TRBOnet Voice Recorder

User Guide

Version 1.0

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1 Introduction

1.1 About This Document

This document is intended for the radio network control room personnel in charge of the radio system monitoring and maintenance. It introduces the user interface and functionality of the TRBOnet Voice Recorder server and TRBOnet Voice Recorder console applications.

1.2 About TRBOnet

TRBOnet is a suite of professional applications for the MOTOTRBO digital two-way radio networks. TRBOnet manages voice, text and data communication paths to network endpoints and provides a unified graphical dispatcher workbench interface for all the messaging and workforce orchestration tasks.

For more information about TRBOnet products, refer to our website.

1.3 Contacts

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EMEA	+44 203 608 0598	info@trbonet.com — general and commercial inquiries support@trbonet.com — technical support http://kb.trbonet.com — online knowledge base
Americas	+1 872 22 28 726	
APAC	+61 28 6078325	

2 Overview

This section briefly describes the capabilities and main features of TRBOnet Voice Recorder and provides the list of hardware and software requirements.

2.1 About TRBOnet Voice Recorder

TRBOnet Voice Recorder is a software application that enables the operator to find the information about voice calls that took place on a radio network in the past, and to play back the recorded voice calls.

TRBOnet Voice Recorder includes the server and the console application. The server runs as a Windows service on a computer connected to the LAN. The server captures voice calls on the specified radio networks. The information about all performed voice calls is stored in the database. Voice conversations are recorded as audio files and stored on the server host or on a networked computer.

The operator's desktop is a console application that runs on the server host or on a different computer connected to the IP network. The operator can get the information about any voice call stored in the database and play back the recorded audio files.

2.2 Features

- Sound capture on the registered radio networks
- Storage and export of recorded voice calls in the WAV and TNA (TRBOnet Audio File) files
- Flexible filters for searching voice calls in the storage
- Comments that can be added to any voice call in the console and stored with the call information
- Quick import and export of lists of subscribers and radio groups
- Multi-page mode that enables the operator to work with a specific filter on each page of the console
- An embedded audio player for playing back the recorded voice calls (WAV and TNA files)

2.3 Hardware and Software Requirements

Table 1: TRBOnet Voice Recorder 1.0 hardware and software requirements

TRBOnet Voice Recorder Server	
CPU	Intel Core i3/i5
Memory	4 GB
HDD	300 MB for installation files
Sound Card	No
Supported OS	Windows 7, Windows 8, Windows 10, Windows Server 2008, Windows Server 2012, Windows Server 2014
Software	.NET Framework 4.6.1, MS SQL Server 2008 R2 or higher

TRBOnet Voice Recorder Console	
CPU	Intel Core i3
Memory	4 GB
HDD	70 MB for installation files
Sound Card	Yes
Display	1360x720 minimum resolution, 1600x900 recommended resolution
Additional Devices	Speakers
Supported OS	Windows 7, Windows 8, Windows 10
Software	.NET Framework 4.6.1

2.4 Recommendations

We do not recommend that you configure your TRBOnet Voice Recorder server for work with a Motorola radio system which is already connected to a TRBOnet Enterprise server or a TRBOnet PLUS server. In this configuration, TRBOnet Enterprise (PLUS) replicates the voice call information to TRBOnet Voice Recorder. The information logged in the TRBOnet Voice Recorder database may include call types not supported by TRBOnet Voice Recorder. The audio recordings of the replicated voice calls may be missing.

3 Installation

This section describes how to install, repair, and uninstall the TRBOnet Voice Recorder software application.

3.1 Installing TRBOnet Voice Recorder

Before installing TRBOnet Voice Recorder, make sure that your computer meets the minimum hardware and software requirements. For more information, refer to section 2.3 Hardware and Software Requirements (page 2).

To install TRBOnet Voice Recorder:

1. Double-click the distribution file to run the TRBOnet Voice Recorder setup wizard. Click **Next**.
2. Accept the terms of the license agreement. Click **Next**.
3. Select the installation type:
   - **TRBOnet Voice Recorder Server and Console**: Choose to install both the server and the console application on the same computer.
   - **TRBOnet Voice Recorder Console**: Choose to install the console application on the computer.
4. Click **Install**, then click **Finish** to exit the setup wizard.

After the installation is finished, you need to specify several configuration settings as described in section 4 Server Configuration (page 5).

3.2 Repairing TRBOnet Voice Recorder

To repair the TRBOnet Voice Recorder installation:

1. Double-click the distribution file to run the TRBOnet Voice Recorder setup wizard. Click **Next**.
2. Select the **Repair** option.
3. Click **Repair**, then click **Finish** to exit the setup wizard.
4. Run the TRBOnet Voice Recorder server as a Windows service as described in section 4.3 Creating a Windows Service (page 6).

Except for the Windows service, the repaired installation keeps all configuration settings unchanged.

3.3 Uninstalling TRBOnet Voice Recorder

To uninstall TRBOnet Voice Recorder from your computer:

1. Double-click the distribution file to run the TRBOnet Voice Recorder setup wizard. Click **Next**.
2. Select the **Remove** option.
3. Click **Remove**. TRBOnet Voice Recorder is removed from your desktop.

Note: Uninstalling TRBOnet Voice Recorder does not affect the TRBOnet Voice Recorder database as well as log files, configuration files, and localization files.

4 Server Configuration

This section describes how to configure the server part of TRBOnet Voice Recorder for recording voice traffic on the radio network. Follow the high-level steps presented in Table 2.

Table 2: Voice Recorder server configuration – high-level steps

Step	Action	Refer to
1	Launch the TRBOnet Voice Recorder server configuration tool.	4.1 Launching TRBOnet Voice Recorder Server (page 5)
2	(Optional) If you have a permanent license, apply it.	4.2 Managing the Software License (page 6)
3	Run the TRBOnet Voice Recorder server as a Windows service.	4.3 Creating a Windows Service (page 6)
4	Configure IP communication between the TRBOnet Voice Recorder server and the console.	4.4 Configuring the Network Settings (page 7)
5	Create a TRBOnet Voice Recorder database.	4.5 Creating a Voice Recorder Database (page 8)
6	(Optional) Configure other server settings – the language of the server configuration tool, the logging level, and the audio recording settings.	4.6 Setting the Language (page 10) 4.7 Setting the Logging Level (page 10) 4.8 Configuring Audio Recording (page 10)
7	Enable the Local Agent.	4.9 Enabling the Local Agent (page 10)
8	Add MOTOTRBO systems and analog control stations.	4.10 Adding Radio Systems (page 11) 4.11 Adding Analog Control Stations (page 16)

4.1 Launching TRBOnet Voice Recorder Server

To launch the TRBOnet Voice Recorder server, double-click the **TRBOnet Voice Recorder server** icon on the desktop, or click **All Programs** and then **TRBOnet Voice Recorder** and **TRBOnet Voice Recorder Server** on the **Start** menu.

When the TRBOnet Voice Recorder server is launched, the configuration window appears.

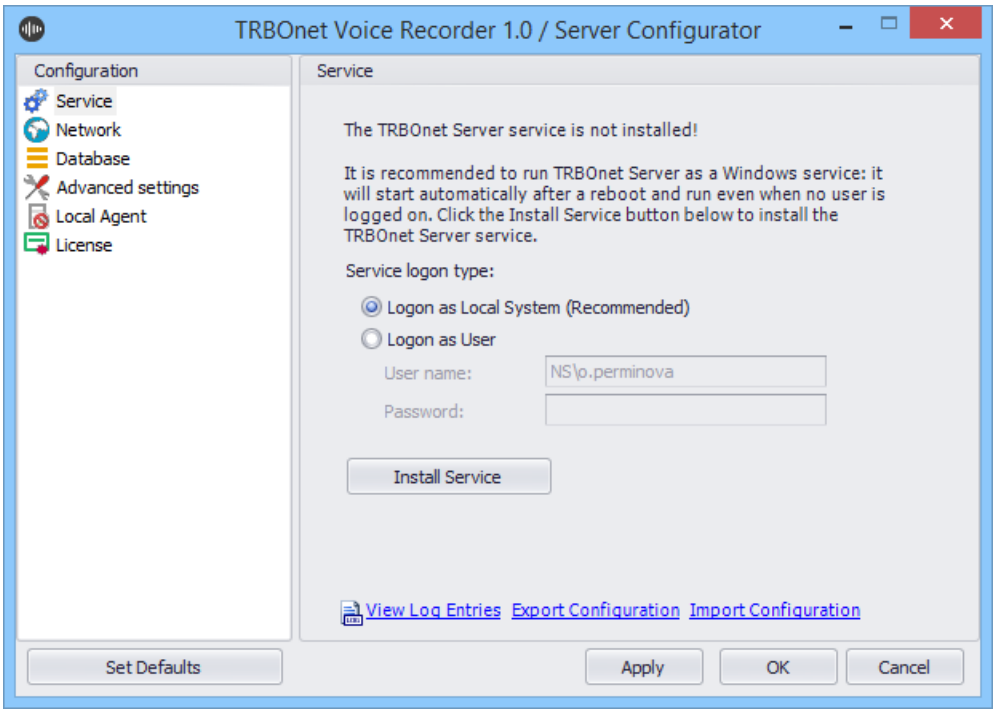


Figure 1: TRBOnet Voice Recorder Server window

4.2 Managing the Software License

TRBOnet Voice Recorder comes with a free trial license that allows you to evaluate the product.

To use the product after the evaluation period, order a license from a reseller or from Neocom Software directly. Include the information about your current license in your request. To do it, open the **License** tab, click **Copy to Clipboard**, and insert the copied details to the request.

To apply a new license:

1. Copy the new license file to a local folder. If this folder contains other license files, delete them.
2. In the TRBOnet Voice Recorder server configuration window, select **License** in the left pane.
3. Click **License Manager** in the right pane. The **License Manager** wizard appears.
4. Click **Next**. Click the search button next to the **License file** field and point the license file.
5. Click **Next**, then click **Finish**.

4.3 Creating a Windows Service

Running the TRBOnet Voice Recorder server as a Windows service is a mandatory configuration step.

To run the TRBOnet Voice Recorder server as a Windows service:

1. In the TRBOnet Voice Recorder server configuration window, select **Service** in the left pane.

2. In the right pane, specify the account that your service should use to log on to the Windows system:
   - **Logon as Local System (Recommended)**: Select this option for the service to use the Local System account.
   - **Logon as User**: Select this option to for the service to use an existing user account, either local or domain. Specify the user name and password in the respective fields.
3. Click **Install Service**. The Windows service is created and stopped.

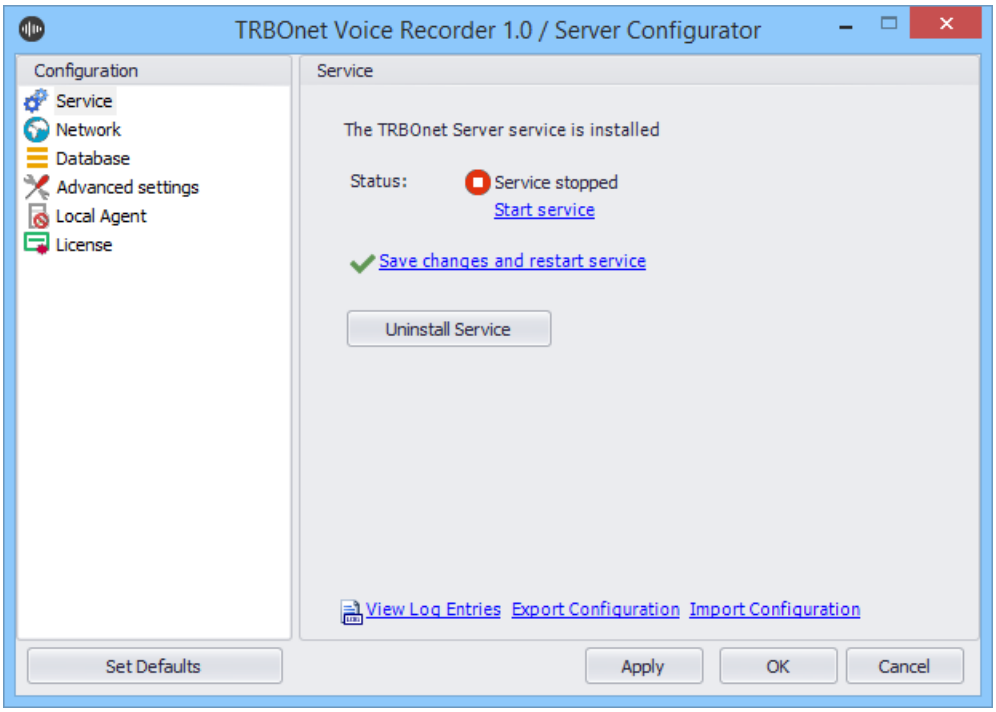


Figure 2: The Windows service is created and stopped

4. Click **Start service**. The service is up and running now.

4.4 Configuring the Network Settings

Configure IP communication between the TRBOnet Voice Recorder server and the console.

