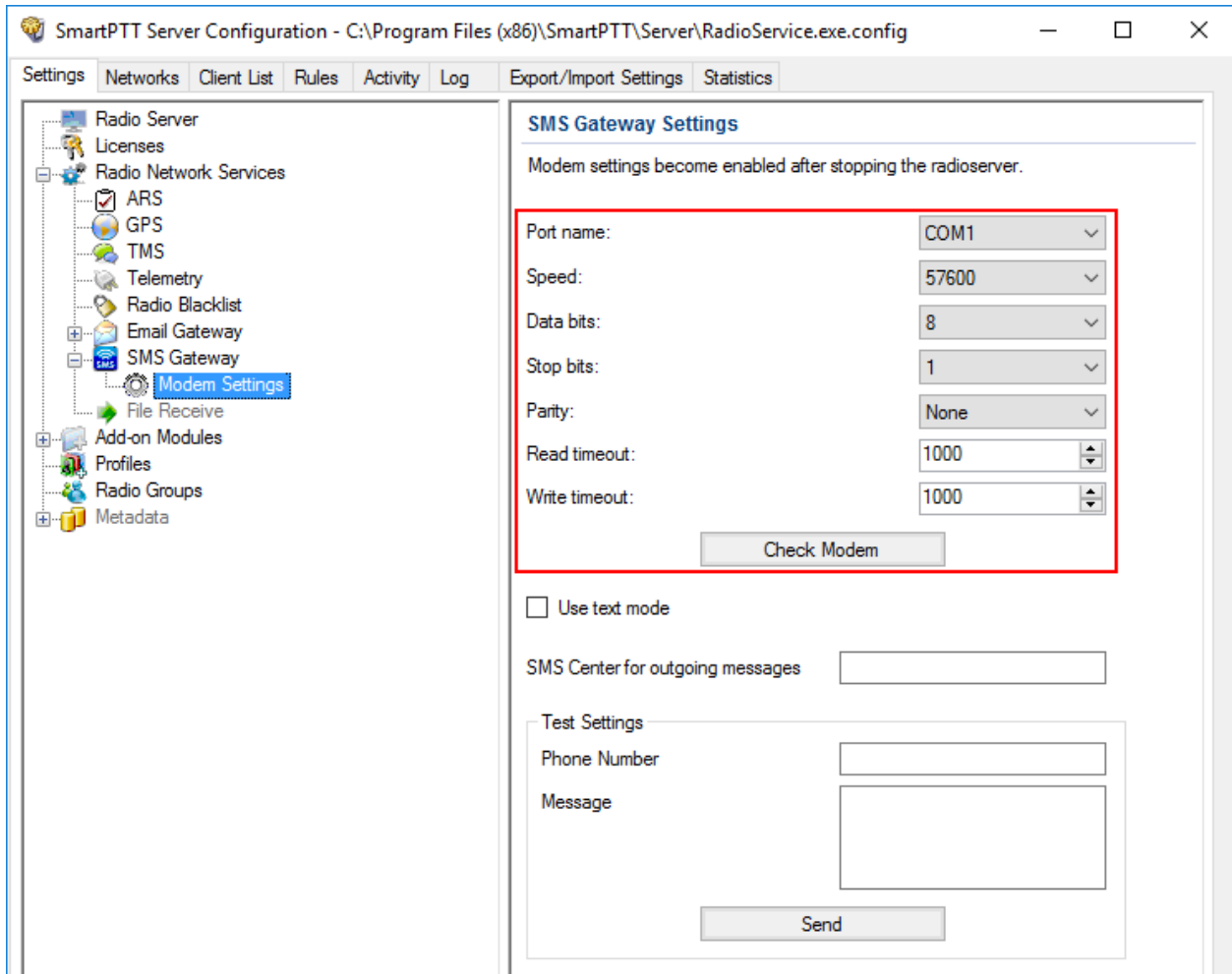
**Sender ID:** If selected, the phone number of the sender with the received SMS will be displayed on the radio.

**Deferred actions:** If selected, it allows to deliver an information to the offline radio. When radio becomes online, it will immediately receive it.

## Configuring a Modem and Outgoing Messages

### WARNING

To enable modem settings, stop SmartPTT Radioserver.



**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 per second).

**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**.

**None:** Parity checking is not performed and the parity bit is not transmitted.

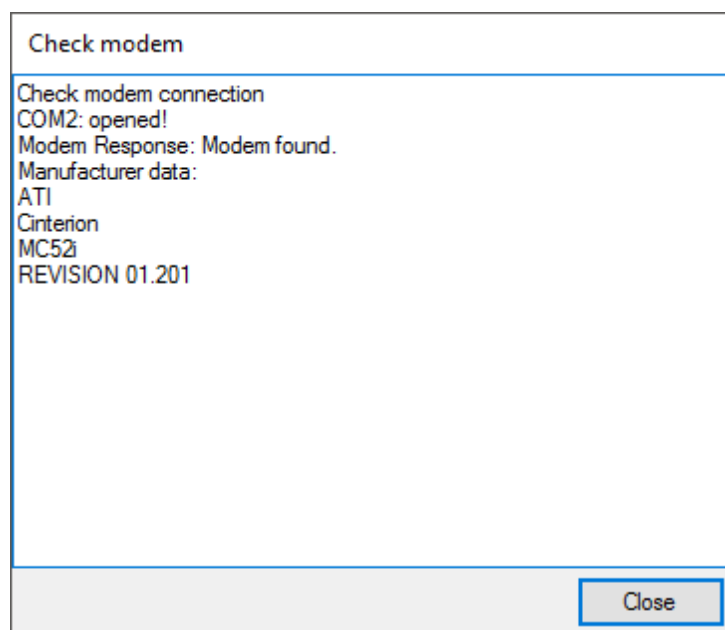
**Odd:** Number of mark bits in the data is counted, and the parity bit is asserted or unasserted to obtain an odd number of mark bits.

**Even:** 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.

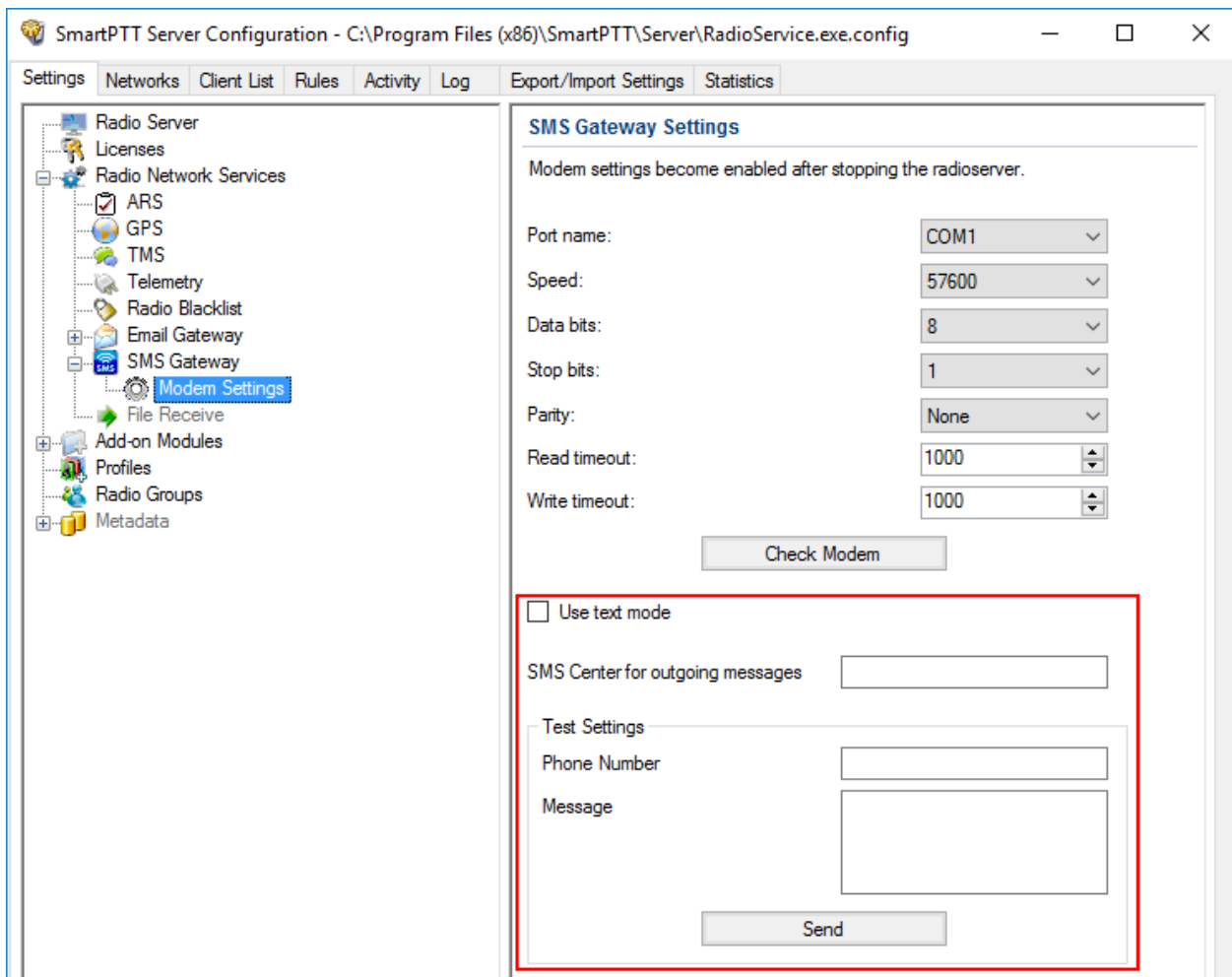
**Write timeout:** Number of milliseconds before a time-out occurs when a write operation does not finish.

**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 settings for outgoing messages and to send a test message.



**Use text mode:** Allows selecting Text or PDU mode for SMS sending. There are two ways of sending and receiving SMS messages: in text mode (the check box selected) and in the protocol description unit (PDU) mode (the check box is not selected). 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.

**SMS Center for outgoing messages:** SMS message center number. If the number is registered on modem's SIM-card, there is no need to fill this field.

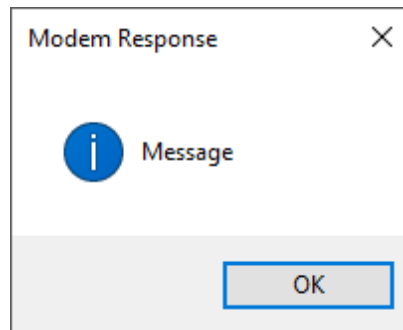
## Testing SMS Sending



Make sure SMS that messages can be sent to recipients from SmartPTT Radioserver. Use **Test Settings** 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, save the changes  and restart the radioserver . After the radioserver is started, **Check modem** and **Send** (test message) will be unavailable. It will mean that now you are ready to send SMS messages from the radio and to the radio.

To send an SMS from the mobile phone to the radio, the message forwarded to the modem number should comply with one of the following formats.



The following symbols should be used:

- **Colon (:)** symbol: Prefix that indicates addressing the message to the specific recipient
  - **<Radio/Talkgroup IP>**: Radio or talkgroup IP address of the recipient
- OR

- **<Radio ID>**: Radio ID of the target contact
- **Space symbol**: Indicates the beginning of the message text

Use the **Split Long Messages** option to guarantee that a message will not be cut.

#### Example

When SmartPTT Radioserver received the following message, it sends the message to radio 77 (or to talkgroup ID = 2):

- To the radio with radio ID = 77: *:12.0.0.77 SMS text*
- To the radio with radio ID = 77: *:77 SMS text*
- To talkgroup 2: *:225.0.0.2 SMS text*
- To multiple radios simultaneously: *:12.0.0.80,12.0.0.81,12.0.0.82,12.0.0.50 SMS text*
- To multiple radios simultaneously: *: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 radio with the specified ID. To send a group SMS, it is necessary to use a full talkgroup IP address.

To send an SMS from a radio to a mobile phone, the message should comply with the following format.



The following symbols should be used:

- **Colon (:)** symbol: Prefix that indicates addressing the message to the specific telephone user.
- **<&phone number>**: Phone number of the SMS target (symbol "&" is used instead of "+" because there is no "+" symbol in the MOTOTRBO radios).
- **Space symbol**: Indicates the beginning of the message text.

### 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,&71234567890 SMS text`

## 1.5.8 File Receive

File Receive is used for sending files of any formats from MOTOTRBO radios. This function can be necessary in the absence of the Internet connection and other channels to transmit data.

In version 2.0 SmartPTT File Transfer you can receive files without the server application or base stations. You need to have only a radio connected to the computer by using USB port and the client application SmartPTT File Transfer version 2.0.

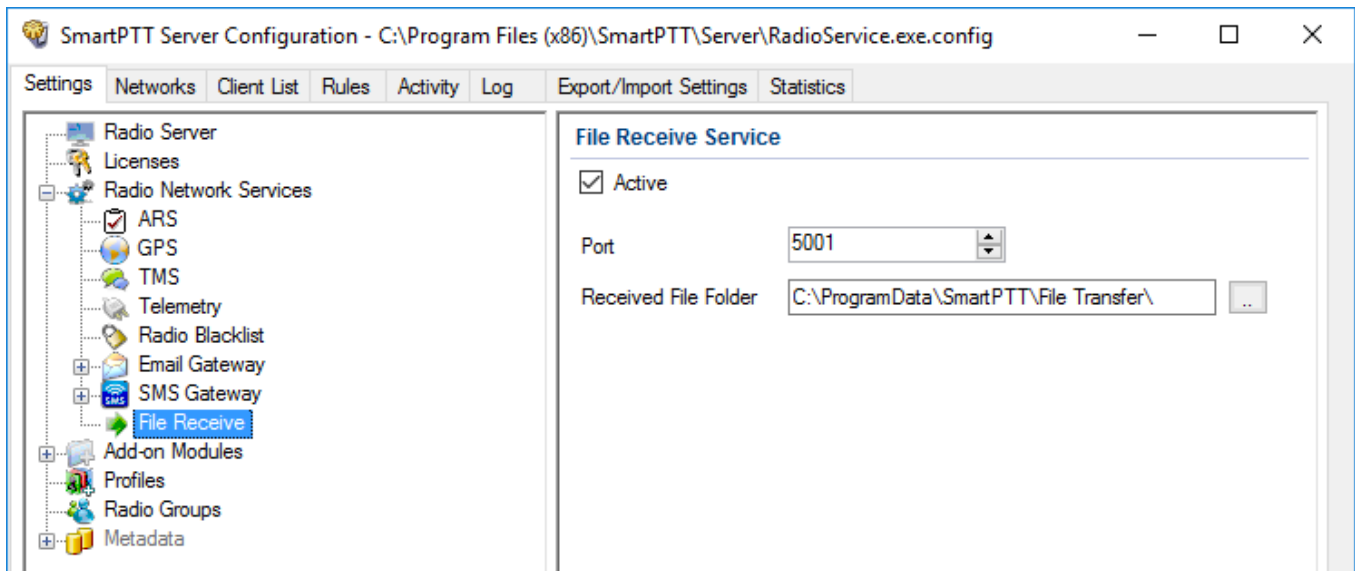
For information on configuring and using file transfer service, see the sections below.




## 1.5.8.1 Configuring File Receive in SmartPTT Radioserver Configurator

Follow the procedure to configure **File Receive** service in SmartPTT Radioserver Configurator.

### Procedure:

1. In the **Settings** tab of SmartPTT Radioserver, expand the **Radio Network Services** node, and then click **File Receive**.  
The **File Receive Service** pane opens.



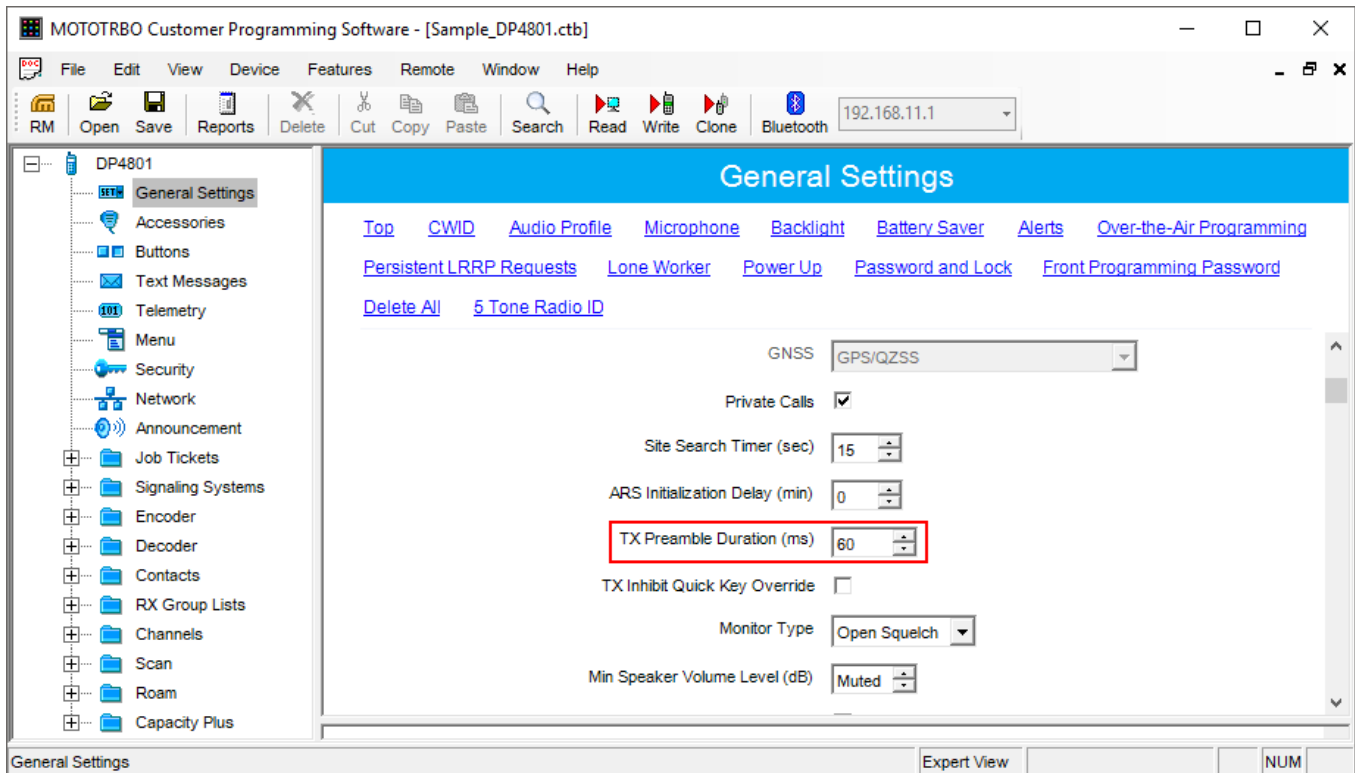
2. Select the **Active** check box to activate the service.
3. In the **Port** field, enter the port number for file receive service.
4. Next to the **Received File Folder** field, click Browse (  ), and specify the folder name where received files are to be stored.
5. At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.
6. Click **Restart** (  ) to restart SmartPTT Radioserver and apply changes.

## 1.5.8.2 Configuring Radio Settings in MOTOTRBO CPS

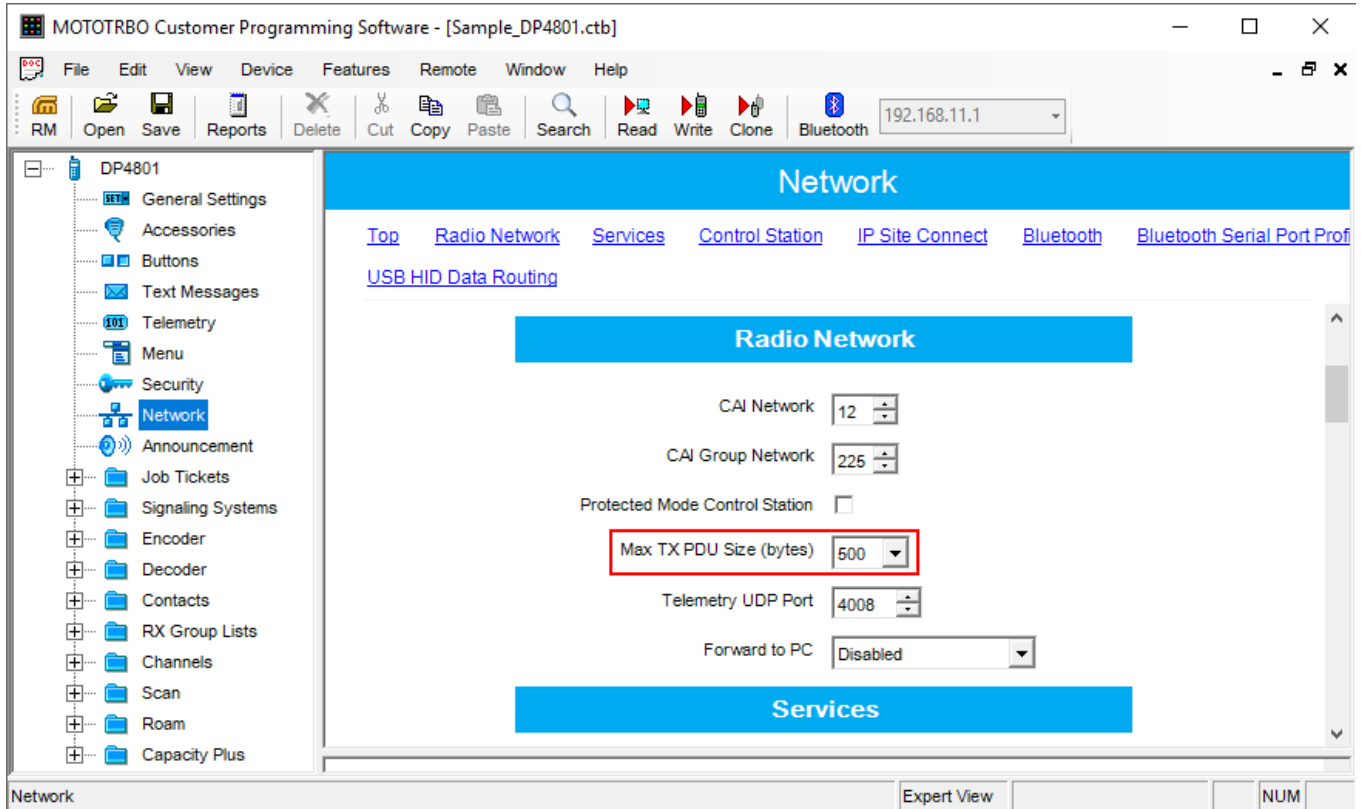
Follow the procedure to configure radio settings in MOTOTRBO CPS to provide stable file transfer rate.

### Procedure:

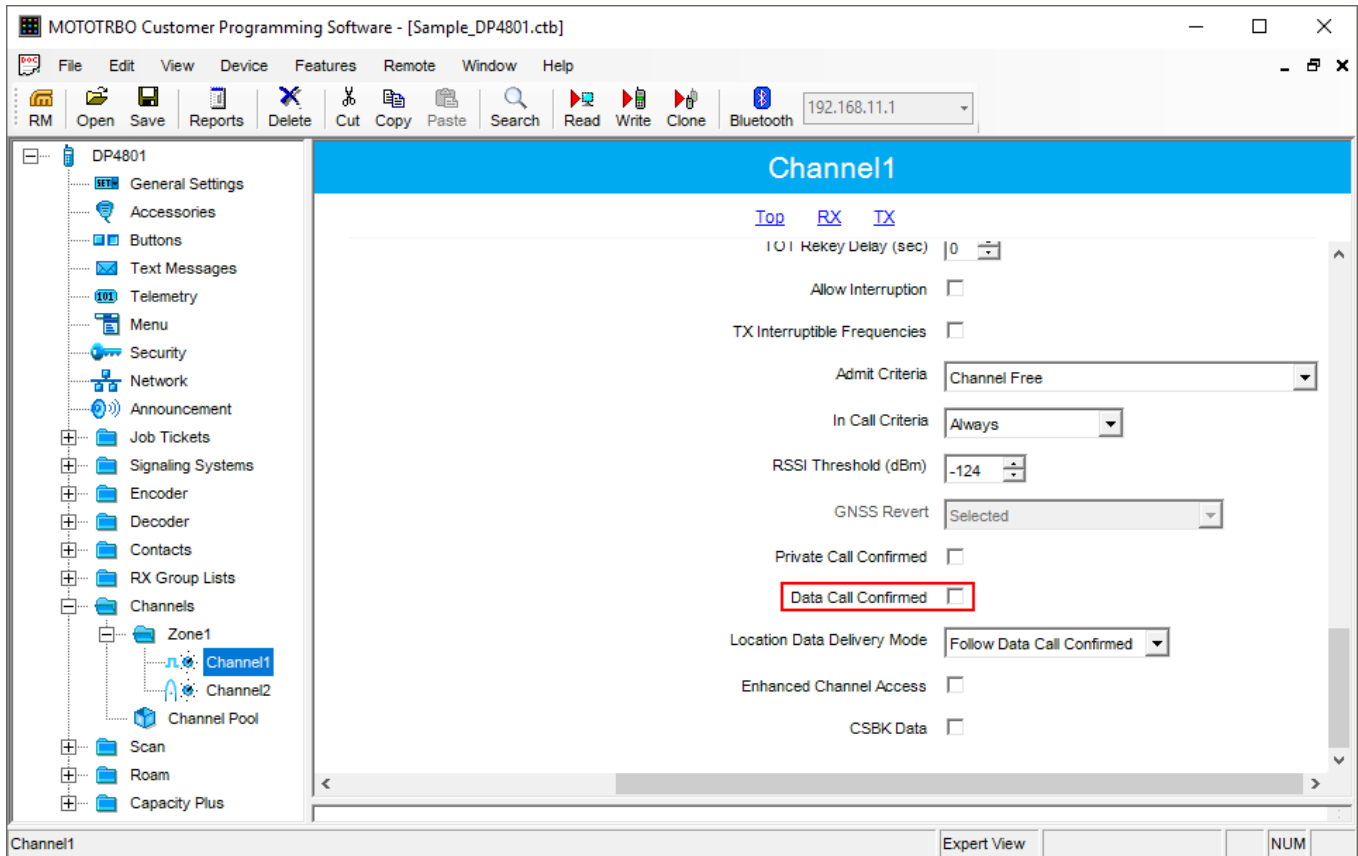
1. Start MOTOTRBO CPS.
2. Open the radio codeplug.
3. If not selected, in the **Edit** menu, select the **Expert** view type.
4. In the left pane, click **General Settings**.  
The **General Settings** pane appears.
5. In the **General Settings** pane, in the **TX Preamble Duration** field, enter *60 ms*.



- In the left pane, click **Network**.  
The **Network** pane appears.
- In the **Network** pane, from the **Max TX PDU Size** list, select *500 bytes*.



- In the left pane, expand **Channels** → **<Zone Name>**, and then select the channel on which files are transmitted.  
The **<Channel Name>** pane appears.
- In the open pane, clear the **Data Call Confirmed** check box.



- Save changes to the codeplug and write them to the radio.



### 1.5.8.3 Configuring Routing Settings for File Transmission

Follow the procedure to add information on a new route for file transmission in the routing table of the computer to which a radio is connected.

#### Procedure:

1. Run Windows **Command Prompt** as Administrator.  
The **Administrator: Command Prompt** window appears.



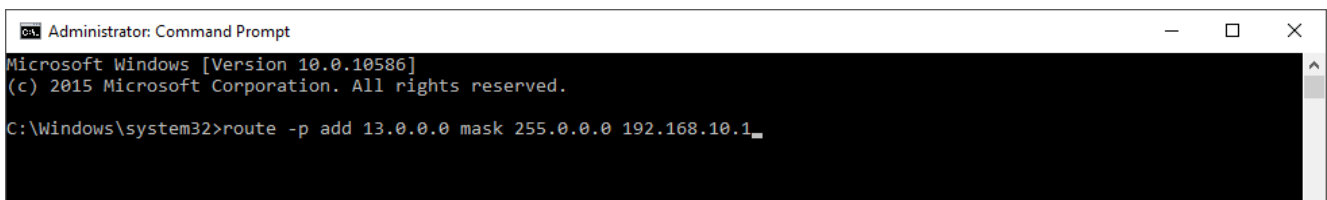
2. In the command prompt, type the command `route -p add 13.0.0.0 mask 255.0.0.0 192.168.X.X` to add the file transmission route, where:
  - `route`: command to add a route
  - `-p`: key for adding a route into the list of fixed routes
  - `add`: adding the route
  - `13.0.0.0`: IP address of all radios available in the radio network
  - `mask 255.0.0.0`: network mask
  - `192.168.X.X`: radio IP address

#### NOTE

Radio IP address can be found in the MOTOTRBO CPS application, in the **Network** node.

#### Example

To transmit data packets from the radio with IP address `192.168.10.1`, the following command should be typed: `route -p add 13.0.0.0 mask 255.0.0.0 192.168.10.1`



## 1.5.8.4 Configuring SmartPTT File Transfer Settings

Follow the procedure to configure SmartPTT File Transfer application settings.

### NOTE

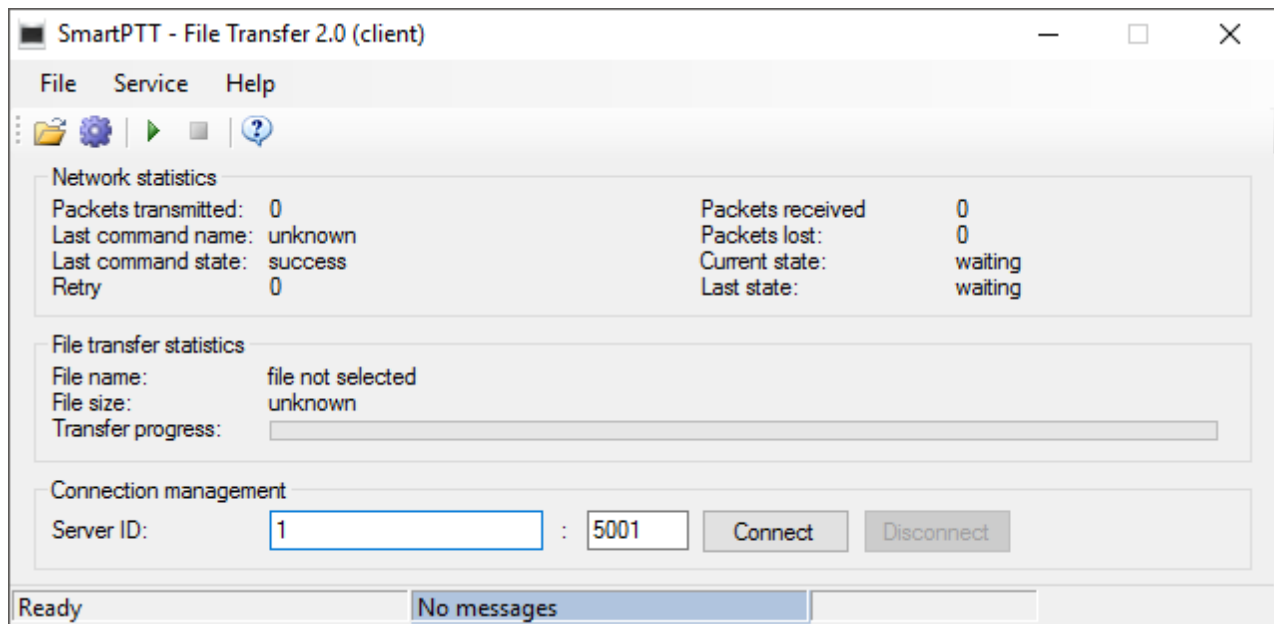
For information on settings of SmartPTT File Transfer, see *SmartPTT File Transfer User Guide*.

### Prerequisites:

Ensure you downloaded and installed the latest version of the SmartPTT File Transfer (<https://smartptt.com/download/>).

### Procedure:

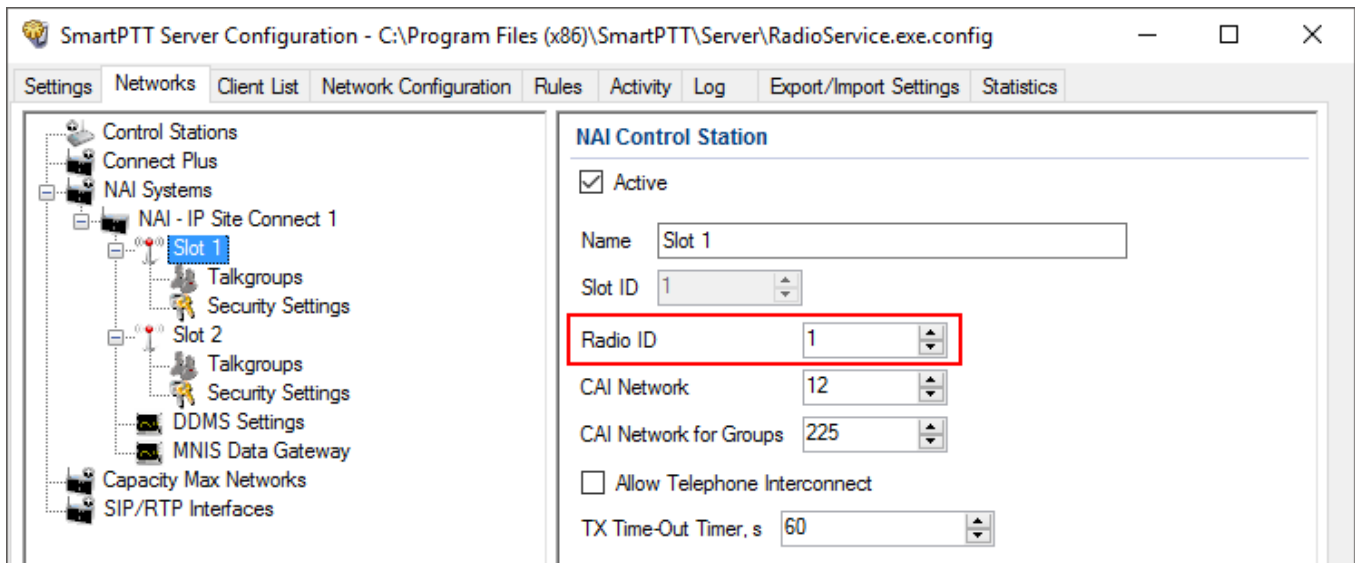
1. Start SmartPTT File Transfer Client.



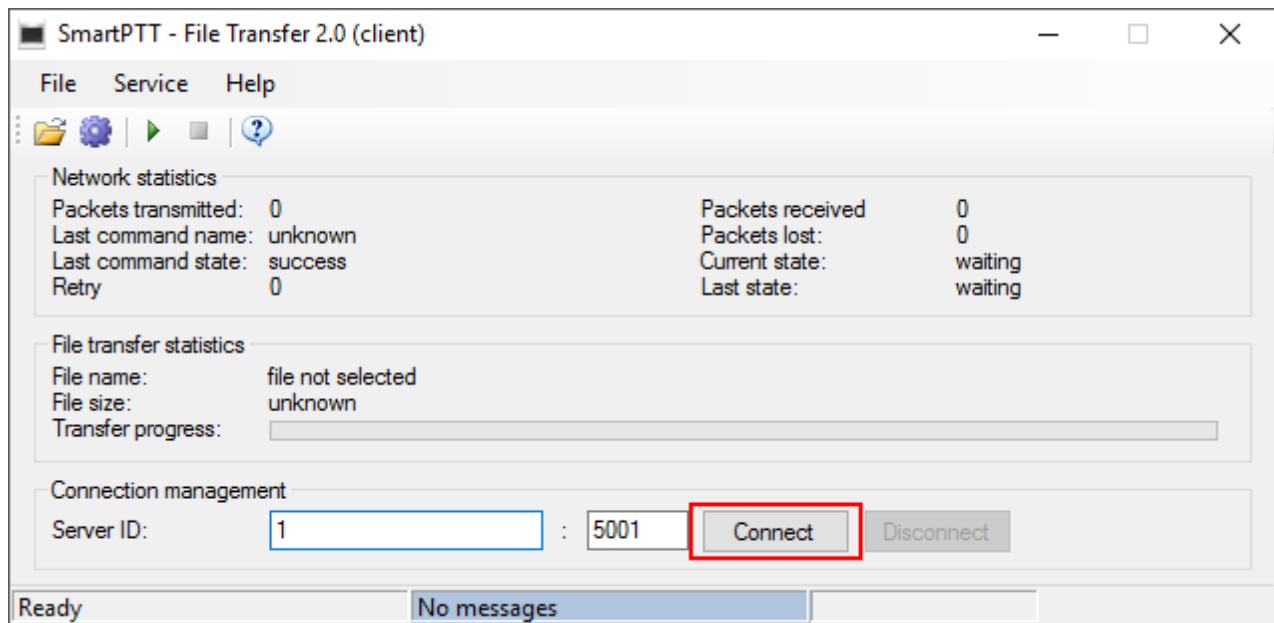
2. In the **Server ID** field, enter the radio ID of NAI - IP Site Connect, which will be used for file transmission.

### NOTE

The radio ID is set in SmartPTT Radioserver Configurator, in the **NAI - IP Site Connect** → **NAI Control Station** pane, in the **Radio ID** field.



- In SmartPTT File Transfer, click the **Connect** button to connect to the radioserver. The **Connect** button and boxes next to it become unavailable, and the **Disconnect** button becomes active.

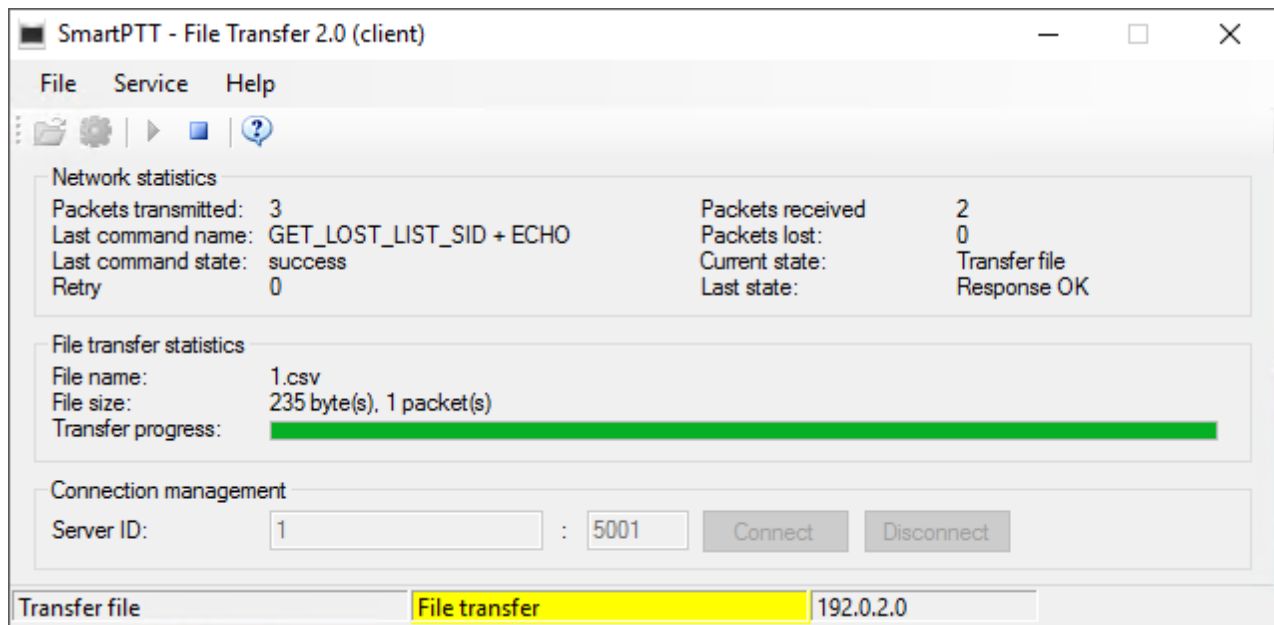


### 1.5.8.5 File Transmitting

Follow the procedure to perform file transmitting in SmartPTT File Transfer.

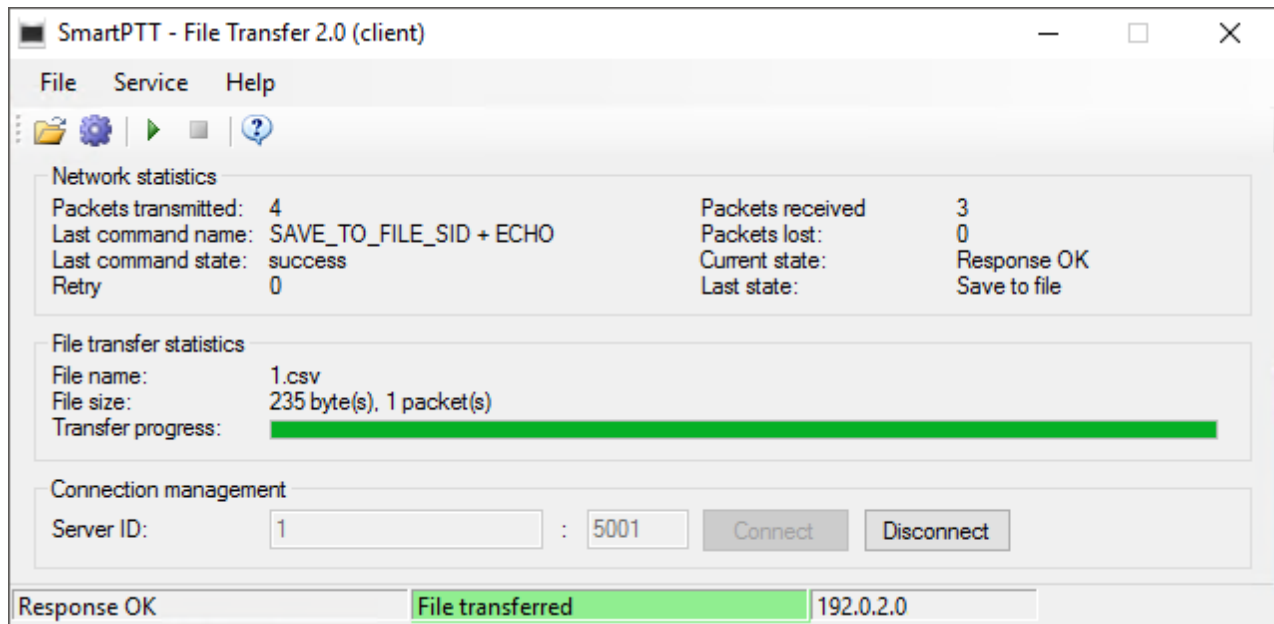
**Procedure:**

1. In the **SmartPTT - File Transfer** window, click **File** → **Select File**.  
The window for selecting file appears.
2. In the open window, select the desired file to transmit, and click **Open**.
3. Click the **Start File Transfer (▶)** button.  
At the bottom of the window, the caption **File transfer** about the ongoing file transmission appears in yellow.



4. Wait until the file is successfully transmitted.

At the bottom of the window, the caption **File transferred** appears in green when the file is successfully transmitted.

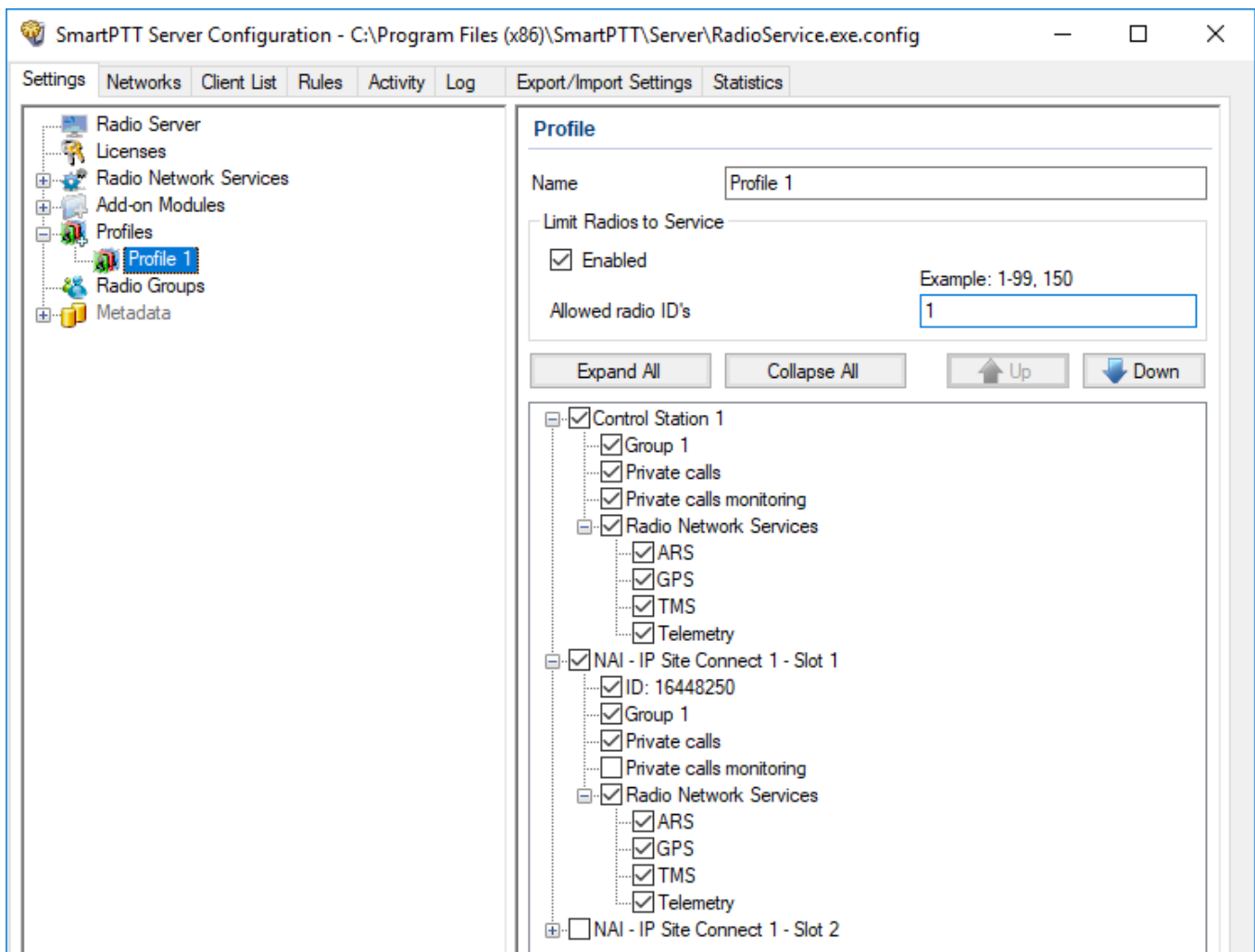


## 1.6 Profiles

In SmartPTT Radioserver Configurator you can create profiles for managing the capabilities of dispatchers in SmartPTT Dispatcher.

You can add profiles in the **Profiles** node of the **Settings** tab. For details, see [Adding Profiles](#).

All added profiles are available in the **Profiles** node and provide the following elements:



### Name

The profile name. You can change the name if required.

The **Limit Radios to Service** area provides the following elements:


**Enabled**

Activates the functionality for filtering radios presented in the system when the profile is assigned to a dispatcher, and unblocks the **Allowed radio ID's** field.

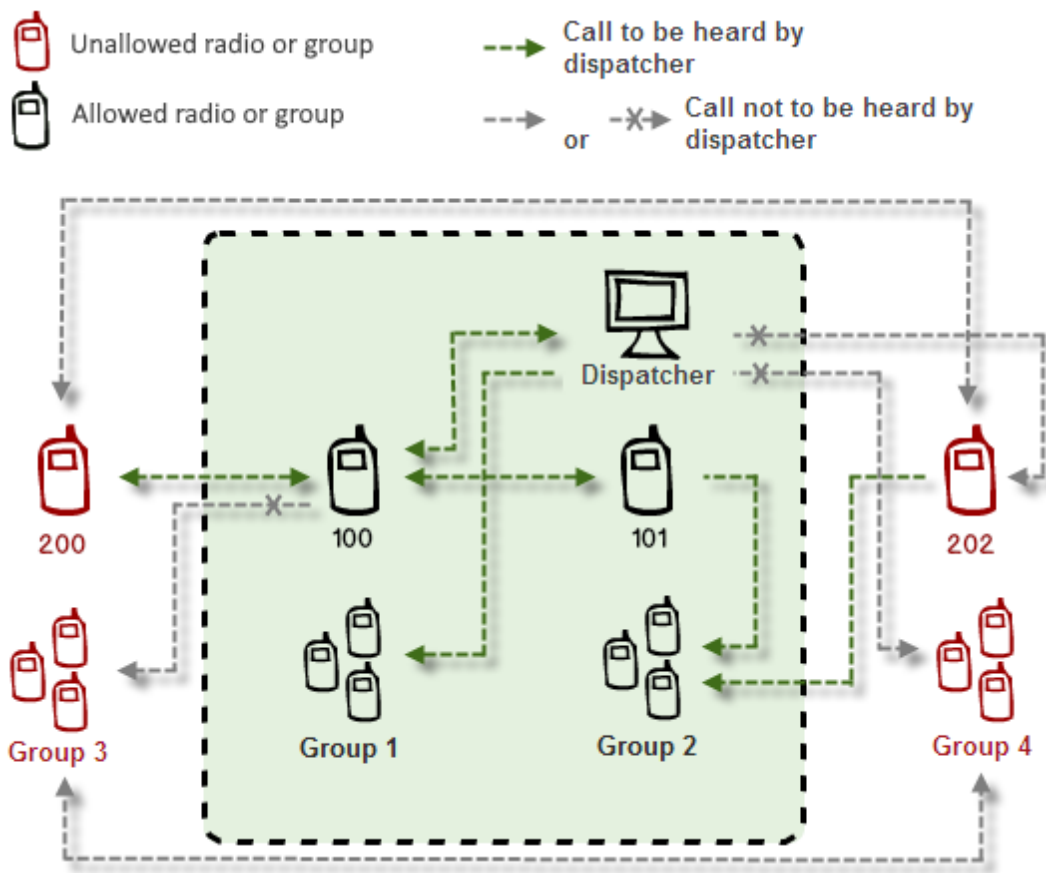
If the functionality is disabled, the dispatcher can operate all radios in the system.

**Allowed radio ID's**

Used for setting the IDs of the radios that will not be filtered. The text above the box provides an example of the value input format.

If you leave the box empty, a warning symbol (  ) appears and all radios of the system become unavailable to dispatcher when the profile is selected.

The following scheme illustrates interaction of the dispatcher with filtered and unfiltered (allowed and unallowed) radios and groups:



The table below summarizes the working principle of radio filtering:

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

**Expand/Collapse All**

Expands or collapses trees of objects in the Objects box located below the buttons.

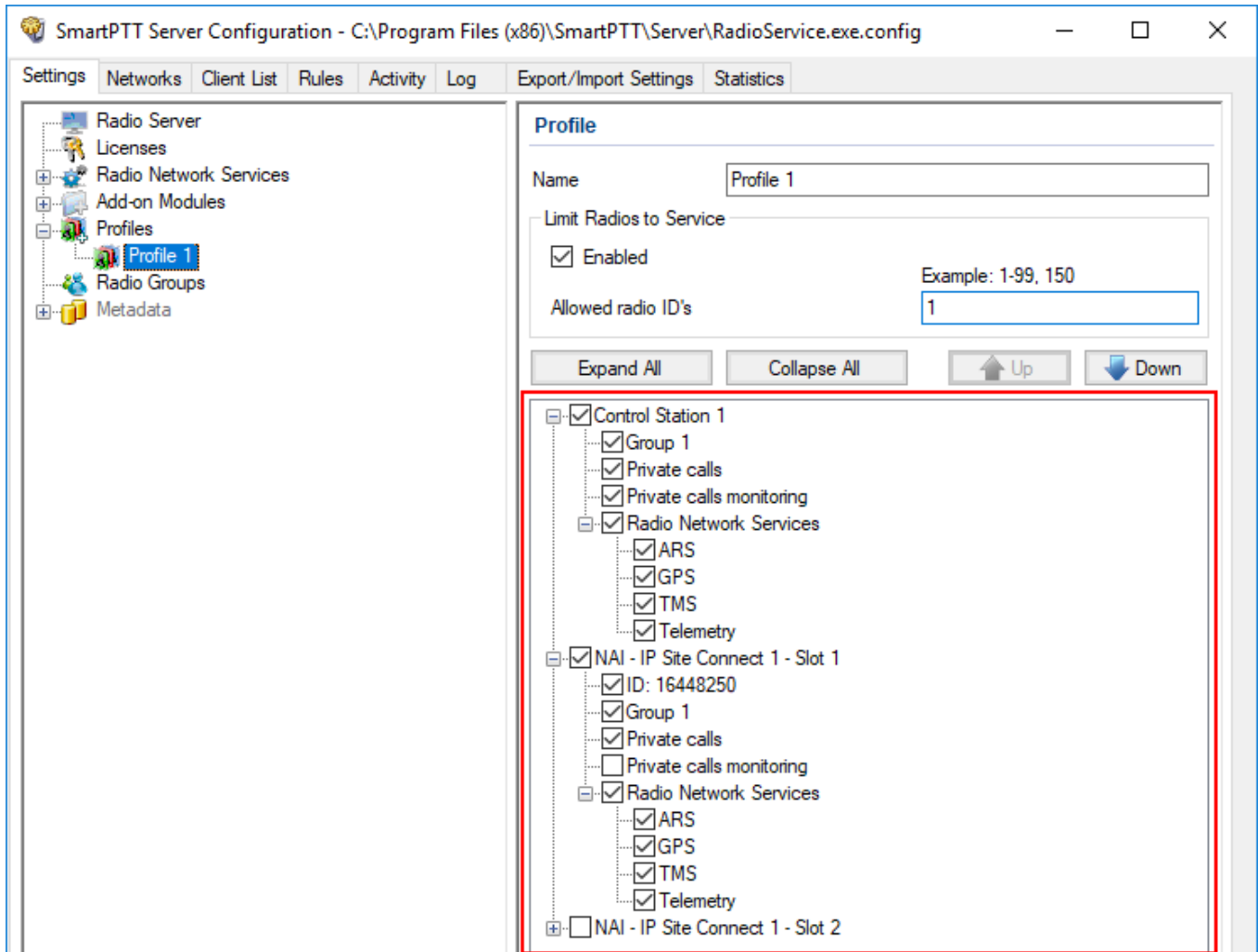
**Up/Down**

Moves the objects up or down. The objects position in the profile affects the way they are displayed in the Radio Fleet panel of SmartPTT Dispatcher is assigned to a dispatcher.



## Objects Box

Provides various controls for configuring objects of the profile. The objects displayed in the box represent networks and control stations added to SmartPTT Radioserver. By selecting or clearing the check box next to the object name, you can select or clear check all boxes in the object tree.



You can configure the following object parameters by selecting the corresponding check boxes in the **Objects** field:

**ID**

If selected, you can specify the object ID. The ID is required when more than one dispatchers use the same channel.

If the check box is clear, the **Network ID** value of the network is used as the object ID for dispatcher identification.

If the IDs are the same for several profiles, dispatchers will hear each other's private calls even if the **Private calls** check box is clear.

The IDs can be used to initiate private radio calls to the corresponding dispatchers.

The box is unavailable for control stations.

**Private calls**

If selected, the dispatcher can initiate private calls to radios, telephone subscribers, and other dispatchers.

**Private calls monitoring**

If selected, the dispatcher can listen to private calls made from radios to radios, from radios to dispatchers, and from radios to telephone subscribers, and vice versa. The dispatcher can also read the messages sent from the objects.

**Group**

If selected, the dispatcher can initiate group calls to the selected group and hear all calls made to it.

**All Call**

If selected, the dispatcher can initiate All Calls.

**Radio Network Services**

If selected, the dispatcher can use all the services provided by the object such as ARS, TMS, GPS, and telemetry.

You can expand the node and select or clear the desired check boxes.

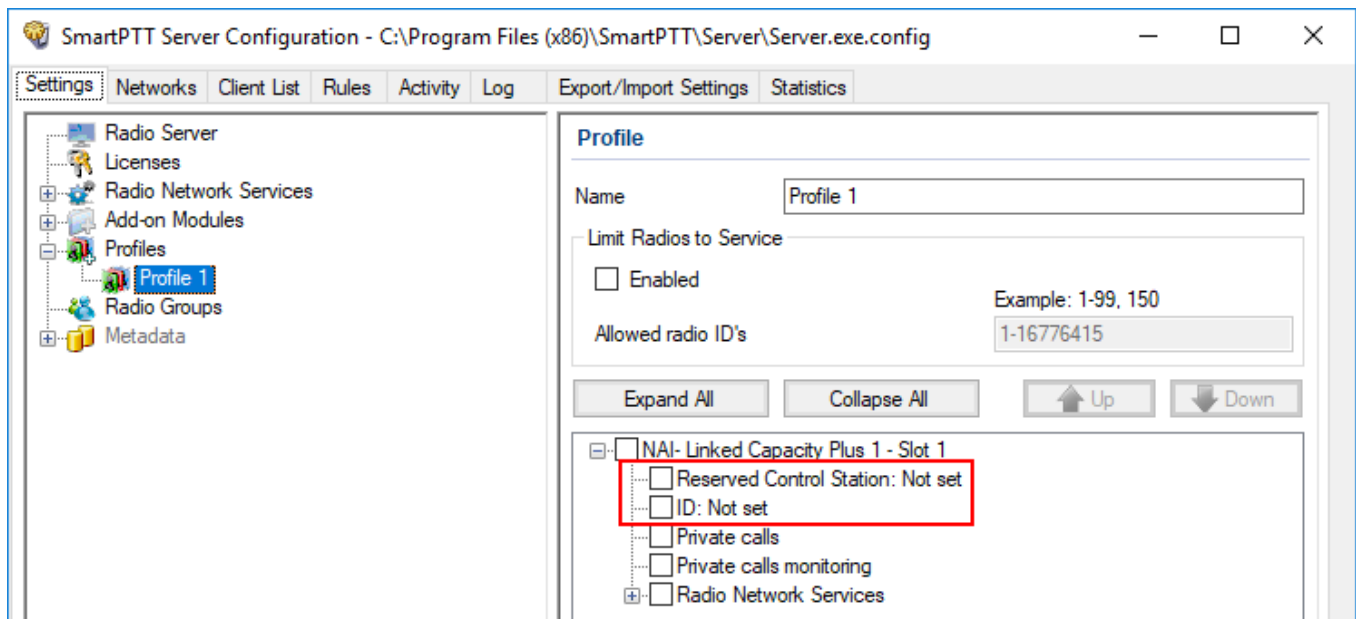
For information on the radio network services, see [Registration Service](#), [Location Service](#), [Text Messaging Service](#), and [Telemetry Service](#).

## Reserved Control Station

Available only for the NAI - Capacity Plus and NAI - Linked Capacity Plus radio networks.

Appears when a control station is added and reserved for dispatcher private calls. For details, see [Adding and Configuring NAI Control Stations](#).

When the check box is selected, the reserved control station becomes assigned to the profile. The object ID is the same as the **Radio ID** of the control station.



## High priority of calls

Available only in the Capacity Max radio network. If selected, all dispatcher calls have a high priority level and interrupt normal priority calls. The **Allow priority increasing** check box is cleared automatically.

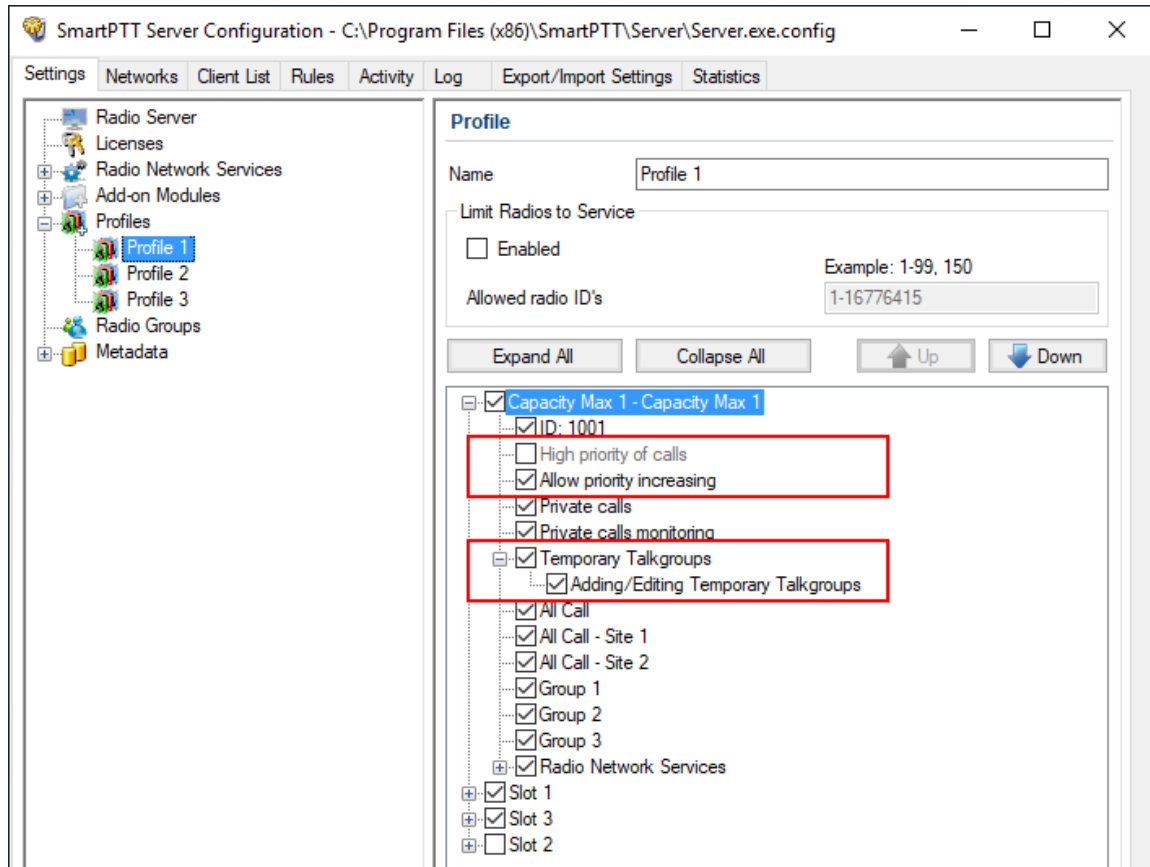
## Allow priority increasing

Available only in the Capacity Max radio network. If selected, dispatchers can increase the call priority level from normal to high before initiating it in SmartPTT Dispatcher. High priority calls interrupt normal priority calls.

If selected, the **High priority of calls** check box becomes unavailable.

### NOTE

Emergency Calls and All Calls always have high priority and cannot be interrupted.



## Temporary Talkgroups

Available for Capacity Max only. If selected, the dispatcher will be able to use temporary talkgroups created in SmartPTT. No managing and editing capabilities will be available to him/her.

## Adding/Editing Temporary Talkgroups

Available only if the **Temporary Talkgroups** check box is selected in the profile. If selected itself, the dispatcher will be able to create temporary talkgroups, add and remove radios from them, turn on and off temporary talkgroups, and delete them.

**Important**

Using temporary talkgroups requires licensing and configuration of the Dynamic Group Number Assignment feature in Capacity Max. For details, see [DGNA](#).

For information on configuring profiles, see the sections below.


## 1.6.1 Adding Profiles

Follow the procedure to add a new profile.

**Prerequisites:**

Open the **Settings** tab of SmartPTT Radioserver Configurator.

**Procedure:**

1. In the left pane of the **Settings** tab, right-click **Profiles**, and then click **Add**.  
The **Profile** pane appears.
2. *Optional:* In the **Name** field of the **Profile** pane, type the desired name of the profile.
3. At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.

**Postrequisites:**

To delete a profile, in the left pane of the **Settings** tab, right-click the desired profile name, and then click **Delete**.


## 1.6.2 Configuring Radios Filter

Follow the procedure to specify the radios available to dispatcher in SmartPTT Dispatcher. For details, see [Profiles](#).

**Prerequisites:**

- Open the **Settings** tab.
- Ensure at least one profile was added to SmartPTT Radioserver. For information on profile adding, see [Adding Profiles](#).

**Procedure:**

1. In the **Settings** tab, click **Profiles** → <name of the profile>.  
The **Profile** pane appears.
2. In the **Profile** pane, select the **Enabled** check box.  
The **Allowed radio ID's** field becomes available
3. In the **Allowed radio ID's** field, type the IDs of radios that will be allowed in this profile.
4. At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.



## 1.6.3 Configuring Dispatcher Capabilities

Follow the procedure to configure dispatcher capabilities in the profile. For information on check boxes, see [Profiles](#).

**Prerequisites:**

- Ensure the desired networks were added in the **Network** tab.
- Ensure the desired profile was added to SmartPTT Radioserver. For details, see [Adding Profiles](#).

**Procedure:**

1. In the **Settings** tab, click **Profiles** → <name of the profile>.  
The **Profile** pane appears.
2. *Optional:* In the Objects box, click **Up** or **Down** to move objects to the desired position.
3. Click **Expand All** to expand all nodes in the Objects box, or click the Expand button (  ) to expand the desired node.
4. In the Objects box of the **Profile** pane, select the desired check boxes, or select the check box next to the object name to select all check boxes.
5. At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.

**Postrequisites:**

- To set a custom ID for the object, see [Setting Custom IDs](#).
- To select the desired reserved control station for the object, see [Selecting Reserved Control Stations](#).


### 1.6.3.1 Setting Custom IDs

Follow the procedure to specify a custom ID for profile objects. For information on object IDs, see [Profiles](#).

**Prerequisites:**

Ensure the **ID: Not set** check box is available in the desired object tree.

**Procedure:**

1. Select the **ID: Not set** check box.  
The name of the check box changes to **ID: <number>**.
2. Double-click the **ID: <number>** check box.
3. In the box, enter the desired ID of the object.  
The new ID is set for the object.
4. At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.

### 1.6.3.2 Selecting Reserved Control Stations

Follow the procedure to select a reserved control station for an object if more than one reserved control stations are added to SmartPTT Radioserver. For information on reserved control stations, see [Profiles](#) and [Adding and Configuring NAI Control Stations](#).


**NOTE**

If only one reserved control station is added to SmartPTT Radioserver, perform the [Configuring Dispatcher Capabilities](#) procedure.

**Prerequisites:**

- Ensure at least two reserved control station were added for the object.
- Ensure the **Reserved Control Station: Not set** check box is available in the object tree.

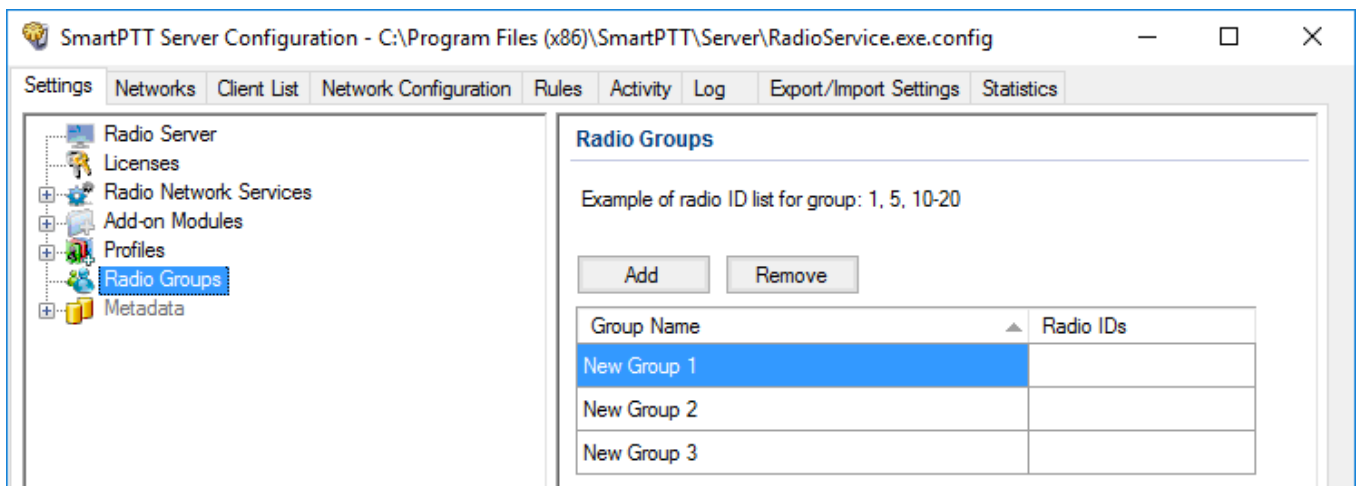
**Procedure:**

1. Select the **Reserved Control Station: Not set** check box.  
The check box changes to **Reserved Control Station: <control station name>** check box and **ID: Not set** check box changes to **ID: <control station Radio ID value>**
2. Double-click the **Reserved Control Station: <control station name>** check box.
3. From the list, select the desired reserved control station.
4. At the bottom of the **SmartPTT Server Configuration** window, click **Save (  )** to save changes.

## 1.7 Radio Groups

Radio groups (do not confuse with talkgroups) are used to perform various tasks:

- Organization of a dynamic bridging of private calls (this feature is configured in *SmartPTT Dispatcher*)
- Telephone calls management
- Management of the intervals for receiving GPS coordinates of particular set of radios



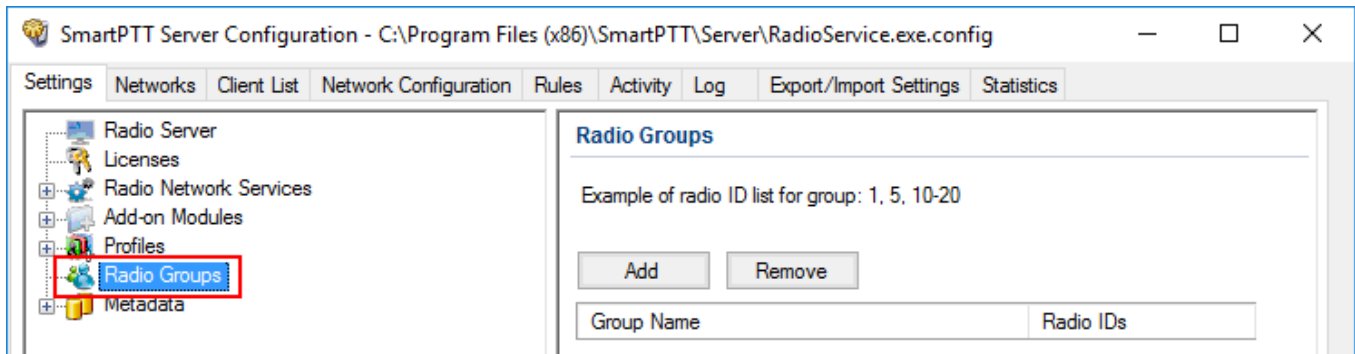


Configuration of radio groups includes:

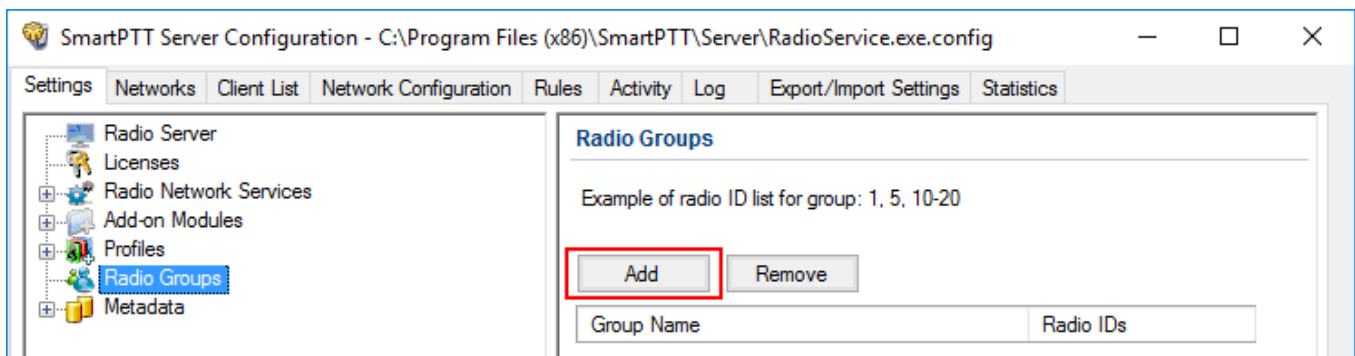
## Adding Radio Group

To add a radio group, follow these steps:

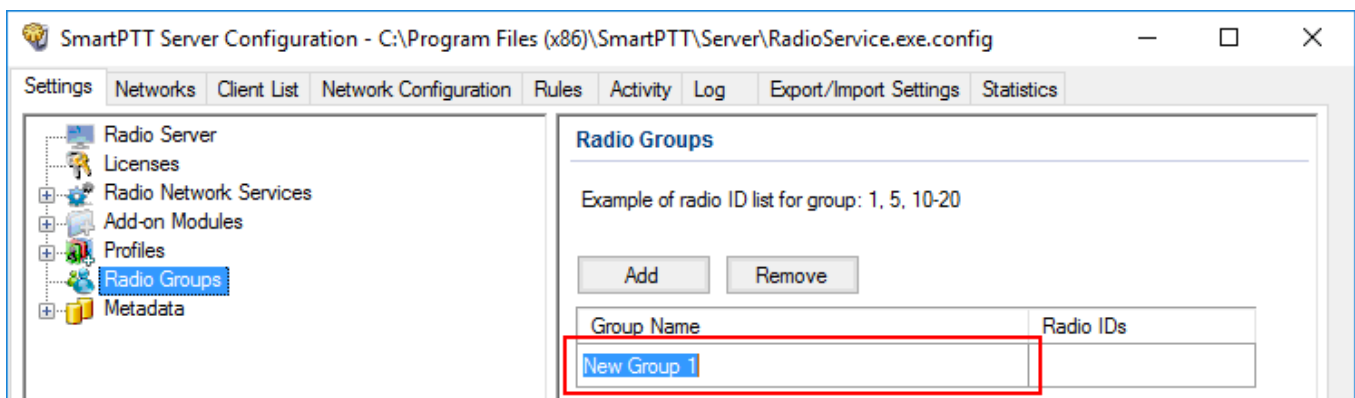
1. In the left pane of the **Settings** tab, click **Radio Groups**.



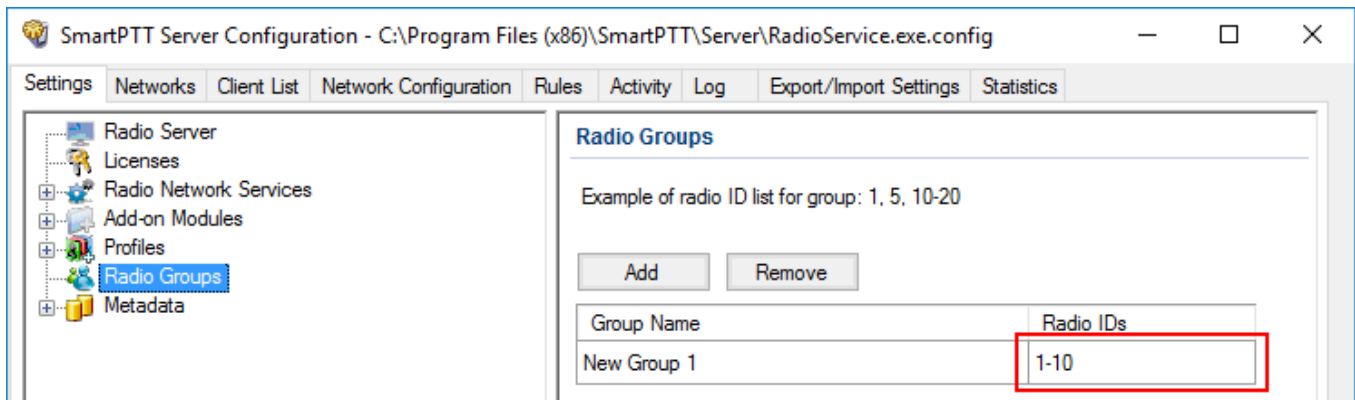
2. In the **Radio Groups** pane, click **Add**.



3. Change the name of the added group if needed.





4. Enter radio IDs which should be included to the group.



5. Add more groups if necessary.

#### NOTE

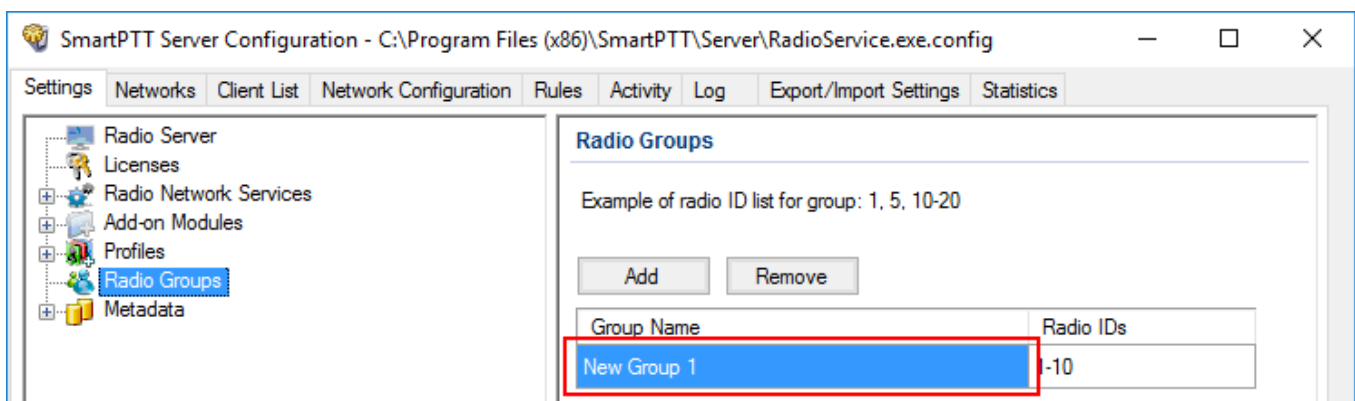
Different groups may include the same radio IDs.

6. At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.
7. Click **Restart** (  ) to restart SmartPTT Radioserver and apply changes.

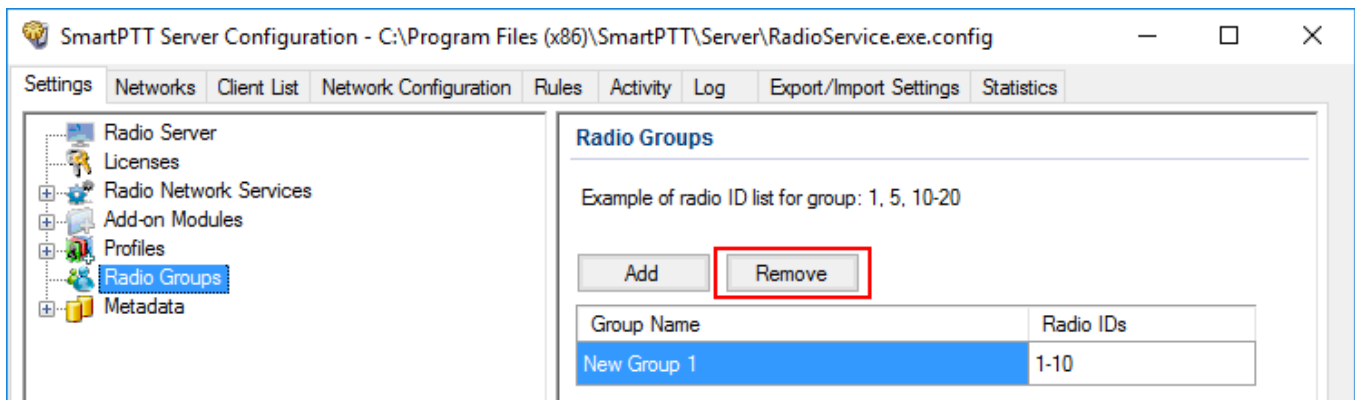
## Removing Radio Group



To remove a radio group, follow these steps:

1. In the left pane of the **Settings** tab click **Radio Groups**.
2. In the **Radio Groups** window click the name of the group that you want to remove.



3. Click **Remove**.



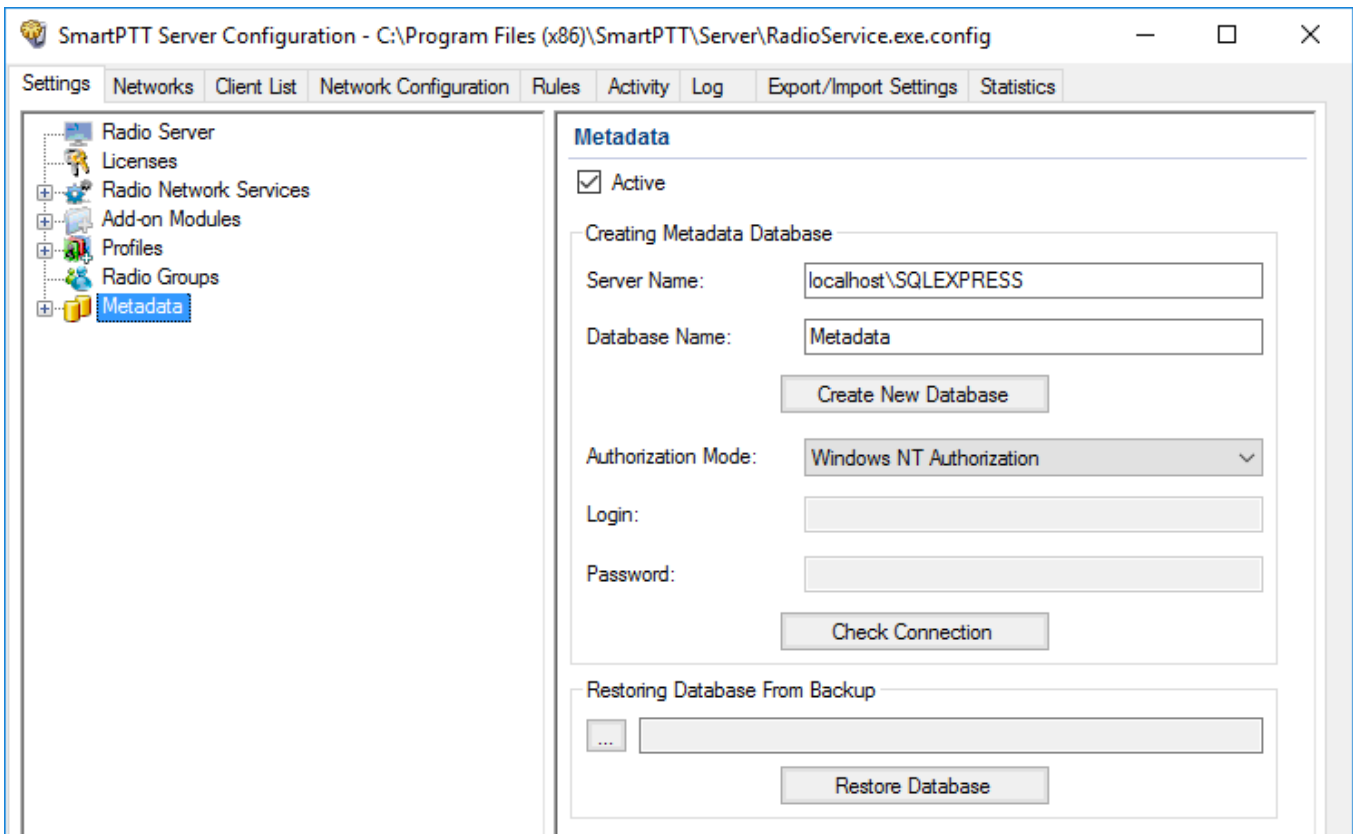
4. At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.
5. Click **Restart** (  ) to restart SmartPTT Radioserver and apply changes.

## 1.8 Metadata

To provide several dispatch consoles with one consistent list of radios it was decided to keep radio metadata, e.g., radio ID, radio name, and whether it supports GPS or not. This data appears in *SmartPTT Dispatcher* automatically as soon as the radioserver is up and running. This refers only to online radios. If a radio is offline and is added to the [Radios](#) list, it won't appear in *SmartPTT Dispatcher*.

To create the database for radios metadata, follow these steps:

1. Click **Metadata** in *SmartPTT Radioserver Configurator* and click **Active**.



2. In the **Server Name** and the **Database Name** fields, enter the needed names 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*).

3. 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.

4. Click **Check Connection**.

If authorization is successful, the message "The connection is established successfully!" appears. 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**.

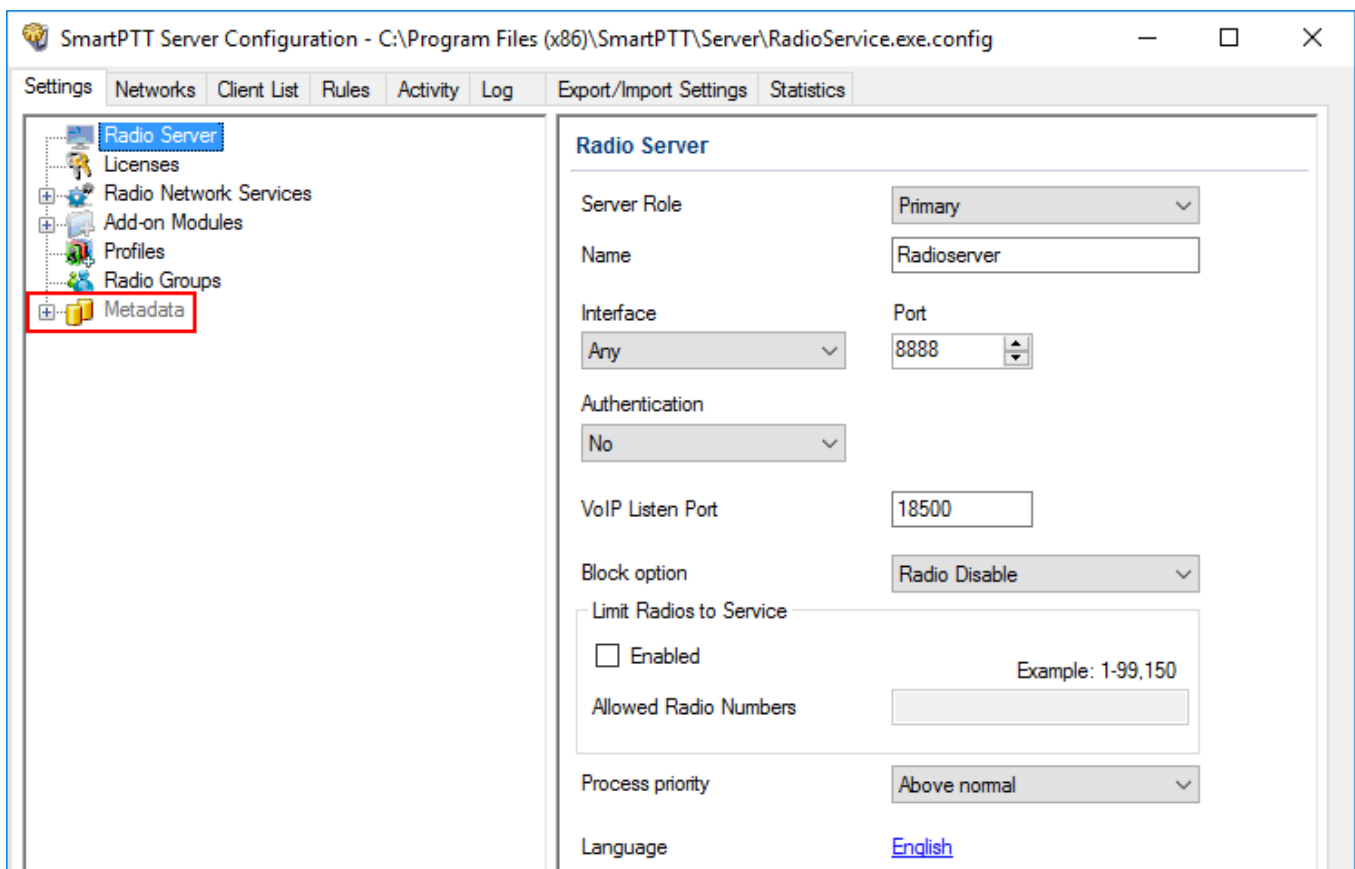
#### NOTE

To set up the auto backup of the database, go to the [Metadata Database Automatic Backup](#) window.

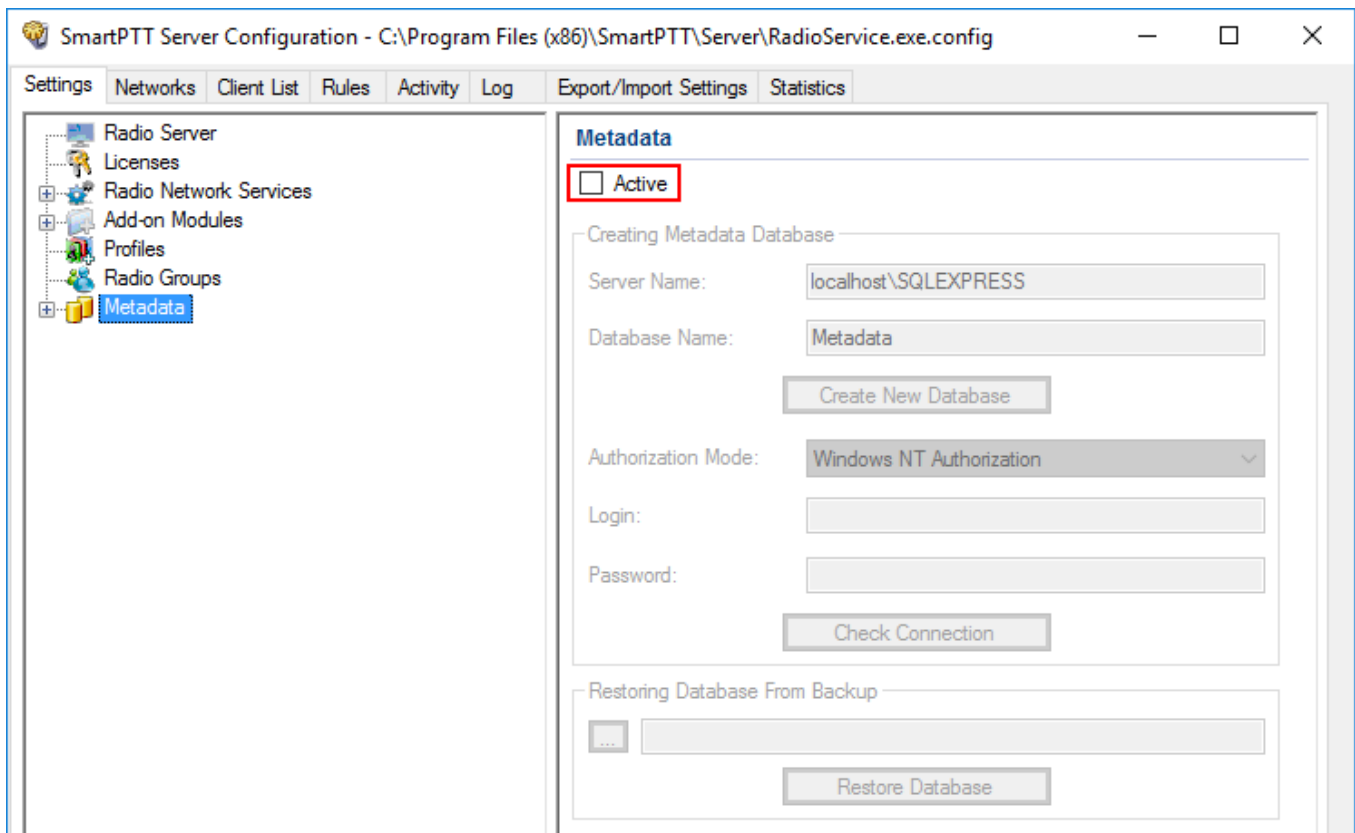
## Creating Database

To create metadata database, follow these steps:

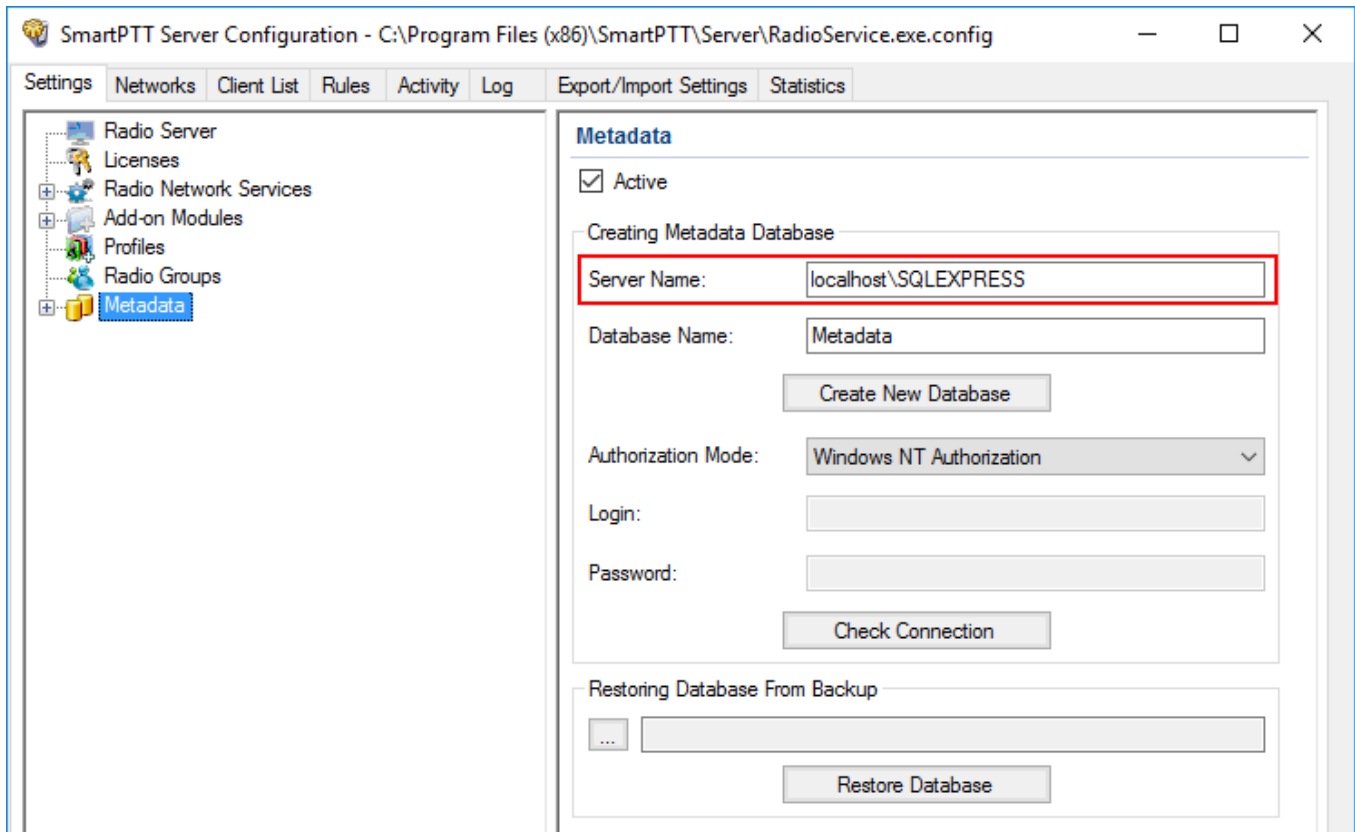
1. In the left pane of the **Settings** tab, click **Metadata**.



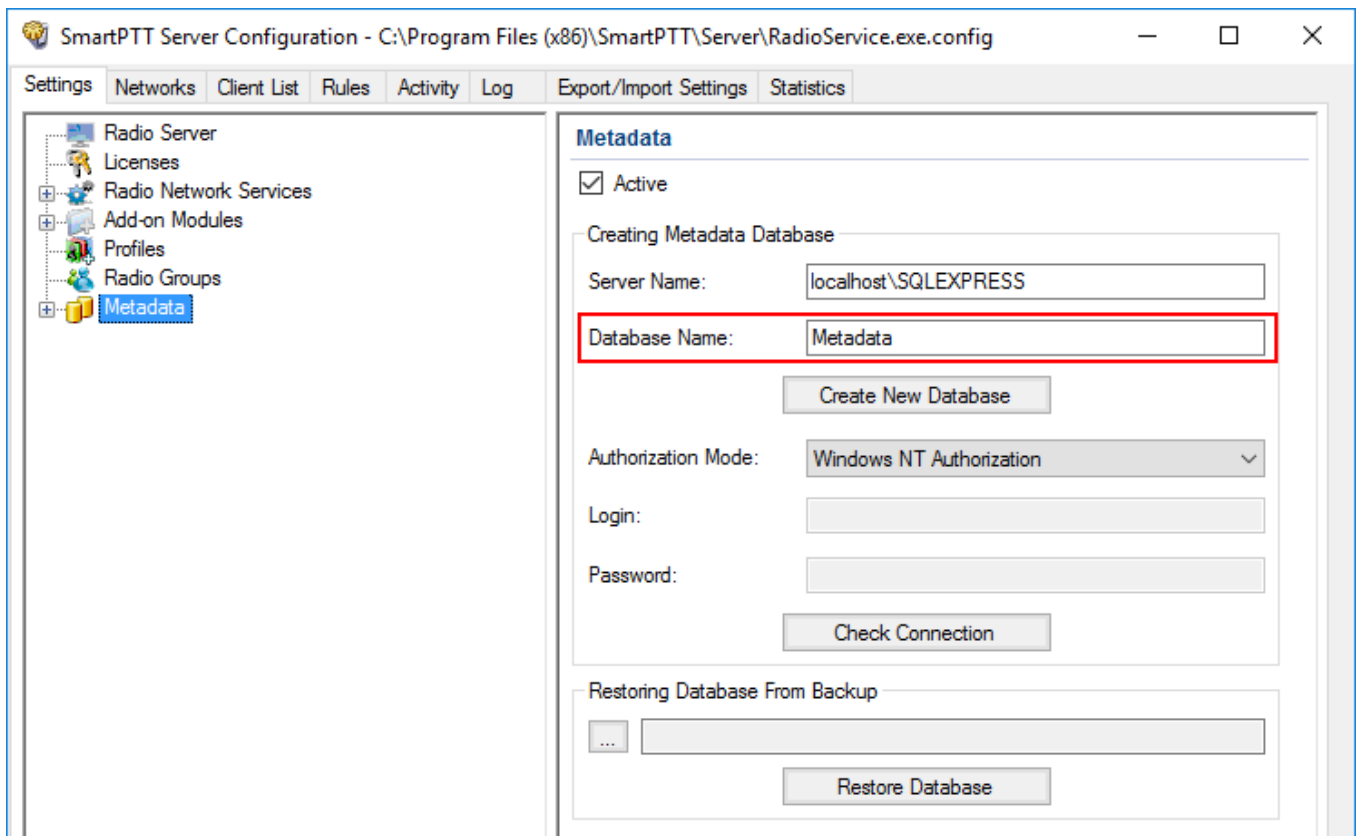
2. Make sure that the **Active** check box is selected in the **Metadata** pane.



3. In the **Server name** field, enter the name of the SQL Server. You can use either *<IP-address of your computer>\<Your SQL Server name>* or *localhost\<Your SQL Server name>* format:

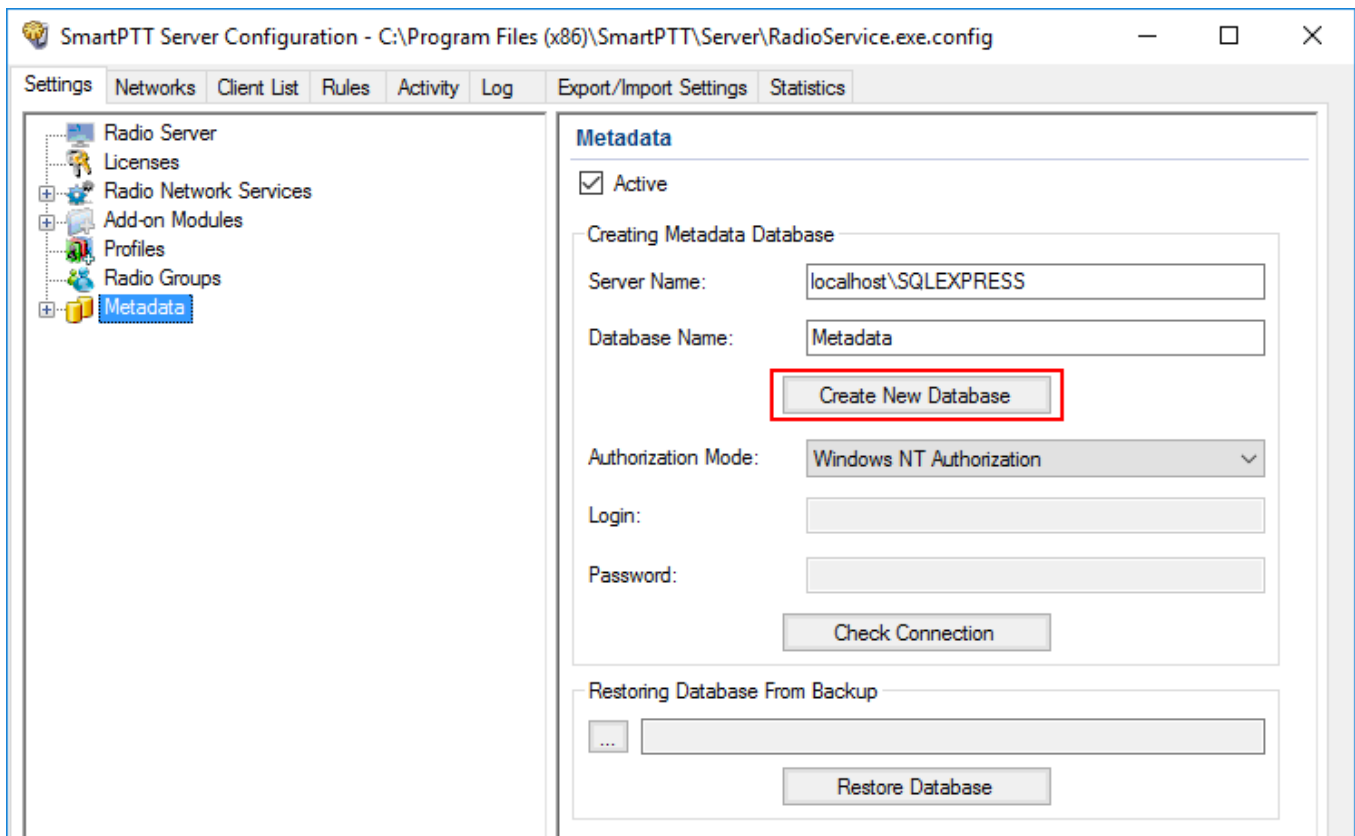


4. In the **Database Name** field, enter the name of a local metadata database.

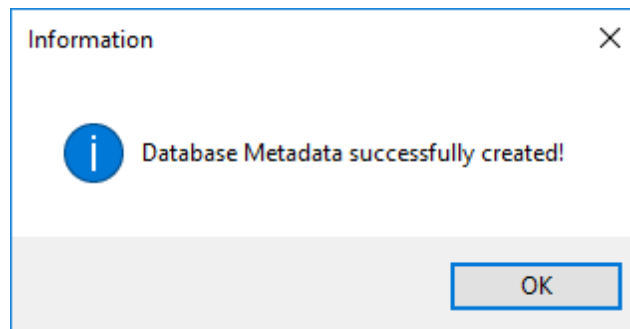






5. Click **Create New Database**.



If creation is successful, the following message appears.

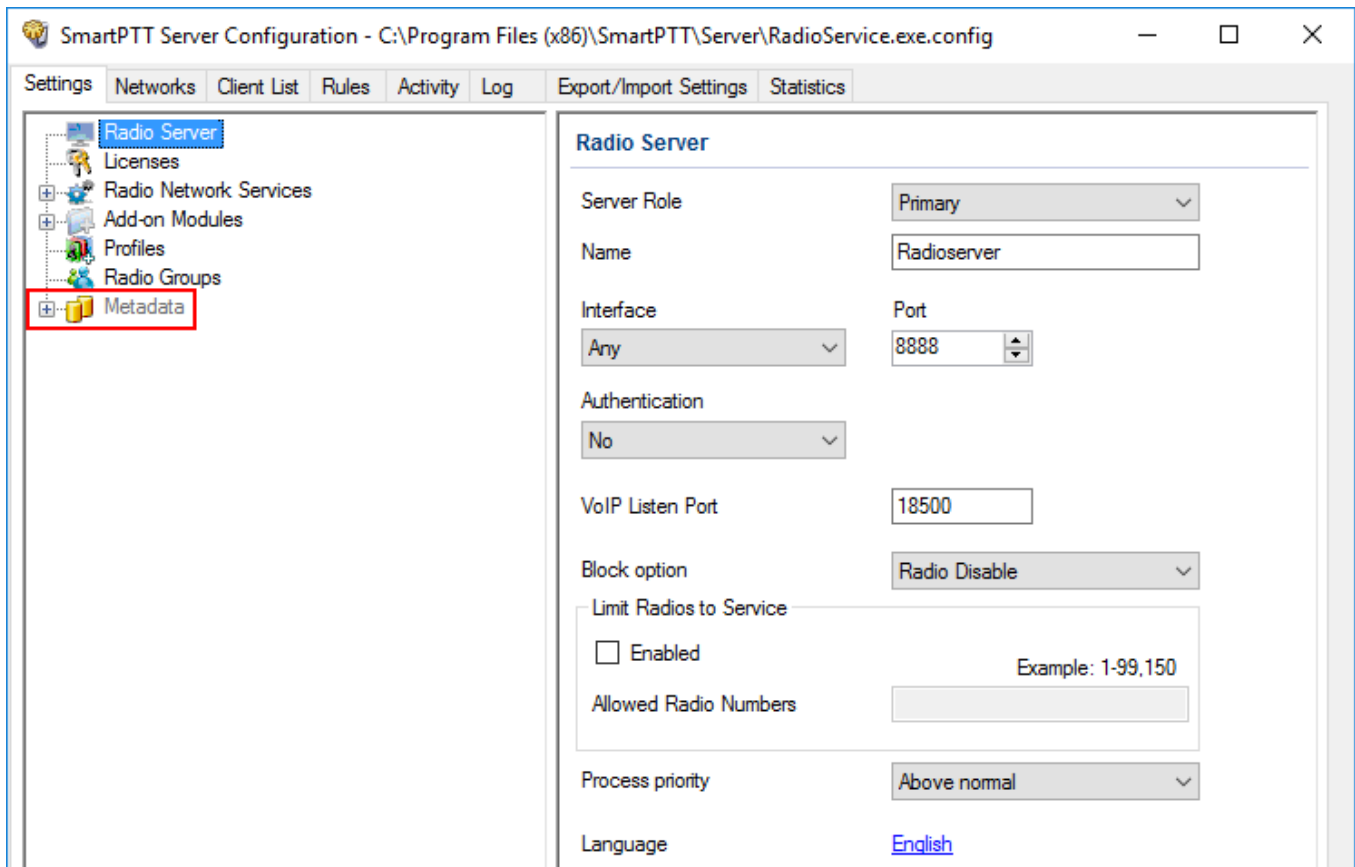


6. At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.
7. Click **Restart** (  ) to restart SmartPTT Radioserver and apply changes.

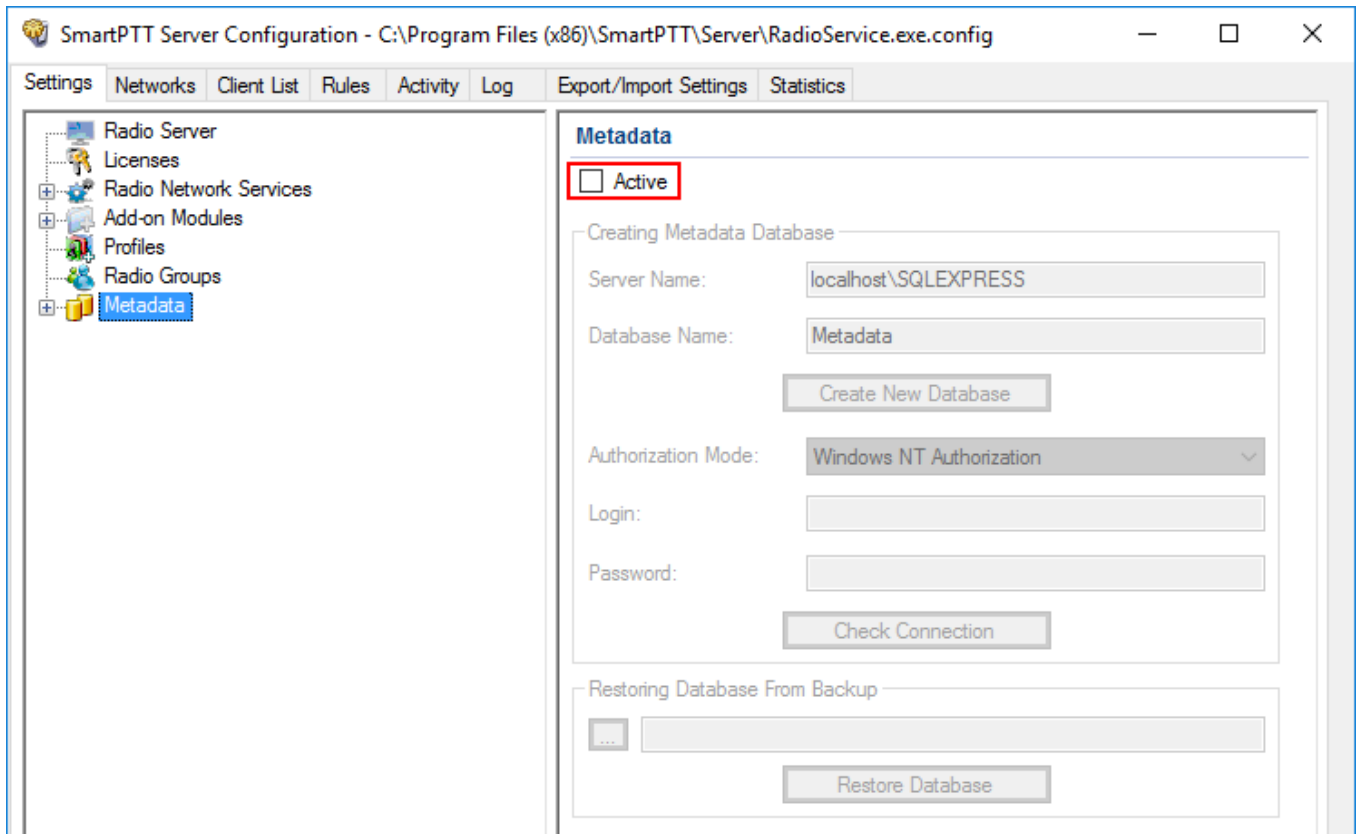
## Connecting Local Database

To connect to the local metadata database, follow these steps:

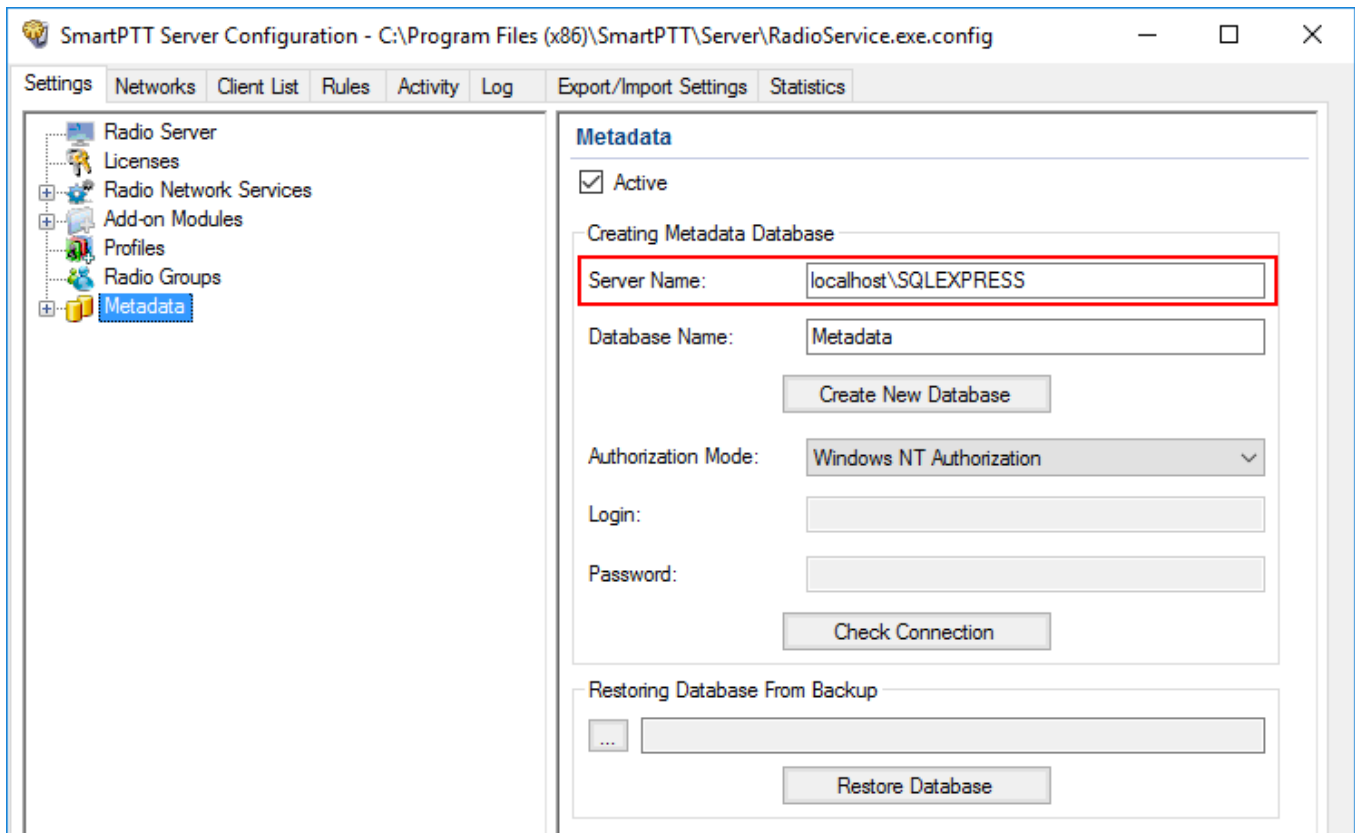
1. In the left pane of the **Settings** tab, click **Metadata**.



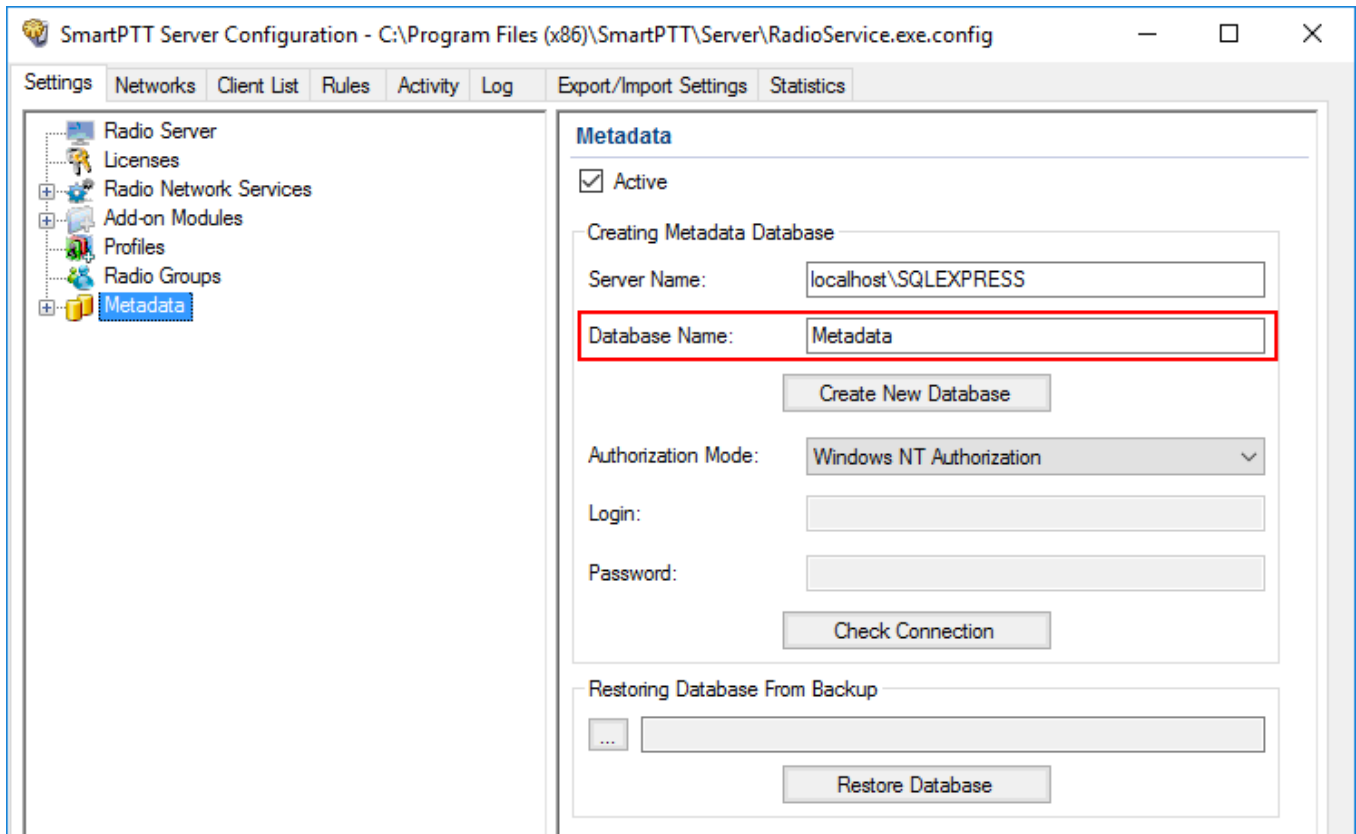
2. Make sure that the **Active** check box is selected in the **Metadata** pane.



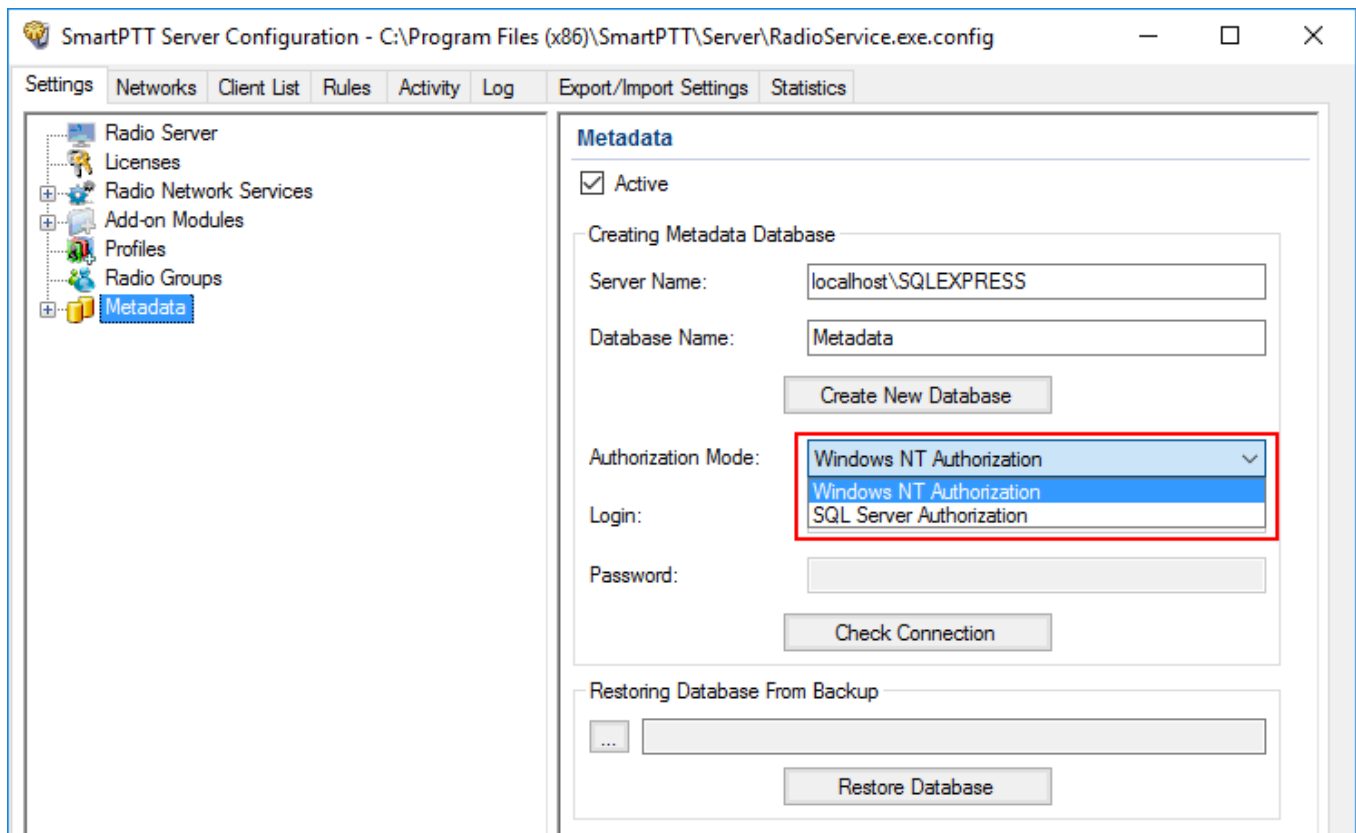
3. In the **Server name** field, enter the name of the SQL Server. You can use either **<IP-address of your computer>\<Your SQL Server name>** or **localhost\<Your SQL Server name>** format:



4. In the **Database Name** field, enter the name of a local Metadata database.



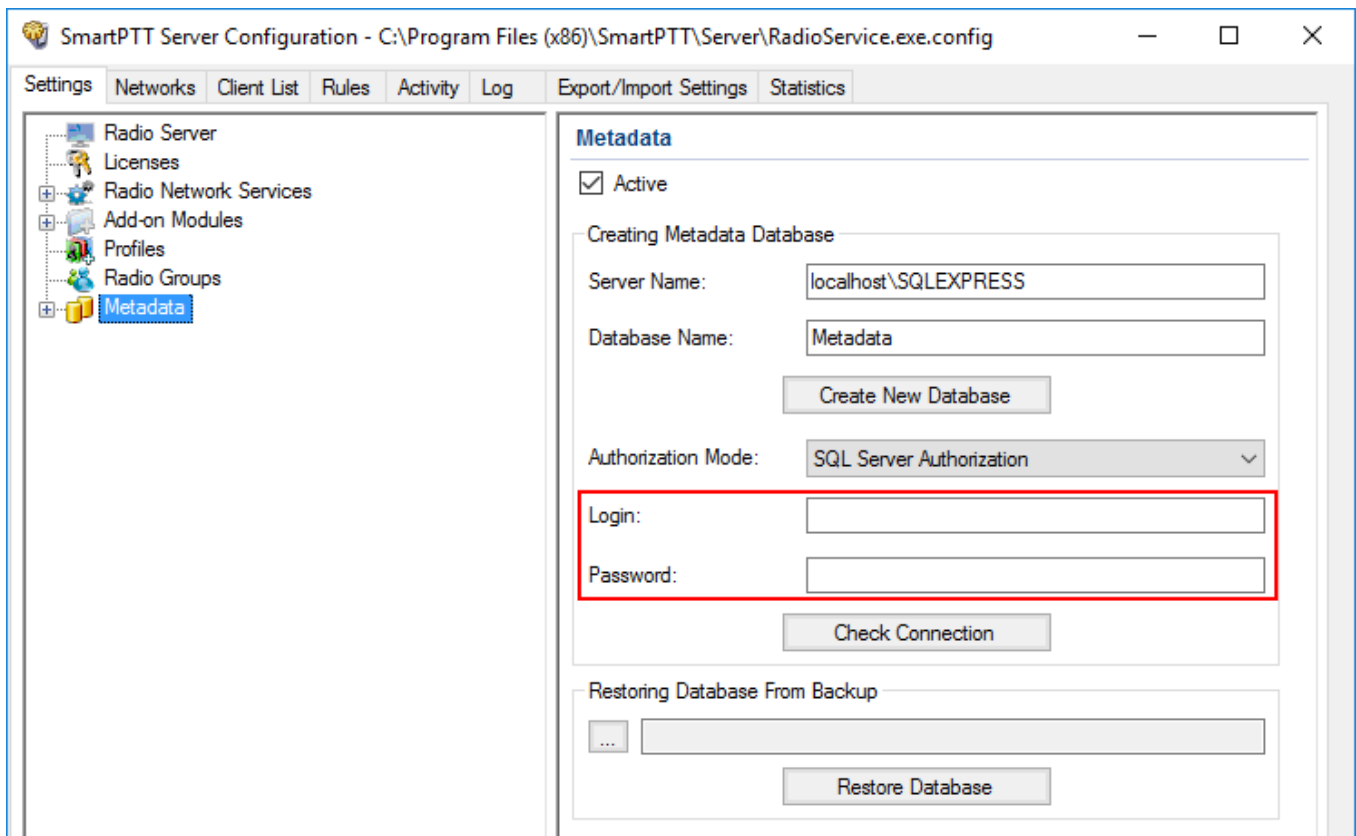
5. From the **Authorization Mode** list, select the needed authorization type:



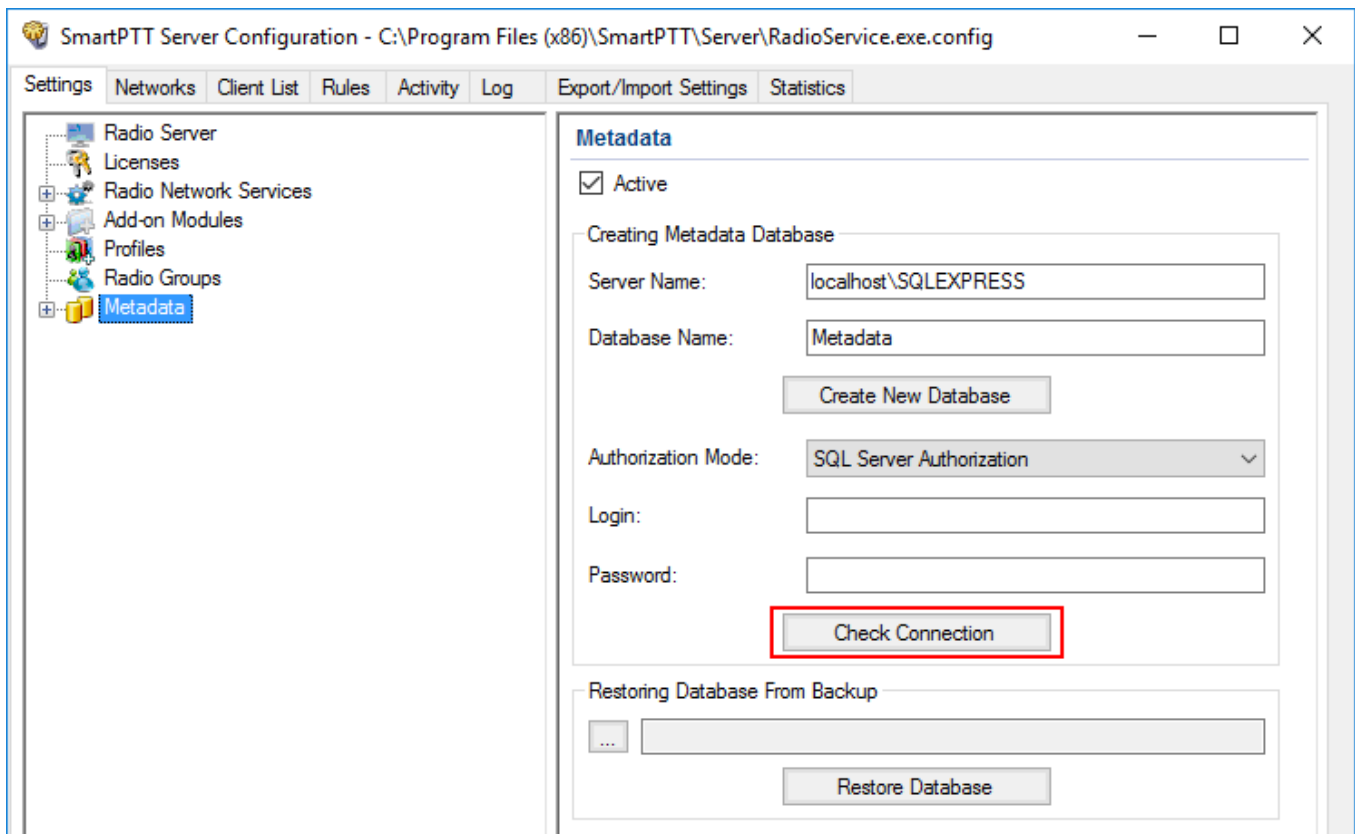
**Windows NT Authorization:** Select to use Windows account for connecting to the local SQL Server.

**SQL Server Authorization:** Select to use SQL Server account for connecting to the local SQL Server.

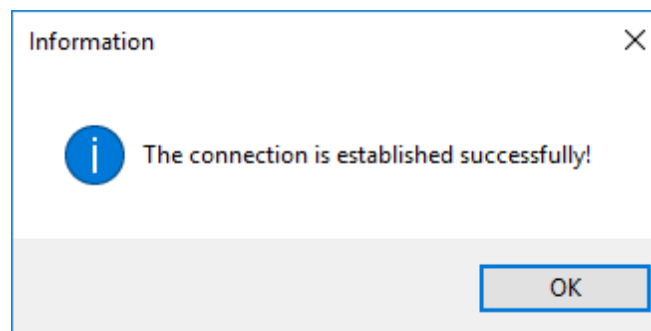
6. If **SQL Server Authorization** is selected, enter login and password.





## 7. Click **Check Connection**.



If the connection is successful, the following message appears.

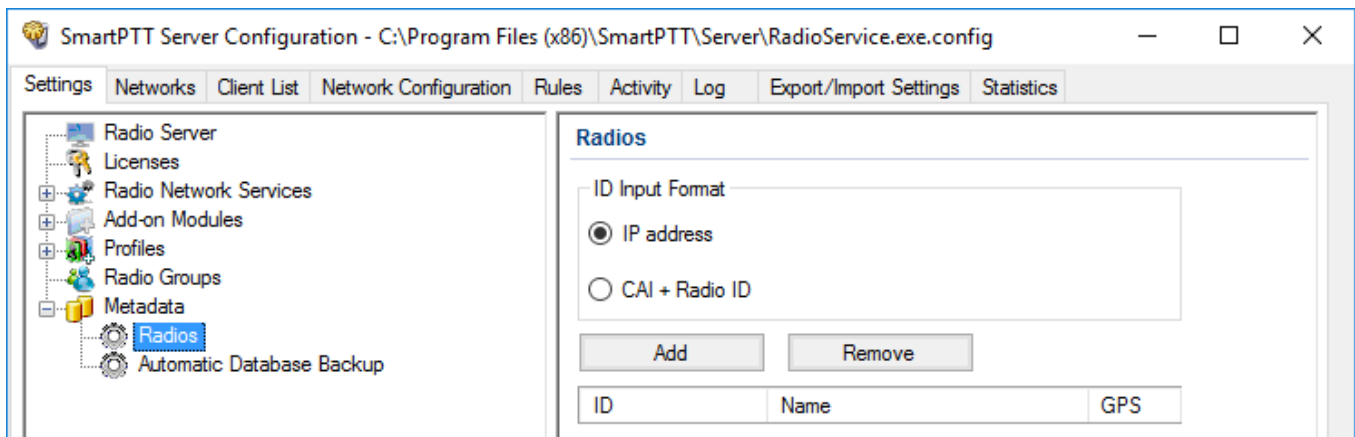


- At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.
- Click **Restart** (  ) to restart SmartPTT Radioserver and apply changes.



## 1.8.1 Radios

To add radio metadata, click **Radios**:



**ID Input Format:** Allows you to select the radio ID format to use.

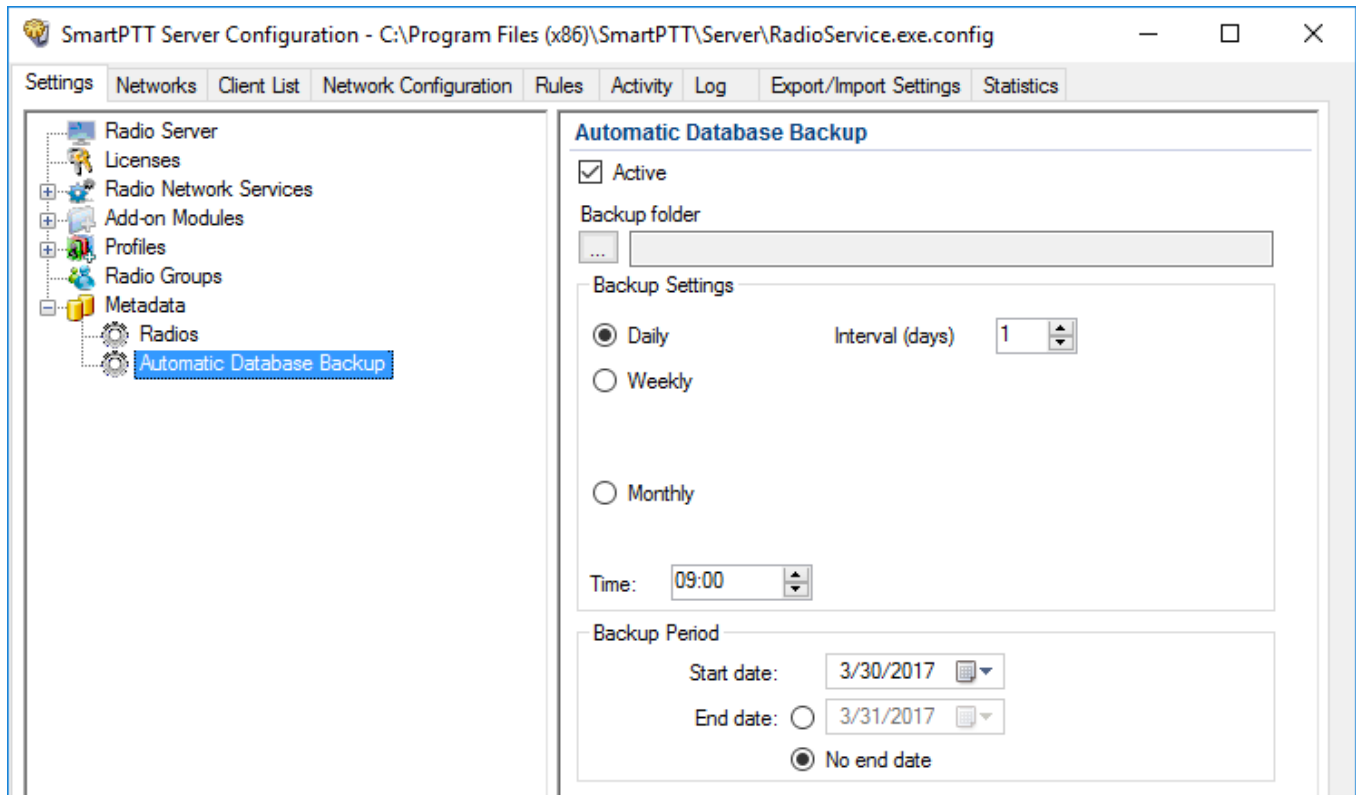
To add a radio to the list, follow these steps:

1. Click **Add**. The window for entering the radio ID opens up. The ID format depends on the selection in the **ID Input Format** section.
2. In the **Name** column, enter the name of the added radio.
3. In the **GPS** column, select whether the radio supports GPS.
4. To delete the radio from the database, select it in the list and click **Remove**.
5. Click **Save** to keep changes and restart the radioserver to see the newly added radios in the SmartPTT Dispatcher.

## 1.8.2 Metadata Database Automatic 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 to back up the metadata 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 check box 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 pm.).

**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.

---

## 2 Networks

This section contains the description of the following MOTOTRBO topologies and additional connections:

- [Control Stations](#)
- [Connect Plus](#)
- [NAI Systems](#)
- [Capacity Max Networks](#)

### 2.1 Control Stations

In the **Networks** tab of SmartPTT Radioserver Configurator, the following control stations are available:

- [MOTOTRBO Control Stations](#)
- [Analog Control Stations](#)
- [Remote MOTOTRBO Control Stations](#)
- [Remote I/O Control Stations](#)
- [APX Control Stations](#)

#### 2.1.1 MOTOTRBO Control Stations

SmartPTT is able to use MOTOTRBO control stations for direct communication (talkaround) with other radios. For optional use of control stations in the IP Site Connect, Capacity Plus, and/or Linked Capacity Plus radio systems, see the corresponding sections.

MOTOTRBO control stations connect directly to the SmartPTT Radioserver computer (locally) using the dedicated Elcomplus LLC cable. Maximum number of such control stations is 8.

#### **Important**

Control stations that are connected to the RG-1000e radio gateway must be configured as remote control stations. For details, see [Remote MOTOTRBO Control Stations](#).

In SmartPTT Radioserver Configurator, MOTOTRBO control stations appear under the **Control Stations** node alongside with other control stations.

SmartPTT Server Configuration - C:\Program Files (x86)\SmartPTT\Server\Server.exe.config

Settings Networks Client List Rules Activity Log Export/Import Settings Statistics

Control Stations  
 Control Station 1  
 Connect Plus  
 NAI Systems  
 Capacity Max Networks

### MOTOTRBO control station

Active

Name:

Network ID:

Control station IP address:

Local interface:

Radio ID:

CAI Network:

CAI Network for Groups:

Data Channel

Phone Calls

GPS

ARS Port:

TMS Port:

Telemetry Service Port:

TX Criteria:

Analog Call Hangtime, ms:

Options

GPS Transmission Mode:

5 Tone signaling

System	PTT ID Telegram Number
Sys0	1
Sys1	2
Sys2	3

In the right pane, the following settings are available:

**Active**

Blocks/unblocks the control station connection settings.

**Name**

Name of the control station that is used as the name of the corresponding element in SmartPTT Dispatcher and the name of the node. Maximum name length is 20 UTF-8 characters.

**Network ID**

Unique identifier of the control station in the SmartPTT database. The default value must not be changed.

**Important**

If you delete multiple networks before adding this one, request an assistance from the technical support center to determine the proper ID.

**Control station IP address**

IPv4 address of the MOTOTRBO control station (in dot-decimal notation) that appears in the list of computer network interfaces when the control station is connected to it.

**Important**

If multiple control stations are connected to the computer, ensure that their IP addresses are different.

**Local interface**

IP address that is assigned to the computer and used to access the control station only. The parameter is set automatically and cannot be changed.

**NOTE**

If the question mark appears in the field, the control station is not connected to the computer or not recognized.

**Radio ID**

Unique identifier of the control station that is set in its codeplug. For details, see the MOTOTRBO CPS embedded help.

**CAI Network**

Unique identifier of the Common Air Interface (CAI) network that is set in the control station codeplug. For details, see the MOTOTRBO CPS embedded help. Default value is 225.

### CAI Network for Groups

Unique identifier of the Common Air Interface (CAI) network for groups that is set in the control station codeplug. For details, see the MOTOTRBO CPS embedded help. Default value is 12.

### Data Channel

Blocks/unblocks the use of the control station in SmartPTT as the target channel for the location coordinates. Such control station does not appear in the SmartPTT Dispatcher application.

### Phone Calls

Blocks/unblocks the support of the phone calls for radios and telephone users over the control station.

#### Important

Phone calls require the Telephone Interconnect configuration in SmartPTT. For details, see [Phone Calls](#).

### GPS

Blocks/unblocks the location update support over the control station. When selected, radio may also provide an information on movements beyond the RF Coverage zone.

### ARS

Blocks/unblocks the information reception on radios presence in the network. In the field next to the check box, the port number of the control station appears that is used to receive the data. Default port number is 4005.

### TMS

Blocks/unblocks text messaging between radios and dispatchers over the control station. In the field next to the check box, the port number of the control station appears that is used to receive and transmit the data. Default port number is 4007.

#### Important

If the **TMS** check box is cleared, both text messages and job tickets will be unavailable in SmartPTT. For more information on job tickets, see "Job Tickets" in *SmartPTT PLUS Dispatcher User Guide*.



### Telemetry Service

Blocks/unblocks telemetry data acquisition over the control station and telemetry commands provision. In the field next to the check box, the port number of the control station appears that is used to receive and transmit the data. Default port number is *4008*.

#### NOTE

Telemetry Service is not related to SmartPTT SCADA functionality in SmartPTT.

### TX Criteria

Condition of the outgoing transmission initiation over the control station that implies interruption. If the control station is configured to start transmissions only when no other activity occurs on the channel, the *Channel Free* option must be selected. If the control station is configured to notify other radios on transmission interruption, the *Tx Interrupt* option must be selected. If the control station is configured to initiate transmissions whether the channel is busy or not, the *Always* option must be selected.

#### NOTE

SmartPTT does not support color codes as criteria of interruption.

### Analog Call Hangtime

Maximum time interval between voice transmissions on analog channels that will be considered as transmissions within the same call. Such transmissions will be logged with the single entry in SmartPTT logs and will be recorded to the single audio file.

### GPS Transmission Mode

Form of the location coordinates provided to SmartPTT Radioserver. If all digital channels support CSBK data and enhanced GNSS, the *Enhanced CSBK* option must be selected. If all digital channels support CSBK data, the *CSBK* option must be selected. Otherwise, the *Data* option must be selected.

#### NOTE

The selected mode determines the minimum location update intervals for radios available over the control station. For details, see [Location Service](#).

The **5 Tone signaling** area provides the Select 5 radio signaling settings. They are necessary only if the control station is used in analog radio systems where this signaling is used. The area contains the table with 5-tone messages (telegrams). Above the table, the following elements are available:

### 5 Tone Signaling

Blocks/unblocks the 5-tone signaling settings.

#### Important

In SmartPTT, 5-tone signaling is not supported for control stations based on Motorola's radios which are currently outdated.

#### Add

Adds a new entry to the table.

#### Delete

Removes the selected entry from the table.

The table consists of the following columns:

#### System

Name of the 5-tone system from the control station codeplug. For details, see the MOTOTRBO CPS embedded help.

#### PTT ID Telegram Number

Number (ID) of the 5-tone telegram that is set in the control station codeplug. For details, see the MOTOTRBO CPS embedded help.

## 2.1.1.1 Adding and Editing MOTOTRBO Control Stations

Follow the procedure to add a new or edit an existing connection to the local MOTOTRBO control station.

#### Prerequisites:

- Ensure that the control station is connected to the SmartPTT Radioserver computer using the dedicated Elcomplus LLC cable, connected to the power supply, and turned on.
- Ensure that SmartPTT has the license that unlocks the use of MOTOTRBO control station.

- From the control station codeplug, obtain the following information:
  - Radio ID, CAI network ID, and CAI Group ID.
  - Control station ports used to receive and transmit various data types.
  - Transmit interruption parameters.
  - Location provision settings that depend on data transmission settings on channel.

**Procedure:**

1. In SmartPTT Radioserver Configurator, open the **Networks** tab.
2. In the left pane, perform one of the following actions:

---

To add a new connection,

perform the following actions:

1. Right-click **Control Stations**.
2. Point to **Add**, and then select **MOTOTRBO control station**.

---

To edit an existing connection,

expand **Control Stations**, and then select the required control station.

---

The control station parameters appear in the right pane.

The screenshot shows the 'SmartPTT Server Configuration' application window. The 'Networks' tab is active, and 'Control Station 1' is selected in the left-hand tree view. The main pane displays the configuration for 'MOTOTRBO control station'. The 'Active' checkbox is checked. The 'Name' field contains 'Control Station 1'. The 'Network ID' is '1', the 'Control station IP address' is '192.168.10.1', and the 'Local interface' is '? 192.168.10.2'. The 'Radio ID' is '16448250', the 'CAI Network' is '12', and the 'CAI Network for Groups' is '225'. The 'Data Channel' checkbox is unchecked. The 'Phone Calls', 'GPS', 'ARS', 'TMS', and 'Telemetry Service' checkboxes are all checked. The 'ARS' port is '4005', the 'TMS' port is '4007', and the 'Telemetry Service' port is '4008'. The 'TX Criteria' is set to 'Channel Free'. The 'Analog Call Hangtime, ms' is '3000'. Under 'Options', the 'GPS Transmission Mode' is set to 'Data'. The '5 Tone signaling' checkbox is checked, and there are 'Add' and 'Delete' buttons above a table. The table has two columns: 'System' and 'PTT ID Telegram Number'. The rows are 'Sys0' with value '1', 'Sys1' with value '2', and 'Sys2' with value '3'. The 'Sys0' row is highlighted in blue.

System	PTT ID Telegram Number
Sys0	1
Sys1	2
Sys2	3

3. In the right pane, select the **Active** check box to unlock control station settings.

4. In the **Name** field, enter the control station name.
5. Leave the value in the **Network ID** field unchanged.
6. In the **Control station IP address** field, type the IP address of the local network interface associated with the connected control station.
7. Leave the value in the **Local interface** field unchanged.
8. Enter the control station identification parameters:
  - a. In the **Radio ID** field, enter the control station ID in the decimal notation.
  - b. In the **CAI Network** field, enter the ID of the CAI network that is set in the control station codeplug.
  - c. In the **CAI Network for Groups** field, enter the ID of the CAI network for groups that is set in the control station codeplug.
9. Select the **Data Channel** check box if the control station is used to receive location coordinates from other radion only.

### Important

All other parameters must be configured only if the **Data Channel** check box is cleared.

10. Select the **Phone Calls** check box to allow other radios to receive and initiate phone calls over the control station.
11. Configure data transmission over the control station:

---

To receive location updates and information on movements beyond the RF Coverage zones,

select the **GPS** check box.

### Important

SmartPTT assumes that the control station always receives location information to the port **4001**.

---

To receive information about radio presented in the radio network,

perform the following actions:

1. Select the **ARS** check box.
  2. On the right of the check box, in the field, enter the port number used to receive the data.
-

To support text messages and job tickets in the radio network,

perform the following actions:

1. Select the **TMS** check box.
2. On the right of the check box, in the field, enter the port number used to receive and transmit the data.

To receive telemetry data and send telemetry commands,

perform the following actions:

1. Select the **Telemetry Service** check box.
2. On the right of the check box, in the field, enter the port number used to receive and transmit the data.

12. From the **TX Criteria** list, select one of the following options:

If the control station is configured to transmit only when no other transmissions is detected over the radio channel,

select *Channel Free*.

If the control station is configured to notify other radios on transmissions interruption,

select *Tx Interrupt*.

If the control station is configured to completely ignore other transmission over the radio channel,

select *Always*.

**Important**

SmartPTT does not support color code criteria for outgoing transmissions.

13. In the **Analog Call Hangtime** field, enter the maximum time interval between transmissions over analog channels that will be considered as transmissions within the same call in SmartPTT.

14. From the **GPS Transmission Mode** list, select one of the following options:

If all the digital channels support both CSBK data and enhanced GNSS,

select *Enhanced CSBK*.


---

If all the digital channels support CSBK data, and do not support Enhanced GNSS, select *CSBK*.



---

If digital channels have different settings, select *Data*.

---

15. If you are using the control station in analog radio systems with 5-tone signaling, in the **5 Tone signaling** area, configure 5-tone telegrams. For details, see [Adding and Editing 5-Tone Telegrams](#).
16. To save changes, at the bottom of the SmartPTT Radioserver Configurator window, click **Save Configuration** (  ).

**Postrequisites:**

- Configure groups. For details, see [Adding and Editing Remote MOTOTRBO Groups](#).
- Configure control station channels. For details, see [Adding and Editing MOTOTRBO Channels](#).
- Configure audio settings. For details, see [Configuring MOTOTRBO Audio Settings](#).
- To apply changes immediately, at the bottom of the SmartPTT Radioserver Configurator window, click **Start** (  ) or **Restart** (  ).

## 2.1.1.2 Adding and Editing 5-Tone Telegrams


Follow the procedure to add a new or edit an existing 5-tone telegrams that were configured in the control station.

**Prerequisites:**


- From the control station codeplug, receive system names and telegram numbers (IDs) created intentionally for the 5-tone radio signaling. To obtain the information, use the compatible MOTOTRBO CPS application.
- Add the MOTOTRBO control station. For details, see [Adding and Editing MOTOTRBO Control Stations](#).

**Procedure:**

1. In SmartPTT Radioserver Configurator, open the **Networks** tab.
2. In the left pane, expand **Control Stations**, and then select **<your control station>**.  
The control station parameters appear in the right pane.
3. In the right pane, select the **5 Tone signaling** check box.
4. In the **5 Tone signaling** area, perform one of the following actions:

To add a new entry,	click <b>Add</b> .
To edit an existing entry,	proceed to the next step.
5. Configure the telegram:
  - a. In the **System** column, double-click the current system name, and then type the system name.
  - b. In the **PTT ID Telegram Number** column, double-click the current telegram number, and then type the telegram number.
6. To save changes, at the bottom of the SmartPTT Radioserver Configurator window, click **Save Configuration** (  ).

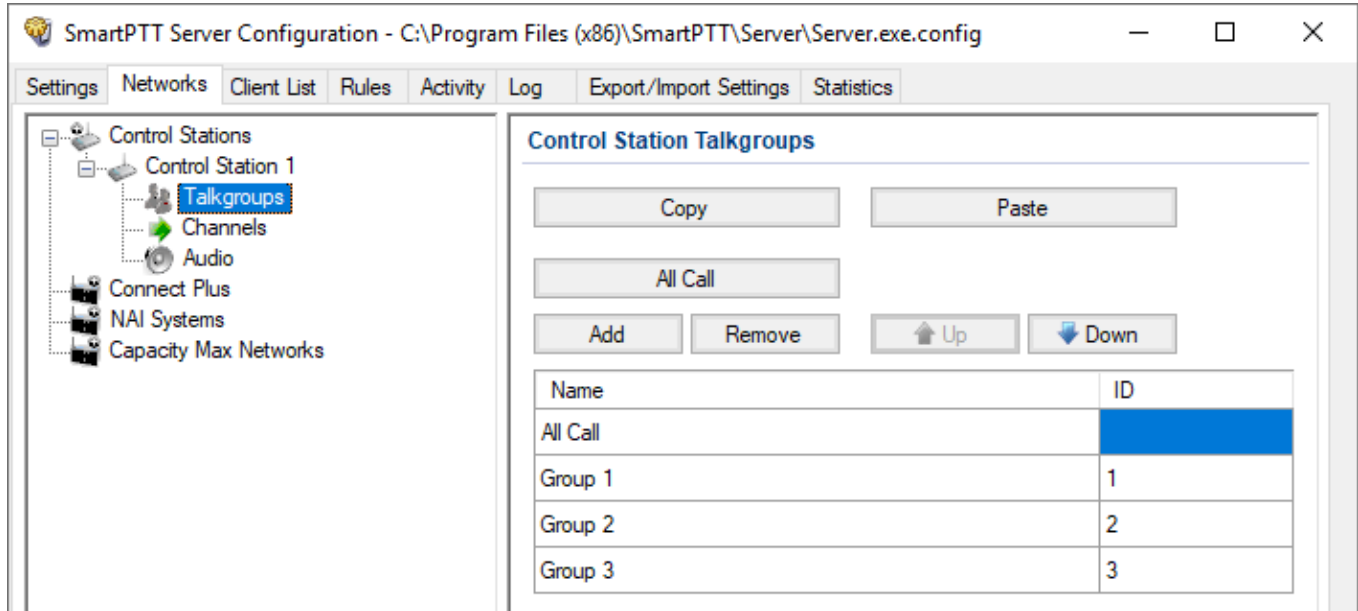
**Postrequisites:**

- Configure channels that use 5-tone telegrams as default contacts. For details, see [Adding and Editing MOTOTRBO Channels](#).
- To apply changes immediately, at the bottom of the SmartPTT Radioserver Configurator window, click **Start** ( ▶ ) or **Restart** (  ▶ ).



### 2.1.1.3 Talkgroups

The **Talkgroups** node provides the ability to configure talkgroups and the All Call that will be available for dispatchers over the control station.



In the right pane, the table with talkgroups and All Calls appears. Above the table, the following buttons are available:

#### Copy

Copies the content of the table to the SmartPTT Radioserver Configurator internal clipboard. Copied information is unavailable to paste to any other program except SmartPTT Radioserver Configurator.