To specify the network settings:

1. In the TRBOnet Voice Recorder server configuration window, select **Network** in the left pane.
2. In the **Network** pane, specify the following settings:

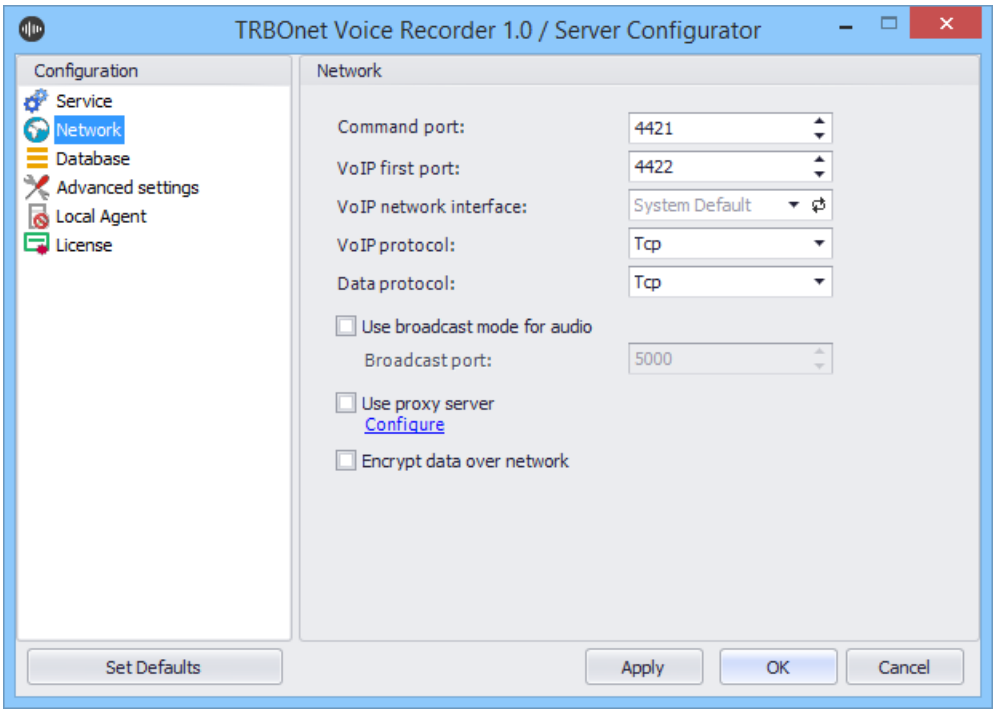


Figure 3: Adjusting the IP network settings

Table 3: IP network settings

Property	Description
Command port	Specify the IP port for communication with the Voice Recorder console. Default: 4421
VoIP first port	Specify the VoIP port for audio communication between the server and the first console connected to the server. Default: 4422 For each additional console, the next available port number will be allocated.
VoIP network interface	Stay with the default setting ("System Default").
VoIP protocol	Select **Tcp**.
Data protocol	Select **Tcp**.
Use broadcast mode for audio	Leave not selected.
Use proxy server	Leave not selected.
Encrypt data over network	Select this option to transfer encrypted data from the server to the console.

4.5 Creating a Voice Recorder Database

Creating the TRBOnet Voice Recorder database is a mandatory configuration step.

Note: Before you create the database, make sure that you have an MS SQL Server application installed on your server or on a networked storage device. For the list

of MS SQL Server editions compatible with the current version of TRBOnet Voice Recorder, refer to section 2.3 Hardware and Software Requirements (page 2).

To create a TRBOnet Voice Recorder database:

1. In the TRBOnet Voice Recorder server configuration window, select **Database** in the left pane.
2. Specify the following database connection properties:

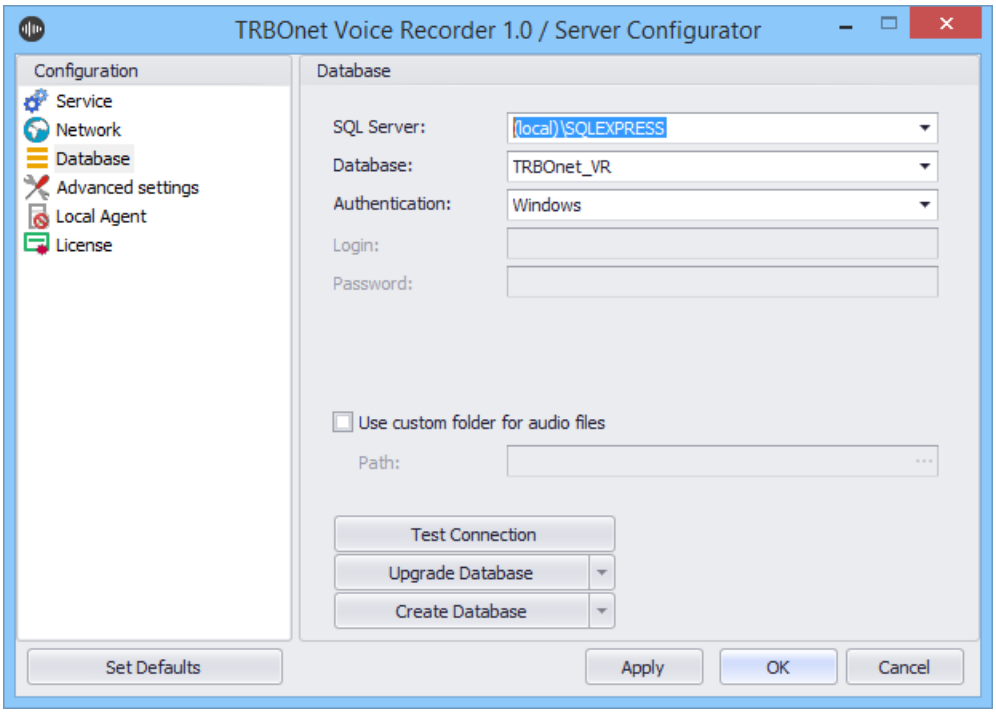


Figure 4: Creating the TRBOnet Voice Recorder database

Table 4: TRBOnet Voice Recorder database connection properties

Property	Description
SQL Server	Select an instance from the list of the database management systems found on your network.
Database	Specify the preferred database name. Follow the naming rules specific to the selected SQL Server edition.
Authentication	Select the preferred authentication method: ▪ **Windows**: Voice Recorder will use your Windows credentials to access the database. ▪ **SQL Server**: Voice Recorder will use an MS SQL Server user account to access the database. To use Windows authentication, the Local System account must be granted MS SQL Server administrator privileges (see Appendix A: Granting Sysadmin Role to Local System in SQL Server on page 35).
Login	Enter an existing MS SQL Server user name. Required for SQL Server authentication.
Password	Enter the MS SQL Server user password. Required for SQL Server authentication.

Property	Description
Use custom folder for audio files	Select this option to store audio files in a custom folder.
Path	Specify the path of the custom folder.

3. Click **Create Database**. The database with the specified name is created.
4. Click **Test Connection**.
5. Click **Apply** or **OK**.

4.6 Setting the Language

To select the language for the TRBOnet Voice Recorder server window:

1. In the TRBOnet Voice Recorder server configuration window, click **Advanced settings** in the left pane.
2. On the drop-down menu, select one of the supported interface languages.
3. Click **Apply** or **OK**.

The selected language will apply after you reopen the **TRBOnet Voice Recorder** configuration window.

4.7 Setting the Logging Level

The TRBOnet Voice Recorder server logs specific information that can help technical support of the software vendor to investigate a customer reported issue. The level of detail in the system log depends on the Logging level settings.

To select the preferred logging level:

1. In the TRBOnet Voice Recorder server configuration window, select **Advanced settings** in the left pane.
2. On the **Logging level** drop-down menu, select the preferred level of detail in the system log: **High**, **Normal** (default), **Low**, or **None**.
3. Click **Apply** or **OK**.

4.8 Configuring Audio Recording

To specify the audio recording settings:

1. In the TRBOnet Voice Recorder server configuration window, click **Advanced settings** in the left pane.
2. In the right pane, select the preferred values on the menus **Audio Recording format** and **Audio Recording codec**.
3. Click **Apply** or **OK**.

4.9 Enabling the Local Agent

Local Agent is part of the Voice Recorder server logic responsible for interaction with the radio network hardware. For TRBOnet Voice Recorder to receive voice and data from a registered radio network, its Local Agent component must be enabled.

To enable the Local Agent:

1. In the TRBOnet Voice Recorder server configuration window, click **Local Agent** in the left pane.
2. In the right pane, select the **Enable local Agent** option.

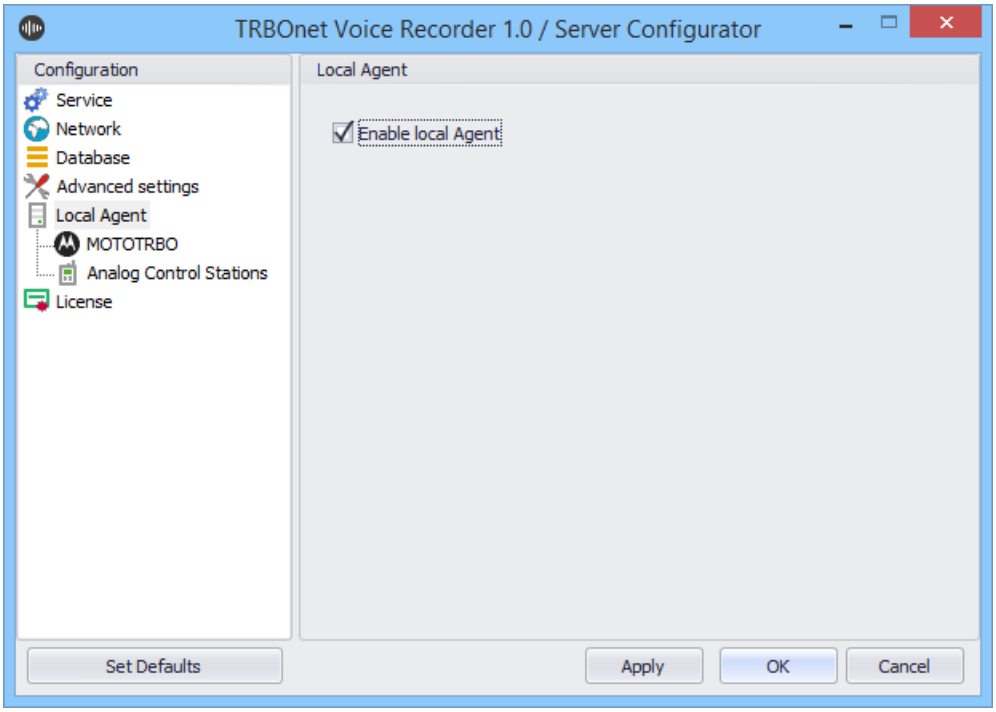


Figure 5: Enabling the local agent

4.10 Adding Radio Systems

For TRBOnet Voice Recorder to record voice calls on a radio system, add this system to the TRBOnet Voice Recorder server configuration.

Note: Before adding a radio system, read the information in section 2.4 Recommendations (page 3).

To add a radio system:

1. In the TRBOnet Voice Recorder server configuration window, click **MOTOTRBO** under **Local Agent** in the left pane.
2. In the right pane, select the **Enable MOTOTRBO services** option.
3. To add a system, click **Add** in the right pane or right-click **MOTOTRBO** in the left pane.
4. On the drop-down menu, point the hardware to serve as a radio system gateway for Voice Recorder - a control station, a MOTOTRBO repeater, a TRBOnet Swift Agent, or a Friendly station.

   The added system appears in the left pane under **MOTOTRBO** and in the list of MOTOTRBO systems in the right pane.

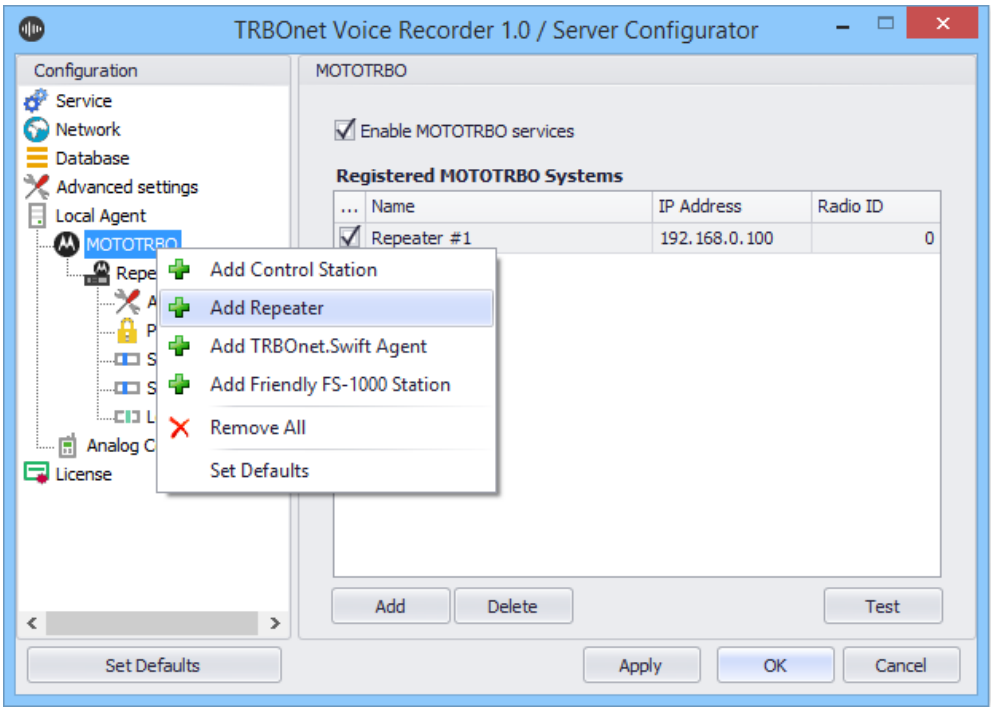


Figure 6: Adding a radio system

The selected checkbox near the system name means that audio recording is enabled. If you remove the selection, audio recording for the given system is stopped but you still can see the previously recorded information in the console.

Note: The license specifies the maximum number of radio systems that can be selected for voice recording simultaneously. If you fail to add more systems to the configuration, remove the selection from any system and add a new one.

5. Configure connection between TRBOnet Voice Recorder and the added system. Depending on the selected hardware gateway (a MOTOTRBO repeater or other), find the details in section 4.10.1 Connection with a MOTOTRBO Repeater (page 12) or 4.10.2 Connection with Other Hardware (page 15).

4.10.1 Connection with a MOTOTRBO Repeater

To configure connection between TRBOnet Voice Recorder and a MOTOTRBO repeater, click the name of the added system in the left pane of the TRBOnet Voice Recorder server configuration window. In the right pane, specify the following connection properties:

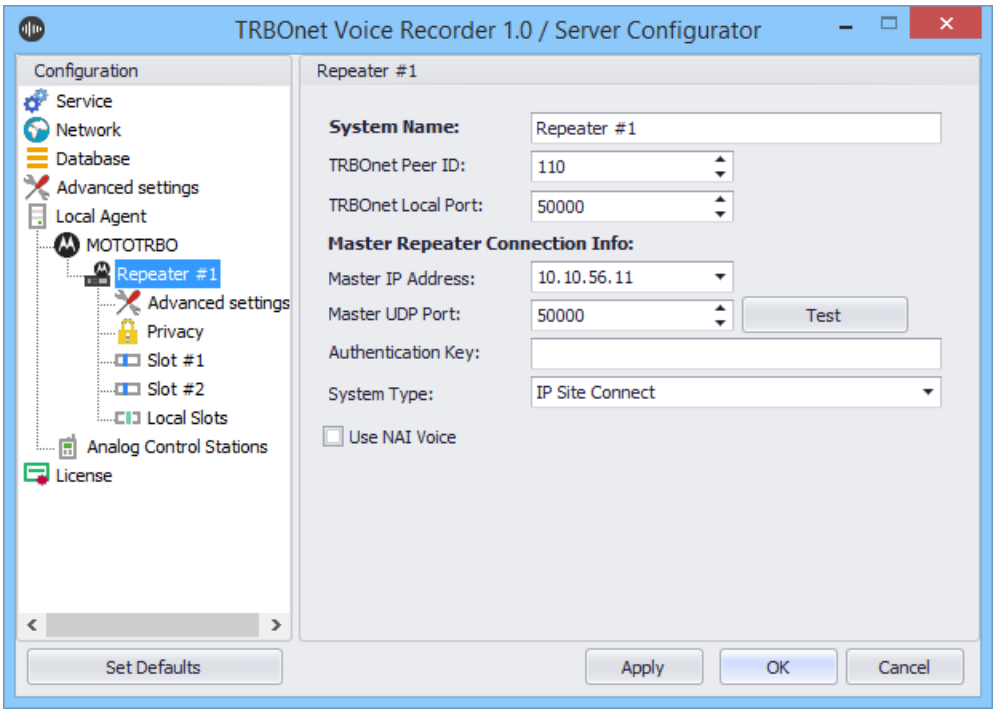


Figure 7: Configuring connection with a MOTOTRBO repeater

Table 5: MOTOTRBO repeater connection properties

Property	Description
System Name	The name of the system to be displayed in the console. Note: If multiple Capacity Plus or Linked Capacity Plus systems are registered, their system names indicate the system type: "CP", "LCP".
TRBOnet Peer ID	The peer ID of the TRBOnet Voice Recorder server. Recommended range: 0 to 255. Assign any value in this range that is unique in the radio system.
TRBOnet Local Port	The local port on the server host for communication with the repeater. Use a unique port for each repeater connection.
Master IP Address	The IP address of the repeater programmed in MOTOTRBO CPS.
Master UDP Port	The master UDP port of the repeater programmed in MOTOTRBO CPS.
Authentication Key	The authentication key of the repeater if programmed in MOTOTRBO CPS.
System Type	The type of the radio system to which the master repeater belongs. Options: IP Site Connect, Capacity Plus, Linked Capacity Plus.
Use NAI Voice	Select this option to receive voice traffic from the repeater over the NAI protocol. To use this protocol, the repeater must have the NAI Voice license activated. ▪ If the system type is Linked Capacity Plus, select this option. ▪ In IP Site Connect and Capacity Plus systems, using NAI is not required. However, if the NAI license is activated on the repeater, this option must be selected. In IP Site Connect, NAI voice is needed to receive voice traffic from a local site.

In the left pane of the configuration window, click the nodes (**Advanced settings**, **Privacy**, and other) under the system name. Specify the respective settings as described in the table below.

Table 6: System specific connection properties

Click this node in the left pane:	Specify the following properties:
Advanced settings	Adjust the hang time for group calls, private calls, and emergency calls.
Privacy	Specify the Privacy settings exactly as configured on your MOTOTRBO repeater: ▪ **Privacy Type**: Select the type of privacy configured on the repeater. Options: None, Basic, Enhanced. ▪ **Basic Privacy Key ID**: If Basic Privacy is selected, enter the privacy key configured on the repeater. Valid range: 1 to 255. ▪ **Enhanced Algorithm**: If Enhanced Privacy is selected, point the encryption algorithm configured on the master repeater. Options: ARC4 (40 bit), DES, AES 128, AES 256. Note: To select an algorithm other than ARC4, use the Voice Recorder license with the respective feature. If your license does not include this feature, the Enhanced Algorithm property is set to ARC4 by default and cannot be edited. ▪ **Enhanced Privacy Keys**: If Enhanced Privacy is selected, click **Add** and specify up to 16 privacy keys that are configured on the repeater.
Slot #1(Slot #2) (IP Site Connect only)	Add global system slots. ▪ **Slot #1** (**#2**): Select this option if the respective system slot is global. ▪ **Name**: Specify the slot name to be displayed in the console. ▪ **Messaging Delay**: Specify the messaging delay between the repeaters in the system. Options: normal (60 ms), high (90 ms). Choose the setting that matches the measured delay on the IP network of the system.
Local Slots (IP Site Connect only)	Add all local slots in the system whose voice calls shall be recorded. To add a local slot, click **Add** and type the peer name, peer ID, and the slot number. To load all slots automatically, click **Load Peers Map**, then delete unnecessary slots from the list.
Audio Paths (Capacity Plus, Linked Capacity Plus)	Define all voice call paths for recording. Add one entry for all private calls, one entry for All Calls, and an entry for each talk group configured on the repeater. To add a voice call path: 1. Click **Add**. 2. Drop the cursor in the **Call Type** field and select the call type – **All Call**, **Group Call**, or **Private Call**. 3. For a group call, specify the group ID (1 to 255) in the respective field. 4. If the master repeater works in the Linked Capacity Plus system, specify the area of the talk group in the Site ID field exactly as configured on the repeater. A talk group can be Wide or referring to the site ID that you need to enter. To exclude a voice call path from recording, delete it or remove the selection mark from the entry.

4.10.2 Connection with Other Hardware

To configure connection with a control station, a TRBOnet Swift Agent, or a Friendly station, click the name of the added system in the left pane of the TRBOnet Voice Recorder server configuration window. In the right pane, specify the following connection properties:

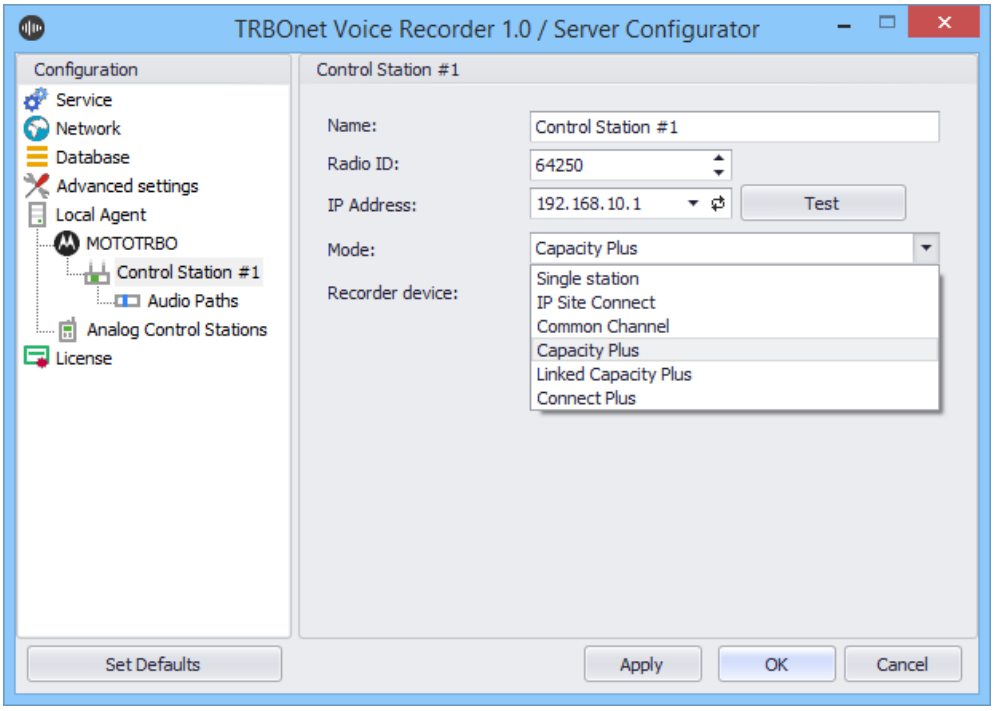


Figure 8: Configuring connection with a control station

Table 7: Connection properties of a control station (TRBOnet Swift Agent, Friendly station)

Property	Description
Name	The name of the system to be displayed in the console.
Radio ID (control stations only)	The radio ID of the control station.
IP Address	The IP address of the control station (TRBOnet Swift Agent, Friendly station).
Port (TRBOnet Swift Agent, Friendly FS-1000)	The IP port for communication with the TRBOnet Swift Agent or Friendly FS-1000.
Mode	The type of the radio system in which the control station (TRBOnet Swift Agent, Friendly station) is configured to work. Options: Single station, IP Site Connect, Common Channel, Capacity Plus, Linked Capacity Plus, Connect Plus.
Recorder Device (control stations only)	The device for playing back audio files on the computer (server host) connected to the control station.
VoIP Port (TRBOnet Swift Agent, Friendly FS-1000)	The port for audio communication with the TRBOnet Swift Agent or Friendly FS-1000. Beginning with TRBOnet Swift Agent's firmware version R01.02.05, this port is not used.

Property	Description
Audio Format (TRBOnet Swift Agent only)	The format of audio packages.

If the **Mode** property is set to Capacity Plus, Linked Capacity Plus, or Connect Plus, the **Audio Paths** section appears in the left pane under the system name. Click this section and specify the types of voice calls to be recorded by the TRBOnet Voice Recorder.

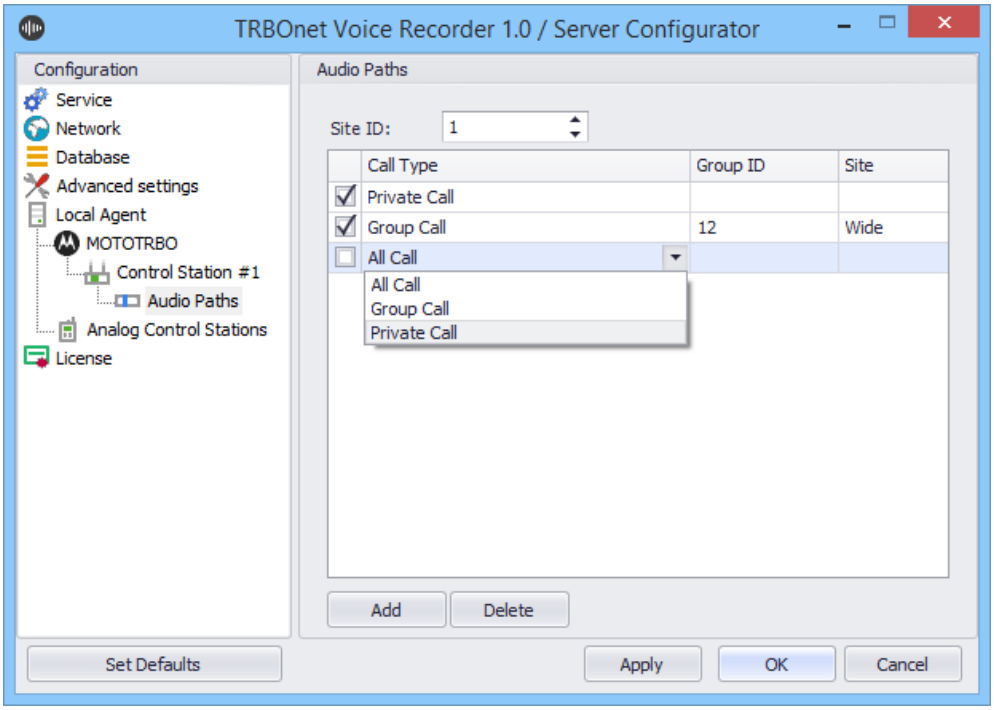


Figure 9: Adding audio paths

To add an audio path, click **Add**. You need an audio path for the following call types:

- **All Call**: Add one entry to record All Calls in the system.
- **Private Call**: Add one entry to record all private calls in the system where the control station is the calling or called party.
- **Group Cal**l: Add an entry to record group calls in a particular talk group where the control station (TRBOnet Swift Agent, Friendly FS-1000) is a group member. Specify the group ID. If the control station works in a Linked Capacity Plus system, specify the area of the talk group (wide or local).