#### Paste

Pastes the configured talkgroups from the SmartPTT Radioserver Configurator internal clipboard to the table.

#### All Call

Adds an All Call entry to the table. Only one entry of the kind can be added.

#### Add

Adds a new talkgroup entry to the table.

#### Remove

Removes the selected entry from the table.

**Up**

Moves the selected entry up in the table.

**Down**

Moves the selected entry down in the table.

The table consists of the following columns:

**Name**

Name of the talkgroup or All Call that will appear in SmartPTT Dispatcher instead of the ID.

**ID**

Unique identifier of the talkgroup.

**NOTE**

For All Call, no ID is shown.

### 2.1.1.3.1 Adding and Editing MOTOTRBO Groups

Follow the procedure to add new or edit existing talkgroups and All Call entries that will be available to SmartPTT dispatchers.

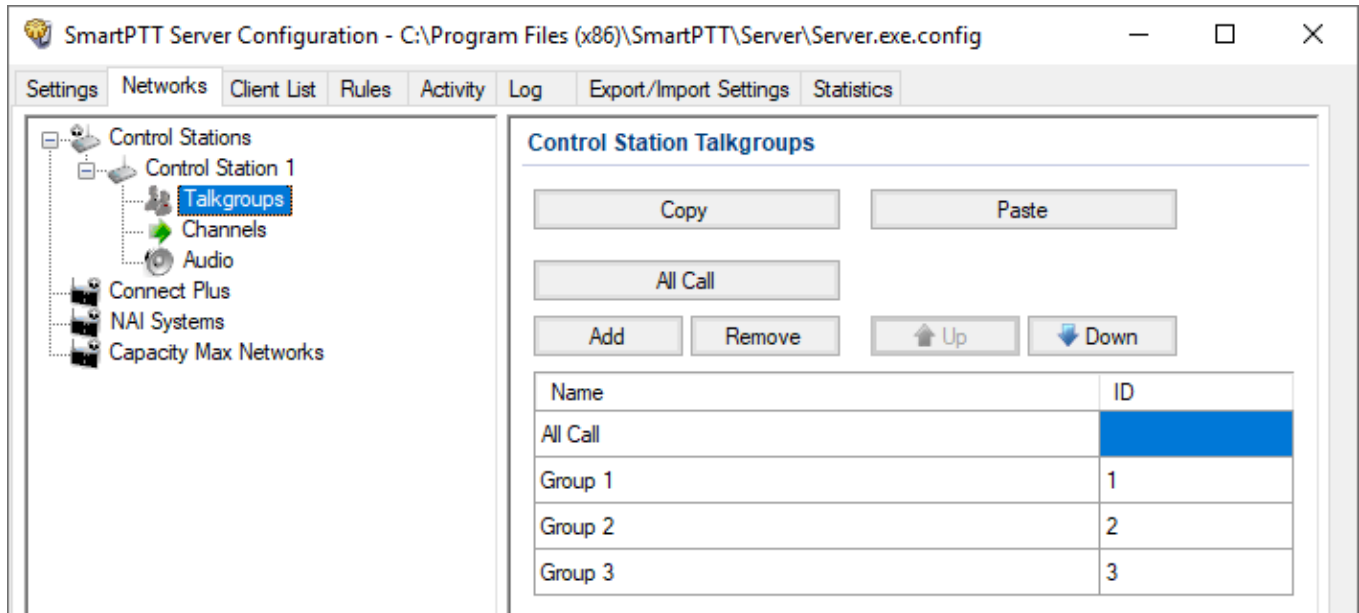
**Prerequisites:**

From the control station codeplug, obtain talkgroup IDs. To obtain the information, use the compatible MOTOTRBO CPS application.

**Procedure:**

1. In SmartPTT Radioserver Configurator, open the **Networks** tab.
2. In the left pane, expand **Control Stations** → **<your control station>**, and then select **Talkgroups**.

The list of groups appears in the right pane.



3. In the right pane, perform one of the following actions:

To add a new talkgroup,

click **Add**.

To add an All Call,

click **All Call**.

To edit an existing entry,

proceed to the next text.


4. In the table, in the required entry, perform the following actions:

- a. In the **Name** column, double-click the current name, and then type the required name.
- b. In the **ID** column, double-click the current Talkgroup ID, and then enter the required ID.



**NOTE**

SmartPTT does not show the All Call ID.

5. *Optional:* Using **Up** and **Down** buttons, reorder entries in the table.

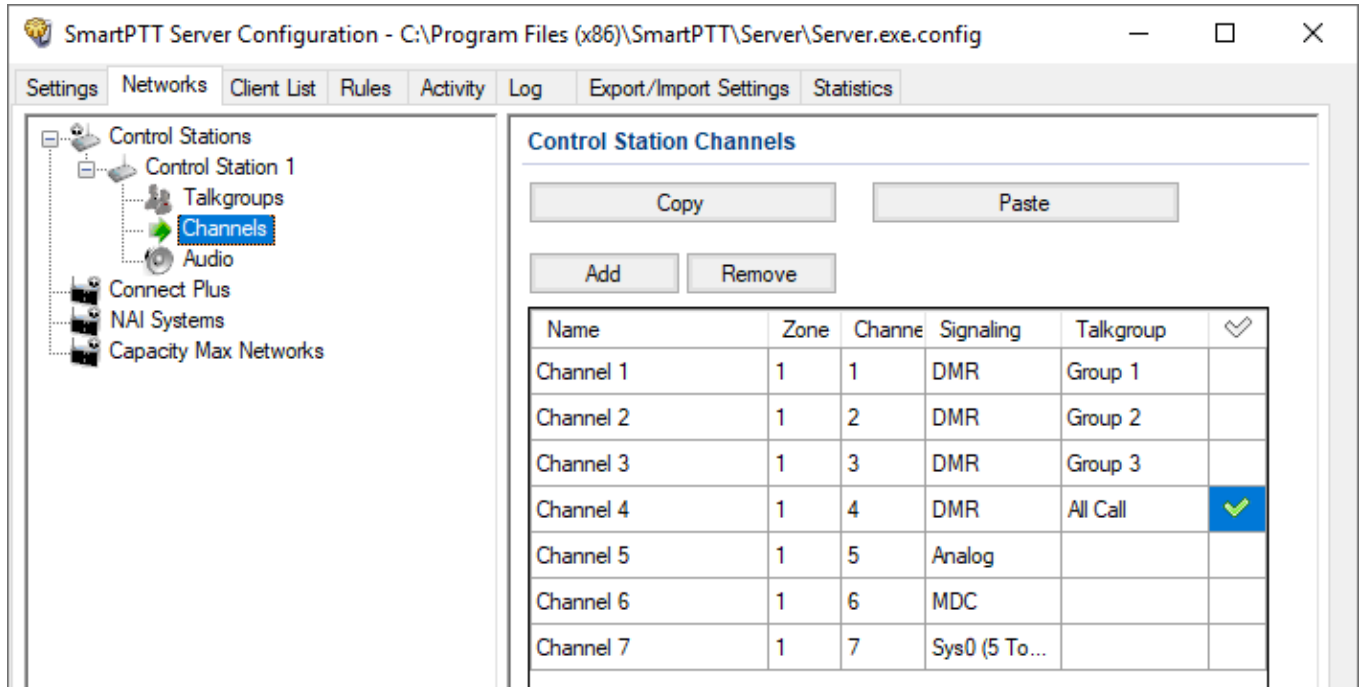
6. To save changes, at the bottom of the SmartPTT Radioserver Configurator window, click **Save Configuration** (  ).

**Postrequisites:**

To apply changes immediately, at the bottom of the SmartPTT Radioserver Configurator window, click **Start** (  ) or **Restart** (  ).

### 2.1.1.4 Channels

The **Channels** node provides the ability to configure control station channels that will be available to SmartPTT dispatchers in SmartPTT Dispatcher. SmartPTT supports digital and analog channels. For analog channels, the optional support of the MDC-1200 and Select 5 radio signaling is provided.



In the right pane, the table with channels is provided. Above the table, the following buttons are available:

**Copy**

Copies the content of the table to the SmartPTT Radioserver Configurator internal clipboard. Copied information is unavailable to paste to any other program except SmartPTT Radioserver Configurator.

**Paste**

Pastes the configured channels from the SmartPTT Radioserver Configurator internal clipboard to the table.

**Add**

Adds a new entry to the table.

**Remove**

Removes the selected entry from the table.

The table consists of the following columns:

**Name**

Channel name that appears in SmartPTT Dispatcher instead of the service channel information.

**Zone**

Identifier of the zone to which the channel belongs. Zone ID must be exactly the same as in the control station codeplug. For details, see the MOTOTRBO CPS embedded help.

**Channel**

Identifier of the channel in the zone. Channel ID must be exactly the same as in the control station codeplug. For details, see the MOTOTRBO CPS embedded help.

**Signaling**

Radio signaling that is used on each channel. For digital channel, the *DMR* option must be selected. For analog channels without radio signaling, the *Analog* option must be selected. For analog channels where MDC-1200 is used, the *MDC* option must be selected. For analog channels where 5-tone signaling is used, the required 5-tone telegram must be selected.

**Talkgroup**

Talkgroup or All Call that are used as default contact on the channel. The parameter must be specified for the digital channels only and it must be the same as in the control station codeplug. For details, see the MOTOTRBO CPS embedded help.

**Default Channel (  )**

Channel that is selected on the control station when SmartPTT Radioserver is started or restarted.

### 2.1.1.4.1 Adding and Editing MOTOTRBO Channels

Follow the procedure to add new or edit existing control station channels.

**Prerequisites:**

- From the control station codeplug, obtain the following information:
  - List of channels and their identification information (zone IDs and channel IDs).
  - Radio signaling type used on each channel.
  - Channel default contract (talkgroup ID or All Call).

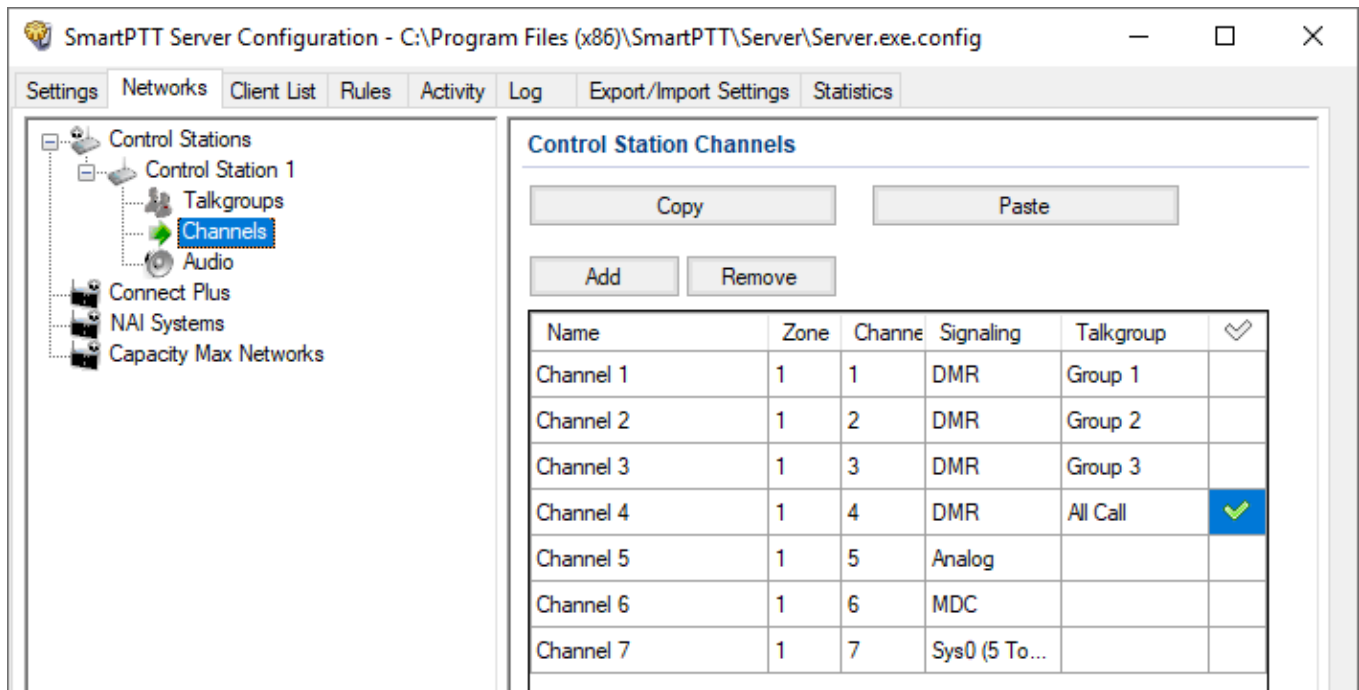
To obtain the information use the compatible MOTOTRBO CPS application.

- Ensure that talkgroups and All Calls are added to SmartPTT Radioserver Configurator. For details, see [Adding and Editing Remote MOTOTRBO Groups](#).
- If required, ensure that the necessary 5-tone telegrams are added to SmartPTT Radioserver Configurator. For details, see [Adding and Editing 5-Tone Telegrams](#).

**Procedure:**

1. In SmartPTT Radioserver Configurator, open the **Networks** tab.
2. In the left pane, expand **Control Stations** → **<your control station>**, and then select **Channels**.

The list of channels appears in the right pane.



3. In the right pane, perform one of the following actions:


---

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



---

To edit an existing entry, proceed to the next step.

---

4. In the table, in the required entry, perform the following actions:
  - a. In the **Name** column, double-click the current channel name, and then type a new name.
  - b. In the **Zone** field, double-click the current zone ID, and then type the required ID.
  - c. In the **Channel** column, double-click the current channel ID, and then type the required ID.
  - d. From the list in the **Signaling** column, select the radio signaling used on the radio channel or the required 5-tone telegram.
  - e. From the list in the **Talkgroup** column, select the talkgroup or All Call that is set as default contact on the channel.
5. After all channels are configured, in the **Default Channel** (  ) column, select the check box next to the channel that will be selected on the control station each time SmartPTT Radioserver is started or restarted.
6. To save changes, at the bottom of the SmartPTT Radioserver Configurator window, click **Save Configuration** (  ).

**Postrequisites:**

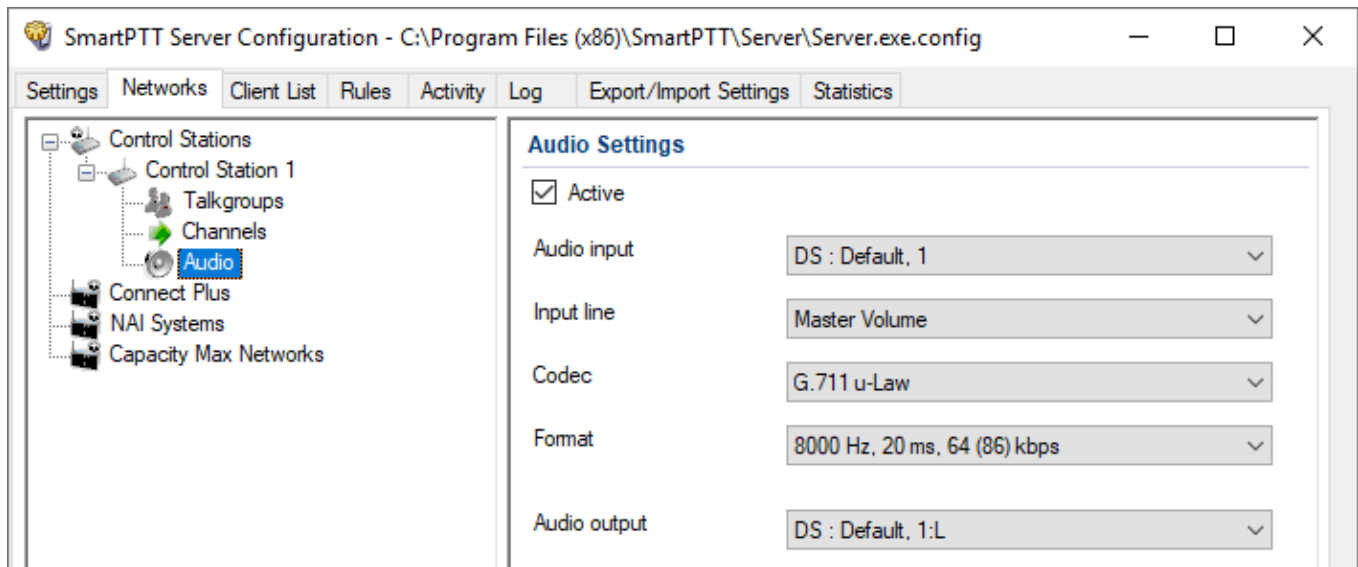
To apply changes immediately, at the bottom of the SmartPTT Radioserver Configurator window, click **Start** (  ) or **Restart** (  ).

### 2.1.1.5 Audio

The **Audio** node provides the ability to configure audio inputs and outputs that are utilized by the control stations. It also provides the ability to configure voice encoding and decoding parameters.

**Important**

Control stations do not support voice reception and transmission over USB.



In the right pane, the following settings are available:

### Active

Blocks/unblocks the control station audio settings. If the check box is cleared, only call indication will be available in SmartPTT Dispatcher.

### Audio input

Determines the computer audio input to which the control station cable is connected. List of audio inputs matches the list of microphone inputs recognized and configured in the computer.

### Input line

Parameter that determines speed and quality of the input sound processing. The parameter is unavailable for most sound cards and must be left unchanged.

### Codec

Determines the codec that is used to encode the voice received from the control station into the audio stream delivered to SmartPTT Dispatcher over the IP network.

### Format

Determines the codec options. Each option in the list results in the different audio quality and IP channel loading.

### Audio output

Determines the audio input to which the control station cable is connected. List of audio outputs matches the list of speaker outputs recognized and configured in the computer.



### 2.1.1.5.1 Configuring MOTOTRBO Audio Settings

Follow the procedure to edit audio settings required to receive voice from the control station and send dispatcher voice to it.

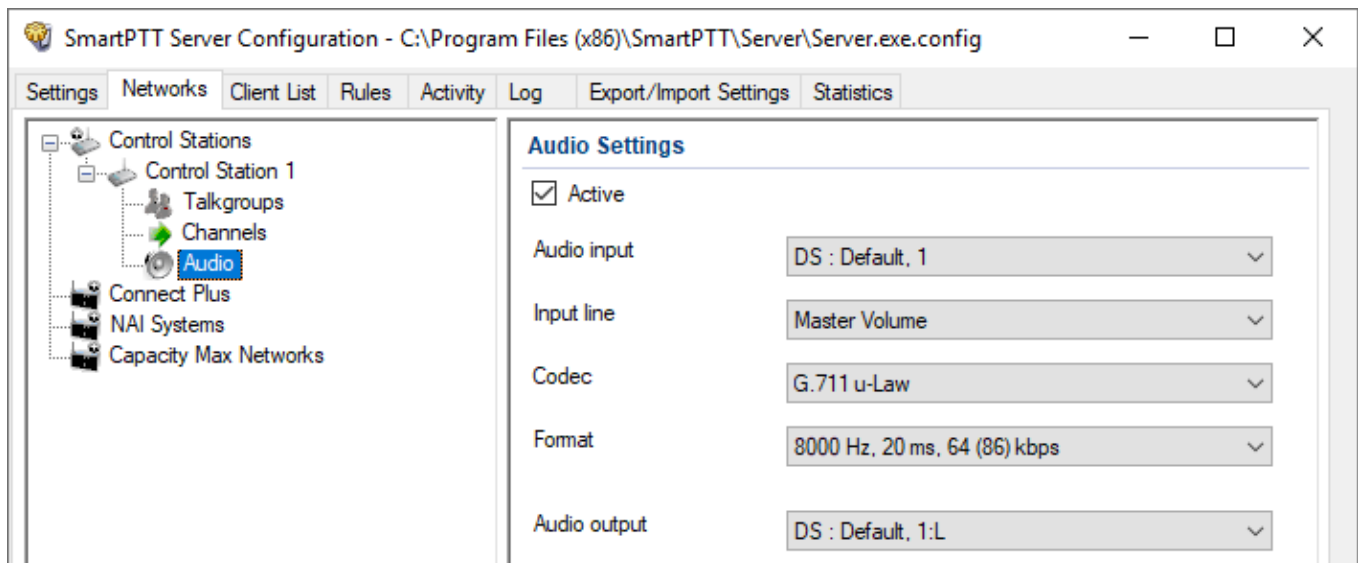
#### Prerequisites:

From the SmartPTT Radioserver computer, obtain the identification information on audio inputs and outputs used to connect the control station.


#### Procedure:

1. In SmartPTT Radioserver Configurator, open the **Networks** tab.
2. In the left pane, expand **Control Stations** → **<your control station>**, and then select **Audio**.



The audio settings appear in the right pane.



3. In the right pane, select the **Active** check box to unlock audio settings.
4. From the **Audio** input list, select the proper microphone input.
5. Leave the value in the **Input line** unchanged until you are using the sound card with multiple audio processing lines for each input.
6. From the **Codec** list, select the required codec. The recommended options are *G.711 u-Law* and *G.711 a-Law*.
7. From the **Format** list, select the codec parameters. The selected option will affect the IP channel loading between SmartPTT Radioserver and SmartPTT Dispatcher.

8. From the **Audio output** list, select the proper speaker output.
9. To save changes, at the bottom of the SmartPTT Radioserver Configurator window, click **Save Configuration** (  ).

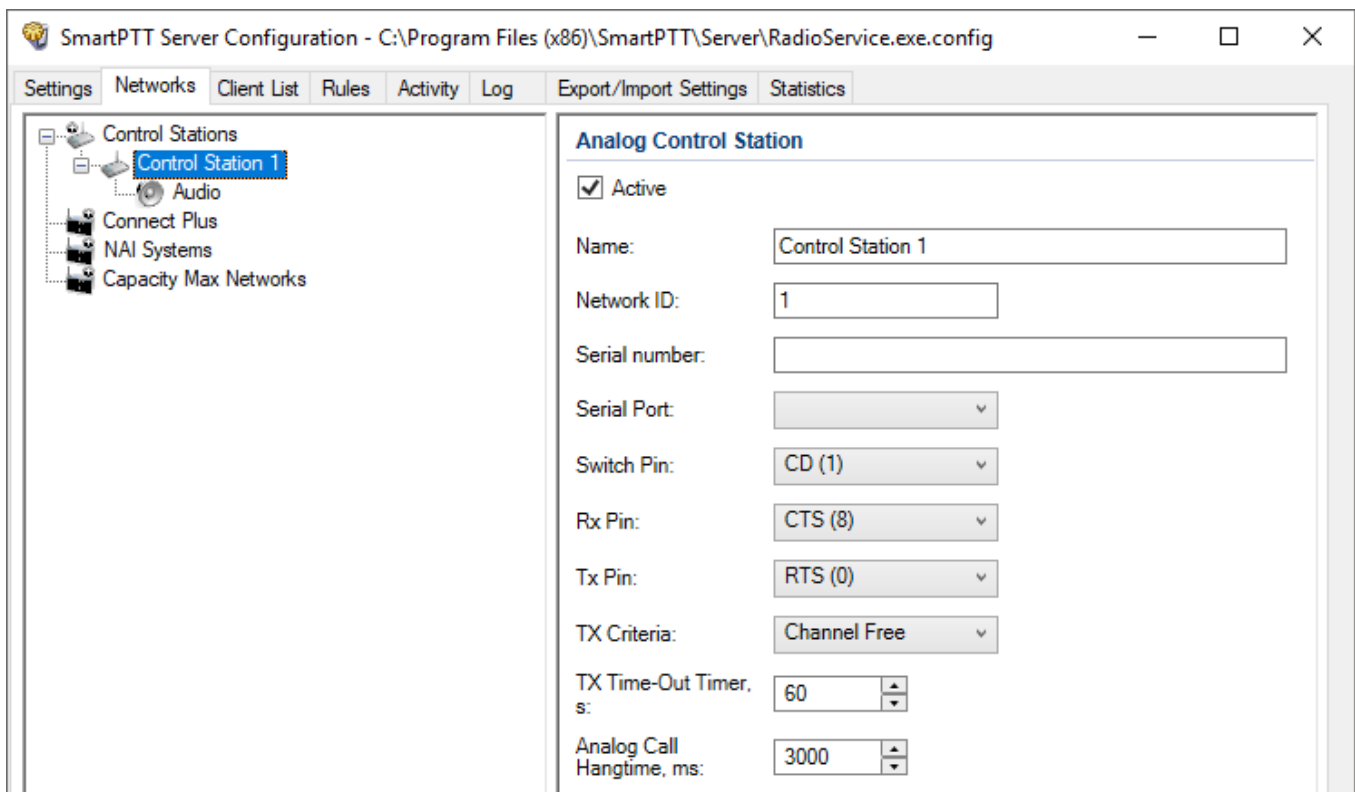
### Postrequisites:

To apply changes immediately, at the bottom of the SmartPTT Radioserver Configurator window, click **Start** (  ) or **Restart** (  ).

## 2.1.2 Analog Control Stations

Analog control stations connect to the computer serial port by using interface card.

To add an analog control station, right-click **Control Stations**, click **Add** → **Analog control station**.



The **Analog Control Station** pane provides the following elements:

### Active

Activates the control station.

**Name**

A control station name.

**Network ID**

A unique identifier of the control station system among other systems.

**Serial Number**

The control station serial number.

**Serial Port**

Provides the list of ports to which the control station is connected.

**Switch Pin**

Provides the list of incoming control signals. When the control station is switched, the value sets to 1 (< -3.0V). The default value usually does not require any changes.

**Rx Pin**

Provides the list of incoming control signals. When a signal carrier is registered on the channel, the value sets to 1. The default value usually does not require any changes.

**Tx Pin**

Provides the list of outgoing control signals. When a control station switches to transmit mode, the value sets to 1. The default value usually does not require any changes.

**NOTE**

Change the control signals displaying 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.

**Talkgroup name**

A name of a talkgroup. The default name is All Call, but you can change it.

**TX Criteria**

Provides the list of options determine when voice or data can be transmitted on the channel. You can select **Channel Free** (radio transmits only when a channel is idle) or **Always** values.

**TX Time-Out Timer**

Continuous radio transmission timeout. After this time the transmission is interrupted.

**Analog Call Hangtime**

Virtual hangtime is used for uniting analog calls into one. It prevents overloading the event log with too many records of analog calls. During this hangtime the channel is not reserved, any user can start transmitting.

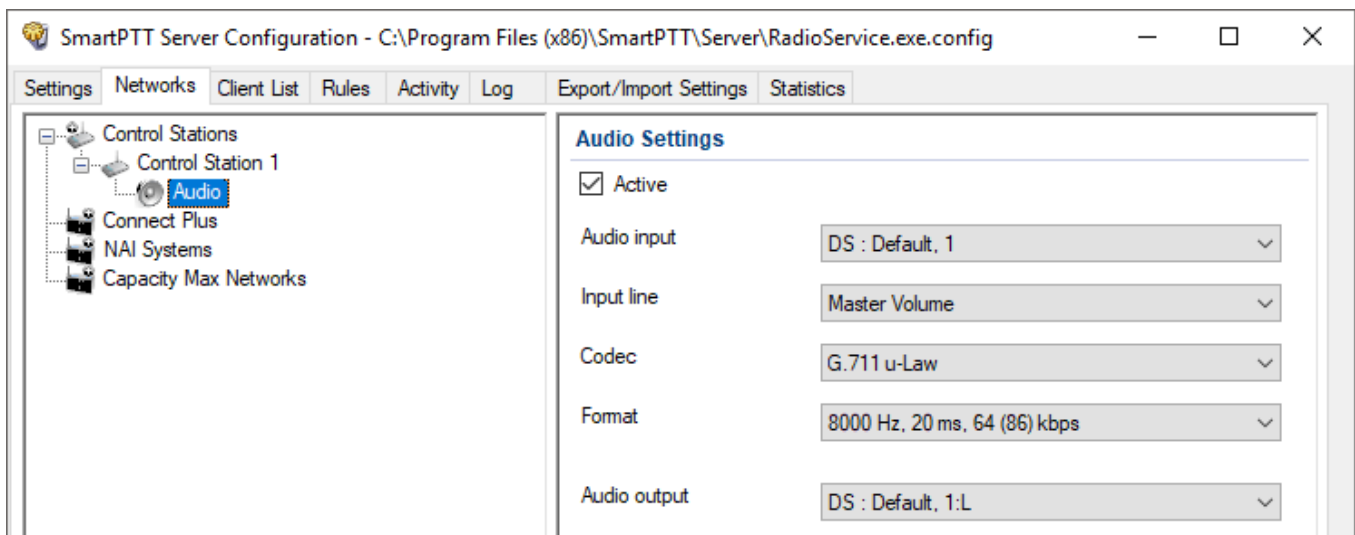
**NOTE**

In *SmartPTT Dispatcher* the operation of the analog control station is the same as for MOTOTRBO control stations in analog mode without signaling.

To delete the control station, right-click the control station name under the **Control Stations** node, and click **Delete**.

### 2.1.2.1 Audio

You can configure control station audio settings in the **Audio** node under the control station name.



In the **Audio Settings** pane, the following elements are available:

**Active**

Enables calls for a control station if it is used to transmit data only.

**Audio input**

Provides the list of input audio devices to which the control station audio output is connected.

**Input line**

Provides the list of audio mixer lines used for connections. The control station audio output can be connected to the line input of the audio device.

**Codec**

Provides the list of outgoing audio stream compression methods.

**Format**

Provides the list of sampling frequencies of an outgoing audio stream.

For example, the codec format *8000 Hz, 20 ms, 64 (86) kbps* contains the following parameters:

- *8000Hz*: Sampling rate
- *20 ms*: Frame size
- *64 kbps*: Voice data bit rate
- *86 kbps*: Full bit rate (required network bandwidth)

**Audio output**

Provides the list of audio devices to which the control station audio input is connected.

## 2.1.3 Remote MOTOTRBO Control Stations

SmartPTT is able to use remote MOTOTRBO control stations for direct communication (talkaround) with other radios. In SmartPTT, remote MOTOTRBO control stations are those that connected to the RG-1000e radio gateway and accessible over the IP network.

**Important**

Do not confuse remote control stations with regular control stations connected to SmartPTT Radioserver using the dedicated Elcomplus LLC cable. For details, see [MOTOTRBO Control Stations](#).

For optional use of control stations in the IP Site Connect, Capacity Plus, and/or Linked Capacity Plus radio systems, see the corresponding sections.

In SmartPTT Radioserver Configurator, remote MOTOTRBO control stations appear under the **Control Stations** node alongside with other control stations.

SmartPTT Server Configuration - C:\Program Files (x86)\SmartPTT\Server\Server.exe.config

Settings Networks Client List Rules Activity Log Export/Import Settings Statistics

Control Stations  
 Remote control station 1  
 Connect Plus  
 NAI Systems  
 Capacity Max Networks

### Remote MOTOTRBO Control Station

Active

Name: Remote control station 1

Network ID: 1

Control station IP address: 192.168.10.1 XCMP port: 30010

Local interface: Any

Radio ID: 16448250

CAI Network: 12

CAI Network for Groups: 225

Data Channel

Phone Calls

GPS

ARS Port: 4005

TMS Port: 4007

Telemetry Service Port: 4008

TX Criteria: Channel Free

Analog Call Hangtime, ms: 3000

Options  
 GPS Transmission Mode: Data

Specify local ports

XCMP: 1024

Audio: 1024

GPS: 1025

TMS: 1026

ARS: 1027

Telemetry Service: 1028

5 Tone signaling

Add Delete

System	PTT ID Telegram Number
Sys0	1
Sys1	2
Sys2	3

In the right pane, the following settings are available:

**Active**

Blocks/unblocks the control station connection settings.

**Name**

Name of the control station that is used as the name of the corresponding element in SmartPTT Dispatcher and the name of the node. Maximum name length is 20 UTF-8 characters.

**Network ID**

Unique identifier of the control station in the SmartPTT database. The default value must not be changed.

**Important**

If you delete multiple networks before adding this one, request an assistance from the technical support center to determine the proper ID.

**Control station IP address**

IPv4 address (in dot-decimal notation) provided by RG-1000e to connect the required control station.

**XCMP port**

Port number provided by RG-1000e to connect the required control station. The default port number is *30010*.

**NOTE**

Together, control station IP address and XCMP port identify the required remote control station as RG-1000e supports up to 2 active control stations.

**Local interface**

IP address of the SmartPTT Radioserver computer used to communicate with the radio gateway. If SmartPTT Radioserver may select the proper IP address automatically, the *Any* option must be selected. Otherwise, the specific IP address must be selected.

**Important**

Do not confuse computer IP address in the Customer's network with virtual interfaces created by other applications (for example, MOTOTRBO Network Interface Service).



**Radio ID**

Unique identifier of the control station that is set in its codeplug. For details, see the MOTOTRBO CPS embedded help.

**CAI Network**

Unique identifier of the Common Air Interface (CAI) network that is set in the control station codeplug. For details, see the MOTOTRBO CPS embedded help. The default value is 225.

**CAI Network for Groups**

Unique identifier of the Common Air Interface (CAI) network for groups that is set in the control station codeplug. For details, see the MOTOTRBO CPS embedded help. The default value is 12.

**Data Channel**

Blocks/unblocks the use of the control station in SmartPTT as a target channel for the location coordinates. Such control stations do not appear in the SmartPTT Dispatcher application.

**Phone Calls**

Blocks/unblocks the support of the phone calls for radios and telephone users over the control station.

**Important**

Phone calls require the Telephone Interconnect configuration in SmartPTT. For details, see [Phone Calls](#).

**GPS**

Blocks/unblocks the location update support over the control station using regular updates reception and explicit dispatcher request transmissions.

**ARS**

Blocks/unblocks the information reception on radios presence in the network. In the field next to the check box, the port number of the control station appears that is used to receive the data. The default port number is 4005.

**TMS**

Blocks/unblocks text messaging between radios and dispatchers over the control station. In the field next to the check box, the port number of the control station appears that is used to receive and transmit the data. The default port number is 4007.

**Important**

If the **TMS** check box is cleared, both text messages and job tickets will be unavailable in SmartPTT. For more information on job tickets, see “Job Tickets” in *SmartPTT PLUS Dispatcher User Guide*.

**Telemetry Service**

Blocks/unblocks telemetry data acquisition over the control station and telemetry commands provision. In the field next to the check box, the port number of the control station appears that is used to receive and transmit the data. The default port number is *4008*.

**NOTE**

Telemetry Service is not related to SmartPTT SCADA functionality in SmartPTT.

**TX Criteria**

Condition of the outgoing transmission initiation over the control station that implies interruption. If the control station is configured to start transmissions only when no other activity occurs on the channel, the *Channel Free* option must be selected. If the control station is configured to notify other radios on transmission interruption, the *Tx Interrupt* option must be selected. If the control station is configured to initiate transmissions whether the channel is busy or not, the *Always* option must be selected.

**NOTE**

SmartPTT does not support color codes as criteria of interruption.

**Analog Call Hangtime**

Maximum time interval between voice transmissions on analog channels that will be considered as transmissions within the same call. Such transmissions will be logged with a single entry in SmartPTT logs and will be recorded to a single audio file. For details, see [Audio Recording Settings](#).

**NOTE**

The parameter does not affect voice logging over NexLog recording systems. For details, see [NexLog Recording System](#).

**GPS Transmission Mode**

Form of the location coordinates provided to SmartPTT Radioserver. If all digital channels support CSBK data and enhanced GNSS, the *Enhanced CSBK* option must be selected. If all digital channels support CSBK data, the *CSBK* option must be selected. Otherwise, the *Data* option must be selected.

**NOTE**

The selected mode determines the minimum location update intervals for radios available over the control station. For details, see [Location Service](#).

The **Specify local ports** area provides SmartPTT Radioserver port numbers used to receive the specific types of data. The settings are optional and required only in networks with active firewall services. The area provides the following elements:

**Specify local ports**

Blocks/unblocks the SmartPTT Radioserver ports configurations that will receive specific types of data.

**XCMP**

Number of the port that is used to receive commands and service messages from the remote control station. The same port is used to send commands and service messages. The default port number is *1024*.

**Audio**

Number of the port that is used to receive voice from the remote control station. The same port is used to send dispatchers' voice to the control station. The default port number is *1024*.

**GPS**

Number of the port that is used to receive location updates from radios over the remote control station. The same port is used to send the location update requests to the control station. The default port number is *1025*.

**TMS**

Number of the port that is used to receive text messages from radios over the remote control station. The same port is used to send text messages from dispatchers. The default port number is *1026*.

**ARS**

Number of the port that is used to receive information on radio presence within the control station coverage area. The default port number is *1027*.

**Telemetry Service**

Number of the port that is used to receive telemetry information transmitted over the control station. The same port is used to send telemetry commands from dispatchers. The default port number is *1028*.

The **5 Tone signaling** area provides the Select 5 radio signaling settings. They are necessary only if the control station is used in analog radio systems where this signaling is used. The area contains the table with 5-tone messages (telegrams). Above the table, the following elements are available:

### 5 Tone Signaling

Blocks/unblocks the 5-tone signaling settings.

#### Important

In SmartPTT, 5-tone signaling is not supported for control stations based on Motorola's radios which are currently outdated.

#### Add

Adds a new entry to the table.

#### Delete

Removes the selected entry from the table.

The table consists of the following columns:

#### System

Name of the 5-tone system from the control station codeplug. For details, see the MOTOTRBO CPS embedded help.

#### PTT ID Telegram Number

Number (ID) of the 5-tone telegram that is set in the control station codeplug. For details, see the MOTOTRBO CPS embedded help.

## 2.1.3.1 Adding and Editing Remote MOTOTRBO

Follow the procedure to add a new or edit an existing connection to the remote MOTOTRBO control station.

#### Prerequisites:

- Ensure that SmartPTT has the license that unlocks the configuration and use of remote control stations. For details, see [Licenses](#).
- From the control station codeplug, obtain the following information:
  - Radio ID, CAI network ID, and CAI Group ID.
  - Control station ports used to receive and transmit various data types.

- Transmit interruption parameters.
- Location provision settings that depend on data transmission settings on channel.
- From the radio gateway codeplug, receive the IP address and port number configured for the required control station.
- *Optional:* Determine SmartPTT Radioserver computer ports that will be used to receive different data types from the control station.

**Procedure:**

1. In SmartPTT Radioserver Configurator, open the **Networks** tab.
2. In the left pane, perform one of the following actions:

---

To add a new connection,

perform the following actions:

1. Right-click **Control Stations**.
2. Point to **Add**, and then select **Remote MOTOTRBO control station**.

---

To edit an existing connection,

expand **Control Stations**, and then select the required control station.

---

The control station parameters appear in the right pane.

SmartPTT Server Configuration - C:\Program Files (x86)\SmartPTT\Server\Server.exe.config

Settings Networks Client List Rules Activity Log Export/Import Settings Statistics

Control Stations  
 Remote control station 1  
 Connect Plus  
 NAI Systems  
 Capacity Max Networks

### Remote MOTOTRBO Control Station

Active

Name: Remote control station 1

Network ID: 1

Control station IP address: 192.168.10.1      XCMP port: 30010

Local interface: Any

Radio ID: 16448250

CAI Network: 12

CAI Network for Groups: 225

Data Channel

Phone Calls

GPS

ARS      Port: 4005

TMS      Port: 4007

Telemetry Service      Port: 4008

TX Criteria: Channel Free

Analog Call Hangtime, ms: 3000

Options  
 GPS Transmission Mode: Data

Specify local ports

XCMP: 1024

Audio: 1024

GPS: 1025

TMS: 1026

ARS: 1027

Telemetry Service: 1028

5 Tone signaling

Add      Delete

System	PTT ID Telegram Number
Sys0	1
Sys1	2
Sys2	3

3. In the right pane, select the **Active** check box to unlock control station settings.
4. In the **Name** field, type the control station name.
5. Leave the value in the **Network ID** field unchanged.
6. In the **Control station IP address** field, type the IP address of the required control station obtained from the RG-1000e codeplug.
7. In the **XCMP port** field, enter the port number of the required control station obtained from the RG-1000e codeplug.
8. From the **Local interface** list, select one of the following options:
 

To set the specific SmartPTT Radioserver IP address,	select the required IP address.
To select the working IP address automatically,	select <i>Any</i> .
9. Enter the control station identification parameters:
  - a. In the **Radio ID** field, type the control station ID in the decimal notation.
  - b. In the **CAI Network** field, type the ID of the CAI network that is set in the control station codeplug.
  - c. In the **CAI Network for Groups** field, type the ID of the CAI network for groups that is set in the control station codeplug.
10. Select the **Data Channel** check box if the control station is used to receive location coordinates from other radios only.

### Important

All other parameters must be configured only if the **Data Channel** check box is cleared.

11. Select the **Phone Calls** check box to allow other radios to receive and initiate phone calls over the control station.

---

 12. Configure data transmission over the control station:
 

---

To receive location updates and information on movements beyond the RF Coverage zones,

select the **GPS** check box.

**Important**

SmartPTT assumes that the control station always receives location information to the port *4001*.

---

To receive information about radio presence in the network,

perform the following actions:

1. Select the **ARS** check box.
2. On the right of the check box, in the field, enter the port number used to receive the data.

---

To support text messages and job tickets in the radio network,

perform the following actions:

1. Select the **TMS** check box.
2. On the right of the check box, in the field, enter the port number used to receive and transmit the data.

---

To receive telemetry data and send telemetry commands,

perform the following actions:

1. Select the **Telemetry Service** check box.
2. On the right of the check box, in the field, enter the port number used to receive and transmit the data.

---

 13. From the **TX Criteria** list, select one of the following options:
 

---

If the control station is configured to transmit only when no other transmissions are detected over the radio channel,

select *Channel Free*.

---

If the control station is configured to notify other radios on interrupting their

select *Tx Interrupt*.

---



---

transmissions,

---

If the control station is configured to completely ignore other transmission over the radio channel, select *Always*.

---

### Important

SmartPTT does not support color code criteria for outgoing transmissions.

14. In the **Analog Call Hangtime** field, enter the maximum time interval between transmissions over analog channels that will be considered as transmissions within the same call in SmartPTT.

15. From the **GPS Transmission Mode** list, select one of the following options:

---

If all digital channels support both CSBK data and enhanced GNSS, select *Enhanced CSBK*.

---

If all digital channels support CSBK data, and do not support Enhanced GNSS, select *CSBK*.


---

If digital channels have different settings, select *Data*.



---

16. *Optional*: Set SmartPTT Radioserver ports for different types of data:

- a. Select the **Specify local ports** check box.
- b. In the **XCMP** field, enter the number of the port used to receive commands and service messages from the remote control station, and send commands and service messages to it.
- c. In the **Audio** field, enter the number of the port used to receive voice from the remote control station, and send dispatcher voice to it.
- d. In the **GPS** field, enter the number of the port used to receive the location updates from radios, and send location update requests to them over the remote control station.
- e. In the **TMS** field, enter the number of the port used to receive text messages from radios over the control station, and send text messages from dispatchers over the remote control station.

- f. In the **ARS** field, enter the number of the port used to receive presence information on radios within the RF coverage zone of the remote control station.
  - g. In the **Telemetry Service** field, enter the number of the port used to receive telemetry data over the control stations, and send telemetry commands over the control station.
17. If you use the control station in analog radio systems with 5-tone signaling, in the **5 Tone signaling** area, configure 5-tone telegrams. For details, see [Adding and Editing 5-Tone Telegrams in Remote MOTOTRBO](#).
18. To save changes, at the bottom of the SmartPTT Radioserver Configurator window, click **Save Configuration** (  ).

**Postrequisites:**

- Configure groups. For details, see [Adding and Editing Remote MOTOTRBO Groups](#).
- Configure control station channels. For details, see [Adding and Editing Remote MOTOTRBO Channels](#).
- Configure audio settings. For details, see [Configuring Remote MOTOTRBO Audio Settings](#).
- To apply changes immediately, at the bottom of the SmartPTT Radioserver Configurator window, click **Start** (  ) or **Restart** (  ).

### 2.1.3.2 Adding and Editing 5-Tone Telegrams in Remote MOTOTRBO


Follow the procedure to add a new or edit an existing 5-tone telegrams that were configured in the remote control station.

**Prerequisites:**


- From the control station codeplug, receive system names and telegram numbers (IDs) created intentionally for the 5-tone radio signaling. To obtain the information, use the compatible MOTOTRBO CPS application.
- Add the remote MOTOTRBO control station. For details, see [Adding and Editing Remote MOTOTRBO](#).

**Procedure:**

1. In SmartPTT Radioserver Configurator, open the **Networks** tab.
2. In the left pane, expand **Control Stations**, and then select **<your control station>**. The control station parameters appear in the right pane.
3. In the right pane, select the **5 Tone signaling** check box.
4. In the **5 Tone signaling** area, perform one of the following actions:

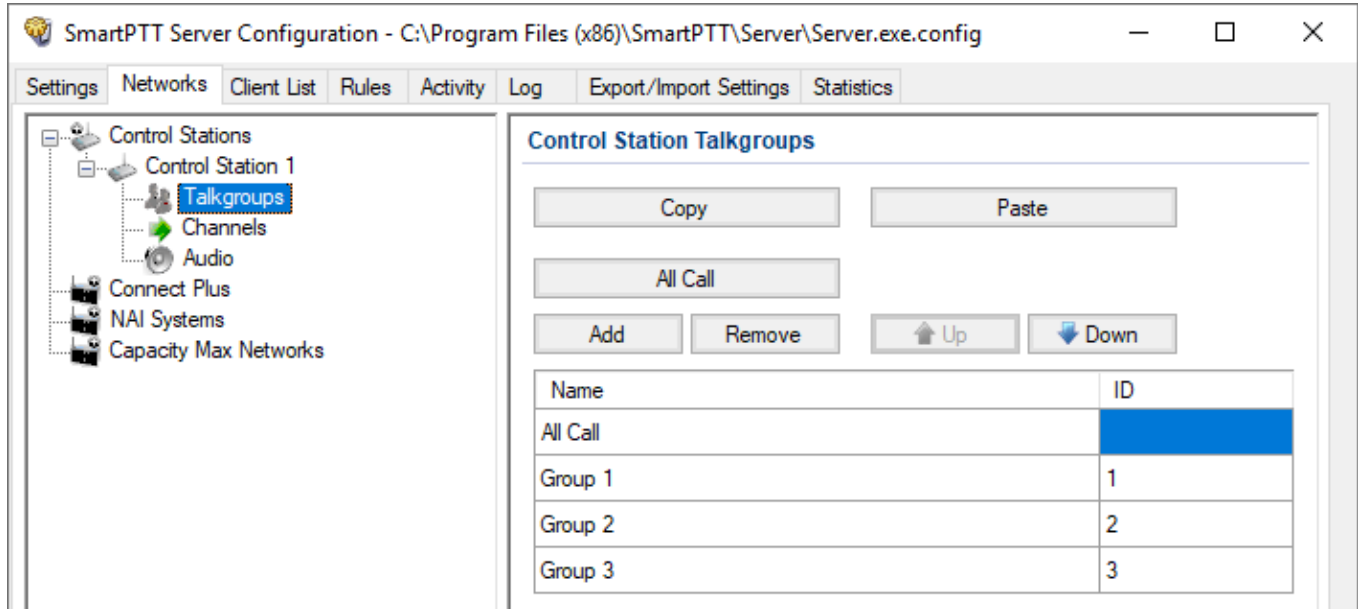
To add a new entry,	click <b>Add</b> .
To edit an existing entry,	proceed to the next step.
5. Configure the telegram:
  - a. In the **System** column, double-click the current system name, and then type the system name.
  - b. In the **PTT ID Telegram Number** column, double-click the current telegram number, and then type the telegram number.
6. To save changes, at the bottom of the SmartPTT Radioserver Configurator window, click **Save Configuration** (  ).

**Postrequisites:**

- Configure channels that use 5-tone telegrams as default contacts. For details, see [Adding and Editing Remote MOTOTRBO Channels](#).
- To apply changes immediately, at the bottom of the SmartPTT Radioserver Configurator window, click **Start** ( ▶ ) or **Restart** (  ▶ ).

### 2.1.3.3 Talkgroups

The **Talkgroups** node provides the ability to configure talkgroups and the All Call that will be available for dispatchers over the remote control station.



In the right pane, the table with talkgroups and All Calls appears. Above the table, the following buttons are available:

#### Copy

Copies the content of the table to the SmartPTT Radioserver Configurator internal clipboard. Copied information is unavailable to paste to any other program except SmartPTT Radioserver Configurator.

#### Paste

Pastes the configured talkgroups from the SmartPTT Radioserver Configurator internal clipboard to the table.

#### All Call

Adds an All Call entry to the table. Only one entry of the kind can be added.

#### Add

Adds a new talkgroup entry to the table.

#### Remove

Removes the selected entry from the table.

**Up**

Moves the selected entry up in the table.

**Down**

Moves the selected entry down in the table.

The table consists of the following columns:

**Name**

Name of the talkgroup or All Call that will appear in SmartPTT Dispatcher instead of the ID.

**ID**

Unique identifier of the talkgroup.

**NOTE**

For All Call, no ID is shown.

### 2.1.3.3.1 Adding and Edititng Remote MOTOTRBO Groups

Follow the procedure to add new or edit existing talkgroups and All Call entries that will be available to SmartPTT dispatchers.

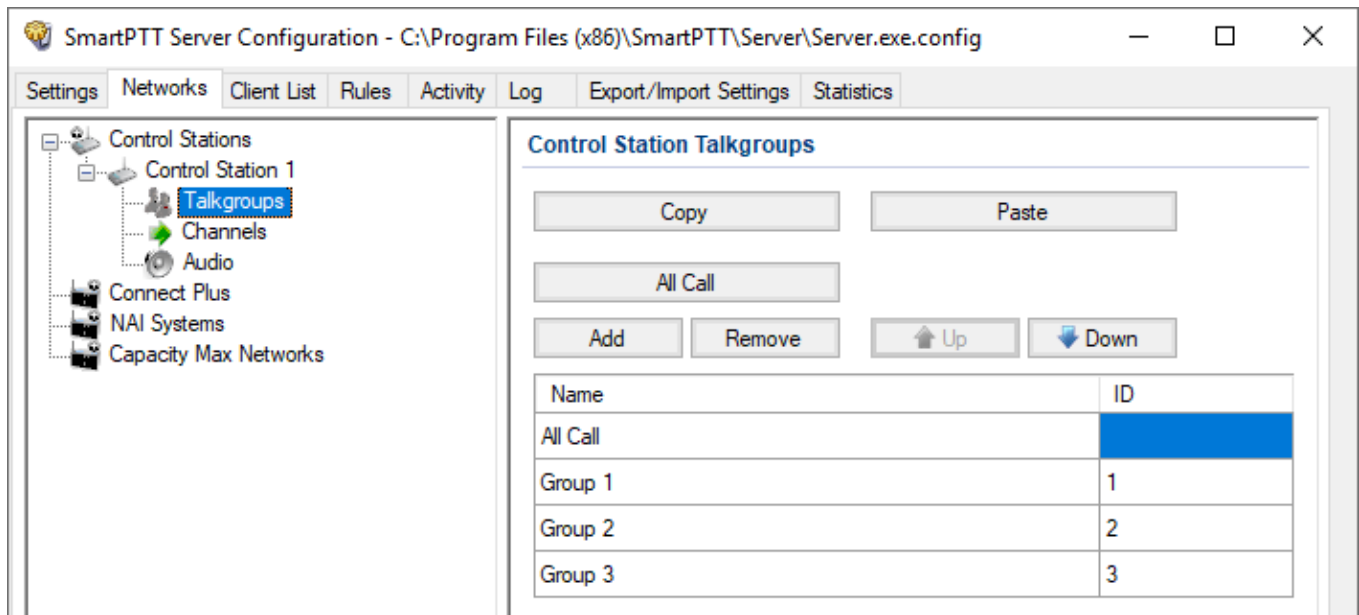
**Prerequisites:**

From the remote control station codeplug, obtain talkgroup IDs. To obtain the information, use the compatible MOTOTRBO CPS application.

**Procedure:**

1. In SmartPTT Radioserver Configurator, open the **Networks** tab.
2. In the left pane, expand **Control Stations** → **<your control station>**, and then select **Talkgroups**.

The list of groups appears in the right pane.



3. In the right pane, perform one of the following actions:

To add a new talkgroup,

click **Add**.

To add an All Call,

click **All Call**.

To edit an existing entry,

proceed to the next text.


4. In the table, in the required entry, perform the following actions:

- a. In the **Name** column, double-click the current name, and then type the required name.
- b. In the **ID** column, double-click the current Talkgroup ID, and then enter the required ID.



**NOTE**

SmartPTT does not show the All Call ID.

5. *Optional:* Using **Up** and **Down** buttons, reorder entries in the table.

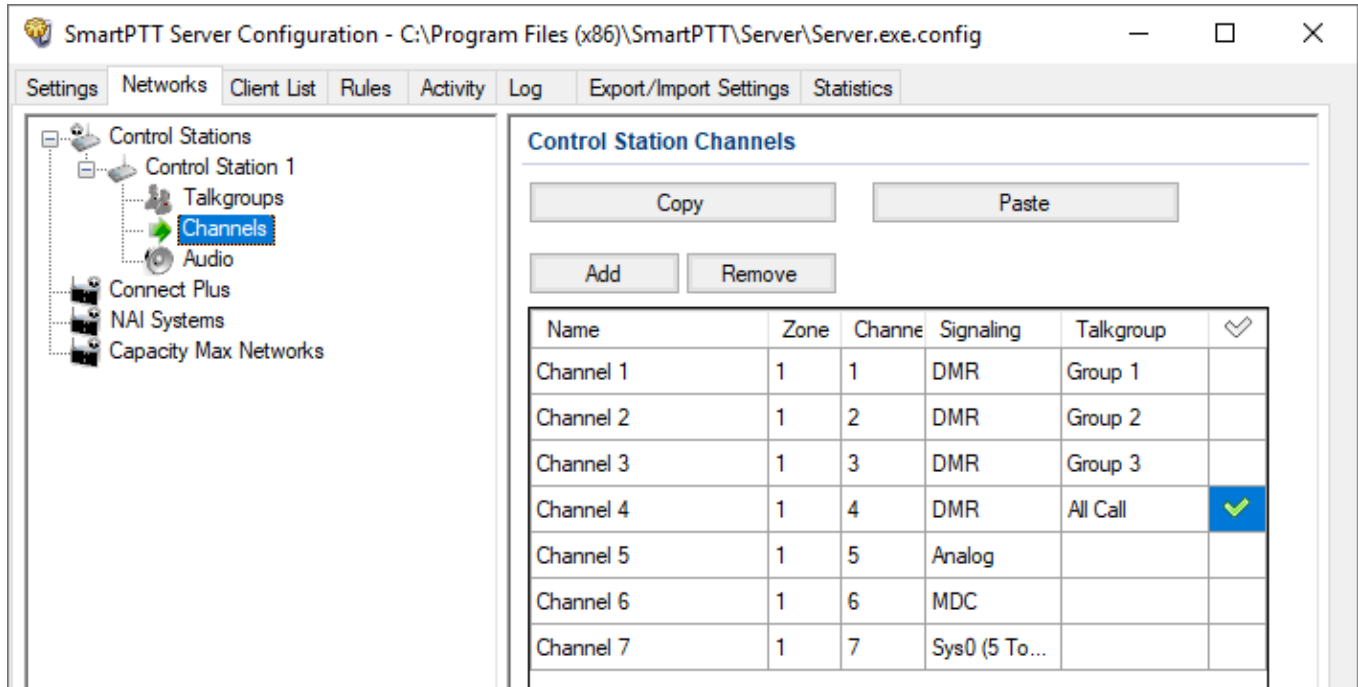
6. To save changes, at the bottom of the SmartPTT Radioserver Configurator window, click **Save Configuration** (  ).

**Postrequisites:**

To apply changes immediately, at the bottom of the SmartPTT Radioserver Configurator window, click **Start** (  ) or **Restart** (  ).

## 2.1.3.4 Channels

The **Channels** node provides the ability to configure control station channels that will be available to SmartPTT dispatchers in SmartPTT Dispatcher. SmartPTT supports digital and analog channels. For analog channels, the optional support of the MDC-1200 and Select 5 radio signaling is provided.



In the right pane, the table with channels is provided. Above the table, the following buttons are available:

### Copy

Copies the content of the table to the SmartPTT Radioserver Configurator internal clipboard. Copied information is unavailable to paste to any other program except SmartPTT Radioserver Configurator.

### Paste

Pastes the configured channels from the SmartPTT Radioserver Configurator internal clipboard to the table.

### Add

Adds a new entry to the table.

### Remove

Removes the selected entry from the table.

The table consists of the following columns:

**Name**

Channel name that appears in SmartPTT Dispatcher instead of the service channel information.

**Zone**

Identifier of the zone to which the channel belongs. Zone ID must be exactly the same as in the control station codeplug. For details, see the MOTOTRBO CPS embedded help.

**Channel**

Identifier of the channel in the zone. Channel ID must be exactly the same as in the control station codeplug. For details, see the MOTOTRBO CPS embedded help.

**Signaling**

Radio signaling that is used on each channel. For digital channel, the *DMR* option must be selected. For analog channels without radio signaling, the *Analog* option must be selected. For analog channels where MDC-1200 is used, the *MDC* option must be selected. For analog channels where 5-tone signaling is used, the required 5-tone telegram must be selected.

**Talkgroup**

Talkgroup or All Call that are used as default contact on the channel. The parameter must be specified for the digital channels only and it must be the same as in the control station codeplug. For details, see the MOTOTRBO CPS embedded help.

**Default Channel (  )**

Channel that is selected on the control station when SmartPTT Radioserver is started or restarted.

### 2.1.3.4.1 Adding and Editing Remote MOTOTRBO Channels

Follow the procedure to add new or edit existing channels of the remote control stations.

**Prerequisites:**

- From the control station codeplug, obtain the following information:
  - List of channels and their identification information (zone IDs and channel IDs).
  - Radio signaling type used on each channel.
  - Channel default contract (talkgroup ID or All Call).



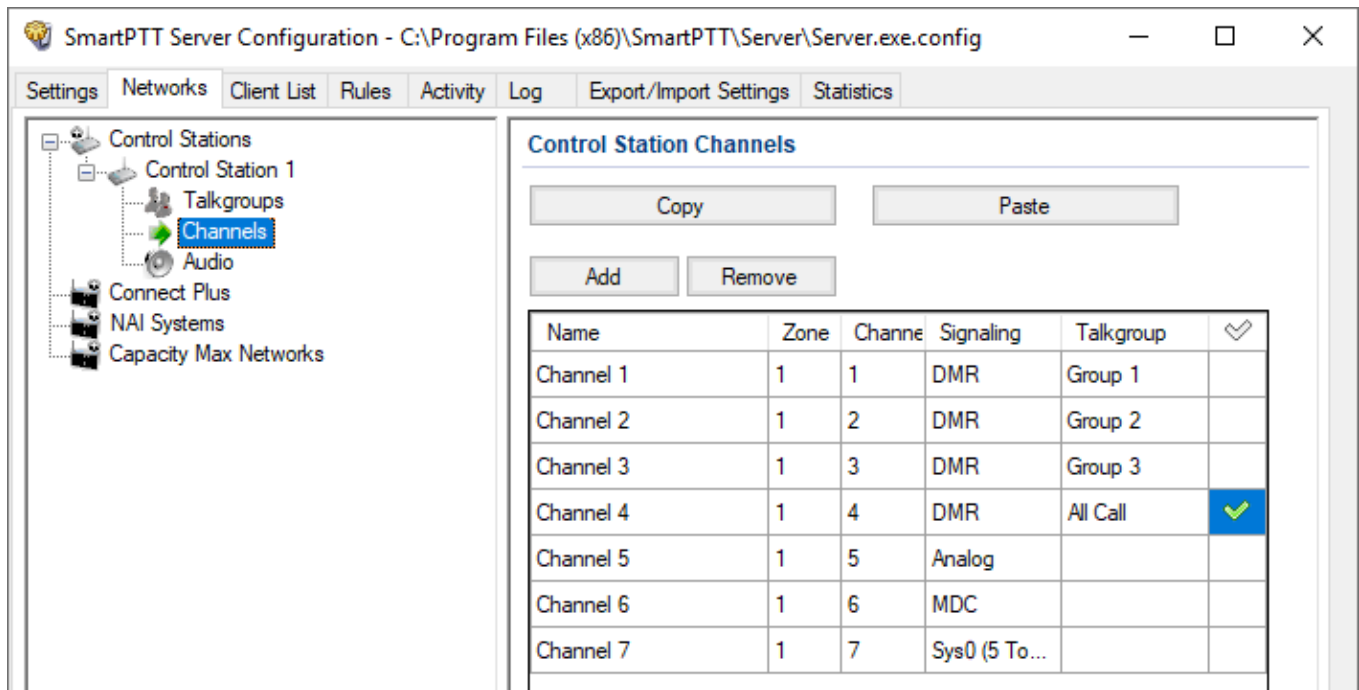
To obtain the information use the compatible MOTOTRBO CPS application.

- Ensure that talkgroups and All Calls are added to SmartPTT Radioserver Configurator. For details, see [Adding and Edititng Remote MOTOTRBO Groups](#).
- *Optional:* Ensure that the necessary 5-tone telegrams are added to SmartPTT Radioserver Configurator. For details, see [Adding and Editing 5-Tone Telegrams in Remote MOTOTRBO](#).

**Procedure:**

1. In SmartPTT Radioserver Configurator, open the **Networks** tab.
2. In the left pane, expand **Control Stations** → **<your control station>**, and then select **Channels**.

The list of channels appears in the right pane.



3. In the right pane, perform one of the following actions:


---

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



---

To edit an existing entry, proceed to the next step.

---

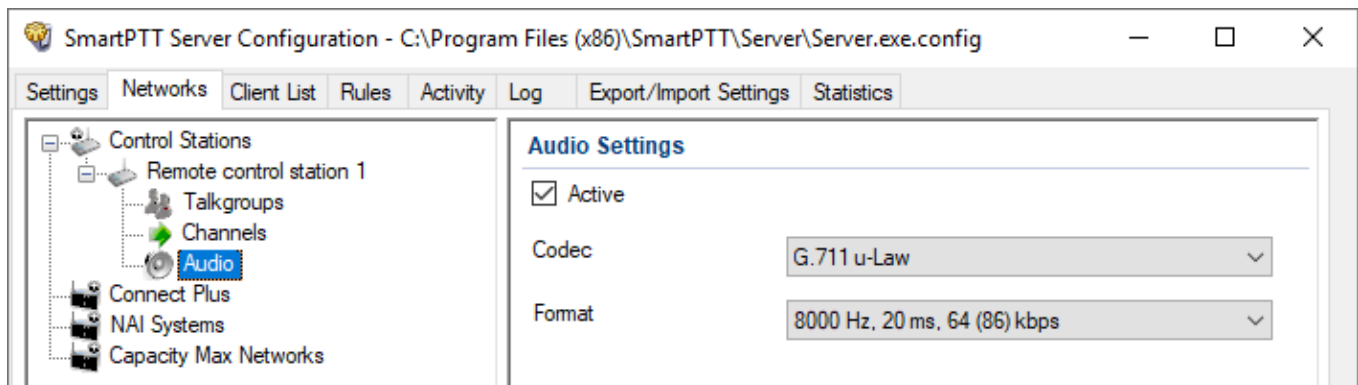
4. In the table, in the required entry, perform the following actions:
  - a. In the **Name** column, double-click the current channel name, and then type a new name.
  - b. In the **Zone** field, double-click the current zone ID, and then type the required ID.
  - c. In the **Channel** column, double-click the current channel ID, and then type the required ID.
  - d. From the list in the **Signaling** column, select the radio signaling used on the radio channel or the required 5-tone telegram.
  - e. From the list in the **Talkgroup** column, select the talkgroup or All Call that is set as default contact on the channel.
5. After all channels are configured, in the **Default Channel (  )** column, select the check box next to the channel that will be selected on the remote control station each time SmartPTT Radioserver is started or restarted.
6. To save changes, at the bottom of the SmartPTT Radioserver Configurator window, click **Save Configuration** (  ).

### Postrequisites:

To apply changes immediately, at the bottom of the SmartPTT Radioserver Configurator window, click **Start** (  ) or **Restart** (  ).

## 2.1.3.5 Audio

The **Audio** node provides the ability to configure voice encoding/decoding parameters that are set in the RG-1000e radio gateway. Using the same parameters in RG-1000e and SmartPTT Radioserver minimizes voice distortion.



In the right pane, the following settings are available:

### Active

Blocks/unblocks the remote control station audio settings. If the check box is cleared, only call indication will be available in SmartPTT Dispatcher.

### Codec

Voice transcoding algorithm applied to the voice received from the RG-1000e and sent to it. It is recommended to select the same algorithm as in the RG-1000e codeplug. For details, see *CPS RG-1000e User Guide*.

### Format

Transcoding algorithm parameters. It is recommended to select the same set of parameters as in the RG-1000e codeplug. For details, see *CPS RG-1000e User Guide*.

## 2.1.3.5.1 Configuring Remote MOTOTRBO Audio Settings

Follow the procedure to edit audio settings required to receive voice from the control station and send dispatcher voice to it.

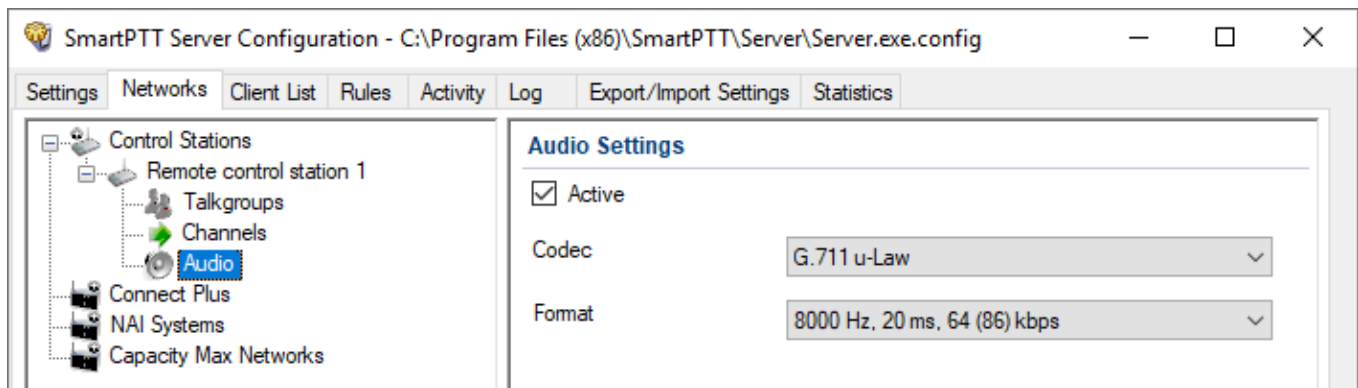
### Prerequisites:


From the RG-1000e codeplug, obtain voice encoding and decoding parameters.

### Procedure:



1. In SmartPTT Radioserver Configurator, open the **Networks** tab.
2. In the left pane, expand **Control Stations** → **<your control station>**, and then select **Audio**.

The audio settings appear in the right pane.



3. In the right pane, select the **Active** check box to unlock audio settings.
4. From the **Codec** list, select the required codec.
5. From the **Format** list, select the codec parameters.
6. To save changes, at the bottom of the SmartPTT Radioserver Configurator window, click **Save Configuration** (  ).

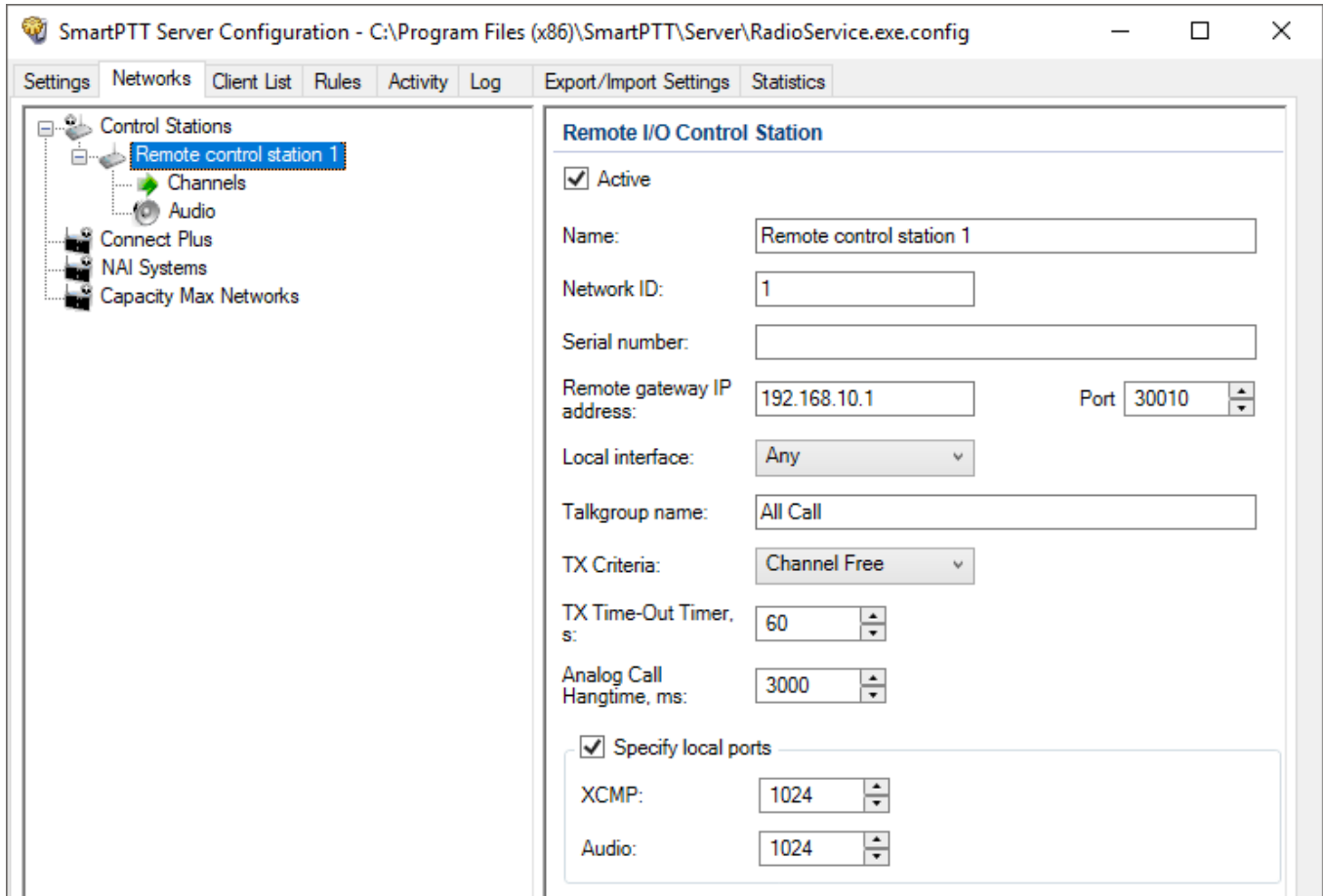
**Postrequisites:**

To apply changes immediately, at the bottom of the SmartPTT Radioserver Configurator window, click **Start** (  ) or **Restart** (  ).

## 2.1.4 Remote I/O Control Stations

Remote I/O control stations connect to RG-1000e by using general purpose input output lines (GPIO lines). RG-1000e is connected to control station and provides IP connection between SmartPTT Radioserver and control station.

To add a remote I/O control station, right-click **Control Stations**, click **Add** → **Remote I/O control station**.



The **Remote I/O Control Station** pane provides the following elements:

### Active

Activates the control station.

### Name

A control station name.

### Network ID

A unique identifier of the control station system among other systems.

**Serial Number**

The control station serial number.

**Remote gateway IP address**

The IP address of the remote gateway which provides control over the remote control station.

The default port is *30010*.

**Local interface**

The local interface used for connection to the remote gateway.

**Talkgroup name**

A name of a talkgroup. The default name is All Call, but you can change it.

**TX Criteria**

Provides the list of options determine when voice or data can be transmitted on the channel.

You can select **Channel Free** (radio transmits only when a channel is idle) or **Always** values.

**TX Time-Out Timer**

Continuous radio transmission timeout. After this time the transmission is interrupted.

**Analog Call Hangtime**

Virtual hangtime is used for uniting analog calls into one. It prevents overloading the event log with too many records of analog calls. During this hangtime the channel is not reserved, any user can start transmitting.

**Specify local ports**

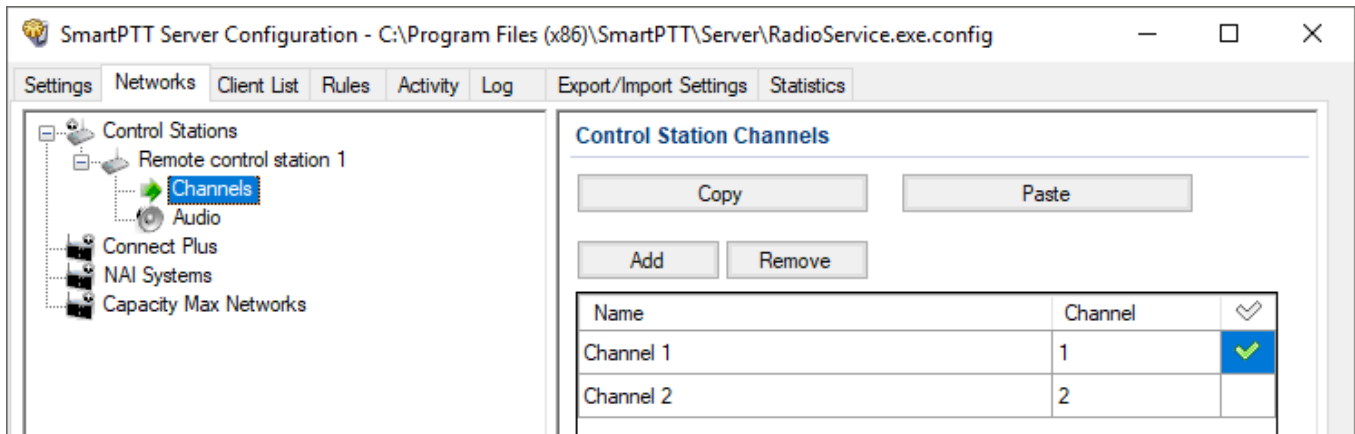
Enables the ports that can be used for connection to the gateway (XCMP and Audio) if the default ports of the corresponding services are already in use.

By default the system occupies local ports automatically, but you can set them manually.

To delete the control station, right-click the control station name under the **Control Stations** node, and click **Delete**.

## 2.1.4.1 Channels

You can configure control station channels in the **Channels** node under the control station name.



In the **Control Station Channels** pane, the following elements are available:

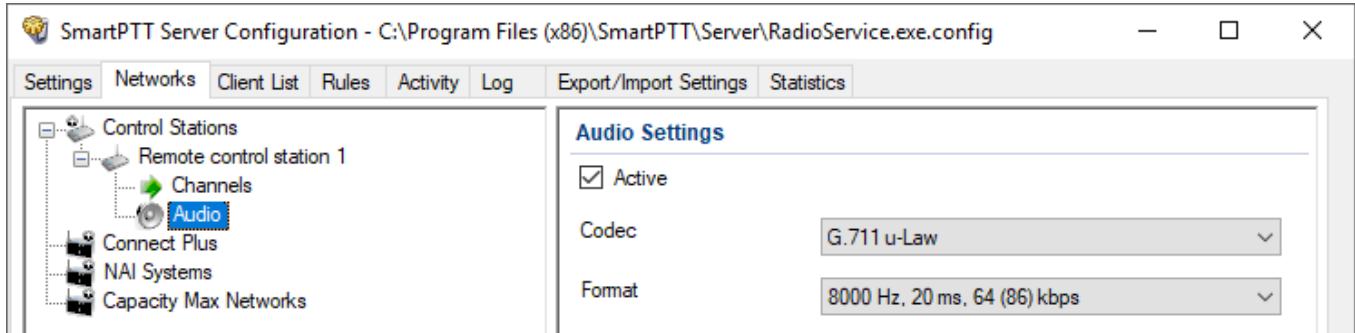
- The **Add** button adds a new channel.
- The **Remove** button removes a channel.
- The **Copy** button copies all channels of a control station.
- The **Paste** button pastes the copied channels to another control station.
- Table with channels contains added channels available for editing.