4.11 Adding Analog Control Stations

For TRBOnet Voice Recorder to record audio traffic from analog control stations, click the **Analog Control Stations** node under **Local Agent** in the left pane of the configuration window. In the right pane, select the **Enable Analog Control Stations** option.

To add a new analog control station to the list:

1. Click **Add** or right-click the **Analog Control Stations** node in the left pane and click **Add Control Station** on the drop-down menu.

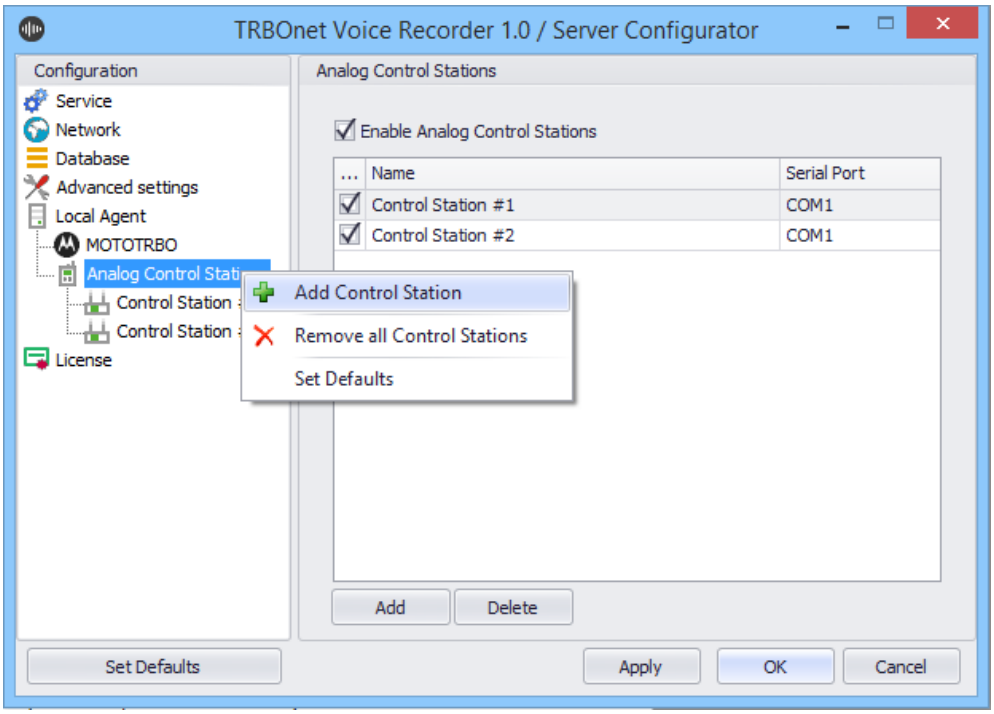


Figure 10: Adding an analog control station

2. In the right pane, configure connection with the added analog control station.

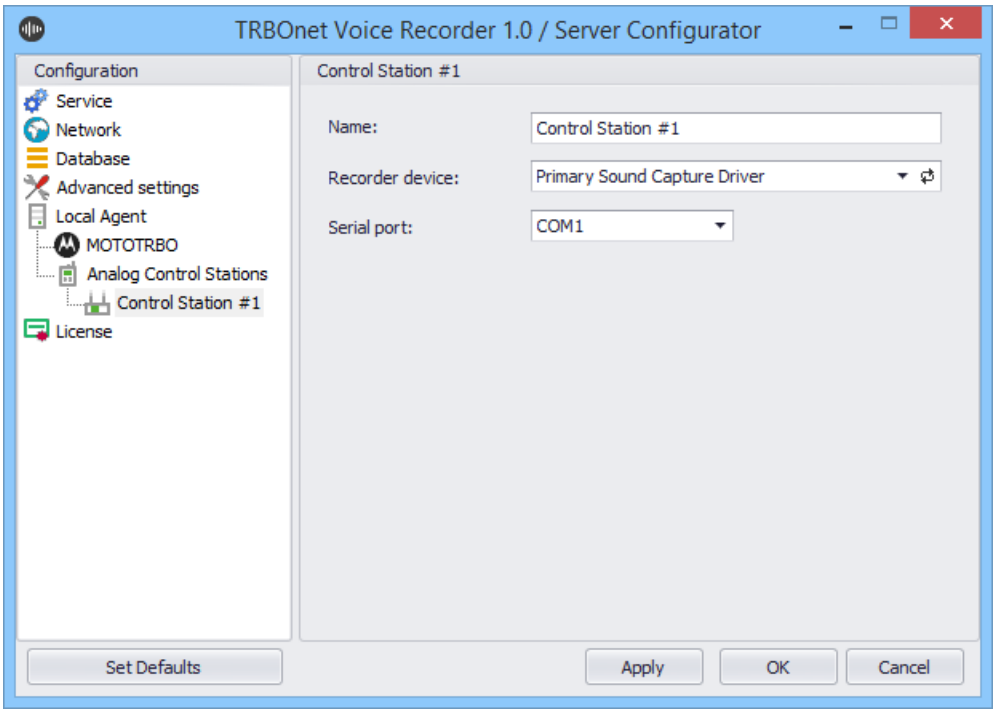


Figure 11: Configuring wire connection with an analog control station

The connection settings are described in Table 8.

Table 8: Analog control station connection properties

Property	Description
Name	The name of the control station to be displayed in the console.
Recorder device	The audio recorder on the server host.
Serial port	The serial port on the server host to which the analog radio is connected. Default: COM1

5 Operator's Guide

The high-levels steps for the operator to start work in the TRBOnet Voice Recorder console are described in Table 9.

Table 9: High-level steps to start work in the TRBOnet Voice Recorder console

Step	Action	Refer to
1	Launch the TRBOnet Voice Recorder console.	5.1 Launching TRBOnet Voice Recorder (page 19)
2	Configure the application settings.	5.2.1 Configuring Console Settings (page 20)
3	Add radios.	5.2.2 Adding Radios (page 21)
4	Add talk groups.	5.2.3 Adding Talk Groups (page 22)
5	(Optional) Localize the console to the required language.	5.4 Localizing the Voice Recorder Console (page 32)
6	Specify the filter settings and search for voice calls in the storage.	5.3.2 Using Filters (page 25)
7	Work with the requested voice calls.	5.3.3 Managing Voice Calls (page 27)
8	Play back the requested voice calls.	5.3.4 Playing Back Voice Calls (page 29)

5.1 Launching TRBOnet Voice Recorder

To launch the TRBOnet Voice Recorder console, double-click the **TRBOnet Voice Recorder console** icon on the desktop. Or, click **All Programs** and then **TRBOnet Voice Recorder** and **TRBOnet Voice Recorder Console** on the **Start** menu.

In the **Connection to Server** window, choose the preferred language and specify the server connection settings. Click **Connect**.

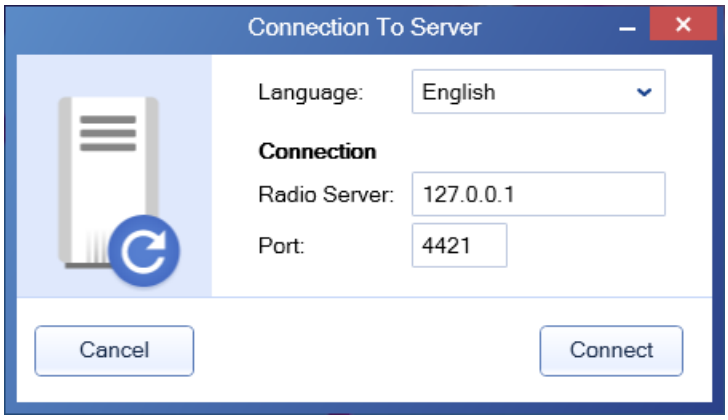


Figure 12: Connecting to the radio server

Note: At first launch, you will be requested to choose the option for registering two-way radios. You can just close the **Registering Radios** window and choose the preferred option later. For more information about registering radios, refer to section 5.2.2 Adding Radios (page 21).

When the connection with the server is established, the main window of the TRBOnet Voice Recorder console appears.

5.2 Configuring Options

This section describes how to configure the TRBOnet Voice Recorder console.

5.2.1 Configuring Console Settings

To configure the TRBOnet Voice Recorder console settings, click the **Options** button (Figure 13, step 1). In the **Options** window, click **General** in the left pane and specify the settings (Figure 13, step 2):

- **Language**: Expand the menu and select the preferred language for console labels and messages. The menu includes the English and Russian languages by default. You can add a new language to the menu. For details, refer to section 5.4 Localizing the Voice Recorder Console (page 32).
- **Console startup location**: Expand the menu and select the preferred position of the main window on the screen when you launch the TRBOnet Voice Recorder console.
- **Register radios automatically** (Figure 13, step 3): Select this option to enable automatic registration of all unknown radios that initiate voice calls in the registered systems.

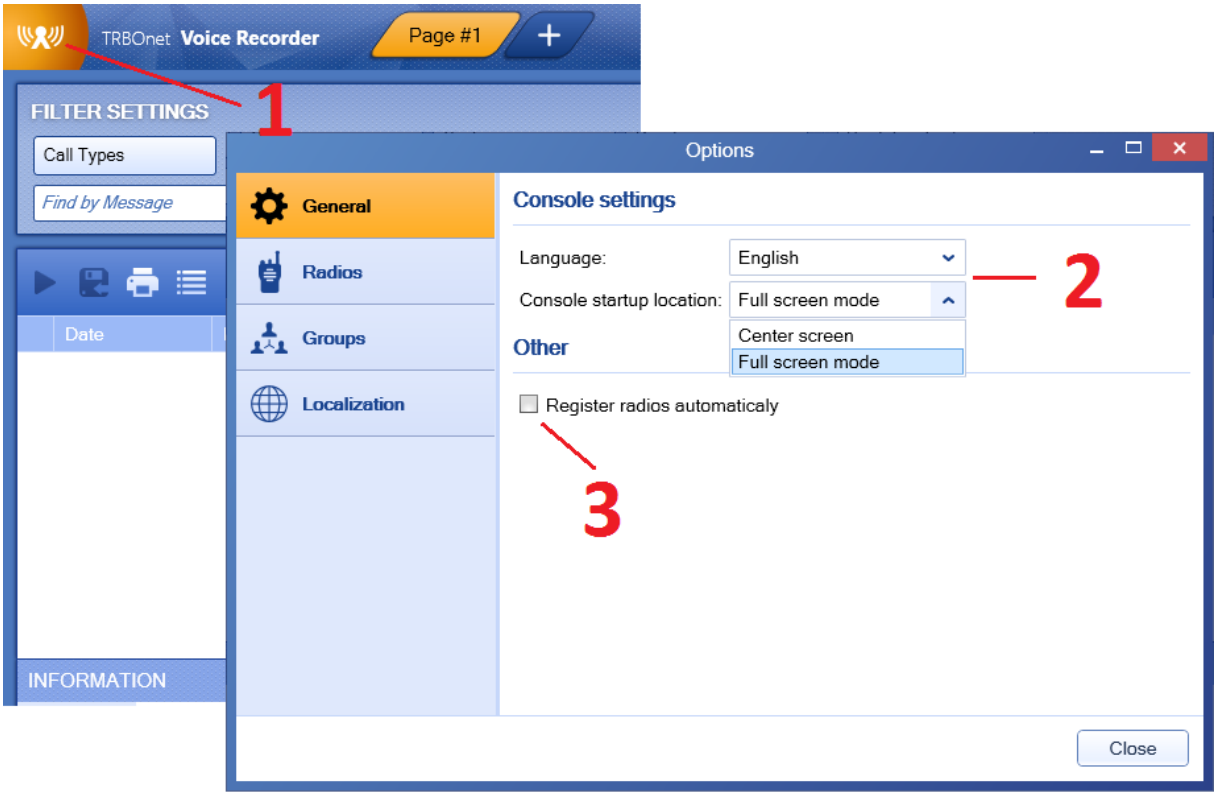


Figure 13: Console settings

Click **Close**. The preferred options apply immediately.

5.2.2 Adding Radios

For TRBOnet Voice Recorder to record a voice call to an audio file, the calling radio must be registered in the TRBOnet Voice Recorder settings. If an incoming call comes from a non-registered radio, TRBOnet Voice Recorder stores all information about the call and creates a 'silent' audio file.

If you choose to register radios automatically, all unknown calling radios are added to the TRBOnet Voice Recorder settings by default until the limits of the license are achieved. You can choose this option as described in section 5.2.1 Configuring Console Settings (page 20). As an alternative, you can add only required radios manually.

Click the **Options** button in the main window of the console. In the **Options** window, click **Radios** in the left panel (Figure 14).

The list of registered radios is displayed in the right pane. The properties of a radio are as follows:

- **Radio ID**: The radio ID exactly as configured in MOTOTRBO CPS.
- **Call Sign**: The name of the radio to be displayed in TRBOnet Voice Recorder.
- **MDC/Sel-5**: The MDC or Select-5 ID of the radio. This property is configured for analog radios in MOTOTRBO CPS. Leave it '0' for a digital radio.

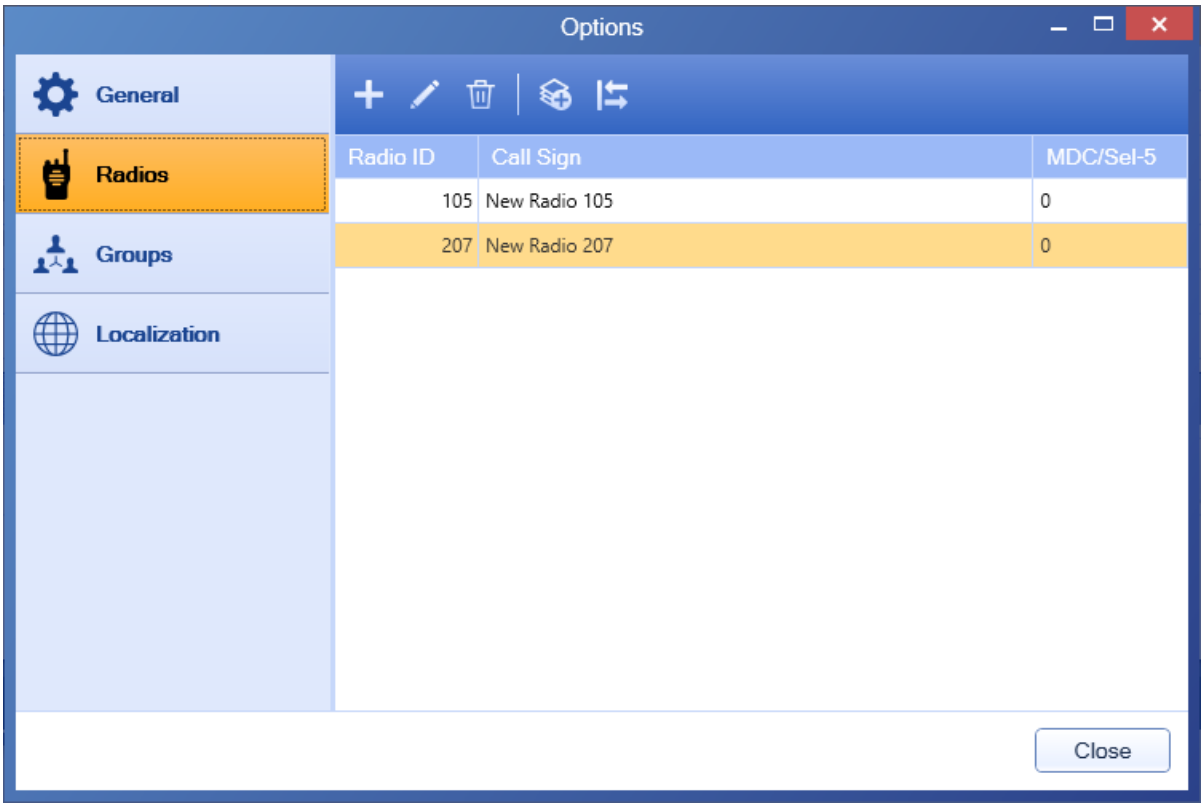


Figure 14: Registered radios

To add and edit radios in the list, use the toolbar buttons above the list. All allowed operations are described in Table 10.

Table 10: Operations with radios

Click this button:	Do the following:
 Add a new radio	1. In the **Add New Radio** window, specify the properties of a new radio– the radio ID and the call sign. 2. For an analog radio, specify the Primary ID (MDC) or the 5 Tone Radio ID exactly as specified in the configuration of the radio. For a digital radio, leave '0' in the **MDC/Sel-5 (Hex)** field. 3. Click **OK**.
 Edit the selected radio	1. Select the radio in the list and click this button. 2. In the **Edit Radio** window, modify the properties of the radio. 3. Click **OK**.
 Delete the selected radios	1. Select the radio or a sequence of radios in the list and click this button. 2. Click **Yes** in the message box to confirm deletion of the selected entries from the list.
 Add a range of radio IDs	1. In the **Add Range of Radio IDs** window, specify the initial and final radio ID in the range. 2. In the **Call Sign** field, specify the constant part of the call sign to which the radio ID will be appended. 3. Click **OK**.
 Import/Export radio list	1. Point the preferred option – **Import from TXT file** or **Export to TXT**. 2. Go to the target folder and point the file to import from, or enter the file name to export the displayed radios. 3. Click **OK**.

5.2.3 Adding Talk Groups

Add talk groups to the TRBOnet Voice Recorder settings to be able to choose a particular group in the filter and to see the custom names of the talk groups in the console.

Click the **Options** button in the main window of the console. In the **Options** window, click **Groups** in the left panel.

The list of registered talk groups is displayed in the right panel (Figure 15). The properties of a group are as follows:

- **ID**: The ID of the talk group exactly as configured in the system and on the radios (group members).
- **Group Name**: The name of the talk group to be displayed in the console.
- **MDC/Sel-5**: The ID of the talk group in the respective signaling system - MDC or Select-5.

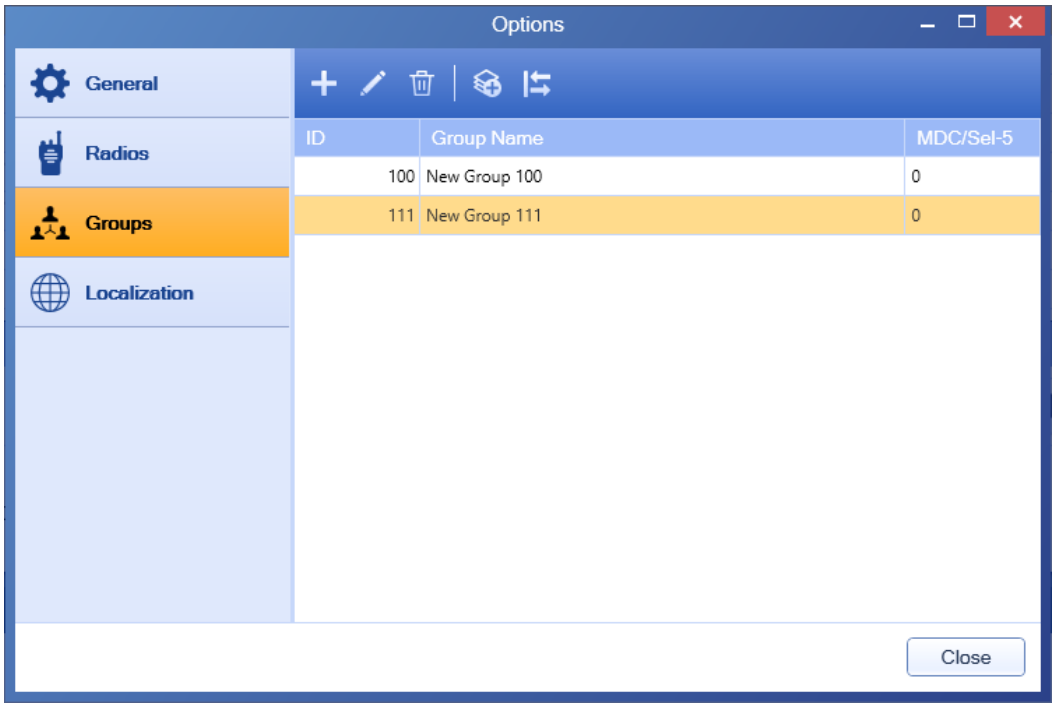


Figure 15: Registered talk groups

To add and edit the registered talk groups, use the toolbar buttons above the list. The allowed operations with talk groups are the same as described for radios (Table 10).

5.3 Working with Voice Calls

5.3.1 Main Window

The main window of the TRBOnet Voice Recorder console includes the following elements.

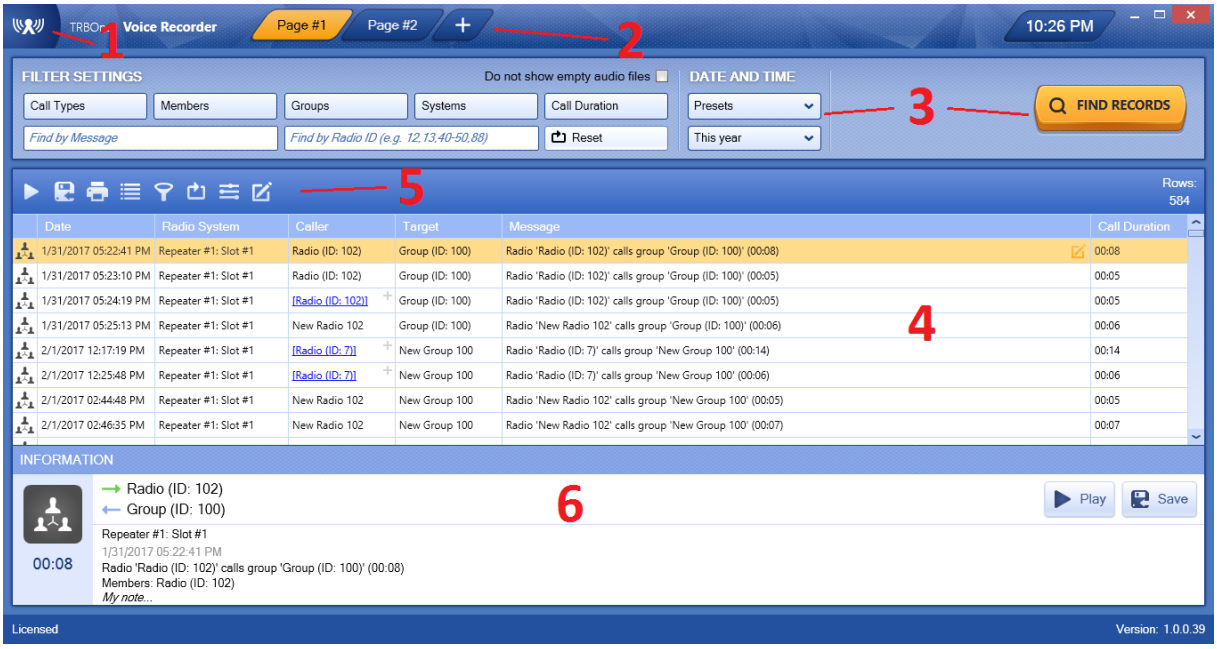


Figure 16: Main window

Table 11: TRBOnet Voice Recorder console – main window elements

#	Element	Description
1	Options	Click this button to open the **Options** window where you can configure the console, register radios and groups, and localize labels and messages in the console.
2	Pages	Pages opened in the console. On each opened page, you can use specific filter settings and work with a different set of voice calls. To add a page, click the **Add** button ('+').
3	Filter	Specify the filter settings and the date and time. Click **Find Records** to display voice calls that match the filter settings.
4	List of voice calls	The voice calls loaded by the **Find Records** button click. Each voice call in the list can be played back in the embedded audio player.
5	Toolbar buttons	Use these buttons to manage entries in the list of voice calls.
6	Information pane	The detailed information about a voice call selected in the list of voice calls. If multiple voice calls are selected, this pane displays the information about the last call in the selected sequence.

Multi-page mode

You can open multiple pages in the TRBOnet Voice Recorder console. To open a new page, click the **Add** button.

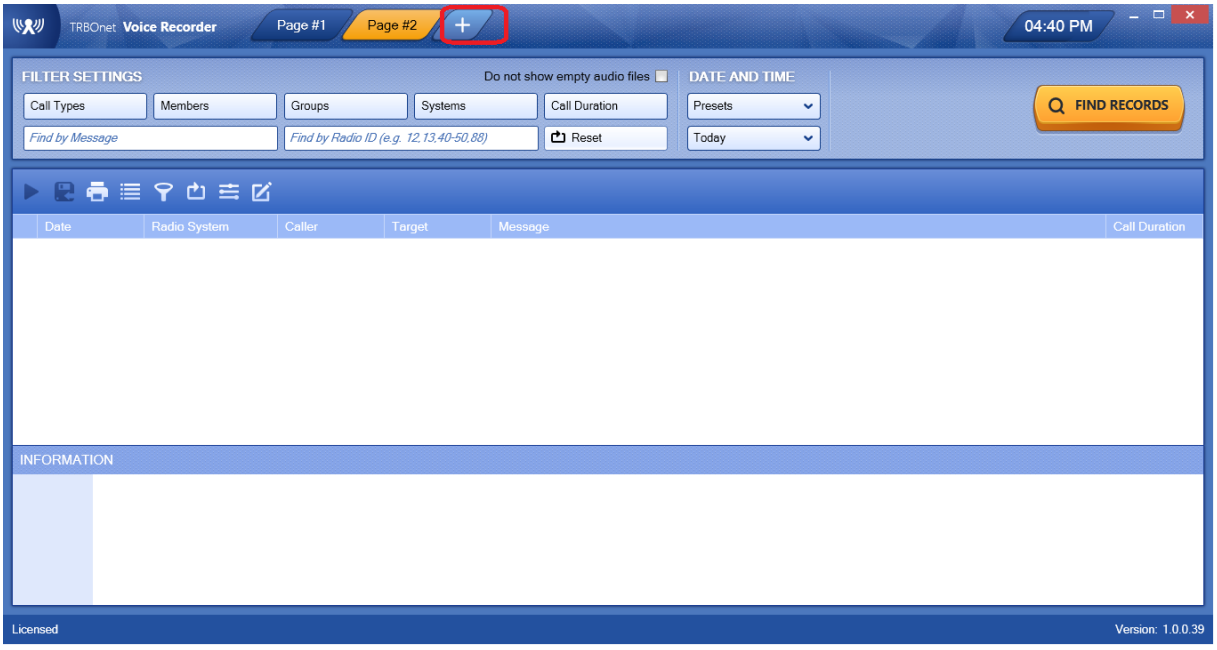


Figure 17: Adding a page

All pages in the main window have the same controls and layout. You can use each page to display a different set of calls.