The table with channels provides the following elements:

- The **Name** column contains a channel alias visible to *SmartPTT Dispatcher*.
- The **Channel** column contains a channel sequence number.
- Check mark icon (  ) sets the selected channel at the control station, when you start the radioserver.

## 2.1.4.2 Audio

You can configure control station audio settings in the **Audio** node under the control station name.



In the **Audio Settings** pane, the following elements are available:

- The **Active** check box enables calls for a control station if it is used to transmit data only.
- The **Codec** list contains outgoing audio stream compression methods.
- The **Format** list contains sampling frequencies of an outgoing audio stream.

### Example

Consider the following codec format: *8000 Hz, 20 ms, 64 (86) kbps*. Those settings mean:

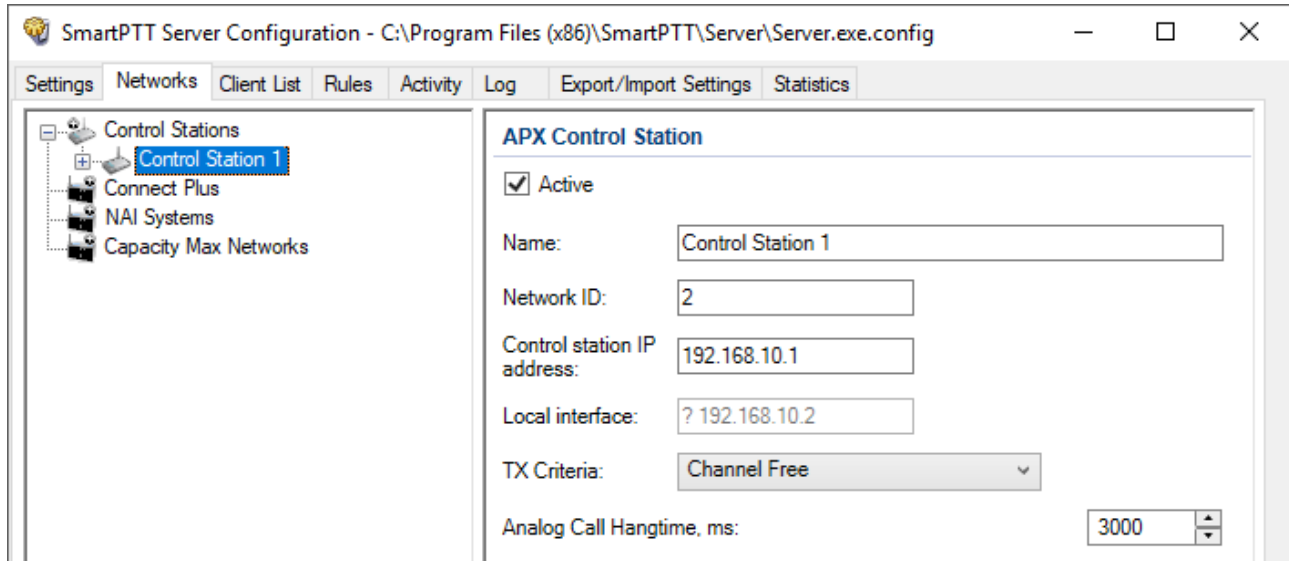
- *8000Hz*: Sampling rate
- *20 ms*: Frame size
- *64 kbps*: Voice data bit rate
- *86 kbps*: Full bit rate (required network bandwidth)

## 2.1.5 APX Control Stations

SmartPTT is able to connect to P25 radio systems over APX control stations. APX is a Motorola's brandname for P25-compliant radio devices. APX control stations in SmartPTT support the direct (talkaround) communication mode and P25 conventional radio systems. Control stations must be connected directly to the SmartPTT Radioserver computer over the Elcomplus LLC cable.



In SmartPTT Radioserver Configurator, APX control stations appear under the **Control Stations** node alongside with other control stations.



In the right pane, the following settings are available:

### Active

Blocks/unblocks the control station connection settings.

### Name

Name of the control station that is used as the name of the corresponding element in SmartPTT Dispatcher and the name of the node. Maximum name length is 20 UTF-8 characters.

### Network ID

Unique identifier of the control station in the SmartPTT database. The default value must not be changed.

### Important

If you delete multiple networks before adding this one, request an assistance from the technical support center to determine the proper ID.

### Control station IP address

IPv4 address (in dot-decimal notation) of the APX control station that appears in the list of the computer network interfaces.

**Local interface**

Reference to the IP address of the APX control station. The default value must not be changed.

**TX Criteria**

Determines if dispatcher calls (outgoing) may interrupt radio calls. If the control station is configured to interrupt other calls, *Always* must be selected. Otherwise, *Channel Free* must be selected.

**Analog Call Hangtime**

Timeout for the radio channel release after the voice transmission is ended. The parameter must be exactly the same as in the control station codeplug.

## 2.1.5.1 Adding and Editing APX Control Stations

Follow the procedure to add or edit general settings of the connection to the APX control station.

**Prerequisites:**

- Ensure that the APX control station is connected to the computer using Elcomplus LLC cable, energized, and turned on.
- Ensure that you installed the SmartPTT license that unlocks APX control station configuration and use.

**Procedure:**

1. In SmartPTT Radioserver Configurator, open the **Networks** tab.
2. In the left pane, perform one of the following actions:

---

To add a new connection,

perform the following actions:

1. Right-click the **Control Stations** node.
2. Point to **Add**, and then select **APX Control Station**.

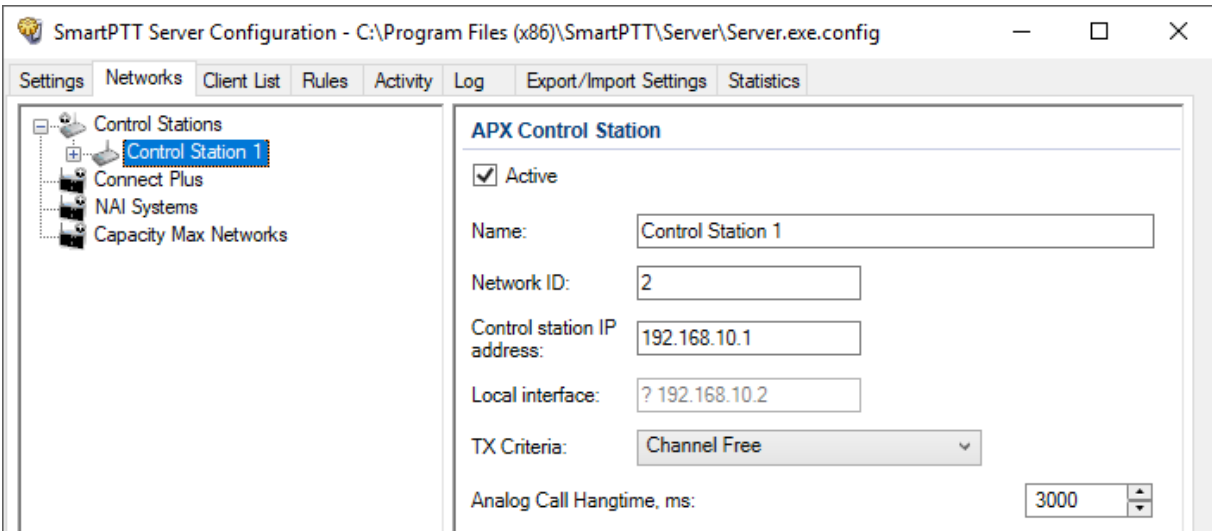
---

To edit an existing connection,

expand **Control Stations**, and then click the required control station.

---

The control station parameters appear in the right pane.




3. In the right pane, select the **Active** check box to unlock the control station settings.
4. In the **Name** field, type the name of the control station.
5. Leave the value in the **Network ID** field unchanged.
6. In the **Control Station IP address** field, type the IP address of the local network interface associated with the connected APX radio.
7. Leave the value in the **Local interface** field unchanged.
8. From the **TX Criteria** list, select one of the following options:

---

If the control station is configured to transmit only if no other transmissions is detected over the radio channel, select *Channel Free*.

---

If the control station is configured to ignore the occurrence of other transmissions, select *Always*.

9. In the **Analog Call Hangtime** field, enter the maximum time interval between transmissions that will be considered as transmissions within the same voice call.
10. To save changes, at the bottom of the SmartPTT Radioserver Configurator window, click **Save Configuration** (  ).

**Postrequisites:**

- Configure channels. For details, see [Adding and Editing APX Channels](#).
- Configure audio settings. For details, see [Editing APX Audio Settings](#).
- To apply changes immediately, at the bottom of the SmartPTT Radioserver Configurator window, click **Start** (▶) or **Restart** (▣▶).

## 2.1.5.2 Talkgroups / Channels

The **Talkgroups / Channels** node provides the ability to configure talkgroups and All Call that will be available for dispatchers over the APX control station. For this, each talkgroup must be configured as a default talkgroup on the channel in the control station codeplug. For details, see the APX Family CPS embedded help.

To make the All Call available, it must be configured as default for a different channel of the control station.

### Important

Limiting talkgroups and All Calls over profile settings is unavailable for APX control stations.

The screenshot shows the SmartPTT Server Configuration window with the 'Talkgroups / TX Radio Channels' tab selected. The left sidebar shows a tree view with 'Control Stations' expanded to 'Control Station 1', where 'Talkgroups / Channels' is highlighted. The main area displays a table of talkgroups and channels.

Name	ID	Zone	Channel
All Call		10	1
Group 1	1	1	1
Group 2	2	1	2
Group 3	3	1	3
Group 4	4	2	1
Group 5	5	2	2
Group 6	6	3	1

In the right pane, the table with configured talkgroups is available. Above the table the following buttons are available:

**All Call**

Adds an All Call entry to the table. Only one entry of the kind can be added.

**Add**

Adds a new talkgroup entry to the table.

**Remove**

Removes the currently selected entry from the table.

**Copy**

Copies the content of the table to the SmartPTT Radioserver Configurator internal clipboard. Copied information is unavailable to paste to any other program except SmartPTT Radioserver Configurator.

**Paste**

Pastes the configured talkgroups from the SmartPTT Radioserver Configurator internal clipboard to the table.

The table consists of the following columns:

**Name**

Name of the talkgroup or All Call that will appear in SmartPTT Dispatcher instead of the ID.

**ID**

Unique identifier of the talkgroup in the P25 radio systems. All Call ID is hidden in the table.

**Zone**

Identifier of the zone to which the channel belongs. Zone ID must be exactly the same as in the APX radio codeplug.

**Channel**

Identifier of the channel in the zone. Channel ID must be exactly the same as in the APX radio codeplug. Within the same zone, all Channel IDs must be unique.

### 2.1.5.2.1 Adding and Editing APX Channels

Follow the procedure to add or edit APX radio channels and the corresponding talkgroups.

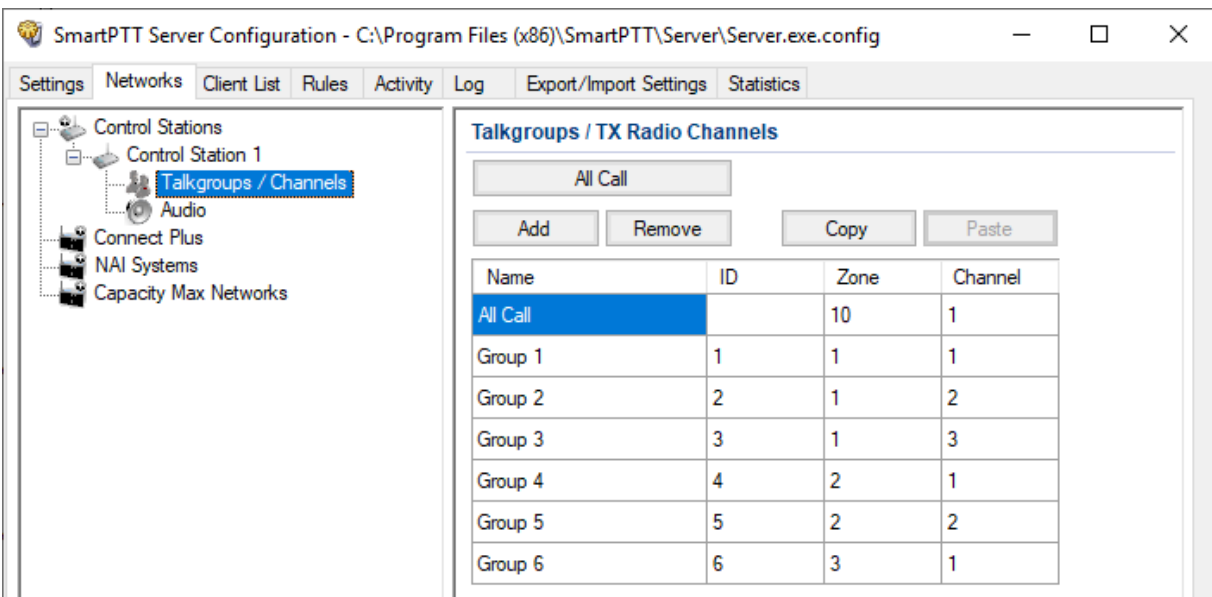
#### Prerequisites:

- From the APX codeplug, obtain talkgroup IDs. For details, see the APX Family CPS embedded help.
- For each talkgroup (and All Call), obtain zone ID and channel ID where they are used as default contacts.

#### Procedure:

1. In SmartPTT Radioserver Configurator, open the **Networks** tab.
2. In the left pane, expand **Control Stations** → **<your APX control station>**, and then select **Talkgroups / Channels**.

The list of channels appears in the right pane.



3. In the right pane, perform one of the following actions:

---

To add a new talkgroup,

click **Add**.

---

To add an All Call,

click **All Call**.

---

To edit an existing entry,


proceed to the next step.

---



4. In the table, in the required entry, perform the following actions:
  - a. In the **Name** column, double-click the current name, and then type the talkgroup name.
  - b. In the **ID** column, double-click the current ID, and then type the required talkgroup ID.

**NOTE**

SmartPTT Radioserver Configurator does not provide an All Call ID.

- c. In the **Zone** column, double-click the current ID, and then type the required zone ID.
  - d. In the **Channel** column, double-click the current ID, and then type the required channel ID.
5. To save changes, at the bottom of the SmartPTT Radioserver Configurator window, click **Save Configuration** (  ).

**Postrequisites:**

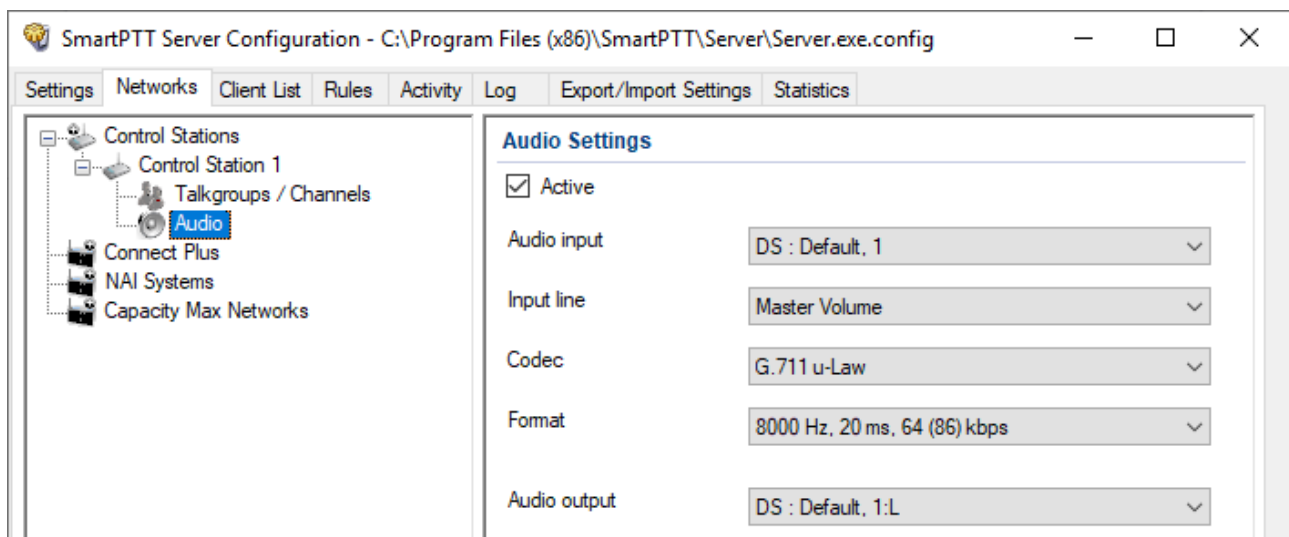
To apply changes immediately, at the bottom of the SmartPTT Radioserver Configurator window, click **Start** (  ) or **Restart** (  ).

### 2.1.5.3 Audio

The **Audio** node provides the ability to configure audio inputs and outputs that are utilized by the control stations. It also provides the ability to configure voice encoding and decoding parameters.

**Important**

Control stations do not support voice reception and transmission over USB.



In the right pane, the following settings are available:

**Active**

Blocks/unblocks the control station audio settings. If the check box is cleared, only call indication will be available in SmartPTT Dispatcher.

**Audio input**

Determines the computer audio input to which the control station cable is connected. List of audio inputs matches the list of microphone inputs recognized and configured in the computer.

**Input line**

Parameter that determines speed and quality of the input sound processing. The parameter is unavailable for most sound cards and must be left unchanged.

**Codec**

Determines the codec that is used to encode the voice received from the control station into the audio stream delivered to SmartPTT Dispatcher over the IP network.

**Format**

Determines the codec options. Each option in the list results in the different audio quality and IP channel loading.

**Audio output**

Determines the audio input to which the control station cable is connected. List of audio outputs matches the list of speaker outputs recognized and configured in the computer.

### 2.1.5.3.1 Editing APX Audio Settings

Follow the procedure to edit audio settings required to receive audio from the control station and send dispatcher audio to it.

**Prerequisites:**

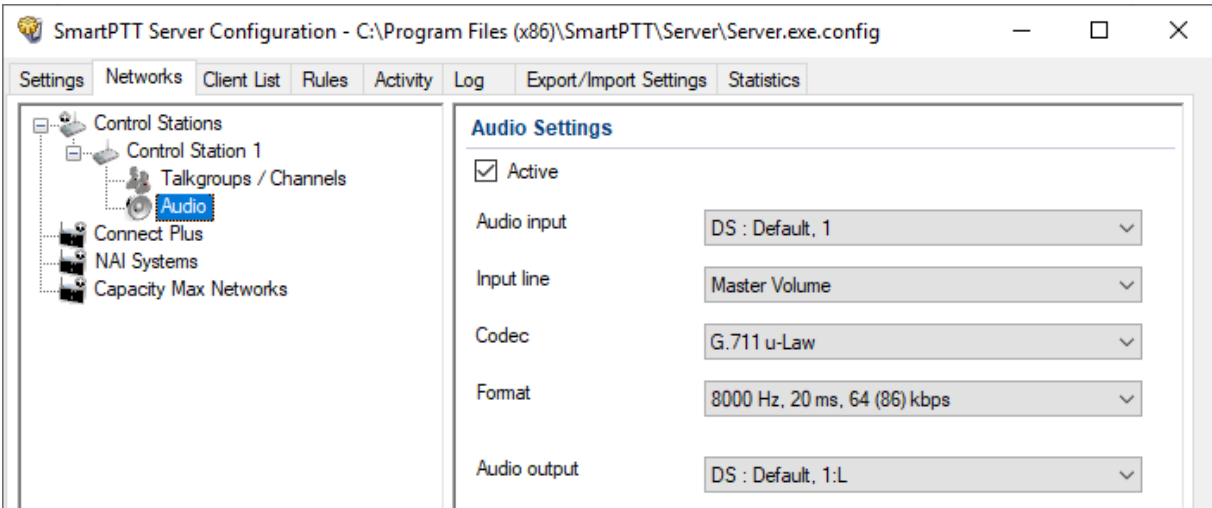
From the SmartPTT Radioserver computer, obtain the identification information on audio inputs and outputs used to connect the control station.




**Procedure:**



1. In SmartPTT Radioserver Configurator, open the **Networks** tab.
2. In the left pane, expand **Control Stations** → **<your APX control station>**, and then select **Audio**.

The audio settings appear in the right pane.



3. In the right pane, select the **Active** check box to unlock audio settings.
4. From the **Audio** input list, select the proper microphone input.
5. Leave the value in the **Input line** unchanged until you are using the sound card with multiple audio processing lines for each input.
6. From the **Codec** list, select the required codec. The recommended options are *G.711 u-Law* and *G.711 a-Law*.
7. From the **Format** list, select the codec parameters. The selected option will affect the IP channel loading between SmartPTT Radioserver and SmartPTT Dispatcher.
8. From the **Audio output** list, select the proper speaker output.
9. To save changes, at the bottom of the SmartPTT Radioserver Configurator window, click **Save Configuration** (  ).

**Postrequisites:**

To apply changes immediately, at the bottom of the SmartPTT Radioserver Configurator window, click **Start** (  ) or **Restart** (  ).

## 2.2 Connect Plus

Connect Plus network can include up to 15 repeaters (29 channels + 1 control channel) on each site. Each site must have at least one XRC Controller. It is the core of the Connect Plus network and its presence on each site is obligatory. The XRC Controller provides central call processing and real-time resource management for MOTOTRBO Connect Plus digital trunking systems. There can be two XRC Controllers per site if one of them serves as backup to the primary XRC. The secondary controller provides backup capability, but it does not increase the number of repeaters and calls that can be managed per site.

SmartPTT PLUS supports Connect Plus multi-site trunking system that can be used not only for ARS, TMS and GPS functionality (except GPS batching), but also for voice communication between the dispatcher and radios. XRT 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:

- Adding new network and its basic configuration
- Setting up XRC Controller configurations
- Setting up talkgroups for group messages
- Setting up XRT Gateway parameters for voice communication
- Adding talk paths for voice calls

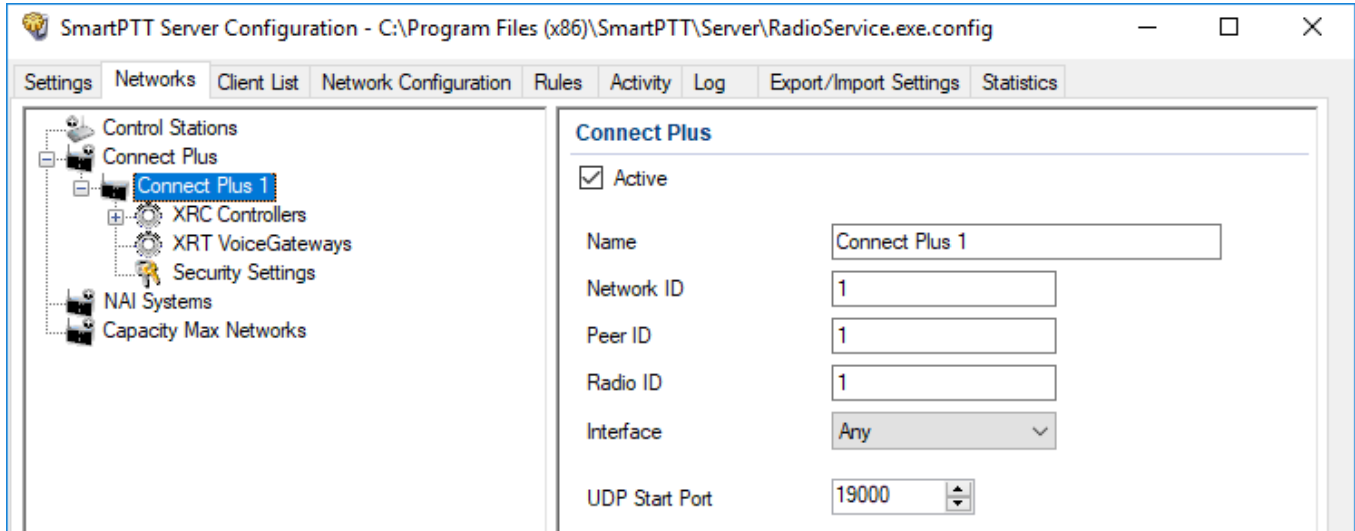
### **WARNING**

Access to Connect Plus radio network requires Connect Plus Voice Support license and Connect Plus Data Support license.

## 2.2.1 Configuring Connect Plus

To configure Connect Plus settings, add new Connect Plus system: right-click Connect Plus in the **Networks** tab of *SmartPTT Radioserver Configurator* and click **Add**.

The **Connect Plus** window appears:



**Active:** Activates Connect Plus System.

**Name:** Connect Plus network name.

**Network ID:** Unique ID of the Connect Plus network, that is used inside SmartPTT system. This is important if you have more than one Connect Plus network. Note that this ID is different from the Network ID defined in the XRC Controller codeplug.

**Peer ID:** Unique ID of the virtual repeater in the Connect Plus network. Make sure this ID is different from the repeater ID in the Connect Plus network.

**Radio ID:** The identifier of SmartPTT Radioserver. This identifier will be displayed on radios at receiving private calls and text messages from the dispatcher. If there are several dispatchers, you can create a profile for each operator ([Profiles](#)) and define a unique identifier for each operator.

**Radio ID** set in this window must correspond to the **Console User ID** field in the XRT Gateway settings.

**Interface:** IP address of the virtual repeater, i.e. SmartPTT Radioserver. Specify the IP address of the computer where the radioserver is installed.

**UDP Start Port:** Starting port number for local UDP ports that will be used by SmartPTT Radioserver 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.

To delete the Connect Plus network, right-click the network you want to delete and click **Delete**.

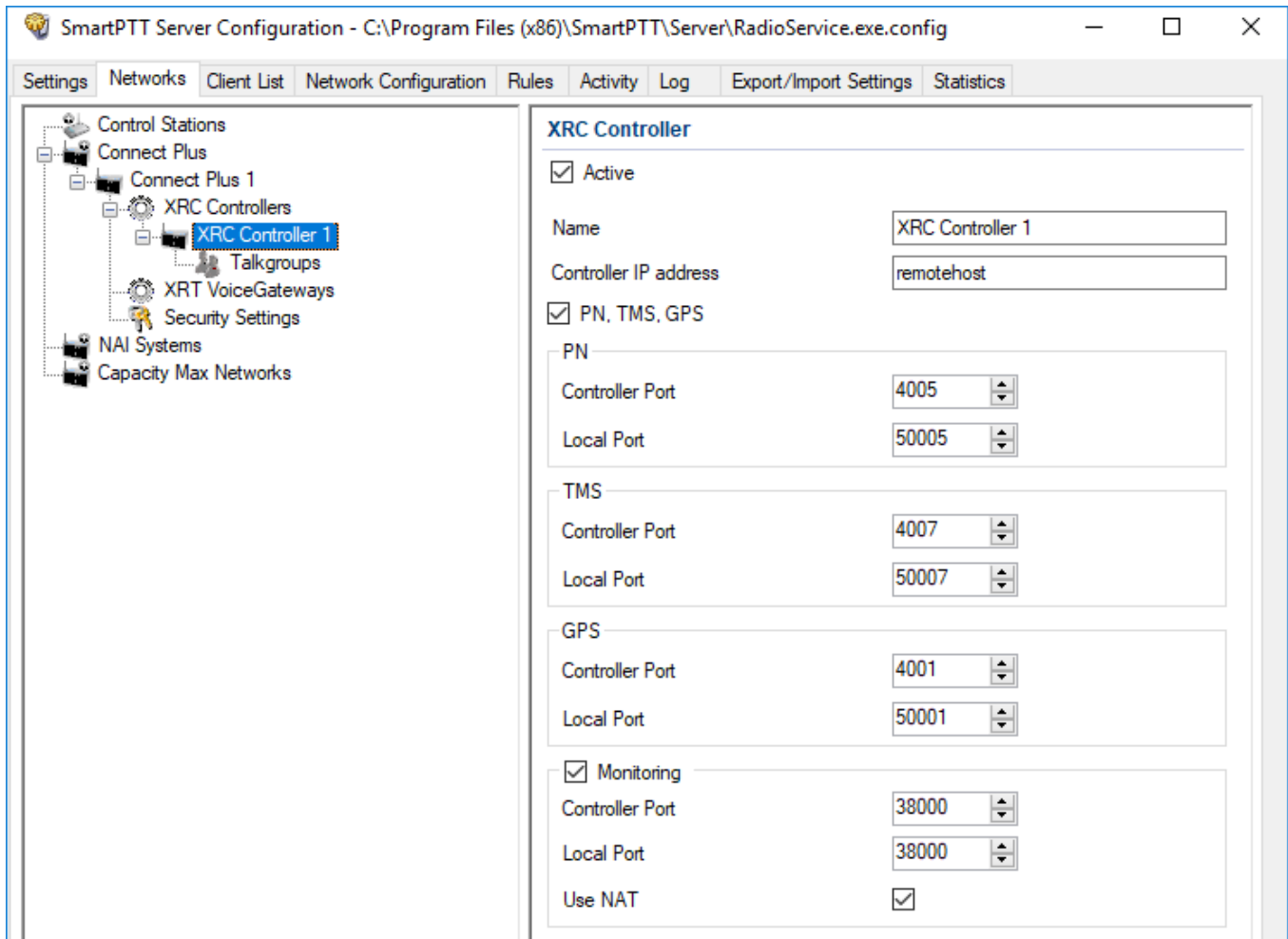
## 2.2.2 XRC Controller

XRC Controller is necessary for transmitting registration and de-registration, GPS data, text messages. XRC Controller is also required for making private calls, because without it, radios will be regarded as offline, and the dispatcher will not be able to make private calls.

### **IMPORTANT**

To configure XRC Controller, install the corresponding license. For more information on how to install licenses, see [Licenses](#).

You can add only one XRC Controller per site. Right-click **XRC Controller** to add. The following window appears:



**Name:** XRC Controller name. This is used only in *SmartPTT Radioserver Configurator*.

**Controller Address:** IP address of the XRC Controller. Port is not required in this field.

In order to enable data services on the controller select **PN, TMS, GPS**.

**Controller port:** Port of XRC Controller for the corresponding service.

**Local port:** Port of the virtual repeater for the corresponding service.

#### NOTE

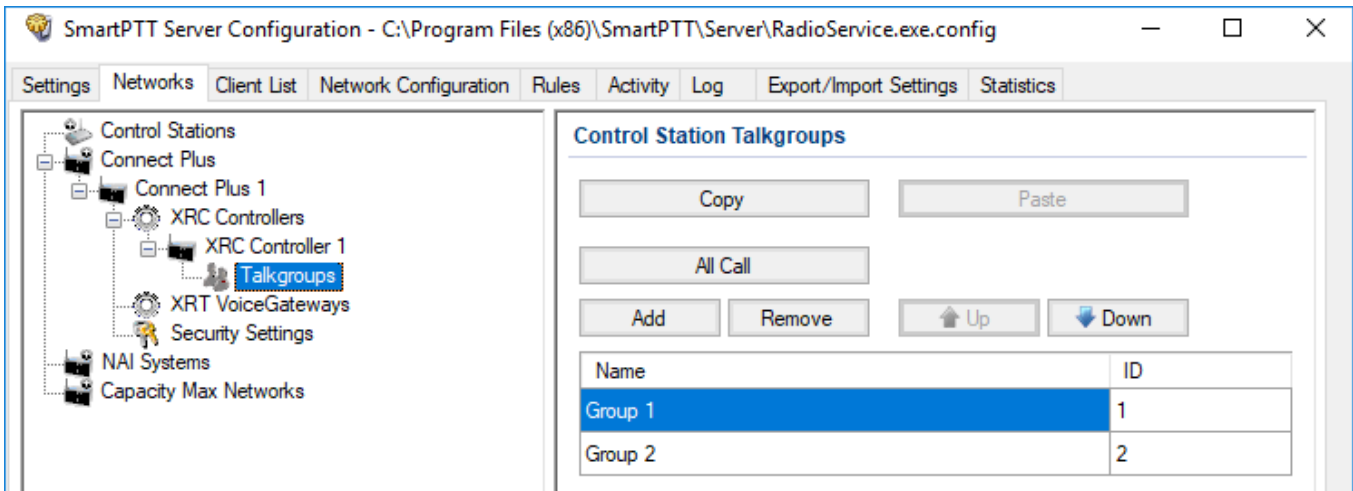
**PN Controller Port** should match the port of Presence Notification service set in XRC Controller.

To be able to review the XRC Controller on the **Monitoring** panel in *SmartPTT Dispatcher*, select **Monitoring** and specify **Controller port** and **Local port**. If the XRC Controller is in one local network with the radioserver, leave **Use NAT** clear. If the XRC Controller is outside the local network of the radioserver, select **Use NAT**.

**NOTE**

Make sure that general [Monitoring](#) is active.

In order to send group text messages, add talkgroups. Click **Talkgroups** under **XRC Controller**. The following window opens:



### 2.2.2.1 Configuring Joint GPS and Indoor Data

If you want to receive joint location data (GPS and indoor) in Connect Plus, configure the following settings:

- Radio settings in *MOTOTRBO CPS*
- Radio settings in SmartPTT Dispatcher
- Repeater settings in *MOTOTRBO CPS*

### 2.2.2.1.1 Configuring Radio in MOTOTRBO CPS

To configure radio in *MOTOTRBO CPS*, follow these steps:

1. In the radio firmware file, select **Channels** → **<Zone Name>** → **<Channel Name>**.
2. In the **<Channel Name>** pane, perform the following actions:
  - Select the **Enhanced GNSS** check box, and from the **Window Size** list, select *10*.
  - From the **Compressed UDP Data Header** list, select *MSI*.

### 2.2.2.1.2 Configuring Radio in SmartPTT Dispatcher

To configure radio in SmartPTT Dispatcher, follow these steps:

1. Open the radio properties window.
2. In the **Location** tab, perform the following actions:
  - a. Select the **Indoor Tracking** check box.
  - b. Select the **Update Interval** check box, and enter *30* in the field.

### 2.2.2.1.3 Configuring Repeater in MOTOTRBO CPS

To configure repeater in *MOTOTRBO CPS*, follow these steps:

1. In the repeater firmware file, select **Channels** → **<Zone Name>** → **<Channel Name>**.
2. In the **<Channel Name>** pane, in the **Enhanced GNSS area**, select the **Enable** check box.

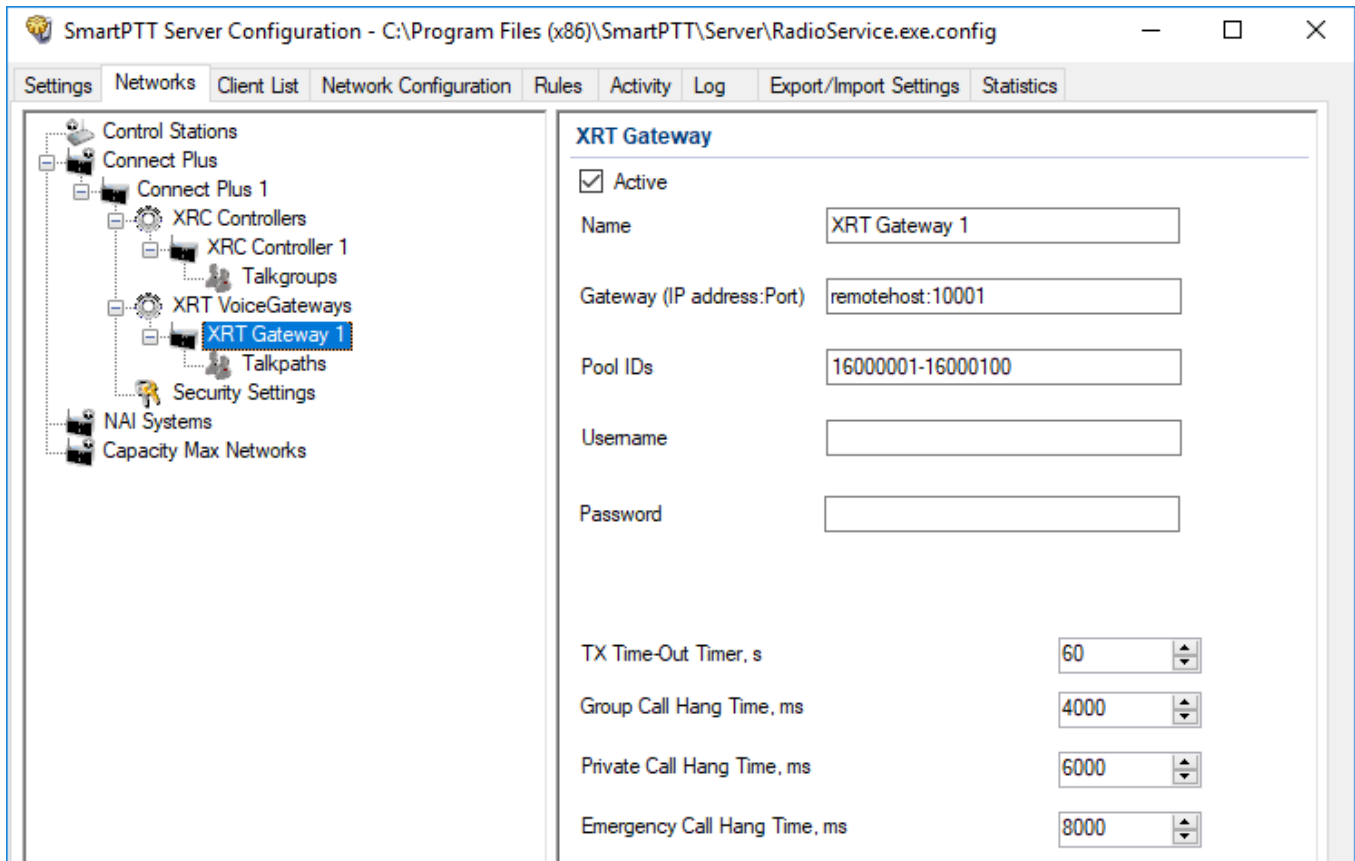
## 2.2.3 XRT Gateway

XRT VoiceGateway allows making voice calls and monitor call events in the Connect Plus system. You can have up to 5 XRT VoiceGateways working in one network. To support private voice communication, it is necessary to have an XRC Controller. Otherwise, radios will be regarded as offline, and private calls will be impossible.

### IMPORTANT

To configure XRT Voice Gateway, install the corresponding license. For more information on how to install licenses, see [Licenses](#).

To add the gateway, right-click **XRT VoiceGateways** and click **Add**. The following window appears:



**Name:** XRT VoiceGateway name, which is displayed only in *SmartPTT Radioserver Configurator*.

**Gateway Address:Port:** IP address and port of the XRT VoiceGateway.

**Pool IDs:** It is recommended to use default values. The values must correspond to the range of IDs set in the XRT VoiceGateway settings (**Pool ID**).

**Username** and **Password:** Used for authentication with the gateway and must equal the corresponding values in the XRT VoiceGateway settings.

**TX Time-Out Timer, s:** 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 channel is reserved for a group call after the end of transmission. During the timeout, only the participants of the talkgroup can transmit. This parameter should match the same parameter set in the XRC Controller.

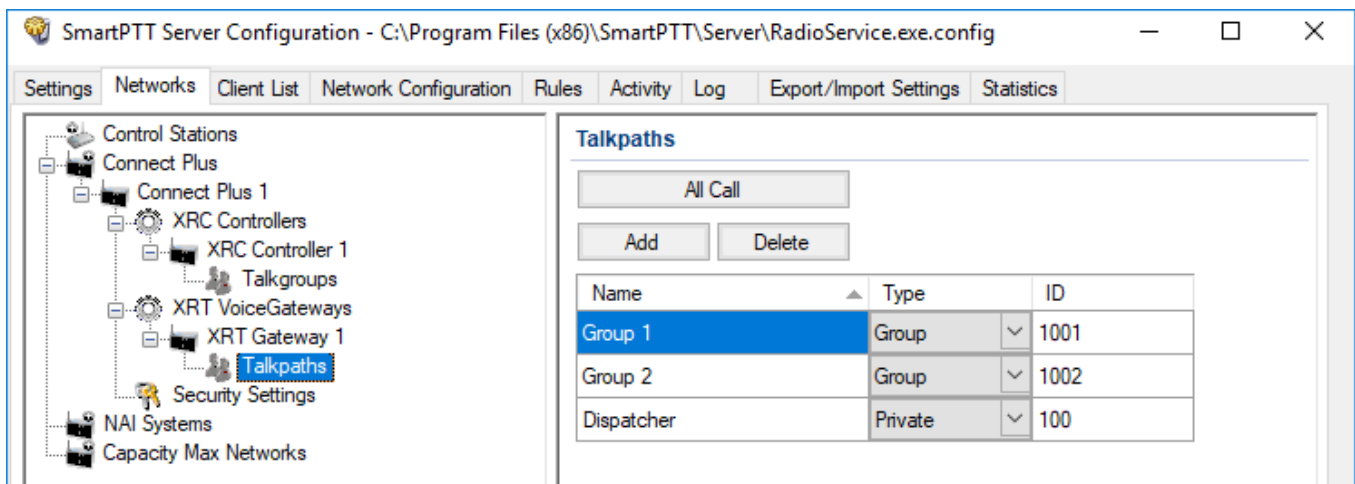


**Private Call Hang Time, ms:** Time during which the channel is reserved for a private call after the end of transmission. During the timeout, only the participants of the private call can transmit. This parameter should match the same parameter set in the XRC Controller.

**Emergency Call Hang Time, ms:** Time during which the channel is reserved for an emergency call after the end of transmission. During the timeout only the participants of the talkgroup can transmit. This parameter should match the same parameter set in the XRC Controller.

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. Group IDs should match the IDs set in the **Group ID** field in the XRT VoiceGateway settings (see above). If the **Group ID** field is empty in the XRT VoiceGateway settings, the user should have permission for any Group Talk Path that it validly registers with the XRT 9000.

Dispatcher ID should match the ID set in the **Console User ID** in the XRT VoiceGateway settings (see above).



#### NOTE

When adding talk paths make sure that talk paths with the same identifiers are specified in the XRT VoiceGateway settings.

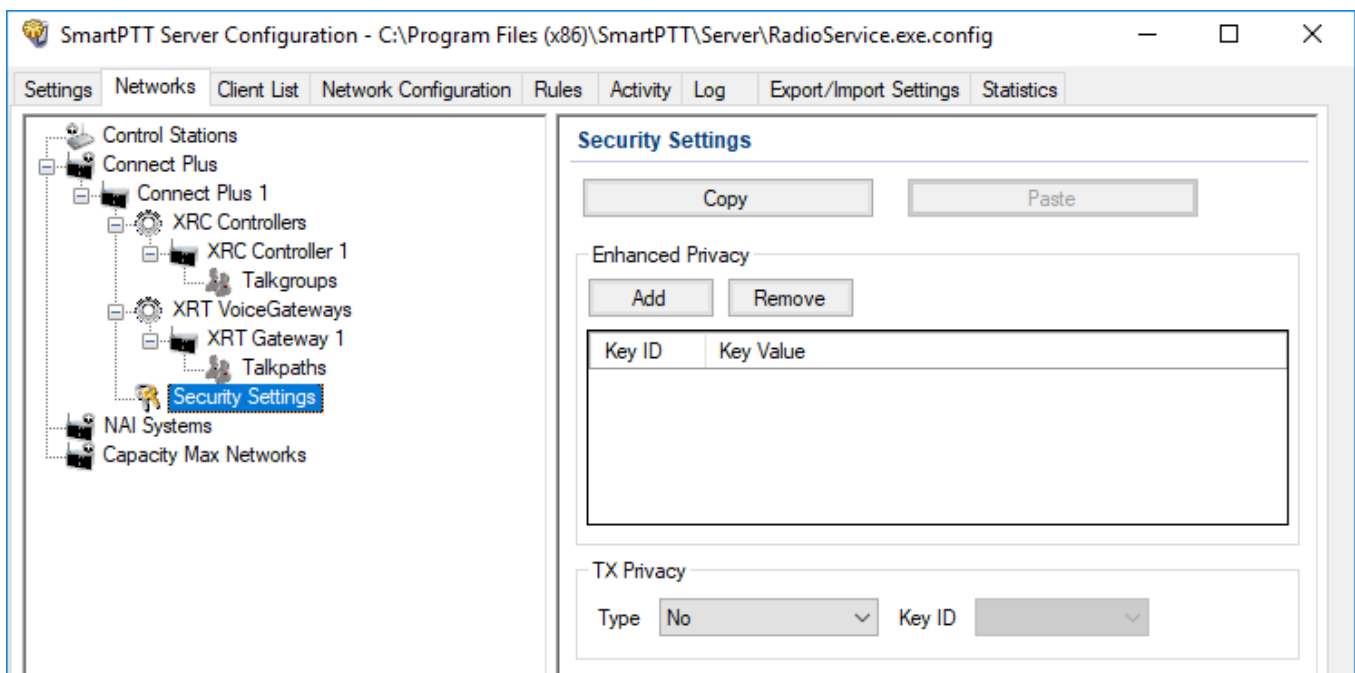
## 2.2.4 Security Settings

Connect Plus supports two types of privacy mechanisms – Enhanced and Advanced Encryption Standard (AES).

The Enhanced Privacy utilizes Motorola proprietary algorithms and therefore is not interoperable with other vendor's privacy offerings. The Enhanced Privacy provides high level of protection by means of 40-bit key length and supports multiple keys in a radio.

The Advanced Encryption Standard (AES) is a specification for the encryption of electronic data established by the U.S. National Institute of Standards and Technology (NIST). The AES feature supports 256-bit key length, unlike Enhanced Privacy. Similar to Enhanced Privacy, the AES also supports multiple keys. For AES encryption a special license is required.

The **Security Settings** window allows you to specify the encryption keys for incoming and outgoing traffic on the digital channel.



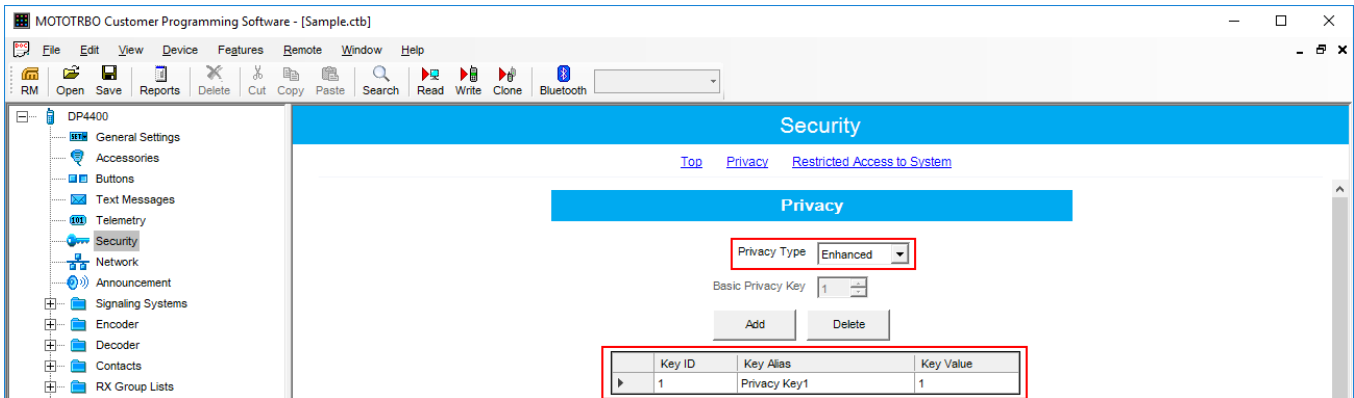
**Copy:** Copy encryption settings of the channel to the clipboard.

**Paste:** Paste encryption settings of the channel from the clipboard.

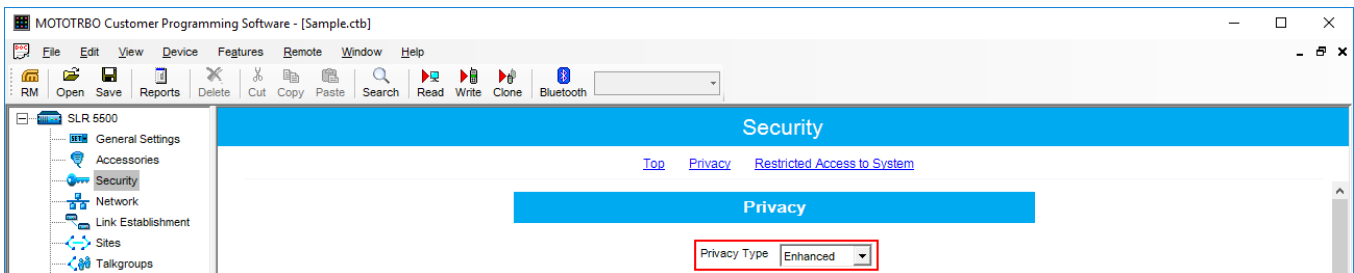
## Enhanced Privacy

To configure **Enhanced Privacy**, follow these steps:

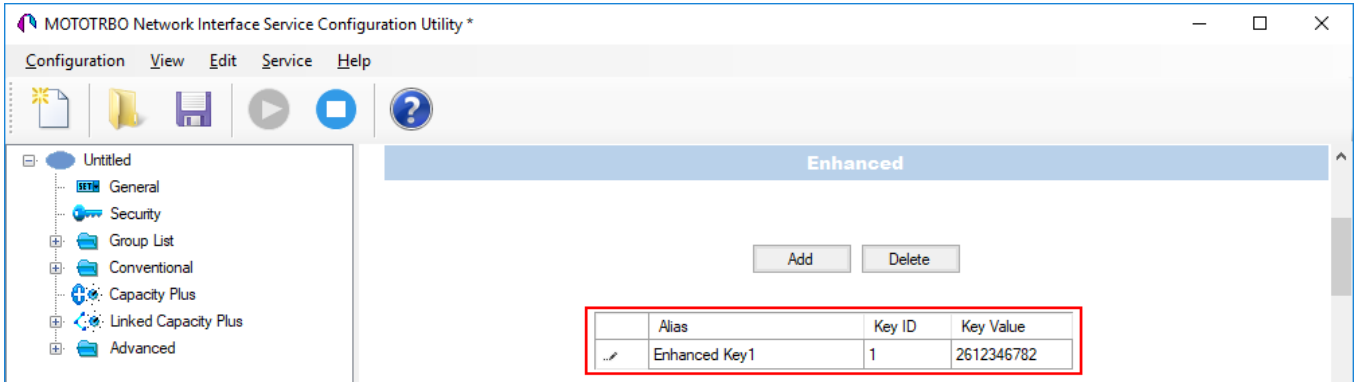
1. Run *MOTOTRBO CPS*.
2. In the **Security** window of the radio settings in *MOTOTRBO CPS* in the **Privacy Type** field select Enhanced and add the enhanced privacy key. Enter its ID and value in the corresponding fields.



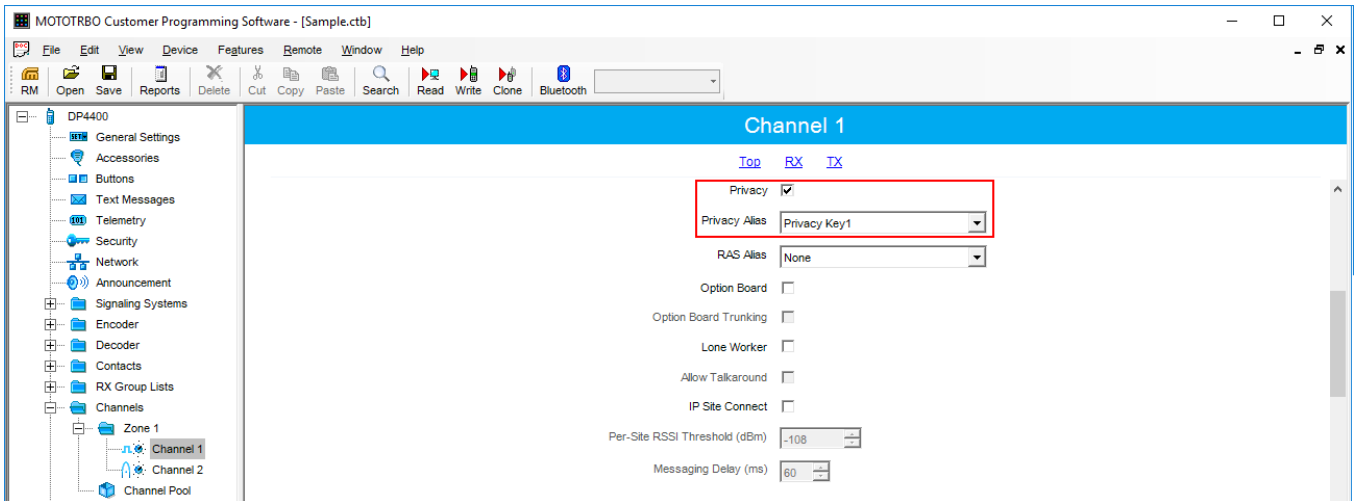
3. In the **Security** window of the repeater settings in *MOTOTRBO CPS* in the **Privacy Type** field select Enhanced.



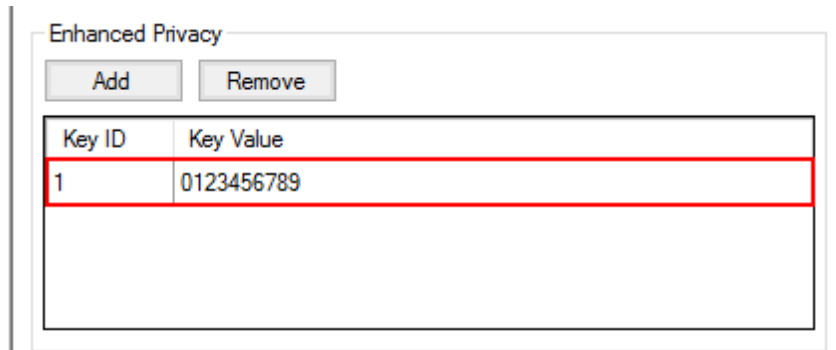
- In the **Security** window of *MOTOTRBO Network Interface Service Configuration Utility* in the **Enhanced** field add the enhanced privacy key. Enter its ID and value in the corresponding fields.





- In the radio settings in *MOTOTRBO CPS* to enable the encryption mode on the required channel select the **Privacy** check box and in the **Privacy Alias** field select the enhanced privacy key for this channel.



- In the **Security Settings** window of *SmartPTT Radioserver Configurator* add an enhanced privacy key for incoming traffic. Enter its ID and value in the corresponding fields.

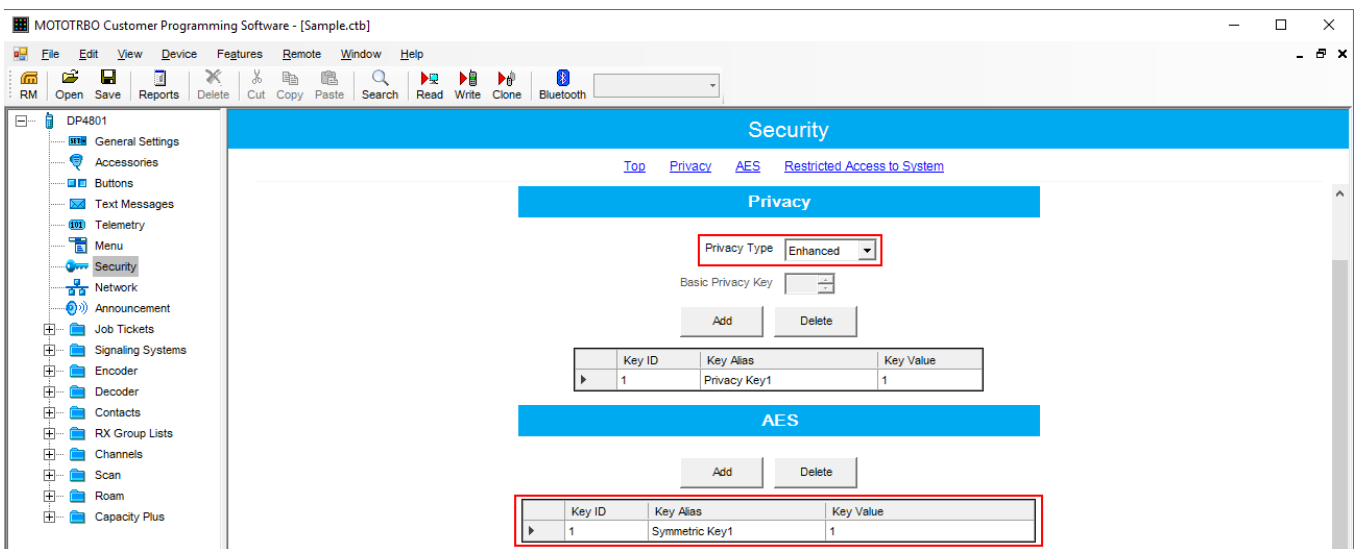


- At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.
- Click **Restart** (  ) to restart SmartPTT Radioserver and apply changes.

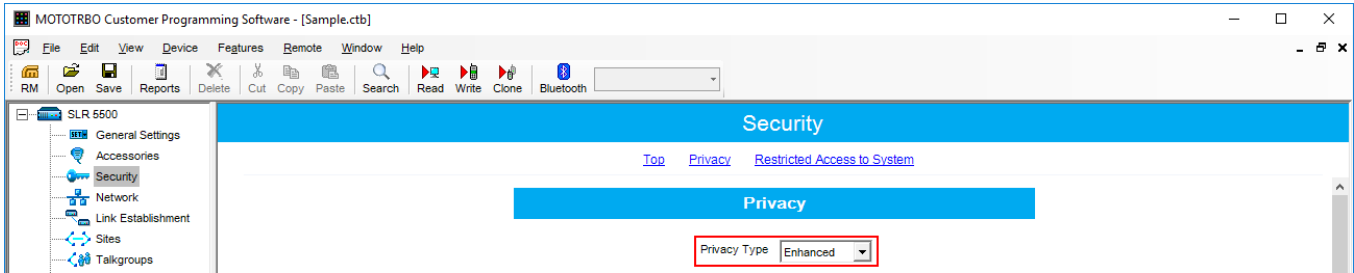
## AES Privacy

To configure the **AES** privacy, follow these steps:

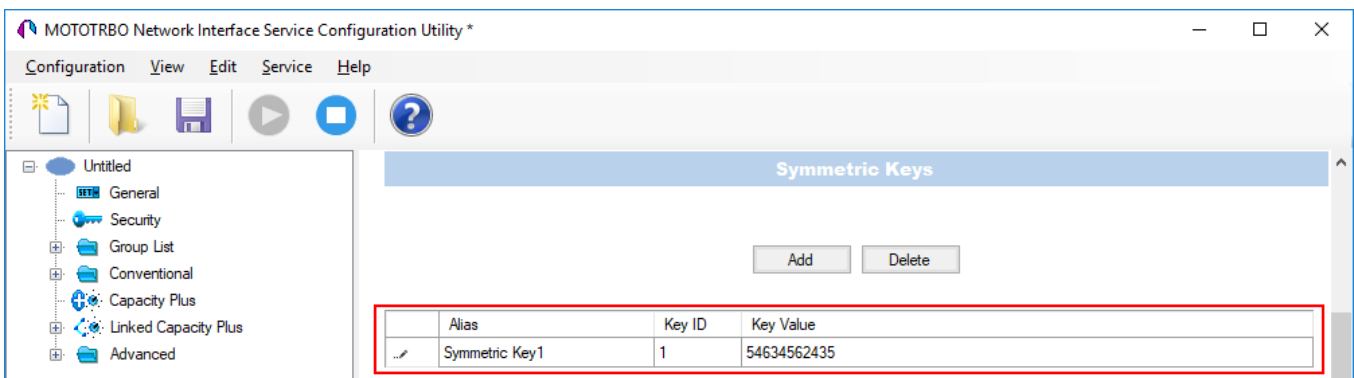
- Run *MOTOTRBO CPS*.
- In the **Security** window of the radio settings in *MOTOTRBO CPS* in the **Privacy Type** field select Enhanced and add the AES privacy key. Enter its ID and value in the corresponding fields.



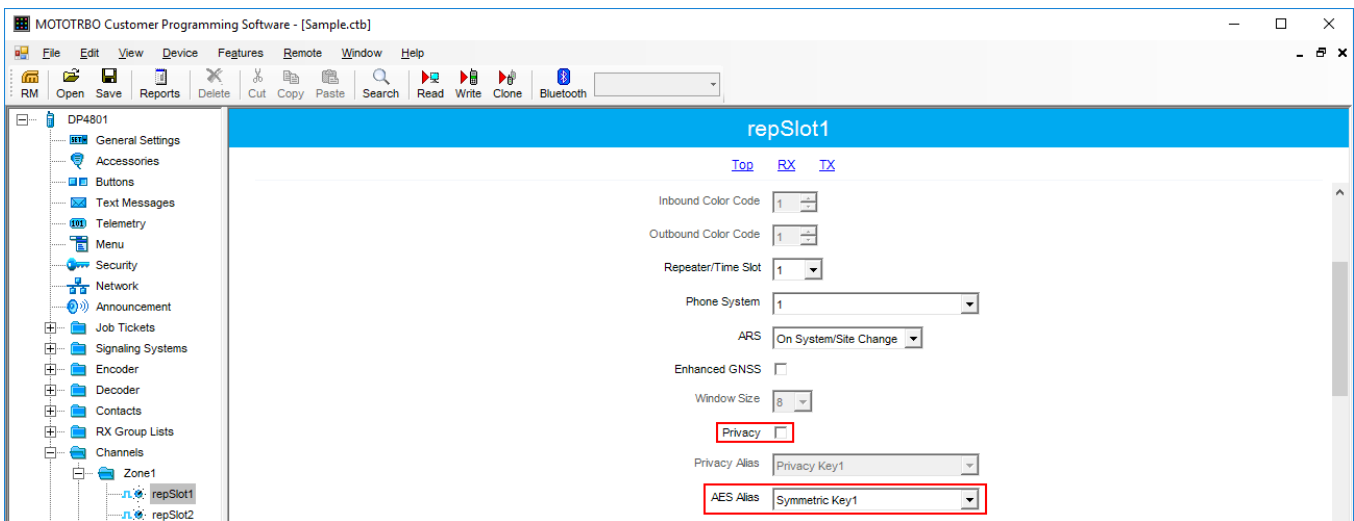
- In the **Security** window of the repeater settings in *MOTOTRBO CPS* in the **Privacy Type** field select **Enhanced**.



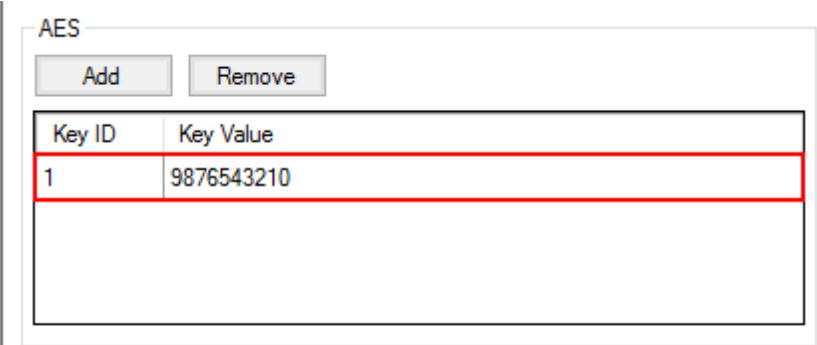
- In the **Security** window of MNIS in the **Symmetric Keys** field add the AES symmetric privacy key. Enter its ID and value in the corresponding fields.



- In the radio settings in *MOTOTRBO CPS* to enable the AES encryption mode on the required channel clear the **Privacy** check box and in the **AES Alias** field select the AES privacy key.





6. In the **Security Settings** window of *SmartPTT Radioserver Configurator* add an AES privacy key for incoming traffic. Enter its ID and value in the corresponding fields.



Key ID	Key Value
1	9876543210

**NOTE**

Key ID and Key Value must match the values set in the radio settings in the Radio Management program and in MOTOTRBO Network Interface Service Configuration Utility. If the values in the Key ID fields are the same, but the values in the Key Value fields do not match, the receiving side hears only a distorted voice. If the key identifier of the transmitting side does not coincide with one of the key identifiers in the list of the receiving side, then transfer to the receiving party will not be heard.

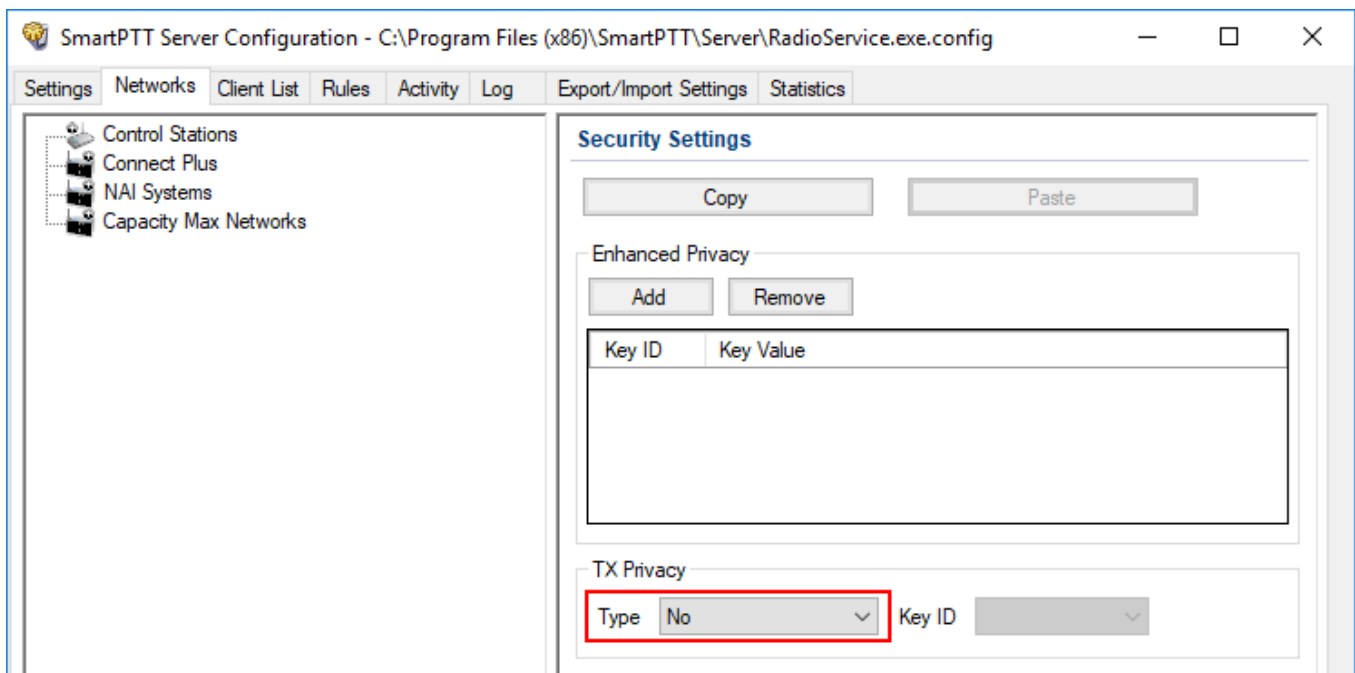
7. At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.
8. Click **Restart** (  ) to restart SmartPTT Radioserver and apply changes.

**TX Privacy**

TX Privacy is used for selecting an encryption mode for outgoing traffic on the side of *SmartPTT Dispatcher*.

To configure the TX Privacy for a Connect Plus system, follow these steps:



1. In the **TX Privacy** area, from the **Type** list select the desired encryption type:



- Select *No* if encryption of outbound traffic from the radioserver is not required. Select *Enhanced* if you want to use enhanced encryption for outgoing traffic from the radioserver. Use the Key ID you specified in the **Enhanced Privacy** area.
- *AES license is required:* Select *AES (Legacy Key)* if you want to use *AES (Legacy Key)* encryption for outgoing traffic from the radioserver. Use the Key ID you specified in the **AES** area.
- *AES license is required:* Select *AES (Symmetric Key)* if you want to use *AES (Symmetric Key)* encryption for outgoing traffic from the radioserver. Use the Key ID you specified in the **AES** area.

#### NOTE

If from the **Type** field *No* is selected and you have AES encryption for incoming traffic configured, AES (Symmetric Key) is used for incoming traffic by default.

2. At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.
3. Click **Restart** (  ) to restart SmartPTT Radioserver and apply changes.

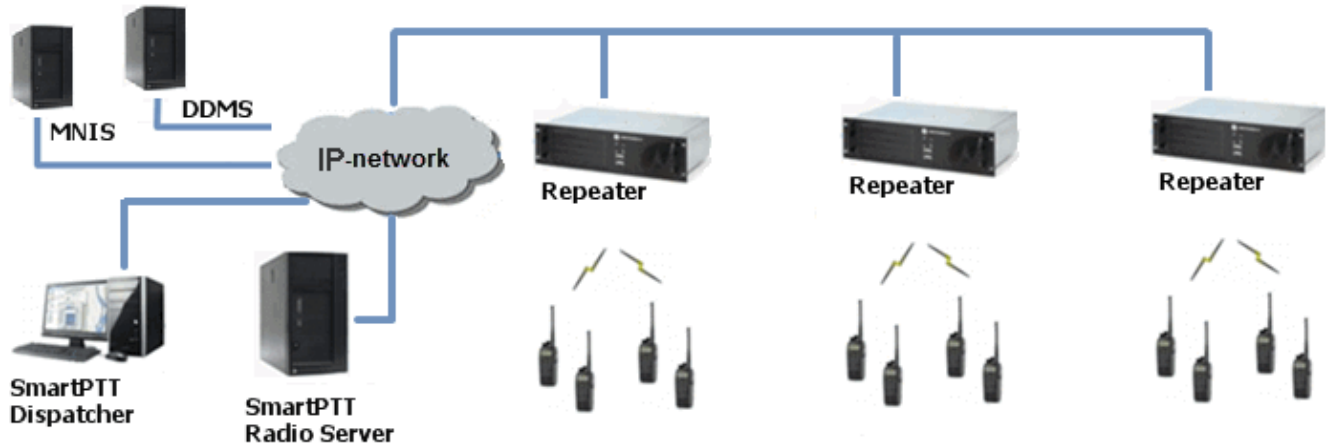


## 2.3 NAI Systems

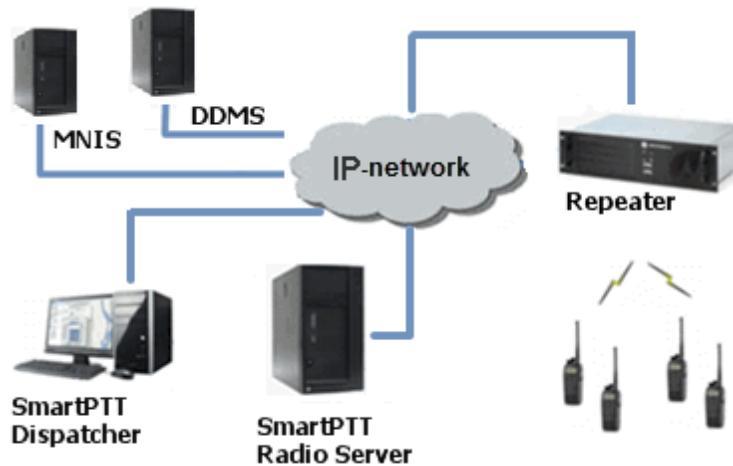
SmartPTT supports MOTOTRBO Network Application Interface (NAI) protocol for networks such as IP Site Connect, Extended Range Direct Mode, Capacity Plus, and Linked Capacity Plus. NAI network configuration uses this protocol for voice, data and monitoring data transmission.

Currently, you can configure four network types with the NAI protocol:

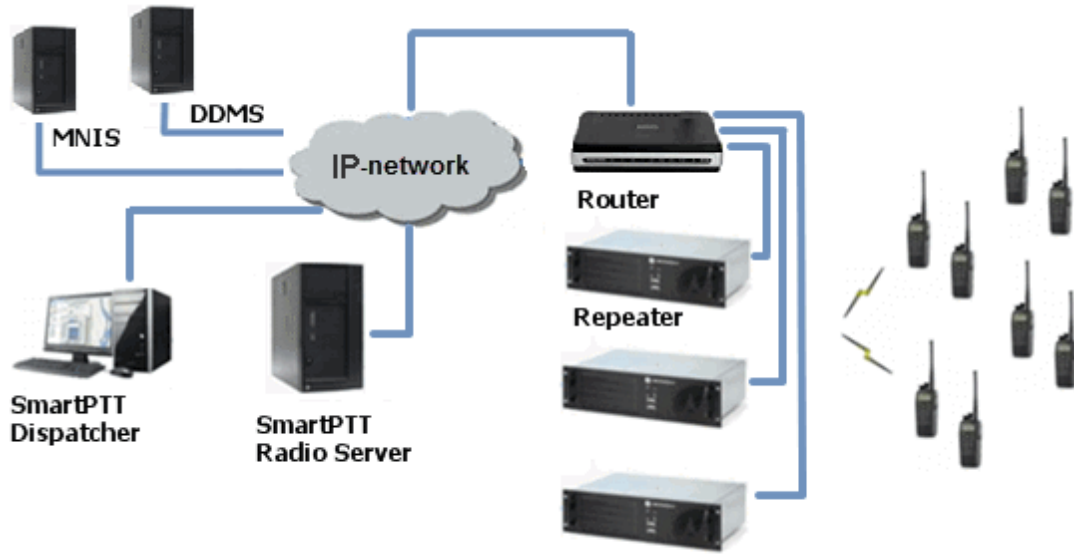
- NAI - IP Site Connect topology:



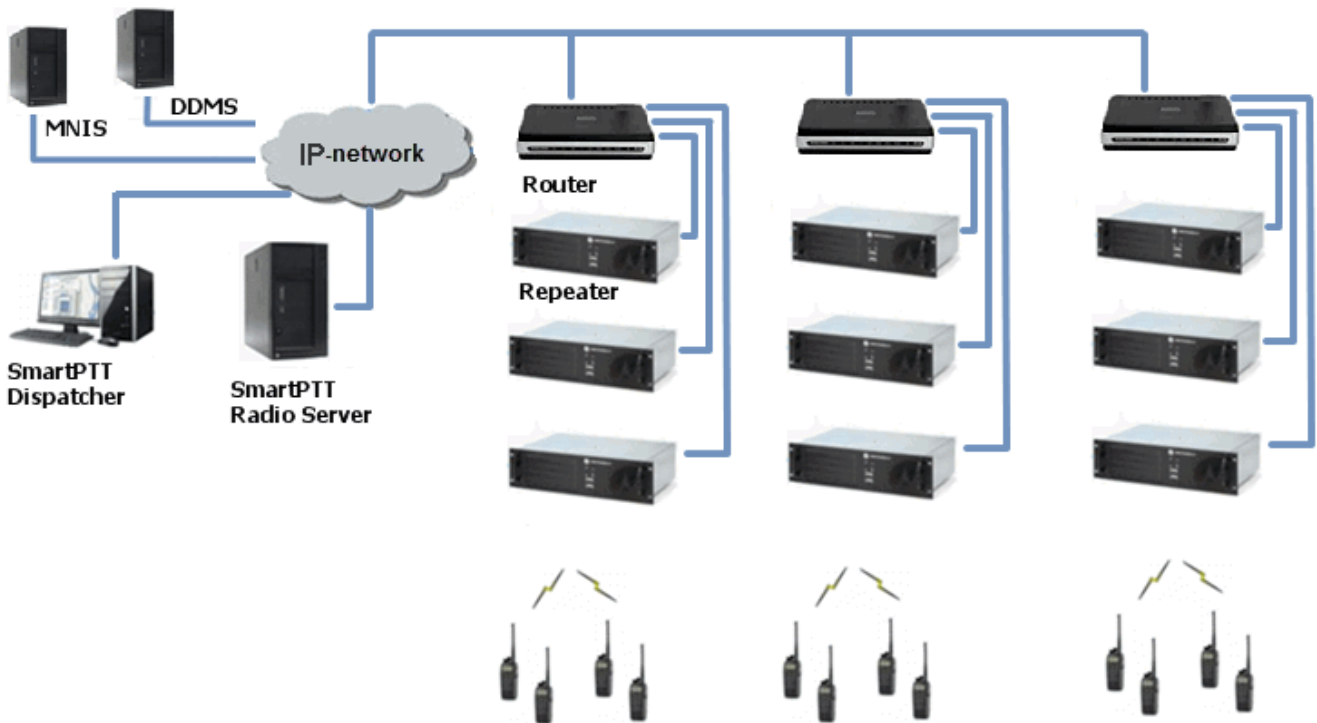
- NAI - Extended Range Direct Mode topology:



- NAI - Capacity Plus topology:



- NAI - Linked Capacity Plus topology:



**NOTE**

You can install SmartPTT Radioserver, DDMS and MNIS on the same computer.