To open any page in a separate window, drag the page button out of the main window's header area. Child windows look similar to the main window, except they do not include the **Options** button, the clock, and the information about the license applied.

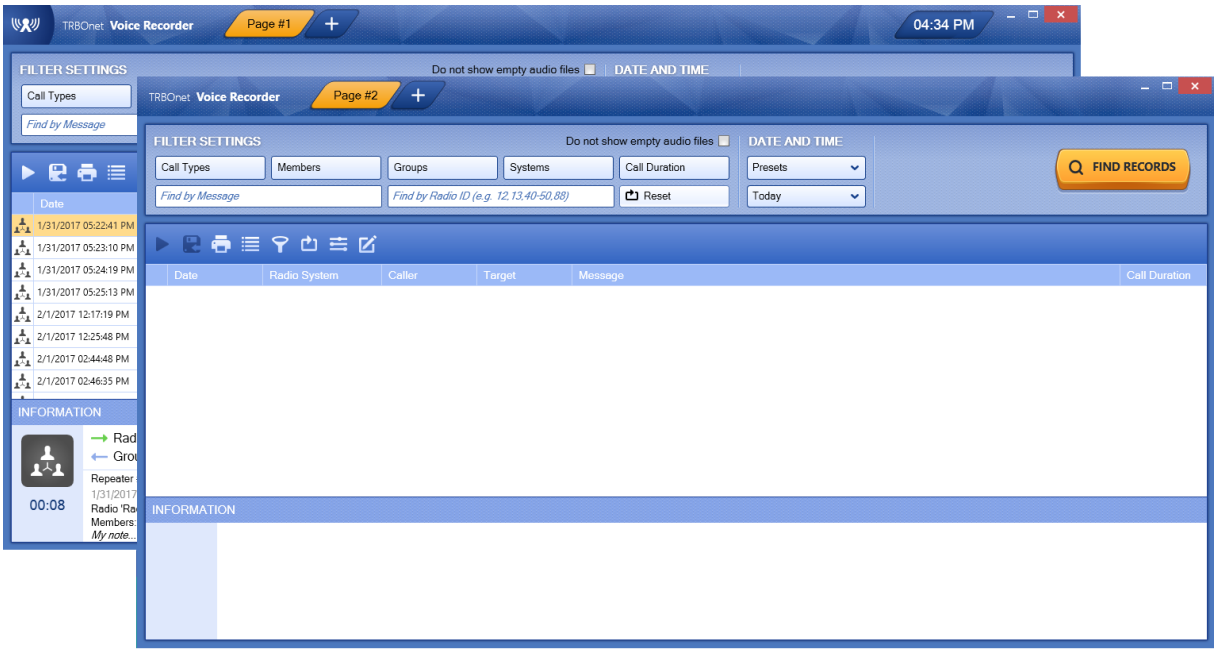


Figure 18: Multiple windows

You can drag and drop pages between multiple opened windows. You can open new pages in each window.

Note: The maximum allowed number of pages per window is 5. The maximum allowed number of pages in all windows is 10.

When you close the main window, all child windows are closed automatically.

5.3.2 Using Filters

To display voice calls that happened in the registered radio systems in a certain time interval, specify the search criteria in the **Filter settings** and **Date and Time** panels and click **Find Records**.

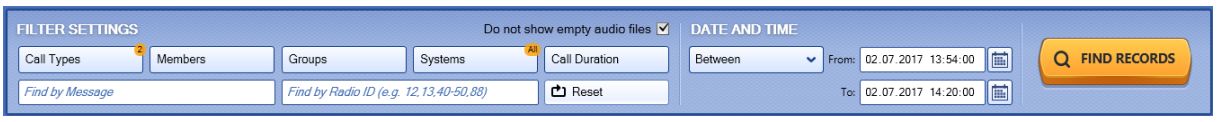


Figure 19: Filter bar

Filter Settings

The **Filter Settings** panel includes the following filters:

Table 12: Filter settings

Filter	Description
Call Types	Click to select call types to be searched: All Call, Group call, Emergency call, Private call, Remote monitor. No selected items in the menu means "Find all". Note: Remote monitor is a type of call where the caller (a radio) activates and listens to the microphone on a different radio. The call duration is configured on a radio using MOTOTRBO CPS. The default value is 10 seconds.

Filter	Description
Members	Click to select the radios whose incoming and outgoing voice calls you need to find. No selected items in the menu means “Find all”. To find a radio quickly, enter any part of the radio’s call sign in the **Search** box. Note: This filter displays only registered radios. If you cannot find a radio, register it as described in section 5.2.2 Adding Radios (page 21).
Groups	Click the field and select the talk groups whose voice calls you need to find. No selected items in the menu means “Find all”. To find a talk group quickly, use the **Search** box on top of the menu. Note: This filter displays only registered talk groups. If you cannot find a group, register it as described in section 5.2.3 Adding Talk Groups (page 22).
Systems	Click the field and select the systems in which the requested voice calls were made. No selected items in the menu means “Find all”. Note: This filter displays the systems that were registered in the server-side configuration of TRBOnet Voice Recorder. Find the details in section 4.10 Adding Radio Systems (page 11).
Call Duration	Click the field to specify maximum and/or minimum duration of the requested voice calls. If call duration does not matter, leave both settings not selected.
Do not show empty audio files	Click to ignore voice calls with call duration of 00:00 (MM:SS).
Find by Message	Click to enter a text pattern to be searched in the **Message** field of voice calls. Calls that include the entered pattern are displayed in the list.
Find by Radio ID	Click to type a string of radio IDs and radio ID ranges whose calls you need to find. To separate radio IDs, use a comma. To specify a range of radio IDs, use a dash between the first and last radio ID in the range.

To specify a filter, click the respective box in the **Filter Settings** panel.

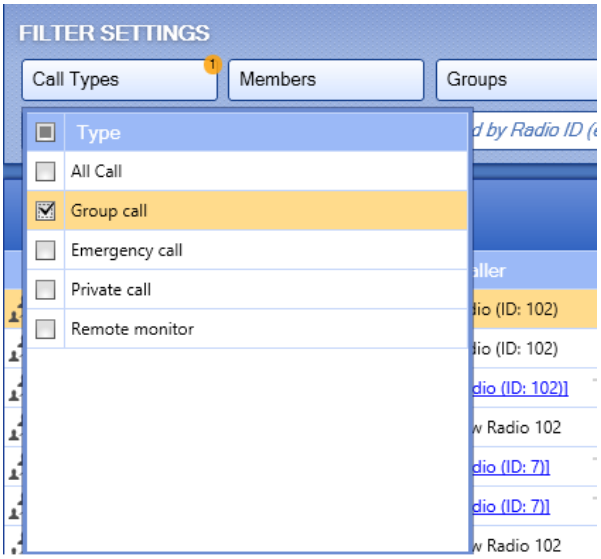


Figure 20: Selecting call types to be searched

In the drop-down menu, select criteria by which you will search voice calls. The number of selected menu items appears in the orange icon on top of the filter box (Figure 20). If you select all items, the icon shows "All".

To reset all filters in the **Filter Settings** panel, click the **Reset** button.

Date and Time

To specify the time interval in which you need to find voice calls, use the **Date and Time** panel. By default, the time interval is set to **Today**.

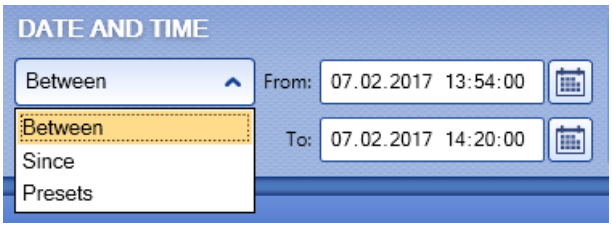


Figure 21: Date and time filter

Use **Presets** to quickly select one of the predefined time intervals from the list. Use operators **Between** and **Since** to specify a custom time interval.

5.3.3 Managing Voice Calls

After you click **Find Records**, the requested voice calls are loaded to the list from the TRBOnet Voice Recorder storage. The count of voice calls is displayed above the list.

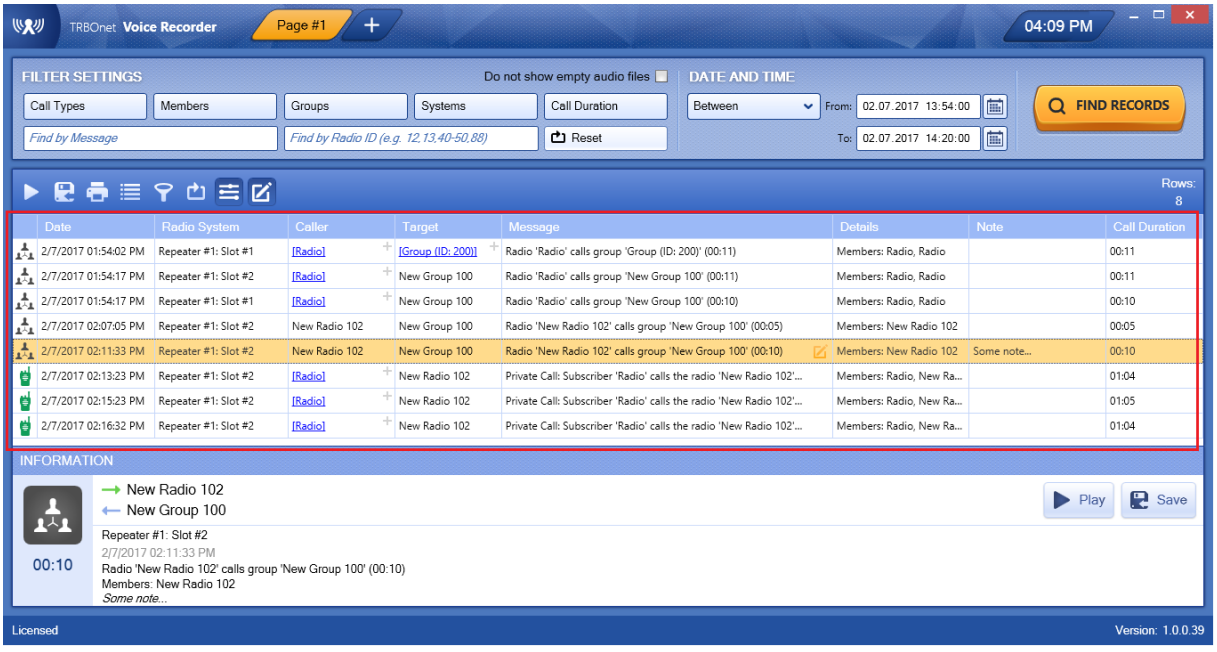


Figure 22: Searched voice calls

The list displays the information about voice calls in several fields. The information includes the timestamp of the call, the radio system, the calling party, the called party, the description of the call, and the call duration.

Icons

Icons in front of the list entries indicate the call types (Figure 23).



Figure 23: Call types (icons)

Non-registered radios

Non-registered calling radios are displayed as links. You can quickly register an unknown radio by clicking the link and typing the properties of the radio (Figure 24).

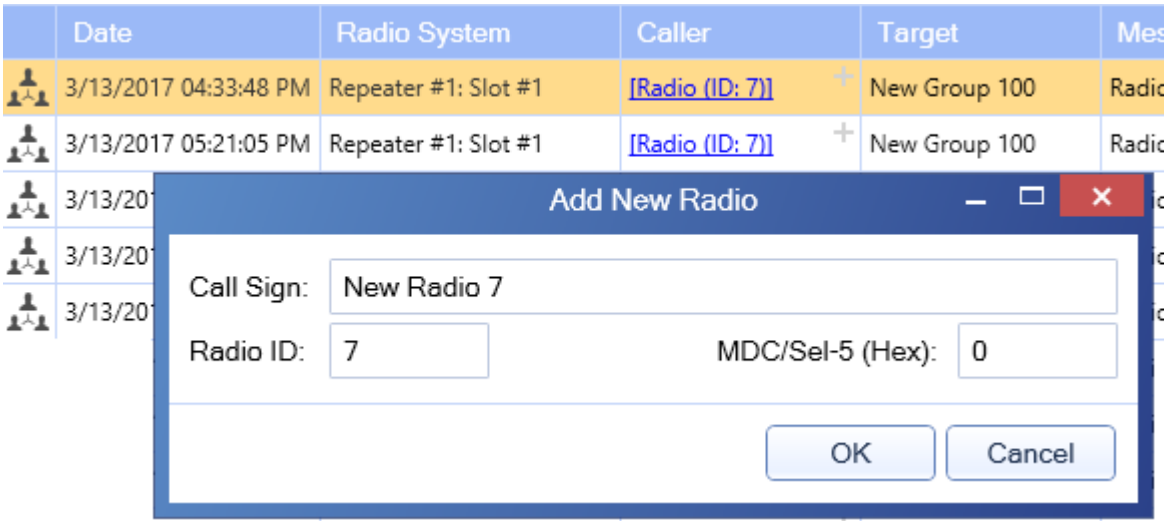


Figure 24: Registering an unknown calling radio

After you click **OK**, all entries with the same link begin to display the call sign of the registered radio. After registration, voice calls made by the radio are recorded and voice can be played back.

Details and Notes

Fields **Details** and **Note** are hidden by default. To display them, toggle the **Show Details** and **Show Notes** toolbar buttons located above the list (Figure 25).



Figure 25: Displaying the Details and Note fields

The **Details** field shows the call members. In the **Note** field, you can add a note about a voice call. If an entry has a note in the **Note** field, the **Message** field displays a special mark (Figure 25, the second entry on top).

Toolbar buttons

To manage entries in the list of voice calls, use the following buttons (from left to right):

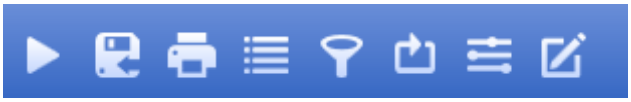


Figure 26: Toolbar buttons

- Play: Click to play back the calls selected in the list. Find the details in section 5.3.4 Playing Back Voice Calls (page 29).
- Save: Click to save the selected voice calls to a single audio file or to separate audio files. The supported file formats are TNA (TRBOnet Audio File) and WAV.
- Print: Click to print out the displayed voice calls as a report.
- Group: Toggle this button to enable/disable grouping by column in the list.
- Filter: Toggle this button to enable/disable the filter mode in the list.
- Restore Defaults: Click to disable grouping and filtering in the list.
- Show Details: Toggle this button to show/hide the **Details** column in the list.
- Show Notes: Toggle this button to show/hide the **Note** column in the list.

Information panel

The **Information** panel displays the summary for the voice call that is currently selected in the list. Buttons **Play** and **Save** serve to play back and save the audio file of the selected voice call.

5.3.4 Playing Back Voice Calls

TRBOnet Voice Recorder embeds an audio player that serves for playback of the displayed voice calls. To play back a voice call, double-click it in the list. Or, select a voice call and click the **Play** button (Figure 27).



Figure 27: Adding a voice call to the track list of TRBOnet Audio Player

The selected voice call appears in the track list. Playback of the selected voice call starts automatically (Figure 28).

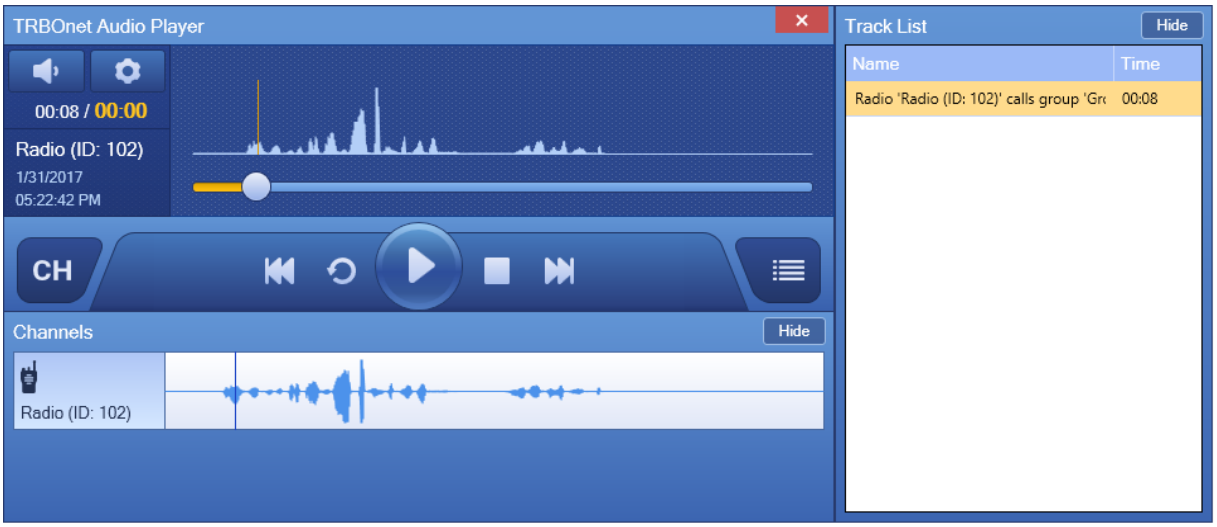


Figure 28: Playing back the audio file of the selected voice call

If you select multiple voice calls in the list and click the **Play** button, all selected calls are added to the bottom of the track list. Multiple added calls are played back automatically in the order they follow one after another in the track list.

Note: TRBOnet Voice Recorder records voice calls initiated by the registered radios. For voice calls from unknown callers, 'silent' audio files are played back.

Playback controls

To manage playback of audio files in the track list, use the following controls (from left to right):



Figure 29: Playback controls

- Previous recording: Click this button to jump to the previous position in the track list.
- Repeat: Toggle this button to enable repeated playback in the player. In this mode, the selected recording is played back in a cycle, without jumping to the next position in the track list. Toggle off this button to cancel repeated playback.
- Play/Pause: Click this button to pause playback of the audio. Click it again to continue playback in the player.
- Stop: Click this button to stop playback in the player.
- Next recording: Click this button to jump to the next position in the track list.

Audio settings

To adjust the volume in the audio player, click the **Volume** button (Figure 30, step 1) and move the slider. Click the **Mute** button (Figure 30, step 2) to mute the audio player. Click again to unmute.

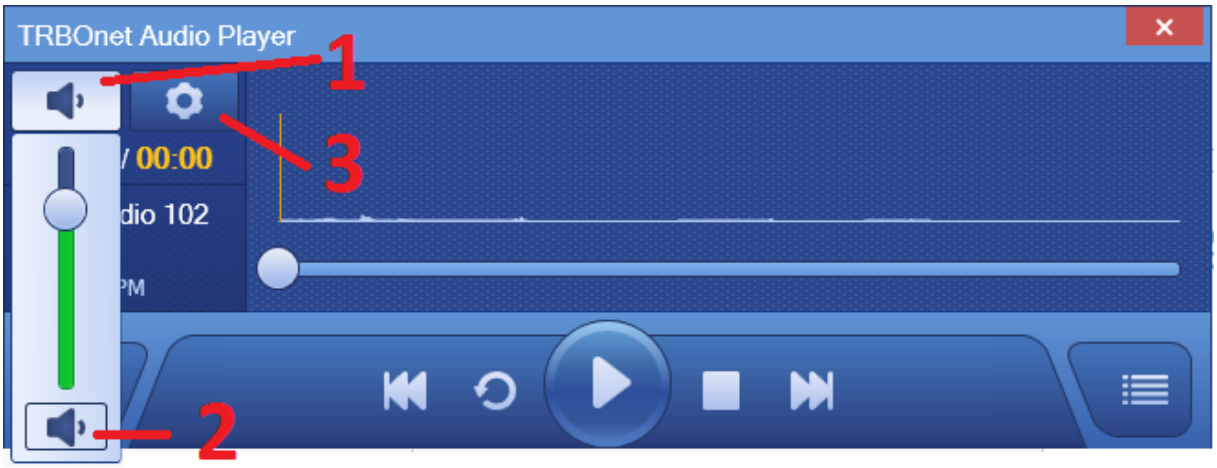


Figure 30: Adjusting the volume

Click the **Settings** button (Figure 30, step 3) to select the audio device and to mute/unmute the channels.



Figure 31: Setting the audio settings

Docked panes

Panes **Channels** and **Track List** can be undocked or hidden. To hide and show the panes, use the **Track List** and **Channels** buttons (Figure 32). To hide panes, also use the **Hide** button. To undock a pane, drag it away from the TRBOnet Audio Player window. To dock it again, drag it close to any edge of the TRBOnet Audio Player window.

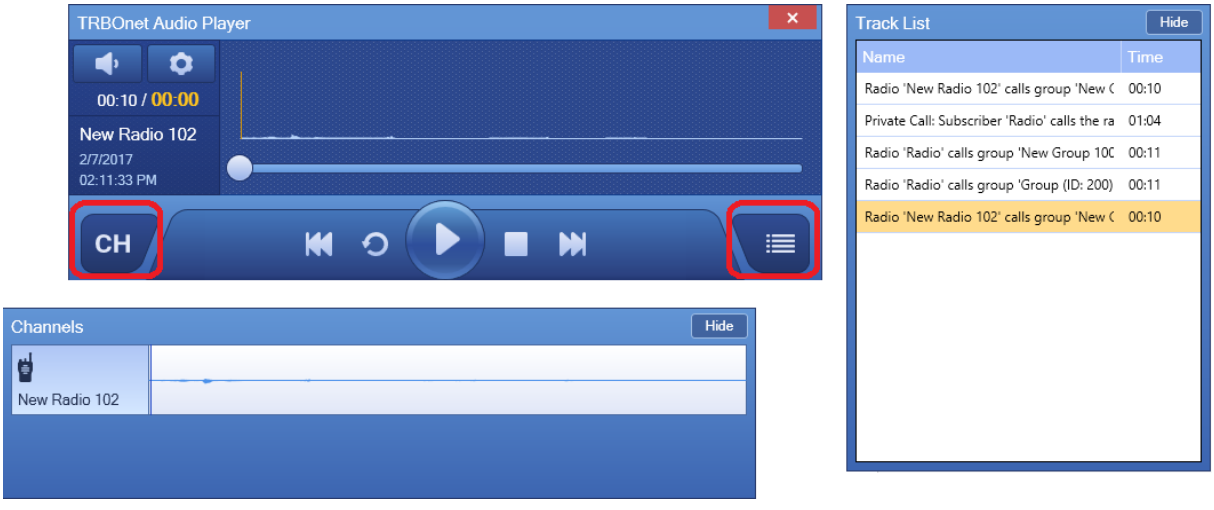


Figure 32: Undocked panes

5.4 Localizing the Voice Recorder Console

TRBOnet Voice Recorder provides an embedded tool in which you can localize the console to any language required. You can also edit labels and messages that are displayed in the console.

To localize the TRBOnet Voice Recorder console:

1. In the main window, click the **Options** button (Figure 33, step 1).
2. In the **Options** window, click **Localization** (Figure 33, step 2).
3. In the right pane, click the **Search** button in the **Source language file** field (Figure 33, step 3). Go to folder *[installation path]\Settings*. Point the *lang.en* or *lang.ru* file that includes all original strings to be translated. Click **Open**.

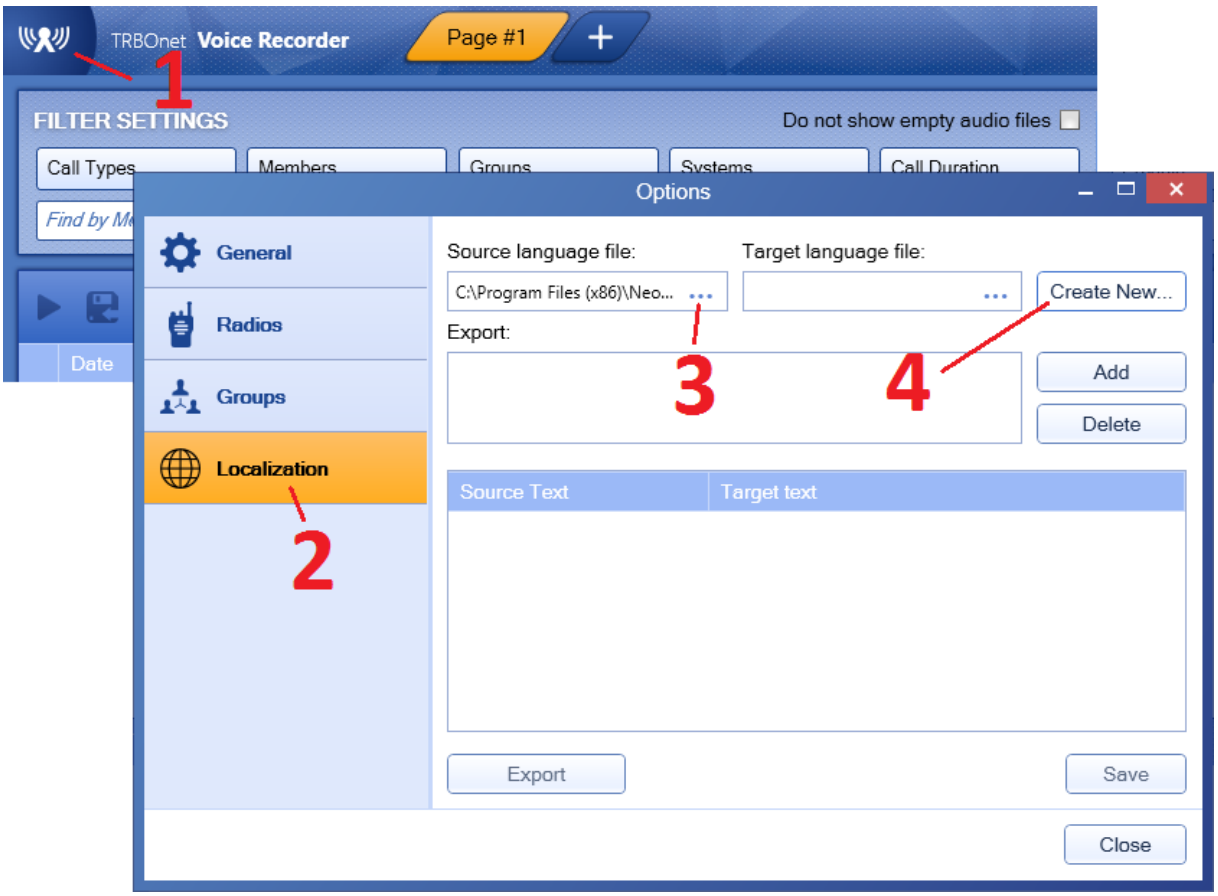


Figure 33: Selecting the source and target language files

4. If the target language file already exists, click the **Search** button in the **Target language file** field and point this file. Otherwise, click **Create New** (Figure 33, step 4) and enter the new file settings in the popup window:
   - **Language file**: Expand the menu and click the language of the target file.
   - **Folder Path**: Click the **Search** button and select the *[installation path]\Settings* folder.