The MOTOTRBO Network Interface Service (MNIS) lets you transmit data (text messages, GPS, telemetry, etc.) without control stations. MNIS connects to the repeater system over IP and uses it to transmit and receive data packets.

To use the service, you need to install and configure *MOTOTRBO Network Interface Service Configuration Utility*.

**NOTE**

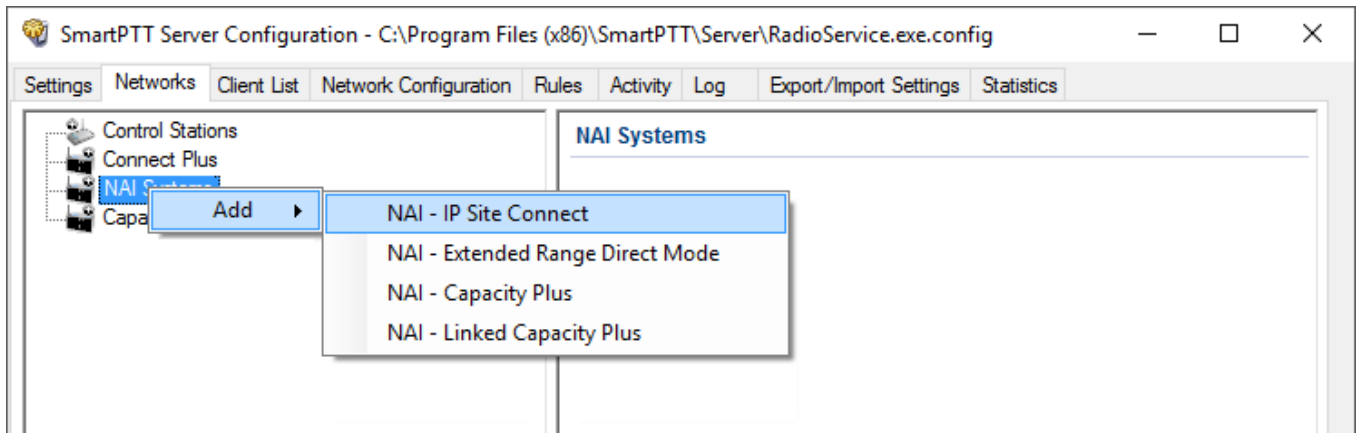
MNIS allows data transmission only. It does not support transmission of voice calls and CSBK commands (Radio Check, Call Alert commands and so on).

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.

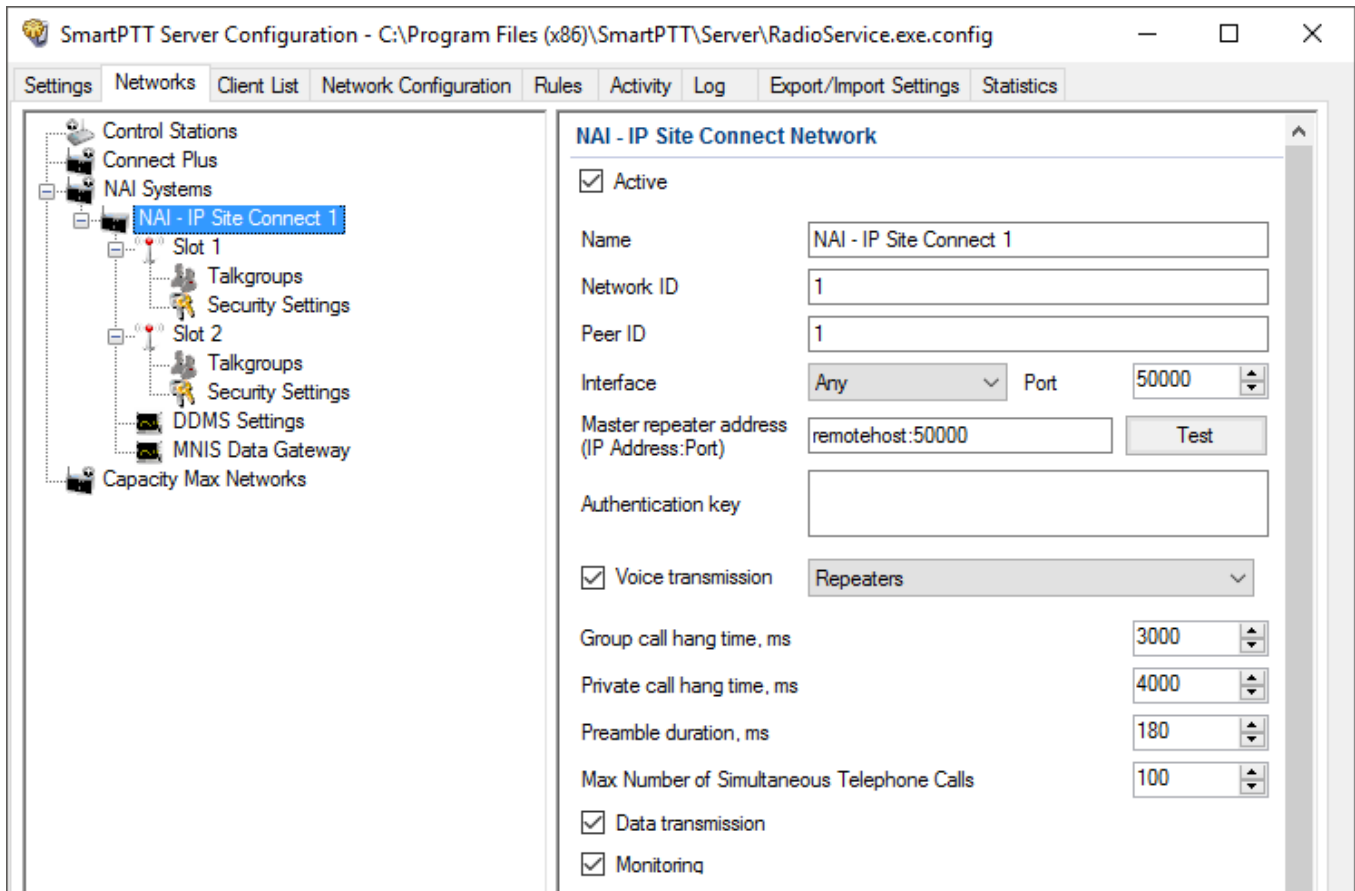
To use the service, you need to install and configure *MOTOTRBO DDMS*.

## 2.3.1 Adding and Configuring NAI Systems

To add a NAI system, on the **Networks** tab of SmartPTT Radioserver Configurator, right-click **NAI Systems**, point to **Add**, and select the desired network type (NAI - IP Site Connect, NAI - Extended Range Direct Mode, NAI - Capacity Plus or NAI - Linked Capacity Plus):



A new pane with network parameters opens. The network parameters differ depending on the selected network type:



**Active:** Activates a network.

**Name:** Name of the created system.

**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 radioserver in the network. This ID must not match any of the other repeater IDs in this network.

**Interface:** Local interface of the radioserver. The radioserver plays the role of a software peer.

**Port:** Port number of the radioserver. It should differ from the corresponding ports in other networks.

**Master repeater address (IP Address:Port):** IP address and port number of the network Master repeater. Click **Test** to check connection between the radioserver and the Master repeater.

**Authentication key:** Repeater authorization key (should be equal to the **Authentication key** in the repeater settings in *MOTOTRBO CPS*).

**Voice transmission:** Voice transmission can be carried by using repeaters or control stations.

**IMPORTANT**

To activate **Voice transmission**, install the corresponding license. For more information on how to install licenses, see [Licenses](#).

To transmit voice via control stations, configure control station parameters and profiles for making private calls. To transmit voice via repeaters, configure virtual control station channels and talkgroups of the channel. The number of channels depends on the network type. To ensure data packets transmission over the network, configure the DDMS and MNIS services.

**Group call hang time:** Time during which the repeater reserves the channel for a group call after the end of transmission. During the timeout, only the participants of the talkgroup can transmit.

**Private call hang time:** Time during which the repeater reserves the channel for a private call after the end of transmission. During the timeout, only the participants of the private call can transmit.

**TX preamble duration (ms):** Duration of TX preamble. Increasing of preamble duration makes a message longer. It reduces the probability of missing the message by a scanning in battery save mode receiving radio. Increasing of preamble reduces the amount of data transmitted on the channel. Preamble duration must not exceed *8040 ms*.

**Max number of simultaneous telephone calls:** Sets the limit on the number of simultaneous telephone calls per system. The parameter is not applicable to the Extended Range Direct Mode systems.

**Data transmission:** Enables data transmission in the network.

**IMPORTANT**

To activate **Data transmission**, install the corresponding license. For more information on how to install licenses, see [Licenses](#).

**Monitoring:** Enables monitoring of radio network equipment condition.

When selecting NAI - Linked Capacity Plus network with voice via repeaters, the new section **Site** with the **Site Priority Configuration** table appears:

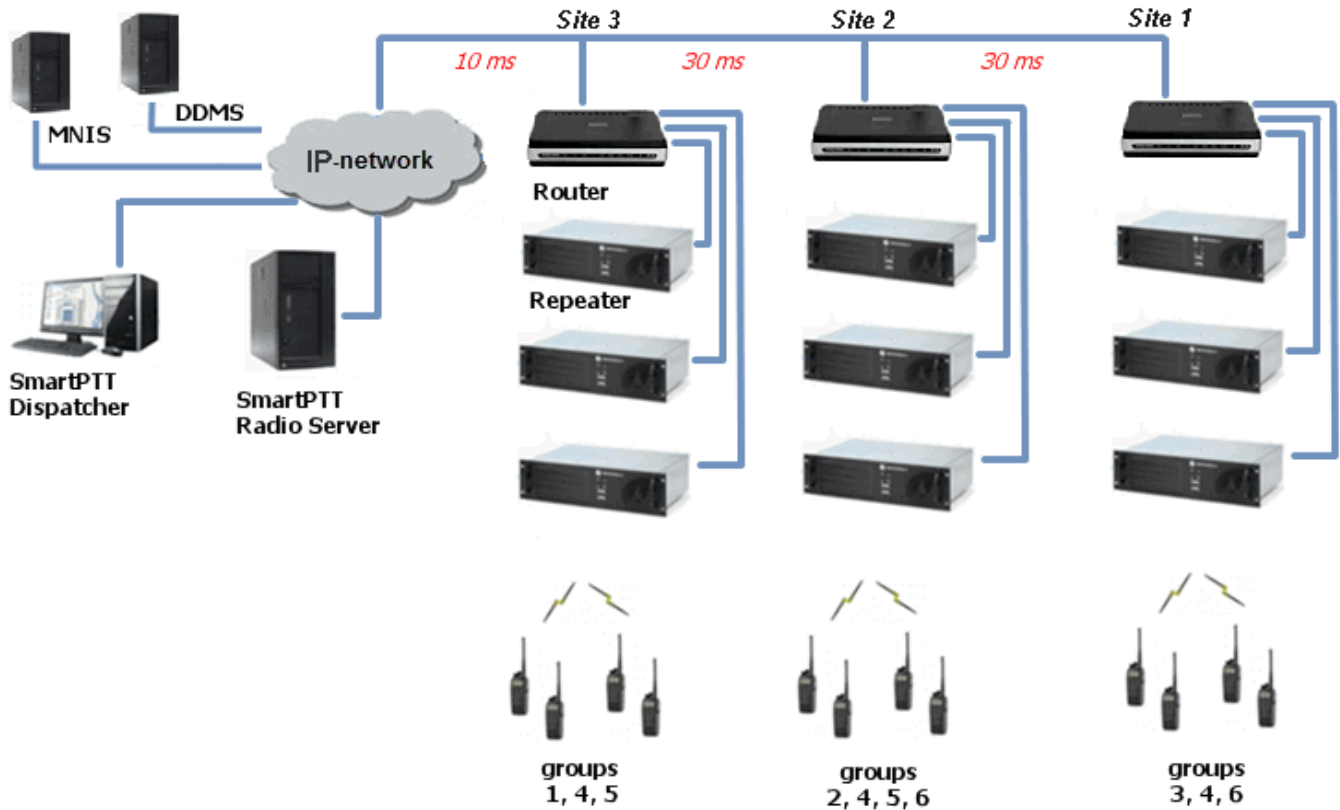
Site	Max Number of Simultaneous Telephone Calls	Priority
Site 1	16	1
Site 2	16	2
Site 3	16	3
Site 4	16	4
Site 5	16	5
Site 6	16	6
Site 7	16	7

**Site:** Name of the site.

**Max number of simultaneous telephone calls:** Sets the limit on the number of simultaneous telephone calls per site.

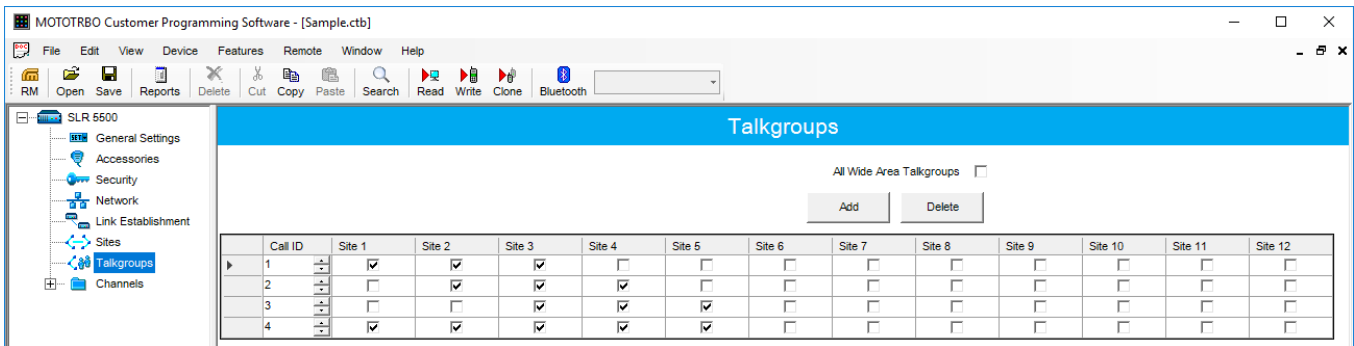
**Priority:** Priorities should be set on the basis of the radioserver proximity to the site. The closer the radioserver to the site, the higher priority it should have. Thus, you will be able to reduce data transmission delay.

The following scheme shows sites location in respect to the radioserver, and distribution of talkgroups on them:



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 in repeater *MOTOTRBO CPS* settings allows you to configure group calls as wide area calls on specific sites:



By default, the repeater sends data to Site 1. Then, data goes from Site 1 to other sites. So, if you call to talkgroup 4, the total time delay is 130 ms.

Set up the site priorities so that sites with less time delay have a higher priority. It allows sending data to the nearest site, from which it is distributed to other sites. Ultimately, the total time delay in case of talkgroup 4 reduces up to 70 ms.

If connection with the 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*).



When selecting NAI - IP Site Connect with voice via repeaters, the **Local Slots** table appears. Local slots allow multiple communications at one time. To add a local slot, click the **Add** button above the table.

The screenshot shows the SmartPTT Server Configuration window with the 'NAI - IP Site Connect Network' settings. The 'Local Slots' table is highlighted with a red box. The table contains the following data:

Name	Peer ID	Slot
Local slot 1	1	Slot 1
Local slot 2	1	Slot 2
Local slot 3	2	Slot 1

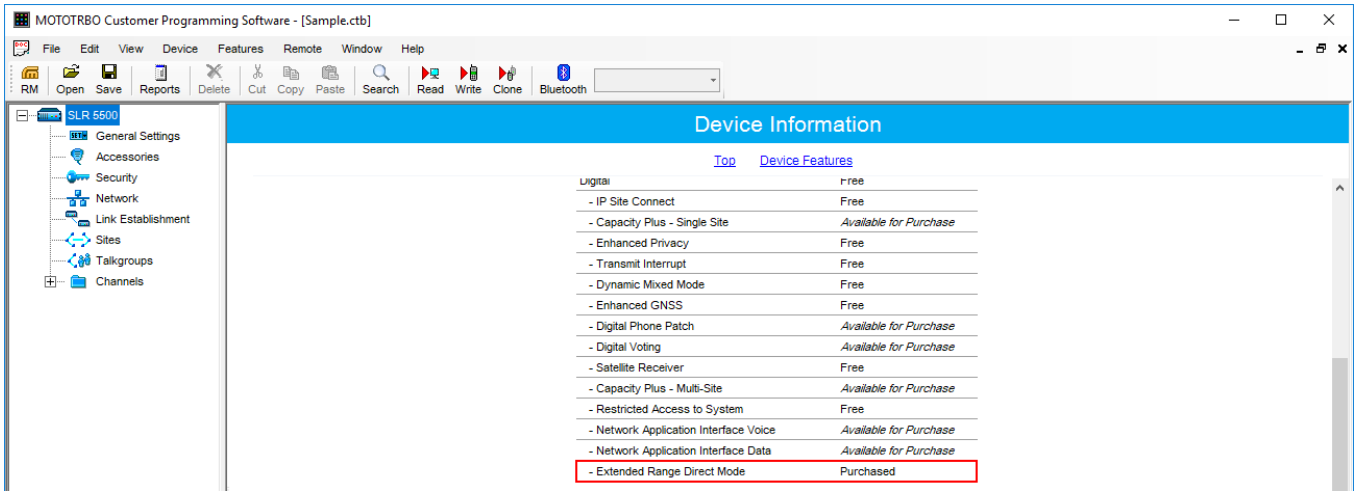
**Name:** Name of a local slot, which will be displayed in SmartPTT Radioserver Configurator and *SmartPTT Dispatcher*.

**Peer ID:** The identifier of a repeater.

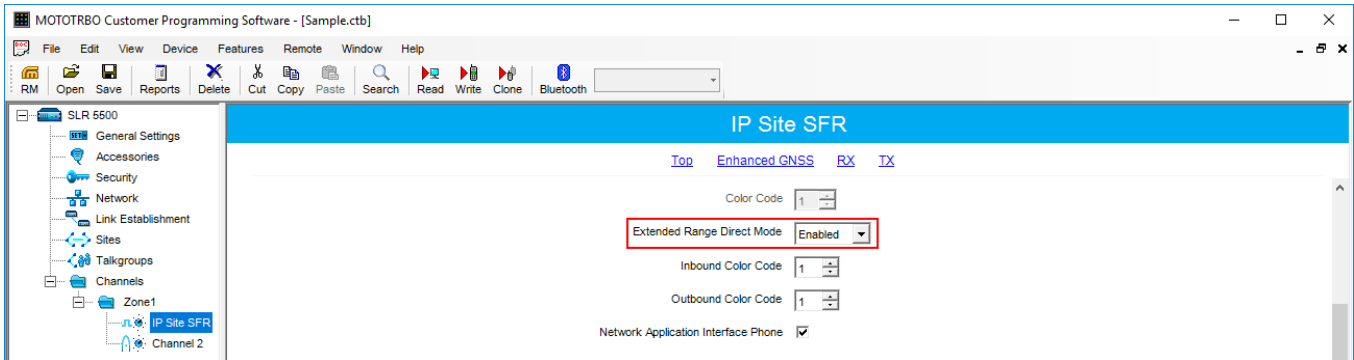
**Slot:** Selection between slots (*Slot 1* or *Slot 2*).

To configure NAI - Extended Range Direct Mode, ensure that the following settings are specified:

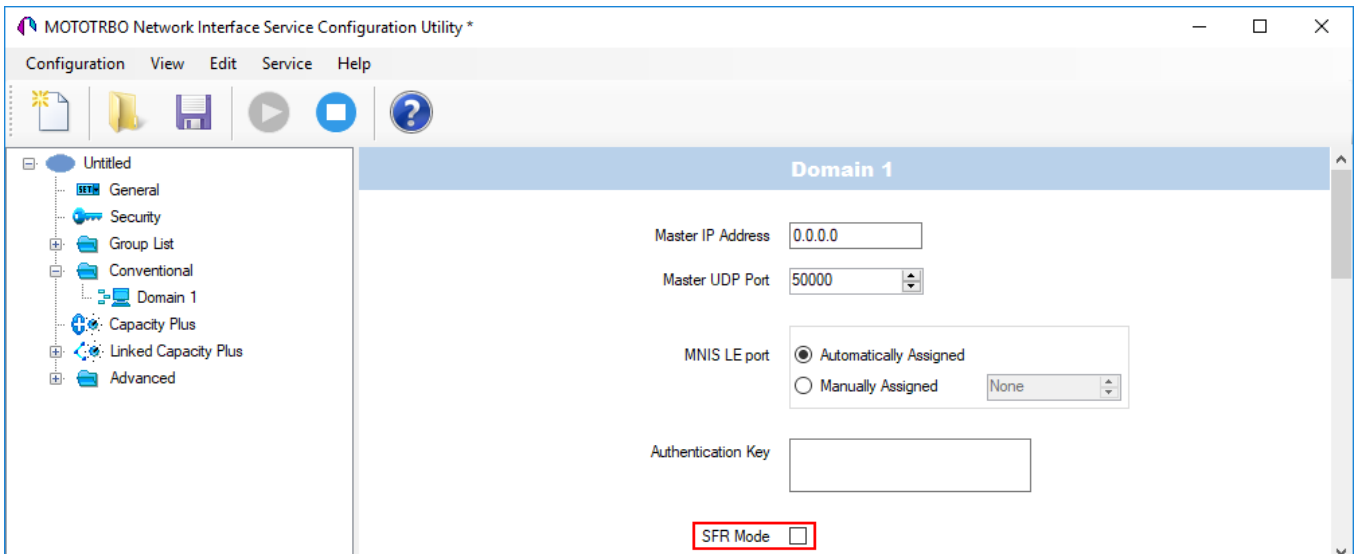
1. The repeater has the corresponding license in MOTOTRBO CPS.



2. Extended Range Direct Mode has the *Enabled* value in MOTOTRBO CPS.



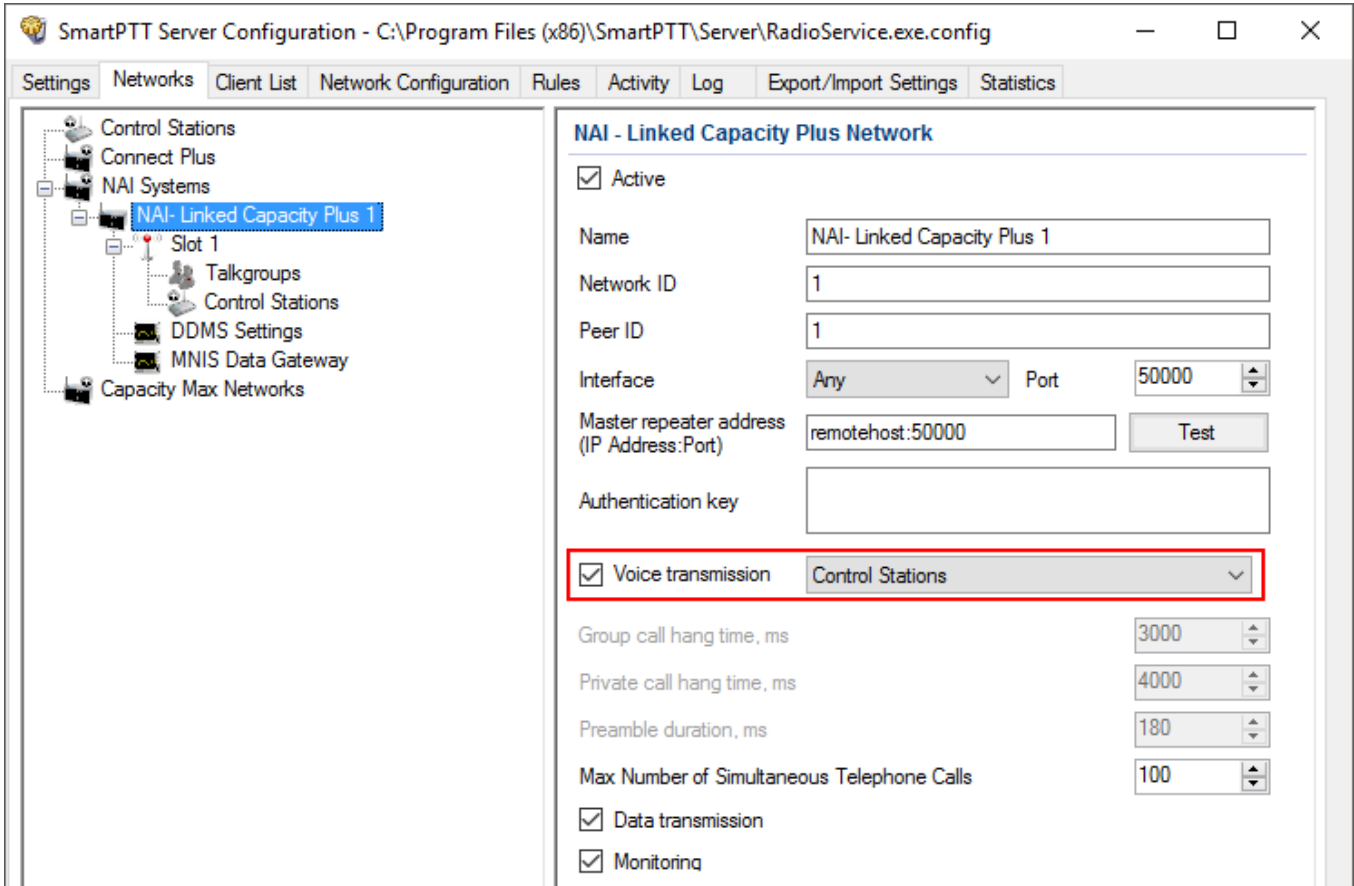
3. The **SFR Mode** check box is selected in the MNIS.



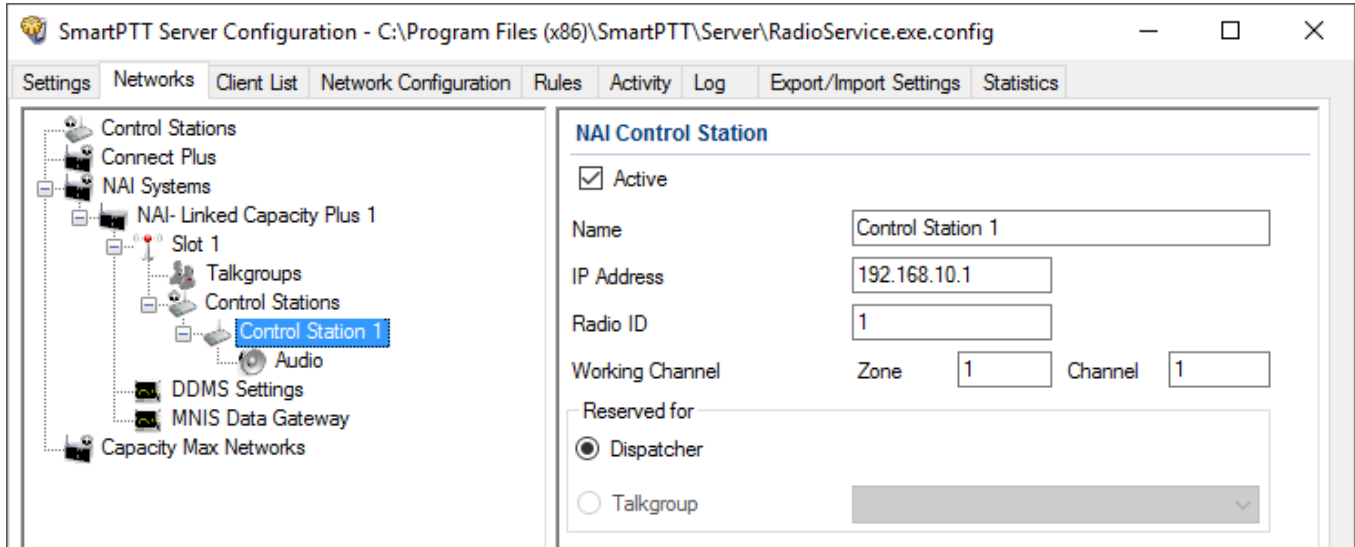
## 2.3.2 Adding and Configuring NAI Control Stations

To transmit voice packets over control station, you need to configure its settings.

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 Station**, point to **Add**, and select **MOTOTRBO control station**.



**Active:** Activates a control station.

**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.

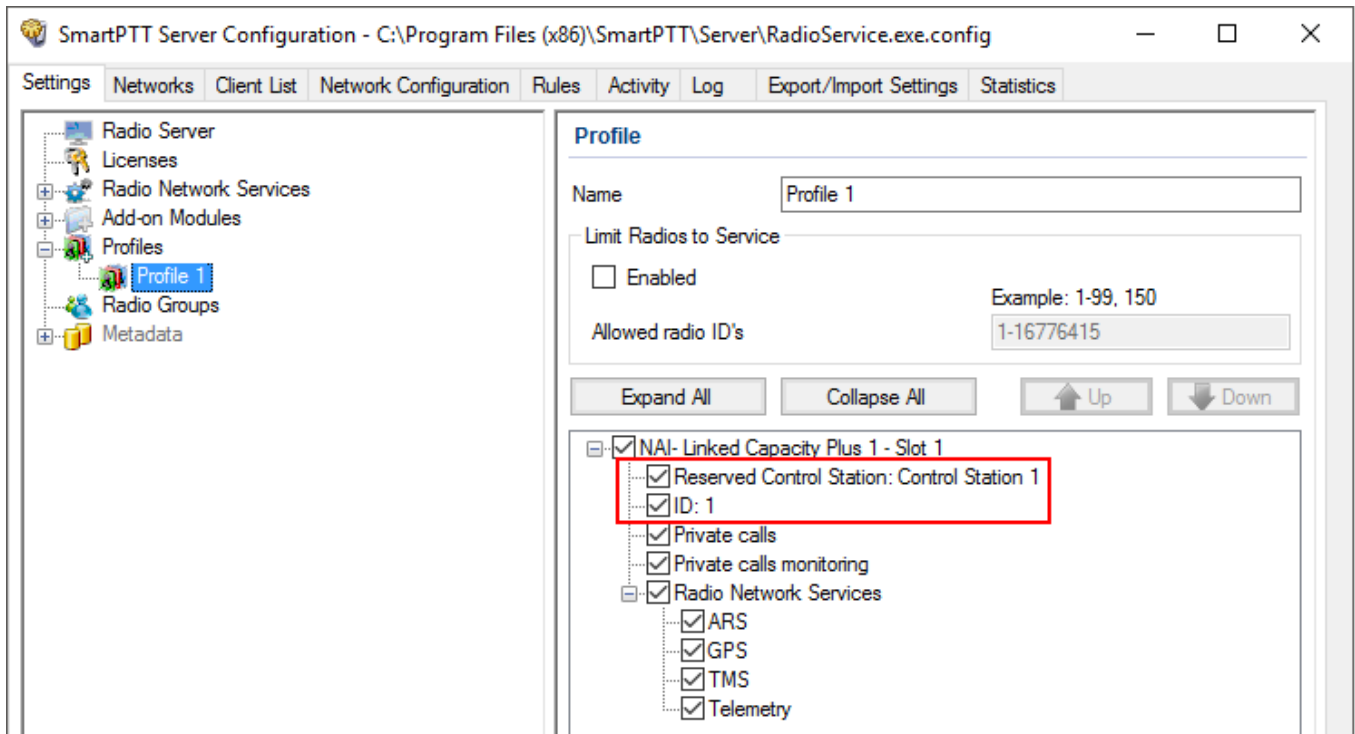
#### NOTE

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.

**Radio ID:** Unique radio identifier used during communication with it. In the IP Site Connect network, the ID is to be set in the range from 1 to 16776415. In the NAI - Capacity Plus or NAI - Linked Capacity Plus networks, the ID is to be set in the range from 1 to 65535.

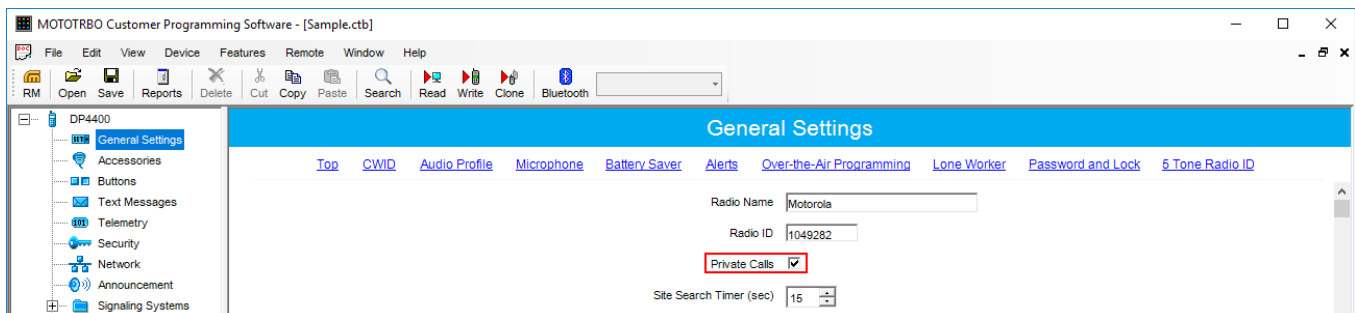
**Working Channel:** Select the channel and the zone to be set at the control station at the radioserver launch.

**Reserved for:** Allows you to define how the control station is to be used. It can be used for private calls (**Dispatcher**) or for group calls (**Talkgroup**). This parameter is available only for NAI - Extended Range Direct Mode, NAI - Linked Capacity Plus and NAI - Capacity Plus networks. You can use one control station per one dispatcher or per one talkgroup. To allow group calls, select **Talkgroup**. At that, the list with added talkgroups becomes enabled. To allow private calls to and from the dispatcher, select **Dispatcher** and add [profiles](#) – one per dispatcher. In the profile, select the reserved control station. At that, **ID** will change and will match **Radio ID** set in the **NAI Control Station** settings.

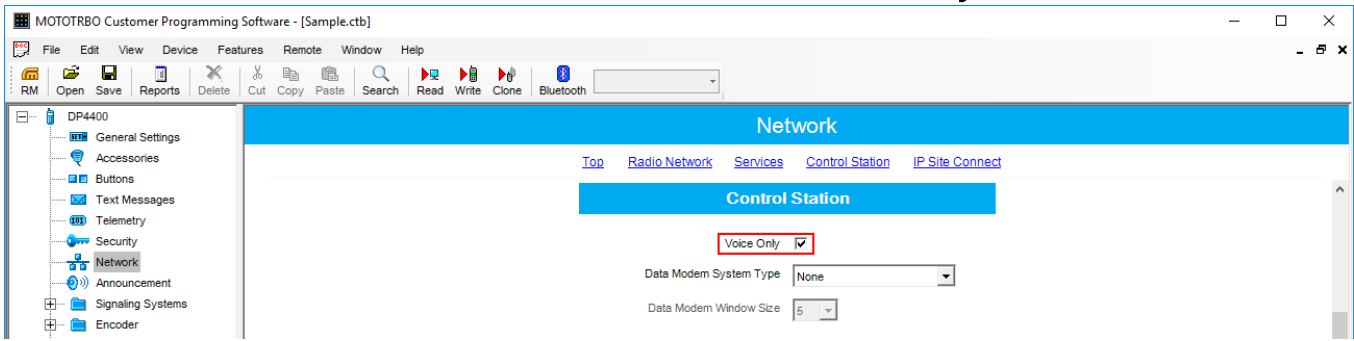


Also, make sure the following settings are made in CPS in control stations' configurations:

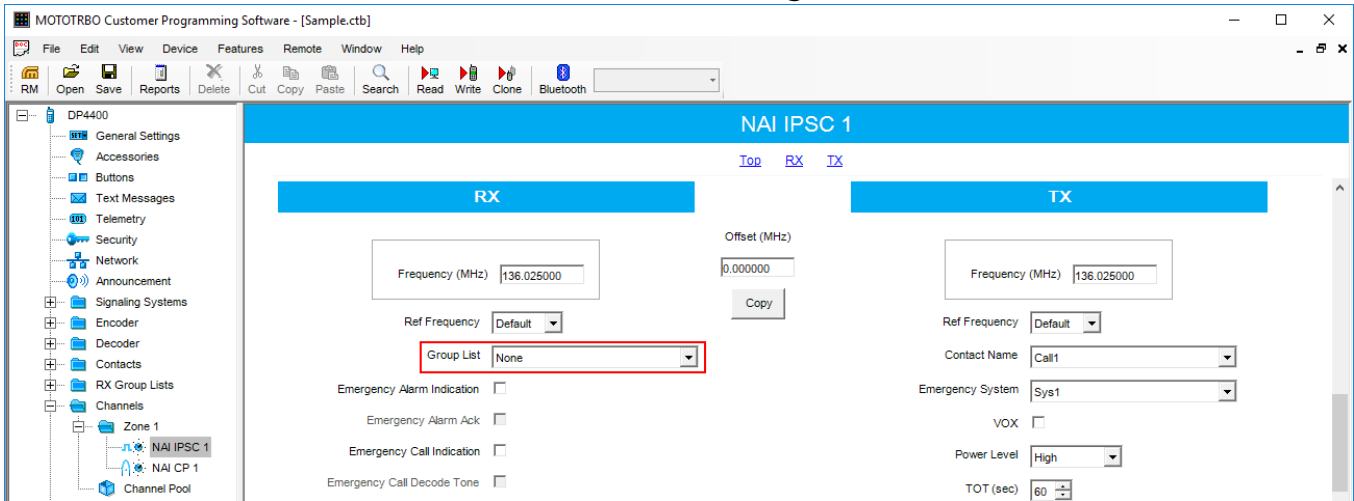
- When using for talkgroups:
  - In **General Settings**, clear **Private Calls** check box.



- In **Network** under **Control Station** section, select **Voice Only**.

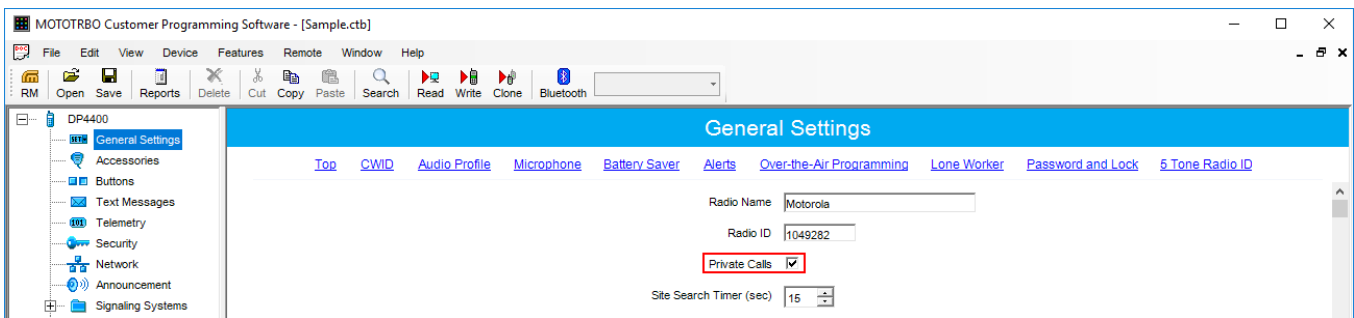


- In the **Channel** settings, in **RX Group List**, select the talkgroup, for which the control station is reserved in SmartPTT Radioserver Configurator.

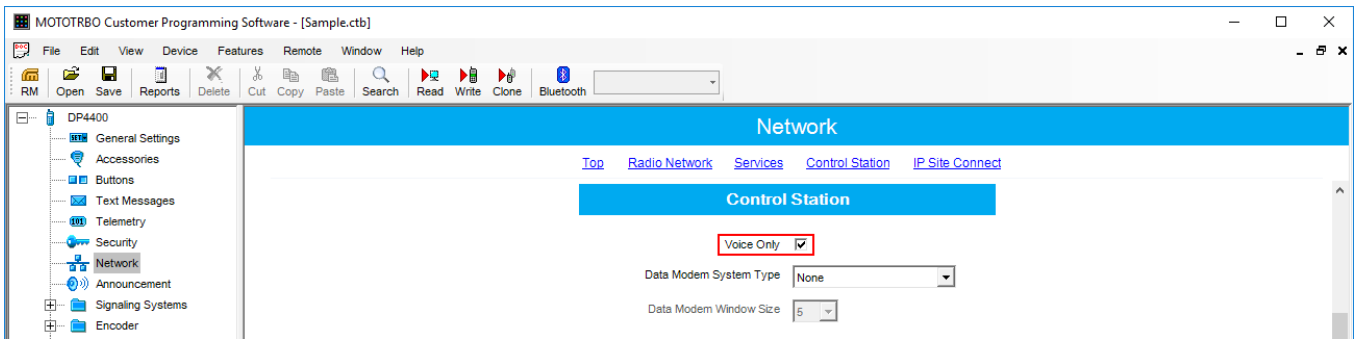


2. When using for dispatcher:

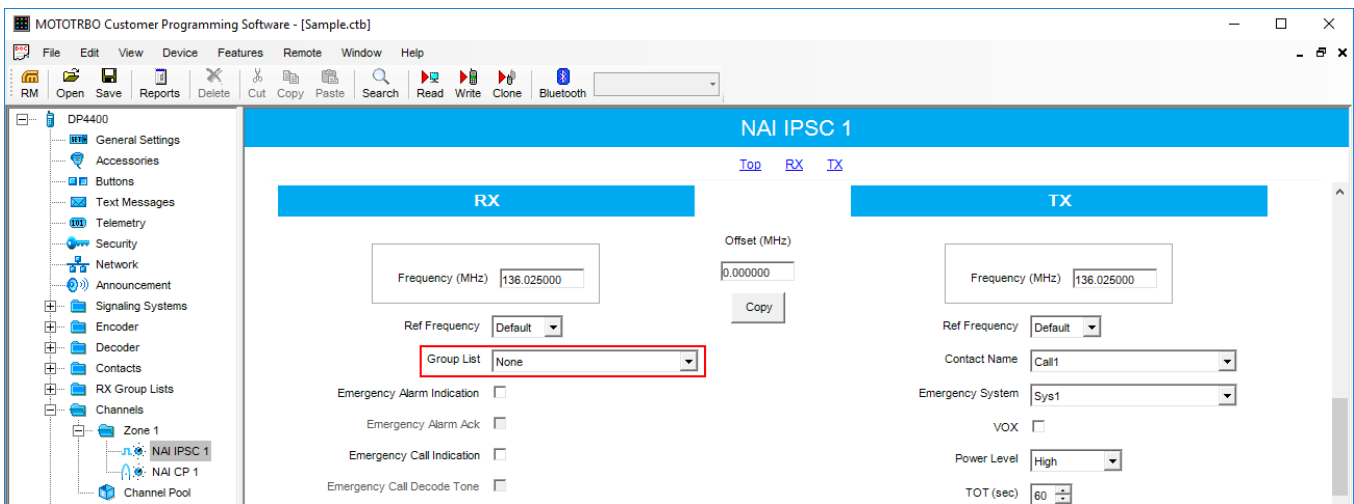
- In **General Settings**, select **Private Calls**.



- In **Network** under **Control Station** section, select **Voice Only**.



- In the **Channel** settings, in **RX Group List** select **None**.

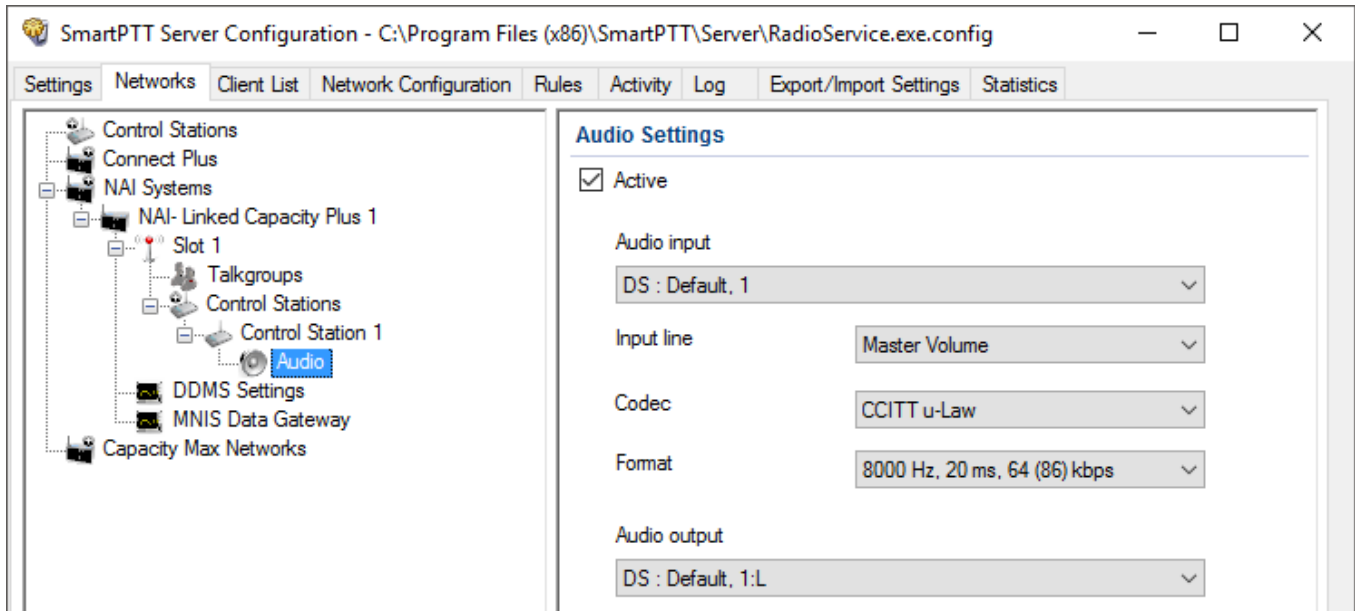


**NOTE**

All Calls can be initiated via a control station reserved for a group. If the control station is reserved for the dispatcher, you can only listen to **All Calls**.

## 2.3.2.1 Audio Settings

To select audio devices and set up VoIP parameters, click **Audio** in the **Networks** tab of *SmartPTT Radioserver Configurator*.



**Active:** Activates audio settings.

**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 (86) kbps:**

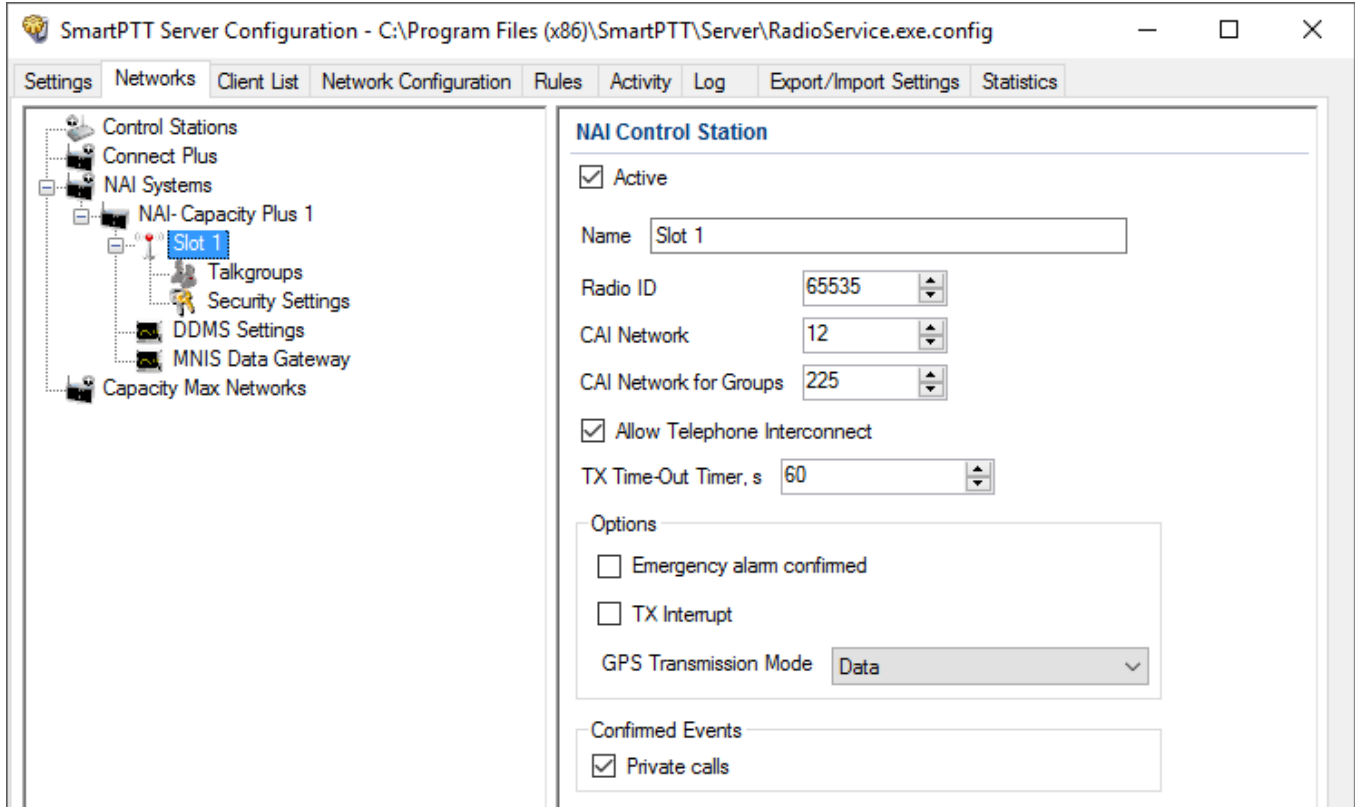
- **8000 Hz** is the sampling rate
- **20 ms** is the frame size
- **64 kbps** is the voice data bit rate
- **86 kbps** is a full bit rate (required network bandwidth)

**Audio output:** An audio device to which the control station audio input is connected.



## 2.3.3 Configuring NAI Slots

To configure the NAI Network slots, on the **Networks** tab of SmartPTT Radioserver Configurator, click the desired slot. The **NAI Control Station** pane appears:



### NOTE

For the NAI - Extended Range Direct Mode, NAI - Capacity Plus or NAI - Linked Capacity Plus networks, there is only one slot to configure.

**Active:** Activates a control station.

**Name:** Slot name.

**Slot ID:** Local slot identifier. This identifier is used in telephone calls (e.g., when there are many local slots to differentiate between them).

**Radio ID:** Unique identifier of a virtual control station corresponding to the network slot.

**CAI Network:** CAI-network identifier. The default value is 12 (must match *MOTOTRBO CPS* settings).

**CAI Network for Groups:** CAI-network for groups identifier. The default value is 225 (must match *MOTOTRBO CPS* settings).

**Allow Telephone Interconnect:** Enables telephone calls on the slot.

**NOTE**

**Allow Telephone Interconnect** is not applicable to the NAI - Extended Range Direct Mode systems.

**Emergency alarm confirmed:** Determines if the emergency alarm is allowed to be acknowledged.

**TX Interrupt:** Enables or disables the ability to interrupt a radio.

**Private Calls:** Enables or disables the private calls confirmation.

**GPS Transmission Mode:** Allows you to select the way how to transmit location updates: as a data packet in multiple bursts or as a single CSBK (Control Signaling Block).

Each solution has its own advantages and disadvantages:

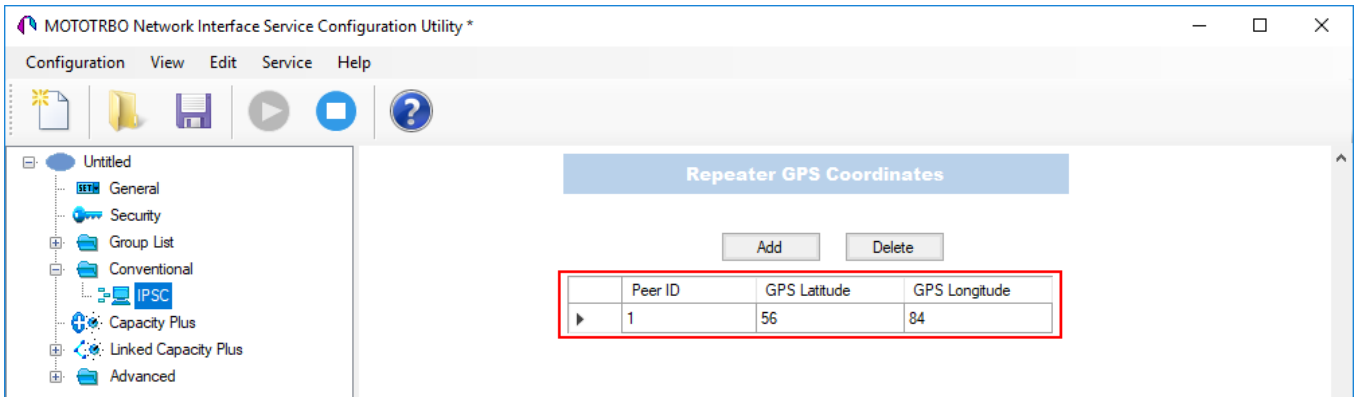
GPS Transmission Mode	Advantages	Disadvantages
<b>Data</b>	No need to configure additional settings for receiving GPS data	Increased traffic load on a channel
<b>CSBK</b>	<ul style="list-style-type: none"> <li>• Low traffic load on a channel</li> <li>• Increased GPS transmission frequency rate — once in 15 seconds</li> </ul>	<ul style="list-style-type: none"> <li>• Not all radios support CSBK commands</li> <li>• Additional MNIS settings*</li> </ul>
<b>Enhanced CSBK</b>	<ul style="list-style-type: none"> <li>• Low traffic load on a channel</li> <li>• Increased GPS transmission frequency rate — once in 7.5 seconds</li> </ul>	<ul style="list-style-type: none"> <li>• Not all radios support CSBK commands</li> <li>• Additional MNIS settings*</li> </ul>

**NOTE**

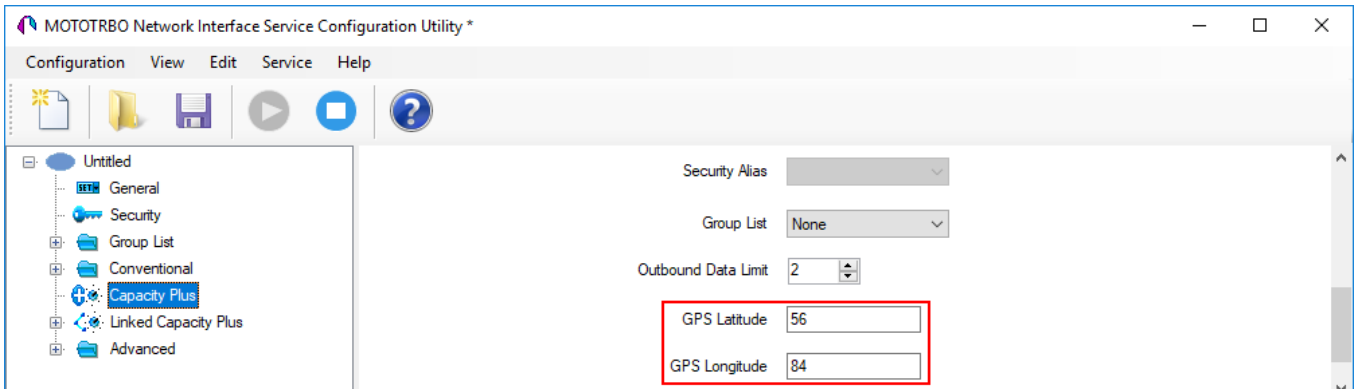
The Enhanced CSBK **GPS Transmission Mode** is not applicable to the NAI - Extended Range Direct Mode systems.

To transmit location data using CSBK and Enhanced CSBK, configure additional MNIS settings, which include adding repeater latitude and longitude. This information is used for calculation of radio locations.

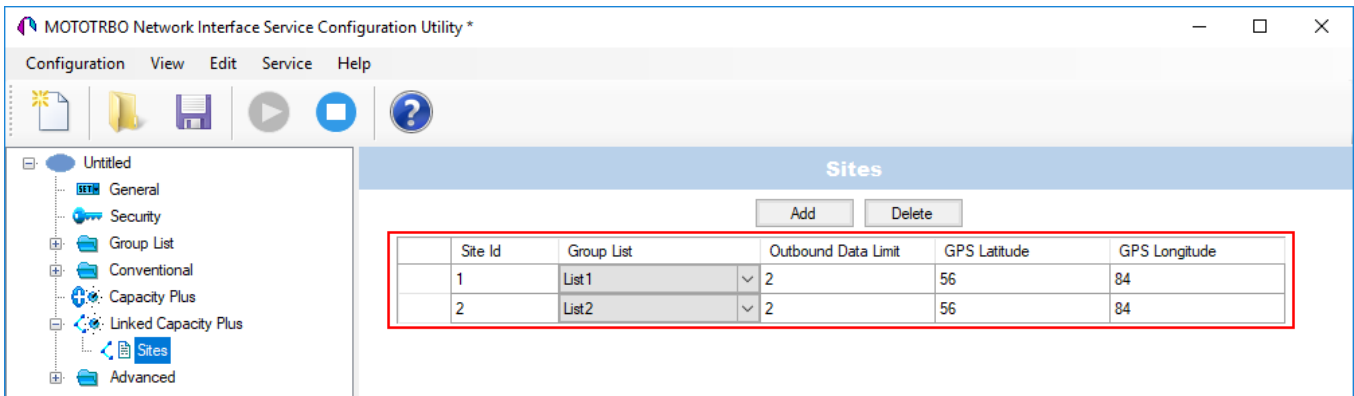
- For NAI - IP Site Connect configuration select **Conventional** → **IP Site Connect/Extended Range Direct Modedomain name** and in the **Repeater GPS Coordinates** area specify latitude and longitude for each network system:



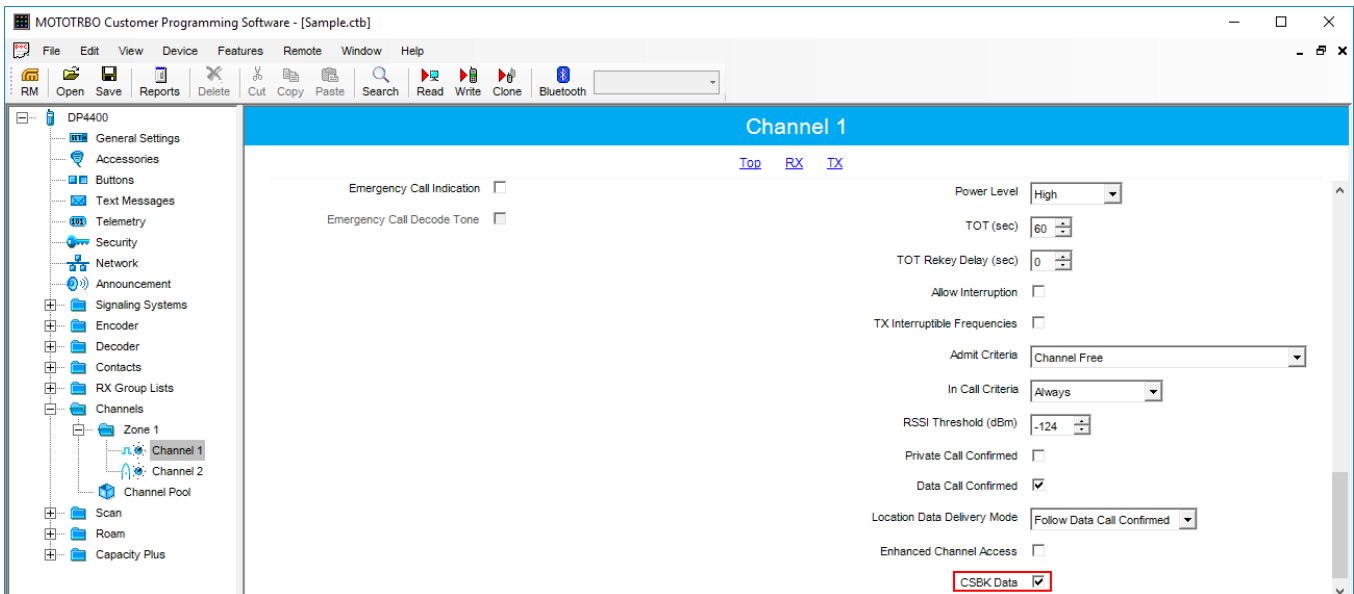
- For NAI - Capacity Plus configuration specify latitude and longitude just in one place:



- For NAI - Linked Capacity Plus Id configuration specify latitude and longitude for each site:



Also, to transmit location data using CSBK or Enhanced CSBK, select **CSBK Data** in radio settings:



#### NOTE

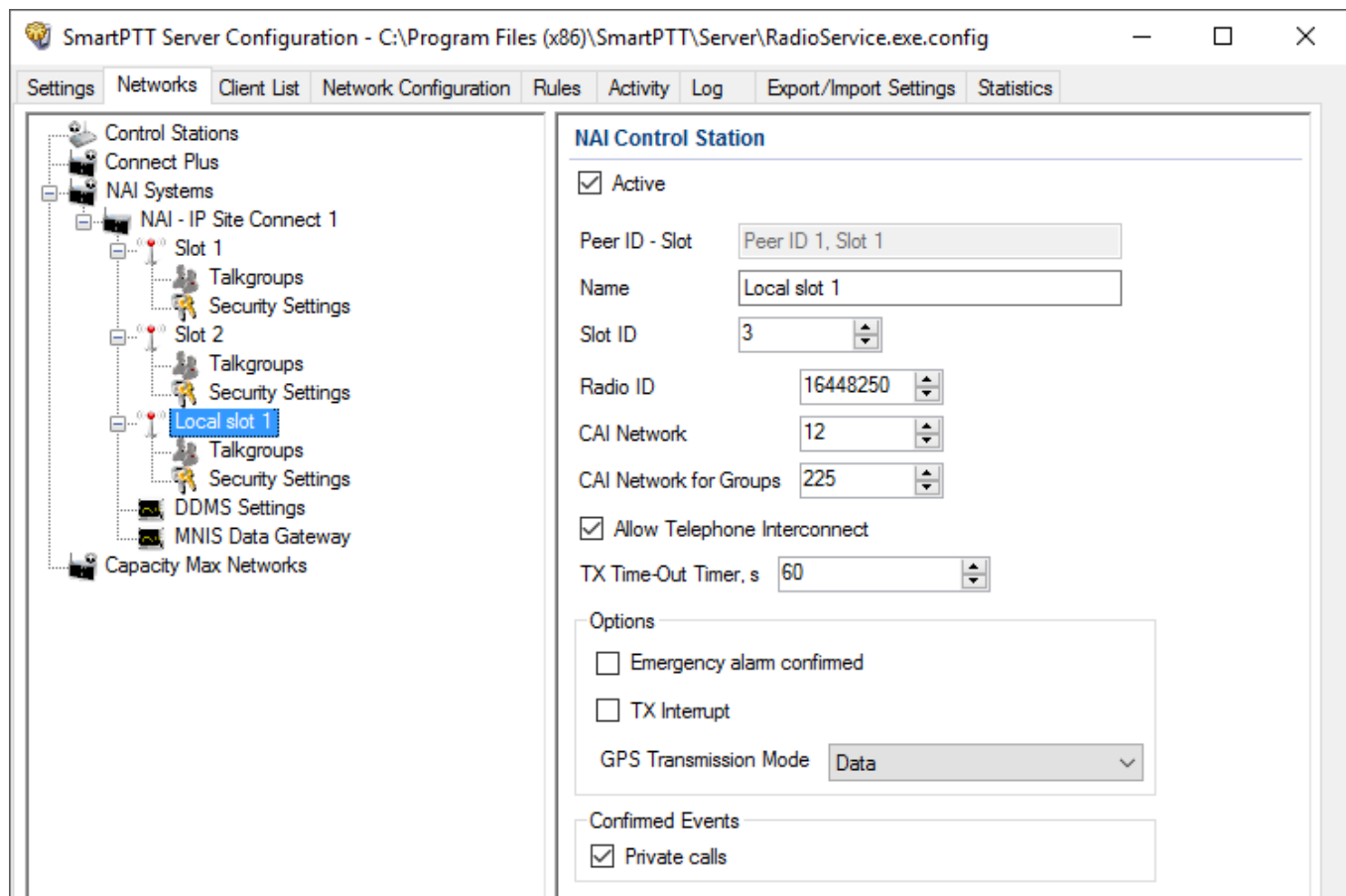
Remember that Enhanced CSBK can be used on **Enhanced GNSS** channels only.

### 2.3.3.1 Configuring Local Slots

As soon as the local slot is added to the **Local Slots** table, a new section appears in the settings tree.

#### NOTE

Local slots become available only when *Repeater* is selected for voice transmission.



**Active:** Allows you to enable or disable a local control station.

**Peer ID - Slot:** Peer identifier and slot number. Data is taken from the **Local Slot** table.

**Name:** Name of the local slot. It is used in *SmartPTT Radioserver Configurator* and in *SmartPTT Dispatcher*.

**Slot ID:** The identifier of the local slot, which will be used for group calls. This will be used in a group call mask. It must be unique in the system.

**Radio ID:** Unique radio identifier used during communication. It can match **Radio ID** of the virtual slots.

**CAI Network:** CAI-network ID. Use the default value of 12.

**CAI Network for Groups:** Group CAI-network ID. Use the default value of 225.

**Allow Telephone Interconnect:** Allows telephone calls on the slot.

**TX Time-Out Timer, s:** Time period during which the radio can transmit without interruptions. When time is out, the transmission is interrupted.

**Emergency alarm confirmed:** Determines if the emergency alarm is allowed to be acknowledged.

**TX Interrupt:** Enables or disables the ability to interrupt a radio.

**Private calls:** This feature sets private calls on the current digital channel as confirmed.

**GPS Transmission Mode:** Allows you to select the way how to transmit location updates: as a data packet in multiple bursts or as a single CSBK (Control Signaling Block). For more information, see [GPS Transmission Mode](#).

To configure groups of the local slot, click **Talkgroups**. Configure talkgroup settings as ordinary IP Site Connect talkgroups.

If you use encryption, go to **Security Settings**. For more information on how to configure encryption settings, see [Security Settings in NAI systems](#).

## 2.3.3.2 Configuring Joint GPS and Indoor Data

If you want to receive joint location data (GPS and indoor) in NAI, configure the following settings:

- Radio settings in *MOTOTRBO CPS*
- Radio settings in SmartPTT Dispatcher
- Repeater settings in *MOTOTRBO CPS*

### 2.3.3.2.1 Configuring Radio in MOTOTRBO CPS

To configure radio in *MOTOTRBO CPS*, follow these steps:

1. In the radio firmware file, select **Channels** → **<Zone Name>** → **<Channel Name>**.
2. In the **<Channel Name>** pane, perform the following actions:
  - Select the **Enhanced GNSS** check box, and from the **Window Size** list, select *10*.
  - From the **Compressed UDP Data Header** list, select *MSI*.
  - Clear the **CSBK Data** check box.

### 2.3.3.2.2 Configuring Radio in SmartPTT Dispatcher

To configure radio in SmartPTT Dispatcher, follow these steps:

1. Open the radio properties window.
2. In the **Location** tab, perform the following actions:
  - a. Select the **Indoor Tracking** check box.
  - b. Select the **Update Interval** check box, and enter 30 in the field.

### 2.3.3.2.3 Configuring Repeater in MOTOTRBO CPS

To configure repeater in *MOTOTRBO CPS*, follow these steps:

1. In the repeater firmware file, select **Channels** → <Zone Name> → <Channel Name>.
2. In the <Channel Name> pane, in the **Enhanced GNSS area**, select the **Enable** check box.

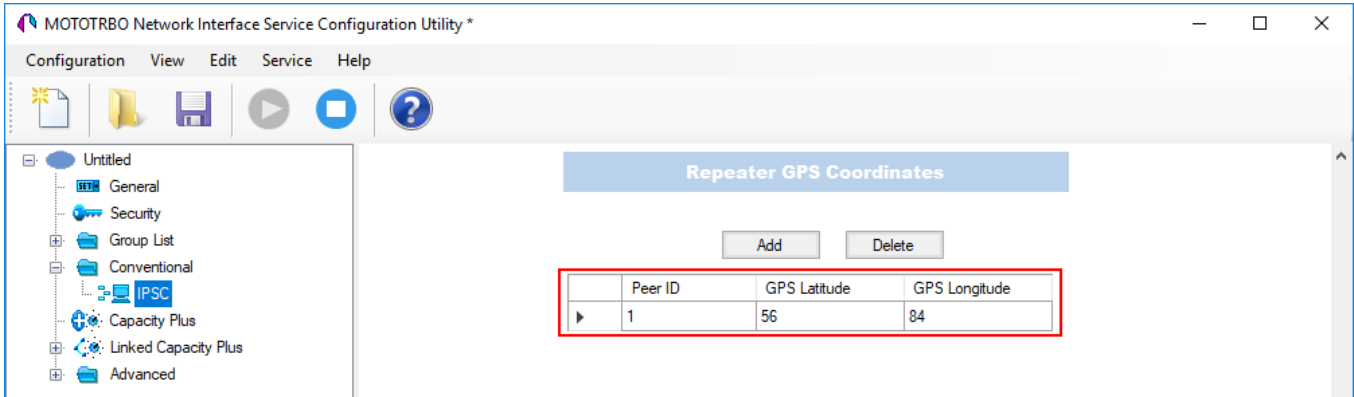
### 2.3.3.3 Configuring Data Transmitting on CSBK/Enhanced CSBK channel

To transmit location data using CSBK and Enhanced CSBK, configure additional MNIS settings, which include adding repeater latitude and longitude. This information is used for calculation of radio locations.

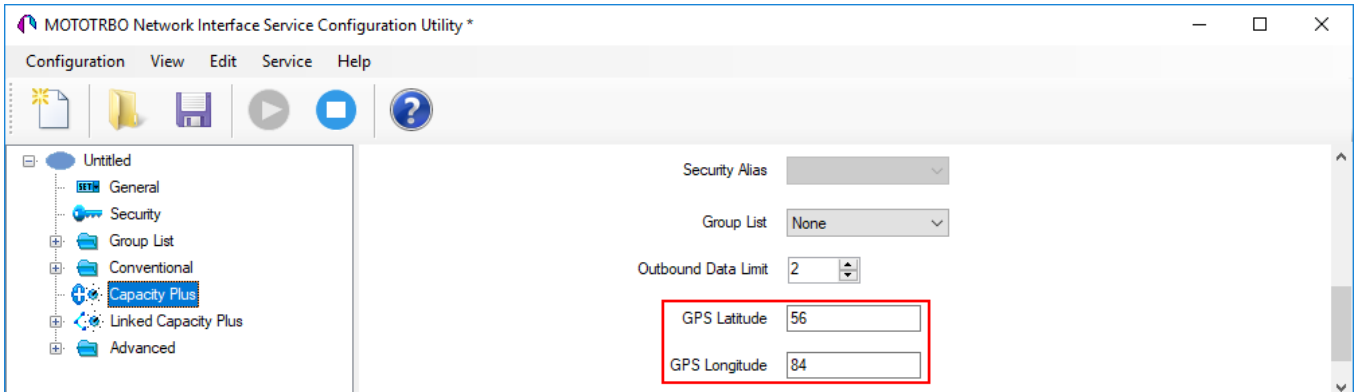
#### **NOTE**

1. The Enhanced CSBK GPS Transmission Mode is not applicable to the NAI - Extended Range Direct Mode systems.
2. Enhanced CSBK can be used on **Enhanced GNSS** channels only.
3. CSBK is incompatible with the GPS batching feature.