   Click **OK**.

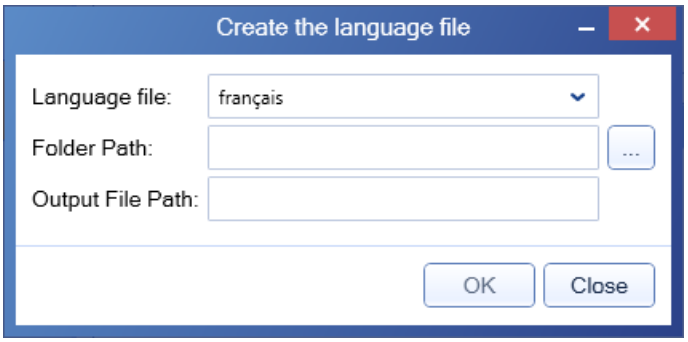


Figure 34: Creating a new language file

5. For each entry in the **Source Text** field, enter a translated string in **Target Text** (Figure 35). Click **Save**. The translated strings are saved to the target language file. Click **Close**.

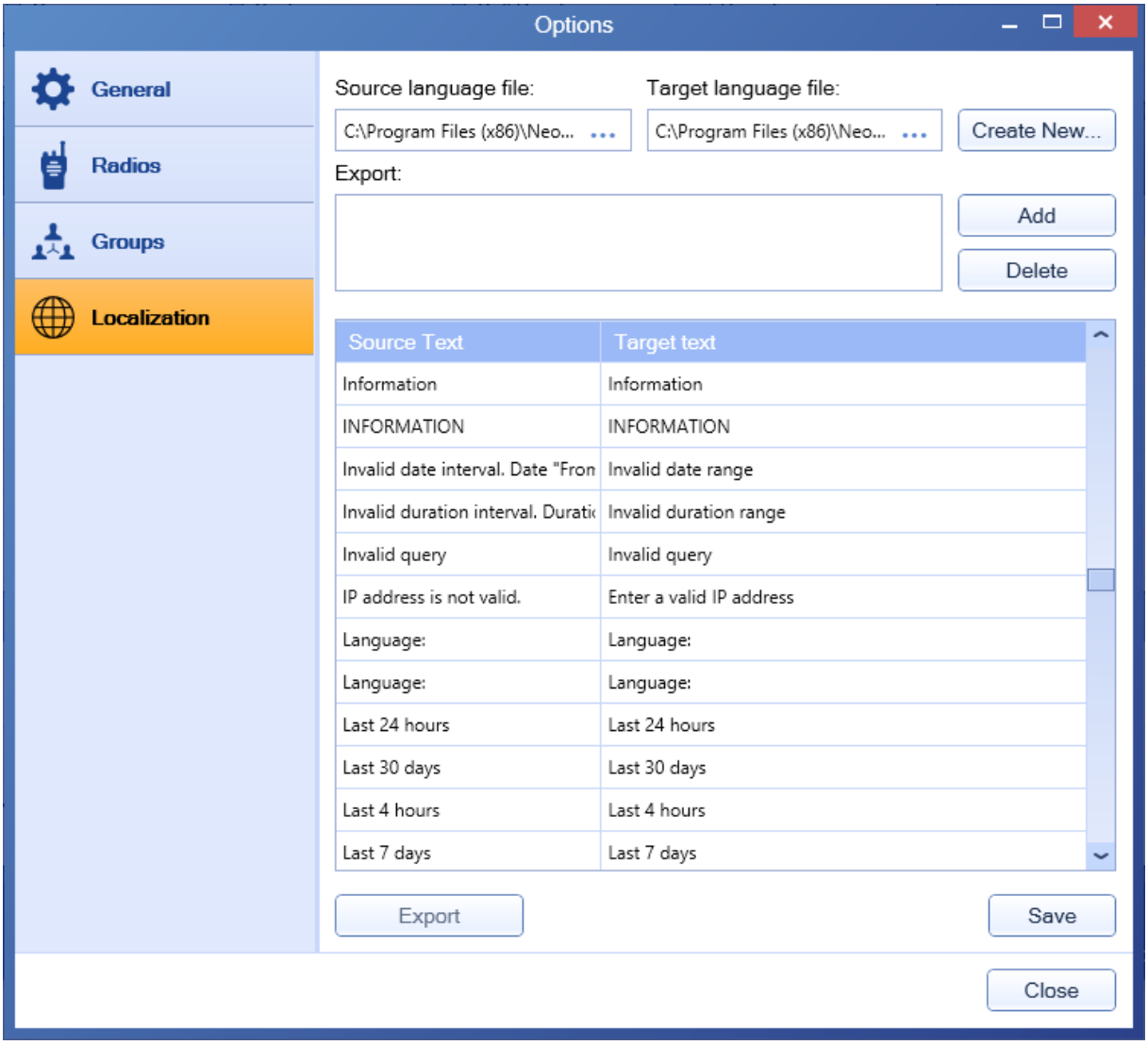


Figure 35: Localizing strings

6. To view the result, open the **Options** window and click **General** in the left pane. In the right pane, select the new language from the **Language** menu.

Note: If you edited the current locale rather than created a new language file, expand the **Language** menu and select any other locale. Then expand the menu again and select the just edited locale.

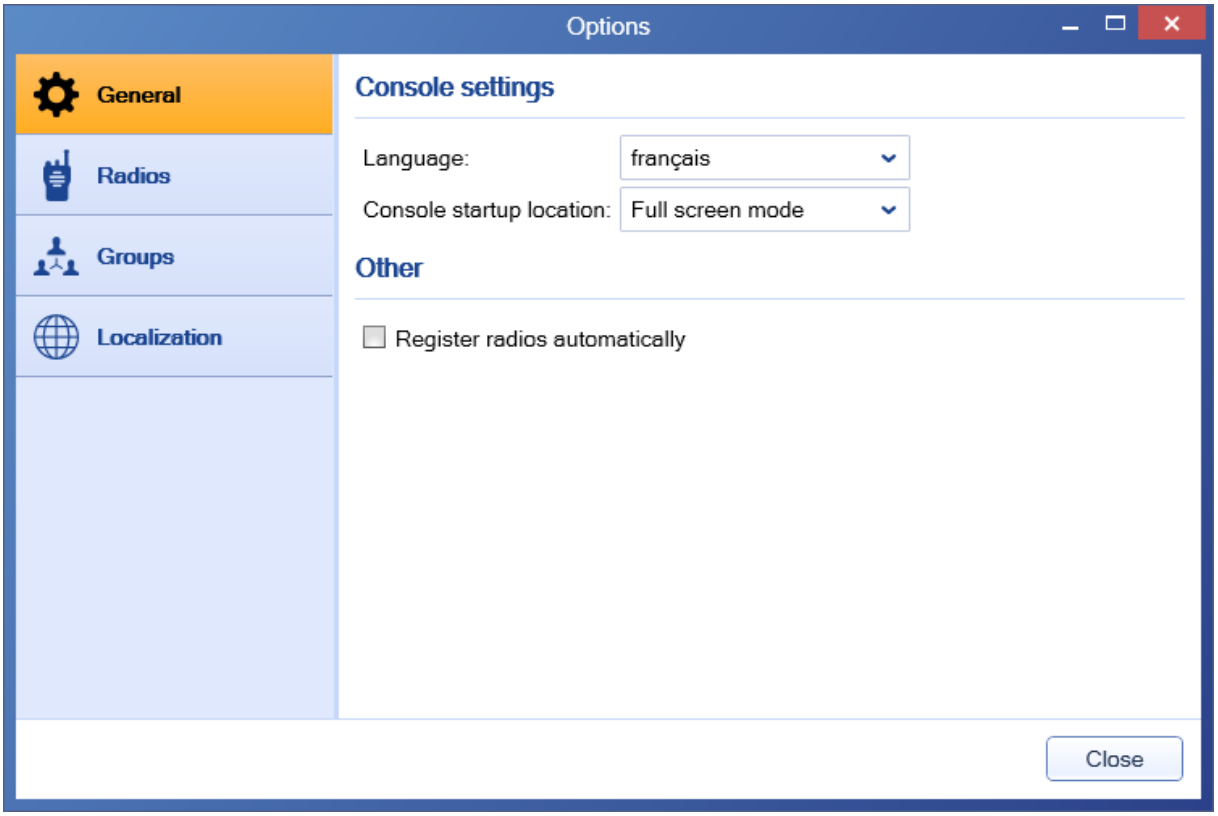


Figure 36: Applying the new language

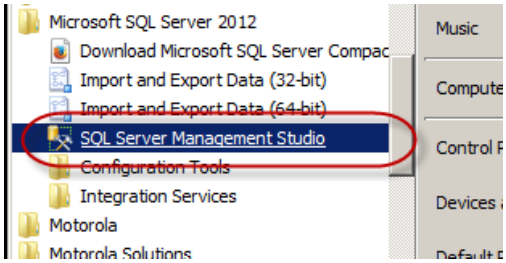
Click **Close**. The console now displays all labels and messages in the selected language.

7. To export the final version of the target language file to other folders, go back to **Localization**. Click **Add** and add the required folder paths to the **Export** list. To delete a folder path from the list, select it and click **Delete**. Click **Export**.

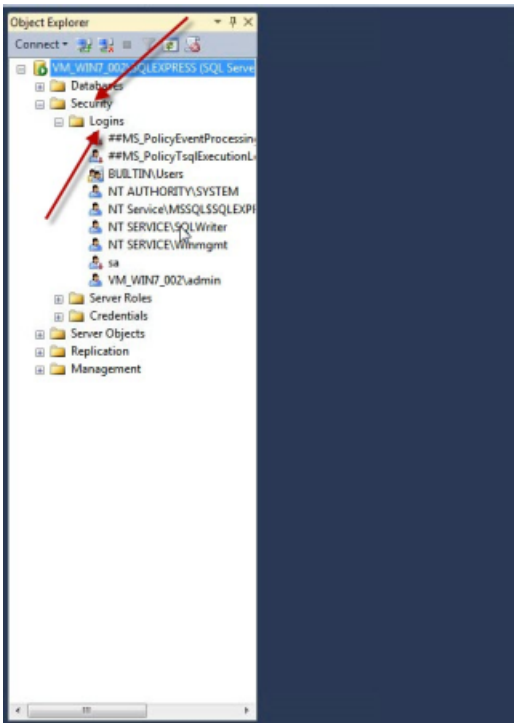
Appendix A: Granting Sysadmin Role to Local System in SQL Server

If you have already installed MS SQL 2012, you need to grant **sysadmin** role to **Local System** account in MS SQL Server 2012.

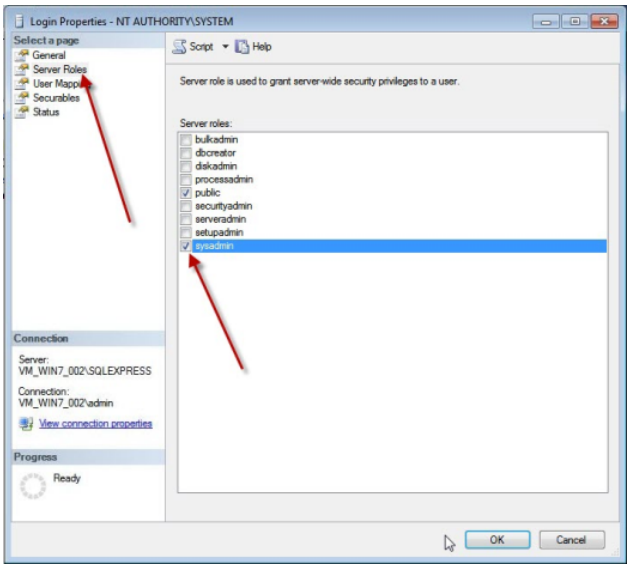
- Run SQL Server Management Studio from the Start menu.



- Connect to your database instance where TRBOnet database is created.
- Go to **Security** node and select **Logins**.



- Right-click **NT AUTHORITY\SYSTEM** login and choose **Properties**.
- In the **Login Properties** window, select **Server Roles** and select the **sysadmin** check box.



- Click **OK** to add **sysadmin** privileges to the selected user.