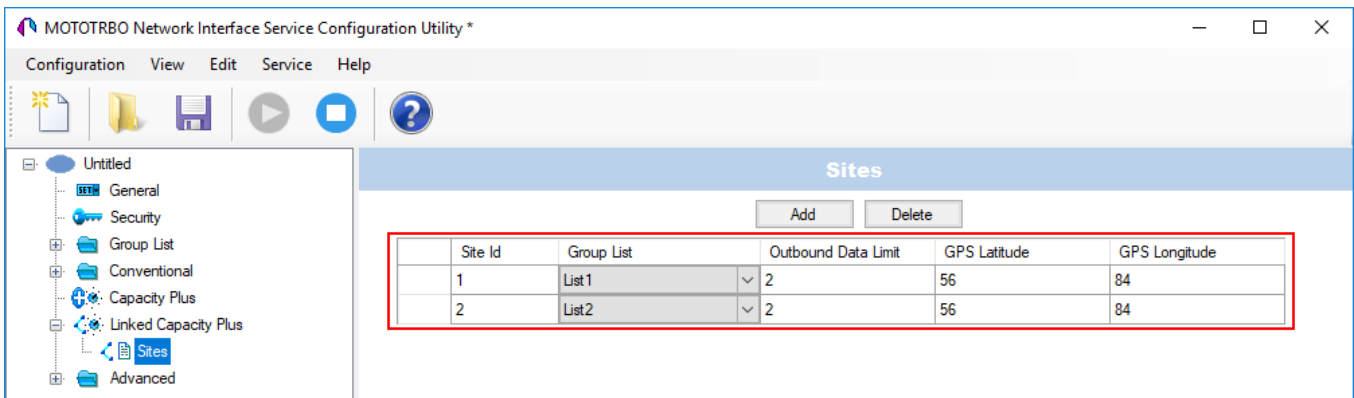
- For NAI - IP Site Connect configuration: Select **Conventional** → **IP Site Connect/Extended Range Direct Modedomain name** and in the **Repeater GPS Coordinates** area specify latitude and longitude for each network system:



- For NAI - Capacity Plus configuration: Specify latitude and longitude just in one place:

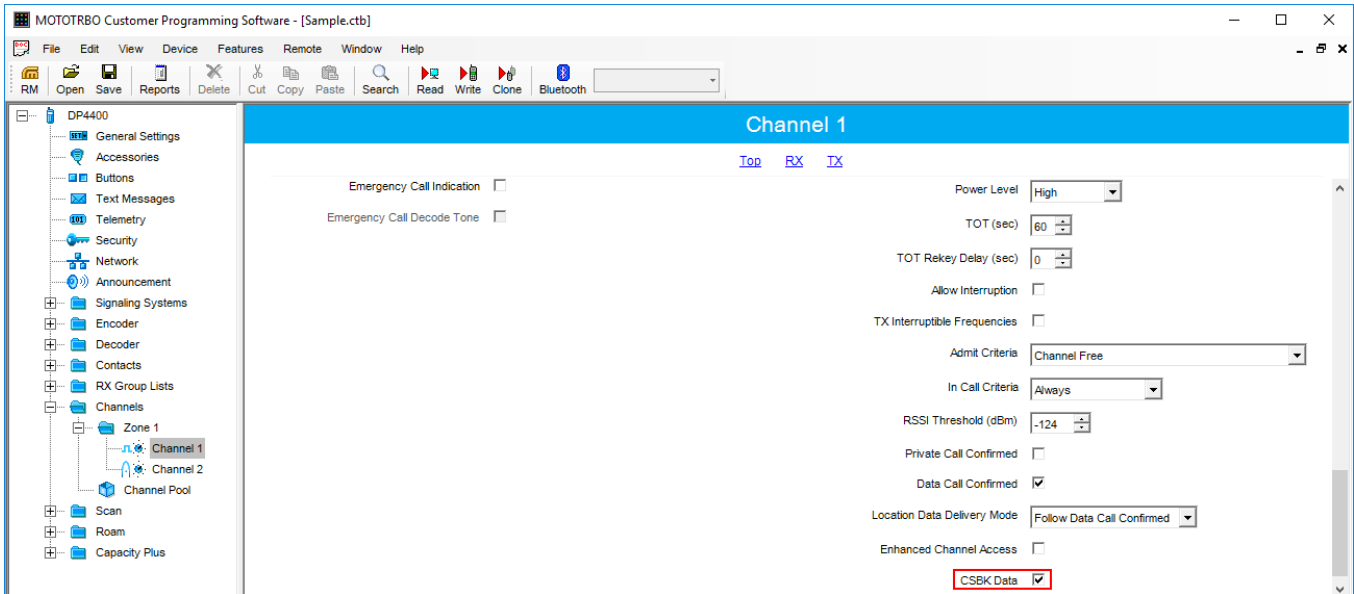


- For NAI - Linked Capacity Plus configuration: Specify latitude and longitude for each site:



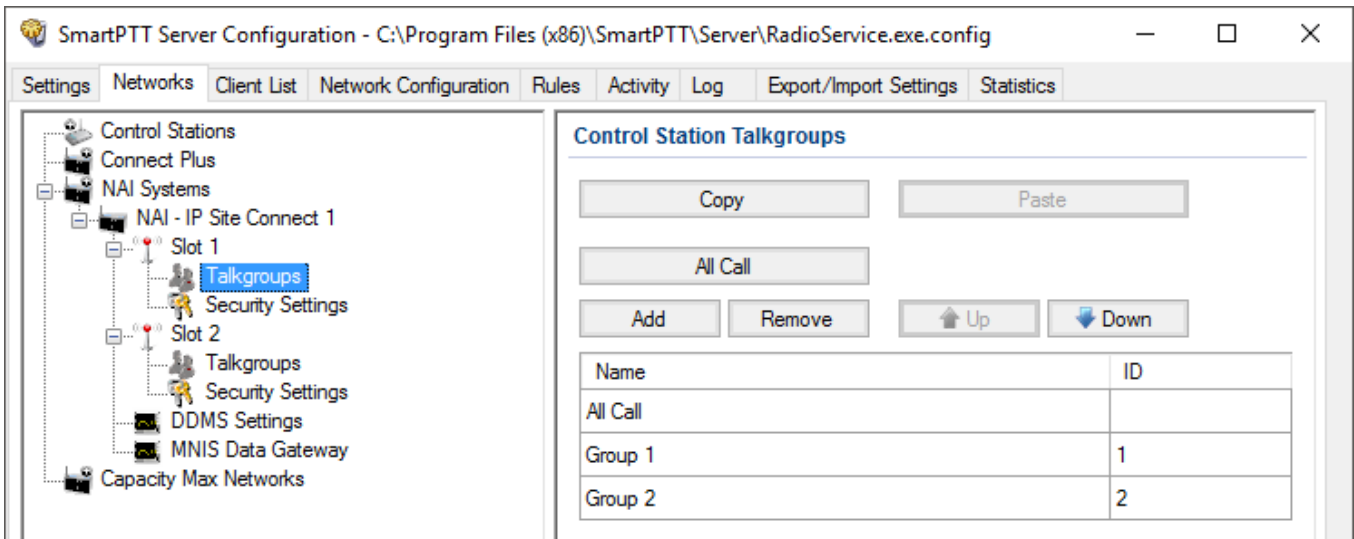


Also, to transmit location data using CSBK or Enhanced CSBK, select **CSBK Data** in radio settings:



### 2.3.4 Configuring NAI Talkgroups

To configure slot groups, in the **Networks** tab of *SmartPTT Radioserver Configurator*, click **Talkgroups**. The **Control Station Talkgroups** pane appears:

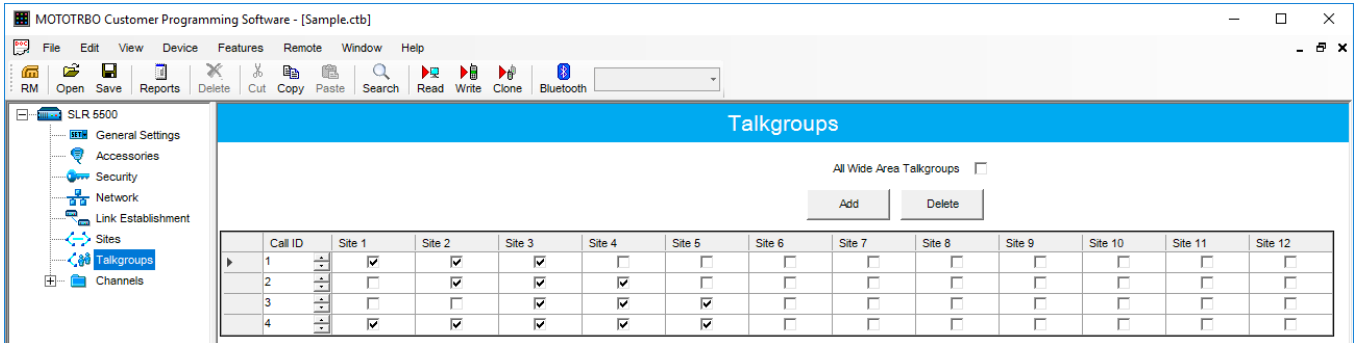


**NOTE**

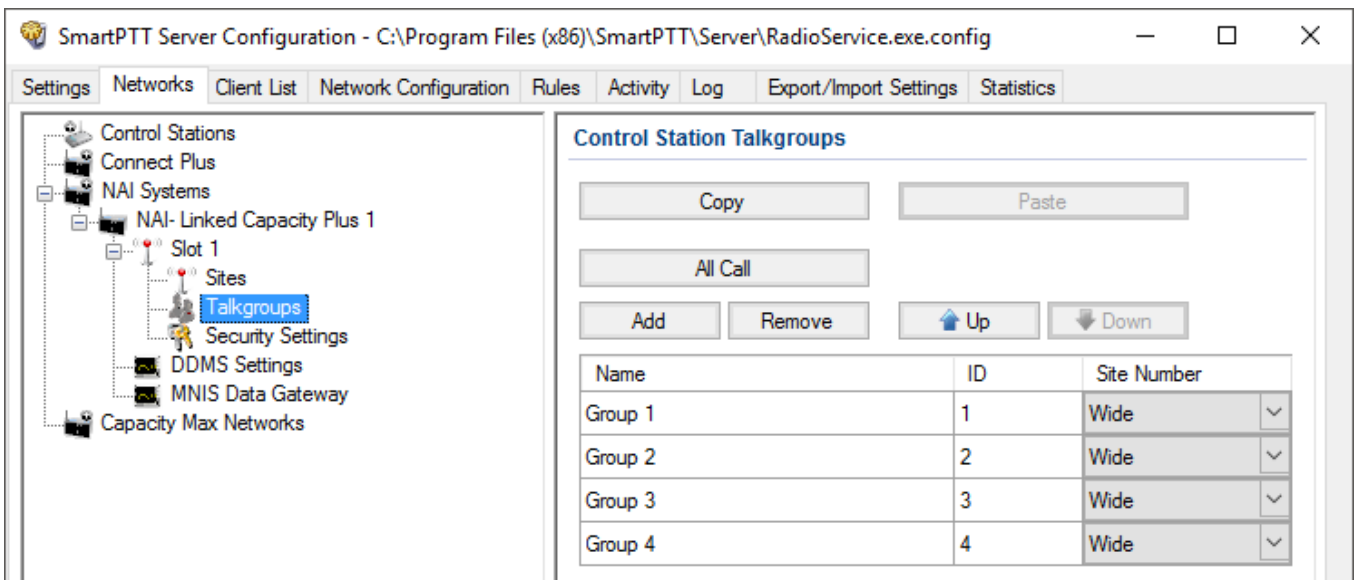
The configuration process of the virtual control station talkgroups for NAI - IP Site Connect, NAI - Extended Range Direct Mode or NAI - Capacity Plus networks is absolutely similar to the configuration of MOTOTRBO control station talkgroups.

For NAI - Linked Capacity Plus network type, parameters of wide area and local talkgroups are set in the **Control Station Talkgroups** window. All the configured talkgroups are displayed in *SmartPTT Dispatcher*.

Wide area talkgroup calls are available to the radios that are in the coverage area of sites designated in MOTOTRBO CPS for this talkgroup. Select check boxes 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 in *SmartPTT Dispatcher*, 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.

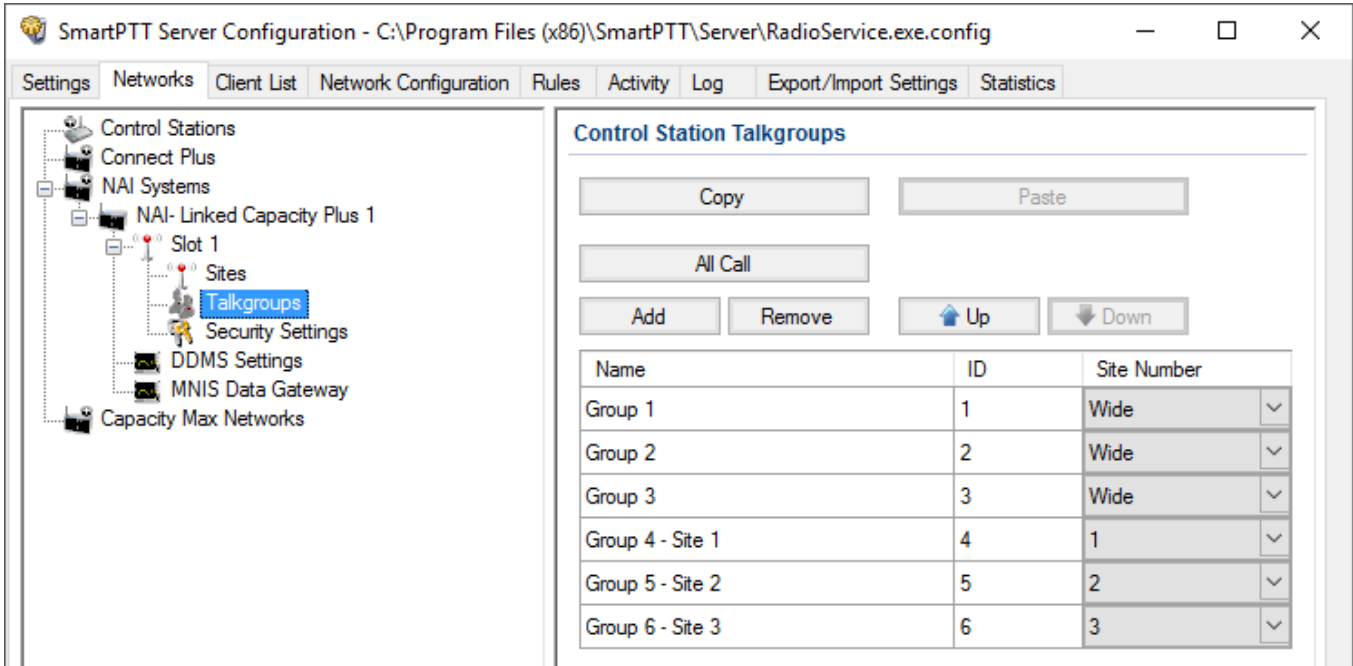


The talkgroups that are not specified in the repeater MOTOTRBO CPS settings are considered as local. The local talkgroup call does not go beyond the site where the call is initiated.

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**

Ensure that identifiers of wide area and local talkgroups do not match.



It is important to specify all talkgroups 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 add the All Call, click **All Call**. In NAI - Linked Capacity Plus networks, you can add a wide All Call and a local All Call, which is limited to one site.

To add a wide All Call, which is available to all sites, click **All Call**. Ensure that **Site Number** is set to *Wide*.

To add an **All Call** limited to one site, click **All Call**, and in the **Site Number** column select the site number where the All Call will be heard. Please note, that you do not need any IDs for local All Calls. Only dispatchers can initiate the local All Call from the dispatch console.

**NOTE**

Local All Calls operate within one site in networks where voice transmission is carried out via a repeater. In hybrid networks, where voice transmission is carried out via a control station, a local All Call operates as the global All Call.

Name	ID	Site Number
All Call		Wide
All Call - Site 1		1
All Call - Site 2		2
Group 1	1	Wide
Group 2	2	Wide
Group 3	3	Wide
Group 4 - Site 1	4	1
Group 5 - Site 2	5	2
Group 6 - Site 3	6	3

## 2.3.5 DDMS Service

*Device Discovery and Mobility Service (DDMS)* is a service that monitors presence of ARS capable radio units and reports their parameters (IP address, Radio ID, etc.) to SmartPTT Radioserver and *MOTOTRBO Network Interface Service Configuration Utility (MNIS)*.

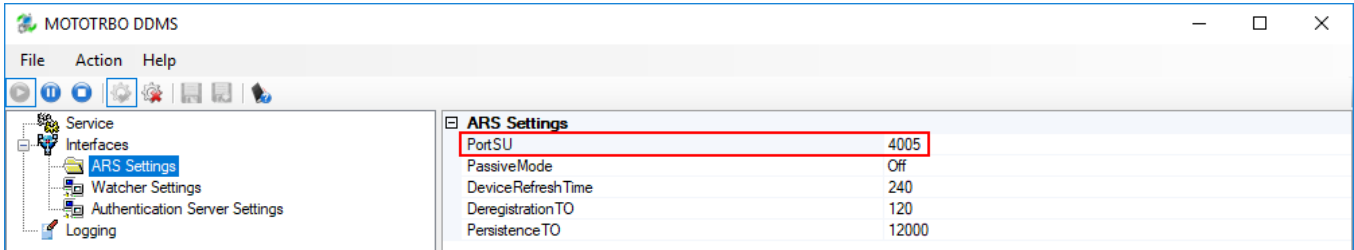
*Device Discovery and Mobility Service* is closely connected to MNIS. DDMS filters the registration service packets (ARS), received by the repeater, and information on the radio presence in the network is sent to all systems for further processing.

Before configuring *Device Discovery and Mobility Service*, ensure that *MOTOTRBO DDMS* and *MOTOTRBO Network Interface Service Configuration Utility* are installed on the same computer.

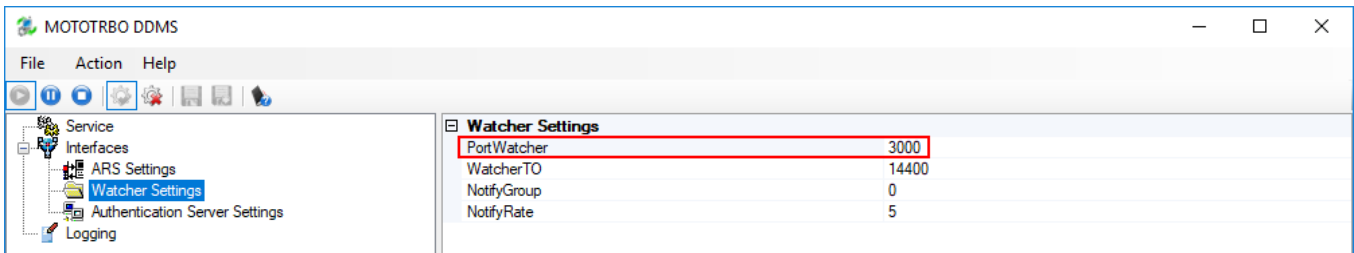
### 2.3.5.1 Configuring DDMS in MOTOTRBO DDMS

To configure DDMS in MOTOTRBO DDMS, follow these steps:

1. Run MOTOTRBO DDMS.
2. In the left pane, select **Interfaces** → **ARS Settings**.
3. Ensure the **PortSU** field value matches the **ARS UDP Port** field value in **Advanced** → **Networks** of MOTOTRBO Network Interface Service Configuration Utility.



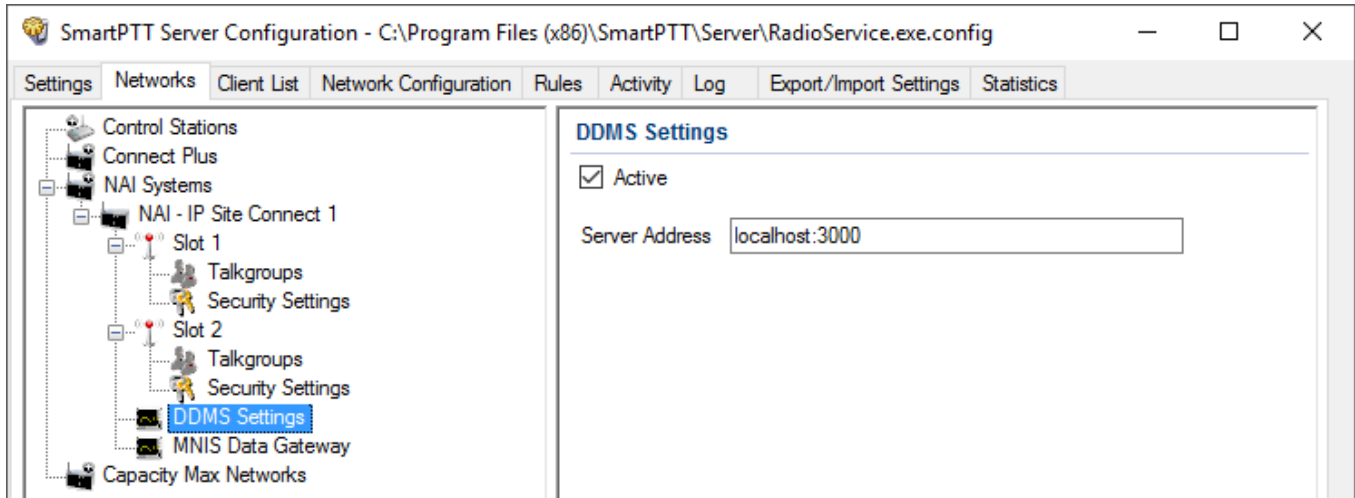
4. In the left pane, select **Interfaces** → **Watcher Settings**.
5. Ensure the **PortWatcher** field value matches the **WatcherPort** field in **Advanced** → **Networks** of *MOTOTRBO Network Interface Service Configuration Utility*.





## 2.3.5.2 Configuring DDMS in SmartPTT Radioserver Configurator

To configure DDMS settings in SmartPTT Radioserver Configurator, follow these steps:

1. In the left pane of the **Networks** tab, expand **NAI Systems** → **<Added NAI network>** and select **DDMS Settings**.



2. In the **DDMS Settings** pane, perform the following actions:
  - a. Select the **Active** check box.
  - b. In the **Server Address** field, type the IP address of the computer with the *MOTOTRBO DDMS* application installed on it, and port number of the DDMS server.  
The port number in this field must match the **PortWatcher** field value in **Interfaces** → **Watcher Settings**.of *MOTOTRBO DDMS*
3. At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.
4. Click **Restart** (  ) to restart SmartPTT Radioserver and apply changes.

## 2.3.6 MNIS Data Gateway

MNIS is used for data exchange and serves as a DDMS watcher.

Before configuring MOTOTRBO Network Interface Service, ensure that the following applications are installed on the computer:

- *MOTOTRBO Network Interface Service Configuration Utility*
- *MOTOTRBO CPS*

You also should have an access to the *MOTOTRBO CPS* firmware file of a master repeater.

Remote socket is used for connecting more than one NAI - Capacity Plus or NAI - Linked Capacity Plus networks to SmartPTT Radioserver.

For proper functioning of all connected networks (voice and/or data transmission), ensure the following:

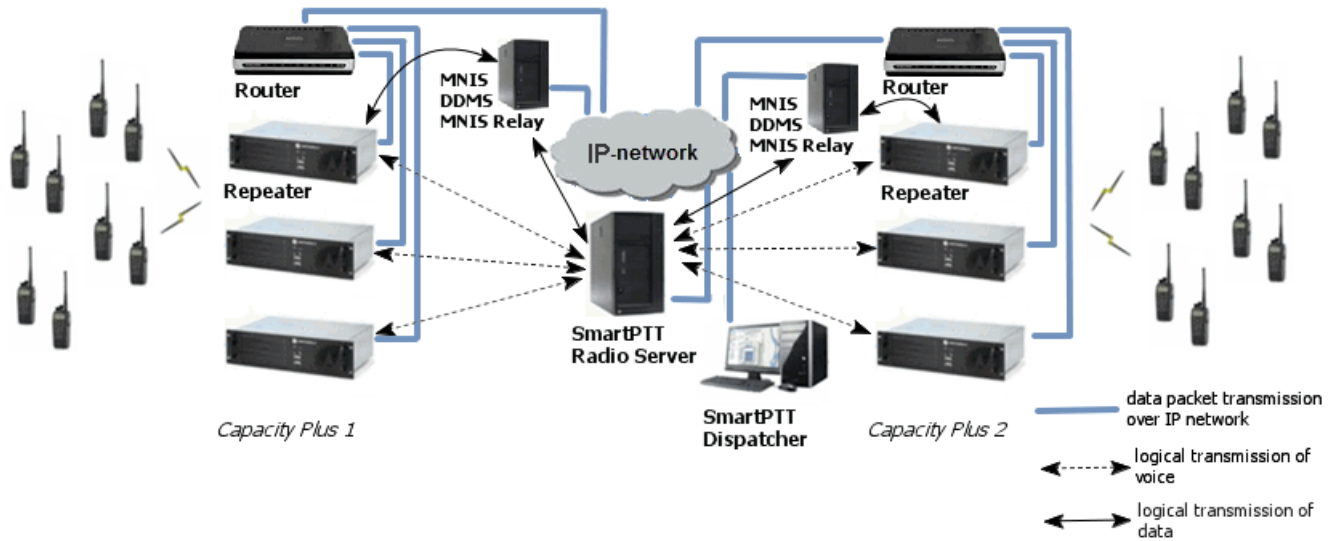
- MOTOTRBO Network Interface Service Configuration Utility, [MOTOTRBO DDMS](#) and *MNIS Data Gateway Relay* are installed on multiple computers. The number of computers depends on the number of NAI - Capacity Plus or NAI - Linked Capacity Plus networks connected to SmartPTT Radioserver.

**NOTE**

To get information on how to install and configure these applications, see the corresponding guides.

- Separate MNIS and DDMS services are configured by using the corresponding applications and started for each network.

Thus, voice data is transmitted from repeaters to SmartPTT Radioserver directly, and data is transferred via computer with MNIS Relay and the MNIS and DDMS service applications.



The section describes the configuration procedure of SmartPTT Radioserver Configurator and *MNIS Data Gateway Relay* for local and remote sockets.

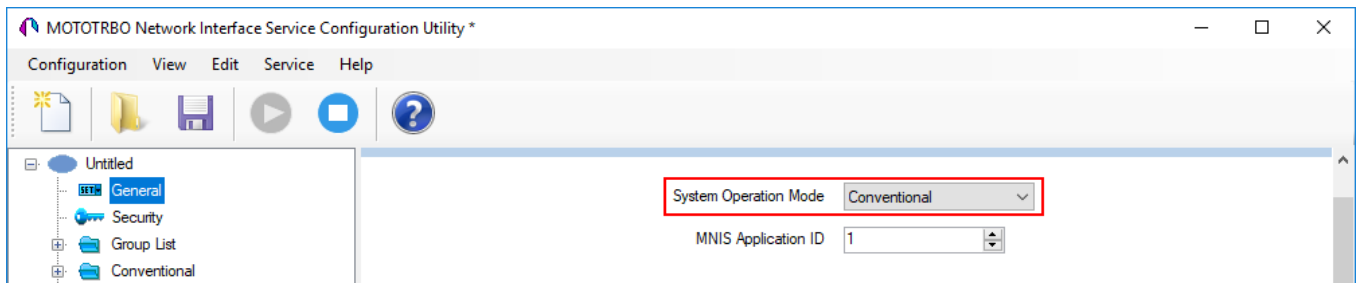
You should repeat the configuration procedure of *MNIS Data Gateway Relay* and SmartPTT Radioserver Configurator for each separate network.



### 2.3.6.1 Configuring MNIS in MOTOTRBO Network Interface Service Configuration Utility

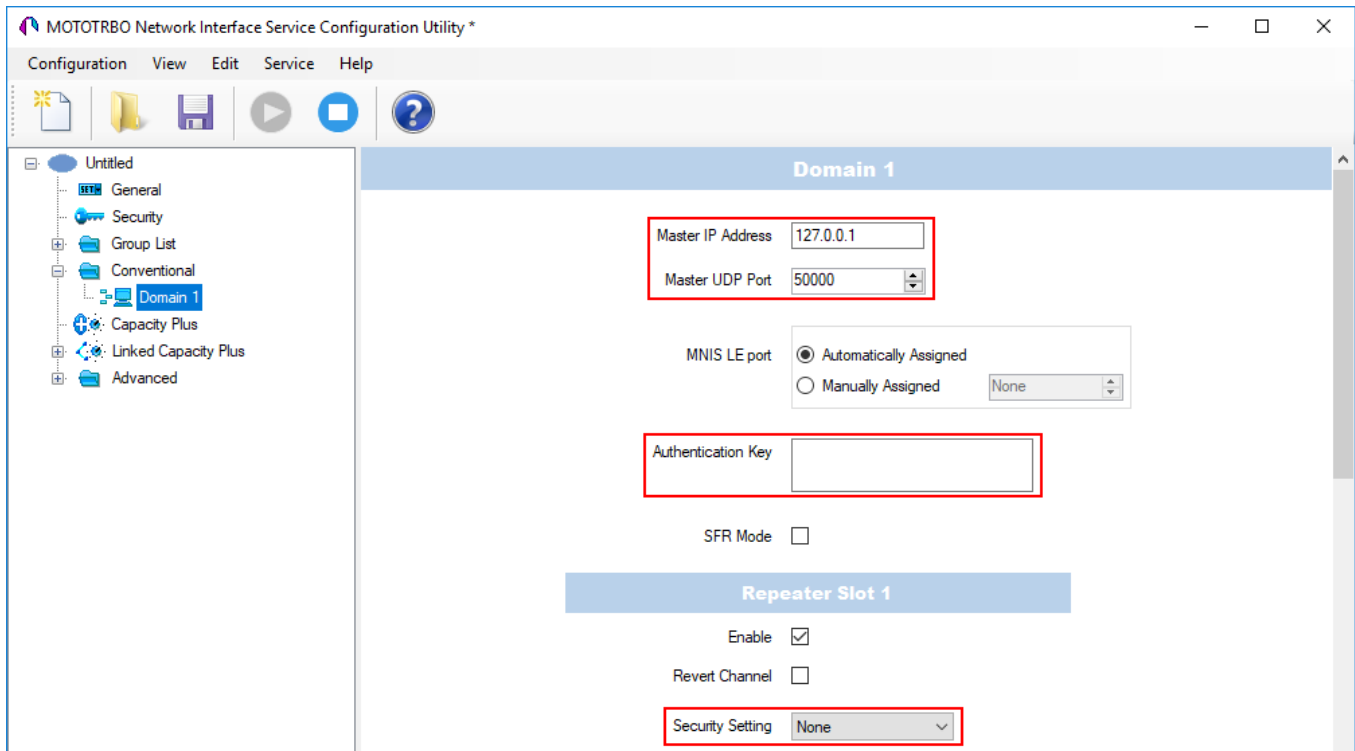
To configure MOTOTRBO Network Interface Service in *MOTOTRBO Network Interface Service Configuration Utility*, follow these steps:

1. Run *MOTOTRBO Network Interface Service Configuration Utility*.
2. In the **System Operation Mode** field of the **General** node, select a mode depending on the network type selected in *SmartPTT Radioserver Configurator*.



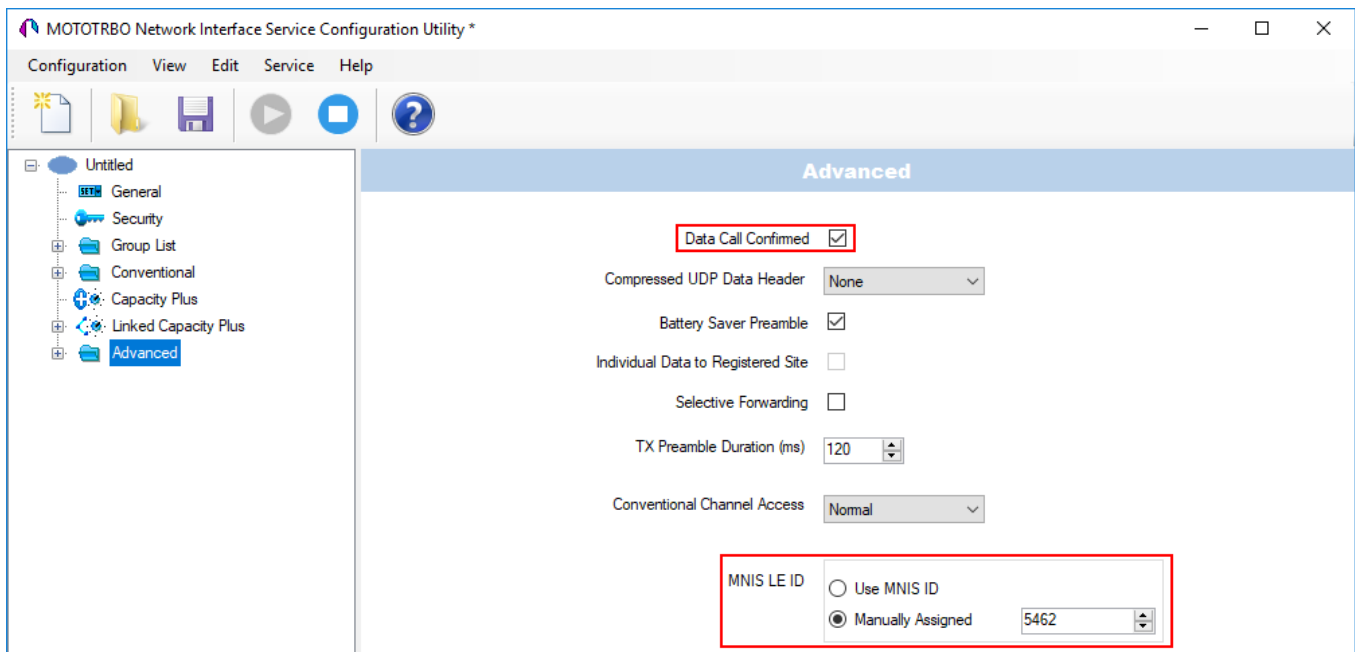
3. In the **Security** node, set the encryption keys that match the keys specified in the radio *MOTOTRBO CPS* settings.


4. For IP Site Connect/Capacity Plus/Linked Capacity Plus set up the following parameters in the **Conventional/Capacity Plus/Linked Capacity Plus** sections respectively:



- In the **Master IP address** field, type the Master repeater IP address. This value should match **Master IP** value in *MOTOTRBO CPS* in the **Link Establishment** pane.
- In the **Master UDP Port** field, type the Master repeater UDP port. This value should match **Master UDP Port** value in *MOTOTRBO CPS* in the **Link Establishment** pane.
- In the **Authentication Key** field, type the authentication key, if it is set in *MOTOTRBO CPS* in the **Link Establishment** pane.
- From the **Security Settings** list, select the desired encryption mode. The privacy settings should match the repeater security settings in *MOTOTRBO CPS*.

5. In the **Advanced** node, perform the following actions:

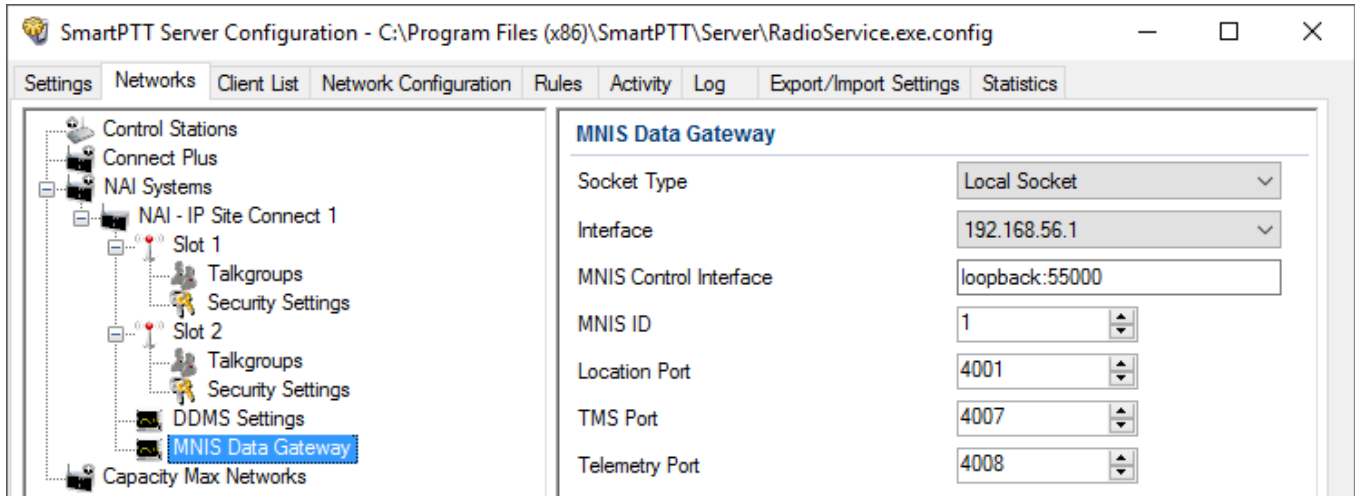


- a. Clear the **Data Call Confirmed** check box.
  - b. In the **MNIS LE ID** area, click **Manually Assigned** and enter a unique identifier MNIS.
6. Click **Save** (  ) to save changes.



## 2.3.6.2 Configuring MNIS Data Gateway for Local Socket

To configure MNIS Data Gateway for a local socket, follow these steps:

1. In the left pane of SmartPTT Radioserver Configurator, select **NAI Systems** → **NAI - Capacity Plus/NAI - Linked Capacity Plus Network** → **MNIS Data Gateway**.



2. In the **MNIS Data Gateway**, perform the following actions:
  - a. From the **Socket Type** list, select *Local Socket*.
  - b. From the **Interface** list, select the IP address specified in the **Tunnel IP Address** field in the **General** node of *MOTOTRBO Network Interface Service Configuration Utility*. The IP address should not match the IP address of the computer on which *MOTOTRBO Network Interface Service Configuration Utility* is installed.
  - c. In the **MNIS Control Interface**, type the following data:
    - i. The local IP-address of a computer.
    - ii. MNIS server port.  
The server port value should match the **Control Interface TCP Port** value in **Advanced** → **Network** of *MOTOTRBO Network Interface Service Configuration Utility*
  - d. In the **MNIS ID** field, enter the Common Air Interface (CAI) ID of the MNIS in the radio network.  
The value should match **MNIS Application ID** field in the **General** node of *MOTOTRBO Network Interface Service Configuration Utility*.  
It is also recommended that **MNIS ID** matches **Radio ID** in the radioserver slot settings.

- e. *Optional:* Enter the port values for GPS, text messages and telemetry services.  
The ports values should match the ports set in the **TMS UDP Port, Telemetry UDP Port** and **Location Server UDP Port** fields in the **Advanced** → **Network** of *MOTOTRBO Network Interface Service Configuration Utility*.
3. At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.
4. Click **Restart** (  ) to restart SmartPTT Radioserver and apply changes.

## 2.3.6.3 Configuring MNIS Data Gateway for Remote Socket

### 2.3.6.3.1 Configuring MNIS Data Gateway Relay

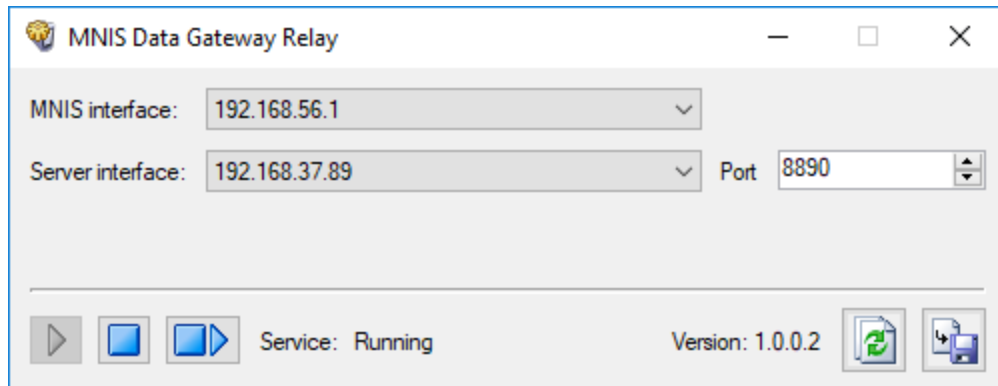
Follow the procedure to configure SmartPTT MNIS Data Gateway Relay (Relay) on the computer.

#### Prerequisites:

Install the Relay service on the same computer with the MNIS service.

#### Procedure:

1. In Relay, from the **MNIS Interface** list, select the MNIS Tunnel IP address.




2. Perform one of the following actions:

To respond to SmartPTT Radioserver when it addresses the specific IP address,



from the **Server interface** list, select the required IP address.

To respond to SmartPTT Radioserver when it addresses any of the computer IP addresses,

from the **Server interface** list, select *Any*.

3. From the **Server interface** list, select the computer IP address.
4. In the **Port** field, type the free UDP port of the computer. Default port number is 8890.
5. To save changes, at the bottom of the Relay window, click **Save Configuration** (  ).

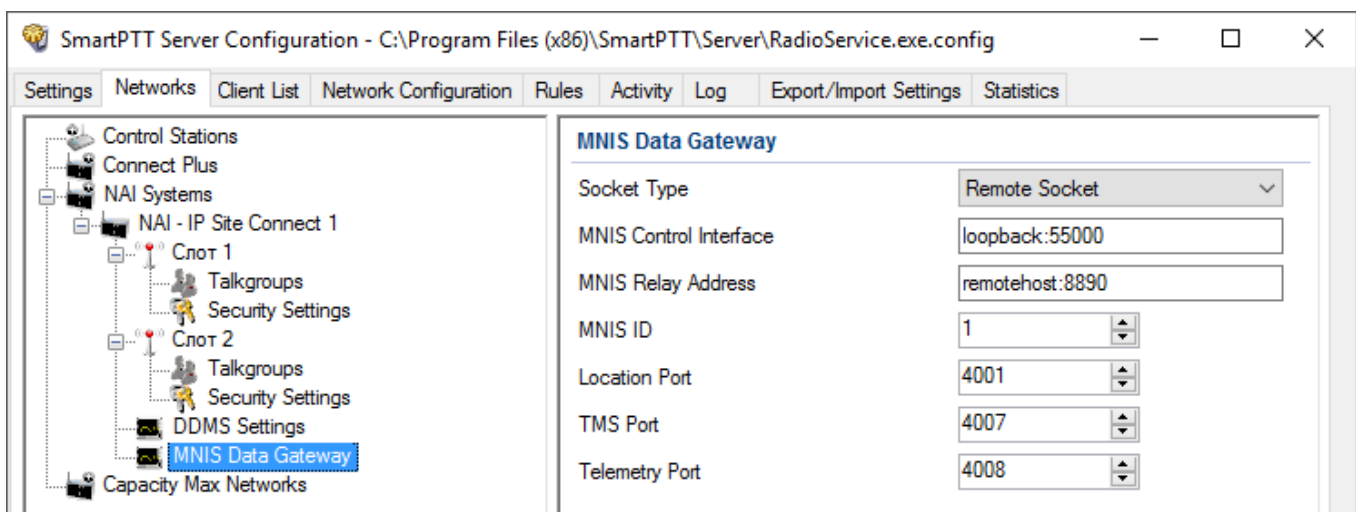
### Postrequisites:

To apply changes immediately, at the bottom of the Relay window, click **Start** (  ) or **Restart** (  ).

## 2.3.6.3.2 Configuring Radio Server

To configure a remote socket in SmartPTT Radioserver, follow these steps:

1. In the left pane of *SmartPTT Radioserver Configurator*, select **NAI Systems** → **NAI - Capacity Plus/NAI - Linked Capacity Plus Network** → **MNIS Data Gateway**.





2. In the **MNIS Data Gateway** pane, perform the following actions:
  - a. From the **Socket Type** list, select *Remote Socket*.
  - b. In the **MNIS Control Interface (IP address:Port)** field, enter an IP address and a port of the computer that has MOTOTRBO Network Interface Service installed.

- c. In the **MNIS Relay Address (IP address:Port)** field, enter an IP address and a port specified in MNIS Data Gateway Relay.

**NOTE**

IP addresses entered in the **MNIS Control Interface (IP address:Port)** and **MNIS Relay Address (IP address:Port)** fields should be the same and ports should differ.

- d. In the **MNIS ID** field, enter the Common Air Interface (CAI) ID of the MNIS in the radio network.  
The value should match **MNIS Application ID** field in the **General** node of *MOTOTRBO Network Interface Service Configuration Utility*.
  - e. *Optional:* Enter the port values for GPS, text messages and telemetry services.  
The ports values should match the ports set in the **TMS UDP Port, Telemetry UDP Port** and **Location Server UDP Port** fields in the **Advanced** → **Network** of *MOTOTRBO Network Interface Service Configuration Utility*.
3. At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.
  4. Click **Restart** (  ) to restart SmartPTT Radioserver and apply changes.

## 2.3.7 Security Settings

The NAI systems support three types of privacy mechanisms – Basic, Enhanced, and Advanced Encryption Standard (AES).

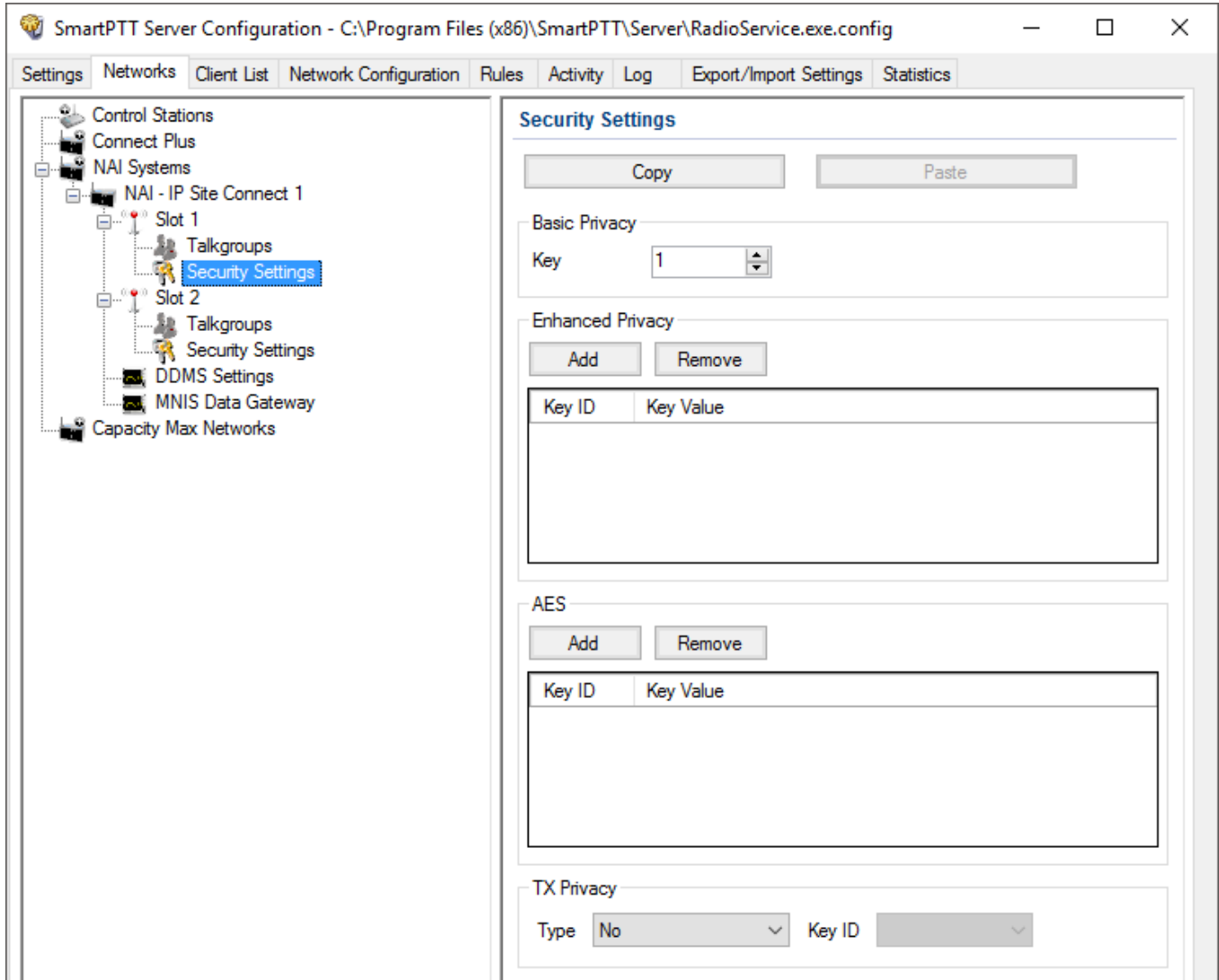
Both Basic and Enhanced Privacy utilize Motorola proprietary algorithms and therefore are not interoperable with other vendor's privacy offerings. The main differences between Basic and Enhanced Privacy are that the Enhanced Privacy provides higher level of protection by means of 40-bit key length. Enhanced Privacy supports multiple keys in a radio compared to one key in the case of Basic Privacy.

The Advanced Encryption Standard (AES) is a specification for the encryption of electronic data established by the U.S. National Institute of Standards and Technology (NIST). The AES feature supports 256-bit key length. Similar to Enhanced Privacy, the AES also supports multiple keys.

**IMPORTANT**

To use the AES encryption, install the corresponding license. For more information on how to install licenses, see [Licenses](#).

The **Security Settings** window allows you to specify the encryption keys for incoming and outgoing traffic on the digital channel.



**Copy:** Copy encryption settings of the channel to the clipboard.

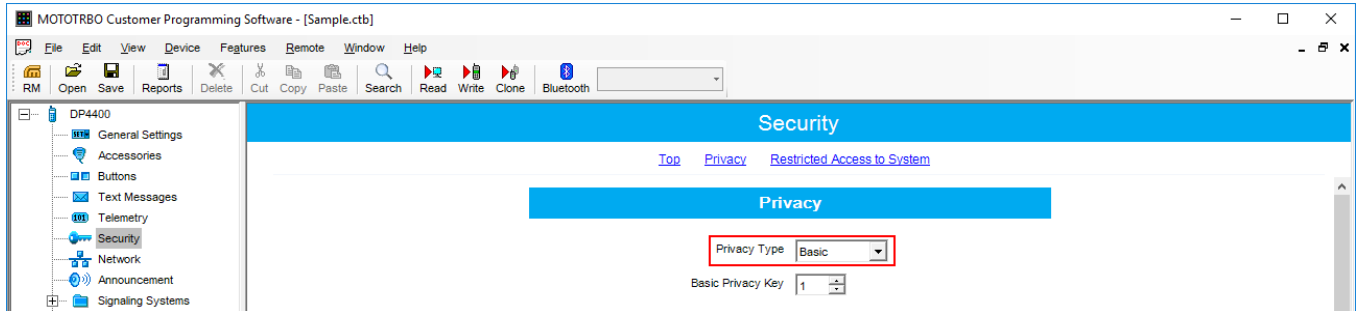


**Paste:** Paste encryption settings of the channel from the clipboard.

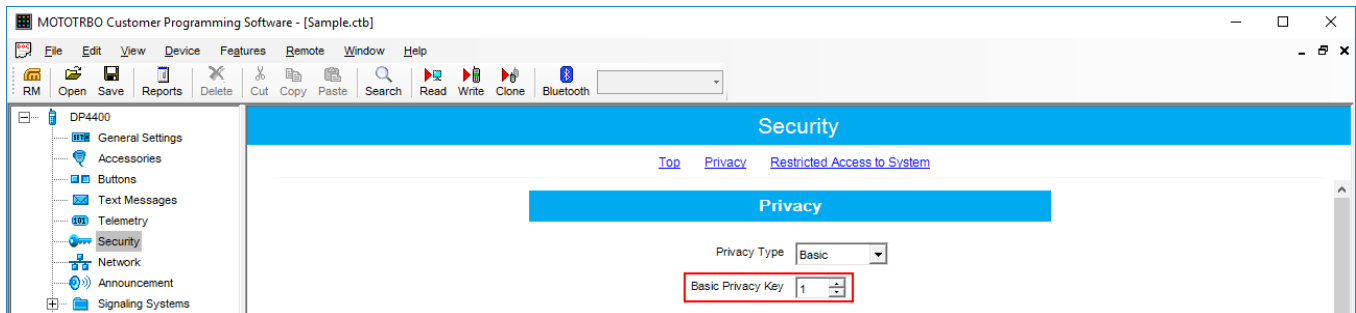
## Basic Privacy

To configure **Basic Privacy**, follow these steps:

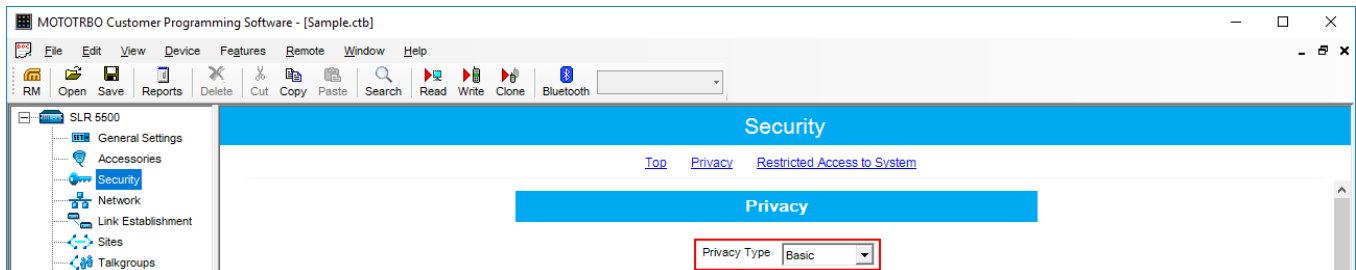
1. Run *MOTOTRBO CPS*.
2. In the **Security** window of the radio settings in *MOTOTRBO CPS* in the **Privacy Type** field, select *Basic*.



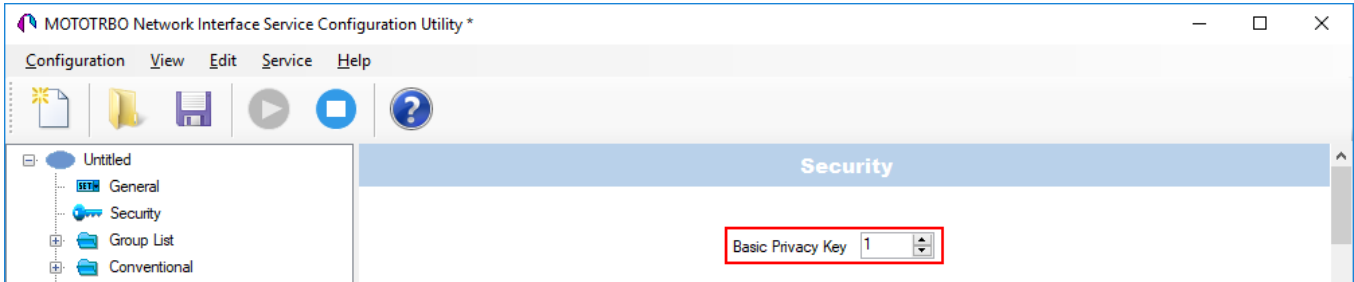
2. In the **Basic Privacy Key** field specify the key for the basic encryption mode. The value ranges from 1 to 255.



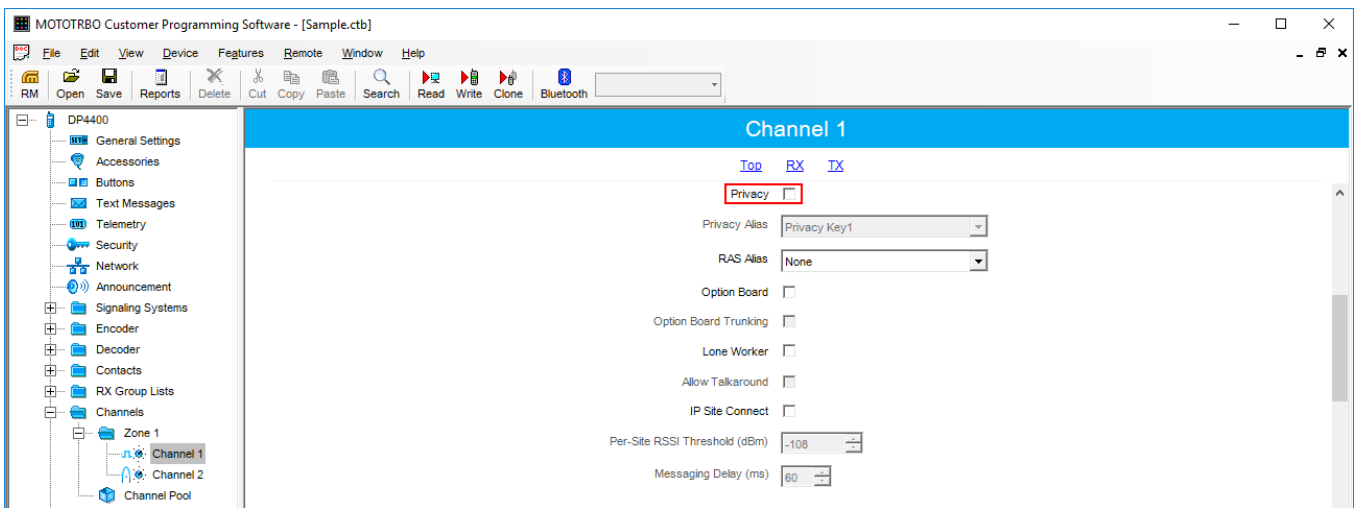
3. In the **Security** window of the repeater settings of *MOTOTRBO CPS* in the **Privacy Type** field, select *Basic*.



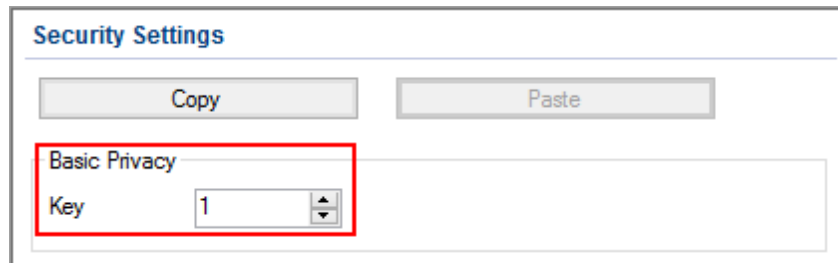
- In the **Security** window of the MNIS in the **Basic Privacy Key** field, specify the key for the basic encryption mode. The value ranges from 1 to 255.



- In the radio settings in *MOTOTRBO CPS*, select the **Privacy** check box to enable the encryption mode on the required channel.





- In the **Security Settings** window of *SmartPTT Radioserver Configurator* in the **Key** field specify the key for the basic encryption mode. The value ranges from 1 to 255.



**NOTE**

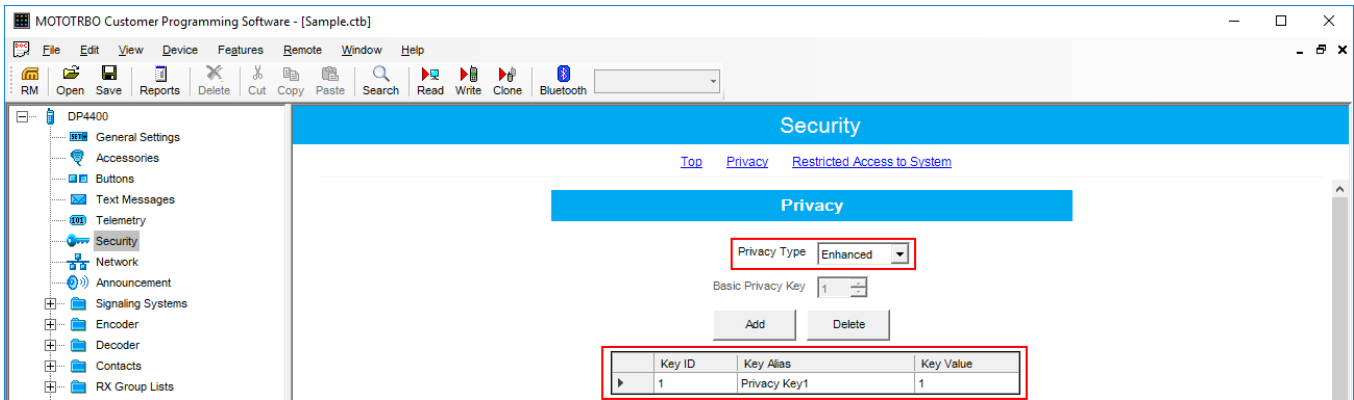
Ensure that the **Key** set in *SmartPTT Radioserver Configurator* matches **Basic Privacy Key** set in the radio settings in *MOTOTRBO CPS* and MNIS. If basic encryption keys of receiving and transmitting sides do not match, the receiving side hears only a distorted voice.

7. At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.
8. Click **Restart** (  ) to restart SmartPTT Radioserver and apply changes.

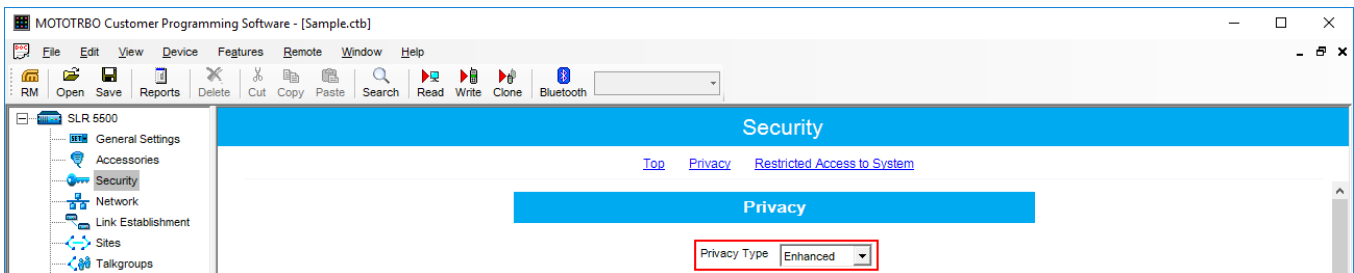
## Enhanced Privacy

To configure **Enhanced Privacy**, follow these steps:

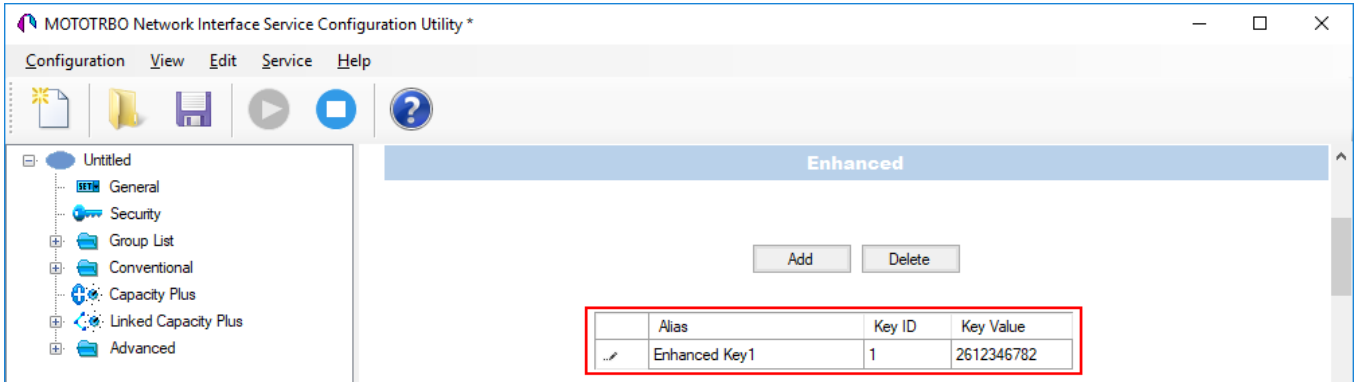
1. Run *MOTOTRBO CPS*.
2. In the **Security** window of the radio settings in *MOTOTRBO CPS* in the **Privacy Type** field select Enhanced and add the enhanced privacy key. Enter its ID and value in the corresponding fields.



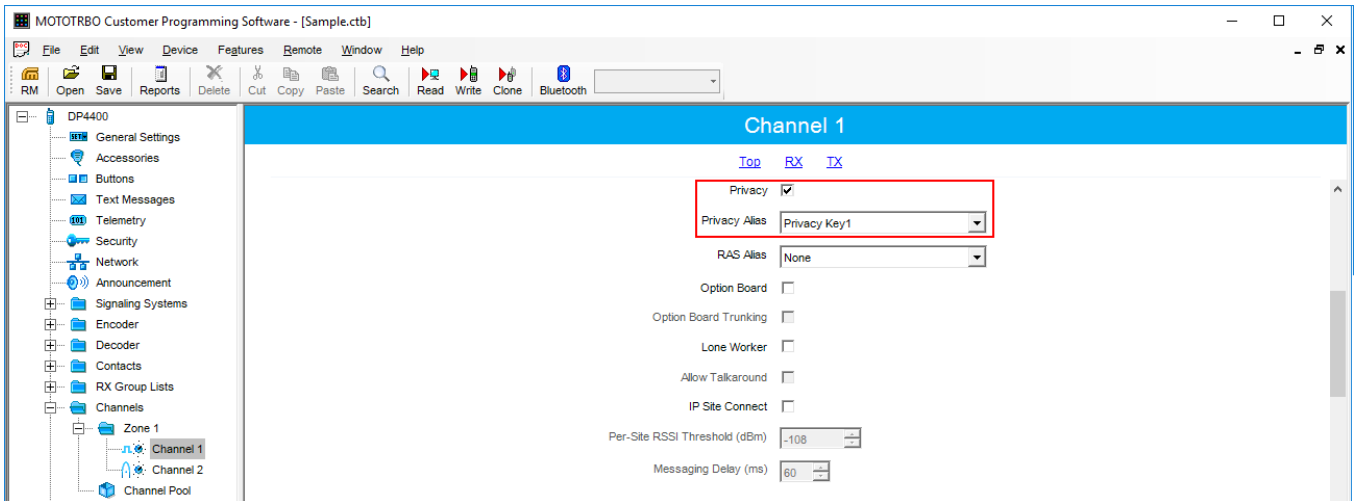
3. In the **Security** window of the repeater settings in *MOTOTRBO CPS* in the **Privacy Type** field select Enhanced.



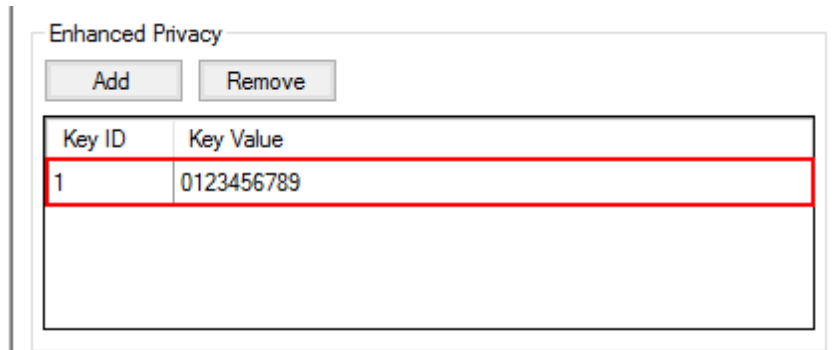
- In the **Security** window of *MOTOTRBO Network Interface Service Configuration Utility* in the **Enhanced** field add the enhanced privacy key. Enter its ID and value in the corresponding fields.





- In the radio settings in *MOTOTRBO CPS* to enable the encryption mode on the required channel select the **Privacy** check box and in the **Privacy Alias** field select the enhanced privacy key for this channel.



- In the **Security Settings** window of *SmartPTT Radioserver Configurator* add an enhanced privacy key for incoming traffic. Enter its ID and value in the corresponding fields.

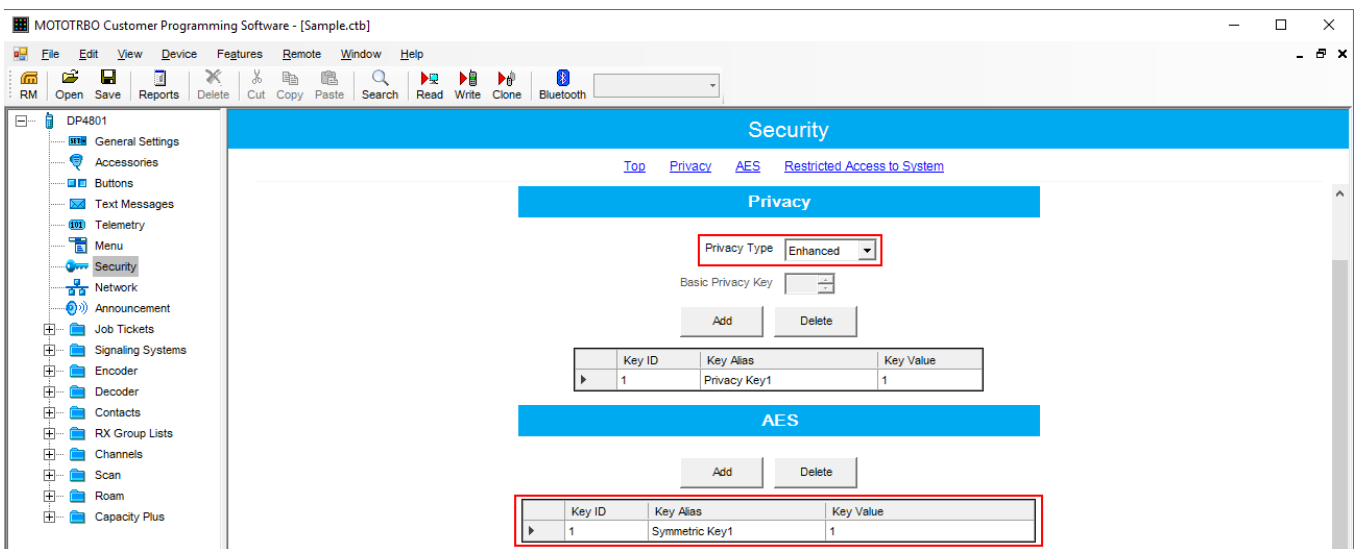


- At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.
- Click **Restart** (  ) to restart SmartPTT Radioserver and apply changes.

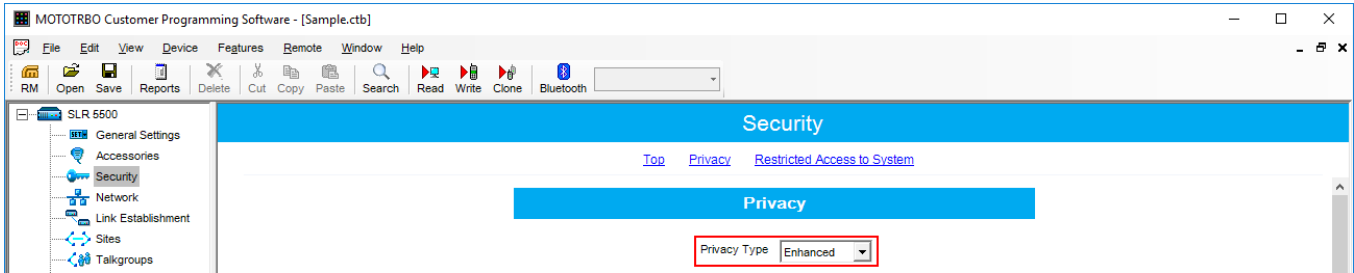
## AES Privacy

To configure the **AES** privacy, follow these steps:

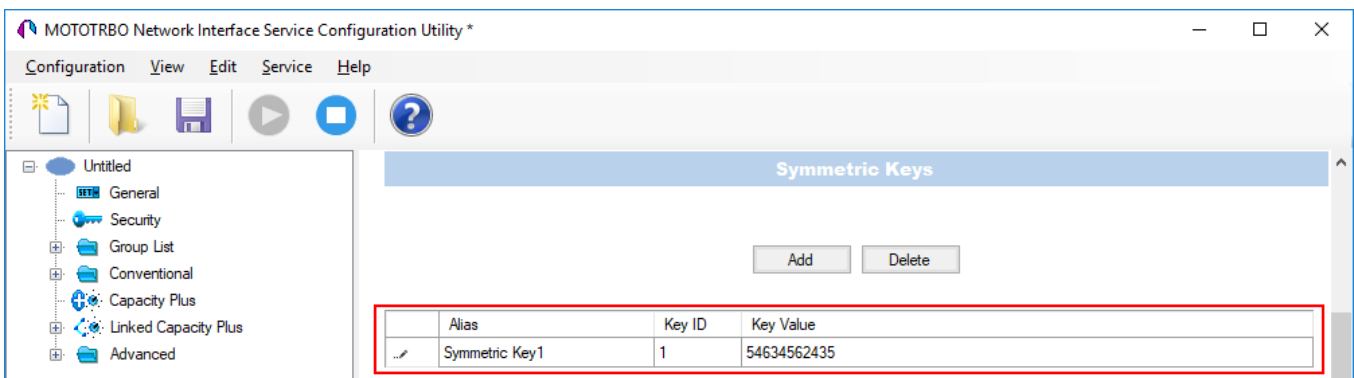
- Run *MOTOTRBO CPS*.
- In the **Security** window of the radio settings in *MOTOTRBO CPS* in the **Privacy Type** field select Enhanced and add the AES privacy key. Enter its ID and value in the corresponding fields.



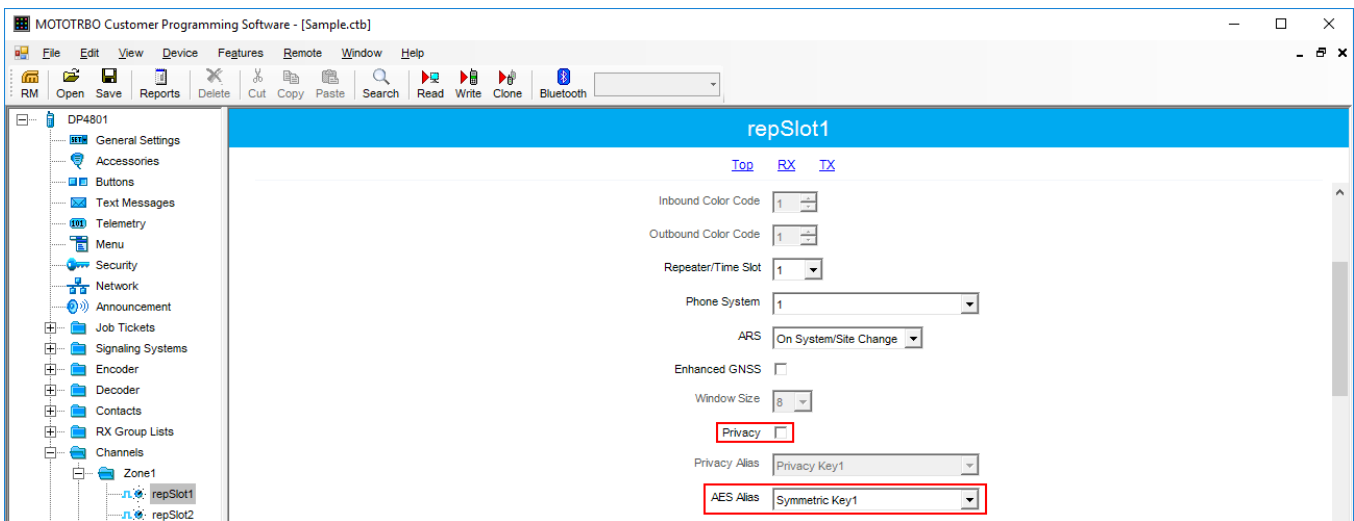
- In the **Security** window of the repeater settings in *MOTOTRBO CPS* in the **Privacy Type** field select **Enhanced**.



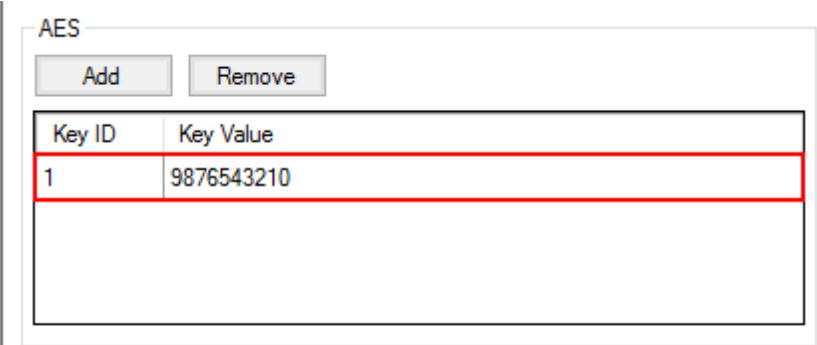
- In the **Security** window of MNIS in the **Symmetric Keys** field add the AES symmetric privacy key. Enter its ID and value in the corresponding fields.



- In the radio settings in *MOTOTRBO CPS* to enable the AES encryption mode on the required channel clear the **Privacy** check box and in the **AES Alias** field select the AES privacy key.





6. In the **Security Settings** window of *SmartPTT Radioserver Configurator* add an AES privacy key for incoming traffic. Enter its ID and value in the corresponding fields.



Key ID	Key Value
1	9876543210

**NOTE**

Key ID and Key Value must match the values set in the radio settings in the Radio Management program and in MOTOTRBO Network Interface Service Configuration Utility. If the values in the Key ID fields are the same, but the values in the Key Value fields do not match, the receiving side hears only a distorted voice. If the key identifier of the transmitting side does not coincide with one of the key identifiers in the list of the receiving side, then transfer to the receiving party will not be heard.

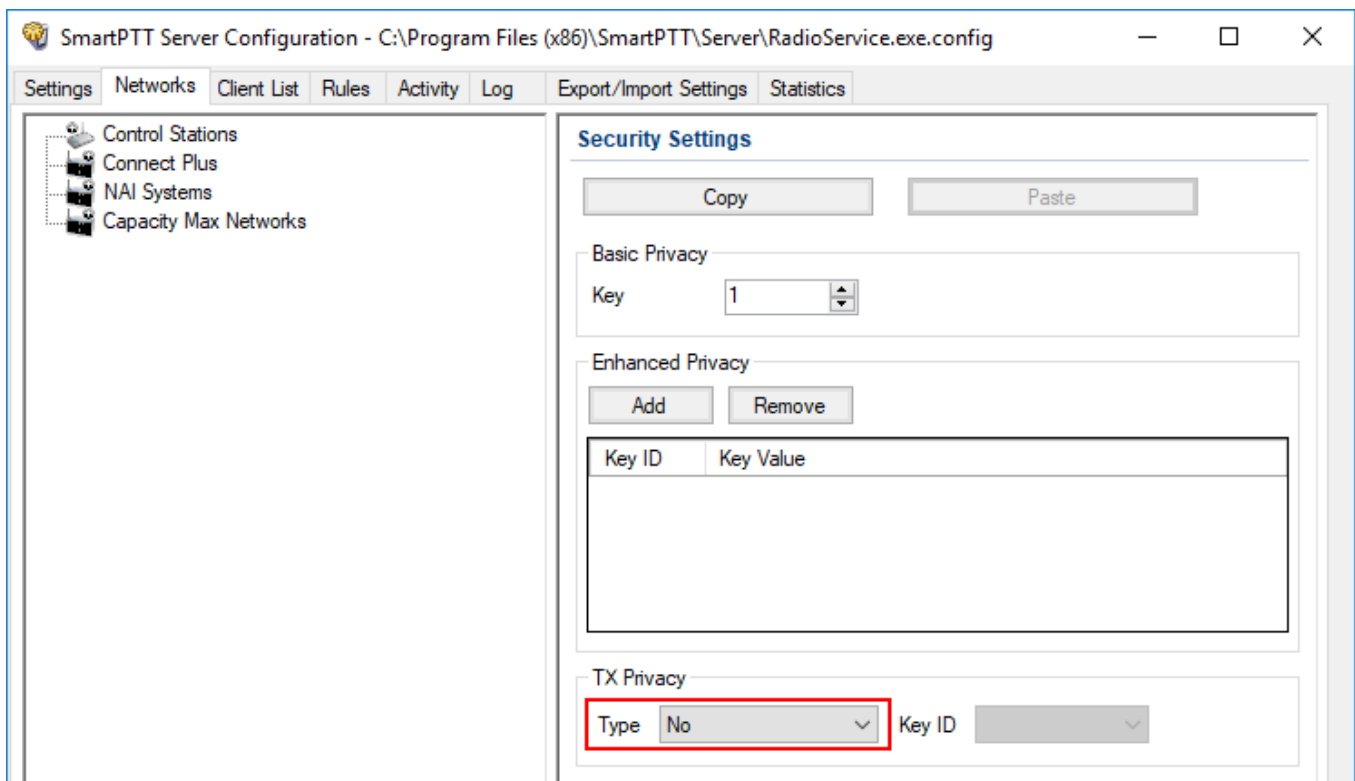
7. At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.
8. Click **Restart** (  ) to restart SmartPTT Radioserver and apply changes.

**TX Privacy**

TX Privacy is used for selecting an encryption mode for outgoing traffic on the side of *SmartPTT Dispatcher*.

To configure the TX Privacy for a NAI system, follow these steps:

1. In the **TX Privacy** area, from the **Type** list select the desired encryption type:





- Select *No* if encryption of outbound traffic from the radioserver is not required.
- Select *Basic* if you want to use basic encryption for outgoing traffic from the radioserver. Use the Key ID you specified in the **Basic Privacy** area.
- Select *Enhanced* if you want to use enhanced encryption for outgoing traffic from the radioserver. Use the Key ID you specified in the **Enhanced Privacy** area.
- *AES license is required:* Select *AES (Symmetric Key)* if you want to use AES (*Symmetric Key*) encryption for outgoing traffic from the radioserver. Use the Key ID you specified in the **AES** area.

#### NOTE

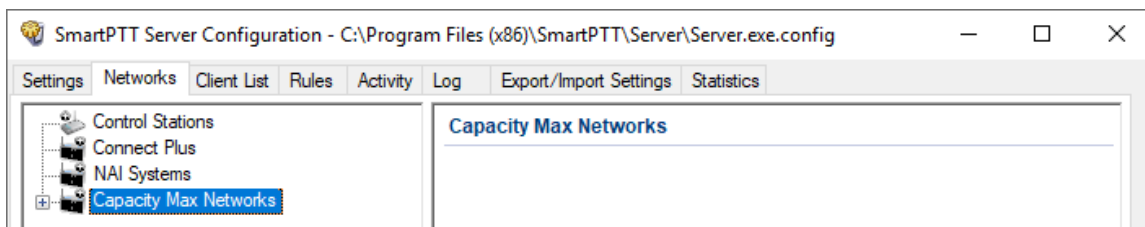
If from the **Type** field *No* is selected and you have AES encryption for incoming traffic configured, AES (*Symmetric Key*) is used for incoming traffic by default.



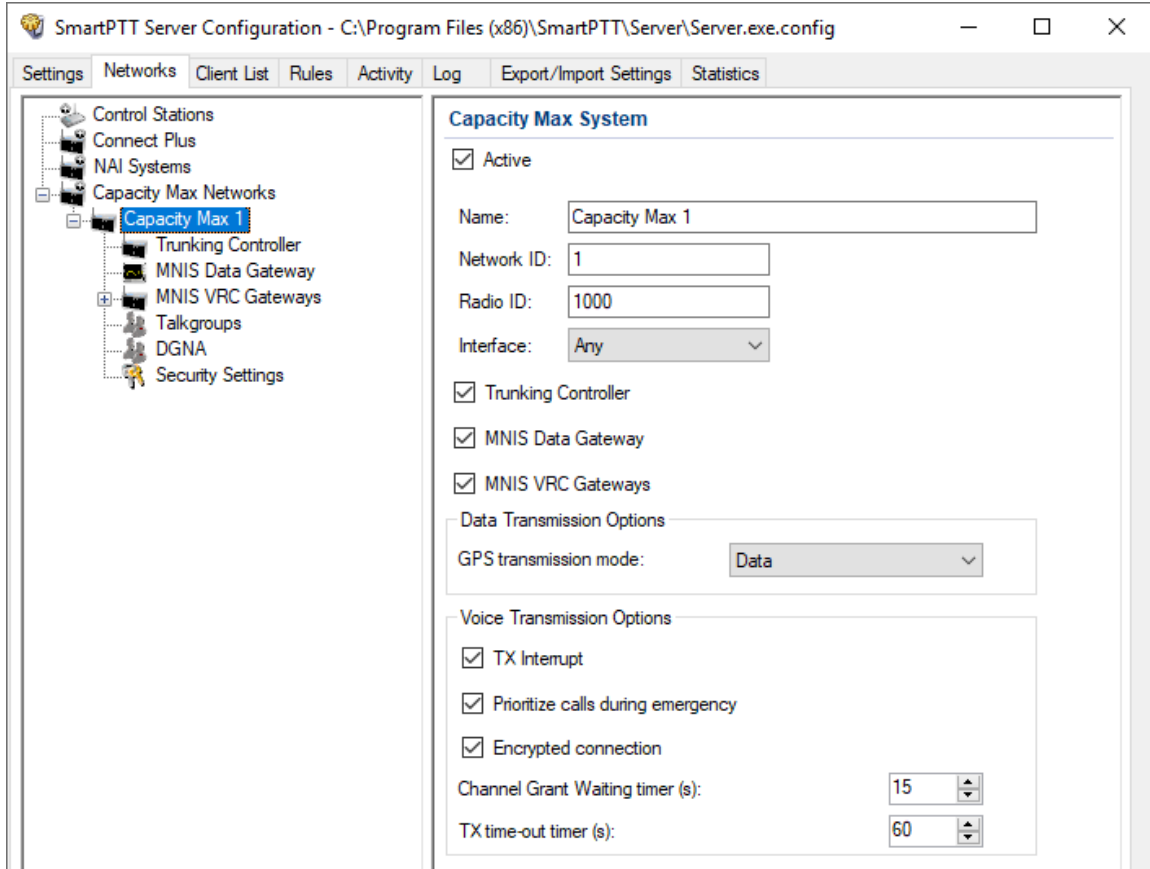
2. At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.
3. Click **Restart** (  ) to restart SmartPTT Radioserver and apply changes.

## 2.4 Capacity Max Networks

SmartPTT supports MOTOTRBO™ Capacity Max, a multisite trunked radio system from Motorola Solutions. For detailed information on Capacity Max, visit [https://www.motorolasolutions.com/en\\_xu/products/mototrbo/mototrbo-capacity-max.html](https://www.motorolasolutions.com/en_xu/products/mototrbo/mototrbo-capacity-max.html). For detailed information on SmartPTT configuration to support Capacity Max, see “Capacity Max” in *SmartPTT PLUS Installation and Configuration Guide*.



Under the **Capacity Max Networks** node multiple subnodes are available. Each of them provides the general SmartPTT Radioserver settings related to voice and data exchanges between SmartPTT dispatchers and Capacity Max radio users. The settings appear in the right pane of the SmartPTT Radioserver Configurator window when users click the subnode.



In the **Capacity Max System** pane, the following settings are available:

### Active

Blocks/unblocks the Capacity Max configuration.

### Name

Name of the radio network. The maximum name length is 20 UTF-8 characters. The parameter is used in system messages and as the name of the subnode.

### Network ID

Unique identifier of the network in the SmartPTT Radioserver database. Default values must not be changed until outdated network connections are removed from SmartPTT Radioserver Configurator. In that case, the technical support is needed.

**Radio ID**

Unique identifier of the SmartPTT Radioserver in Capacity Max. It must be a decimal number in the range of 1 – 16776415. The specified ID must not coincide with any of the radio or dispatcher IDs in this network.

**Interface**

IPv4 address (in dot-decimal notation) that is used by the SmartPTT Radioserver computer to connect to Capacity Max. The *Any* option must be selected if the network interface is automatically selected by SmartPTT Radioserver. Otherwise, the specific IP address must be selected. The Loopback option must not be selected.

**Important**

Do not select MNIS Tunnel IP (default value is *192.168.56.1*) or IP address of the locally connected control station (default value is *192.168.10.1*).

**Trunking Controller**

Shows/hides the **Trunking Controller** subnode. For details, see [Trunking Controller](#).

**MNIS Data Gateway**

Shows/hides the **MNIS Data Gateway** subnode. For details, see [MNIS Data Gateway](#).

**MNIS VRC Gateway**

Shows/hides the **MNIS VRC Gateways** subnode. For details, see [MNIS VRC Gateway](#).

**GPS transmission mode**

The mode in which the outdoor coordinates are received from the radio network. The *Enhanced CSBK* option must be selected if Capacity Max supports CSBK data on all its radio channels and the repeater location is configured. Otherwise, the *Data* option must be selected.

In the **Voice Transmission Options** area, the following settings are available:

**TX Interrupt**

Blocks/unblocks the capability to interrupt incoming calls (initiated by radio users) with outgoing calls (initiated by dispatchers) and voice notifications.

**Prioritize calls during emergency**

Blocks/unblocks the maximum priority assignment to emergency calls. This prevents their unintended interruption.

**Encrypted connection**

Blocks/unblocks the use of the secure connection between the SmartPTT Radioserver computer and Capacity Max infrastructure.

**Channel Grant Waiting Timer**

Maximum duration of the waiting for a free channel, waiting for a private call confirmation, or call establishment. If the voice transmission cannot be started after the timeout, the call is canceled.

**TX time-out timer**

Maximum duration of the voice transmission after which the hangtime is provided. If the duration of the voice transmission duration exceeds the timeout, no hangtime is provided and the call ends immediately.

## 2.4.1 Adding and Editing Capacity Max

Follow the procedure to add Capacity Max to the SmartPTT Radioserver configuration.

**Prerequisites:**

From Capacity Max configuration, obtain the following information:

- SmartPTT Radioserver ID,
- Availability of the voice and data services;
- If CSBK Data are used or not.
- Voice transmit settings.

Contact the Motorola Solutions representative in your region to obtain the configured parameters.

**Procedure:**

1. In SmartPTT Radioserver Configurator, open the **Networks** tab.
2. Perform one of the following actions:

---

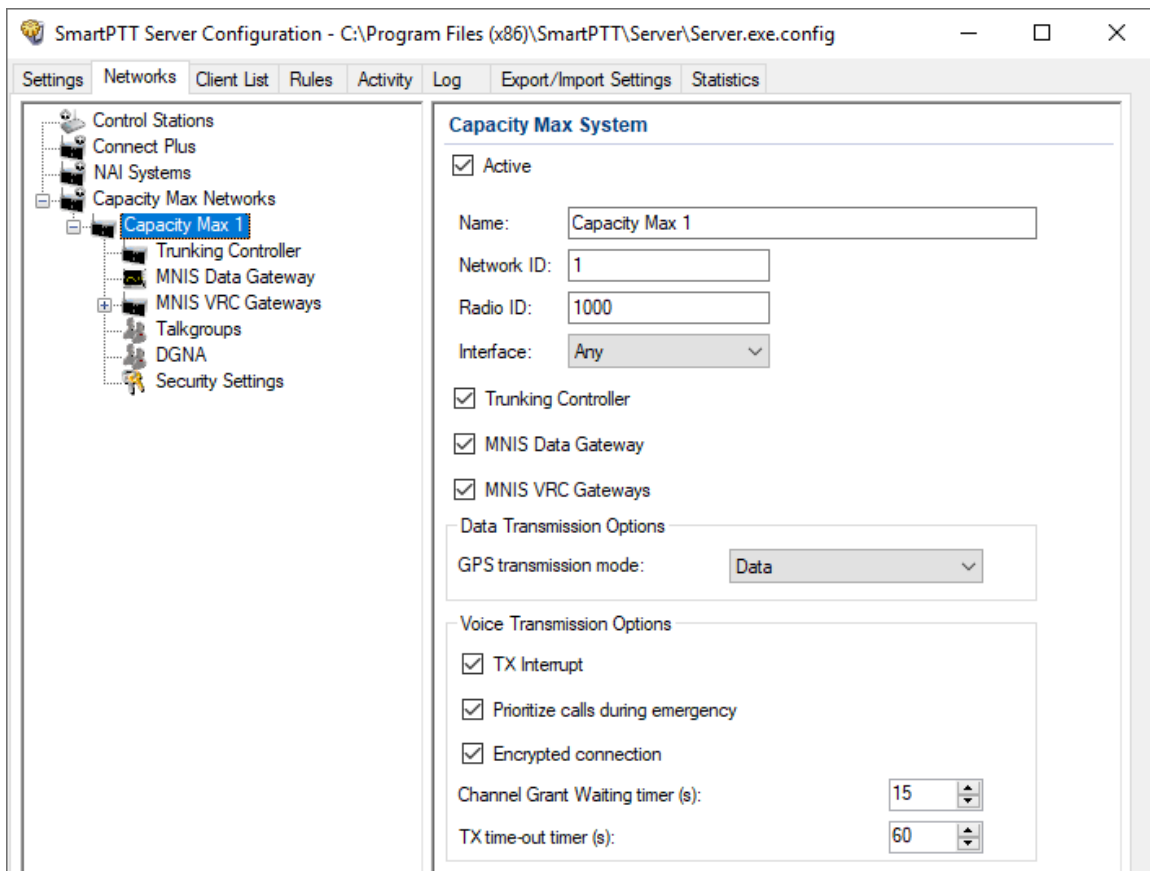
To add a new Capacity Max network, right-click **Capacity Max Networks**, and then click **Add**.

---

To edit an existing Capacity Max network, expand **Capacity Max Networks**.

---

3. Under the expanded **Capacity Max Networks** node, click the required network. General network settings appear in the right panel.



4. Click the new subnode.
5. In the right pane, configure the general SmartPTT Radioserver settings:
  - a. Select the **Active** check box.
  - b. In the **Name** field, type the radio network name.

- c. Leave the **Network ID** parameter unchanged.
  - d. In the **Radio ID** field, type the Dispatch System ID.
6. Show Capacity Max service settings:
- a. Select the **Trunking Controller** check box to show the Presence Server connection settings.  
The **Trunking Controller** subnode appears.
  - b. Select the **MNIS Data Gateway** check box to show the MNIS Data Gateway connection and communication settings.  
The **MNIS Data Gateway** subnode appears.
  - c. Select the **MNIS VRC Gateway** check box to show the MNIS VRC Gateway connection and communication settings.  
The **MNIS VRC Gateways** subnode appears.
7. To configure GPS data format, in the **Data Transmission Options** area, perform one of the following actions:

---

If CSBK Data are configured in the radio network,

from the **GPS Transmission mode** list, select *Enhanced CSBK*.

---

If no CSBK Data are configured,

from the **GPS Transmission mode** list, select *Data*.


---

If no data gateway will be used in Capacity Max,



leave the **GPS Transmission mode** parameter unchanged.

---

8. In the **Voice Transmission Options** area, configure voice features in Capacity Max:
- a. To allow radio transmit interruption by operators, select the **TX Interrupt** check box.
  - b. To increase call priority for radios in Emergency Mode, select the **Prioritize calls during emergency** check box.
  - c. To secure voice traffic between SmartPTT Radioserver host and CMSS, select the **Encrypted connection** check box.
  - d. In the **Channel Grant Waiting Timer** field, enter the channel grant timeout.
  - e. In the **TX time-out timer** field, enter the voice transmission timeout.

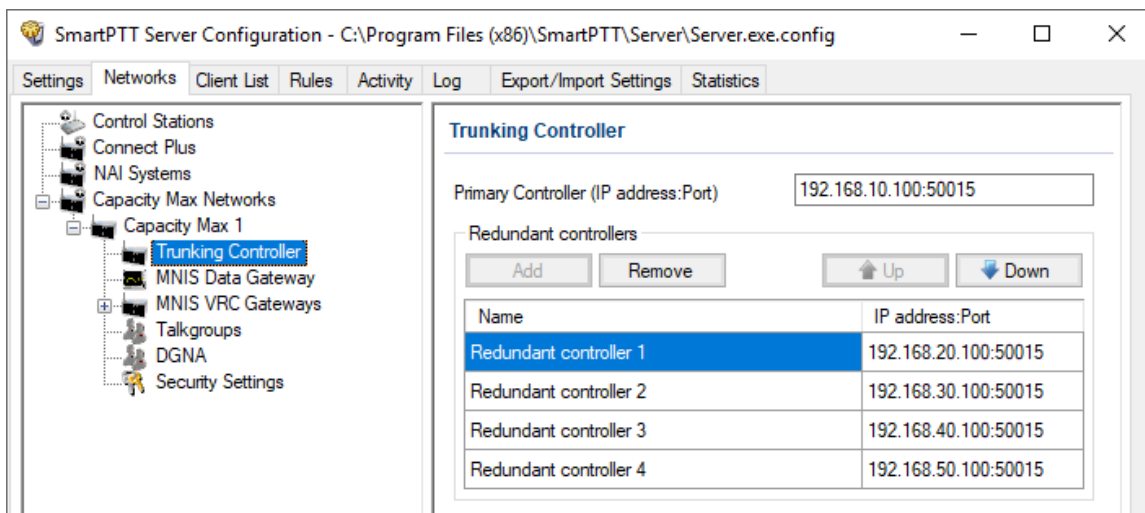
9. To save changes, at the bottom of the SmartPTT Radioserver Configurator window, click **Save Configuration** (  ).

### Postrequisites:

To apply changes immediately, at the bottom of the SmartPTT Radioserver Configurator window, click **Start** (  ) or **Restart** (  ).

## 2.4.2 Trunking Controller

The **Trunking Controller** node provides the ability to configure the settings required for connection of the SmartPTT Radioserver to the Capacity Max Presence Server. After this, SmartPTT starts receiving information on the online/offline status from the radios.



In the right pane, the following settings are available:

### Primary Controller

IPv4 address (in dot-decimal notation) and port number of the main (primary) Presence Server. Input format is <IP address>:<port number>

### Add

Adds a new row to the Redundant Controllers table.

### Remove

Removes the selected row from the Redundant Controllers table.

**Up**

Moves the selected row up in the Redundant Controllers table. Moving the row up in the table does not affect its connection priority.

**Down**

Moves the selected row down in the Redundant Controllers table. Moving the row down in the table does not affect its connection priority.

The table in the **Redundant controllers** area contains alternate/redundant Presence Server interfaces. It consists of the following columns:

**Name**

Name of the alternate/redundant Presence Server that is used in SmartPTT system messages.

**IP address:Port**

IPv4 address (in dot-decimal notation) and port number of the alternate/redundant Presence Server. Input format is <IP address>:<port number>

## 2.4.2.1 Connecting to Presence Servers

Follow the procedure to connect the SmartPTT Radioserver to the Presence Server.

**Prerequisites:**

From the Capacity Max configuration, obtain the following information:

- IPv4 address and port number of the main/primary Presence Server interface.
- IPv4 addresses and port numbers of the all alternate/redundant Presence Server interfaces.

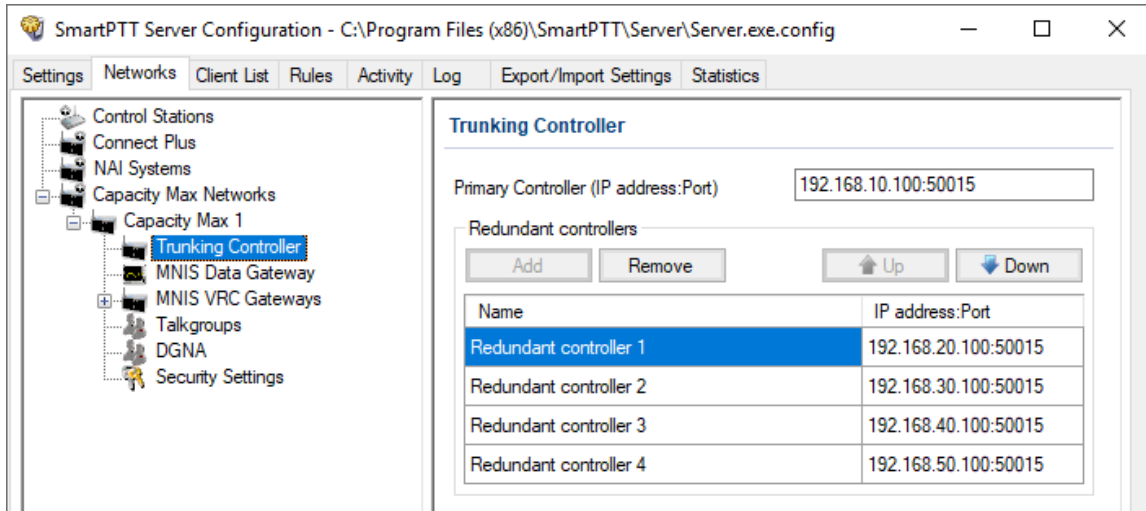
Contact the Motorola Solutions representative in your region to obtain the configured parameters.

**Procedure:**

1. In SmartPTT Radioserver Configurator, open the **Networks** tab.
2. Access Presence Server connection settings:
  - a. On the tab, in the left pane, expand **Capacity Max Network**, and then select **<your network>**.
  - b. In the right pane, select the **Trunking Controller** check box, or ensure that it is already selected.



- c. In the left pane, expand <your network>, and then select **Trunking Controller**. Presence Server settings appear in the right pane.



- 3. In the right pane, in the **Primary Controller** field, type <Main Presence Server IP>:<Main Presence Server Port>
- 4. In the **Redundant controllers** area, configure the connection to alternate/redundant Presence Servers:
  - a. Perform one of the following actions:

---

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

---

To edit an existing connection, proceed to the next step.

- b. In the new row, in the **IP address:Port** column, double-click the default value, and type <Alt. Presence Server IP>:<Alt. Presence Server Port>
- c. *Optional:* In the **Name** column, double-click the default value, and type the Presence Server name.



**NOTE**

Names of the alternate/redundant Presence Servers are used in the system messages of the “Dispatcher” application.

- 5. If more than one alternate Presence Server is configured in Capacity Max, repeat the previous step for the remaining Presence Servers.
- 6. *Optional:* Using **Up** and **Down** buttons, reorder rows in the table.

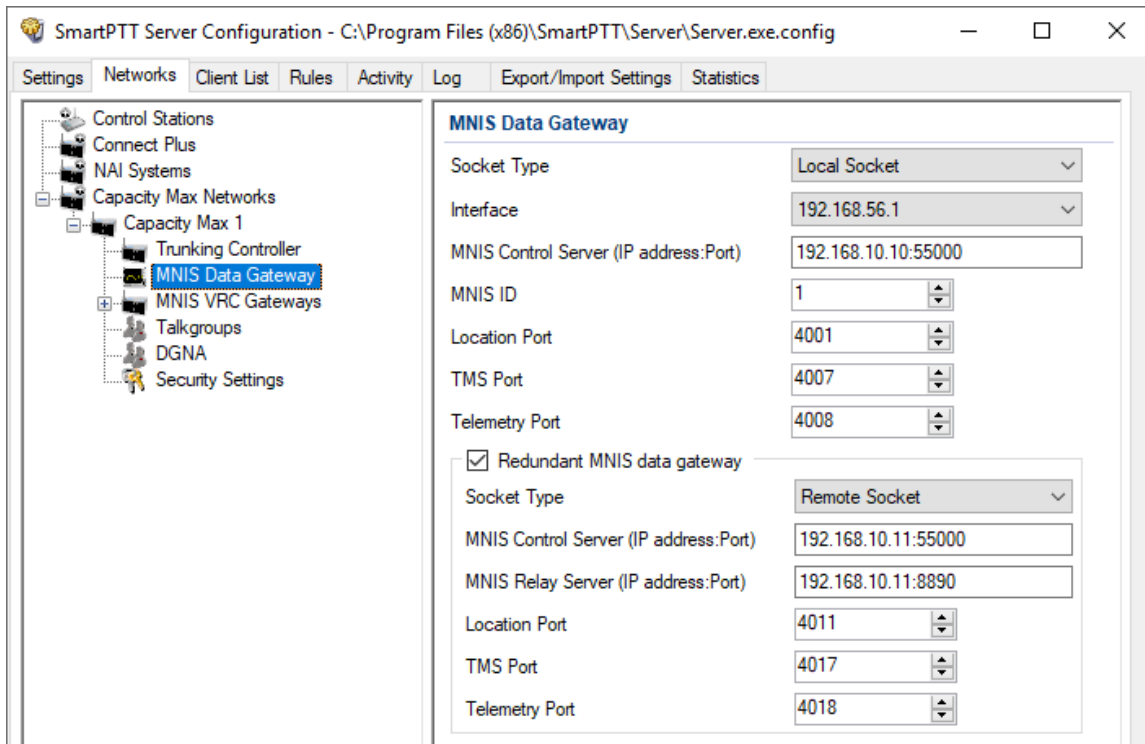
7. To save changes, at the bottom of the SmartPTT Radioserver Configurator window, click **Save Configuration** (  ).

### Postrequisites:

To apply changes immediately, at the bottom of the SmartPTT Radioserver Configurator window, click **Start** (  ) or **Restart** (  ).

## 2.4.3 MNIS Data Gateway

The **MNIS Data Gateway** node provides the ability to configure the settings required for connection of the SmartPTT Radioserver to MOTOTRBO™ Network Interface Service (MNIS). MNIS is a Windows service responsible for transmission of data (such as text messages, location coordinates, and telemetry information) between Capacity Max and SmartPTT Radioserver.



In the right pane, the following settings are available:

### Socket Type

Type of the SmartPTT Radioserver connection to the MNIS service that depends on their hosting. If they are running on the same computer, the *Local Socket* option must be selected. Otherwise, the *Remote Socket* option must be selected.

## Interface

Determines the MNIS Tunnel IP address. Appears only if the *Local Socket* option is selected in the **Socket Type** list. The default MNIS Tunnel IP is *192.168.56.1*.

## MNIS Control Server

IPv4 address (in dot-decimal notation) of the MNIS host computer and the MNIS control interface TCP port. The default port number is *55000*. Input format is <IP address> : <port number>

## MNIS Relay Server

Interface of the SmartPTT MNIS Data Gateway Relay application. Appears only if the *Remote Socket* option is selected in the **Socket Type** list. The default port number is *8890*. Input format is <IP address> : <port number>

For more information on the application, see [Configuring MNIS Data Gateway Relay](#).

## MNIS ID

Unique MNIS service identifier that is set in the MNIS configuration service. It must be a decimal number in the range of 1 to 16776415.

## Location Port

Number of the MNIS port used for location data exchange between SmartPTT Radioserver and MNIS. The default port number is *4001*.

## TMS Port

Number of the MNIS port used for text message exchange between SmartPTT dispatchers and Capacity Max radio users. The default port number is *4007*.

## Telemetry Port

Number of the MNIS port used for collecting telemetry data and sending telemetry commands to MOTOTRBO radios used as data acquisition devices. The default port number is *4008*.

### NOTE

The telemetry feature is not equivalent to the SmartPTT SCADA feature.

The **Redundant MNIS data gateway** area provides the ability to configure parameters required for connect to an alternate/redundant MNIS Data Gateway represented by another MNIS service. The following parameters are available:

### Redundant MNIS data gateway

Blocks/unblocks the alternate/redundant MNIS data gateway settings.

## Socket Type

Type of the SmartPTT Radioserver connection to the alternate/redundant MNIS service that depends on their hosting. If they are running on the same computer, the *Local Socket* option must be selected. Otherwise, the *Remote Socket* option must be selected.

## Interface

Determines the MNIS Tunnel IP address. Appears only if the *Local Socket* option is selected in the **Socket Type** list of the **Redundant MNIS data gateway** area. The default MNIS Tunnel IP is *192.168.56.1*.

## MNIS Control Server

IPv4 address (in dot-decimal notation) of the MNIS host computer and the MNIS control interface TCP port. The default port number is *55000*. Input format is <IP address> : <port number>

## MNIS Relay Server

Interface of the SmartPTT MNIS Data Gateway Relay application. Appears only if the *Remote Socket* option is selected in the **Socket Type** list of the **Redundant MNIS data gateway** area. The default port number is *8890*. Input format is <IP address> : <port number>  
For more information on the application, see [Configuring MNIS Data Gateway Relay](#).

## Location Port

Number of the MNIS port used for location data exchange between SmartPTT Radioserver and the alternate/redundant MNIS service. The default port number is *4011*.

### NOTE

Default port numbers in the alternate/redundant MNIS service can be different.

## TMS Port

Number of the MNIS port used for text message exchange between SmartPTT dispatchers and Capacity Max radio users. The default port number is *4017*.

### NOTE

Default port numbers in the alternate/redundant MNIS service can be different.

## Telemetry Port

Number of the MNIS port used for collecting telemetry data and sending telemetry commands to MOTOTRBO radios used as data acquisition devices. The default port number is *4018*.

**NOTE**

Default port numbers in the alternate/redundant MNIS service can be different.

### 2.4.3.1 Connecting to Data Gateways

Follow the procedure to connect SmartPTT Radioserver to the MNIS Data Gateway.

**Prerequisites:**

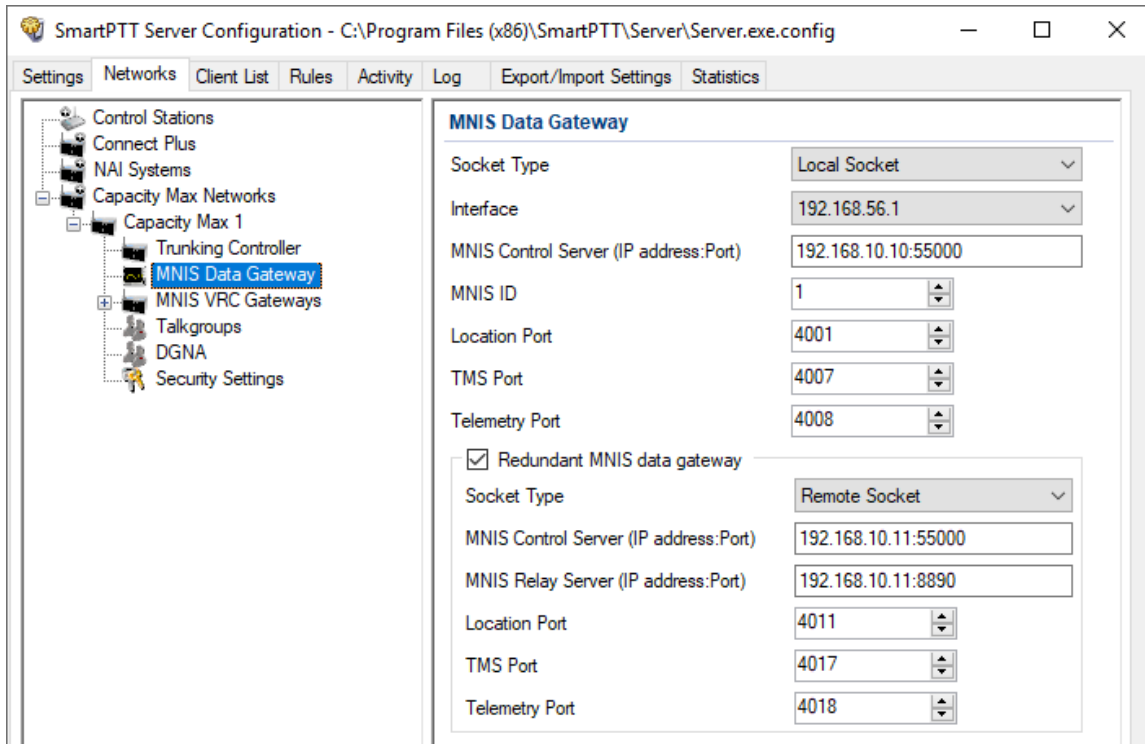
- From the Capacity Max configuration, obtain the following information:
  - Main/primary data gateway settings.
  - If available, alternate/redundant data gateway settings.

Contact the Motorola Solutions representative in your region to obtain the configured parameters.

- From MNIS Data Gateway Relay, obtain its IP address and port. For details, see [Configuring MNIS Data Gateway Relay](#).

**Procedure:**

1. In SmartPTT Radioserver Configurator, open the **Networks** tab.
2. Access data gateway settings:
  - a. On the tab, in the left pane, expand **Capacity Max Networks**, and then select **<your network>**.
  - b. In the right pane, select the **MNIS Data Gateway** check box, or ensure that it is selected.
  - c. In the left pane, expand **<your network>**, and then select **MNIS Data Gateway**.  
The data gateway settings appear in the right pane.



### 3. Connect to the main MNIS Data Gateway:

If the MNIS service and SmartPTT Radioserver are hosted on the same computer,


perform the following actions:

1. In the right pane, from the **Socket Type** list, select *Local Socket*.
2. From the **Interface** list, select the MNIS Tunnel IP address. Default MNIS Tunnel IP is *192.168.56.1*.
3. In the **MNIS Control Server** field, type <SmartPTT Radioserver IP>:<MNIS Control Interface TCP Port>



If the MNIS service and SmartPTT Radioserver are hosted on different computers,

perform the following actions:

1. In the right pane, from the **Socket Type** list, select *Remote Socket*.
2. In the **MNIS Control Server** field, type <MNIS host IP>:<MNIS Control Interface TCP Port>
3. In the **MNIS Relay Server** field, type <MNIS host IP>:<SmartPTT MNIS Data Gateway Relay Port>

4. Configure MNIS Data Gateway settings:
  - a. In the **MNIS ID** field, enter MNIS ID.
  - b. In the **Location Port** field, enter the MNIS port used to provide the outdoor coordinates.
  - c. In the **TMS Port** field, enter the MNIS port used to receive and send text messages.
  - d. In the **Telemetry Port** field, enter the MNIS port used for data acquisition and remote control commands.
5. Configure the alternate/redundant MNIS Data Gateway:
  - a. Select the **Redundant MNIS data gateway** check box.
  - b. With controls in the **Redundant MNIS data gateway** area, perform the actions described in [step 3](#).
  - c. With the remaining controls of the area, perform the actions described in [step 4](#).
6. To save changes, at the bottom of the SmartPTT Radioserver Configurator window, click **Save Configuration** (  ).

### Postrequisites:

To apply changes immediately, at the bottom of the SmartPTT Radioserver Configurator window, click **Start** (  ) or **Restart** (  ).

## 2.4.3.2 Configuring Relay for Capacity Max

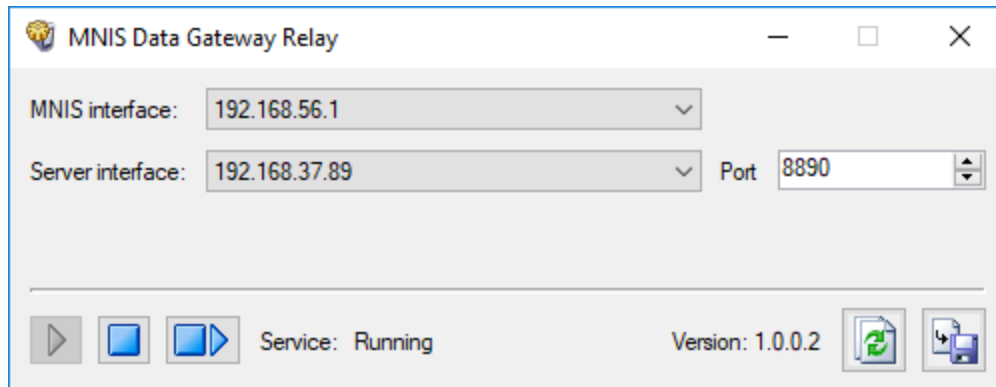
Follow the procedure to configure SmartPTT MNIS Data Gateway Relay (Relay) on the computer.

### Prerequisites:

Install the Relay service on the same computer with the MNIS service.

### Procedure:

1. In Relay, from the **MNIS Interface** list, select the MNIS Tunnel IP address.




2. Perform one of the following actions:

To respond to SmartPTT Radioserver when it addresses the specific IP address,



from the **Server interface** list, select the required IP address.

To respond to SmartPTT Radioserver when it addresses any of the computer IP addresses,

from the **Server interface** list, select *Any*.

3. From the **Server interface** list, select the computer IP address.
4. In the **Port** field, type the free UDP port of the computer. Default port number is 8890.
5. To save changes, at the bottom of the Relay window, click **Save Configuration** (  ).

### Postrequisites:

To apply changes immediately, at the bottom of the Relay window, click **Start** (  ) or **Restart** (  ).

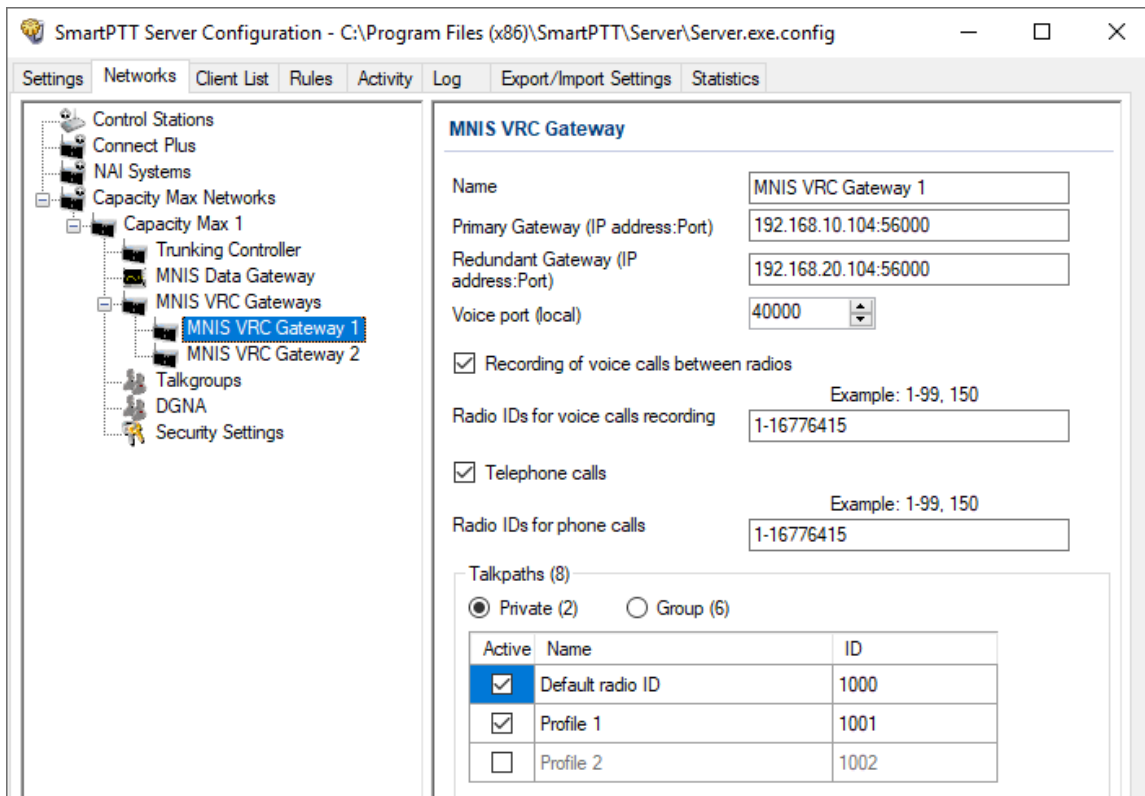


## 2.4.4 MNIS VRC Gateway

SmartPTT supports voice calls over the MNIS VRC Gateways in Capacity Max. The gateways are also required to receive and transmit radio commands, receive emergency alarms, and control temporary talkgroups. For details, see [DGNA](#).

SmartPTT supports up to 15 MNIS VRC gateways that provide balanced IP network loading. For each of 15 gateways, an optional alternate/redundant connection is supported.

The **MNIS VRC Gateway** node allows creating subnodes associated with an individual gateway. The settings appear in the right pane of the SmartPTT Radioserver Configurator window.



In the upper part of the **MNIS VRC Gateway** pane, the following settings are available:

### Name

Name of the radio gateway. The maximum name length is 20 UTF-8 characters. The parameter is used to name the subnode of the **MNIS VRC Gateway** node.

### Primary Gateway

IPv4 address (in dot-decimal notation) and port number of the main/primary gateway. The input format is <VRC Gateway IP>:<VRC Gateway Port>

**Redundant Gateway**

IPv4 address (in dot-decimal notation) and port number of the alternate/redundant gateway. The input format is <VRC Gateway IP>:<VRC Gateway Port>

**NOTE**

Each alternate/redundant gateway cannot be used to configure another main/primary gateway.

**Voice port**

Number of the SmartPTT Radioserver computer port that is used to receive and transmit voice between SmartPTT Radioserver and Capacity Max. Default port number is 40000.

**Recording of voice calls between radios**

Blocks/unblocks voice logging for calls performed over the gateway.

**Radio IDs for voice calls recording**

List of radio IDs which calls are being recorded by SmartPTT Radioserver. Available only if the **Recording of voice calls between radios** check box is selected. To set ID ranges, hyphens must be used; to list IDs and ID ranges, commas must be used. IDs must be decimal numbers ranged from 1 to 16776415.

**Telephone calls**

Blocks/unblocks telephone calls over the gateway.

**Radio IDs for phone calls**

List of radio IDs for which the telephone calls are available. Available only if the **Telephone calls** check box is selected. To set ID ranges, hyphens must be used; to provide several IDs and ID ranges, commas must be used. IDs must be entered as decimal numbers ranged from 1 to 16776415.

The **Talkpaths** area provides the table which content depends on the current view. The following views are available:

**Private**

In this view, SmartPTT Radioserver and dispatcher profile names appear in the table.

**Group**

In this view, talkgroups and all call types appear in the table.

The table consists of the following columns:

**Active**

Provides check boxes that block/unblock the corresponding calls over the gateway. If the check box is selected, calls will be provided over the gateway. Otherwise, the call will not be provided over this gateway.

**Name**

In the private view, provides the *Default radio ID* entry (related to the SmartPTT Radioserver) and profile names (if the profile have an ID for this Capacity Max radio system). In the group view, provides the list of talkgroups and All Call types.

**ID**

Provides ID of entries which names appear in the **Name** column.

### 2.4.4.1 Connecting to MNIS VRC Gateways

Follow the procedure to connect SmartPTT Radioserver to MNIS VRC Gateway.

**Prerequisites:**

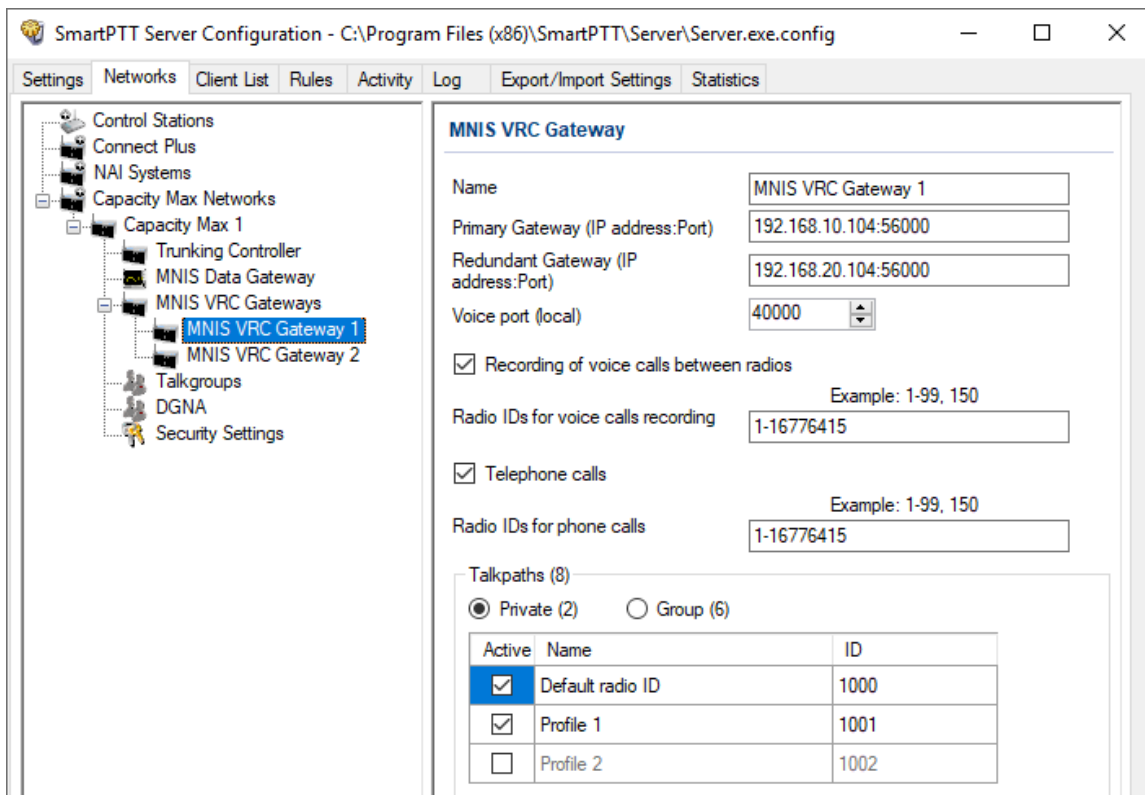
From Capacity Max configuration, obtain the following information:

- IP address and port for each main/primary MNIS VRC Gateway.
- IP address and port for each alternate/redundant MNIS VRC Gateway.
- Radio IDs affiliated to voice logging, phone interconnect, and call initiation over the gateways.

Contact the Motorola Solutions representative in your region to obtain the configured parameters.

**Procedure:**

1. In SmartPTT Radioserver Configurator, open the **Networks** tab.
2. Access MNIS VRC Gateway settings:
  - a. On the tab, in the left pane, expand **Capacity Max Networks**, and then select **<your network>**.
  - b. In the right pane, select the **MNIS VRC Gateway** check box, or ensure that it is selected.
  - c. In the left pane, expand **<your network>**.  
The **MNIS VRC Gateways** subnode appears.



3. Perform one of the following actions:

---

To add a new gateway,

right-click **MNIS VRC Gateways**, and then select **Add**.

---

To edit an existing gateway settings,

expand **MNIS VRC Gateways**.

---

4. Under the expanded **MNIS VRC Gateways** node, click the required subnode.
5. Modify the gateway connection settings:
  - a. In the right pane, in the **Name** field, type the gateway name.

**NOTE**

Gateway names are used in the system messages of the “Dispatcher” application.

- b. In the **Primary Gateway** field, type <Main Gateway IP>:<Main Gateway Port>
  - c. In the **Redundant Gateway** field, type <Alt. Gateway IP>:<Alt. Gateway Port>
  - d. In the **Voice port** field, enter the free UDP port of the SmartPTT Radioserver host.
6. Configure voice recoding for the gateway:
  - a. Select the **Recoding of voice calls between radios** check box.
  - b. In the **Radio IDs for voice calls recording** field, type Radio IDs which calls must be recorded.

**Important**

For voice recording, SmartPTT must have the “Voice Recording” or “NexLog” license. For details, contact Elcomplus LLC representative in your region.

7. Configure telephone line access for radio users over the gateway:
  - a. Select the **Telephone calls** check box.
  - b. In the **Radio IDs for phone calls** field, type IDs of radios that must be able to receive and initiate phone calls.

**Important**

For telephone calls, SmartPTT must have the “Telephone Interconnect Service” license. For details, contact Elcomplus LLC representative in your region.

8. In the **Talkpaths** area, perform one of the following actions:

---

To configure private talkpaths, click **Private**.

---

To configure group talkpaths, click **Group**.

---

9. Configure the talkpaths utilization on the gateway:


---

To provide the talkpath for the ID, in the table, in the **Active** column, select check boxes for the corresponding IDs.



---

To reject the talkpath provision for the ID, in the table, in the **Active** column, clear check boxes for the corresponding IDs.

---

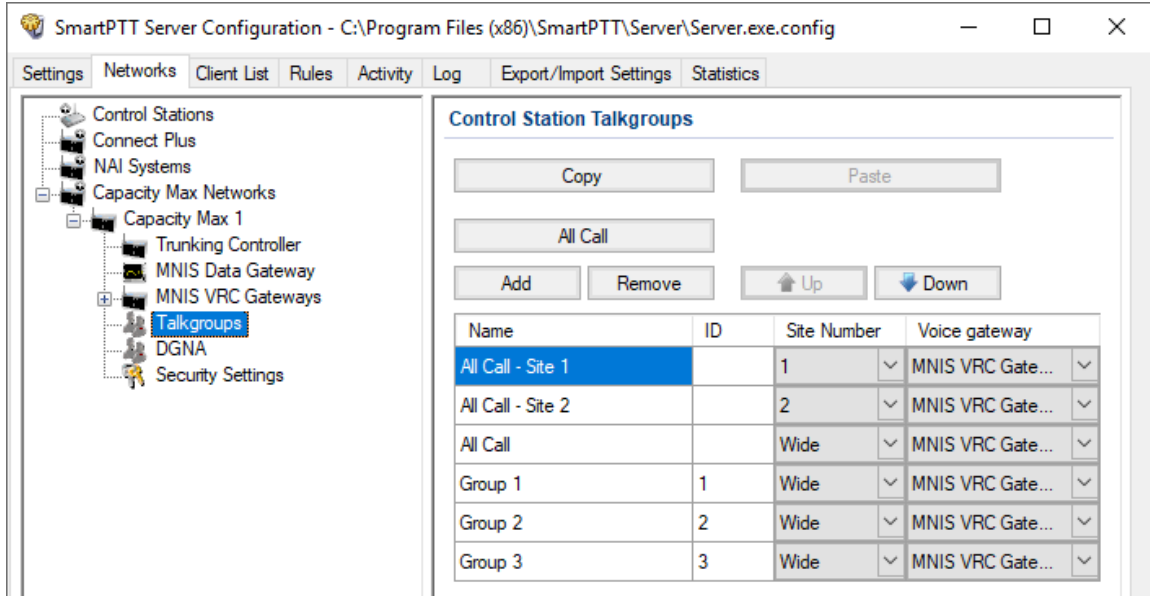
10. To save changes, at the bottom of the SmartPTT Radioserver Configurator window, click **Save Configuration** (  ).

**Postrequisites:**

- Repeat the procedure to connect to other MNIS VRC gateways.
- To apply changes immediately, at the bottom of the SmartPTT Radioserver Configurator window, click **Start** (  ) or **Restart** (  ).

## 2.4.5 Talkgroups

The **Talkgroups** node provides the ability to configure the settings required for group calls, all calls, and other group transmissions in Capacity Max.



In the upper part of the right pane, the following elements are available:

### Copy

Copies the configured talkgroups and All Call types to the SmartPTT Radioserver internal clipboard that is unavailable to the Windows clipboard.

### Paste

Pastes the configured talkgroups and All Call types to the table.

### All Call

Adds a new All-Call entry to the table.

### Add

Adds a new talkgroup entry to the table.

### Remove

Removes the selected entry from the table.

### Up

Moves the selected entry up in the table.

**Down**

Moves the selected entry down in the table.

Configured talkgroups and All Calls appear in the table. The table consists of the following columns:

**Name**

Name of the talkgroup or an automatically generated name for an All Call entry. It can be edited by double-clicking the desired name.

**ID**

Identifier of the talkgroup. It can be edited by double-clicking the currently specified ID. For All Calls, no ID is provided.

**Site Number**

Determines the All Call range of application. To configure system-wide All Call, the *Wide* option must be selected. To configure site-specific All Call, the site ID must be selected.

**Voice Gateway**

Provides the list of MNIS VRC Gateways added and configured in SmartPTT Radioserver Configurator. The gateway must be selected to control the relevant outgoing group call.

### 2.4.5.1 Adding and Editing Groups to Capacity Max

Follow the procedure to add talkgroups to SmartPTT Radioserver, and configure site-specific and system-wide All Calls.

**Prerequisites:**

From the Capacity Max configuration, obtain the following information:

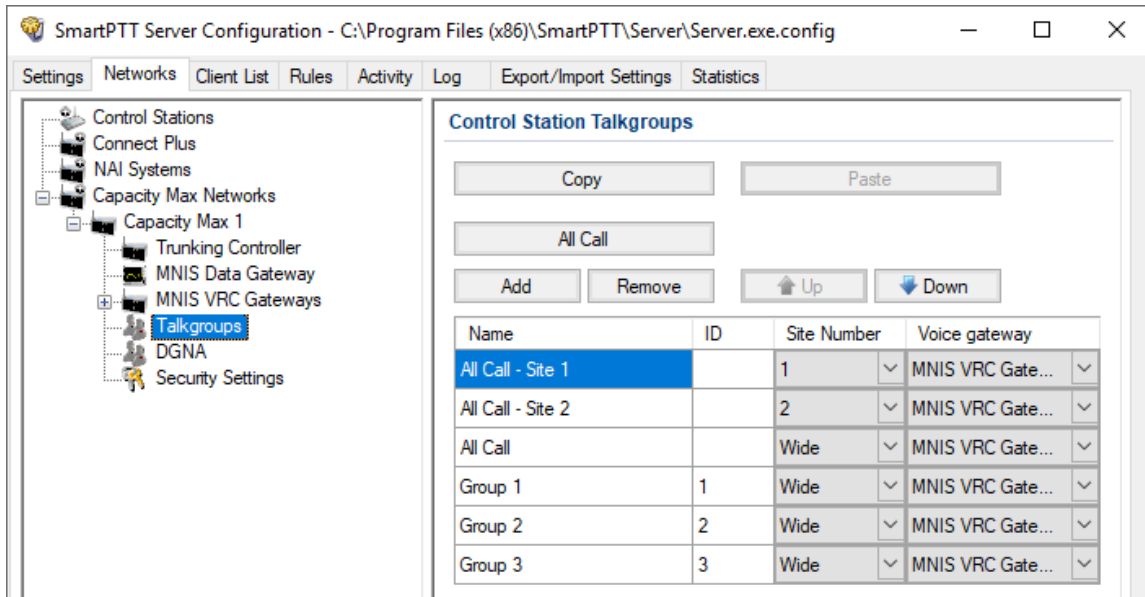
- Talkgroup IDs and their affiliation to Capacity Max sites and gateways.
- List of Site IDs to configure All Calls.

Contact the Motorola Solutions representative in your region to obtain the configured parameters.



**Procedure:**

1. In SmartPTT Radioserver Configurator, open the **Networks** tab.
2. On the tab, in the left pane, expand **Capacity Max Networks** → **<your network>**, and then select **Talkgroups**.




3. *Optional:* In the right pane, click **Add** to add a new talkgroup.
4. Edit the required talkgroup:
  - a. In the table, in the **Name** column, double-click the current talkgroup name, and then type the talkgroup name.
  - b. In the same row, in the **ID** column, double-click the default ID, and then type the talkgroup ID.
  - c. If available, in the same row, from the list in the **Voice gateway** column, select the gateway that will route the talkgroup calls to the SmartPTT Radioserver.



**NOTE**

For talkgroups, the option in the **Site Number** column is always equal to *Wide* and cannot be changed.

5. *Optional:* Click **All Call** to add a new All Call.
6. Edit the required All Call:
  - a. In the new entry of the table, from the list in the **Site Number** column, select the required option:
 

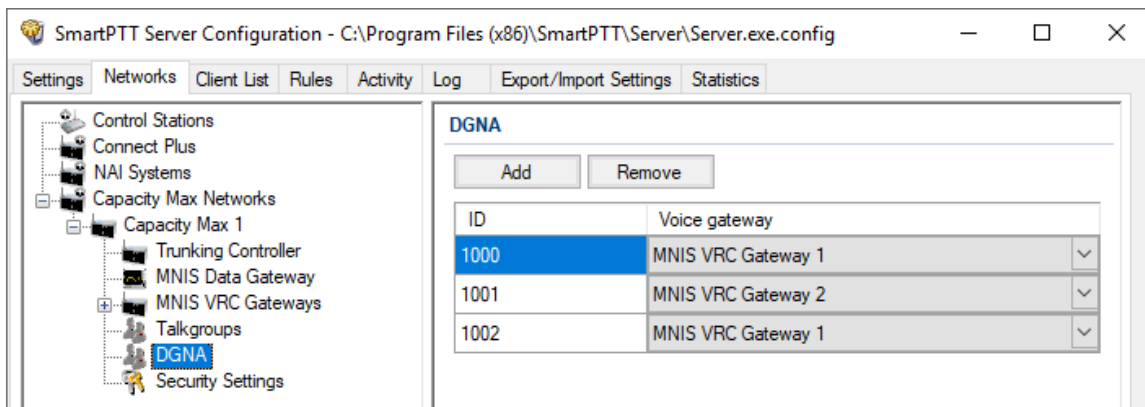
To create the site-specific All Call,	select the site number.
To create the system-wide All Call,	select <b>Wide</b> .
  - b. In the same row, from the list in the **Voice Gateway** column, select the required MNIS VRC Gateway.
7. *Optional:* Using **Up** and **Down** buttons, reorder rows in the table.
8. To save changes, at the bottom of the SmartPTT Radioserver Configurator window, click **Save Configuration** (  ).

### Postrequisites:

To apply changes immediately, at the bottom of the SmartPTT Radioserver Configurator window, click **Start** (  ) or **Restart** (  ).

## 2.4.6 DGNA

The **DGNA** node provides the ability to configure the list of IDs that will be available for assigning to temporary talkgroups in SmartPTT Dispatcher. Temporary talkgroups require Dynamic Group Number Assignment (DGNA) to be licensed and configured in Capacity Max.



In the right pane, the following settings are available:

**Add**

Adds a new entry to the table.

**Remove**

Removes the currently selected entry from the table.

The table with temporary talkgroups consists of the following columns:

**ID**

The column is intended to provide talkgroup IDs. SmartPTT Radioserver selects the talkgroup ID randomly during the talkgroup creating in SmartPTT Dispatcher.

**Voice gateway**

In the column is intended to show available MNIS VRC gateways that server the corresponding group calls. In each entry, list of voice gateways appears. When user selects the voice gateway, he/she must consider the talkgroup affiliation to Capacity Max sites as each set of sites is served by the particular gateway.

**Important**

Operability of the Temporary Talkgroup feature in SmartPTT is determined with the availability and proper configuration of the DGNA.

## 2.4.6.1 Adding and Editing Temporary Talkgroups

Follow the procedure to add a new temporary talkgroup or edit the parameters of an existing one.

**Prerequisites:**

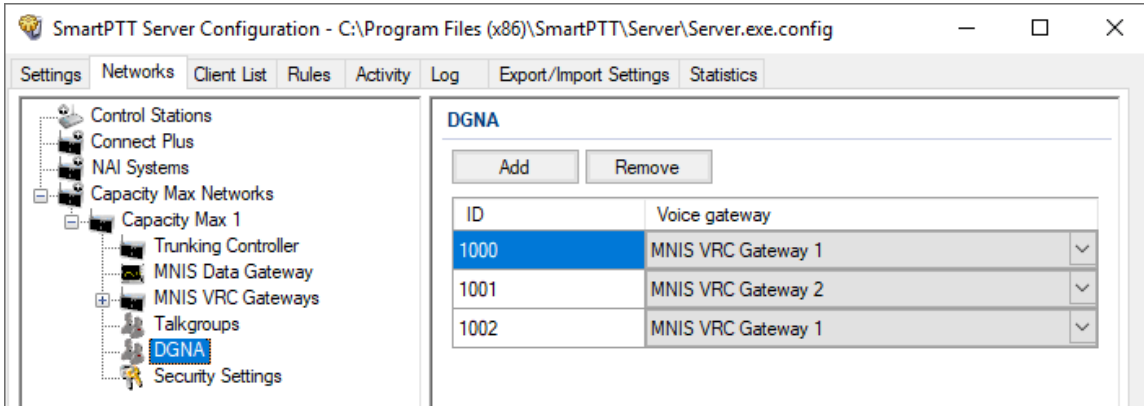
Ensure the following:

- DGNA is configured in Capacity Max and, in particular, allowed for SmartPTT.
- Talkgroup IDs allocated in Capacity Max to be used as IDs of temporary talkgroups.

Contact the Motorola Solutions representative in your region to obtain the configured parameters.

**Procedure:**


1. In SmartPTT Radioserver Configurator, open the **Networks** tab.
2. On the tab, in the left pane, expand **Capacity Max Networks** → **<your network>**, and then select **DGNA**.





3. Perform one of the following actions:

To add a new talkgroup, \_\_\_\_\_ in the right pane, click **Add**.

To edit an existing talkgroup, \_\_\_\_\_ proceed to the next step.

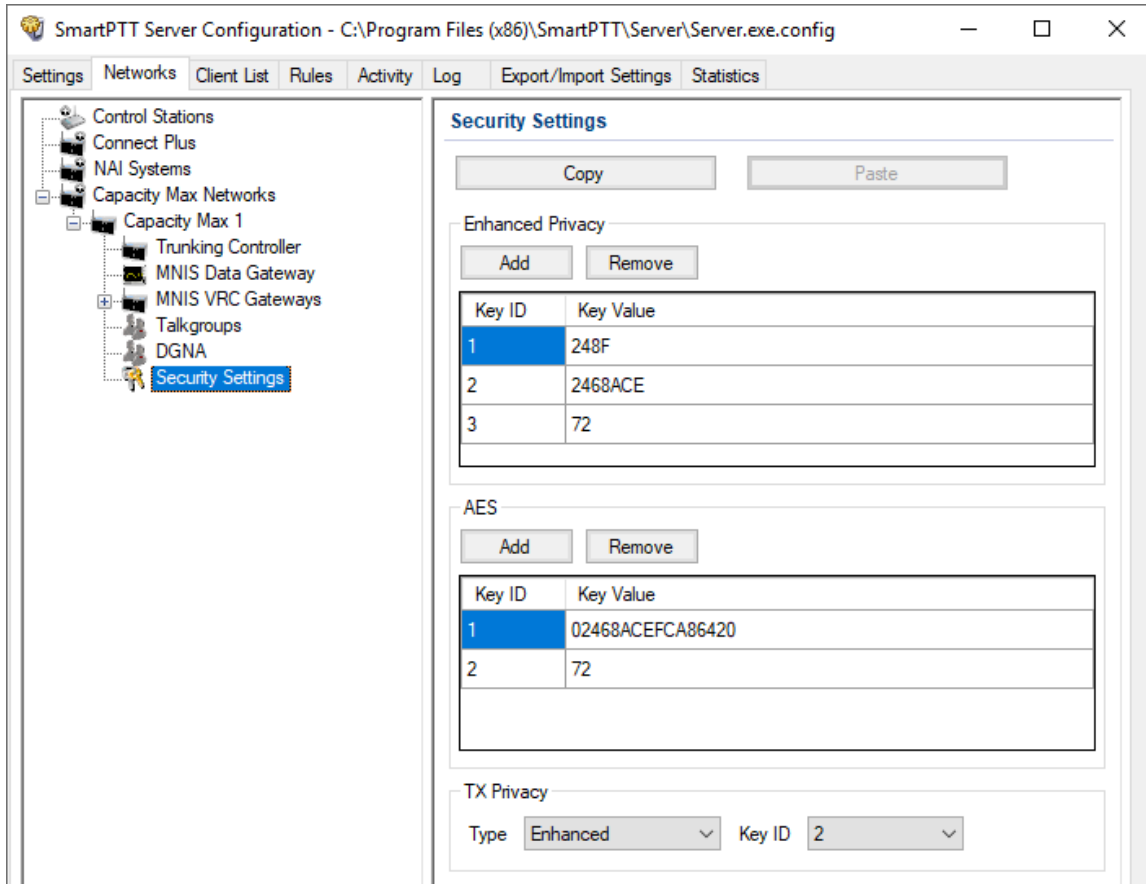
4. In the **ID** column, specify the Talkgroup ID that can be further assigned to a TTG.
5. In the same entry, in the **Voice gateway** column, select the required voice gateway from the expandable list.
6. To save changes, at the bottom of the SmartPTT Radioserver Configurator window, click **Save Configuration** (  ).

**Postrequisites:**

To apply changes immediately, at the bottom of the SmartPTT Radioserver Configurator window, click **Start** (  ) or **Restart** (  ).

## 2.4.7 Security Settings

The **Security Settings** node provides the ability to configure parameters of the over-the-air transmission decryption and encryption. The parameters configured in this node do not affect the secure connection between the SmartPTT Radioserver computer and the Capacity Max System Server.



In the upper part of the right pane, the following settings are available:

### Copy

Copies the configured secure keys to the SmartPTT Radioserver Configurator internal clipboard. Copied keys can be pasted to another radio network. Keys are unavailable to the Windows clipboard.

### Paste

Pastes secure keys from the SmartPTT Radioserver Configurator internal clipboard to the table.

The **Enhanced Privacy** area contains the table with the enhanced security keys. You can manage the table entries using the following controls:

**Add**

Adds a new entry to the table.

**Remove**

Removes the currently selected entry from the table.

The table consists of the following columns:

**Key ID**

ID of the secure key in the decimal format that can range from 1 through 255. The ID in the table must match the ID specified in the Capacity Max settings.

**Key Value**

Secure key value in the hexadecimal format consisting of one (1) to ten (10) digits. The key value in the table must match the value specified in the Capacity Max settings.

In the **AES** area, the table with symmetric secure keys is available. To control the table, the following buttons are available:

**Add**

Adds a new entry to the table.

**Remove**

Removes the currently selected entry from the table.

**Important**

The **AES** area is available only if the relevant license is installed in SmartPTT.

The table consists of the following columns:

**Key ID**

ID of the secure key in the decimal format that can range from 1 through 255. The ID in the table must match the ID specified in the Capacity Max settings.

**Key Value**

Secure key value in the hexadecimal format consisting of one (1) to sixty four (64) digits. The key value in the table must match the value specified in the Capacity Max settings.

In the **TX Privacy** area, the following settings are available:

**Type**

Determines the secure key use for dispatcher transmissions. If *No* is selected, dispatcher transmissions will be clear (unencrypted). If *Enhanced* is selected, dispatcher transmissions will be coded with an Enhanced Security key. If *AES (Symmetric Key)* is selected, dispatcher transmissions will be coded with an AES security key.

**Key ID**

Determines the secure key ID used to encrypt dispatcher transmissions. Available only if *Enhanced* or *AES (Symmetric Key)* is selected in the **Type** list.

**NOTE**

SmartPTT does not provide the Secure Key Select feature to dispatchers.

### 2.4.7.1 Configuring Encryption in Capacity Max

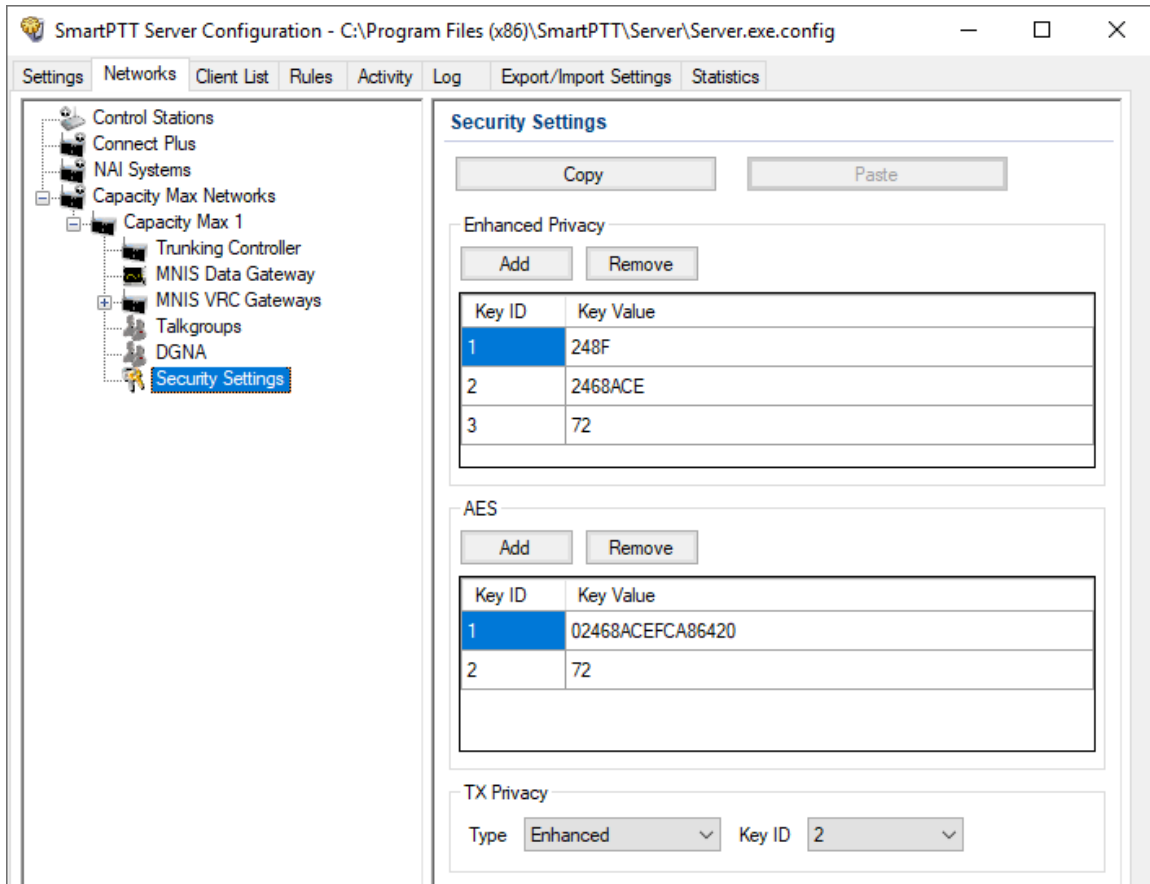
Follow the procedure to add secure keys to SmartPTT Radioserver that will be used to decrypt and encrypt voice and data transmitted over the air.

**Prerequisites:**

- From the Capacity Max configuration, obtain Secure key IDs and values for all the supported encryption types. Contact the Motorola Solutions representative in your region to obtain the configured parameters.
- Determine the key that will be used to encrypt outgoing calls from SmartPTT Dispatcher users.

**Procedure:**

1. In SmartPTT Radioserver Configurator, open the **Networks** tab.
2. On the tab, in the left pane, expand **Capacity Max Networks** → **<your network>**, and then select **Security Settings**.



3. In the right pane, add the enhanced security keys:
  - a. In the **Enhanced Privacy** area, perform one of the following actions:
 

---

To add a new key,	click <b>Add</b> .
<hr/>	
To edit an existing key,	proceed to the next step.
  - b. In the corresponding row of the table, in the **Key ID** column, double-click the default value, and then type the key ID.
  - c. In the same row, in the **Key Value** column, double-click the cell, and then type the key value.



## 4. Add the AES security keys:

- a. In the
- AES**
- area, perform one of the following actions:

---

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

---

To edit an existing key, proceed to the next step.

---

- b. In the corresponding row of the table, in the
- Key ID**
- column, double-click the default value, and then type the key ID.

- c. In the same row, in the
- Key Value**
- column, double-click the cell, and then type the key value.

5. In the **TX Privacy** area, configure the encryption of operator-initiated transmissions (voice and data):

---

To use enhanced security keys, perform the following actions:

1. From the **Type** list, select **Enhanced**.
2. From the **Key ID** list, select the required key ID.

---


To use AES security keys, perform the following actions:



1. From the **Type** list, select **AES (Symmetric Key)**.
2. From the **Key ID** list, select the required key ID.

---

To perform clear transmissions, from the **Type** list, select **No**.

---

6. To save changes, at the bottom of the SmartPTT Radioserver Configurator window, click **Save Configuration** (  ).**Postrequisites:**

To apply changes immediately, at the bottom of the SmartPTT Radioserver Configurator window, click **Start** (  ) or **Restart** (  ).

---

## 3 Client List

The **Client List** tab serves for two purposes in SmartPTT:

- To manage user accounts for client applications (except SmartPTT Dispatcher).
- To show active applications and their users.

Client applications here means SmartPTT Web Clients, SCADA module, and third-party applications.

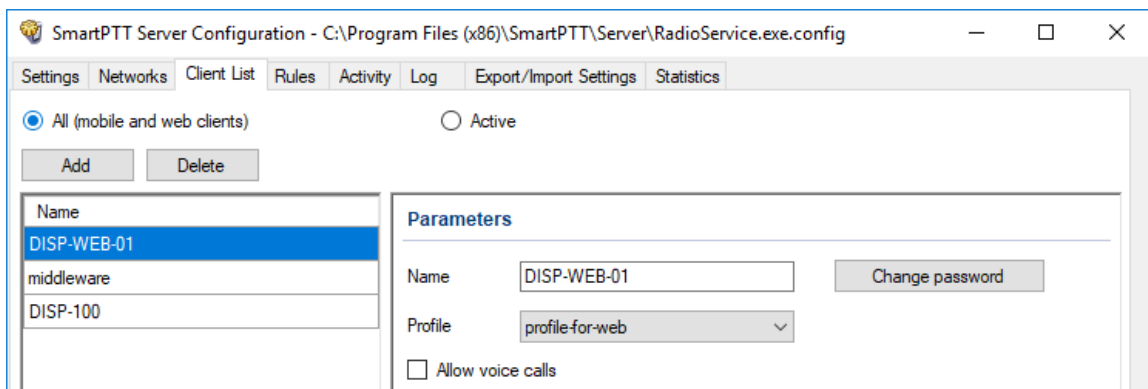
User authentication and authorization is performed by the SmartPTT Radioserver. This procedure is not related to the authentication and authorization performed by the Windows operating system. SmartPTT permits to use the same credentials for simultaneous authorization from multiple applications.

The **Client List** tab provides the following views:

- The Accounts view activates when user clicks **All (mobile and web clients)** at the top of the tab. For details, see [Accounts View](#).
- The Active Users view activates when user clicks **Active** at the top of the tab. For details, see [Active Users View](#).

### 3.1 Accounts View

In the Accounts view, you can add new accounts, remove them, and edit the existing account parameters.



---

This view provides the following elements::

**Add**

Creates new account entry.

**Delete**

Removes the account whose name is currently highlighted. The account name and the user name terms mean the same in this document.

**Name (table heading)**

Provides list of user accounts.

The **Parameters** pane provides the following elements::

**Name (box)**

Provides the name of the user whose account is highlighted in the table. The user name is also used as a user login.

The minimum name length is 1 character; maximum length is 50 characters; charset is UTF-8; the name is case sensitive.

**Change password**

Opens the **<User name>: Change Password** window where you can type and confirm the user password. You cannot create a user without the password.

The minimum password length is 1 character; maximum length is 50 characters; charset is UTF-8; the password is case sensitive.

**NOTE**

In SmartPTT, password change does **not** require entering the current password.

**Profile**

Provides the list of created user profiles that can be assigned to the one or multiple user accounts. For details, see [Profiles](#).

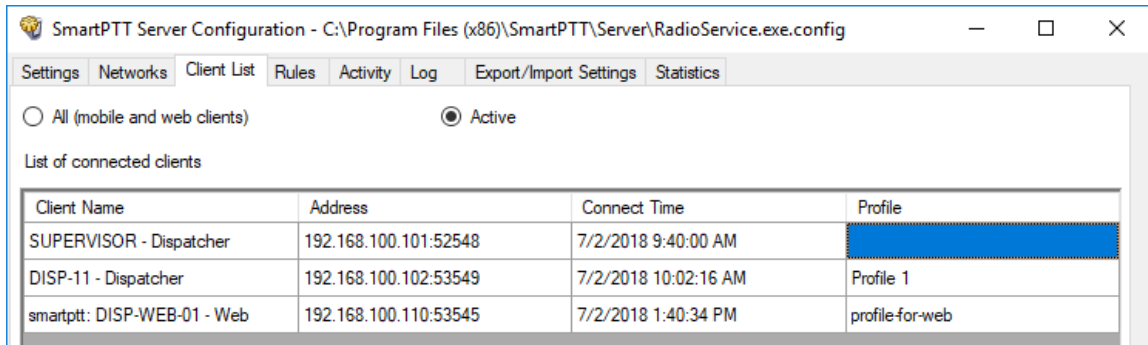
**Allow voice calls**

Provides the ability to receive and initiate voice calls in third-party applications. The parameter does **not** effect SmartPTT Web Client as it does not support voice calls.

## 3.2 Active Users View

In the Active Users view, you can see a list of authorized users and the relevant authorization information.

Active users are displayed in the **List of connected clients** table. When users log off from an application or close it, the relevant entry (row) is removed from the table.



Client Name	Address	Connect Time	Profile
SUPERVISOR - Dispatcher	192.168.100.101:52548	7/2/2018 9:40:00 AM	
DISP-11 - Dispatcher	192.168.100.102:53549	7/2/2018 10:02:16 AM	Profile 1
smartptt: DISP-WEB-01 - Web	192.168.100.110:53545	7/2/2018 1:40:34 PM	profile-for-web

The **List of connected clients** table consists of the following columns:

### Client Name

Contains the name of the authorized user and the used application type.

The format of the SmartPTT Dispatcher applications is *<user name> - Dispatcher*, and the format of the SmartPTT Web Client application is *smartptt: <user name> - Web*.

### NOTE

All user names appear as is (no transliteration is used).

### Address

Contains IP address in IPv4 format and TCP port number used by the application to access SmartPTT Radioserver.

### Connect Time

Contains the date and time of the user authorization.

### Profile

Contains the name of the SmartPTT profile applied to the current user. If no profile is applied, the cell will appear empty, and user receives access to all application features in all connected radio systems.

## 3.3 Modifying Account Parameters

Follow the procedure to create a new or modify the existing SmartPTT user account used in Web Clients, SCADA module, or third-party application.

### Prerequisites:

Create user profile and configure the access to radio networks and dispatching features. For details, see [Profiles](#).

### Procedure:

1. Start SmartPTT Radioserver Configurator.
2. In the **SmartPTT Server Configuration** window, select the **Client List** tab.
3. At the top of the **Client List** tab, click **All (mobile and web clients)**.
4. Perform the following actions:

---

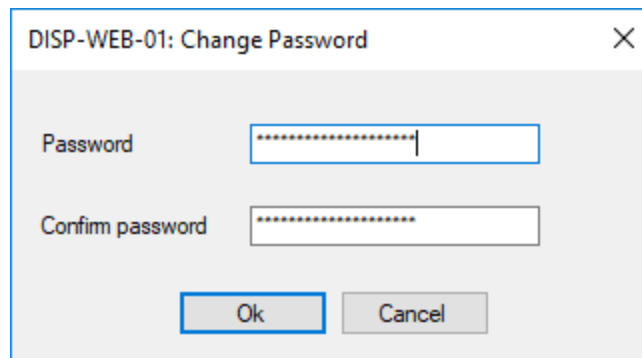
To create a new account, click the **Add** button.

---



To edit an existing account properties, In the left pane, click the desired account name.

---

5. In the **Parameters** pane, in the **Name** field, type the user name.
6. Set the user password:
  - a. Next to the **Name** field, click **Change password**.  
The **<User name>: Change Password** window appears.



- b. In the **<User name>: Change Password** window, in the **Password** field, type the password.

- c. In the **Confirm password** field, type the same password.
- d. Click **Ok** to set the password and close the window.
7. In the **Parameters** pane, from the **Profile** list, select the required profile.
8. To support voice calls in a third-party application (not applicable for Web Client and SCADA module), select the **Allow voice calls** check box.
9. At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.
10. Click **Restart** (  ) to restart SmartPTT Radioserver and apply changes.

## 3.4 Deleting Accounts

Follow the procedure to delete the existing user account.

### Prerequisites:



*Optional:* Back up user accounts as a part of the dispatch system configuration. For details, see [Export/Import Settings](#).

### Procedure:

1. Start SmartPTT Radioserver Configurator.
2. In the **SmartPTT Server Configuration** window, select the **Client List** tab.
3. At the top of the **Client List** tab, click **All (mobile and web clients)**.
4. In the left pane, click the user account you want to delete.
5. At the top of the **Client List** tab click **Delete**.

### WARNING

The next step results in the irreversible deletion of the account.

6. At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.
7. Click **Restart** (  ) to restart SmartPTT Radioserver and apply changes.

### Postrequisites:

Remove the profile if it is not assigned to another user of the dispatch system.

## 3.5 Viewing Active Users

Follow the procedure to view currently active users of the dispatch system. This may help you during the troubleshooting process in the dispatch system.

### Procedure:

1. Start SmartPTT Radioserver Configurator.
2. In the **SmartPTT Server Configuration** window, select the **Client List** tab.
3. At the top of the **Client List** tab, click **Active**.
4. In the **List of connected clients** table, view the following information:
  - In the **Client Name** column, view the user name and hyphen-separated application type.
  - In the **Address** column, view the IP address and TCP port used by the application to connect to the SmartPTT Radioserver.
  - In the **Connect Time** column, view the date and time when the user logged on to the application.
  - In the **Profile** column, view the name of the profile assigned to the user.
5. *Optional:* To sort entries in the table, perform the following actions:

---

To sort entries ascending,	click the desired column heading until the Ascending Icon ( ▲ ) appears on the right of the heading.
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To sort entries descending,	click the desired column heading until the Descending Icon ( ▼ ) appears on the right of the heading.
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See also:

- [Active Users View](#)
- [Clients Connection](#)
- [Profiles](#)

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## 4 Network Configuration

In the **Network Configuration** tab you can perform the following actions:

- Configure general or individual settings for the following network elements:
  - Control stations
  - Repeaters
  - Routers
  - Uninterruptible Power Supplies (UPS)
- Create the system topology tree for visualizing and monitoring its elements in *SmartPTT Dispatcher*.
- Configure settings for sending messages with information on device errors and malfunctioning in the radio system.
- Configure settings for sending messages on the radioserver redundancy errors.
- Add locations, configure their settings, and add to them repeaters and other devices.

### NOTE

In NAI - Linked Capacity Plus radio networks, locations refer to sites. In Connect Plus radio networks, locations refer to XRC controllers.

- Add the network elements using the topology update functionality.

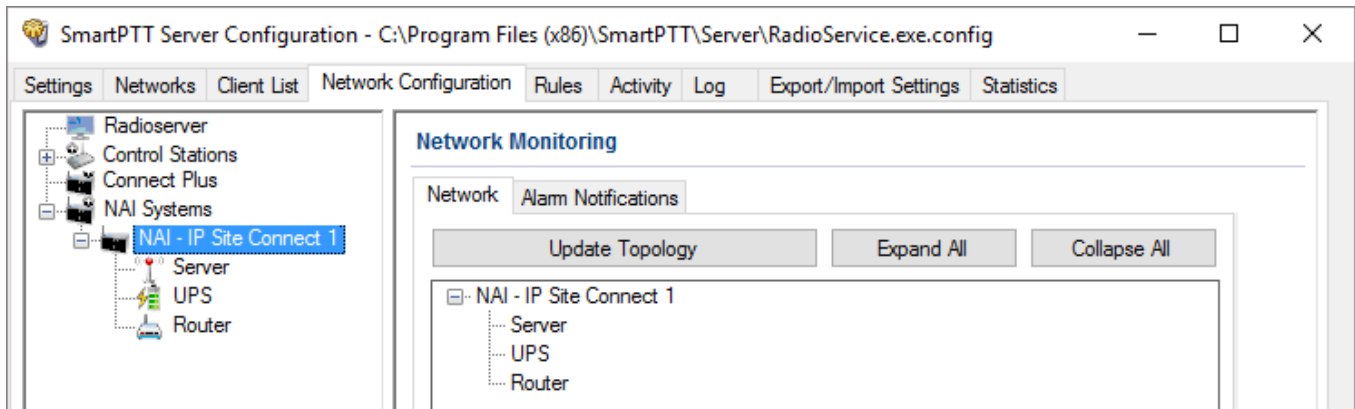
### IMPORTANT

The **Network Configuration** tab appears only after you activate the Monitoring feature. For details, see [Monitoring](#).



## Network Configuration

The left pane of the **Network Configuration** tab provides the list of available radioservers and networks whose settings you can configure.



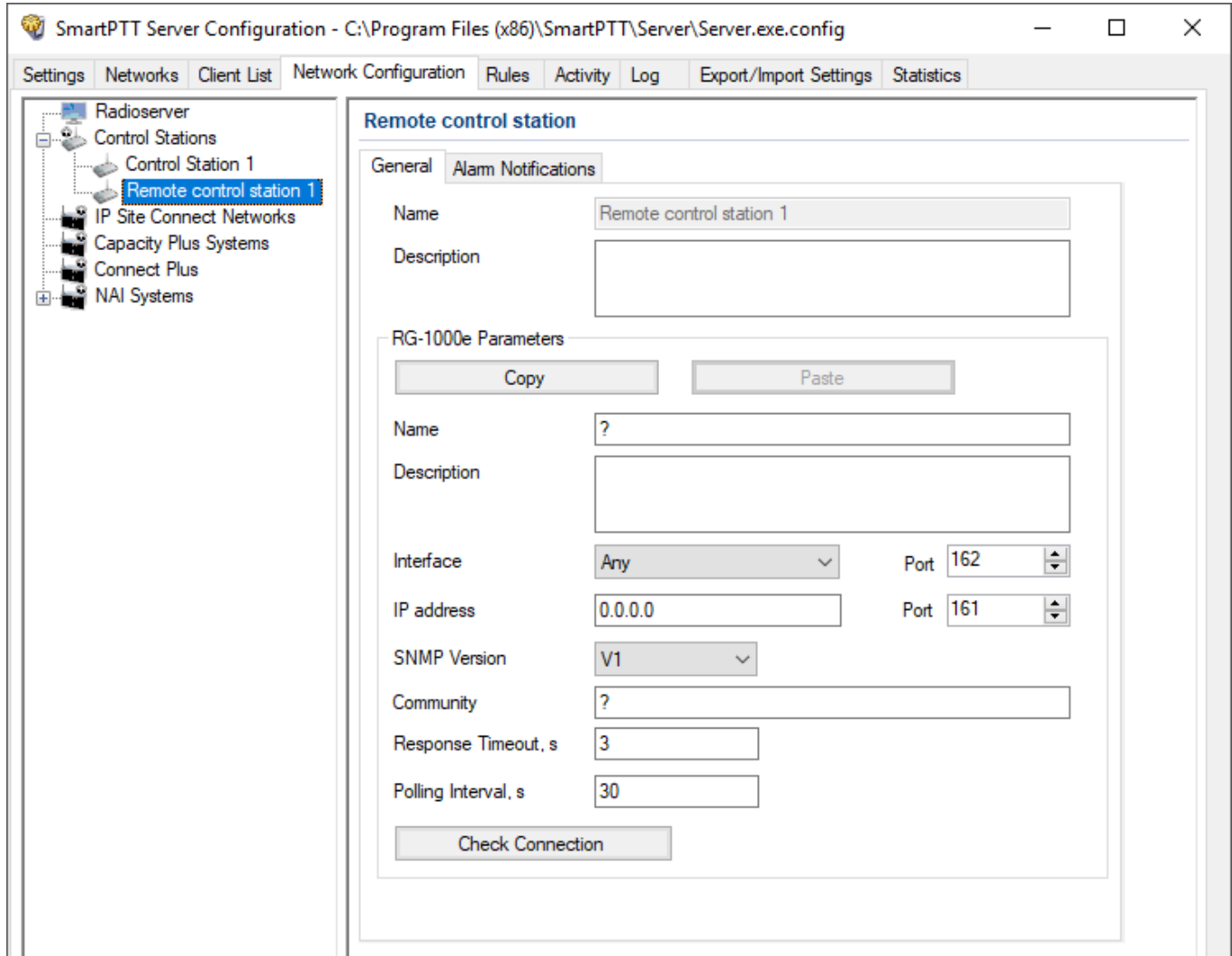
For information on the network element configuration, see the sections below.

## 4.1 Configuring Control Station Monitoring

Follow the procedure to configure the CS monitoring settings.

**Procedure:**

1. In the **Network Configuration** tab, in the left pane, expand the **Control Stations** node, and then select the desired control station.  
In the right pane, the control station monitoring parameters appear.



2. In the **General** tab, in the **Name** field, type the control station name which appears in the **Topology** panel in *SmartPTT Dispatcher*.

**NOTE**  
The **RG-1000e Parameters** area is available for remote control stations only.

3. In the **RG-1000e Parameters** area, configure the radio gateway parameters:
  - a. In the **Name** field, type the radio gateway name which appears in the **Topology** panel in *SmartPTT Dispatcher*..
  - b. *Optional:* In the **Description** field, the radio gateway description.
  - c. From the **Interface** list, select the radioserver IP address for interacting with the radio gateway.
  - d. In the **Port** field, enter the server port for interacting with the radio gateway.
  - e. In the **IP-address** field, type the IP address of the radio gateway.
  - f. In the **Port** field, type the radio gateway port number.
  - g. From the **SNMP Version** list, select the SNMP protocol that is used in the radio system.
  - h. In the **Community** field, type a name of the community that is used for connection to the radio gateway over the SNMP protocol in the local network.
  - i. In the **Response Timeout, s** field, type type the amount of time in seconds during which the server expects a response from the radio gateway. The maximum value is 10 seconds.
  - j. In the **Polling Interval, s** field, type the amount of time in seconds after which the radio server sends a request to the radio gateway.
4. *Optional:* Click the **Check Connection** button to check the status of the radio gateway connection.

The window with information on the connection status appears.
5. *Optional:* In the **Alarm Notifications** tab, configure parameters of automatic notifications of alarms and errors on the control stations connected over the radio gateway. For details, see [Configuring Alarm Notifications](#).

**Important**

The RG-1000e radio gateway does not provide information on the alarms and errors that occur on the gateway itself.

6. At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.

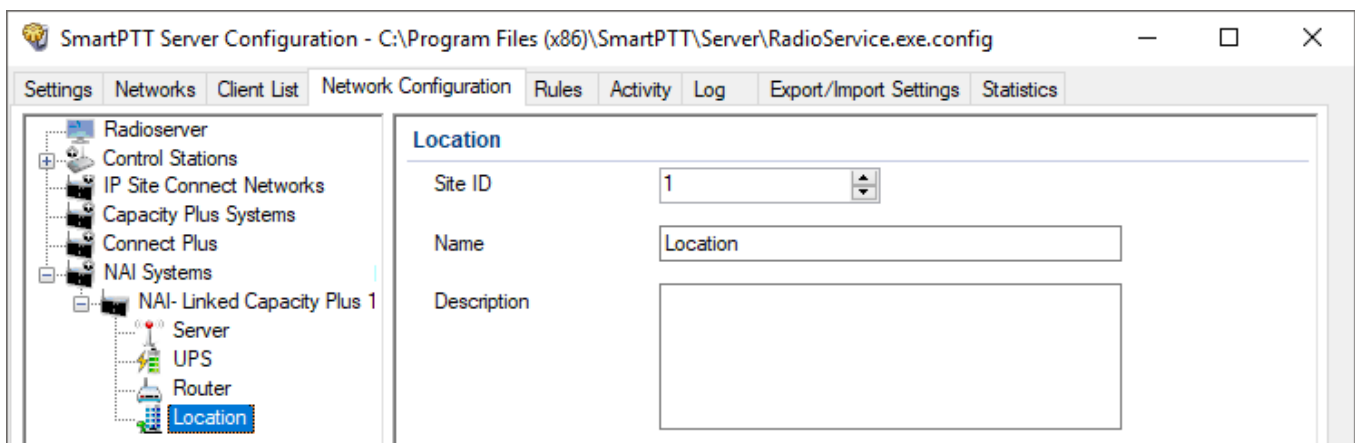
## 4.2 Adding Locations

Follow the procedure to add a location.


### Procedure:

1. In the **Network Configuration** tab, in the left pane, expand the desired network type or click the **Control Stations** node.
2. Right-click the desired network name or the **Control Stations** node, and then click **Add Location**.

The **Location** pane appears.



3. In the **Location** pane, perform the following actions:
  - a. *In the NAI - Linked Capacity Plus and Connect Plus networks:* In the **Site ID** field, enter the site ID.
  - b. In the **Name** field, type a name of the location which appears in the **Topology** panel in *SmartPTT Dispatcher*..
  - c. In the **Description** field, type a location description which appears in the **Topology** panel in *SmartPTT Dispatcher*..
4. *Optional:* To add a repeater to the location, right-click the location node in the left pane, and select **Add Repeater**. For details, see [Adding Repeaters](#).

5. *Optional:* To add a device to the location, right-click the location node in the left pane, and select **Add Device**. For details, see [Adding Devices](#).
6. At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.
7. Update the topology. For details, see [Updating Topology](#).

**Postrequisites:**

To remove the location, right-click the location name in the left pane, and select **Remove Location**.

**NOTE**

If you delete a location with devices and repeaters allocated to it, all the devices will be deleted together with the location.

## 4.3 Adding Repeaters

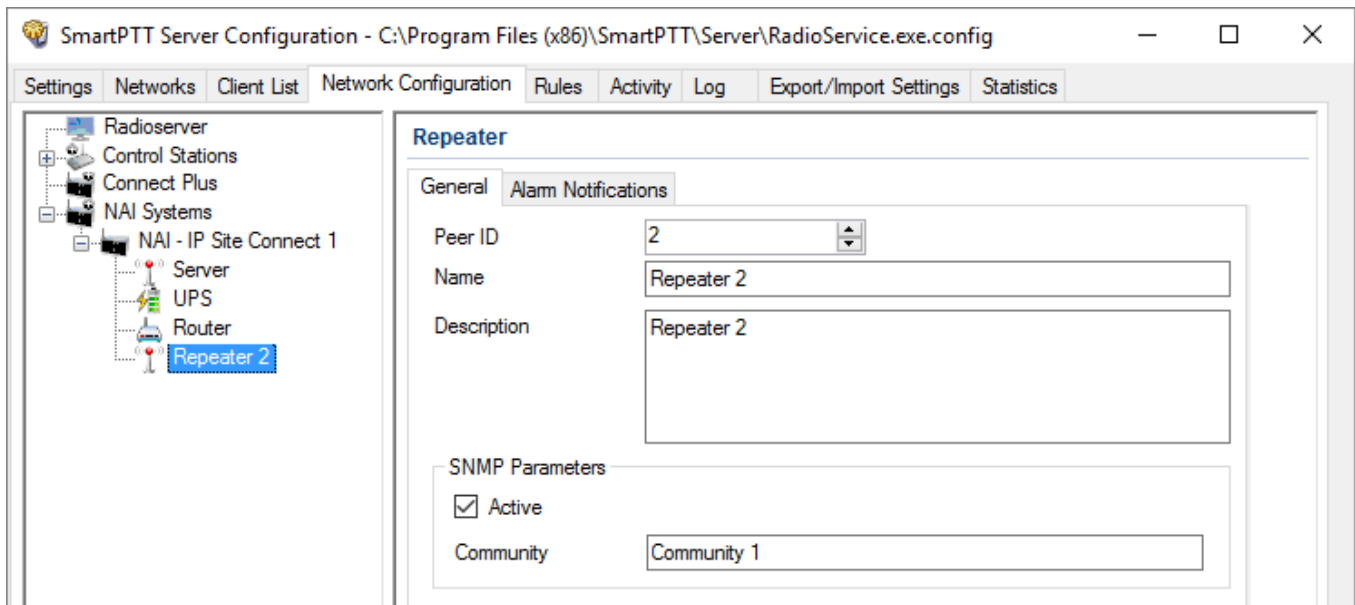
Follow the procedure to add and configure a repeater.

**Procedure:**

1. In the **Network Configuration** tab, in the left pane, expand the desired network type.
2. Right-click the desired network name, and then click **Add Repeater**.

**NOTE**

By default radioserver is automatically added as a *Server* repeater.



3. In the open **Repeater** pane, in the **General** tab, perform the following actions:
  - a. In the **Peer ID** field, enter a unique identifier of the repeater.
  - b. *Optional:* In the **Name** field, type any name of the repeater which appears in the **Topology** panel in *SmartPTT Dispatcher*..

#### NOTE


If the repeater name is not set, the name set in the repeater codeplug is displayed.

- c. *Optional:* In the **Description** field, type a description of the repeater which appears in the **Topology** panel in *SmartPTT Dispatcher*.
- d. *Optional:* In the **SNMP Parameters** area, select the **Active** check box to activate the external SNMP client.
- e. In the **Community** box, type the community name used as a password for the external SNMP client to connect to the repeater.

#### NOTE

All repeaters in the same network should have a unique community value.

4. *Optional:* In the [Configuring Alarm Notifications](#) tab, configure automatic notification of alarms or errors that occurred in the repeater.

5. At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.
6. Update the topology. For details, see [Updating Topology](#).

**Postrequisites:**

To remove the repeater, right-click the repeater name in the left pane, and select **Remove Repeater**.

## 4.4 Adding Devices

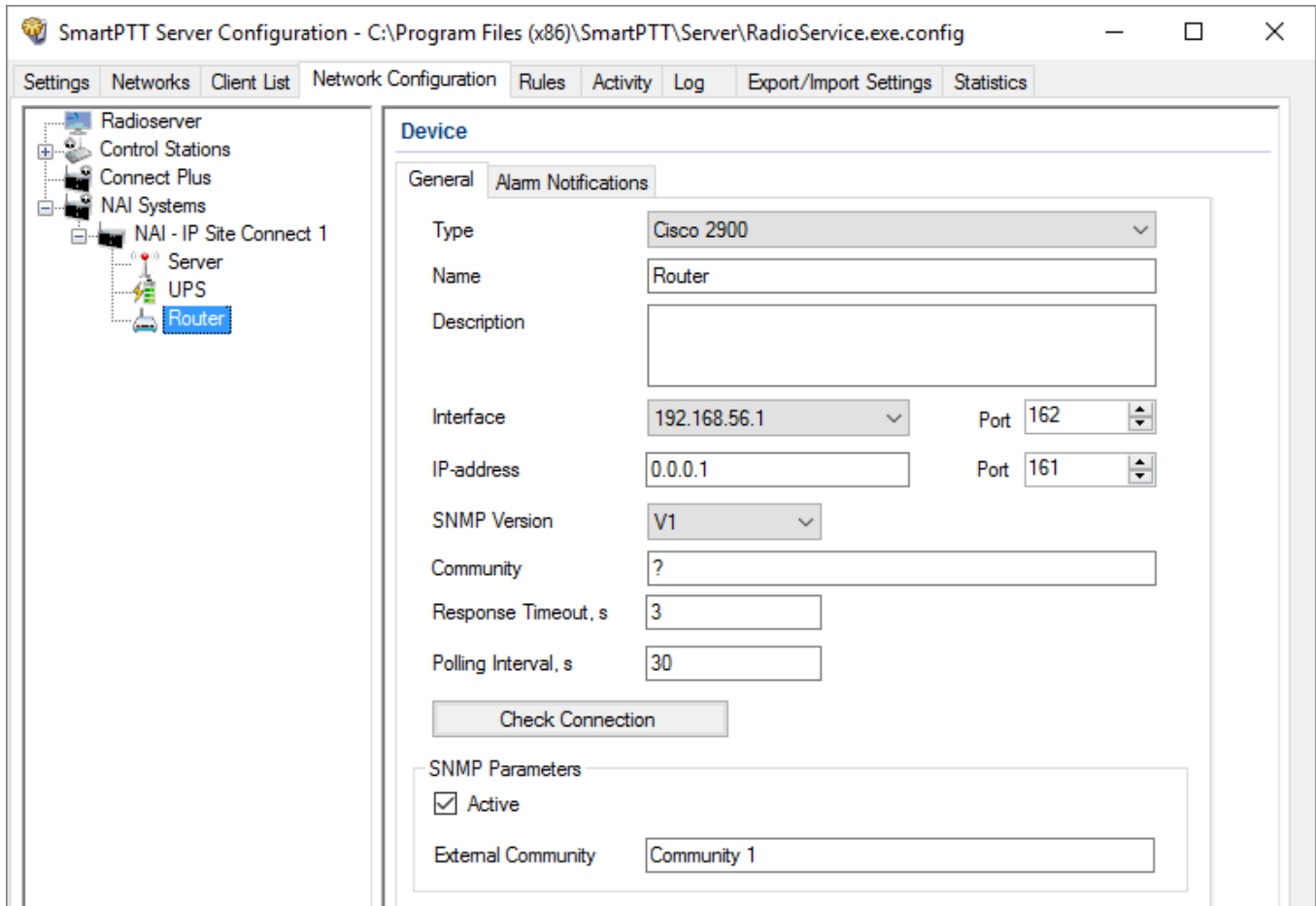
Follow the procedure to add and configure a device.

**Procedure:**

1. In the **Network Configuration** tab, in the left pane, expand the desired network type or click the **Control Stations** node.

2. Right-click the desired network name or the **Control Stations** node, and then click **Add Device**.

The **Device** pane appears.




3. In the open **Device** pane, in the **General** tab, perform the following actions:
  - a. From the **Type** list, select the device type:
    - To configure a router, select *Cisco 2900* or *Huawei Router*.
    - To configure a UPS, select *Eaton 9130*, *UPS ATS-Convers*, or *Apc 5000*.
    - To configure a device for receiving information on the state of the radioserver and errors that occurred on it, select *Supermicro Server*.

#### NOTE

To be able to receive alarms from the radioserver, add *Supermicro Server*. If any alarms occur on the radioserver, you will see them in Monitoring event log in SmartPTT Dispatcher.



- To configure a device that is not in the list, select *Unknown*.
  - b. *Optional:* In the **Name** field, type the device name which appears in the **Topology** panel in *SmartPTT Dispatcher*..
  - c. *Optional:* In the **Description** field, type a description of the device which appears in the **Topology** panel in *SmartPTT Dispatcher*..
  - d. From the **Interface** list, select the radioserver IP address for interacting with the device.
  - e. In the **Port** field, enter the server port for interacting with the device.
  - f. In the **IP-address** field, type the IP address of the device.
  - g. In the **Port** field, enter the device port.
  - h. From the **SNMP Version** list, select the SNMP protocol that is used in the radio system.
  - i. In the **Community** field, type a name of the community that is used for connection to the radio gateway over the SNMP protocol in the local network.
  - j. In the **Response Timeout, s** field, type the amount of time in seconds during which the server expects a response from the device. The maximum value is *10* seconds.
  - k. In the **Polling Interval, s** field, type the amount of time in seconds after which the radio server sends a request to the device.
  - l. *Optional:* Click the **Check Connection** button to check the status of the radio gateway connection.  
A new window with information on the connection status opens.
  - m. *Optional:* In the **SNMP Parameters** area, select the **Active** check box to activate the external SNMP client.
  - n. In the **External Community** box, type the community name used as a password for the external SNMP client to connect to the device.
4. *Optional:* In the [Configuring Alarm Notifications](#) tab, configure automatic notification of alarms or errors that occurred in the device.

- At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.
- Update the topology. For details, see [Updating Topology](#).

**Postrequisites:**

To remove the device, right-click the device name in the left pane, and select **Remove Device**.

## 4.5 Configuring Error and Alarm Notifications

In SmartPTT systems, you can receive notifications about errors or other malfunctions occurred on devices used in the system or occurred during the redundancy. For details, see [Configuring Server Redundancy Error Notifications](#) and [Configuring Alarm Notifications](#).

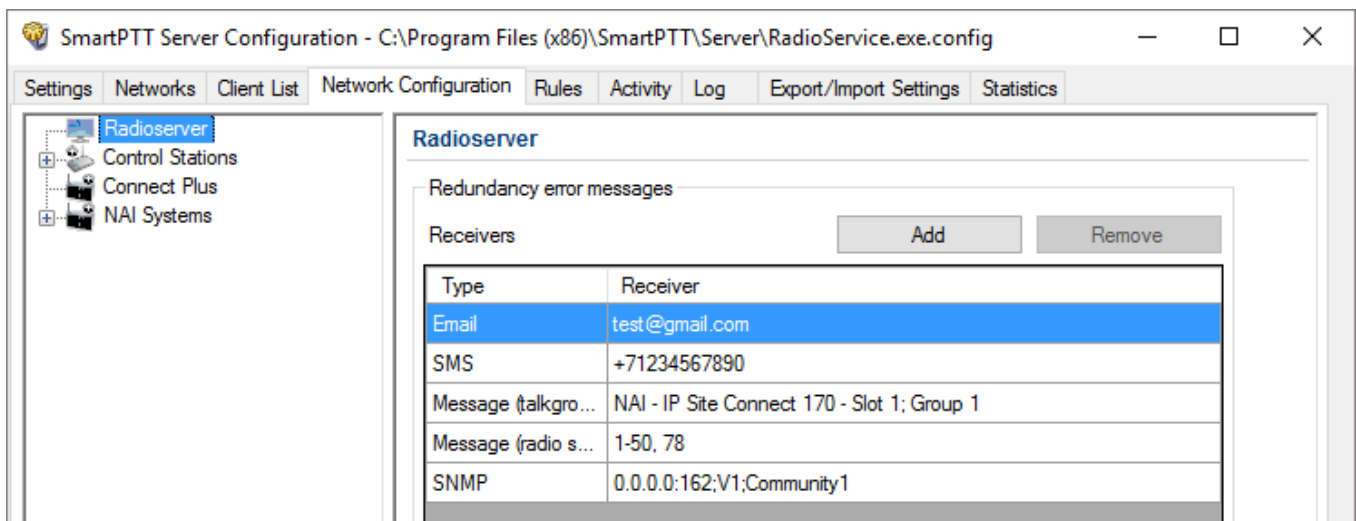
Parameters for error and alarm notifications can be configured for each network, and for each device type in the network.

### 4.5.1 Configuring Server Redundancy Error Notifications

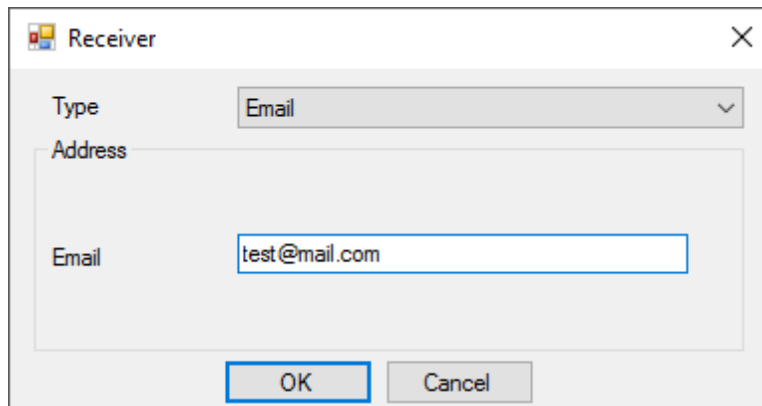
Follow the procedure to configure automatic radioserver redundancy error notifications.

**Procedure:**



- In the **Network Configuration** tab, in the left pane, click **Radioserver**.



2. Create a list of notifications receivers:
  - a. In the **Receiver** area, click **Add** to add a receiver. The **Receiver** window opens.



The screenshot shows a dialog box titled "Receiver" with a close button (X) in the top right corner. Inside the dialog, there is a "Type" dropdown menu currently set to "Email". Below this is an "Address" section containing a text input field with the value "test@mail.com". At the bottom of the dialog are two buttons: "OK" and "Cancel".

- b. In the **Receiver** window, from the **Type** list, select the desired receiver type.
    - c. In the **Address** area, in the box/boxes, enter the receiver address. Boxes in the **Address** area depend on the selected receiver type:
      - *If the Email is selected:* Type the receiver email address.
      - *If the Message (Talkgroup) is selected:* Select the desired control station and talkgroup.
      - *If the Message (Radio) is selected:* Type the radio ID.
      - *If the SMS is selected:* Type the desired telephone number.
      - *If the SNMP is selected:* Type the radioserver IP-address and port, realm name and select the version of SNMP client application.
    - d. Click **OK** to add the receiver to the list.
  3. *Optional:* Repeat [step 2](#) to add more receivers.
  4. At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.
  5. Click **Restart** (  ) to restart SmartPTT Radioserver and apply changes.

**NOTE**

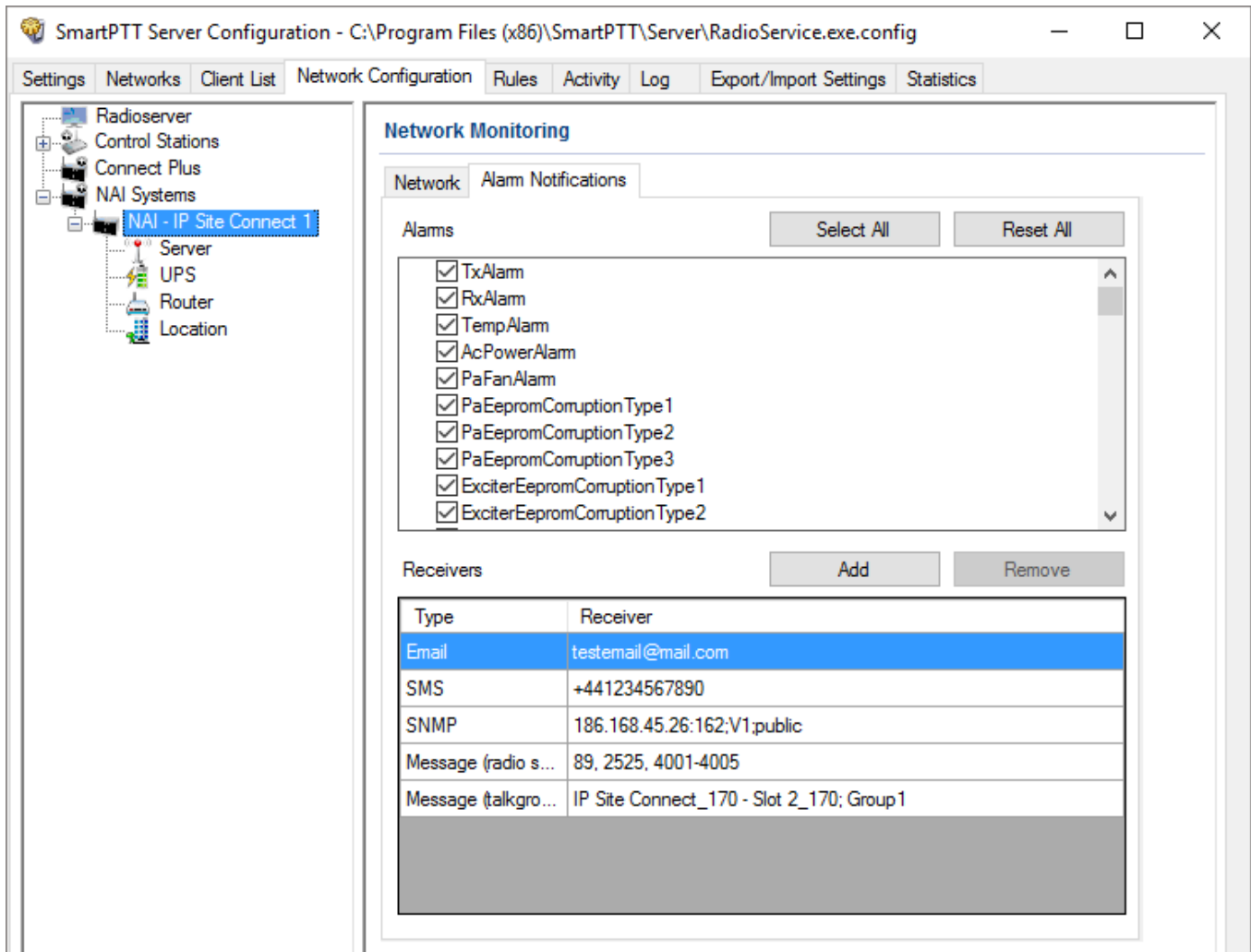
If the receiver list of the object differs from the receiver list of the network, you can make it the same by clicking the **Apply Network Settings** button.

## 4.5.2 Configuring Alarm Notifications

Follow the procedure to configure automatic alarm notifications.

### Procedure:

1. In the left pane of the **Network Configuration** tab, select the desired network or control station.
2. In the right pane that appears, click the **Alarm Notifications** tab.

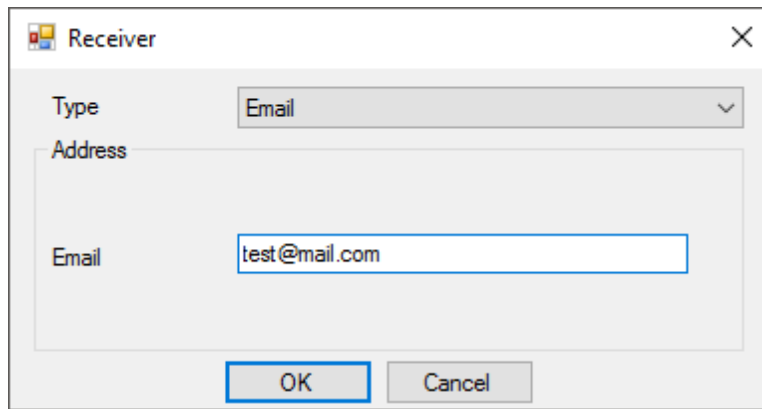


3. In the **Alarms** area, select the alarms you want to be notified about in one of the following ways:
  - Select the check box next to the desired alarms.
  - Click **Select All** to select all the alarms from the list.



**NOTE**

Types of alarms depend on the repeater or control station type.

4. Create a list of notifications receivers:
  - a. In the **Receiver** area, click **Add** to add a receiver. The **Receiver** window opens.



The screenshot shows a dialog box titled "Receiver". At the top, there is a "Type" dropdown menu with "Email" selected. Below it is an "Address" section containing a text input field with the email address "test@mail.com". At the bottom of the dialog, there are two buttons: "OK" and "Cancel".

- b. In the **Receiver** window, from the **Type** list, select the desired receiver type.
    - c. In the **Address** area, in the box/boxes, enter the receiver address. Boxes in the **Address** area depend on the selected receiver type:
      - *If the Email is selected:* Type the receiver email address.
      - *If the Message (Talkgroup) is selected:* Select the desired control station and talkgroup.
      - *If the Message (Radio) is selected:* Type the radio ID.
      - *If the SMS is selected:* Type the desired telephone number.
      - *If the SNMP is selected:* Type the radioserver IP-address and port, realm name and select the version of SNMP client application.
    - d. Click **OK** to add the receiver to the list.
5. *Optional:* Repeat [step 3](#) to add more receivers.
6. At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.
7. Click **Restart** (  ) to restart SmartPTT Radioserver and apply changes.

**NOTE**

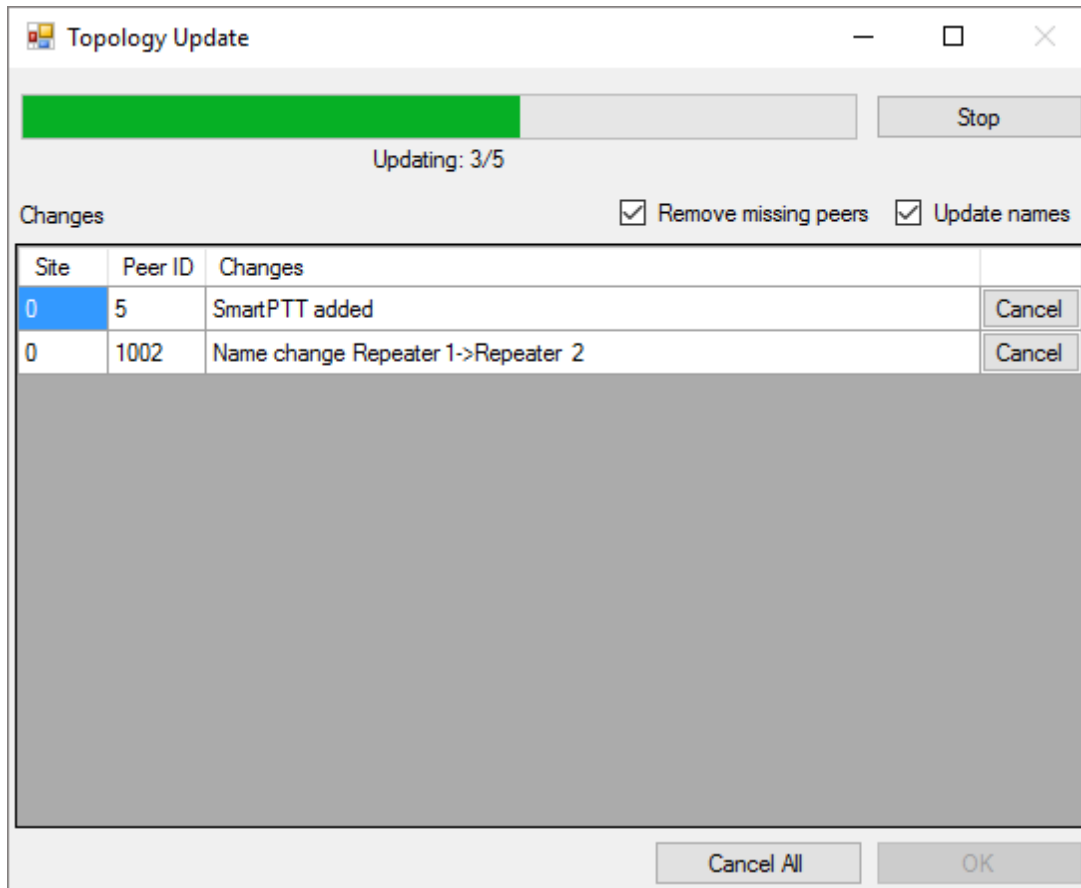
If the receiver list of the object differs from the receiver list of the network, you can make it the same by clicking the **Apply Network Settings** button.

## 4.6 Updating Topology

Follow the procedure to update a topology.

### Procedure:

1. In the left pane of the **Network Configuration** tab, select the desired network.
2. In the **Network Monitoring** pane, click **Update Topology**.  
The **Topology Update** window appears and the update process starts automatically.





3. To change the topology update settings, perform the following actions:
  - a. *Optional:* Select the **Remove missing peers** check box to check if there are any missing peers to exclude them from network topology.

- b. *Optional:* Select the **Update names** to replace names of repeaters by those defined in *MOTOTRBO CPS*.

**NOTE**

If the update process was interrupted, you can confirm the implemented changes by clicking **OK**. All changes are displayed in the **Changes** table.

4. Click **OK** to apply changes.
5. At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.
6. Click **Restart** (  ) to restart SmartPTT Radioserver and apply changes.

**Postrequisites:**

- To discard changes for the desired item, click **Cancel** next to it.
- To discard all changes, click **Cancel All**.
- To interrupt the update process, click **Stop**.

---

## 5 Rules

SmartPTT Radioserver allows you to configure rules for events on radios or Dispatcher. Rules allow the system to perform automatic actions (for example, playback sounds, send messages, play predefined voice notifications).

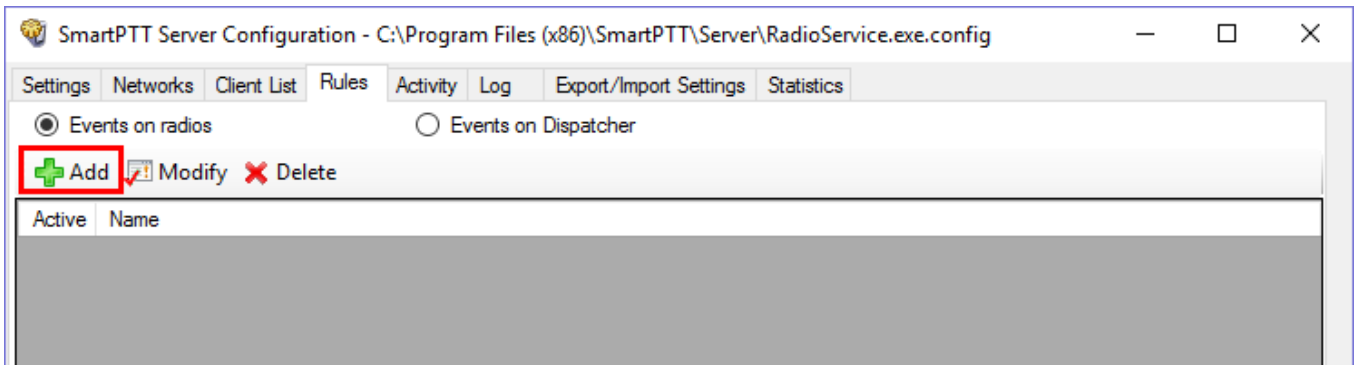
You can add new rules and modify or delete the existing rules.

For information on configuring and managing rules, see the sections below.

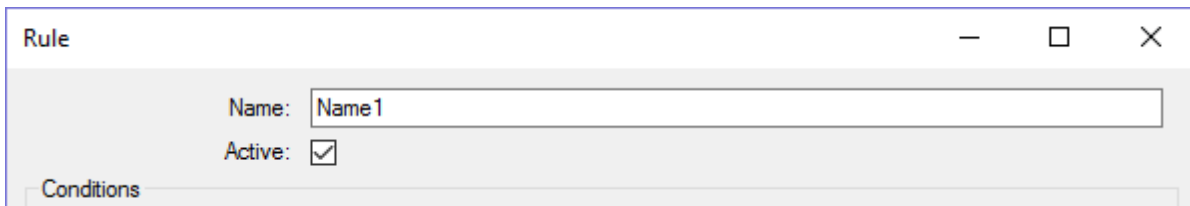
### 5.1 Adding Rule for Events on Radios

To create a rule for events on radios, follow these steps:

1. On the **Rules** tab, click **Events on radios** and then click **Add**.



2. In the window for creating a new rule type any rule name in the **Name** field.
3. Select the **Active** check box to make the rule active right after the creation.





4. Set the needed conditions of the rule:

**Conditions**

Direction:  Equal to Incoming

Event Type:  Equal to Telemetry Block Alarm

Date:

Additional Information:

Control Station:

Talkgroup:

Radio:  Equal to 0 0 0

User:

Status:  Equal to Call Alert Incoming Telem Unlocked

Duration:  Equal to 0

Name	Operation	Comment
<b>Direction</b>	Equal to	Select Incoming or Outgoing event
<b>Event Type</b>	Equal to Not equal to	Select the event type
<b>Date</b>	Between	Set the start date and the end date
<b>Additional Information</b>	Equal to Contains	<p>You can leave the field empty, or depending on the event type, type the following information:</p> <ul style="list-style-type: none"> <li>• <b>Registration</b> – leave the field empty</li> <li>• <b>Call</b> – type the identifiers of call initiators, or operator name</li> <li>• <b>Message</b> – type the message text</li> <li>• <b>Telemetry</b> – type the telemetry event</li> <li>• <b>Alarm</b> – type the date and time of alarm acknowledgment, and the operator name who acknowledged it</li> <li>• <b>Block radio</b> – leave the field empty</li> <li>• <b>User Authorization</b> – leave the field empty</li> </ul>
<b>Control Station</b>	Equal to Contains	Set the control stations names

Name	Operation	Comment
<b>Talkgroup</b>	Equal to Contains	Select the talkgroup name from the needed network
<b>Radio</b>	Equal to Not equal to	Set the radio ID
<b>User</b>	Equal to Not equal to	Select the radio users (see <a href="#">User Authorization</a> )
<b>Status</b>	Equal to Not equal to	Select the system status
<b>Duration</b>	Equal to Not equal to Greater than Greater than or equal to Less than Less than or equal to Between	Set the duration of time in seconds
<b>SCADA Object</b>	Equal to Not equal to	Select the desired SCADA object from the list of objects added to the SmartPTT Dispatcher SCADA module  <b>NOTE</b> If a SCADA object is deleted from the list of SCADA objects in SmartPTT Dispatcher, or if it is currently unavailable, the rules that affect the object are not deleted.
<b>SCADA Alarm</b>	Equal to Not equal to	SCADA object parameter capable of reporting alarm states

**NOTE**

To interact with SCADA objects, you need to instal the corresponding license and activate the SCADA module in SmartPTT Dispatcher settings. For details, see “Licences” and “Activating SCADA Module” in *Dispatcher User Guide*.

5. Set the needed actions of the rule:

Actions

Play Sound:   ..

Send Message:   ^  
v

Radios  Example: 1-99, 150

User  v

Talkgroup  v

Send Message To Initiator



Start Voice Notification:   v

Stop Current Voice Notification:  Any v

Name	Comment
<b>Play Sound</b>	Specify the audio file for the selected radios, users or talkgroups by clicking <b>Browse [...]</b> and selecting the needed .ogg, .wav or .mp3 file.
<b>Send Message</b>	<p>You can send a text message to the selected radio, user or talkgroups by typing the text in the Send Message field.</p> <p>Select the addressee by typing Radios ID or selecting the User or the Talkgroup.</p> <p>You can also send a message to the initiator if to select <b>Send Message To Initiator</b>.</p>
<b>Start Voice Notification</b>	<p>Specify the voice notification to play. If unavailable, add the voice notification in <a href="#">Voice Notification</a> on the <b>Settings</b> tab.</p> <p>If at the moment of adding the rule the system already has voice notification, the notification specified in the rule will not play.</p>
<b>Stop Current Voice Notification</b>	Select any or specified current notification you want to stop.

6. Click **Save** to save the created rule or click **Cancel** to cancel the rule adding.

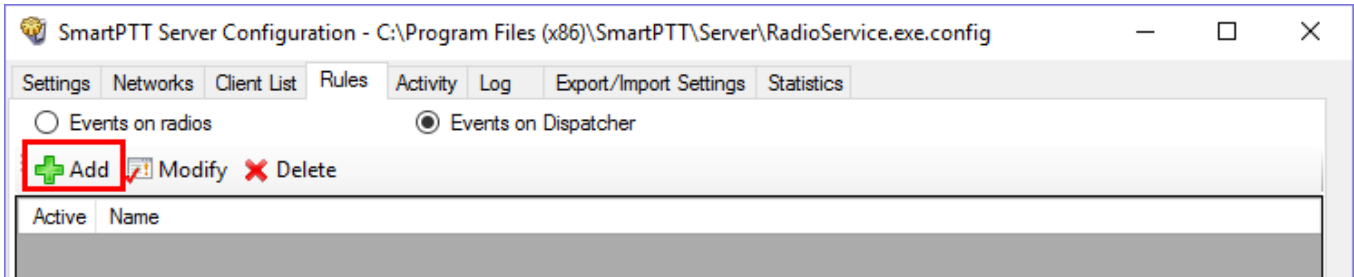


7. At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.
8. Click **Restart** (  ) to restart SmartPTT Radioserver and apply changes.

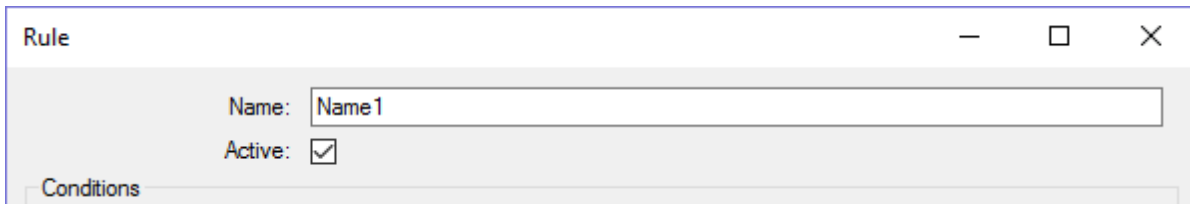
## 5.2 Adding Rule for Events on Dispatcher

To create a rule for Events on Dispatcher, follow these steps:

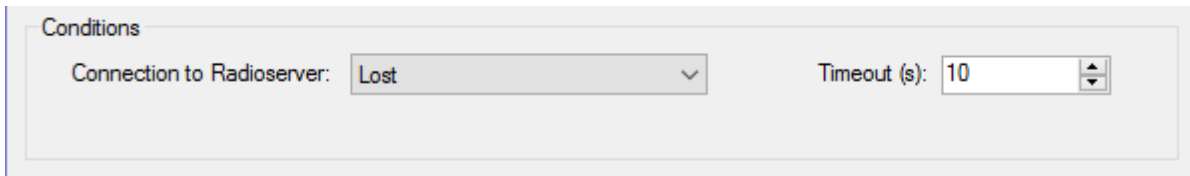
1. On the **Rules** tab click **Events on Dispatcher** and then click **Add**.



2. In the window for creating a new rule type any rule name in the **Name** field.
3. Select the **Active** check box to make the rule active right after the creation.



4. Set the needed conditions of the rule:



Name	Operation	Comment
<b>Connection to Radioserver</b>	Lost	The rule works when the connection between SmartPTT radioserver and last dispatch console is terminated.
	Restored	The rule works when at least one SmartPTT Manager connects to radioserver.
<b>Timeout (s)</b>	Set time period	Time period in seconds, after which SmartPTT radioserver performs the selected actions.

5. Set the needed actions of the rule:



The screenshot shows a configuration window titled "Actions". It contains the following elements:

- Play Sound:** A checked checkbox followed by a text input field and a "Browse" button.
- Send Message:** An unchecked checkbox followed by a text input field with up/down arrow buttons.
- Target Selection:** Three radio buttons labeled "Radios", "User", and "Talkgroup". To the right, there is an "Example: 1 - 99, 150" label and three corresponding input fields: a text box for Radios, a dropdown for User, and a dropdown with a numeric value for Talkgroup.
- Start Voice Notification:** A checked checkbox followed by a dropdown menu.
- Stop Current Voice Notification:** An unchecked checkbox followed by a dropdown menu with "Any" selected.

Name	Comment
<b>Play Sound</b>	Specify the audio file for the selected radios, users or talkgroups by clicking <b>Browse</b> [...] and selecting the needed .ogg, .wav or .mp3 file.
<b>Send Message</b>	You can send a text message to the selected radio, user or talkgroups by entering the text in the <b>Send Message</b> field.  Select the addressee by typing Radios ID or selecting the User or the Talkgroup.
<b>Start Voice Notification</b>	Specify the voice notification to play. If unavailable, add the voice notification in <a href="#">Voice Notifications</a> on the <b>Settings</b> tab.  If at the moment of adding the rule the system already has voice notification, the notification specified in the rule will not play.
<b>Stop Current Voice Notification</b>	Select any or specified current notification you want to stop.

6. Click **Save** to save the created rule or click **Cancel** to cancel the rule adding.

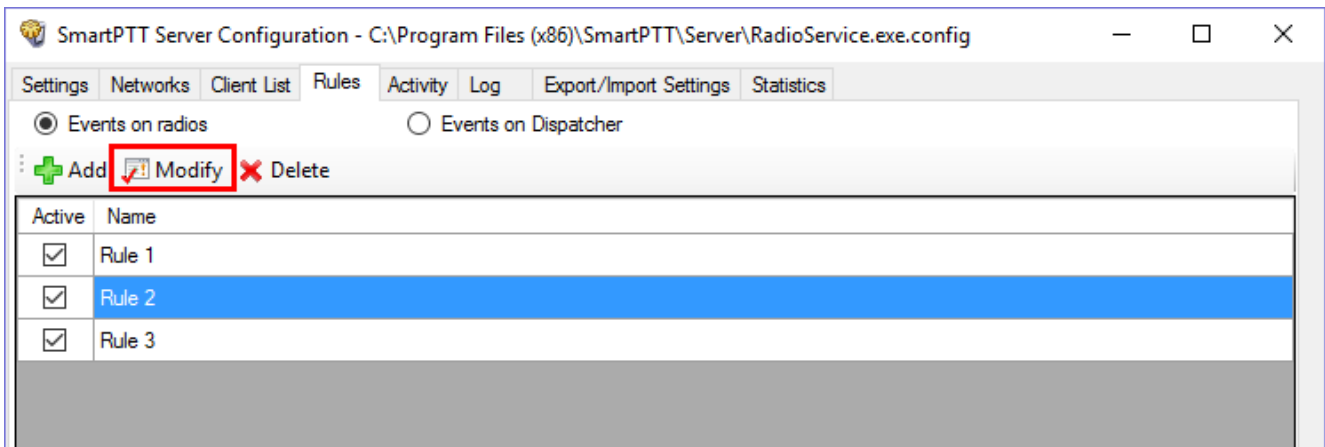
The screenshot shows a simple dialog box with a light gray background and a thin border. It contains two buttons positioned side-by-side: "Save" on the left and "Cancel" on the right.




7. At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.
8. Click **Restart** (  ) to restart SmartPTT Radioserver and apply changes.

## 5.3 Modifying Rule

If you want to edit an existing rule, follow these steps:

1. On the **Rules** tab click **Events on radios** or **Events on Dispatcher**, depending on the rule you want to modify.
2. In the list of rules click the rule you want to modify.
3. Click **Modify** or double-click the rule.

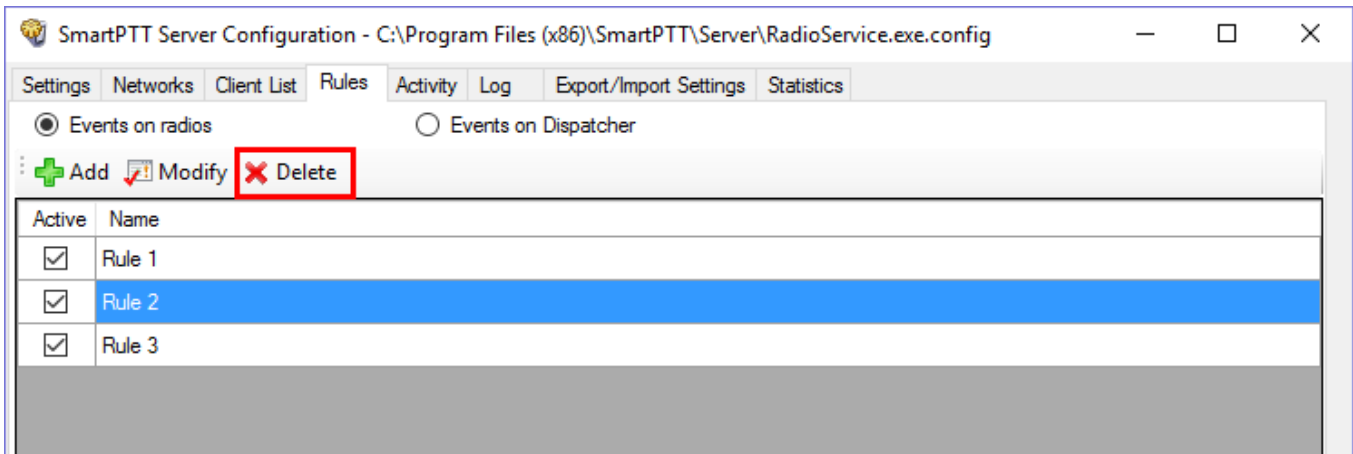


4. Make the needed changes in the rule in the opened window (see [Adding Rule for Events on Radios](#) or [Adding Rule for Events on Dispatcher](#)).
5. To save changes, at the bottom of the SmartPTT Radioserver Configurator window, click **Save Configuration** (  ).
6. To apply changes immediately, at the bottom of the SmartPTT Radioserver Configurator window, click **Start** (  ) or **Restart** (  ).

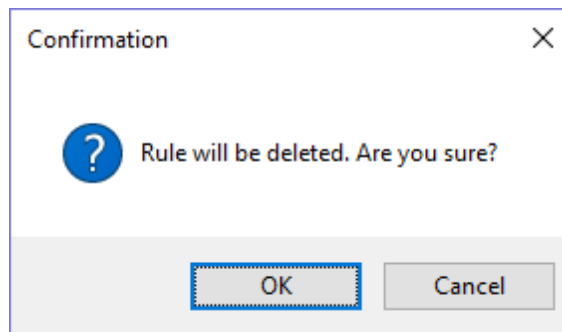
## 5.4 Deleting Rule



If you want to delete the rule, follow these steps:

1. On the **Rules** tab click **Events on radios** or **Events on Dispatcher**, depending on the rule you want to delete.
2. In the list of rules click the rule you want to delete.
3. Click **Delete**.



4. In the confirmation window click **OK** to delete the rule.



5. At the bottom of the **SmartPTT Server Configuration** window, click **Save** (  ) to save changes.
6. Click **Restart** (  ) to restart SmartPTT Radioserver and apply changes.

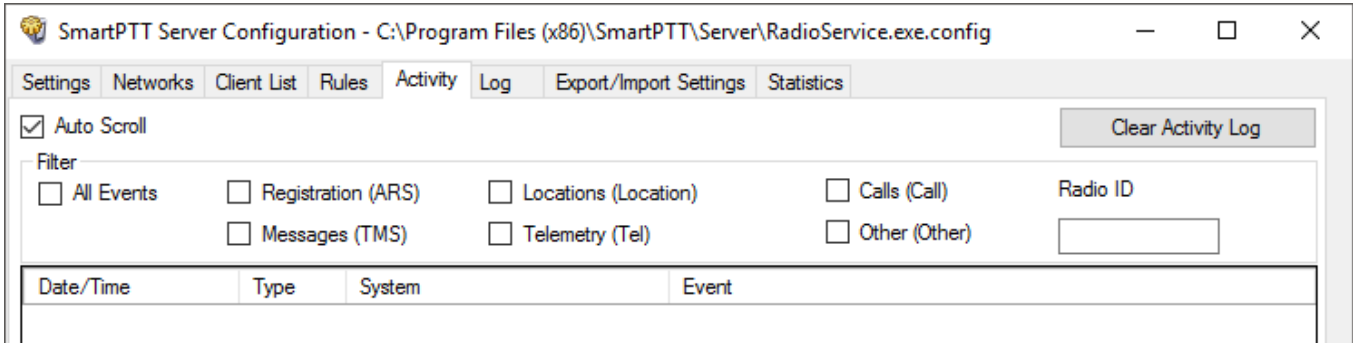


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## 6 Activity

The **Activity** tab displays events that happen in the radio network. Mostly, it is used for debugging purposes, but it can be useful for system administrators as well.

To open **Activity**, click the **Activity** tab in SmartPTT Radioserver Configurator.



There are six types of events logged:

- Registration
- Messages
- Locations
- Telemetry
- Calls
- Other (includes connection or disconnection of slots or control stations)

You can enter the radio ID into the **Radio ID** field to view the events related to the particular radio.

You should select one or several of those check boxes to view events in the list.

All events are listed in the table with the following columns:

- **Date/Time:** The date and time of the event
- **Type:** The one of the listed types above
- **System:** The network where event happened
- **Event:** The brief description of the event and its status

## Activity

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You can apply the following settings for the list of events:

**Auto Scroll:** Select to make auto refresh of the list of events. When a new event will happen in the system, it will occur in the top of the list.

**Clear Activity Log:** Click to remove all events from the table. Events will be kept in the log files, they would be unavailable in the table of the **Activity** tab.

### Example

The diagram shows a table with the following structure and annotations:

Date/Time	Type	System	Event
9/1/16 9:40:00 AM	Location	Control Station 1	➔12.0.0.111 (111) TriggeredLocationReport id = 1, Latitude = 25.77528, Longitude = 80.20889, Timestamp: 9/1/16 9:40:00 AM

Annotations for the table structure:

- Date and time in the regional format** points to the Date/Time header.
- Type of the event** points to the Type header.
- Source of the event** points to the System header.
- Information on the event** points to the Event header.

Annotations for the event content:

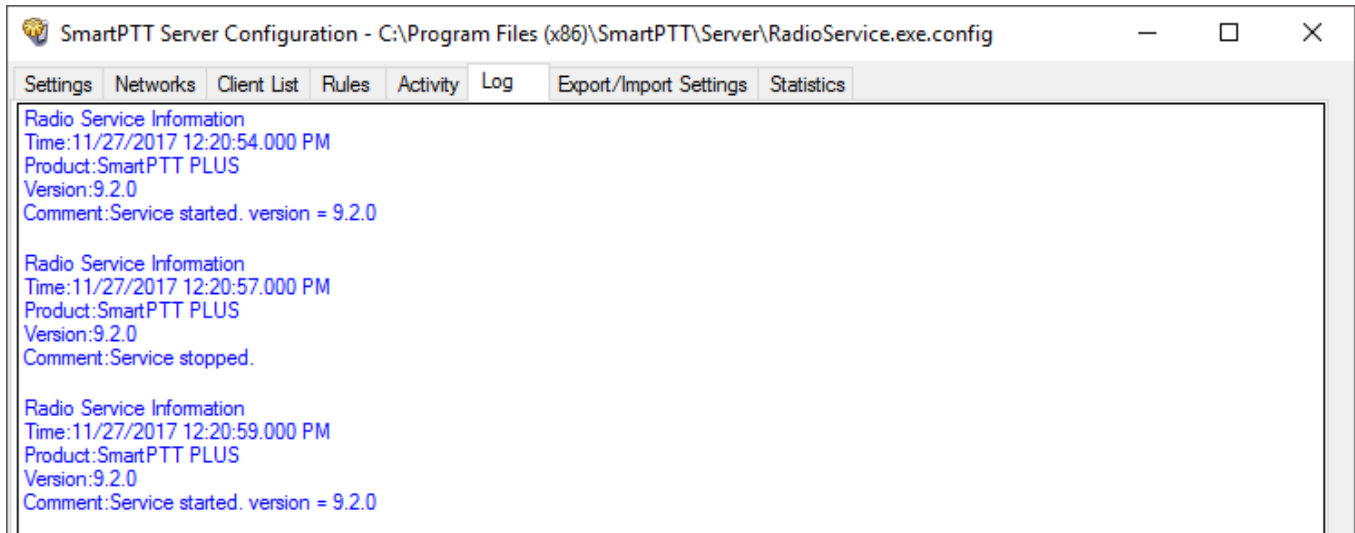
- Incoming event** points to the IP address (12.0.0.111).
- Description of the event** points to the event name (TriggeredLocationReport).
- ID of the event initiator** points to the ID (id = 1).
- Content of the event** points to the coordinates (Latitude = 25.77528, Longitude = 80.20889).
- Timestamp in the regional format** points to the event timestamp.

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## 7 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.



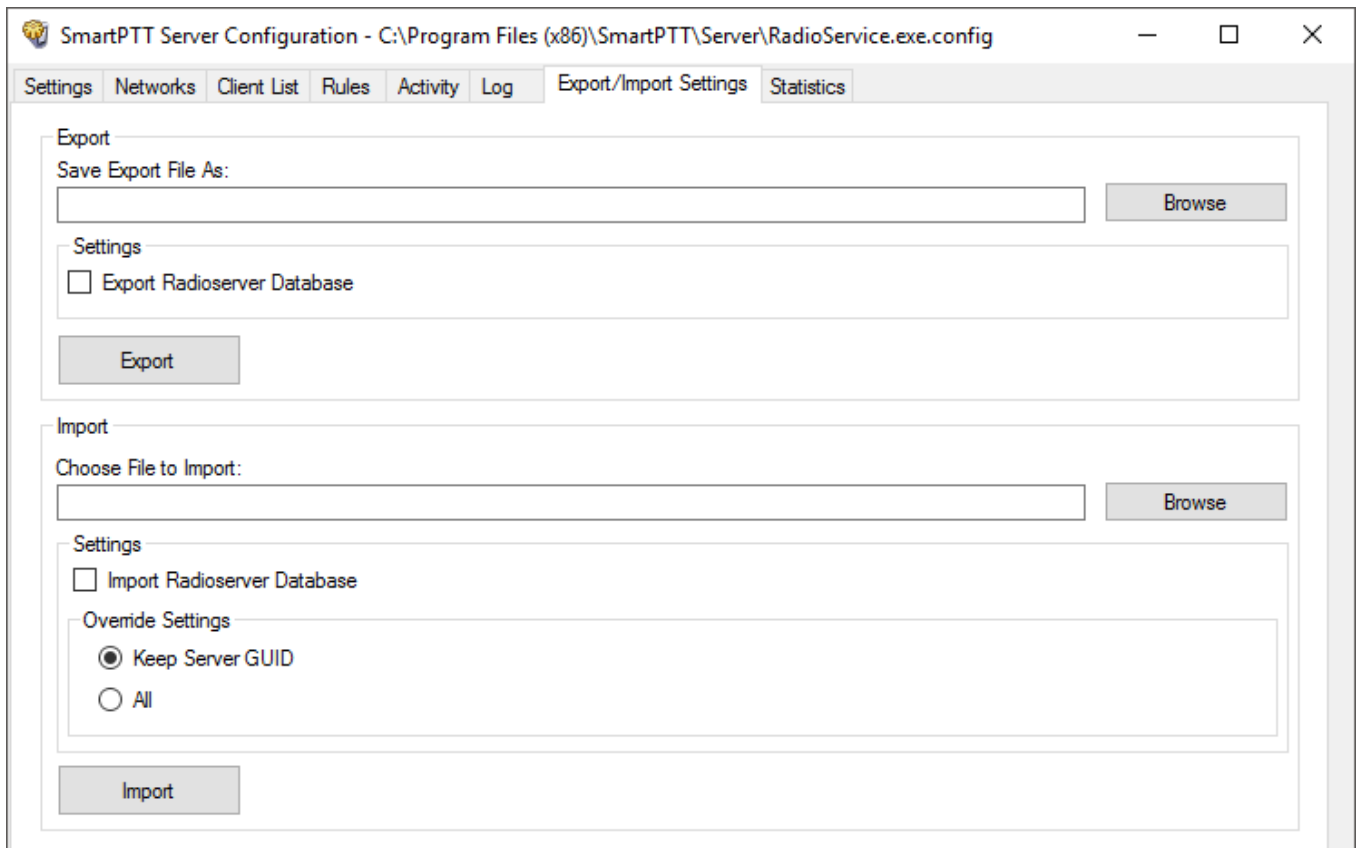
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## 8 Export/Import Settings

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**.



The screenshot shows the 'SmartPTT Server Configuration' application window with the 'Export/Import Settings' tab selected. The window title is 'SmartPTT Server Configuration - C:\Program Files (x86)\SmartPTT\Server\RadioService.exe.config'. The interface includes several tabs: Settings, Networks, Client List, Rules, Activity, Log, Export/Import Settings, and Statistics. The 'Export' section contains a 'Save Export File As:' text box with a 'Browse' button, a 'Settings' section with an unchecked checkbox for 'Export Radioserver Database', and an 'Export' button. The 'Import' section contains a 'Choose File to Import:' text box with a 'Browse' button, a 'Settings' section with an unchecked checkbox for 'Import Radioserver Database', and an 'Override Settings' section with two radio buttons: 'Keep Server GUID' (selected) and 'All'. An 'Import' button is located at the bottom of the 'Import' section.

#### 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 Settings and/or Database

To export the settings and/or the database of the radioserver, take the following steps:

1. Stop the radioserver.

## Export/Import Settings

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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 (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:
  - **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 IDs. Use this mode if you need to copy settings to another server which is connected to the same dispatch console.
  - **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 GUIDs. Use this mode if you need to restore your current server settings.
5. Click **Import**.

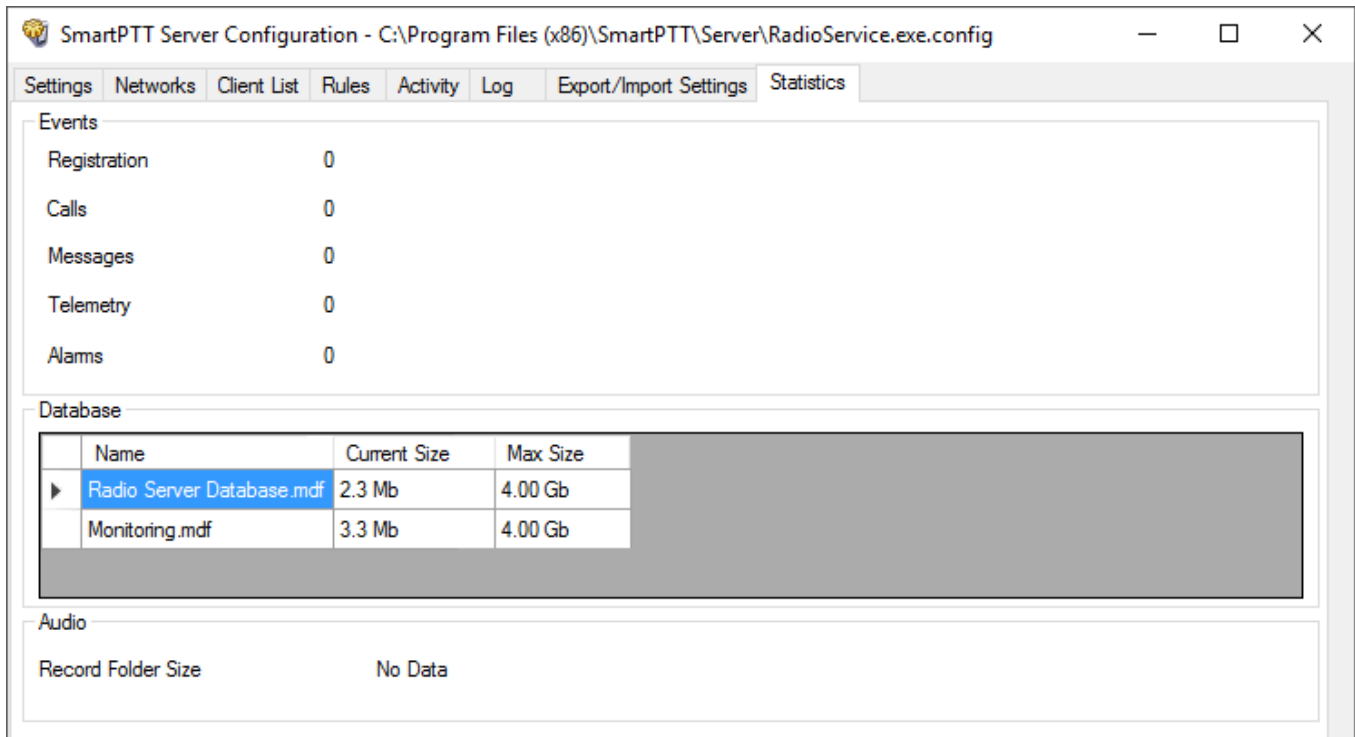
### NOTE

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.

## 9 Statistics

The **Statistics** tab demonstrates you the following information:

- The total number of events on the radioserver (the Events field)
- The space on the hard drive used by the databases (the Database field)
- The space on the hard drive used by the audio records (the **Audio** field)

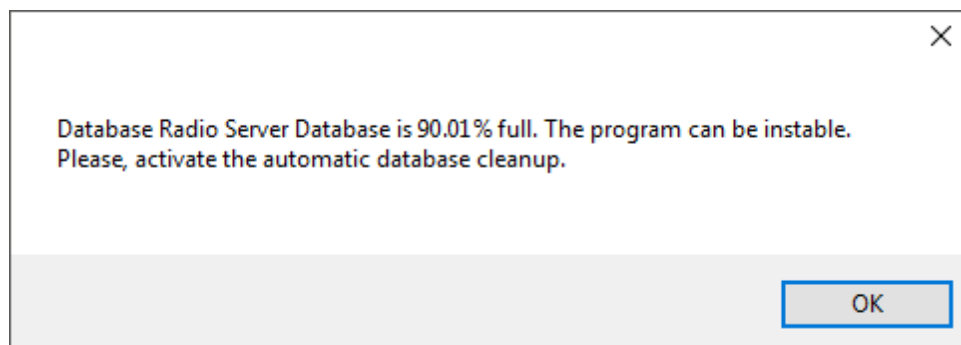


The screenshot shows the 'SmartPTT Server Configuration' window with the 'Statistics' tab selected. The window title is 'C:\Program Files (x86)\SmartPTT\Server\RadioService.exe.config'. The 'Events' section shows counts for Registration (0), Calls (0), Messages (0), Telemetry (0), and Alarms (0). The 'Database' section contains a table with the following data:

Name	Current Size	Max Size
Radio Server Database.mdf	2.3 Mb	4.00 Gb
Monitoring.mdf	3.3 Mb	4.00 Gb

The 'Audio' section shows 'Record Folder Size' as 'No Data'.

When the total size of records in your database exceeds 90% of the maximal size, a message will appear:

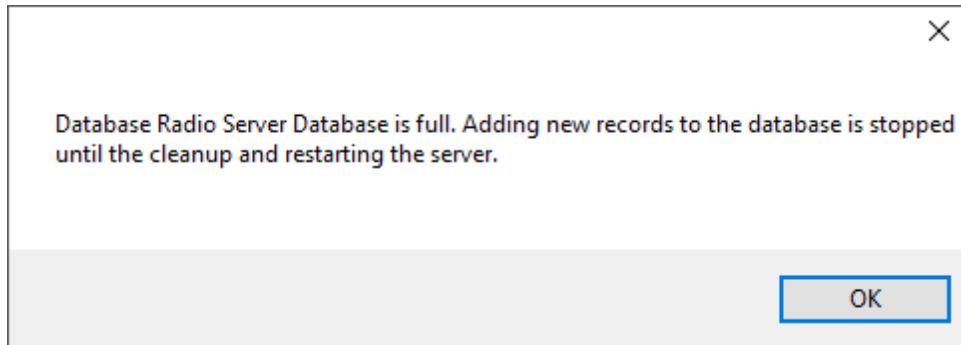


## Statistics

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From this message you can learn the size of the records in your database. This message will appear at the every start of *SmartPTT Radioserver Configurator*. Then, if database is not cleaned up, it will appear every 30 min.

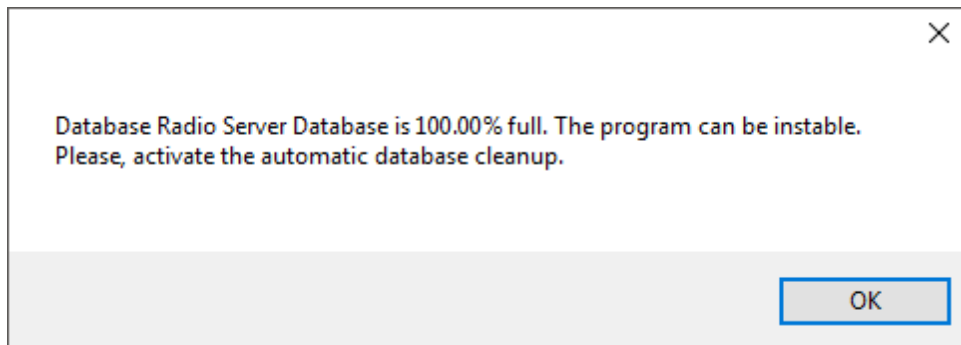
When the total size of records in your database reaches its maximum, another message will appear:



This message will appear at the every start of *SmartPTT Radioserver Configurator*. Then, if database is not cleaned up, it will appear every 30 min.

### **NOTE**

In rare cases you may see the message that database is 100.00% full. It actually means that database is 99.995% full.





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